Arab Republic of Egypt
Ministry of Health and Population

Standards of Practice for Integrated Maternal and Child Health and Reproductive Health Services

First Edition
June 2005

ARAB REPUBLIC OF EGYPT
MINISTRY OF HEALTH AND POPULATION

STANDARDS OF PRACTICE
FOR
INTEGRATED MATERNAL AND CHILD HEALTH AND REPRODUCTIVE HEALTH SERVICES

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June 2005

The CATALYST Consortium is a global reproductive health activity initiated in September 2000 by the Office of Population and Reproductive Health, Bureau for Global Health, U.S. Agency for International Development (USAID). The Consortium is a partnership of five organizations: the Academy for Educational Development (AED), Centre for Development and Population Activities (CEDPA), Meridian Group International, Inc., Pathfinder International and PROFAMILIA/Colombia.

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Acknowledgements

The Ministry of Health and Population sectors for Family Planning/Reproductive Health and Primary Health Care currently focus on integration of services. As a result, and in recognition of the growing importance of family medicine, they have combined their strengths and wisdom and have produced a joint volume of clinical guidelines.

Integrated services lead to better fulfillment of client needs by providing an integrated package of FP, RH and MCH services through one provider, at one service delivery point. Integrated services also reach more clients by using all opportunities for service delivery, requiring fewer provider-client contacts. *Standards of Practice for Integrated Maternal and Child Health and Reproductive Health* aims to ensure provision of standardized quality health services and decrease the missed opportunities in service provision.

Standards of Practice for Integrated Maternal and Child Health and Reproductive Health provides all clinical guidelines needed for the provision of primary health care to women and children. As such it rests on many previous accomplishments. Many chapters were taken from *Basic Essential Obstetric Care: Protocols for Physicians, edition June 2004;* from the *Standards of Practice for Family Planning and Reproductive Health, edition June 2004; the National Guidelines for Infection Control, edition 2003; Child Growth and Development, Handicapping and Pediatric Emergencies for PHC Physicians, edition 2000;* and *the Integrated Management of Childhood Illness.* As such the development of this document is the direct result of many contributions from the Ministry of Health and Population, university staff, the World Health Organization, UNICEF, the Healthy Mother/Healthy Child project, the TAHSEEN Project, and USAID's technical assistance contractors John Snow, Inc. and the CATALYST consortium. The list of contributors is long and varied.

The text has been amended to improve the integration of services, while keeping the technical information intact.

It is with pride and satisfaction that we present this volume. It is our sincere hope that it will strengthen the knowledge and skills of physicians and will further improve the primary health care services offered to women and children.

Dr Esmat Mansour Dr Yahia El Hadidi

Introduction

This standards of practice describes the family planning (FP) and selected reproductive health (RH) and maternal and child health (MCH) performance practices to be provided within the Egyptian Health Program, as prepared by the Population and Family Planning Sector and the Integrated Care Department, Ministry of Health and Population (MOHP). This book is a combination of the *FP/RH Standards of Practice* and the *Basic Essential Obstetric Care: Protocols for Physicians* and is a strong step in the direction of integrated services.

It is aimed at service providers who contribute directly or indirectly to the provision of FP, RH and MCH services within the MOHP facilities. They must comply with these standards.

These standards of care define the minimum, measurable elements from which training, supervision, data collection and quality assurance activities can emanate. The goal in formulating these principles is to provide uniformity to the services delivered in the various clinics and service centers.

These guidelines of clinical performance are presented to general practitioners (the majority of MOHP care providers) with procedural directions for any needed referrals to specialists and specialized care facilities.

Carefully selected reproductive health issues have been added to the clinical procedures and guidelines. These issues were selected because they are common and can be managed at the health unit level.

Some services described in this document are not provided in MOHP clinics, for example, the hormone releasing IUD, vasectomy and spermicides. It is the expectation that this Standards of Practice will also be used in universities, clinics of non-governmental agencies, and in the private sector because the Ministry of Health and Population has a responsibility to all sectors of society. Thus, the range of services included in this Standards of Practice ensures the widest possible information available to all practitioners. This will benefit the men, women and children of Egypt, who deserve up-to-date medical care of the highest quality, irrespective of the place of service.

Standards of care have, like drugs and commodities, a shelf life. With the increasing knowledge and understanding worldwide, our definition of high quality of care is continually changing.

For this reason, the *Standards of Practice* must be reviewed by national and international experts on a regular basis to ensure their adherence to the current state of knowledge worldwide and their applicability in Egypt, its culture and its health system. This version of the *Standards of Practice* dates from July 2005. The Ministry of Health and Population (MOHP) is committed to updating it on a regular basis. The MOHP Family Planning and Population Sector Undersecretary and Integrated Care Undersecretary must approve any additions or changes to these principles.

Questions regarding the Standards should be put in writing and addressed to the Undersecretary of Population and Family Planning and the Undersecretary of Integrated Care, Ministry of Health and Population, Cairo, Egypt.

These Standards of Practice form Volume 1 of a 2-volume document. Volume 2 will describe the Standards of Management of Primary Health Care facilities, as prepared by the Population and Family Planning Sector and the Integrated Care Department, Ministry of Health and Population (MOHP).

MCH/RH Package of Essential Services

The MOHP has formulated the Basic Benefits package. The MCH/RH Package of Essential Services is a document defined by the MOHP, describing the activities and services that are to be implemented and delivered by clients, communities and health providers, to improve and assure the health of the Egyptian population.

These services are delivered at two levels within the health system. Each level is expected to provide good quality services for the men and women they serve.

Level 1: Primary Health Care

- Rural health unit
- MCH centers
- Mobile clinics
- Health office
- Rural health compound unit
- Family health unit/center
- (Integrated) Rural hospital
- Urban health center

Level 2: Secondary Health Care

- District hospital
- General hospital

Note: MCH/RH is a set of services that every doctor and nurse, irrespective of his or her work setting, should advocate.

Why is this package needed?

This package is needed to clarify to all concerned—clients, communities, providers, and managers—what they can expect and what is expected of them in the area of FP/RH/MCH. Clients are expected to take responsibility for their own health and welfare and can expect high quality FP/RH/MCH services to help them in this. Community leaders should be active in promoting FP/RH/MCH services. Providers are expected to be up to date in their knowledge and provide high quality services. They can expect certain support from their managers. Managers and supervisors are expected to provide training, supplies, commodities etc. to the providers and can in turn expect not only reports, but improving health in the population they serve.

Community and provider responsibilities

Table Intro. 1 Responsibilities of clients and their families

Before marriage	Promote delaying marriage until the women is 20 years old. Visit clinic for premarital counseling.
After marriage	Discuss desired family size and spacing of children with partner. Make informed decision on this desired family size and spacing of children.

	Request a clinic for FP services according to client needs.
ANC	Seek antenatal care early and regularly. Recognize danger signs. Prepare for birth. Adopt healthy self-care behaviors. Plan for emergencies. If possible, plan to deliver in a health facility. Plan and prepare for breastfeeding. Discuss FP use with a provider during last ANC visit and make an informed decision about FP use after delivery.
Labor and delivery	Utilize trained provider/attendant for delivery. Recognize danger signs. Seek timely appropriate care from trained provider for emergencies and complications. Plan for emergencies. Seek family planning/reproductive health counseling. Initiate breastfeeding immediately. Seek vitamin A supplementation. Postpartum and neonatal care (<28 days)
Postpartum and neonatal care (<28 days)	Breast-feed exclusively for six months. If needed, seek counseling for breastfeeding. Use a FP method immediately (e.g., exclusive breastfeeding, or another appropriate method). Seek postpartum care as per schedule. Be able to recognize danger signs in woman. Seek timely appropriate care for woman's emergencies and complications. Plan for emergencies. Seek newborn checkup as per schedule. Ask for tuberculosis immunization and for thyroid testing. Be able to recognize danger signs in the newborn. Seek timely, appropriate care for newborn's emergencies and complications. Adopt healthy newborn care behaviors (drying and warming).
Infant/child (2 days – 5 years)	Visit the clinic on the 40th day after delivery. Breastfeed exclusively for six months and switch to another FP method after six months. If not breastfeeding exclusively, use another FP method. Be able to recognize danger signs of illness of children. Receive immunization as per schedule. Provide appropriate home-care for diarrhea and fever for children. Provide appropriate nutrition for children. Provide appropriate supplementary food for children.
6 – 18 years	Discourage female genital cutting. Maintain healthy nutrition practices. Provide iron-rich foods. Encourage iron-enhancing foods and practices and avoid iron inhibitors. Discourage smoking.
All reproductive age groups	Do regular self-examination of breasts. Discourage female genital cutting. Use iodized salt.

Table Intro. 2 Community responsibilities

School age/before marriage	Promote delaying marriage until the woman is 20 years old. Support health education. Promote premarital counseling. Encourage families not to practice female genital cutting.
After marriage	Promote use of family planning services. Promote delaying first pregnancy until the woman is 20 years old. Promote a minimum of three years between pregnancies.
ANC	Promote a minimum of four ANC visits for pregnant women. Promote immediate and exclusive breastfeeding. Promote delivery in a health facility. Promote recognition of, and early care seeking for danger signs. Promote birth preparedness. Plan for emergencies. Promote use of family planning services.
Labor and delivery	Promote use of trained provider/attendant for delivery. Promote recognition of, and early care-seeking for emergences and complications. Plan for emergencies. Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Promote vitamin A supplementation after delivery. Promote use of an appropriate family planning method directly postpartum.
Postpartum and neonatal care (< 28 days)	Promote family planning/reproductive health services. Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Encourage postpartum visits and support visiting nurses/raedat rifiat in 40th day program. Promote 40th day program. Promote newborn checkup. Promote screening for congenital hypothyroidism. Promote recognition of, and early care seeking for emergencies and complications. Promote healthy newborn care behaviors (drying and warming).
Infant child (28 days – 5 years)	Promote exclusive breastfeeding for six months. Promote immunization as per schedule. Promote appropriate home-care for diarrhea and fever. Promote seeking immediate medical care during illness. Provide appropriate supplementary food and nutrition.
6-8 years	Promote healthy nutritional practices. Provide iron rich foods. Encourage iron-enhancing foods and discourage iron inhibitors. Promote seeking immediate medical care during illness. Explain dangers of smoking. Distribute weekly iron/folic acid. Provide health education activities to students.
All reproductive age groups	Discourage violence against women. Encourage families not to practice female genital cutting. Support outreach programs. Promote regular self-examination of breasts. Promote routine PAP smears for women over 40 years (if service available). Promote use of iodized salt.

Table Intro. 3 Primary Health Care

Before marriage	Promote delaying marriage until the woman is 20 years old. Provide premarital counseling. Encourage families not to practice female genital cutting. Provide health education and services, suitable and appropriate for youth and adolescents.
After marriage	Promote delaying pregnancy until the woman is 20 years old. Provide family planning and reproductive health counseling. Provide all FP methods if available (including removal of uncomplicated IUDs and Norplant and Implanon). Refer complicated family planning cases. Provide counseling and if needed referral for infertile couples.
ANC	Diagnose and manage mild complications of pregnancies. Screen for high risk pregnancies. Stabilize and refer high risk pregnancies to district hospital. Provide immunization (TT). Provide iron and folic acid supplementation. Provide nutritional status, blood pressure monitoring. Provide urine (glucose, protein) and blood analysis (Hb%, Rh factor). Provide breastfeeding counseling. Provide family planning counseling, including immediate postpartum IUD. Promote delivery in a health facility.
Labor and delivery	Provide normal delivery (if services available). Diagnose (stabilize if needed) and refer high risk labor and deliveries. Manage some complications of delivery according to protocol (except rural health unit). Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Provide iron, folic acid and vitamin A counseling and supplementation. Provide family planning counseling, including immediate postpartum IUD. Refer for or provide immediate postpartum IUD (if available).
Postpartum and neonatal care (<28 days)	Administer resuscitation of neonate. Refer neonatal complications. Identify birth injury and refer to hospital. Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Identify neonatal infection and refer to hospital. Refer neonatal tetanus cases to fever hospital. Promote and counsel for immediate and exclusive breastfeeding. Promote neonatal screening for congenital hypothyroidism at 3rd-7th day (at home or in clinic). Provide immunization (BCG), zero dose of polio. Promote and organize postpartum care checkups at home. Provide vitamin A and iron supplementation for all mothers. Provide FP counseling and all available services. Manage and refer all IMCI cases according to protocols.
Infant and Pre-School Child (28 days – 5 years)	Provide immunization as per schedule. Provide two doses of vitamin A at 9 and 18 months of life for infants. Provide 40th day integrated visit for postpartum checkup and newborn screening. Provide growth and development monitoring AT LEAST at 2, 4, 6, 9, 12, 18, 24, 36, 48 and 60 months.

	Provide nutritional education. Manage ARI, CDD (IMCI) according to protocols. Refer severe cases of ARI, CDD according to protocols.
6-18 years	Provide nutrition education. Provide periodic medical examinations. Provide treatment of sick child. Refer cases with severe illness. Supervise immunization for school children. Provide iron supplementation.
All reproductive age groups	Discourage violence against women. Encourage families not to practice female genital cutting. Promote regular self-examination of breasts. Promote routine PAP smears for women over 40 years. Screen, counsel and treat reproductive tract infections. Screen, counsel and refer for suspicion of cervical cancer (with speculum). Screen, counsel and refer for suspicion of breast cancer (clinical examination). Counsel and refer for post-menopausal problems. Provide immediate treatment and referral for postabortion care, according to protocols.

Table Intro. 4 Level 2 Secondary Health Care

Before marriage	Promote delaying marriage until the woman is 20 years old. Provide health education. Provide premarital counseling and, if indicated, examination. Encourage families not to practice female genital cutting. Provide health education and services, suitable and appropriate for youth and adolescents.
After marriage	Promote delaying pregnancy until the woman is 20 years old. Provide all available FP counseling and services, including removal of complicated and uncomplicated IUDs, Norplant and Implanon. Provide suitable FP methods for high risk clients such as tubal ligation, when medically indicated, and if available. Provide counseling and if needed treatment or referral for infertile couples.
ANC	Promote antenatal care services. Provide screening for high risk pregnancies. Diagnose and manage complications of pregnancies. Manage high risk pregnancies according to protocols. Provide nutritional status, blood pressure monitoring. Provide iron and folic acid supplementation. Provide urine and blood analysis (Hb%, Rh factor). Provide breastfeeding counseling. Provide family planning/reproductive health counseling, including immediate postpartum IUD. Promote delivery in a health facility.
Labor and delivery	Delivery with complications requiring surgery and/or blood transfusion. Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Provide family planning counseling, including immediate postpartum IUD. Provide immediate postpartum IUD (if available). Provide iron, folic acid and vitamin A counseling and supplementation.

Postpartum and neonatal care (< 28 days)	Provide resuscitation, if needed. Manage postpartum complications. Treat neonatal infection. Refer neonatal tetanus cases to fever hospital. Manage neonatal cases according to standard levels of care. District hospital: Refer severe neonatal cases to general or university hospital. General hospital: Manage severe neonatal complications (ventilation, blood gas analysis, exchange transfusion, very low birth weight <1500gms). Treat birth injury. Refer very severe neonatal cases to university hospital or special center. Refer to primary health care level for neonatal screening. Promote early initiation of breastfeeding. Promote exclusive breastfeeding for six months. Promote postpartum care visits to mother and child. Provide FP counseling and all available services.
Infant (28 days – 5 years)	Refer to primary health care levels for 40th day integrated visit for postpartum checkup. Treat moderate malnutrition. Provide nutritional education. **District Hospital:** Manage ARI, CDD (IMCI) according to protocols. Refer severe cases of ARI, CDD according to protocols. **General hospital:** Manage ARI, CDD (IMCI) according to protocols. Manage cases in need of intensive care.
All reproductive age groups	Discourage violence against women. Encourage families not to practice female genital cutting. Promote regular self-examination of breasts. Promote and provide routine PAP smears for women over 40 years, if available. Screen and treat reproductive tract infections. Screen, counsel, diagnose and treat or refer for cervical cancer. Screen, counsel, diagnose and treat or refer for breast cancer. Provide counseling and treatment for post-menopausal problems. Provide hormone replacement therapy if and when indicated. Provide postabortion care services.

1

Rationale and Tools for Integration of Services

Rationale and Tools for Integration of Services

Rationale for Integration

Integration of FP/RH and MCH services falls in line with health sector reforms recently announced by the Minister of Health. The fundamental philosophy behind reform at the primary level is the delivery of a basic benefits package through family medicine. The integration of existing vertical programs is in complete alignment with ministerial strategic directions. The latest review within the Ministry of Health of the D4 document and its adoption puts integration as one of the Ministry's reform strategies. This entails one basic benefits package that covers MCH and FP/RH services, with one set of clinical guidelines and one essential drug list. Based upon that package an integrated system can take shape.

Integration should be seen as an opportunity to strengthen existing FP/RH and MCH services. Given the potential range of services that could be included through an integration of FP/RH and MCH, the most probable result would be high quality and locally responsive reproductive services that empower clients to fulfill their reproductive health goals in a healthy manner. To this end, the most important rationale for integration is that integrated services better meet the clients' needs.

From a client's perspective, an integrated FP/RH and MCH service delivery system would simplify the care. They would be at a disadvantage if only provided with antenatal and delivery care without comprehensive information on family planning or the signs and symptoms of reproductive health problems, or only served with family planning methods without being asked about the children's vaccination status. Through the integration of FP/RH and MCH services, it is expected that clients satisfy more of their reproductive and child health needs, with fewer visits. Therefore, the most fundamental reason for integrated FP/RH and MCH services is the likelihood that clients will more readily and more comprehensively meet their reproductive and child health needs.

Tools for Integration

The *Woman's Health Card* is an important tool for providers to record all aspects of FP/RH/MCH services. It helps the providers recognize the client's needs and helps the client keep a permanent record of her reproductive health history. All Primary Health Care providers are required to fill out the card at the appropriate times.

To improve the integration of services, a second important tool is a Scripted Conversation – a conversation that takes places between one staff member and every client that comes into the clinic looking for services. The aim of this conversation is to identify with the client not only what services she is looking for at that moment but also what other services offered by the clinic that she might benefit from.

Each clinic will assign one staff member who will perform this duty every day. Social workers, nurses, and outreach workers are all capable of doing this work.

The conversation needs to follow a strict pattern, a script. This script was designed to capture, in the minimum amount of time, as wide a scope of services possible. It is important to follow the script closely, so as not to miss any opportunities for services.

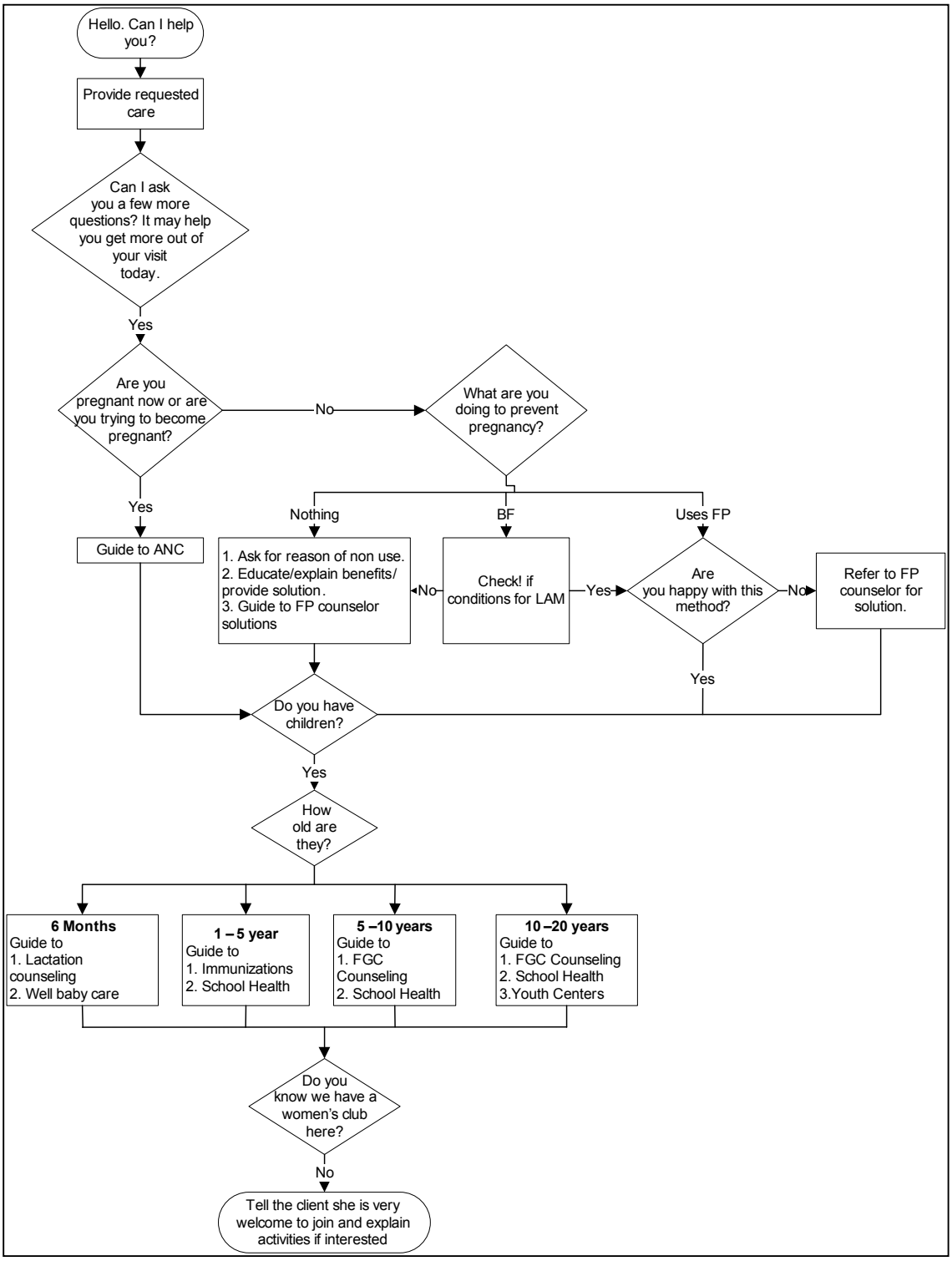


Figure 1.1 Scripted conversation

2

Information, Education and Counseling

Information, Education and Counseling

Counseling

Counseling is the face-to-face, personal communication in which one person helps another to make decisions and then to act on them.

Good counseling has two major elements:

- Mutual trust is established between client and provider. The provider shows respect for the client and identifies and addresses her/his concerns, doubts and fears regarding the use of contraceptive methods.
- The client and service provider give and receive relevant, accurate and complete information that enables the client to make healthy decisions.

Interpersonal Communication

Interpersonal communication is the face-to-face process of transmitting information and understanding between two or more people. Face-to-face communication takes place in two forms, verbal and nonverbal, and is both conscious and unconscious, intentional and unintentional.

Verbal communication

- Refers to words and their meaning.
- Begins and ends with what we say.
- Is largely conscious and controlled by the individual speaking.

Nonverbal communication

- Refers to actions, gestures, behaviors, and facial expressions which express how we feel.
- Is complex and largely unconscious.
- Often reveals to the observant the real feelings or message being conveyed.

Body posture, eye contact, physical appearance, as well as the use of space (or desks and chairs), and too much time spent waiting in a doctor's office can all communicate a message nonverbally.

Nonverbal communication can involve all our senses, while verbal communication is restricted to hearing. Nonverbal communication is especially important because it communicates to clients the level of interest, attention, warmth and understanding we feel towards them.

Positive nonverbal cues include:

- Leaning toward the client
- Smiling, without showing tension
- Facial expressions which show interest and concern
- Maintaining eye contact with the client; and,

- Encouraging supportive gestures such as nodding one's head

Negative nonverbal cues include:

- Not making or maintaining eye contact
- Glancing at one's watch obviously and more than once
- Frowning
- Fidgeting
- Sitting with the arms crossed
- Leaning away from the client

Generally, verbal and nonverbal communication work together to convey and reinforce a message. If the verbal and nonverbal messages do not match, the message believed is the one conveyed nonverbally.

Characteristics and Skills of an Effective Counselor

Counselor Characteristics

An effective counselor:

- Is accepting, respectful, non-judgmental and objective when dealing with clients.
- Is aware of her/his own values and biases and does not impose them on clients.
- Understands and is sensitive to cultural and psychological factors (such as family or community pressures) that may affect a client's decisions.
- Always maintains clients' privacy and confidentiality.

Counselor Skills

An effective counselor possesses strong technical knowledge and:

- Knows thoroughly all technical aspects of the services.
- Is prepared to answer questions on subjects such as myths, rumors, sexuality, STIs, reproductive and personal concerns.
- Is able to use visual aids and explain technical information in language that the client understands.
- Is able to recognize when to refer the client to a specialist or other provider.

An effective counselor possesses and is able to apply good interpersonal communication skills and counseling techniques:

- Relates/empathizes
- Listens actively
- Poses questions clearly, using both open- and close-ended questions
- Answers questions clearly and objectively
- Recognizes nonverbal cues and body language
- Interprets, paraphrases and summarizes client comments and concerns

- Offers praise and encouragement
- Explains points in language that the client understands and in culturally appropriate ways

General Approach to Counseling

- Counseling is a two-way communication process in which both client and service provider actively participate.
- Counseling is an ongoing process and must be part of every client-provider interaction in health care delivery.
- Counseling should take place in a private, quiet place where client and provider can hear each other, and with sufficient time to ensure that all necessary information, client's concerns and medical requirements are discussed and addressed.
- Confidentiality must be ensured, both in the process of counseling and the handling of client records.
- It is essential that counseling take place in a non-judgmental, accepting and caring atmosphere.
- The client should be able to understand the language the provider uses (e.g., local dialect, simple, culturally appropriate vocabulary, no highly technical medical terminology).
- Clinic staff must use good interpersonal communication skills, including the ability to question effectively, listen actively, summarize and paraphrase clients' comments or problems and adopt a non-judgmental, helpful manner.
- The client should not be overwhelmed with information. The most important messages should be discussed first and be brief, simple and specific. Repeating critical information is the most effective way to reinforce the message: repeat, repeat, repeat.
- Use audiovisual aids and contraceptive samples to help the client better understand the important messages. The flipcharts are designed to do this.
- Always verify that the client has understood what has been discussed. Have the client repeat back the most important messages or instructions.

Specific Approach for Counteracting Rumors and Misinformation

- When a client mentions a rumor, always listen politely. Don't laugh.
- Define what a rumor or misconception is.
- Find out where the rumor came from and talk with the people who started it or repeated it. Check whether there is some basis for the rumor.
- Explain the facts.
- Use strong scientific facts to counteract misinformation.
- Always tell the truth. Never try to hide side effects or problems that might occur.
- Clarify information with the use of demonstrations and visual aids.

- Reassure the client by examining her and telling her your findings.

Approach to Family Planning Counseling

Method-specific counseling focuses on the chosen method and must include, and thoroughly discuss, the following information:

- What the method consists of
- How the method works
- How effective the method is
- How to use the method
- Advantages
- Disadvantages
- Side effects
- Possible serious side effects
- Follow-up

Approach to Counseling Men

Some sexuality and reproductive health services and programs are oriented towards women, leaving men feeling excluded. This can result in their distrust of the clinic and a lack of support for their wives when making reproductive health decision.

The challenge is to meet the needs of men without disempowering women.

Men have special counseling needs and should receive special attention from providers to motivate them to make responsible choices regarding reproductive health practices. Just as women often prefer to talk to other women about family planning, reproductive health and sexual issues, men often prefer to talk to other men about these issues.

Men's Special Counseling Needs

- Men need to be encouraged to support women's use of family planning methods.
- It is important to talk to YOUNG MEN (14-18 years) about responsible and safe sex before they become sexually active.
- Men often have less information or are more likely to be misinformed about family planning methods, male and female anatomy and reproductive functions because they tend to talk less about these issues than women.
- Men often have serious misconceptions and concerns that family planning methods will negatively impact their marital relations.
- Men are often concerned that women will become promiscuous if they use family planning.
- Many men do not know how to use condoms correctly. Providers should always demonstrate correct condom use, using a model, when possible.

- Men are often not comfortable going to a health facility, especially if it primarily serves women. Providers should try to go to where men are to discuss family planning, whenever possible (e.g., work places, cafes, sporting events, youth clubs).
- Men need to be aware of women's needs for rest and nutrition in pregnancy.
- For any infertile couple, it is recommended that the husband has a semen analysis conducted as part of the basic examinations.

Approach to Counseling Youth

Psychological and Behavioral Concerns

Certain social relationships and pressures, along with concerns of self-perception, become very strong during adolescence. These, in turn, have significant influence on sexual decision making and reproductive health. They include:

Gender roles:

- Gender roles are masculine or feminine behaviors expressed according to cultural or social customs and norms.
- Although boys and girls worldwide are treated differently from birth onward, it is during adolescence when gender role differentiation intensifies.
- While experiences vary by culture, options, in general, expand for boys and contract for girls.
  - Boys achieve more autonomy, mobility, and power, whereas girls tend to get fewer of theses privileges and opportunities.
  - Importantly, boys' power relative to girls' translates into dominance in sexual decision making and expression, often leaving girls unable to fully assert their preferences and rights and to protect their health.

Peer relationships/peer pressure:

- Young people develop very closely relationships with their peers, conforming to language, dress, and customs. This helps them feel secure and gives them a sense of belonging to a large group.
- Given the significance of peer influence, this power can sway young people toward greater or lesser risk taking.
  - For example, research has shown that young people tend to conform in sexual behavior, including timing of sexual debut and use of contraceptives, to what they perceive their peers are modeling.
  - Peer pressure, combined with gender inequalities within a sexual relationship, can mean that males have undue power to dictate sexual decisions to females.

Relationships with Parents/Other Adults

- During adolescence, relationships with parents become more conflicted as the young person tests limits and moves toward greater independence.
- At the same time, parents have significant influence over, and responsibility for, youth children.
  - The impact of parental influence is confirmed by research, as is the influence of other caring adults in young peoples' lives. Such relationships tend to strengthen young people' resilience and ability to avoid risk-taking behavior.
  - When possible, providers can play an important role in encouraging parent/child communication.

Self-esteem

- Self-esteem is the ability to feel confidence in, and respect for oneself. It is a feeling of personal competence and self worth.
- While self-esteem involves feelings about oneself, it derives, to a great extent, from interactions with family, friends, and social circumstances throughout life.
- Self-esteem plays a key role in a young person's sense of how well s/he can deal with life's options and challenges.
- Young people's self-esteem can be challenged because of rapid physical and social changes and the development of one's own values and beliefs. Yet self-esteem is critically important at this stage in life.
- Specifically for reproductive health, self-esteem influences how young people make judgments about relationships, sex, and sexual responsibility.
- Adults can help young people strengthen their self-esteem by showing respect and by demonstrating confidence in young people' abilities.

Life Skills for Healthy Development

Young people need skills to:

- Help clarify their needs and rights
- Express themselves effectively
- Decide upon a course of action

Among the most important life skills are assertiveness and decision making.

Assertiveness

Demonstrating assertiveness does not mean imposing beliefs or views onto another person, but involves expressing beliefs, thoughts, and feelings in a direct, clear way at an appropriate moment.

- To be assertive implies the ability to say "yes" or "no" depending on what one wants.
  - For example:
    - "I don't want to have sex"
    - "Yes, I want to have sex if we use a condom"

- Being able to express what is truly felt or desired can have important consequences for youth reproductive health. Being clear and assertive can help:
  - Avoid guilt and increase self-respect.
  - Resist peer pressure to engage in sex, drug use, etc.
  - Effectively negotiate safe sex to prevent unwanted pregnancy and STIs including HIV.
  - Resist unwanted sexual overtures from adults.
  - Identify and obtain needed services for pregnancy prevention, prenatal and postpartum care, and STI/HIV diagnosis, counseling, and treatment.

Decision making

- Decision making involves an array of conclusions and actions to achieve intended results.
- Young people must make decisions frequently, ranging from simple (and marginally consequential) to major (and very consequential) decisions, such as:
  - What shall I wear today?
  - Should I have sexual relations?
- Depending on the culture the potential to make decisions varies, as does the young person's sense of his/her ability to make decisions.
  - Some cultures and social policies define in detail what is expected youth behavior, such as appropriate dating behavior. This limits options for decision making.

Youth's Special Counseling Needs

Feelings of the youth

Understanding the realities and mind-set of the youth client will foster better communication and responsiveness to his/her needs.

When a youth is face-to-face with a provider (or an adult staff member) s/he may feel:

- Shy about being in a clinic (especially for RH) and about needing to discuss personal matters.
- Embarrassed that s/he is seeking health care.
- Worried that someone s/he knows might see him/her and tell the parents.
- Inadequate to describe what is concerning him/her and ill-informed about RH matters in general.
- Anxious that s/he has a serious condition that has significant consequences (e.g. STI, pregnancy).
- Intimidated by the medical facility and/or the many "authority figures" in the facility.
- Defensive about being the subject of the discussion or because s/he was referred against his/her will.
- Resistant to receiving help because of overall rebelliousness or other reasons fostering discomfort or fear.

Establishing trust with the youth

The youth is going through dramatic biological and psychological changes in general. Seeking health care may be challenging and difficult for him/her.

Each staff person who may interact with young people must understand these circumstances and feelings and must be prepared to assist in a helpful, non-judgmental way.

The following are tips for good communication:

- Be genuinely open to a youth's question or need for information (ranging from "Where is the toilet?" to "Should I use birth control?").
- Do not be judgmental in words or in body language that suggests disapproval of him/her being at the clinic, or of his/her behavior, questions or needs.
- Understand that the young person has various feelings of discomfort and uncertainty. Be reassuring in responding to the youth, making him or her feel more comfortable and confident.
- If sensitive issues are being discussed, help ensure that conversations are not overheard.

Responding to the youth client

While all staff must be supportive and helpful to the youth, those who provide services have additional challenges. Important among these are fostering comfort and encouraging trust and rapport.

Fostering comfort

The more a youth client can be made comfortable, the more likely s/he will open up about his/her concerns, play a role in determining treatment and follow-up, and comply with medical decisions.

Three important aspects of comfort for the youth client are:

- Privacy: This characteristic relates primarily to the facility and requires a separate space where counseling and/or examination can take place without being seen or overheard and where the interaction is free from interruptions.
- Confidentiality: This characteristic relates to the provider and requires assurance to the client that all discussions and matters pertaining to the visit will not be transmitted to others.
- Respect: This characteristic involves the way in which the counselor/provider relates to the youth, requiring recognition of the client's humanity and dignity and right to be treated as capable of making good decisions.

Encouraging trust and rapport

Increasing the youth's trust in and rapport with the counselor/provider will facilitate discussion and enhance the likelihood that needs will be revealed and addressed.

Important conditions for trust and rapport include:

- Allowing sufficient time for the youth client to become comfortable enough to ask questions and express concerns.
- Showing an understanding of and empathy with the client's situation and concerns.

- Demonstrating sincerity and willingness to help.
- Exhibiting honesty and forthrightness, including an ability to admit when one does not know the answer.
- Reinforcing the decision to seek counseling and/or healthcare for felt concerns.
- Expressing non-judgmental views about the client's needs and concerns.
- Demonstrating responsibility for fulfilling her/his professional role in assisting the youth client.

Counseling the Youth Client for Behavior Change

Counseling is a person to person, two-way communication during which the counselor:

- Provides adequate information to help the youth make an informed decision.
- Helps the youth evaluate his/her feelings and opinions regarding the problem for which help was sought
- Acts as emotional support for the youth

Counseling is not:

- A method to provide solutions to the youth's problems
- A method for giving instructions
- The promotion of a life plan that has been successful for the counselor

The purpose of counseling the youth on reproductive health issues is to help the youth to:

- Exercise control over his/her life
- Make decisions using a rational model for decision making
- Cope with his/her existing situation

Achieving control over behavior, understanding oneself, anticipating consequences of actions, and making long-term plans are characteristics of maturity – one of the goals of youth counseling.

Fostering Good Communication

Several principles help assure effective counseling with young people:

- The service provider must accept responsibility for leading the analysis and reflection of the issues troubling the young person, encouraging her/him to explore and express feelings.
- The counselor avoids giving advice and recipes for magic formulas for solving problems. Rather, the counselor helps the youth to evaluate his/herself, to trust in him/herself and to take responsibility in her/his decisions.
- Counselors should consider young people as individuals, emphasizing their qualities and potential, respecting their rights as people and promoting the exercise of their capacity to think and make decisions.
- The counselor must accept young people and not judge them as good or bad. The counselor should help young people to examine their conduct and make the changes

they consider necessary. This will promote ownership of the decisions, greater self-confidence and self-control.

Several techniques help assure good communication with young people:

- Create a good, friendly first impression
- Start on time; don't make the client wait
- Smile and warmly greet the youth client
- Introduce yourself and what you do
- Ask her/his name and what s/he likes to be called

Establish rapport during the first session

- Face the youth, sitting in similar chairs
- Use the Young people name during the session
- Demonstrate a frank and honest willingness to understand and help
- Begin the session by allowing the youth to talk freely before asking directive questions.
- Congratulate the youth for seeking help.

Eliminate barriers to good communication

- Avoid judgmental responses of body or spoken language.
- Allow the youth to talk freely before asking directive questions.

Use "active listening" with the client

- Show your sincere interest and understanding and give your full attention to the client.
- Sit comfortably; avoid movements that might distract the youth.
- Put yourself in the place of the youth while s/he speaks.
- Assist the client to be more aware of the problem without being intrusive or taking away her/his control over the issue.
- Observe the tone of voice, words used, and body language expressed and reflect verbally to underscore and confirm observed feelings.
- Give the youth some time to think, ask questions, and speak. Be silent when necessary and follow the rhythm of the conversation.
- Periodically repeat what you've heard, confirming that both you and the youth have understood.
- Clarify terms that are not clear or need more interpretations.
- Summarize the most relevant information communicated by the youth, usually at the end of a topic.

Provide information simply

- Use an appropriate tone of voice.
- Speak in an understandable way, avoiding technical terms or difficult words.
- Understand and use where appropriate the terms/expressions young people use to talk about their bodies, dating, and sex.
- Use short sentences.
- Do not overload the youth with information.
- Provide information based on what the youth knows or has heard.
- Gently correct misconceptions.
- Use audiovisual materials to help the youth understand the information and to demonstrate information in more concrete terms.

Ask appropriate and effective questions

- Use a tone that shows interest, attention and friendliness.
- Begin sessions with easy questions, gradually moving up to more difficult questions.
- Try not to take notes except in a structured interview that has an established order for special cases.
- Ask a single question and wait for the response.
- Ask open-ended questions that permit varied responses and require thought. Allow for explanations of feelings or concern.
  - Example: “How can I help you?”, “What’s your family like?”
- Ask in-depth questions in response to a previous question and to solicit more information.
  - Example: “Can you explain that better?”
- Avoid biased questions that lead the client to respond in a predetermined way.
- Avoid questions that begin with the word “Why” since the youth may think you are incriminating him/her.

Ask the same question in different ways if you think the youth has not understood.

Recognize and take advantage of teachable moments

- Use a positive approach when discussing developmental change.
- Evaluate learning by asking the youth to describe a healthy RH behavior that s/he is practicing.
- Reinforce health messages from other settings.
- Provide printed or other materials that are developmentally and culturally appropriate.
- Provide practical advice, encouragement, and factual information.
- Don’t underestimate the potential usefulness or effectiveness of education and counseling.

Challenges in Counseling Youth

During the counseling session, there are two actors: the counselor and the youth. Just as the counselor's personal characteristics and skills can facilitate or hinder the process, so can the youth's behavior or mood.

The following are some situations that require handling:

- Silence: silence can be a sign of shyness or may signify anger or anxiety.
  - If it occurs at the beginning of the session, the provider can say, "I realize it's hard for you to talk. This often happens to people who come for the first time."
  - If s/he seems angry, the counselor can say, "Sometimes when someone comes to me against his/her will and doesn't want to be here, it is difficult to speak. Is that what is going on?"
  - If the client is shy, the provider can legitimize the feeling by saying, "I'd feel the same way in your place. I understand that its not easy to talk to a person you've just met."
  - If the youth has difficulty expressing his/her feelings or ideas, the counselor can use some brochures or posters to encourage discussion or refer to a story or anecdote so the youth can talk about others rather than her/himself.
  - If the youth cannot or will not talk, the counselor should propose another meeting.
- Crying: the counselor should try to evaluate what provoked the tears and assess if it makes sense in the given situation.
  - If the client is trying to relieve tension, the counselor can give the youth permission to express her/his feelings by saying, "Its okay to cry since it's the normal thing to do when you're sad."
  - If the client is using crying as manipulation, the counselor can say, "Although I'm sorry you feel sad, it's good to express your feelings."
  - If the crying is consistent with the situation, the counselor should allow her/him to freely express emotions and not to try to stop the feeling or belittle its importance.
- Threat of suicide: all the suicide threats or attempts must be taken seriously. It is essential to determine if attempts were made in the past, if s/he is really considering suicide, and the reasons for doing so – or if its something said without thinking.
  - It is best to refer the youth to a psychiatrist and accompany her/him to the appointment.
- Refusal of help: the counselor should discreetly try to find out why the youth feels this way.
  - If the client has been sent against her/his will, the counselor can say, "I understand how you feel. I'm not sure I can help you, but maybe we could talk for a minute and see what happens."
- Need to talk: challenges in counseling may also include a situation where the client is very vocal and wants an outlet to express other concerns that may not be directly related to the immediate counseling need as perceived by the service provider.
  - Give the client the opportunity to express her/his needs and concerns. If you cannot help the client, show that you are listening to the concerns that s/he is

trying to express. When possible, direct the client to someone who can help with the problem.

- The counselor can say, "I can see that you are very concerned about this problem. I wish I could do something to help you. Have you discussed this with ……"
- If you cannot help the client or direct him/her to someone who can provide assistance, then demonstrate care and concern about the client's problem. However, be clear when you cannot help with the problem.

Communicating and counseling about sexuality

Communicating and counseling with young people about sexuality can be challenging, because it is a sensitive topic about which young people often feel emotional, defensive, and insecure.

Good communication and counseling about sexuality requires:

- Considering the person's age and sexual experience.
- Demonstrating patience and understanding of the difficulty young people have in talking about sex.
- Assuring privacy and confidentiality.
- Respecting the person and her/his feelings, choices and decisions.
- Ensuring a comfortable level for the person to ask questions and communicate concerns and needs.
- Responding to expressed needs for information in understandable and honest ways.
- Exploring feels as well as facts.
- Encouraging the person to identify possible alternatives.
- Leading an analytical discussion of consequences, advantages, and disadvantages of options.
- Assisting the client to make an informed decision.
- Helping the person plan how to implement her/his choice.

These approaches will foster the making of good decisions by young people. When he or she makes a decision with appropriate information, s/he feels a sense of satisfaction and will feel capable of voluntarily modifying his/her behavior.

Newlyweds must often make significant decisions on the following sexual and/or reproductive health matters:

- How to discourage and prevent unwanted sexual advances.
- Whether or when to engage in sexual relations.
- How to prevent pregnancy and STI/HIV.
- Whether or when to conceive a child.
- What kind of antenatal care to seek and where to go.
- How to deal with sexual abuse and violence.

Most of these decisions can be worked through during counseling sessions that follow the described approaches. Sexual abuse and violence are more difficult and require additional help.

Counseling in Cases of Sexual Abuse and/or Violence

Sexual abuse is any sexual activity carried out against a person's will.

Often, sexual abuse is perpetrated by an adult, whether by deceit, blackmail, or force, against a child or someone not mentally or physically mature enough to understand or prevent what is happening. Sexual abuse has a significant impact on a youth's health, mental state and life in general. It can cause serious future sexual and reproductive health problems.

If violence is associated with the abuse, even more severe physical and emotional problems can result. A qualified, multi-disciplined staff should deal with these cases.

The objectives of the counseling session addressing sexual abuse are:

- Provide psychological and emotional support.
- Be understanding but not pitying.
- Help the alleviate feelings of guilt.
- Explore feelings of guilt.
- Tell the youth s/he is not responsible for what happened.
- Help the youth recover her/his self-esteem.
  - To regain self confidence
  - To trust others.
- Counteract anxiety or depression.
- Refer her/him to a specialist.
  - Explain why it is necessary to do so.
  - If possible, accompany the youth to the referral appointment.

3

Reproductive Health Checkup

Reproductive Health Checkup

Client Flow and Recordkeeping

The following client flow outlines are meant to assist in the provision of services according to designed standards. In the MOHP Primary Health Care clinic, the assumption is that the physician plays the clinical role while the primary role of the nurse is client education. The roles of the physician and nurse overlap in such tasks as family planning, antenatal care, reproductive health counseling and infection prevention. These functions clearly require a "team" approach to provision of service. The third member of this family planning team is the client who is to be viewed as the leader. Client education and counseling is one of the interactive activities that training, service delivery and supervision activities will emphasize.

Visits are divided into two types: initial visit and return visit. The flow charts, which follow, may help in visualizing client flow and assist in personnel management.

Initial Visit for FP/RH

1. Follow the "GATHER" steps to ensure that all steps of clients' information, education and counseling are achieved (see page 56).
2. Fill out necessary forms:
   a. Administrative forms
   b. Clinical forms:
      i. Client Medical Record
      ii. Client Identification Card
      iii. Client Registration Log
3. Obtain general medical, family planning, reproductive, and family history.
4. Perform physical examination (physical assessment).
5. Order laboratory investigations as necessary.
6. Discuss the written informed consent (whenever needed).
7. Provide the necessary information and services:
   a. Discuss preventive measures.
   b. Provide the desired service.
   c. Attend to medical problems (if any):
      i. Clinical management of the problem OR
      ii. Referral
8. Complete medical records.
9. Fill in the Woman's Health Card
10. Ensure that client pays the necessary fees and manage other administrative requirements.
11. Follow-up appointments must be set during the first visit.

Return Visit for FP/RH

Routine

1. Nurse greets client.
2. Client presents identification card with record number.
3. Nurse obtains medical record.
4. Nurse updates basic demographic/social or medical data.
5. Nurse asks if client has any questions or problems.
   a. General health
   b. Reproductive health
   c. Contraceptive or family planning needs
   d. Maternal/child health
6. If client has questions or problems, nurse refers her to physician for examination, further action and/or lab tests.
7. If there are no questions or problems, nurse provides health education and/or service, e.g. re-supply of family planning or vaccination.
8. Nurse assures preventive health screening.
9. Nurse discusses and/or makes follow-up visit appointment.
10. Nurse completes medical record and fills in *Woman's Health Card*.

Non-routine (non-scheduled)

1. Nurse greets client.
2. Client presents identification card with record number.
3. Nurse obtains medical record.
4. Nurse updates basic demographic/social or medical data.
5. Nurse asks if client has any questions or problems.
   a. General health
   b. Reproductive health
   c. Contraceptive or family planning needs
   d. Maternal/child health
6. Nurse refers client to physician for further care. Physician completes the remaining steps and attends to medical problems (see Figure 3.2 p.34).
7. If there are questions or problems, physician provides health education and/or service, e.g. re-supply of family planning or vaccination.
8. Physician conducts preventive health screening.
9. Physician discusses and/or makes follow-up visit appointment and fills in *Woman's Health Card*.

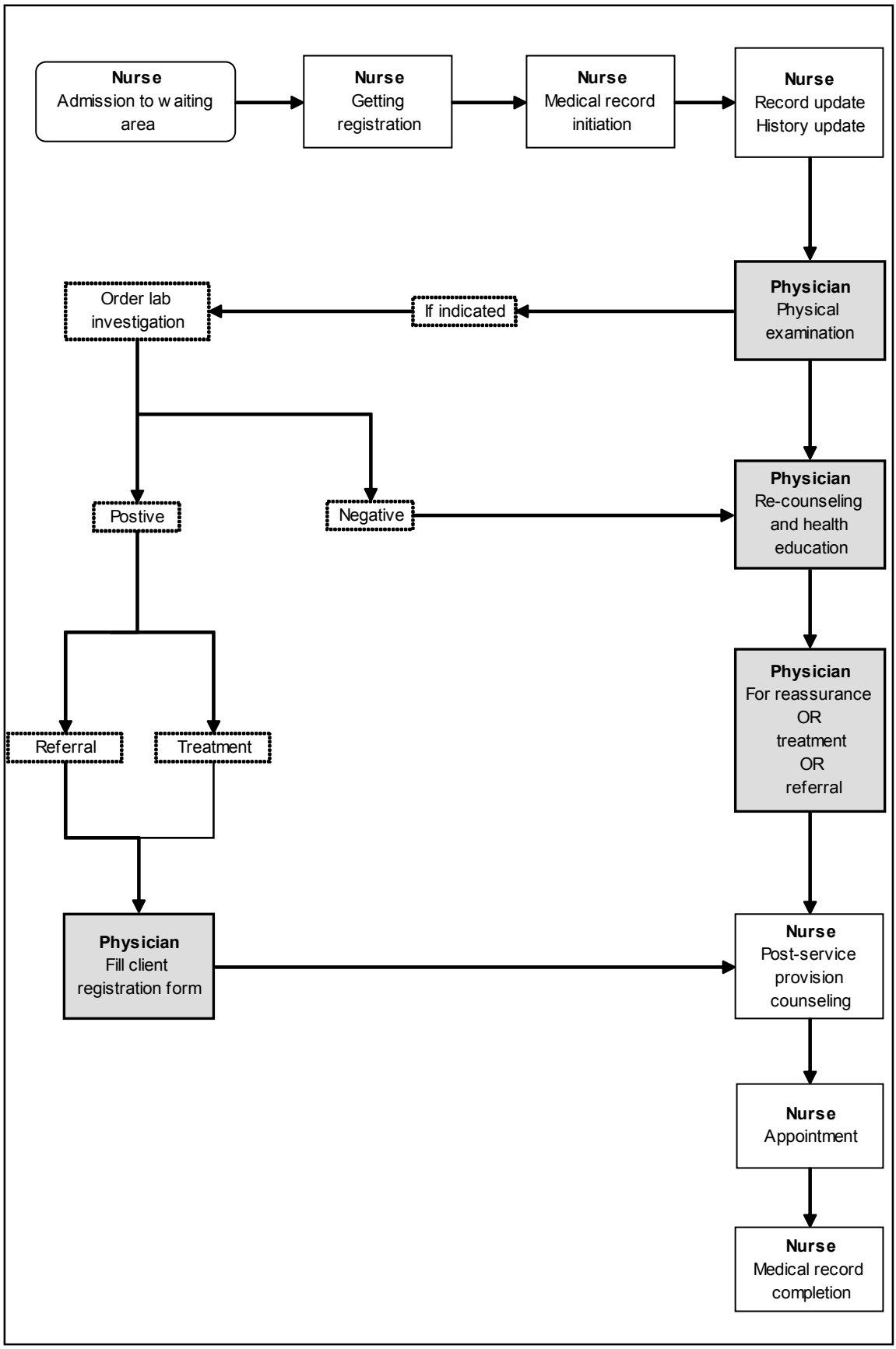


Figure 3.1 Reproductive health client's flowchart: new client

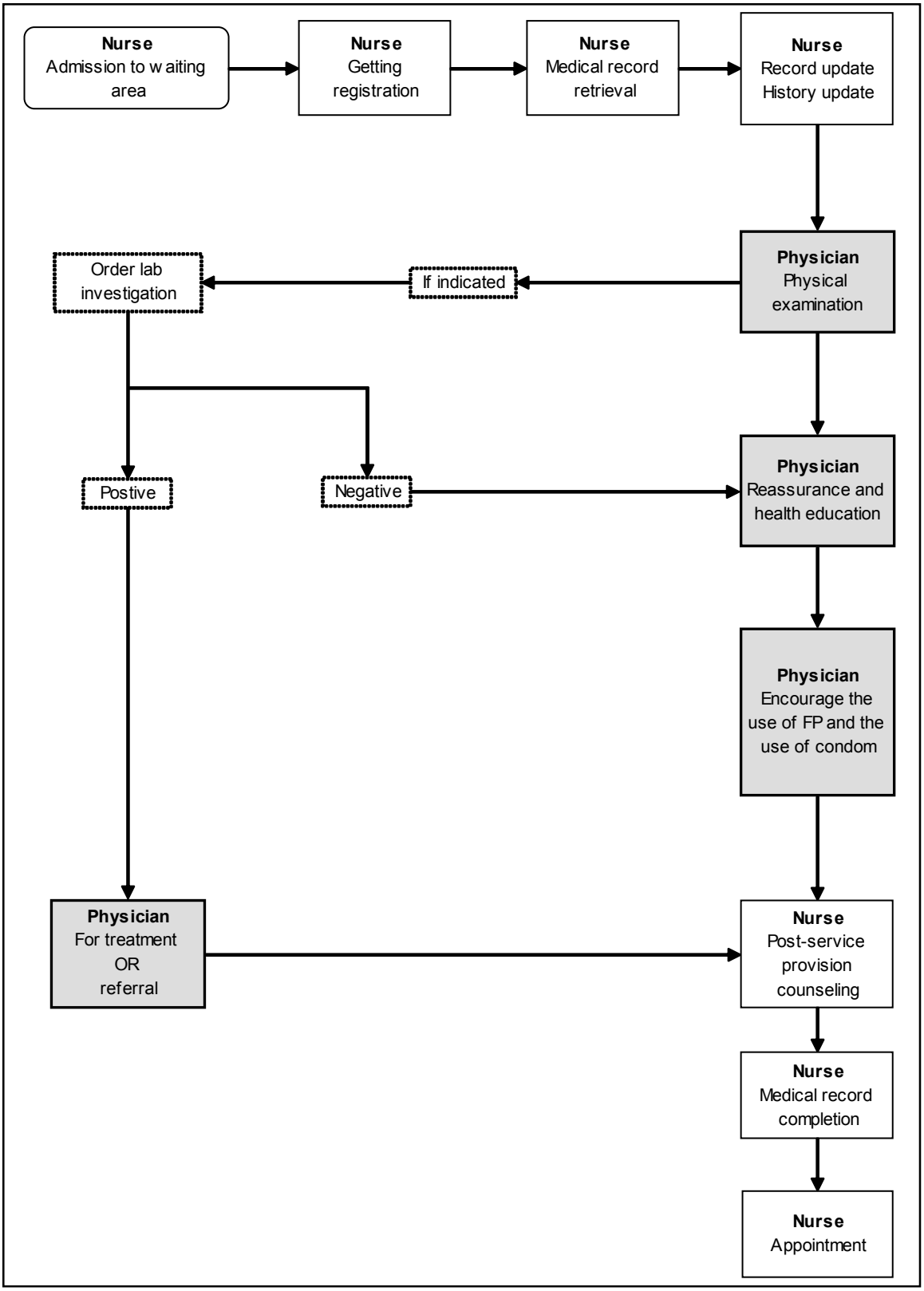


Figure 3.2 Reproductive health clients flowchart: return client

Approach to Reproductive Health Checkup Clients

Reproductive health counseling depends on the client's age, RH status and complaint. It must include in detail the following information:

- Counseling to adolescents about changes in their body, nutrition and hygiene
- The risks or problems to which clients are vulnerable and the health and social impact of these conditions
- The necessary preventive measures
- The roles of husband and wife to achieve and sustain RH

Gender roles limit not only women, but men as well. Men have distinct reproductive health needs of their own. It is important that men have a place with a welcoming atmosphere to discuss sexual and reproductive health issues and receive services.

Men also play an important role in the health of women and children, often serving as gatekeepers to women's access to reproductive health services. Men's participation should seek to promote women's equality in RH decision making; to increase men's support of women's sexual and reproductive health and of children's well-being, and to meet the reproductive and sexual needs of men. Men need to have their perspectives included in program design, to feel welcome at clinics, to have a wider range of information and services available and to be portrayed positively.

Periodic Reproductive Health Checkup

All MOHP service provision staff must promote the periodic reproductive health medical checkup to all clients attending PHC facilities as a means of early diagnosis of serious diseases and conditions.

The periodic reproductive health medical checkup is to be conducted annually with all clients who agree to undergo the checkup.

Create a Medical Record for all Clients

The recordkeeping system should be organized in each MOHP facility for easy recording, handling, storage and retrieval of medical records for all clients seeking health services.

Note: Assure clients that all medical records will never be accessible to others and that their information will be private and confidential.

The following information obtained from history and examination comprises the essential components of the medical record.

History

Identifying information

- Date of visit
- Client number
- Client name

- Client address/telephone number (if applicable)

Demographic information

- Age
- Education
- Occupation
- Duration of marriage
- Consanguinity

General medical history

- History of medical diseases or operations (cardiovascular, hypertension, diabetes, jaundice, headaches, tuberculosis, use of anticonvulsants)
- History of previous gynecological diseases or operations
- History of urinary symptoms such as frequency of urination or dysuria
- History of smoking
- Obstetric history

Obstetric history

- Number of pregnancies
- Number of live births
- Number of still births
- Number of abortions
- Number of living children
- Age of youngest child
- Age of oldest child
- Date of last delivery or abortion

Menstrual history

- Regularity of cycle
- Duration and amount of menses
- Pain during menses (dysmenorrhea)
- Inter-menstrual discharge (amount, character, smell and associated itching)
- Date of last menstrual period

Family planning history

- Previous use of FP methods
- Current use of a FP method
- Duration of use
- Any side effects, complications or failures encountered during previous or current method use Risk Factors Assessment

Risk Factors Assessment

Assess risk factors for breast cancer

- Family history of breast cancer
- Smoking
- History of using hormones
- Menstruation after age of 55 or before age of 12
- Obesity
- Uterine cancer
- First pregnancy after age 30 or no pregnancies
- If risk factors are present, see Chapter 20

Assess risk factors for cervical malignancy

- Age at first marriage (younger than 16)
- History of sexually transmitted infections (STIs), particularly infection with the human papilloma virus and development of condylomata accuminata.
- Post-menopausal vaginal bleeding
- Smoking
- Multiple sexual partners or male sexual partner who has other partners (to be asked only in special circumstances: requires special skills)
- If risk are factors present, see Chapter 20.

Assess risk factors for reproductive tract infections

- Ask the female client about:
  - Delivery or miscarriage within past four weeks
  - Vaginal discharge
  - Itching or sores in or around vagina
  - Pain or burning when urinating
  - Lower abdominal pain
  - Multiple sexual partners or husband having multiple sexual partners (to be asked only in special circumstances: requires special skills)
  - If husband complains of symptoms
- Ask the male client about:
  - Swollen testicles or penis
  - Discharge from the urethra
  - Open sores anywhere in the genital area
  - Pain or burning during micturation

- Multiple sexual partners (to be asked only in special circumstances: requires special skills).
- Wife has had any recent discharge or has been treated for any genital or urinary problem

Note: Positive data should be registered and described in the medical record.

Medical Examination

Results of the medical examination should be recorded in detail.

- General examination
  - Temperature
  - Pulse
  - Blood pressure
  - Weight/height
  - Eye (pallor or jaundice)
  - Heart
  - Chest
  - Oedema in lower limbs
  - Varicose veins
  - Breast (and breast self-examination teaching)
- Abdominal examination
  - Distention
  - Enlarged liver or spleen
  - Masses
  - Hernia(s)
  - Scars
- Pelvic examination
  - Explain procedure, purpose and obtain consent.
  - Vulval inspection for evidence of circumcision, inflammation(s), cysts, papillomata, ulcers, masses, abnormal discharge and prolapse, milking urethra
  - Speculum examination
  - Bimanual examination to detect abnormal tenderness or masses in the uterus or adnexae
  - Speculum examination to detect abnormal discharge, cervical infection, erosion, or masses

Investigations

- In family planning services, no testing is required.

- Routine investigations to be performed in periodic RH checkup:
  - Wet vaginal smear for women with vaginal discharge
  - Urine examination
  - Full blood picture
- Investigations to be done when indicated or required (refer client to a specialist):
  - Pap smear
  - Mammography
  - Examination of the vaginal discharge by Gram stain if gonorrhea is suspected
  - VDRL if syphilis is suspected
  - ELISA for HIV/AIDS or hepatitis
  - Hormonal assay
  - Bone densitometry
  - Blood lipid profile
  - Blood sugar estimation

Counseling

- After examination and obtaining the results of investigations, reassure clients about normal results and inform them about any abnormal findings.
- Refer to a gynecologist if any abnormalities are suspected.
- Instruct client about:
  - Self-examination of the breasts
  - Importance of reporting any abnormal symptoms
  - Date for future checkup

Medical Record Completion

- Fill in medical records.
- Fill in Woman's Health Card.

4

Premarital Package

Premarital Package

Approach to the Premarital Couple

Premarital services can be a unique opportunity for partners to visit the service provider together or individually, depending on what the couple finds acceptable.

Since gender issues permeate all issues related to reproductive health, gender equality is crucial. To assist in improving reproductive health, the service provider should tell the couple that:

- Men and women are equal partners in reproduction and child rearing.
- Men and women are both entitled to receive proper information.
- Men's support of women's reproductive health will mean healthy children and happier families.
- Women's triple role in reproduction, production and community participation prevents them from visiting the doctor's clinic as regularly as required. Therefore, the husband's support is needed to share some of the domestic roles (such as child rearing) to enable women to have more time to follow up on their reproductive health.

Note: FGC and beating are both forms of violence. This issue should be discussed, referring to the psychological effects it has on girls' lives.

In general, family planning information is a gender issue for men because service providers tend to target women. It is important to try to make this information available to men.

Client Flow and Recordkeeping

Client flow and recordkeeping for premarital services are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Components of the Premarital Package

- The premarital package consists of:
  - Advocating the premarital package
  - Premarital counseling
  - Premarital history taking and examination
  - Premarital investigations
  - Premarital immunization
  - Registration and recordkeeping

Advocating the Premarital Package

- Tell the couple about:
  - The importance of premarital counseling and examination as a preventive measure

- The procedures of premarital assessment, emphasizing the confidentiality of information and the privacy of the examination
- The value of premarital counseling and examination in preventing:
  - Rh incompatibility
  - Hazards of German measles infection during pregnancy
  - STIs, including AIDS

Premarital Counseling

- Explain the basic RH/FP issues to the couple:
  - Anatomical facts concerning the male and female genital organs
  - Reproductive physiology (physiology of menstruation and pregnancy)
  - Family planning methods suitable for newly married couples
  - 3-5 years between children is the best spacing for mother and child health
  - The most common preventable disorders (e.g., Rh incompatibility and Down's syndrome)
- Help couples to discuss their thoughts and fears freely.
  - Discuss any concerns raised by the couple
- Provide information about the wedding night.
  - Reassure the couple and alleviate all worries and concerns.
  - Tell them that minimal pain results from defloration, and therefore does not need any precautions.
  - Tell them that minimal bleeding usually results from defloration.
  - Tell them defloration does not require use of force.
  - Inform the couple about the act of sexual intercourse, particularly the importance of foreplay.
  - Tell them lubricants can facilitate the first coitus.
  - Tell them narcotics (such as hashish) and alcohol have an adverse effect on sexual relations.

Premarital History Taking and Examination

- Take the couple's history.
  - Ask the couple about:
    - Consanguinity or any familial diseases
    - Medical diseases: diabetes, tuberculosis, hypertension, STIs, etc.
    - Previous operations: laparotomy, varicocele, hydrocele, hernia and mumps in men
    - Menstrual history: age of menarche, regularity, duration, heaviness of flow, dysmenorrhea, vaginal discharge and date of last menstruation

    - Immunization for Rubella
    - Family history of hereditary diseases
- Perform a general examination. Look for the following:
  - Signs that may indicate endocrine disturbances:
    - Very short stature: may indicate Turner's syndrome or pituitary dwarfism (this condition can be associated with menstrual troubles or infertility)
    - Very tall: may indicate Gigantism (this condition can be associated with menstrual disturbances or infertility)
    - Size of the breasts and condition of the nipples
    - Abnormal obesity, hirsuitism
  - Signs of general diseases:
    - Cachexia (TB – chronic renal illness, etc.)
    - Signs of anemia
    - Skin lesions
    - Heart disease
    - Diabetes
    - Hypertension
- Perform an abdominal examination.
  - Look for the following:
    - Distribution of pubic hair
    - Abdominal masses
    - Scars
- Inspect the external genital organs.
  - For the female, look for the following:
    - Genital ulcers (herpes, syphilitic ulcers, soft sore, granuloma inguinale, or lymphogranuloma venereum) or papillomata
    - The condition of the labia minorae and clitoris, evidence of FGC

Note: Vaginal examination is not to be conducted in virgins.

  - For the male, look for the following:
    - Genital ulcers (herpes, syphilitic ulcers, soft sore, granuloma inguinale or lymphogranuloma venereum)
    - Urethral discharge
    - Varicocele
    - Hypospadias or undescended testicles

Premarital Investigations

- Rh grouping:
  - If the woman is Rh negative and the man is Rh positive, explain to the couple that Anti D gamma globulin should be given during the seventh month of pregnancy followed by another dose after each labor or abortion.
  - Inform couple that the Rh negative female should never receive Rh-positive blood transfusion.
- Refer for other investigations (only if needed), such as:
  - VDRL for syphilis
  - ELISA for hepatitis or HIV
  - Semen analysis
  - Ultrasound and hormone analysis for female

Premarital Immunization

- Unless the woman has been vaccinated against Rubella, advise immunization against Rubella at least three months before marriage. This avoids any possible infection by Rubella during pregnancy with possible development of serious teratogenic effects and congenital malformations in the fetus.
- Advise couple to be vaccinated against Hepatitis.

Referral

Refer the couple to a specialist for preconception advice in case of high risk; for example, if there are medical disorders (e.g., Down syndrome or other syndromes) in the family history.

Recordkeeping

- Fill in the *Woman's Health Card*.
- Fill in the medical record.
- Fill in results of counseling, examination and investigations.

5

Contraceptive Services

Contraceptive Services

Introduction

Not all contraceptives methods described here are included in the national family planning program. The Ministry of Health and Population, however, hopes and expects these standards to be used in the NGO clinics and private sector clinics as well as in university clinics. These clinics may be offering these methods and may thus benefit from these standards.

The World Health Organization Medical Eligibility Criteria for Starting Contraceptive Methods

The World Health Organization classifies potential contraceptive users after screening them for a set of conditions. Each condition represents either an individual's characteristic (e.g., age, history of pregnancy) or a known pre-existing medical/pathological condition (e.g., diabetes, hypertension).

The conditions affecting eligibility for the use of each contraceptive method are classified in one of the following four categories:

- Category 1: A condition in which there is no restriction on the use of the contraceptive method.
- Category 2: A condition in which the advantages of using the method generally outweigh the theoretical or proven risks. The method can generally be used. Follow-up may be required.
- Category 3: A condition where the theoretical or proven risks usually outweigh the advantages of using the method. Use of the method is not usually recommended and requires careful clinical judgment and access to clinical services. For these women, the use of alternative methods should be taken into consideration. Only to be prescribed by specialists
- Category 4: A condition that presents an unacceptable health risk if the contraceptive method is used. The woman should not use the method under any circumstances.

Where a doctor is not available to make clinical judgment, the WHO four-category system can be simplified into a two-category system as follows:

- Category 1 and 2: Use the method
- Category 3 and 4: Do not use the method

Note: These categories have replaced the old classification into "indications," "relative contraindications" and "absolute contraindications."

Table 5.1 Contraceptive failure rates

Contraceptive	Failure Rate	
	Used Correctly and Consistently	**As Commonly Used**
COC	0.1%	6-8%
POP	0.5%	1%
DMPA	0.3%	0.3%
Once-a-month Combined Injectable	Less than 1%	Less than 1%
Norplant	0.1%	0.1%
Implanon	Almost 0%	Almost 0%
TCU-380A-IUD	0.6%	0.8%
IUS	Less than 1%	
Condoms	3%	14%
Diaphragm with Spermicide	6%	20%
Spermicide	6%	26%
LAM (first 6 months)	0.5%	2%
Voluntary Tubal Ligation	0.5%	2%
Abstinence	N/A	N/A
Coitus Interruptus	N/A	N/A
Fertility Awareness Methods	1-9%	20%
Vasectomy	0.1%	0.15%

Ensuring the Client is Not Pregnant

You can be reasonably sure that the woman is not pregnant if she has no symptoms or signs (see below) of pregnancy, and if any of the conditions below do apply:

- She has not had intercourse since last normal menses.
- She has been correctly and consistently using another reliable method.
- She is within the first seven days after onset of normal menses.
- She is within four weeks postpartum (for NON-lactating women).
- She is within the first seven days postabortion.
- She is fully breastfeeding, amenorrheic, and less than six months postpartum (using LAM).

History of Symptoms of Pregnancy

- Absent (or altered) menses
- Nausea (with or without vomiting)
- Fatigue (persistent)
- Breast tenderness (and breast enlargement)
- Increased frequency of urination

- Weight and mood changes
- Maternal perception of fetal movements (late symptom: at 16 to 20 weeks gestation)

Signs of Pregnancy

Physical examination is seldom necessary, except to rule out pregnancy of greater than six weeks when uterine enlargement begins to be noticeable. Later (around 18 weeks), the fetal heart beat can be heard with a stethoscope and fetal movements can be perceived by the examiner.

Laboratory

In certain settings, pregnancy tests are not very helpful or practical because highly sensitive tests (positive +/- 10 days after conception) are not usually affordable. However, in cases where the possibility of pregnancy is difficult to rule out, a highly sensitive pregnancy test may be helpful, if readily available and not too expensive, and if part of routine clinic practice.

CLIENT FLOW AND RECORDKEEPING

Initial Visit for FP/RH

1. Follow the "GATHER" steps to ensure that all steps of clients' information, education and counseling are achieved (see page 56).
2. Fill out necessary forms:
   a. Administrative forms
   b. Clinical forms:
      i. Client Medical Record
      ii. Client Identification Card
      iii. Client Registration Log
3. Obtain general medical, family planning, reproductive and family history.
4. Perform physical examination (physical assessment).
5. Order laboratory investigations as necessary.
6. Discuss the written informed consent (whenever needed).
7. Provide the necessary information and services:
   a. Discuss preventive measures.
   b. Provide the desired service.
   c. Attend to medical problems (if any).
      i. Clinical management of the problem OR
      ii. Referral
8. Complete medical records.

9. Fill in the Woman's Health Card
10. Ensure that client pays the necessary fees and manage other administrative requirements.

Return Visit for FP/RH

Routine

1. Nurse greets client.
2. Client presents identification card with record number.
3. Nurse obtains medical record.
4. Nurse updates basic demographic/social or medical data.
5. Nurse asks if client has any questions or problems:
   a. General health
   b. Reproductive health
   c. Contraceptive or family planning needs
   d. Maternal/child health
6. If client has questions or problems, nurse refers her to physician for examination, further action and/or lab tests.
7. If there are no questions or problems, nurse provides health education and/or service, e.g. re-supply of family planning or vaccination.
8. Nurse assures preventive health screening.
9. Nurse discusses and/or makes follow-up visit appointment.
10. Nurse completes medical record and *Woman's Health Card*.

Non-routine (Non-scheduled)

1. Nurse greets client.
2. Client presents identification card with record number.
3. Nurse obtains medical record.
4. Nurse updates basic demographic/social or medical data.
5. Nurse asks if client has any questions or problems.
   a. General health
   b. Reproductive health
   c. Contraceptive or family planning needs
   d. Maternal/child health
6. Nurse refers client to physician for further care. Physician completes the remaining steps and attends to medical problems (see Figure 5.2 p.54).
7. If there are questions or problems, physician provides health education and/or service, e.g., re-supply of family planning or vaccination.

8. Physician assures preventive health screening.
9. Physician discusses and/or makes follow-up visit appointment and fills in *Woman's Health Card*.

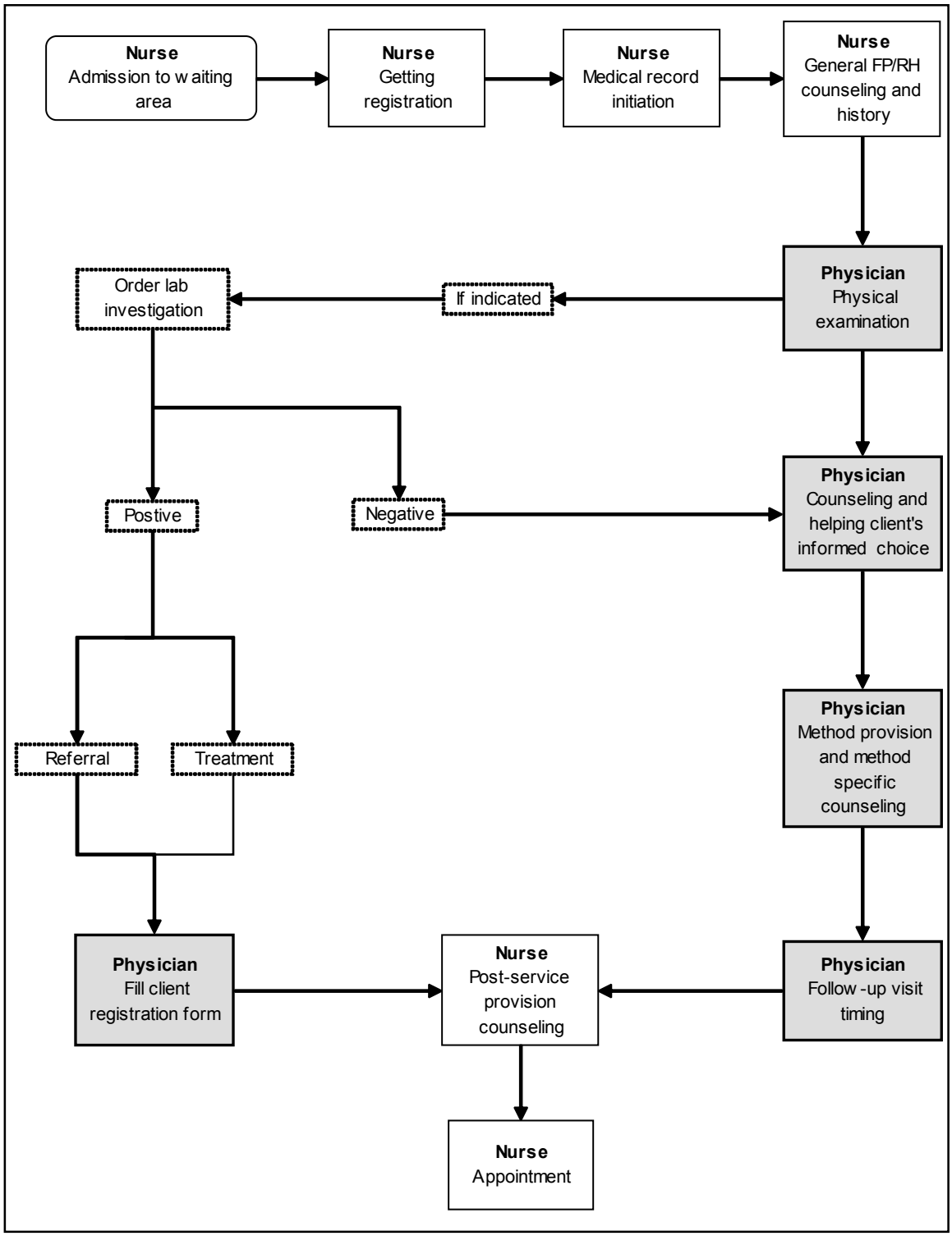


Figure 5.1 Family planning clients flowchart: new client

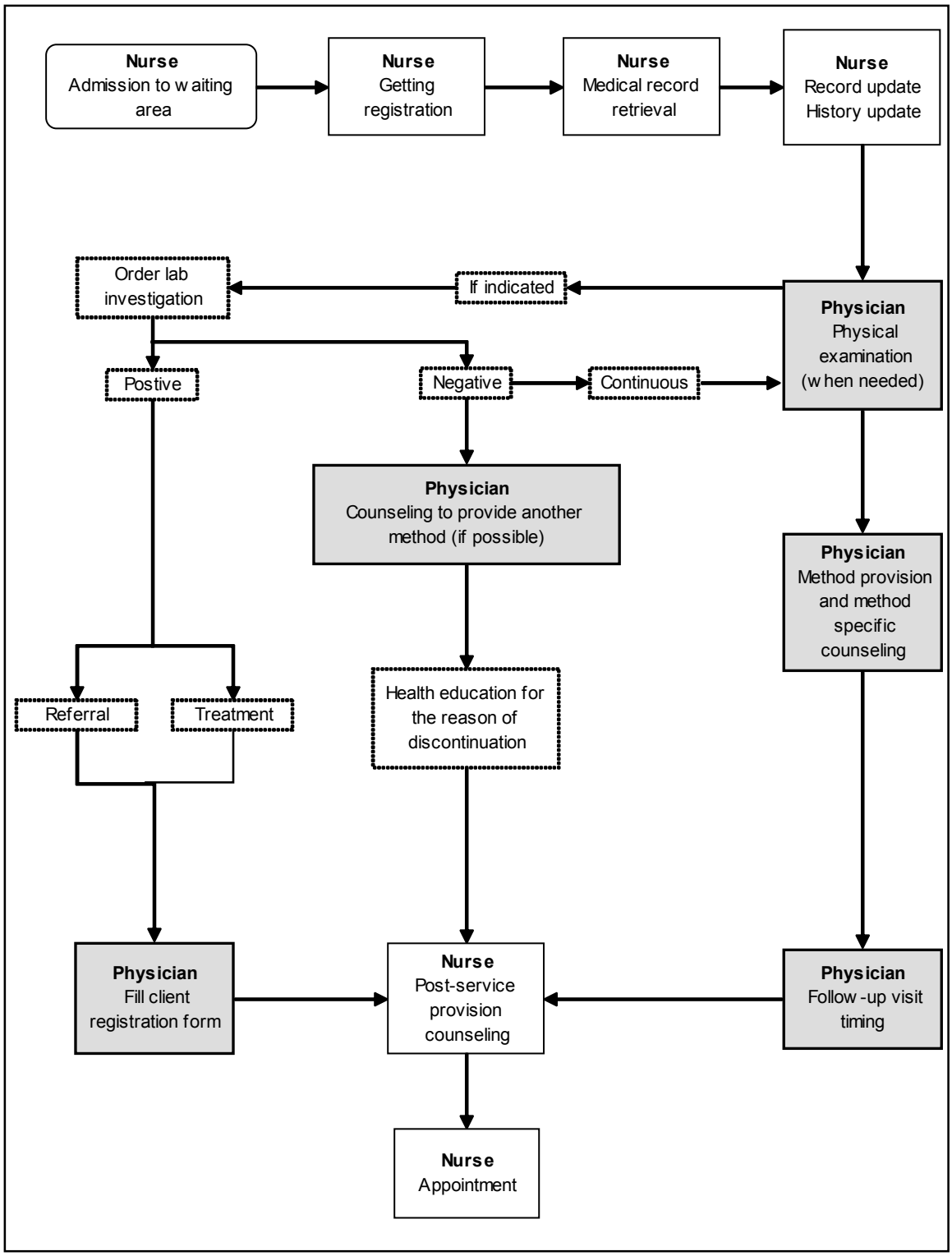


Figure 5.3 Family planning clients flowchart: return client

Medical Records

A system will be organized in each center for the recording, handling, storage and retrieval of medical records for all clients seeking contraceptives and reproductive health services.

The design for all medical record formats must follow internationally accepted standards for storage, handling and data retrieval. Follow-up records are recommended.

The information obtained from history and examination that comprises the essential components of the medical record is outlined in Chapter 3: Reproductive Health Checkup.

In addition, create a space and system to note contraceptive counseling information, and plan for method provision, including, but not limited to:

- Information provided during counseling
- Method of contraception desired by client
- Method of contraception provided
  - What contraceptive was provided?
  - How much was provided?
  - Instructions given
  - Follow-up visit recommended
- If no method provided, record plans
- Other reproductive health counseling
  - Reproductive and urinary tract infections
    - Preventing infertility
    - Preventing STIs
    - Early diagnosis and treatment of STIs
    - Diagnosis and treatment of urinary and bilharzia infections
  - Cervical cancer detection
    - How and where to obtain appropriate screening
    - Early diagnosis
  - Breast self-exam

Other Medical Problems

- Arrange referral as indicated.
  - Referral date
  - Referral reasons
  - Referral location and specialist (provide name if possible)
  - Referral results
- Treat and follow-up minor reproductive health problems.

- Treatment given
- Follow-up appointment
- Result of treatment
- Further action

In addition, it is important to fill out the *Woman's Health Card*.

General Counseling for Family Planning

The standards for counseling (see Chapter 2 Information, Education and Counseling) must be applied to all FP/RH clients.

The provider must perform the six elements of the information, education and counseling process, which form the mnemonic GATHER:

Greet the clients.
Ask them about themselves.
Tell clients about family planning methods.
Help clients choose a method.
Explain how to use the method.
Return for follow-up.

Figure 5.3 GATHER

These items are to be provided in an interactive manner, focusing on client concerns and needs.

1. Greet the client warmly and kindly.
   a. Have counseling session in an area of privacy and comfort.
   b. Introduce yourself to client.
   c. Address client by name.
   d. Use gentle, kind voice.
   e. Offer the client a seat (make them comfortable).
   f. Ask the client how s/he wishes to be helped.
   h. Explain what will happen during visit (i.e., describe examination and lab tests).
   i. Reassure the client that the visit and what is said within it is confidential.
   j. Listen to the client.
   k. Maintain eye contact.
   l. Counsel the client in a language that s/he can understand (use simple words).
2. Ask the client about family planning and reproductive health issues and gather information needed.
   a. Keep questions simple and brief.
   b. Maintain eye contact with the client during questions and answers.

c. Ask the client which method interests him/her.

d. Explain the benefits of spacing children 3-5 years apart.

e. Ask the client if s/he needs any of the additional RH preventive services, including RTI screening, cervical cancer screening and breast self-exam information as indicated.

f. Identify any rumors or misinformation about family planning methods or RH issues and provide correct information.

3. Tell client about family planning methods available and about other reproductive health services.

   a. The client must be informed about all approved methods of family planning (even though referral may be necessary to obtain them) including oral contraceptives, intrauterine devices (both interval and postpartum insertion), injectable contraceptives, sub dermal implants, spermicides, condoms, lactation amenorrhea method (LAM) and voluntary tubal ligation for medical reasons. Other methods would also be discussed if needed, such as abstinence, coitus interruptus (withdrawal) and fertility awareness (i.e., calendar method, basal body temperature charting, cervical mucus method and the sympto-thermal method).

   b. The discussion about each of the available methods must indicate in a summary form:

      i. What is the method?

      ii. How does it work?

      iii. How effective is it?

      iv. How is it used?

      v. Advantages

      vi. Disadvantages

      vii. Possible side effects

      viii. Reasons to come back to the clinic

      ix. Follow-up

      x. Cost

   c. Give the client information about issues of primary health promotion and disease prevention, including nutrition, health, and sexual behavior along with routine health screening.

4. Help client choose a family planning method.

   a. Obtain medical history using standard medical records (including family health, general health and reproductive health).

   b. The client must voluntarily make the choice and decision to accept and use a specific method of contraception.

   c. The provider will provide specific medical and method information to assist the clients in their choice of a method for contraception.

   d. Write in the medical record the method that the client has chosen.

5. Explain how to use the chosen family planning method. (This usually takes place after the method has been provided.)
    a. Explain to client how to use method.
    b. Check to be sure that client understands instructions.
    c. Explain possible side effects.
    d. Teach danger signs and what to do if they occur.
    e. Explain emergency contraception (when indicated).
6. Schedule return visit for follow-up.
    a. Clients must be informed where to go for:
        i. Emergency visits
        ii. Re-supply
        iii. Follow-up examination
        iv. Advice regarding side effects
        v. Changing the contraceptive method
    b. Clients must be instructed when to return for routine follow-up visit. They should also be assured that they are welcome to visit the clinic at any time if they have any questions, concerns, or complaints.
7. Follow-up

GENERAL MEDICAL ASSESSMENT

In addition to the Information, Education and Counseling services described in the previous chapter, a method will be established to medically assess clients seeking MCH/RH services.

The procedures for medical assessment will be applied to:

- All new FP clients and RH clients
- All FP clients annually
- All FP clients and RH clients presenting themselves with complaints, side effects, or complications
- Clients, 15 years or older, seeking medical advice

The detailed history and examination is described in Chapter 3 Reproductive Health Checkup.

ORAL CONTRACEPTIVES

Low-dose Combined Oral Contraceptive Pills

Counseling

What is the method?

Low-dose combined oral contraceptive pills (COCs) contain two types of hormones: estrogens and progestrogens.

How does it work?

COCs prevent pregnancy by preventing the release of an ovum from the ovary.

How effective is it?

When used correctly and consistently, COCs prevent pregnancy in more than 99% of users. If the woman misses pills or starts them too late, they are less effective.

How is it used?

The client should be shown a pill package while the following steps are explained.

One pill is taken every day in the morning or before sleep until the 21 pills in the pack are finished. A seven day break between packs is then taken and another pack is started on day seven.

The pills should be taken every day. If one tablet is missed, client should take the missed pill as soon as she remembers, and keep taking the pills as scheduled. No backup method is needed. If more than one pill is missed, client should do the following:

- If seven or more pills are left in the pack:
  - Take the missed pill as soon as she remembers.
  - Take the remaining pills as usual.
  - Use backup method (condom or spermicide) for seven days.
- If fewer than seven pills are left in the pack:
  - Take one pill now.
  - Take the remaining pills as usual.
  - Start another pack immediately after finishing the current pack, without a seven-day break.
  - Use a backup method (condom or spermicide) for seven days.

Advantages

- Safe and highly effective when taken correctly and consistently
- Can become pregnant soon after stopping pills

- No action needed at time of marital relations
- Reduces anemia by reducing blood loss during menstruation
- Reduces risk of ovarian and uterine cancer
- Can make menstruation more regular and less painful
- Reduces risk of cysts in ovaries and breasts

Disadvantages

- Must take it every day
- Cannot be used by breastfeeding women because it affects the quantity of breast milk
- Woman may have some nausea and light bleeding in the first few months

Possible side effects

- Nausea, dizziness, breast tenderness, headache
- Weight gain
- Menstrual changes
  - Spotting and breakthrough bleeding

Possible serious side effects

- Severe chest pain
- Severe headache
- Severe pain in the legs

Follow-up

- Advise the client to return to the clinic three months after the first prescription, for pill re-supply.
  - The pills may be dispensed after interview and assessment without an examination provided that there are no medical reasons for not using the method.
- Tell the client to return to the clinic immediately if she experiences:
  - Severe chest pain
  - Severe headache
  - Severe pain in the legs
- Encourage the client to return for an annual examination. More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Starting COCs

- All clients who desire to use COCs must be screened for conditions affecting eligibility.
- All women may use COCs, except those who fall in Category 4.
- Non-specialists should not prescribe COCs to Category 3 clients.

WHO category 4

- Women with the following conditions should not use COCs:
  - Pregnancy
  - Age 35 or higher and smoking more than 15 cigarettes per day
  - Severe hypertension (systolic >160 or diastolic >100)
  - Complicated diabetes
  - Current or past history of thromboembolic disorders, e.g., deep venous thrombosis (note: women with varicose veins or thrombophlebitis are eligible for COC use)
  - Known for thrombogenic mutations (e.g. Factor V Leiden, prothombin mutation, protein S, protein C and antithrombin deficiency)
  - Current or past history of ischemic heart diseases
  - Valvular heart diseases with complication
  - Prolonged immobilization, e.g., life in a wheelchair or in bed
  - Past thrombovascular accidents
  - Migraine with aura
  - Breast cancer
  - Active liver disease, cirrhosis, liver tumours
  - Epilepsy
  - Breastfeeding less than six weeks after childbirth

WHO category 3

Women having the following conditions may use COCs only after consideration of alternative methods and with careful medical evaluation and supervision:

- Age 35 or higher, light smoker (<15 cigarettes per day)
- Mild and moderate hypertension (systolic 140-160 or diastolic 90-100)
- Gallbladder disease
- Current treatment with Rifampin or anticonvulsant drugs (penytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)
- Breastfeeding women six weeks to six months after childbirth
- Non-breastfeeding women during the first three weeks after childbirth

Women without any one of the previously listed conditions (and who thus fall into WHO Category 2 and 1) may use COCs. Providers should emphasize the importance of follow-up visits.

Simple Checklist to Determine Eligibility

Family Health International developed checklists for providers to identify women who can safely initiate use of combined oral contraceptives. This is done through a series of simple yes/no questions with further guidance and directions based on client response.

The purpose of the questions is to verify whether a client has a known condition or disease that needs to be further evaluated before she can receive COCs or DMPA. The purpose is not for health care providers to make a diagnosis about conditions or diseases.

Please keep in mind that the questions on the checklists are meant to identify women who should be seen by a higher-level provider prior to initiating the method. The conditions listed are not necessarily contraindications for use of the method.

1. Is your menstrual period late and do you think you could be pregnant now?
2. Are you currently breastfeeding a baby under 6 months of age?
3. Do you smoke cigarettes and are you over 35 years of age?
4. Do you have repeated severe head pain, often on one side or pulsating causing nausea and made worse by light, noise, or moving about?
5. Do you have high blood pressure?
6. Have you ever had a stroke, blood clot in your legs or lungs, or heart attack?
7. Do you have diabetes (sugar in your blood)?
8. Do you have or have you had breast cancer?
9. Do you have a serious liver disease or jaundice (yellow skin or eyes)?
10. Do you regularly take any pills for tuberculosis (TB), fungal infections or seizures (fits)?

Clinical and Technical Procedures

- Using the approved medical record, take the client's history.
- During the initial visit, perform a physical examination to identify factors that would affect contraceptive eligibility, and to provide preventive health care (including RTI screening, diagnosis and treatment, genital cancer screening and breast self-exam). A woman should not, however, be refused COCs because a pelvic examination cannot be done. The physical examination will include, but not be limited to:
  - Blood pressure
  - Weight
  - Breast examination
  - Abdominal palpation
  - Pelvic examination
  - Lower limb examination; and
  - Laboratory procedures will be ordered according to desire/direction of clinician. No routine lab work is required.

Initiation

If the client is eligible to start COCs, the first cycle of COCs will be started on the first day of the next menstrual period. However, COCs can be started at any time during the menstrual cycle if the service provider is reasonably sure that the woman is not pregnant. In that case, if more than seven days have elapsed since menstrual bleeding started, she should avoid sex or

use condoms or spermicides for seven days. If the woman is not provided with COCs until menstruation occurs, she should be advised to use condom or spermicides in the meantime.

The next pack of the pills will be started after waiting for seven days after the previous pack of pills is finished.

- Menstruating women:
  - Can start during the first seven days of the menstrual cycle, preferably on the first day.
- Postpartum women:
  - If the woman is not lactating, start COCs three weeks after delivery.
  - If the woman is breastfeeding, start six months after delivery or after the end of lactation.
- Postabortion women:
  - Start the pills within the first seven days after abortion.
- Women using other pills:
  - Start the pills on the same day.
- Women using POP:
  - Finish cycle and start COCs on the first day of menstruation.
  - Provide the client with the COCs.
- Women using DMPA:
  - Start the pills on the same day.

Note: Pills can be dispensed to women who are currently not menstruating. Explain clearly to them when they should start taking the pills.

- COCs will be stopped if any of the WHO Medical Eligibility Criteria change or if the client:
  - Has onset of serious side effects
  - Desires to become pregnant
  - Is in no need of contraception
  - Wishes to change to another method

It is advisable to stop COCs before major surgery and during postoperative phase when prolonged bed rest is expected.

Follow-up Procedure

- The client is seen three months after the first visit.
- Clients should be counseled to return to the clinic (other than routine follow-up visits) if any of the following warning signs occur:
  - Severe chest pain
  - Severe headache

  - Severe pain in the legs (mainly calf muscles)
- Provision of pills during the second visit will require:
  - Asking the client if she has any problem or any questions
  - Instructing client to return immediately if any of the above symptoms occur
  - Instructing client not to stop pills without speaking with provider
  - Reviewing instructions with client
  - Instructing client on next visit
  - Documenting visit in medical record
- Annual visit/examination is to be encouraged.
  - For contraceptive updating and problem detection
  - For preventive and primary care services
  - It is not advisable to have more frequent visits
- Annual visit/examination is encouraged if the client prefers to take COCs from other service outlets. During the visit, the client should be assessed and should undergo routine preventive and primary health care measures.
- Document visit and findings in medical record and *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of COCs

Table 5.2 Management of clinical problems associated with the use of COCs

Problem: Client feels nauseated after initial use of the pills	
Advice	**Action**
Inform client that nausea usually will disappear after the first few cycles.	If nausea develops after client has been on pills for some time, exclude pregnancy (by a pregnancy test) or other medical causes of nausea.
Advise her to take the pill at bedtime. Advise her to take the pill with food or milk.	If the client wishes to continue using pills, she may wish to use Progestin-only pills.
If client vomits within one hour of taking the pill, instruct her to take an extra pill from another package of pills.	If the client wishes another method, assist in deciding which method.
Problem: Spotting and breakthrough bleeding	
Advice	**Action**
Reassure client that this is common and not serious and will decrease with time.	When indicated, examine the cervix by speculum to exclude a local cause for spotting (e.g., infection, cancer or polyp).
Question the client to determine if she has forgotten to take the pill daily.	Encourage client to continue using the pill if spotting occurs in the first months (bleeding tends to decrease after that period).
Ask client if she is using other drugs (e.g., Rifampin or phenytoin).	If client is spotting, advise her to continue daily pill intake.
If client has missed pills, advise her to take two pills daily as per missed pills.	If client is bleeding significantly, advise her to stop taking the pill and to restart after five to seven days. (She should use condoms and spermicides, abstinence, or coitus interruptus during these seven days if sexual intercourse takes place. If this is recurrent, consider using another method).
Inform client about the Al-Azhar fatwa that *estehada* or spotting and bleeding that occur apart from menstruation should not prevent her from performing her religious duties e.g., praying or fasting.	
Problem: Failure to experience withdrawal bleeding for seven days after the end of a pill cycle (amenorrhea)	
Advice	**Action**
Review pill-taking history.	See Advice
Exclude pregnancy. (Take history of sexual exposure, consistent use of pill, pregnancy symptoms, do examination and do pregnancy test if indicated).	
If pregnancy is excluded, advise client to start the pill cycle on time (seven days after the last pill was taken).	

If withdrawal bleeding does not occur again in the next cycle (amenorrhea continues), again exclude pregnancy.	
If not pregnant, advise client to start the pill on time.	
If amenorrhea (no withdrawal bleeding) persists for more than three months, refer client to a specialist for further evaluation.	

Problem: Menstruation becomes scanty and the color becomes darker after using the pills	
Advice	**Action**
Inform the client that this sometime happens and that it does not affect the client's general health and that the dark color is related to scanty blood flow through acidic vaginal secretions.	

Problem: Pill user complains of persistent headaches	
Advice	**Action**
If headache is mild suggest asprine or paracetamol and reassure.	Ascertain that the client's headache occurred after pill use initiation and was not felt before starting the pills.
	If headache is increasingly severe or with neurological symptoms, stop pill use and consider referral for evaluation. Help her choose a different method.
	If headache persists after stopping pill, refer client for appropriate medical evaluation.

Problem: Depression	
Advice	**Action**
If depression was not present before pill intake, counsel client that it may be caused by the pills (hormones in pills).	Counsel client and look for other causes of depression.
	Give Pyridoxine (e.g., Pyramine tablets).
	If depression does not improve, and client desires, stop the pills and help her choose another method.

Problem: Weight gain	
Advice	**Action**
Diminish caloric intake and increase activity.	See Advice
If there is no response and client so desires, client may change to another contraceptive method.	

Problem: Hypertension	
Advice	**Action**
If the diastolic blood pressure is below 90 mmHg, advise client to:	Client should have BP measured after discontinuing pills and if BP continues to be elevated, the client should be referred for treatment.
1. Loose weight if she is overweight	
2. Reduce salt intake, smoking and caffeine	

3. Closely follow up measuring blood pressure (BP), particularly during any future pregnancies.	
If the blood pressure is 140-159/90-99 (WHO Category 3) on one occasion without evidence of previous high BP, repeat BP on next visit. If still high, then advise the client to discontinue oral contraceptive pills and to use a non-hormonal contraceptive. If BP > 160/100 stop COC and help her choose another method.	
Problem: Missed pills	
Advice	**Action**
Missed one pill	**Missed one pill**
Advise client: 1. To take missed pill as soon as she remembers 2. To keep taking remaining pills on schedule 3. No back-up method needed	See Advice
Missed more than one pill (e.g., two days)	**Missed more than one pill (e.g., two days)**
IF seven or more pills left in the pack: 1. Take one pill now 2. Take the rest as usual 3. Use backup method (condom or spermicide) for seven days	See Advice
IF fewer than seven pills left in the pack: 1. Take one pill now 2. Take the rest as usual 3. Start another pack immediately after finishing current one, without seven-day break 4. Use backup method (condom or spermicide) for seven days	
Habitually misses taking pill daily	**Habitually misses taking pill daily**
Encourage client to associate pill taking with another daily job, e.g., having dinner, going to bed, washing her face in the morning, and: 1. Encourage client to check the pack of pills daily to be sure she took the pill the day before. 2. If client continues to forget to take a pill daily, advise her to change to another method.	See Advice
Problem: Client's husband travels	
Advice	**Action**
Travels for 1-3 months	**Travels for 1-3 months**
There is no need for client to discontinue the pills.	See Advice

Travels for 3+ months	Travels for 3+ months
Client can continue to take pills as usual OR Client can stop using the pills at the beginning of the trip and should restart the pills, on the first day of menstruation, at least one month before arrival of her husband.	See Advice
Problem: Heavy breasts	
Advice	**Action**
Inform potential user about this possibility before she starts the pills.	Do breast exam.
Reassure client that this is a hormonal effect and is not dangerous.	
If client desires, switch her to a lower dose estrogen or to another progestin/estrogen preparation.	
Problem: Hair loss	
Advice	**Action**
Women who experienced hair loss during previous pregnancies should consider avoiding the pill.	Consider changing to a non-hormonal method.
Problem: Client develops marked dark pigmentation on her face	
Advice	**Action**
Inform client that pigmentation is likely to be permanent.	See Advice
Use sun blocking agent and avoid the exposure to the sun.	
Client may stop the pills and change to a non-hormonal method.	
Problem: Client wants to use the pill, but is afraid of the possibility of cancer	
Advice	**Action**
Oral contraceptives have not been proven to cause any common cancer.	See Advice
Oral contraceptives help to prevent two kinds of cancer: cancer of the ovaries and cancer of the endometrium. For breast and cervical cancer, some studies find that these cancers are more common among certain women who have used oral contraceptives. Other studies do not find this. More research is taking place.	

Problem: Client wants to use the pill, but is afraid she may develop infertility	
Advice	**Action**
Assure potential client that scientific studies show that contraceptive pills do not affect future fertility.	
Problem: Client is breastfeeding	
Advice	**Action**
Combined contraceptive pills decrease breast milk and therefore they should not be used in the first six months after childbirth and can be used if it is the only choice after the first six months.	See Advice
It is better to use another contraceptive method that is more appropriate for postpartum lactating woman.	
Problem: Client will undergo major surgery	
Advice	**Action**
Stop using the pills two weeks before surgery and use another method of contraception.	See Advice
Problem: Client develops one of the following symptoms: Severe abdominal pain, severe chest pain, cough, dyspnoea, severe headache severe dizziness, numbness, blurring of vision speech problems, severe leg pain	
Advice	**Action**
These are dangerous symptoms that require the client to stop taking the pills, use another contraceptive method and be promptly referred for evaluation.	See Advice
Problem: Client has varicose veins in lower limbs	
Advice	**Action**
	Provide her with the pill. Varicose veins do not contraindicate pill use.
Problem: Client has uterine fibroid(s)	
Advice	**Action**
	Continue using the pills, COCs have no affect on fibroid(s)

Progestin-only Contraceptive Pills (POPs)

Counseling

What is the method?

Progestin-only contraceptive pills (POPs) contain only one hormone: progestin.

How does it work?

POPs prevents the sperm from meeting the ovum. Occasionally, it prevents release of an ovum from the ovaries.

How effective is it?

- Among breastfeeding women, the method is effective in preventing pregnancy in 99% of users.
- Among non-breastfeeding women, the method is very effective when used correctly and consistently.

How is it used?

The client should be shown a pill package while the following steps are explained.

- Take one pill every day, within three hours of the same time each day.
- No break between packs; start another pack once finished the last day of last pack.
- If one pill is missed, client should take the missed pill as soon as she remembers, and keep taking the pills as scheduled. No backup method is needed. If more than one pill is missed, client should consult a physician.

Advantages

- Can be used by breastfeeding women; does not affect quality or quantity of breast milk.
- Easy to use; one pill is taken every day, continuously.
- Can be very effective, particularly during breastfeeding.
- May help prevent benign breast disease, uterine and ovarian cancer and pelvic inflammatory disease (PID).

Disadvantages

- Pills must be taken at same time every day. If pills are not taken at the same time or are missed they will be less effective, particularly among non-breastfeeding women.
- Side effects may occur, particularly irregular vaginal bleeding especially among non-breastfeeding women.

Possible side effects

Menstrual irregularities:

- Spotting and irregular bleeding, particularly among non-breastfeeding women

- Stopping the menstruation (note: this is not bad or dangerous)

Other side effects are similar to COCs but less common

Reasons to come back to the clinic

- Heavy vaginal bleeding
- Severe headache

Follow-up

- Advise the client to return to the clinic three months after the first prescription for pill re-supply.
  - The pills may be dispensed after interview and assessment without an examination, provided that there are no side effects or medical reasons for not using the method.
- Tell the client to return to the clinic immediately if she experiences problems.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Eriteria for Etarting POPs

- All clients who desire to use POPs must be screened for conditions affecting eligibility.
- All women may use POPs except those who fall into Category 4.
- Non-specialists may not prescribe POPs to Category 3 clients.

WHO category 4

Women with the following conditions should not use POPs:

- Pregnancy
- Current breast cancer

WHO category 3

Women who have the following conditions may use POPs only after consideration of alternative methods and with careful medical evaluation and supervision:

- Migraine with aura
- Current or past ischemic heart disease
- Past cerebro-vascular strokes
- Past breast cancer with no evidence of disease in last five years
- Active viral hepatitis
- Severe (decompensated) liver cirrhosis, liver tumors (benign or malignant)
- Schistosomiasis with severe liver fibrosis
- Lactating mothers in the first six weeks after childbirth

- Current thromboembolic disease, such as deep venous thrombosis
- Current treatment with rifampicine or certain anticonvulsant drugs (e.g., phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)

Women without any of the previously listed conditions (who therefore fall into WHO Category 2 and 1) may use POPs. Providers should emphasize the importance of follow-up visits.

Clinical and Technical Procedures

- Using the approved medical record, take the client's history.
- During the initial visit, perform a physical examination to identify conditions that would affect contraceptive eligibility, and so as to provide preventive health care (including RTI screening, genital cancer screening and breast self-exam). However, a woman should not be refused POPs because a pelvic examination cannot be done. Male physicians should not perform this examination if the client does not want it. The physical examination will include, but not be limited to:
  - Blood pressure
  - Weight
  - Breast examination
  - Abdominal palpation
  - Pelvic examination
- Laboratory procedures will be ordered according to desire/direction of clinician.

Initiation

Start POP if the client is eligible as follows:

- Postpartum breastfeeding women:
  - Delay six weeks
- Postpartum non-breastfeeding women:
  - Start immediately
- Menstruating women:
  - Preferably first five days of menstrual cycle

It can be started any time provider is reasonably sure that woman is not pregnant (in such a case, women must use a backup method for 48 hours).

- Schedule
  - Take the pill within three hours of the same time each day.
  - Take one pill every day continuously. There is no break between packs.

POPs will be stopped if any of the WHO Medical Eligibility Criteria changes or if the client:

  - Desires to become pregnant
  - Is in no need of contraception
  - Wishes to change to another method

Follow-up Procedure

- The client will be seen three months after the first prescription. Provision of pills thereafter will require:
  - Asking the client if she has any problems or any questions
  - Instructing client not to stop pills without speaking with provider
  - Reviewing instructions with client
  - Instructing client on next visit
  - Documenting visit in medical record
- Annual visit/examination is to be encouraged for:
  - Contraceptive updating and problem detection
  - Preventive and primary care services
  - The client who prefers to take POPs from other service outlets should be encouraged to visit the clinic annually for checkup. The client should be assessed and should undergo routine preventive and primary health care measures during the visit.
- Client should be counseled to return to the clinic (other than for routine visits) if the following warning signs occur:
  - Heavy vaginal bleeding
  - Severe headache
- Document visit and findings in medical record and *Woman's Health Card*.

INJECTABLE CONTRACEPTIVES

Progestin-only Injectables/DMPA

Counseling

What is the method?

DepoProvera (DMPA) is an intramuscular injection that contains only one hormone: progestagen.

How does it work?

DepoProvera prevents the release of an ovum from the ovary. It also causes thickening of the cervical mucus, which prevents the sperm from going into the womb.

How effective is it?

DepoProvera is a highly effective method. It prevents pregnancy among more than 99.5% of users.

How is it used?

A DepoProvera injection is given every three months. If the injection is given more than two weeks late, it will be less effective.

Advantages

- Safe and highly effective
- Requires no action at time of intercourse
- Long-lasting; one injection prevents pregnancy for at least three months
- Does not affect breast milk and can be used by breastfeeding women
- Reversible, although return to fertility may take a few months after stopping
- No estrogen-related side effects
- Helps to prevent cancer of the ovaries and womb and anemia

Disadvantages

- Spotting and stopping of the menstruation are common. This is not bad or dangerous.
- Time is needed until the body gets rid of the injected long-acting hormones, so it takes about four months more than other methods such as COCs, POPs, IUDs and condoms before you can become pregnant.

Possible side effects

- Menstrual changes should be explained clearly before use.
  - Absence of bleeding, which has no effect on health and is not a sign of pregnancy or a problem

  - Spotting, irregular bleeding
- Headache, dizziness, tender breasts, mood changes and weight gain

Reasons to come back to the clinic

- Severe bleeding
- Severe headache
- Severe depression

Follow-up

- Advise client to return to the clinic every three months for re-injection.
- Tell the client to return to the clinic immediately if she experiences any problems.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Starting Progestin-only Injectables

- All clients who desire to use progestin-only injectables must be screened for conditions affecting eligibility.
- All women may use DepoProvera, except those who fall into Category 4.
- Non-specialists may not prescribe progestin-only injectables to Category 3 clients.

WHO category 4

Women with the following conditions should not use progestin-only injectables:

- Pregnancy
- Current breast cancer

WHO category 3

Women having following conditions may use progestin-only injectables only after consideration of alternative methods and with careful medical evaluation and supervision:

- Severe hypertension (systolic >160 or diastolic >100 or with vascular disease)
- Diabetes with vascular disorders or diabetes for more than 20 years
- Current or past ischemic heart disease
- Past cerebro-vascular strokes
- Past breast cancer with no evidence of disease in last 5 years
- Active viral hepatitis
- Severe (decompensated) liver cirrhosis, liver tumors (benign or malignant)
- Schistosomiasis with severe liver cirrhosis
- Lactating mothers, during first six weeks after childbirth

- Migraine with aura
- Unexplained vaginal bleeding
- Current deep venous thrombosis or pulmonary embolism

Women without any one of the previously listed conditions (and who therefore fall into WHO Category 2 and 1) may use progestin-only injectables. Providers should emphasize the importance of follow-up visits.

Simple Questions to Determine Eligibility

Family Health International developed checklists for providers to identify women who can safely initiate use of progestin-only contraceptives. This is done through a series of simple yes/no questions with further guidance and directions based on client response.

The purpose of the questions is to verify whether a client has a known condition or disease that needs to be further evaluated before she can receive DMPA. The purpose is not for health care providers to make a diagnosis about conditions or diseases.

Please keep in mind that the questions on the checklists are meant to identify women who should be seen by a higher-level provider prior to initiating the method. The conditions listed are not necessarily contraindications for use of the method.

1. Is your menstrual period late and do you think you could be pregnant now?
2. Have you ever had a stroke, blood clot in your legs or lungs, or heart attack?
3. Do you have diabetes (sugar in your blood)?
4. Do you have or have you had breast cancer?
5. Do you have a serious liver disease of jaundice (yellow skin or eyes)?
6. Do you have bleeding between menstrual periods, which is unusual for you, or bleeding after intercourse (sex)?

Clinical and Technical Procedures

- Using the approved medical record, take the client's history with special attention to:
  - Menstrual history and date of last menstrual period
  - Symptoms of pregnancy
  - History of breast cancer (personal or familial)
  - Personal or family history of diabetes
- During the initial visit, perform a physical examination to identify conditions that would affect contraceptive eligibility, and so as to provide preventive health care (including RTI screening, genital cancer screening and breast self-exam). The physical examination will include, but should not be limited to:
  - Blood pressure
  - Weight

Note: There is no weight at which it is unsafe to provide DMPA.

  - Breast examination

  - Abdominal palpation
  - Pelvic examination (however, a woman should not be refused DepoProvera because a pelvic examination cannot be done)
- Laboratory procedures will be ordered according to desire/direction of clinician. Other elements of the physical assessment may be carried out as part of a health screening measure, but are not critical to the use of injectable contraceptives.

Initiation

Start the injections if the client is eligible for starting progestin-only injectables as follows:

- Menstruating women
  - Preferably start within the first seven days of menstrual cycle, but can start anytime provider is reasonably sure that woman is not pregnant (in such a case, women must use a backup method for the next 48 hours).
- Postpartum women
  - Breastfeeding women can delay initiation for six weeks.
  - Non-breastfeeding women can start immediately.
- Postabortion women
  - Can start immediately.

Progestin-only injectables will be stopped if any of the WHO Medical Eligibility Criteria changes or if the client:

  - Desires to become pregnant
  - Is in no need of contraception
  - Wishes to switch to another method

Follow-up Procedure

- Follow-up visits are advised for repeat injections of DepoProvera every three months. However, the provider can give the client the injection if she presents herself up to two weeks earlier or two weeks later than the scheduled date.
- Clients are to be counseled to return to the clinic (other than routine follow-up visits) if any of the following warning signs occur:
  - Severe headaches
  - Severe vaginal bleeding (twice as much or twice as long as usual).
  - Severe depression
- Each client visit will include:
  - Asking the client if she has any problems
  - Reviewing client instructions
  - Instructing client on next visit
  - Documenting visit and findings in medical record

- Annual visit/examination is encouraged if the client prefers to take the injection from other service outlets. During the visit, the client should be assessed and should undergo routine preventive and primary health care measures.
- Routine weight measurement is NOT needed.
- Routine blood pressure measurement is NOT needed.
- Document visit and findings in medical record and *Woman's Health Card*.

MANAGEMENT OF CLINICAL PROBLEMS ASSOCIATED WITH THE USE OF DEPOPROVERA

Table 5.3 Management of clinical problems associated with the use of DepoProvera

Problem: Client does not menstruate after she starts the injection (amenorrhea)	
Advice	**Action**
Inform potential client before starting use that amenorrhea is a common side effect. It will not affect her general health (amenorrhea prevents blood loss and may help correct anemia).	Only reassurance is required. (Menses will return some time after discontinuation although it may be delayed. Thus, the occurrence of pregnancy may be delayed. Injectable contraceptives do not cause infertility.)
	Do not try to induce menses by drugs or hormones.
Problem: Client encounters occasional spotting	
Advice	**Action**
Inform potential client beforehand that this is an expected side effect and inform her about Al-Azhar fatwa.	Do nothing unless bleeding is excessive or spotting becomes unacceptable.
	Examine the cervix to exclude a local cause (e.g., erosion or polyp).
	If spotting is unacceptable, use the treatment strategy (see below). Treat for anemia.
	If spotting is unacceptable, use the treatment strategy (see below).
	Do not do D&C.
	Provide the client with information about the Al-Azhar fatwa that maintains that "estehada" (spotting and bleeding other than menstruation) need not prevent her from performing religious duties, such as praying or fasting.
Problem: Client complains of occasional excessive bleeding or unpredictable bleeding	
Advice	**Action**
This is a possibility and the potential client should be informed about it before starting injectable use. (It is less common than amenorrhea and spotting).	Curettage is not advisable and frequently will be of no benefit because the endometrium is already partly atrophic under the effect of the progestagens.
	Treat anemia.
	Consider other causes of bleeding. Treatment options include: Anti-prostaglandin drug (e.g. Ibuprofen, one tablet three times a day for five days) OR Oral contraceptive tablets for two cycles OR

	Ethinyl Estradiol tablets (20 mcg) daily for 20 days OR Give next dose of DepoProvera early if bleeding occurs in last six weeks
	If bleeding is persistent or unacceptable after treatment, consider changing the method.
	If the bleeding is severe, refer to specialist for assessment.
Problem: Increase in weight	
Advice	**Action**
The potential client should be informed about the possibility of this probable side effect. It is most likely due to eating more, aging or moving less. Advise her to exercise and reduce calorie intake.	If the weight increase is unacceptable, change to a non-hormonal method. There is no medical reason to discontinue DMPA for weight gain.
Problem: Breast fullness and tenderness	
Advice	**Action**
Assure client that this is one of the method's known side effects.	May discontinue or change method if problem is not tolerable.
Advise client to wear a looser bra for comfort.	Do breast exam.
Problem: Headache and dizziness	
Advice	**Action**
Potential clients should be informed about the possibility of this frequent complaint beforehand.	Measure blood pressure to exclude hypertension. (Note: DMPA does not cause hypertension.)
Mild	**Severe**
Reassure client and advise her to occasionally use a mild analgesic (e.g. Paracetamol).	Change to a non-hormonal method and if problem persists refer for further evaluation.
Problem: Client comes late for her injection	
Advice	**Action**
Up to two weeks	**Up to two weeks**
DepoProvera (injection every three months) allows for occasional short delays in receiving the injection. However, women should always be instructed to keep appointments for the exact dates.	Give her the injection.
More than two weeks	**More than two weeks**
Depo-Provera (injection every three months) allows for occasional short delays in receiving the injection. However, women should always be instructed to keep appointments for the exact dates.	If the client has not had intercourse in past two weeks, may give injection. If the client has had intercourse in past two weeks, advise the client to use a backup contraceptive (condom or spermicides) and follow it with a pregnancy test in two weeks. If negative, give injection

Problem: Client stops injections, but menstruation is not regular (amenorrhea or irregular menses)	
Advice	**Action**
Explain to the client that this happens occasionally, and that it may persist for some time, until her body gets rid of the hormones.	Do not treat with drugs or hormones.
	Refer to Ob/Gyn specialist for further evaluation if problem persists for more than six months.
Problem: Client does not get pregnant after stopping the injections	
Advice	**Action**
Inform potential users that women may experience a post-DMPA delay in return of fertility up to 10 months from the date of the last injection, regardless of the duration of their use. This does not indicate a long-term effect on the woman having children. If not pregnant one year post-use, refer to OB/GYN.	
Problem: Pregnancy occurs while using injectable contraceptives	
Advice	**Action**
When DepoProvera is used correctly (i.e., every three months) as recommended, pregnancy rarely occurs. Injectable contraceptive methods are very effective in preventing pregnancy.	Refer for antenatal care.
Reassure client that children born to women using injectable contraceptives have no greater risk of fetal malformation than children born to women not using injectables.	
Problem: Client develops hypertension	
Advice	**Action**
	If the diastolic blood pressure is less than 100 mmHg (on repeated occasions), give instructions to the client to reduce salt and caffeine intake.
	If the diastolic blood pressure exceeds 110 mmHg (WHO Category 3) stop the injections and change to a non-hormonal method. If between 100 and 109mmHg, strict follow-up is essential.
Problem: Client wants to use injections, but is concerned about cancer.	
Advice	**Action**
DMPA has not been shown to cause cancer in humans; instead, it helps to prevent cancer of the endometrium and perhaps cancer of the ovaries. The WHO has declared DMPA safe, but some questions remain about whether DMPA might speed up the development of pre-existing breast cancer. Further studies are underway.	

Once-a-Month Combined Injectables

Counseling

What is the method?

Once-a-month injectables (combined injectables) are injections that contain two types of hormones: estrogen and progestagen.

How does it work?

Once-a-month injectables prevent the release of an ovum from the ovaries. They also cause thickening of the cervical mucus so sperm can not enter the womb.

How effective is it?

Highly effective in more than 99% of users when the injections are taken regularly every month.

How is it used?

One injection is given every month. To maintain contraceptive efficacy, subsequent injections must be given no more than three days early or three days late.

Advantages

- Safe and highly effective
- Reversible, return to fertility more rapidly than with DepoProvera
- Causes less menstrual irregularities than progestagen-only injectables
- Requires no action at time of intercourse

Disadvantages

- Menstrual changes, particularly spotting, may occur
- Estrogen-related side effects can occur, e.g., headache, dizziness and breast tenderness
- Cannot be used by breastfeeding women

Possible side effects

- Menstrual changes, particularly spotting, irregular or heavy bleeding
- Weight gain
- Estrogen-related side effects, including headache, dizziness and breasts tenderness

Reasons to come back to the clinic

- Severe vaginal bleeding
- After heart attacks and stroke

Follow-up

- Advise the client to return to the clinic every month for re-injection.
- Tell the client to return to the clinic immediately if she experiences any problems.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Starting Once-a-month Injectables

- All clients who desire to use once-a-month injectables must be screened for conditions that affect eligibility.
- All women may use once-a-month injectables except those who fall into Category 4.
- Non-specialists may not prescribe once-a-month combined injectables to Category 3 clients.

WHO category 4

Women with the following conditions should not use progestin-only-injectables:

- Pregnancy
- Current breast cancer

WHO category 3

Women having following conditions may use progestin-only-injectables only after consideration of alternative methods and with careful medical evaluation and supervision:

- Severe hypertension (systolic >160 or diastolic >100 or with vascular disease)
- Diabetes with vascular disorders or diabetes for more than 20 years
- Current or past ischemic heart disease
- Past cerebro-vascular strokes
- Past breast cancer with no evidence of disease in last 5 years
- Active viral hepatitis
- Severe (decompensated) liver cirrhosis, liver tumors (benign or malignant)
- Schistosomiasis with severe liver cirrhosis
- Lactating mothers, during first six weeks after childbirth
- Migraine with aura
- Unexplained vaginal bleeding
- Current deep venous thrombosis or pulmonary embolism

Women without any one of the previously listed conditions (and who therefore fall into WHO Category 2 and 1) may use progestin-only-injectables. Providers should emphasize the importance of follow-up visits.

Clinical and Technical Procedures

- Using the approved medical record, take the client's history.
- During the initial visit, perform a physical examination to identify conditions that would affect contraceptive eligibility, and so as to provide preventive health care (including RTI screening, genital cancer screening and breast self-exam). The physical examination will include, but should not be limited to:
  - Blood pressure
  - Weight
  - Breast examination
  - Abdominal examination
  - Pelvic examination (however, a woman should not be refused the injection because a pelvic examination can not be done)
- Laboratory procedures will be ordered according to desire/directions of clinician. Other elements of the physical assessment may be carried out as part of health screening measures, but are not critical to the use of injectable contraceptives.

Initiation

Start the injections if the client is eligible for starting once-a-month injectables as follows:

- Menstruating women:
  - Preferably start within first five days of menstrual cycle; however, the method can be started anytime the provider is reasonably sure that the woman is not pregnant (in such a case, she must use a backup method until menstruation occurs about two weeks after injection).
- Postpartum women:
  - Breastfeeding women can delay six months after childbirth.
  - Non-breastfeeding women can delay three weeks after childbirth.
- Schedule:
  - The injection is given once every month
  - Subsequent injections must be given no more than three days early or three days late.
- Once-a-month combined injectables will be stopped if any of the adverse effects occur or if the woman:
  - Desires to become pregnant
  - Is in no need of contraception
  - Wishes to change to another method

Follow-up Procedures

- Follow-up visits are advised every month for repeat injection.
- Each visit will include:
  - Asking the client if she has any problems or questions

  - Instructing clients to return immediately if any of the above symptoms occurred
  - Reviewing instructions with client
  - Instructing client on next visit
  - Documenting visit in medical records
- Clients are to be seen (other than routine follow-up visits) if any of the following occurs:
  - Severe vaginal bleeding
  - Heart attacks and stroke
- Annual examination should be encouraged.
- Document visit and findings in medical record and *Woman's Health Card*.

IMPLANTS

Norplant

Counseling

What is the method?

- Norplant is six capsules containing progestin that is released slowly in the blood and can prevent pregnancy for five years, after which the six capsules should be removed.
- Insertion and removal: minor surgery under local anesthesia

How does it work?

The hormone causes thickening of the cervical mucus, which prevents the sperm from entering the womb. Monthly, it prevents release of an ovum from the ovaries.

How effective is it?

Norplant is highly effective in preventing pregnancy. Failures are very rare: pregnancy with Norplant use occurs in less than 1% of users.

How is it used?

The six plastic implants are placed by a trained physician under the skin on the inside of the arm. It is a minor surgical procedure done under local anesthesia.

Advantages

- Safe and highly effective
- Long acting, for five years
- No action needed at time of intercourse
- The capsules can be removed any time on request
- Fertility returns almost immediately after removal
- Does not contain estrogen and does not cause estrogen-related side effects
- Can help treat anemia and possibly reduce risk of uterine cancer

Disadvantages

- Insertion and removal by a minor surgical procedure
- Needs to be inserted and removed by a specially trained service provider
- High cost

Possible side effects

- Bleeding irregularity, in the form of amenorrhea (the absence of bleeding) or spotting and bleeding are the most common and usually decrease after the first six months

- Less common are headache, breast tenderness and weight gain

Reasons to come back to the clinic

- Severe or prolonged bleeding
- Wound infection

Follow-up

- Advise the client that she should return to the clinic two weeks after insertion for the site to be inspected and any further questions she may have, to be answered.
- Tell the client to return to the clinic immediately if she experiences any problems.
- Inform the client that she should return five years after insertion for removal of the capsules.
- Tell the client to return to the clinic if she wishes to remove the capsules before the end of the five-year period.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

Note: Providers should comply with women's requests to remove the implant after counseling and should assist them to choose another method of contraception.

WHO Medical Eligibility Criteria for Starting Norplant Capsules

- All clients who desire to use Norplant must be screened for conditions that affect eligibility for Norplant use.
- All women may use Norplant except those who fall into Category 4.
- Non-specialists may not prescribe Norplant to Category 3 clients.

WHO category 4

According to the WHO medical eligibility criteria, Norplant implants should not be used in the following conditions:

- Pregnancy
- Current breast cancer

WHO category 3

Women who have the following conditions may use Norplant only after consideration of alternative methods and with careful medical evaluation and supervision:

- Past breast cancer with no evidence of disease in last 5 years
- Active viral hepatitis
- Severe (decompensated) liver cirrhosis or liver tumors (benign or malignant)
- Schistosomiasis with severe liver cirrhosis

- Current treatment with Rifampin or anti-convulsants (phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)
- Less than six weeks after childbirth in case of breastfeeding
- Unexplained vaginal bleeding
- Current deep venous thrombosis or pulmonary embolism
- Migraine with aura

Women without any one of the previously listed conditions (and who therefore fall into WHO Category 2 and 1) may use Norplant. Providers should emphasize the importance of follow-up visits.

Clinical and Technical Procedures

- Take the client's history using an appropriate medical record.
- Perform a physical examination, recording:
  - Blood pressure
  - Weight
  - Breast exam
  - Observation for jaundice
- Other elements of the physical assessment, including a vaginal examination, may be carried out as part of health screening measures, but are not required before the use of Norplant.
- Laboratory
  - No routine laboratory work is required except as indicated for specific health problems.

Initiation

Start Norplant if the client is eligible as follows:

- Menstruating women
  - Better to insert during the first seven days of the menstrual cycle, preferably when the woman is menstruating; however, it can be inserted at any time, provided that the provider is reasonably sure that client is not pregnant. In such a case, the client should use an additional backup method for 48 hours.
- Postpartum women
  - Breastfeeding women can delay for six weeks (or later if using LAM).
  - Non-breastfeeding women can start immediately.
- Postabortion women
  - Can start immediately

After stopping another method, start immediately.

Insertion and removal of Norplant

- Should only be carried out by a service provider trained in the procedure.

- If the service provider is not trained, he/she should refer the client to a center equipped with a trained provider.
- The Norplant capsules must be removed after five years.
  - The Norplant capsules become less effective after five years. At that point they should be removed and another method started, or new capsules implanted. If the capsules cannot be removed, the client should be told they can stay in place without problems but will no longer be an effective contraception; however, she should not rely on them for contraception.
- If a Norplant user requests removal before five years counsel her regarding the reason behind her request.
  - If she insists on removal or has a medical reason for removal, you should respond to her request without delay.

Norplant insertion technique

Preliminary insertion notes

- Norplant insertion is only to be undertaken by a physician trained and certified in this procedure.
- Appropriate infection prevention, aseptic and antiseptic precautions should be adopted throughout the procedure.
- On the whole, the insertion procedure takes about 10-15 minutes.
- Proper and superficial placement of the capsules is an important requisite for trouble-free removal.

Insertion instructions

1. Make sure that all instruments needed for insertion are available and properly sterilized or high level disinfected.
2. The following comprise the basic equipment that should be available:
   a. Arm support
   b. Sterile set of six Norplant capsules
   c. Number 10-gauge trocar with plunger
   d. Surgical cloths and bowl
   e. Talc free sterile gloves, because talc makes the capsules more apt to cause adhesions and scarring
   f. Antiseptic e.g., Betadine
   g. 1% lidocaine solution without epinephrine
   h. Sterile 5 or 10 ml syringe and number 22 gauge needle
   i. Scalpel with number 11 blades
   j. Ordinary band-aid
   k. Sterile gauze and compresses
   l. Epinephrine ampoules for emergency treatment of anaphylactic shock

3. The capsules are to be inserted in a fan-shaped manner under the skin of the inner (medial) side of the non-dominant upper arm, 6-8 cm above the elbow where they are usually not visible.
4. Ask the woman to lie down on the table with the arm comfortably extended or slightly bent and supported by the armrest. Place a clean, dry cloth under the arm.
5. Assure the woman that she will not feel pain during insertion.
6. Prepare the instrument tray without touching the instruments or other items.
7. Open the sterile pouch containing the Norplant capsules and allow the six capsules to drop into a sterile bowl. If a capsule falls on the ground, open another package, and never attempt to re-sterilize the contaminated capsules.
8. Wash your hands and apply a pair of talc-free, sterile gloves.
9. Disinfect the skin of the inner side of the upper arm with a suitable antiseptic, e.g., povidone iodine (Betadine).
10. Cover the arm with sterile towels leaving clear the proposed area for insertion.
11. Fill the syringe with 3 ml of the local anesthetic, insert the needle just under the skin of the incision site (6-8 cm above the elbow) and inject a very small amount to raise a small wheal under the skin. Gently advance the needle under the skin for 4 cm. Then slowly withdraw the needle while pushing the plunger of the syringe to lay a "track" of anesthetic. Three equally spaced tracks in a fan–shaped manner provide adequate anesthesia, and one ml is sufficient in each track. Lastly, gently massage the site to ensure uniform distribution of the anesthetic so as to maximize its effectiveness. The total amount of injected anesthetic should not exceed 10 ml.
12. Hold the scalpel and gently touch the skin with its tip to ensure that the anesthetic has worked, then make a 2 mm transverse shallow incision 6-8 cm above the elbow. Do not make a deep or a long incision. Some providers pierce the skin with the trocar, if it is sharp enough, instead of making an incision with a scalpel. They claim it makes no significant difference in pain, oedema or bruise and prevents making an incision that is longer than needed.
13. Hold the trocar, which has two marks: a proximal one near the hub and a distal one close to the tip (bevel). The proximal one indicates how far the trocar should be introduced before loading each capsule, and the distal one indicates how much of the trocar should be left under the skin after withdrawal following the insertion of each capsule.

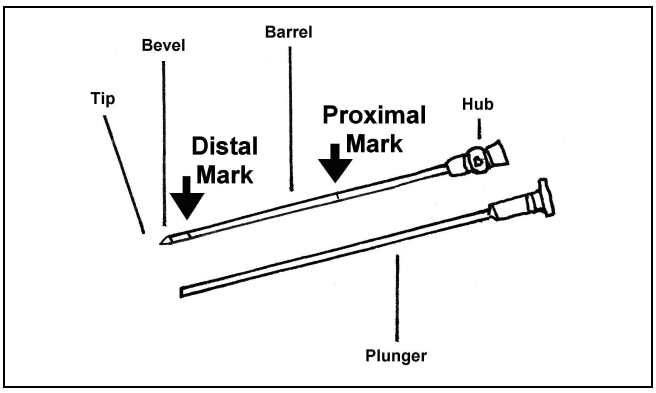


Figure 5.4 Trocar and plunger

14. Keep the plunger in place and with the bevel up, introduce the tip of the trocar inside the wound at a shallow angle. Start at either the extreme right or left side of the proposed fan-like pattern, push the trocar forward and stop when the distal mark is completely under the skin. Never force the trocar. If resistance is met, try another angle.

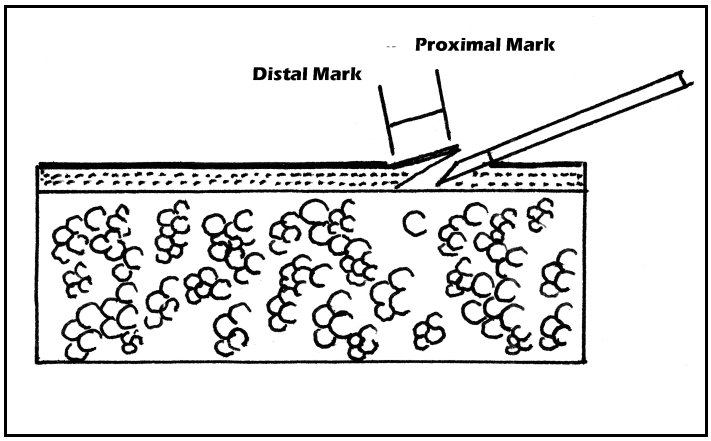


Figure 5.5 Inserting the trocar at a shallow angle

15. Next, advance the trocar slowly and smoothly until the proximal mark is at the skin incision. While advancing the trocar, it should be lifted up, tenting the skin and visibly raising it all the time. Passage of the trocar will be smooth if it is passed in a proper superficial plane. Then remove the plunger from the trocar.

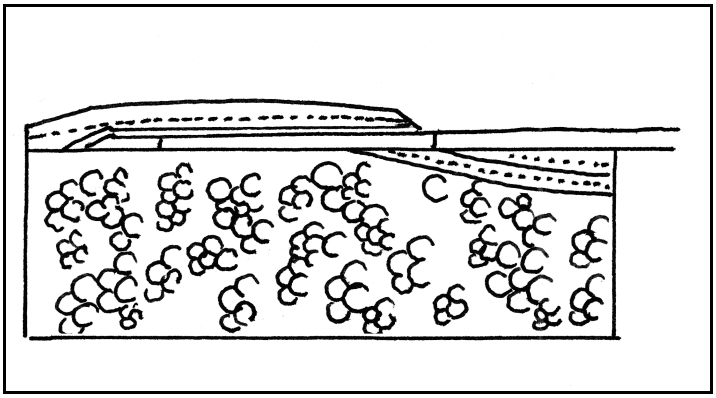


Figure 5.6 Inserting the trocar at a shallow angle until proximal mark

16. Load the first capsule into the trocar, holding it with two fingers or gently by the forceps, and then insert the plunger. It is wise to keep your other hand below the capsule during this procedure to hold it if it falls. Push the plunger gently to advance the capsule towards the tip of the trocar until you feel resistance (usually felt when it is about half-way into the trocar). Never use force to advance the plunger.

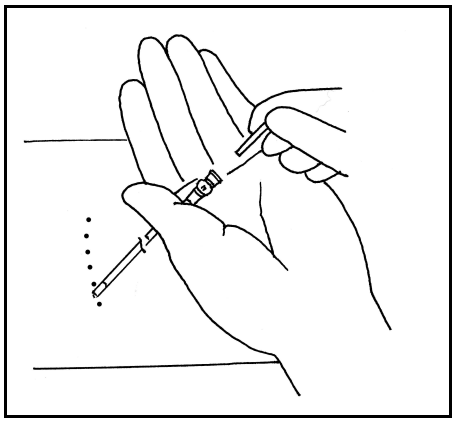


Figure 5.8 Loading the Norplant capsule

17. Hold the plunger firmly with one hand and slide the trocar back with the other until the distal mark is seen at the incision and the hub touches the handle of the plunger. Now the capsule should be under the skin and free from the trocar. It is important to keep the plunger steady and not to push it in order not to push the capsule into the tissue. Feel the capsule with a finger and ensure that it is free from the tip of the trocar.

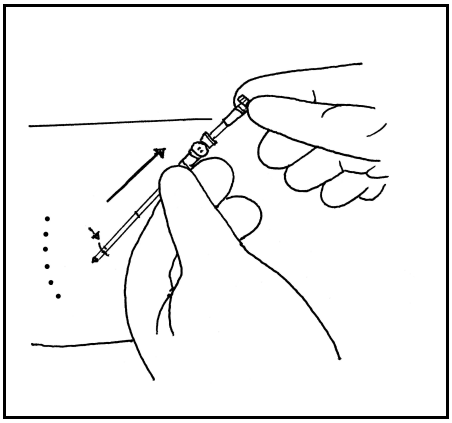


Figure 5.9 Slide the trocar back

18. Without completely removing the trocar, slide it to the side about 15 degrees. Fix the first capsule with one finger and advance the trocar in a similar way along the side of your finger. This will ensure a suitable distance between the capsules and will prevent the trocar from puncturing the previously inserted capsules. Advance the trocar until the proximal mark is at the skin incision and load the next capsule after removing the plunger, proceeding as before. Repeat the process until you insert the six capsules and then remove the trocar from the wound.

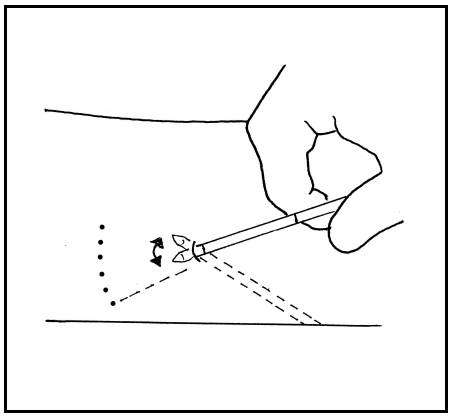


Figure 5.10 Slide the trocar 15 degrees

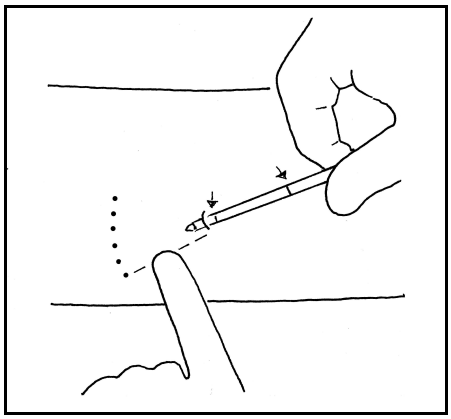


Figure 5.11 Fix the first capsule and advance the trocar

19. At the end, the capsules should fan out, and be about 15 degrees apart from each other, so that the angle between the first and the last capsule is about 75 degrees. During the whole process, avoid touching the part of the trocar between the bevel and the proximal mark and do not remove the trocar from the incision, to reduce the chance of infection and trauma.
20. Palpate the capsules and check that their proximal tips are about 5 mm from the incision. If one capsule protrudes from the incision or if its tip is close to it, remove the capsule, and insert it again properly.
21. Lastly, press the incision with a gauzed finger for one minute or more to stop any bleeding, clean the skin around the incision and bring the edges of the incision together with a band-aid. Sutures are not necessary. Cover the insertion area with a pressure dressing and wrap gauze around the arm using slight pressure to minimize bruising.
22. Before taking off your gloves, decontaminate the instruments and dispose of contaminated objects; then take off the gloves and wash your hands with soap and water.
23. Observe the woman for at least five minutes for bleeding from the incision or any adverse effect and provide her with post-insertion care instructions before sending her home.

Care for the wound

- Keep the area dry and clean for at least 48 hours.
- Tenderness, bruising and swelling at the insertion site is usual for a few days.
- The client can return to work immediately as long as she avoids pumping the area.
- The pressure bandage and gauze is to be removed after 48 hours and the band-aid after three to five days, after which client can wash.
- The client should return to the clinic if she experiences fever, persistent pain or redness at the insertion site, expulsion of a capsule, if she has a problem with the method, if she wants to remove the capsules, or if she thinks she might be pregnant.
- Client should be instructed to report to the clinic immediately if she experience symptoms such as:
  - Severe lower abdominal pain
  - Heavy vaginal bleeding
  - Migraine or blurred vision
  - Delayed menstruation after a long interval of regular menses

Norplant removal technique

Preliminary removal notes

- Norplant removal is only to be undertaken by a physician trained and certified in this procedure.
- Unlike insertion, Norplant removal:
  - Does not have to be timed to the menses
  - Requires patience
  - Takes a longer time (average 15-30 minutes). Maximum allowed time should not exceed 45-60 minutes.
  - Is more difficult to perform. In the Egyptian trial where physicians were adequately trained for both insertion and removal, difficulties were encountered in 4% of removals.
  - Requires more experience.
  - There is usually more bleeding, which can be controlled by pressure.
- As stated before, the ease of removal depends to a great extent on proper and superficial insertion of the capsules.
- If it is not possible to remove all the capsules in one session, the procedure should be stopped, the women warned that she is no longer protected against pregnancy and removal of the remaining capsules attempted after healing of the incision (four-six weeks) and preferably by a more experienced operator.
- Capsules that are difficult to locate can be detected by x-ray or ultrasound.
- Strict infection prevention measures should be adhered to in performing removals.

Preparation for removal

- Check that all instruments and other items are available and properly sterilized or HLD. The instruments needed are those used for insertion plus:
  - Two Mosquito forceps
  - A modified no-scalpel vasectomy forceps

Removal instructions

1. Ask the woman to lie on the table, her arm straight or slightly bent and supported on the armrest. Put a clean, dry cloth under the arm.
2. Locate the capsules first with ungloved fingers. Some providers prefer to mark the positions by ballpoint pen.
3. Wash your hands and wear sterilized or HLD gloves.
4. Swab the area with an antiseptic e.g., Betadine.
5. Cover the arm with sterile towels leaving clear the skin area on the capsules.
6. Fill the syringe with 3 ml of the anesthetic solution and insert the needle under the ends of the capsules near the elbow (do not inject the anesthetic over the capsules so as not to obscure them). Advance the needle gently about one third of the length of the capsule (about 1 cm) and then inject the anesthetic (about 0.5 ml) while withdrawing it to lay a track of anesthetic. Next, slide the tip of the needle sideways without removing it and repeat the process under the six capsules. The injection will raise the ends of the capsules. During removal, additional small amounts of the anesthetic may be added if needed (the total dose should not exceed 10 ml).

Standard method for removal of the capsules

1. Choose the site of the incision below and equidistant from the ends of all capsules.
2. Touch the site with the tip of the scalpel to ensure that the anesthetic is working.
3. Make a small 4 mm skin incision with the scalpel and begin by removing the capsule closest to the surface and/or nearest to the incision.
4. Push the capsule gently towards the incision until its tip become visible.
5. Insert the open tips of the mosquito forceps under the end of the capsule so as not to push it away from the incision and grasp the end of the capsule with the forceps.
6. If a fibrous tissue envelope surrounds the capsule, rub it with a piece of sterile gauze to expose the tip of the capsule. If this fails, carefully use the scalpel to open the fibrous sheath and free the capsule.
7. Grasp the freed end of the capsule with the second mosquito forceps, release the first forceps holding the tip and remove the capsule with the second forceps. Usually the capsules slip easily out of the fibrous capsule, as tissues do not adhere to silicon rubber. If the capsule does not come out easily, gently scrape away any adherent tissue with the scalpel.
8. Continue with removal of other capsules using additional anesthetic if needed.
9. Ensure that the six capsules are removed.
10. Clean the skin and apply pressure with a piece of gauze for one to two minutes to control any bleeding.

11. Bring the edges of the incision together with a band-aid (sutures are not necessary).
12. Cover the wound with a pressure dressing and wrap gauze snugly around the arm to ensure homeostasis and to minimize bruising.
13. Remove the gloves and wash your hands with soap and water.
14. Watch the woman for at least five minutes during which give her the following instructions:
    a. If she feels intolerable pain after the effect of the anesthetic passes away, she can take a tablet of Paracetamol or any other suitable analgesic.
    b. She should keep the area clean and dry and remove the gauze pressure bandage after 48 hours. Some subcutaneous bruises are normal.
    c. She should remove the band-aid after three to five days, when she can wash the area.
    d. She should come to the clinic if she experience fever, persistent pain and/ or local redness.
    e. The contraceptive effect is lost immediately and she must use another contraceptive if she is serious about not becoming pregnant.

Alternative methods for removal of Norplant capsules

The "Pop-out" Technique

The process does not involve the use of forceps, thus the capsules can be removed with less discomfort, trauma, or bleeding through a smaller incision and with less risk of breaking the capsules.

The only disadvantage is that the method may not work if the capsules are poorly aligned or are deeply inserted.

1. Prepare and inject the anesthetic as with the standard method.
2. Select one capsule and press on its proximal end (closest to the shoulder) with a finger, until its distal tip becomes clearly visible under the skin.
3. Make a small incision (2-3 mm) on the tip with the scalpel.
4. Apply further pressure on the proximal end of the capsule, to bring the tip into better position under the incision.
5. While still holding the capsule, insert the tip of the scalpel in the wound and feel the tip of the capsule and, if necessary, cut the fibrous tissue around it.
6. Induce further pressure on the proximal end of the capsule until the tip "pops out" of the incision. Gently grasp it with the forceps and pull it out.
7. "Pop-out" the remaining capsules from the same wound using the same method. If you encounter difficulty with a capsule, remove it with the standard method using the forceps. Take all precautions not to break the capsule, as once it is damaged, it may break again with each attempt to grasp it with the forceps.

The "U" Technique

The procedure was initially developed to deal with difficult Norplant removal. Some providers use it as the removal method of choice instead of the standard technique, as it is more rapid, requires a smaller incision, involves less tissue trauma and liability to break the capsules and is easier for the inexperienced to learn.

The technique requires the use of a special Norplant holding forceps that is a modified version of the no–scalpel vasectomy clamp, with a tip diameter of 2.2 mm.

1. Locate the capsules by palpation (some providers mark their positions by a ballpoint pen).
2. Inject the anesthetic as with the standard method.
3. Make a 4 mm longitudinal incision between capsules 3 and 4, 0.5 cm above the distal tip.
4. The Norplant-holding forceps is introduced through the incision and advanced until it touches the nearest capsule, while stabilizing the capsule by placing the index finger lateral and parallel to the longitudinal axis of the capsule.
5. Grasp the capsule with the Norplant-holding forceps at right angle to its longitudinal axis and within 5 mm from its distal tip.
6. Pull the capsule gently towards the incision while rotating the handle of the forceps towards the client's shoulder so as to bring the tip of the capsule into the incision.
7. Clean and open the soft tissue surrounding the exposed part of the capsule with sterile gauze (or alternatively by using the scalpel).
8. Grasp the exposed part of the freed capsule with a mosquito forceps and pull it out.

Compared with the standard technique, the method has the following advantages:

- Can easily deal with capsules more than one cm away from the incision site.
- The Norplant holding forceps hold the capsules better than the mosquito forceps with less liability for the capsules to slip or to break.
- The procedure avoids cutting through the dense fibrous tissue sometimes formed at the tip of the capsules.

The Emory Method

The Emory method for Norplant removal is reputed to speed up the standard technique.

- Six to 8 ml of local anesthetic is injected instead of 3 ml.
- The incision is made 8 mm to 1 cm long rather than 4 mm.
- Before attempting removal of the Norplant, gently disrupt the adhesions by repeatedly opening and closing a small curved hemostat in the tissue near the end of the implants for 30 seconds.

Follow-up Procedure

Routine

- After two weeks, to ensure the wound has healed and to answer questions
- Yearly (after the two-week visit)

- After five years, to remove the Norplant capsules.
  - If the capsules are not removed at that time, client should be instructed to use a reliable method of contraception until removal.
  - If removal is difficult, capsules can stay in place without causing problems.
- Norplant users should understand that they can come to the clinic at any time if they have any questions or concerns.
- Document visit and findings in medical record and *Woman's Health Card*.

Non-routine

Non-routine visits should take place if the client has:

- Severe or prolonged bleeding
- Wound infection

Include in each client visit

- Asking the client if she has any problems, especially:
  - Heavy bleeding
  - Weight again
  - Severe headaches
  - Depression
- Instructing client on next visit
- Documenting visit and findings in medical record and *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of Norplant

Table 5.4 Management of clinical problems associated with the use of Norplant

Problem: Client would like to use Norplant but is concerned about feeling pain during insertion	
Advice	**Action**
Assure client it is a minor surgery that takes 5-10 minutes, is done under local anesthesia and that she will feel little or no pain during insertion (only that of the anesthesia injection).	
Problem: Client would like to use Norplant but is concerned the capsules will move in her body	
Advice	**Action**
Assure her that the capsules are: 1. Put under the skin and do not change their position at all. 2. Are not visible and no one can observe that she is using them.	
Problem: Client would like to use Norplant but is concerned about future infertility	
Advice	**Action**
Explain that Norplant capsules can be removed whenever she wishes or by the end of five years and that fertility immediately returns to normal after removal.	
Problem: Client would like to use Norplant but is concerned about the capsules interfering with doing her household activities	
Advice	**Action**
Assure her that the capsules do not cause pain and that household activities can be performed as usual the very next day after insertion (perhaps even the same day) and after removal.	
Problem: Client would like to use Norplant but is concerned about getting pregnant while using the method	
Advice	**Action**
Assure her that Norplant is a very effective method of contraception. The failure rate is well below 1%.	

Problem: Amenorrhea after insertion of Norplant	
Advice	**Action**
Potential clients should be informed about the possibility of menstrual abnormalities including amenorrhea, although most women menstruate regularly with Norplant use, particularly after the first six months.	Perform a pregnancy test only if there are other symptoms or signs of pregnancy
Assure the client that absence of menses does not harm the body and may even correct an already existing anemia.	

Problem: Amenorrhea after a period of regular bleeding	
Advice	**Action**
Advise client this can occur and does not always signify the occurrence of pregnancy.	Do a pregnancy test to exclude pregnancy.

Problem: Spotting	
Advice	**Action**
Potential user should be informed about this possibility before insertion of Norplant.	Reassure the client.
	Where indicated, examine the cervix to exclude a local cause, e.g., polyp, infection or cancer.
	Remind her about the Al Azhar fatwa that says this is *estehada* and that she can perform religious duties such as fasting and praying while spotting.
	If problem is persistent and client wishes treatment, the following options exist: 1. Anti-prostaglandin drug (e.g.Ibuprofen) one tablet three times a day for five days; 2. Oral combined contraceptive pills for two cycles 3. Ethinyl Estradiol tablets (20 mcg.) daily for 20 days.
	If problem persists and client dissatisfied, refer client to a center where the Norplant implants can be removed. (Do not remove if you are not trained to do so).

Problem: Bleeding (either menorrhagia or metrorrhagia)	
Advice	**Action**
Inform potential user about this possibility before insertion of Norplant.	Provide iron therapy.
Reassure and encourage the client.	Treatment options include: 1. Anti-prostaglandin drug (e.g. Ibuprofen) one tablet three times a day for five days 2. Oral combined contraceptive pills for two cycles

	3. Ethinyl Estradiol tablets (20 mcg.) daily for 20 days
	If bleeding is persistent or unacceptable after treatment, consider changing the method.
	If the bleeding is severe, refer to an Ob/Gyn specialist.
Problem: Headache	
Advice	**Action**
Inform potential user that this is a frequent complaint among Norplant users.	**Mild Headache**
	Analgesics
	Severe Headache
	Refer user to a clinic equipped with physicians trained in Norplant removal to remove the implants. (Do not attempt removal if you are not trained to do so).
Problem: Breast fullness and tenderness	
Advice	**Action**
Advise potential client that this is frequently encountered among Norplant users.	If problem is unacceptable to client, discontinue
Problem: Weight gain	
Advice	**Action**
Inform potential user that Norplant users can have a small but steady weight gain; however, most weight gain will be a result of aging, moving less or eating more.	If weight gain is marked or if client insists on removal, refer the client to a clinic where there are physicians trained in the removal procedure. (Do not attempt removal if you are not trained to do so).
Encourage client to exercise and reduce calorie intake.	
Problem: Hypertension	
Advice	**Action**
	If the systolic blood pressure exceeds 160 or the diastolic BP exceeds 100 mmHg on several occasions, the client should be advised to reduce salt and caffeine intake. If hypertension persists, refer client to internal medicine specialist to control BP and follow-up. (Do not remove the capsules).
Problem: Client gets pregnant while using Norplant	
Advice	**Action**
Assure her that there is no increased possibility of the fetus having congenital malformations because of exposure in-utero.	Refer client for removal of the capsules.

Problem: Local pain, tenderness, redness at the site of insertion	
Advice	**Action**
	1. Treat with antibiotics OR 2. Refer to a center where Norplant service is provided to exclude local infection.
Problem: Expulsion of one or more rods	
Advice	**Action**
	Refer client to hospital providing Norplant services where decision will be made as to whether to insert one more capsule or to remove those remaining.
Problem: Client uses Rifampin or anticonvulsant drugs while using Norplant	
Advice	**Action**
Inform client that these drugs will have minimal effect upon effectiveness or side effects of method.	If there are significant problems with breakthrough bleeding, consider using a non-hormonal method.
Problem: Severe abdominal pain	
Advice	**Action**
	May need to refer for evaluation of pain.
	Need to consider: 1. Ectopic pregnancy 2. Ovarian cyst 3. Pelvic inflammatory disease
Problem: Client asks to remove the Norplant capsules	
Advice	**Action**
Counsel the client for the reason for removal.	If the client insists on the removal or there is a medical indication, refer the client to a clinic where Norplant services are provided. (Do not attempt removal if you are not trained to do so).

Implanon

Counseling

What is the method?

Implanon is composed of one capsule inserted under the skin of the inner side of the arm, containing a single hormone released slowly in the blood that can prevent pregnancy for three years after which the capsule should be removed.

How does it work?

The released hormone prevents release of an ovum from the ovaries. It also causes thickening of the cervical mucus, which stops the sperm from entering the womb.

How effective is it?

Implanon is nearly 100% effective in preventing pregnancy.

How is it used?

- The capsule is inserted under the skin of the inside of the arm.
- Insertion and removal is done by a minor surgery under local anesthesia.
- The capsule must be removed after three years, however, it can be removed at any time if the client wishes.

Advantages

- Nearly 100% effective in preventing pregnancy
- Long acting, for three years
- No action needed at time of intercourse
- The capsules can be removed any time on request
- Fertility returns rapidly after removal

Disadvantages

- Insertion and removal by a minor surgical procedure
- Cannot be initiated or discontinued without service provider help
- Needs to be inserted and removed by a specially trained service provider
- High cost

Possible side effects

- Amenorrhea usually occurs throughout use of Implanon.
- Irregular bleeding is less common than amenorrhea (absence of bleeding).
- Other side effects may occur, including weight gain, acne vulgaris, headaches and breast tenderness.

Reasons to come back to the clinic

Serious side effects are very rare, but you should come back to the clinic if you have any of the following symptoms:

- In the first week:
  - Wound is red, painful or swollen
- After the first week:
  - Severe headaches
  - Severe vaginal bleeding, twice as much or twice as long as usual
  - Severe depression

Follow-up

- Advise the client that she should return to the clinic two weeks after insertion for the site to be inspected and any further questions she may have, to be answered.
- Tell the client to return to the clinic immediately if she experiences any problem.
- Inform the client that she should return three years after insertion for removal of the capsule.
- Tell the client to return to the clinic if she wishes to remove the capsules before the three years.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

Note: Providers should comply with women's requests to have the capsule removed after counseling and should assist them in selecting another method.

WHO Medical Eligibility Criteria for Starting Implanon Capsule

WHO Medical Eligibility Criteria for starting Implanon similar to those for Norplant:

- All clients who desire to use Implanon must be screened for conditions that affect eligibility for Implanon use.
- All women may use Implanon except those who fall into Category 4 for Implanon use.
- Non-specialists may not prescribe Implanon to Category 3 clients for Implanon use.

WHO category 4

According to the WHO medical eligibility criteria Implanon should not be used in the following conditions:

- Pregnancy
- Current breast cancer

WHO category 3

Women who have the following conditions may use Implanon only after consideration of alternative methods and with careful medical evaluation and supervision:

- Past breast cancer with no evidence of disease in last 5 years
- Active viral hepatitis
- Severe (decompensated) liver cirrhosis or liver tumors (benign or malignant)
- Schistosomiasis with severe liver cirrhosis
- Current treatment with Rifampin or anti-convulsants (phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)
- Less than six weeks after childbirth in case of breastfeeding
- Unexplained vaginal bleeding
- Current deep venous thrombosis or pulmonary embolism

Women without any one of the previously listed conditions (and who therefore fall into WHO Category 2 and 1) may use Implanon. Providers should emphasize the importance of follow-up visits.

Clinical and Technical Procedures

- Take the client's history using an appropriate medical record.
- Perform a physical examination, recording:
  - Blood pressure
  - Weight
  - Breast examination
  - Observation for jaundice
- Other elements of the physical assessment, including a vaginal examination, may be carried out as part of health screening measures, but are not required before the use of Implanon.
- Laboratory
  - No routine laboratory work is required except as indicated for specific health problems.

Initiation

Start Implanon if the client is eligible as follows:

- Menstruating women:
  - Better to insert during the first seven days of the menstrual cycle, preferably when the woman is menstruating; however, it can be inserted at any time provided that the provider is reasonably sure that she is not pregnant. In such a case, the client should use a backup method for contraception for 48 hours.
- Postpartum women:
  - Breastfeeding women should delay for six weeks (or later if using LAM).

  - Non-breastfeeding women can start immediately.
- Postabortion women:
  - Can start immediately
- After stopping another method women can start immediately.

Insertion and removal of Implanon

- The Implanon capsule must be removed after three years.
  - If an Implanon user request removal before that period:
    - Counsel her regarding the reason behind her request
    - If she insists on removal or has a medical reason for removal, accommodate her request without delay.
- Insertion and removal technique
  - Implanon should not be inserted or removed except by a physician trained in these procedures.
  - If the service provider is not trained, he/she should refer the client to a center equipped with a trained provider

Implanon insertion technique

Preliminary insertion notes

- Insertion and removal is easier than Norplant, with fewer complications such as pain, bleeding and bruising.
- Insertion should be performed under strict aseptic and antiseptic precautions following appropriate infection control procedures including disposal of used material.
- The capsule should be inserted at the inner (medial) side of the upper arm 6-8 cm above the elbow.
- It is important that the Implanon capsule be inserted correctly, directly under the skin so as to ensure easy uncomplicated removal.
- The woman should lie on her back with the non-dominant arm turned outwards and the elbow flexed.
- Be sure that all equipment needed for insertion is ready.

Insertion instructions

1. Wash your hands and wear a pair of sterile gloves
2. Clean the insertion site with a disinfectant, such as Betadine
3. Anesthetize the insertion site with an anesthetic spray or by injecting 2 ml of 1% lidocaine under the skin along the insertion channel.
4. An assistant should open the sealed envelop, so you can remove the sterile disposable applicator carrying the Implanon.
5. Keep the needle and the capsule sterile and change them if contamination occurs. Always hold the applicator with the needle pointing up until insertion, so as to prevent the Implanon capsule from dropping out of the needle. Be sure that the capsule is

inside the metal canula. If it protrudes, return it inside by tapping against the plastic part of the canula.

6. Stretch the skin at the insertion site (the medial side of the upper arm at the sulcus between the biceps and the triceps muscle, 6-8 cm above the elbow).

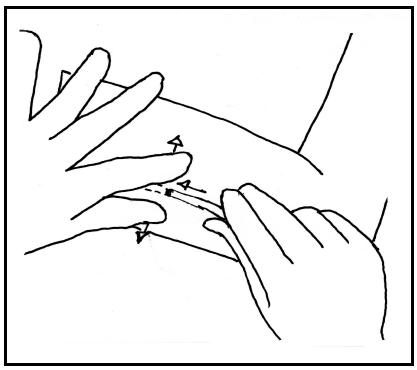


Figure 5.12 Stretch the skin, introduce the needle

7. Remove the plastic cover and introduce the needle (bevel up) directly under the skin as superficially as possible, lifting the skin while advancing the tip of the needle. Insert the needle to its full length.

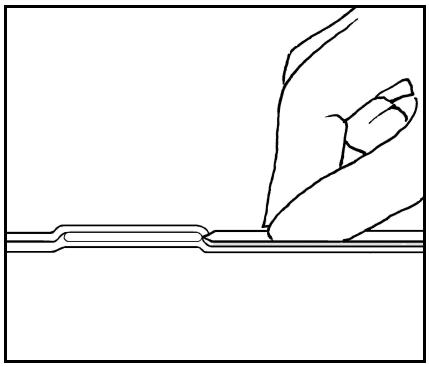


Figure 5.13 Insert needle superficially

8. Break the seal of the applicator by pressing on the obturator support.
9. Rotate the obturator 90 degrees in relation to the canula and fix it against the arm with your right hand.

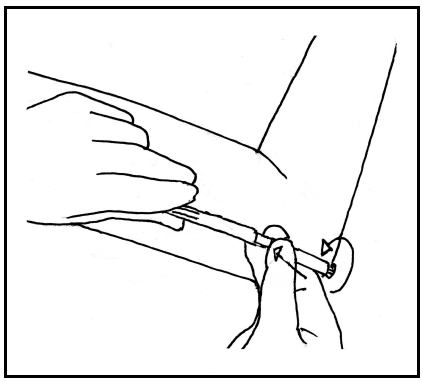


Figure 5.14 Rotate the obturator

10. With your left hand, slowly pull the canula out of the arm with the obturator immobilized in its place and support capsule with finger. By doing this, the capsule will be left in the upper arm under the skin. (This procedure is the opposite of giving an injection, where you push the plunger while the syringe is fixed.).

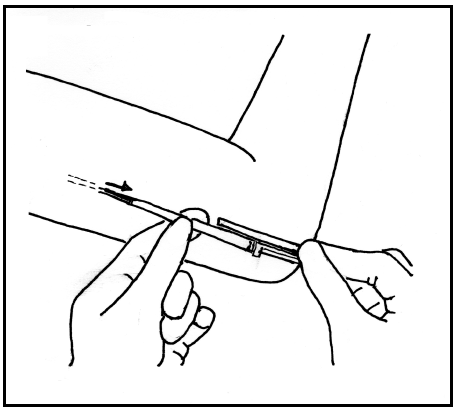


Figure 5.15 Pull the cannula out

11. Palpate the skin to check that the capsule had been inserted.
12. Apply sterile gauze and a pressure bandage to reduce the risk of bruising.
13. Instruct the client to remove the bandage the next day; she can wash then.

Implanon removal technique

Preliminary removal notes

- Insertion and removal should not be attempted except by a physician who has been trained and certified for those procedures.
- Service providers should follow strict infection prevention, aseptic and antiseptic precautions during the procedure.

Preparation for removal

- The woman should lie on her back with the arm in which Implanon has been inserted turned outwards and the elbow flexed.
- Ensure that the necessary instruments and equipment needed for removal are ready.

Removal instructions

1. Wash your hands and wear a pair of sterile gloves.
2. Clean the area with a suitable antiseptic, e.g., Betadine.
3. Locate the capsule and anaesthetize the proposed site of the incision (just below the distal end of the capsule) with 0.5-1 ml of 1% lidocaine. Apply the anesthetic under the capsule so that the skin will not swell causing difficulty in locating the capsule.

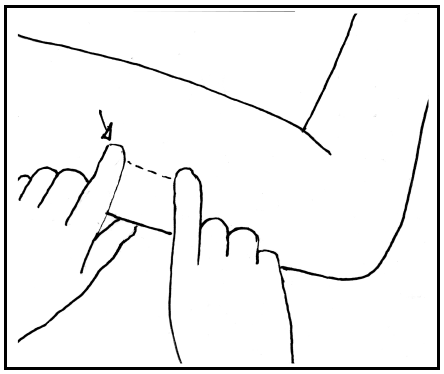


Figure 5.16 Locating the capsule

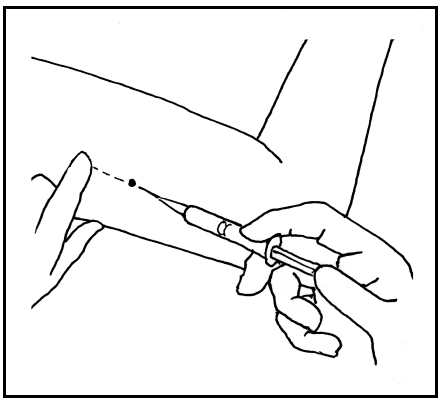


Figure 5.17 Anesthetizing the incision site

4. Touch the proposed site for insertion with the tip of the scalpel to ensure that the anesthesia has worked.
5. Make a longitudinal incision 2 mm long at the distal end of the capsule.

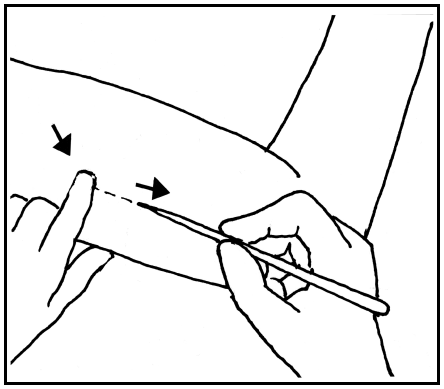


Figure 5.18 Making an incision

6. Push the capsule gently towards the incision until its tip becomes visible.
7. Grasp the capsule with a mosquito forceps and pull it out.

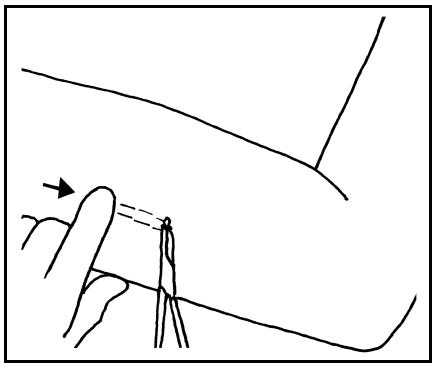


Figure 5.19 Grasping the capsule to pull out

8. If the Implanon capsule is encapsulated and its tip will not appear, incise the tissue on its tip with a scalpel and then grasp the tip of the capsule and pull it. If the tip of the Implanon capsule is not visible, gently insert a forceps into the incision and grasp the capsule. With a second forceps or a scalpel, dissect the tissues around the capsule, grasp its tip and pull it.

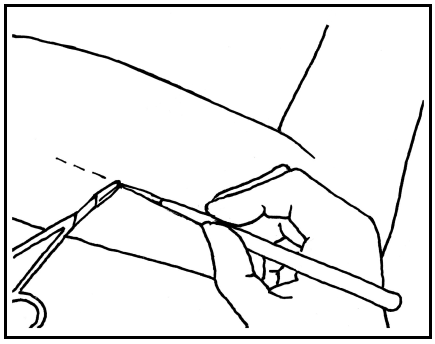


Figure 5.20 Dissecting the tissue surrounding the capsule

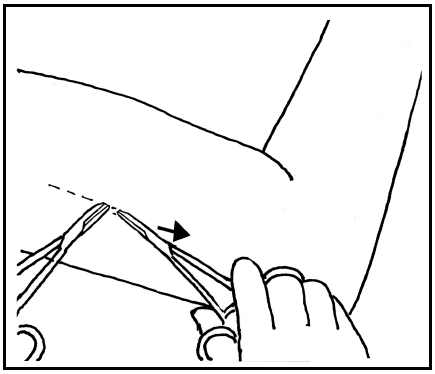


Figure 5.21 Grabbing the capsule and removing

9. Close the incision with a butterfly closure or an aid-band. Sutures are not necessary. Apply sterile gauze and a pressure bandage to reduce the risk of bruising.
10. Instruct the woman to remove the pressure bandage the next day and to uncover the wound after two days; she can wash then.
11. Watch the woman for five minutes before she leaves the clinic.

Follow-up Procedure

Routine

- Scheduled visits should take place:
  - At two weeks to assure wound has healed and to answer questions
  - Yearly thereafter
  - After three years to remove the Implanon capsule

Non-routine

- Non-routine visits should take place if the client has:
  - Severe headaches
  - Severe vaginal bleeding, twice as much or twice as long as usual
  - Severe depression
  - Suspected pregnancy

Each client visit will include

- Asking the client if she has any problems especially:
  - Heavy bleeding
  - Weight again
  - Severe headaches
  - Depression
- Excluding conditions noted under WHO Category 4 and 3
- Instructing client on next visit
- Documenting visit and findings in medical record *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of Implanon

Table 5.5 Management of clinical problems associated with the use of Implanon

Problem: Client would like to use Implanon but is concerned about feeling pain during insertion	
Advice	**Action**
Assure client it is a minor surgery that takes 10-15 minutes and is done under local anesthesia and that she will feel little or no pain during insertion (only that of the anesthesia injection).	
Problem: Client would like to use Implanon but is concerned the capsules will move in her body	
Advice	**Action**
Diaphragm: 1. Put under the skin and do not change its position at all. 2. Not visible and no one can observe that she is using them.	
Problem: Client would like to use Implanon but is concerned about future infertility	
Advice	**Action**
Explain that the Implanon capsule can be removed whenever she wishes or by the end of three years and that fertility immediately returns to normal after removal.	
Problem: Client would like to use Implanon but is concerned about the capsules interfering with doing her household activities	
Advice	**Action**
Assure her that the capsule does not cause pain and that household activities can be performed as usual the very next day after insertion (perhaps even the same day) and after removal.	
Problem: Client would like to use Implanon but is concerned about getting pregnant while using the method	
Advice	**Action**
Assure her that Implanon is a very effective method of contraception. The failure rate is well below 1%.	

Problem: Amenorrhea after insertion of Implanon	
Advice	**Action**
Potential clients should be informed about the possibility of menstrual abnormalities including amenorrhea, although most women menstruate regularly with Implanon use, particularly after the first six months.	Perform a pregnancy test only if there are other symptoms or signs of pregnancy
Assure the client that absence of menses does not harm the body and may even correct an already existing anemia.	

Problem: Amenorrhea after a period of regular bleeding	
Advice	**Action**
Advise client this can occur and does not always signify the occurrence of pregnancy.	Do a pregnancy test to exclude pregnancy.

Problem: Spotting	
Advice	**Action**
Potential user should be informed about this possibility before insertion of Implanon.	Reassure the client.
	Where indicated, examine the cervix to exclude a local cause, e.g., polyp, infection or cancer.
	Remind her about the Al Azhar fatwa that says this is *estehada* and that she can perform religious duties such as fasting and praying while spotting.
	If problem is persistent and client wishes treatment, the following options exist: 1. Anti-prostaglandin drug (e.g., Ibuprofen) one tablet three times a day for five days; 2. Oral combined contraceptive pills for two cycles 3. Ethinyl Estradiol tablets (20 mcg.) daily for 20 days
	If problem persists and client dissatisfied, refer client to a center where the Implanon capsule can be removed. (Do not remove if you are not trained to do so.)

Problem: Bleeding (either menorrhagia or metrorrhagia)	
Advice	**Action**
Inform potential user about this possibility before insertion of Implanon.	Provide iron therapy.
Reassure and encourage the client.	Treatment options include: 1. Anti-prostaglandin drug (e.g., Ibuprofen) one tablet three times a day for five days 2. Oral combined contraceptive pills for two cycles 3. Ethinyl Estradiol tablets (20 mcg.) daily for 20 days

	If bleeding is persistent or unacceptable after treatment, consider changing the method.
	If the bleeding is severe, refer to an Ob/Gyn specialist.

Problem: Headache	
Advice	**Action**
Inform potential user that this is a frequent complaint among Implanon users.	**Mild Headache**
	Analgesics
	Severe Headache
	Refer user to a clinic equipped with physicians trained in Implanon removal to remove the capsule. (Do not attempt removal if you are not trained to do so.)

Problem: Breast fullness and tenderness	
Advice	**Action**
Advise potential client that this is frequently encountered among Implanon users.	If problem is unacceptable to client, discontinue

Problem: Weight gain	
Advice	**Action**
Inform potential user that Implanon users can have a small but steady weight gain; however, most weight gain will be a result of aging, moving less or eating more.	If weight gain is marked or if client insists on removal, refer the client to a clinic where there are physicians trained in the removal procedure. (Do not attempt removal if you are not trained to do so.)
Encourage client to exercise and reduce calorie intake.	

Problem: Hypertension	
Advice	**Action**
	If the systolic blood pressure exceeds 160 or the diastolic BP exceeds 100 mmHg on several occasions, the client should be advised to reduce salt and caffeine intake. If hypertension persists, refer client to internal medicine specialist to control BP and follow-up. (Do not remove the capsules.)

Problem: Client gets pregnant while using Implanon	
Advice	**Action**
Assure her that there is no increased possibility of the fetus having congenital malformations because of exposure in-utero.	Refer client for removal of the capsules.

Problem: Local pain, tenderness, redness at the site of insertion	
Advice	**Action**
	1. Treat with antibiotics OR

	2. Refer to a center where Implanon service is provided to exclude local infection.
Problem: Expulsion of the capsule	
Advice	**Action**
	Refer client to centre providing Implanon services where decision will be made as to whether to insert another one or not.
Problem: Client uses Rifampin or anticonvulsant drugs while using Implanon	
Advice	**Action**
Inform client that these drugs will have minimal effect upon effectiveness or side effects of method.	If there are significant problems with breakthrough bleeding, consider using a non-hormonal method.
	Observe closely for the occurrence of pregnancy.
Problem: Severe abdominal pain	
Advice	**Action**
	May need to refer for evaluation of pain.
	Need to consider: 1. Ectopic pregnancy 2. Pelvic inflammatory disease
Problem: Client asks to remove the Implanon capsule	
Advice	**Action**
Counsel the client for the reason for removal.	If the client insists on the removal or there is a medical indication, refer the client to a centre where Implanon services are provided. (Do not attempt removal if you are not trained to do so.)

INTRA-UTERINE DEVICES

Copper 380 A IUDs

Counseling

What is the method?

- The service provider should be holding an IUD and show it to client.
- It is a small piece of flexible plastic in the shape of a T with a copper wire wound around the vertical stem and copper sleeves on the transverse arms. A nylon thread is attached to the vertical limb. The device is put in the womb and the nylon thread hangs down into the vagina.

How does it work?

By producing a local foreign-body reaction hostile to sperm, IUDs prevent pregnancy by preventing the sperm from meeting the ovum. Additionally, copper has an effect on sperm and ovum.

How effective is it?

- One of the most effective methods; pregnancy with the device in place occurs in less than 1% of users.
- It works for at least 10 years after insertion and does not need to be replaced or refreshed.

How is it used?

- The IUD is inserted into the womb by a trained service provider. After insertion, the client has to check the nylon thread in the vagina periodically.
- The IUD can be removed at any time by a trained service provider.

Advantages

- Very safe and highly effective; complications, such as expulsion, are rare
- Easy to use, requires no action at time of intercourse
- Long-acting (10 years) and easily removed by a service provider; fertility returns very soon after removal
- Does not affect breast milk and can be used safely by breastfeeding women
- Contains no hormones and has no systemic side effects
- The woman can check the nylon thread if she wants to be sure it is in the womb.

Disadvantages

- Insertion and removal must be performed by a trained service provider.

- Side effects may occur, particularly increased menstrual loss or irregular vaginal bleeding. Pain and severe cramps (dysmenorrhea) are less commonly encountered.
- Increased risk of pelvic infection if infection prevention measures are not applied during insertion or if RTIs occur.

Possible side effects

- Heavy menstruation and/or irregular vaginal bleeding
- Cramps and painful menstruation
- Expulsion of the device

Reasons to come back to the clinic

- Severe vaginal bleeding
- Severe abdominal pain

Follow-up

- Advise the client to return to the clinic one month after insertion to check for the nylon thread and its length
- Tell the client to return to the clinic immediately if she experiences any problem.
- Inform the client that she should return ten years after insertion for removal of the device. A new IUD can be inserted at the same time.
- Tell the client to return to the clinic if she wishes to remove the device before the ten years.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Starting Cu 380 T IUDs

- All women who desire to use an IUD should be screened for conditions that affect eligibility for IUD use.
- All women may use IUDs except those who fall into Category 4.
- Non-specialists may not provide IUDs to Category 3 clients.

WHO category 4

- Women with the following conditions should not use IUDs:
  - Pregnancy or puerperal sepsis
  - Unexplained vaginal bleeding before evaluation
  - Malignant gestational trophoblast disease
  - Cervical or endometrial cancer
  - Current RTIs or Pelvic Inflammatory Disease (PID) (however, women can keep their IUD if PID or RTI develops while using the method), RTIs

- Septic abortion, or pelvic tuberculosis
- Distorted uterine cavity (e.g., by fibroids)

WHO category 3

Women having the following conditions may start use of IUDs only after consideration of alternative methods and with careful medical evaluation and supervision:

- Very high likelihood of exposure to Gonorrhea or Chlamydia
- AIDS (however, women can keep their IUD if AIDS develops while using the method. HIV infection alone is not a contraindication to IUD use)
- Ovarian cancer
- Benign gestational trophoblastic disease

WHO categories 2 and 1

Women without any one of the previously listed conditions (and who therefore fall into WHO Category 2 and 1) may use IUDs. Providers should emphasize the importance of follow-up visits.

- Postpartum IUD insertion should not be performed in the following conditions:
  - Prolonged rupture of membranes (greater than 24 hours before labor)
  - Fever or other signs of postpartum or pelvic infection
  - Intra-partum or postpartum hemorrhage that continues after the uterus is completely empty
  - Bleeding problems, such as disseminated intra-vascular coagulation caused by eclampsia or pre-eclampsia
  - Traumatic laceration of the genital tract or an abnormal third stage of labor

Clinical and Technical Procedures

- Using the approved medical record, take the client's medical history. Specific inquiry will include eligibility criteria.
- Explain procedure, purpose and obtain consent.
- Perform a physical examination with emphasis on the following:
  - Observe for signs of anemia (pallor of mucous membranes) and confirm with Hb or Ht if available.
  - Abdominal examination:
    - Pelvic tenderness
    - Masses and gross abnormalities
  - Bimanual examination:
    - Size, shape and position of uterus
    - Signs of pregnancy
    - Signs of PID

- Speculum examination:
  - Observe the cervix for purulent discharge, erosions, growths, stenosis, or other abnormalities (including RTIs, cervical cancer, etc.)

Note: Excessive vaginal discharge by itself does not necessarily indicate PID or STIs and is not a barrier to the use of an IUD.

- For postpartum IUD insertion
  - After determining that the entire placenta has been expelled, massage the uterus until it becomes firm and bleeding stops.
  - If the woman has delivered vaginally after a previous cesarean section, palpate on the abdomen to identify any abnormal tenderness indicating possible rupture.
  - Examine the cervix for injury or laceration using a retractor or speculum, if necessary.

- Laboratory:
  - No routine laboratory work is required except as indicated for specific health problems.

Initiation

- Menstruating women:
  - Preferably during menstruation
  - At any time if the provider is reasonably sure that the woman is not pregnant.
- Postpartum women:
  - Post-placental, immediately after expulsion of the placenta (within 10 minutes)
  - Immediate postpartum (pre-discharge). Insertion should take place within 48 hours of delivery and before hospital discharge.
  - Intra-operative insertion at the time of cesarean section
  - Four to six weeks postpartum (six to eight weeks after cesarean section)
- Immediately after an uncomplicated spontaneous or induced abortion

Insertion Techniques

- An IUD should not be inserted if the facility and the provider do not meet the minimum clinic and training requirements.

Interval insertion technique

1. Have client empty bladder and assume dorsal position.
2. Use a pair of clean disinfected gloves (disposable).
3. Perform bimanual examination and confirm size, shape and position of uterus.
4. Conduct a speculum examination and assess cervix.

5. Clean cervix thoroughly with antiseptic solution, i.e., Betadine.
6. Grasp cervix with tenaculum.
7. Sound uterus to confirm size and position without touching the vaginal wall or specula with the sound.
8. Load IUD while in sterile package and adjust the collar for a distance 0.5 cm less than that determined by sound.

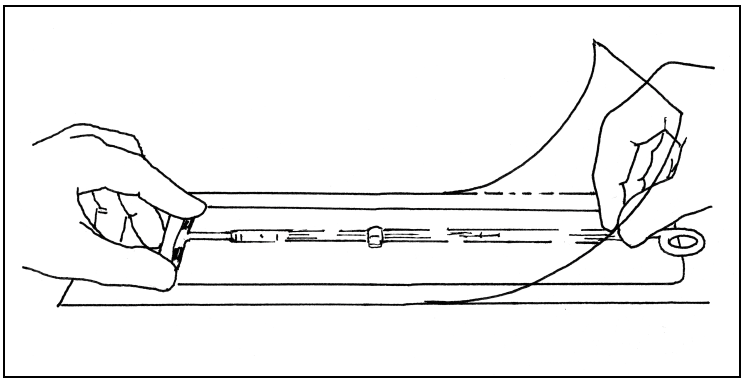


Figure 5.22a Load IUD in sterile package

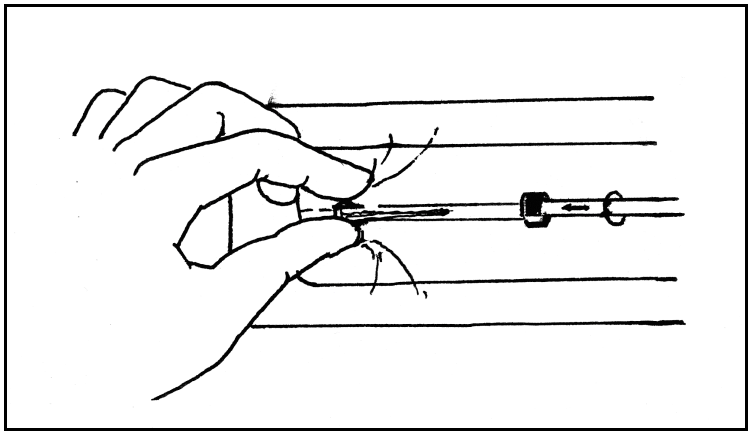


Figure 5.22b Load IUD in sterile package

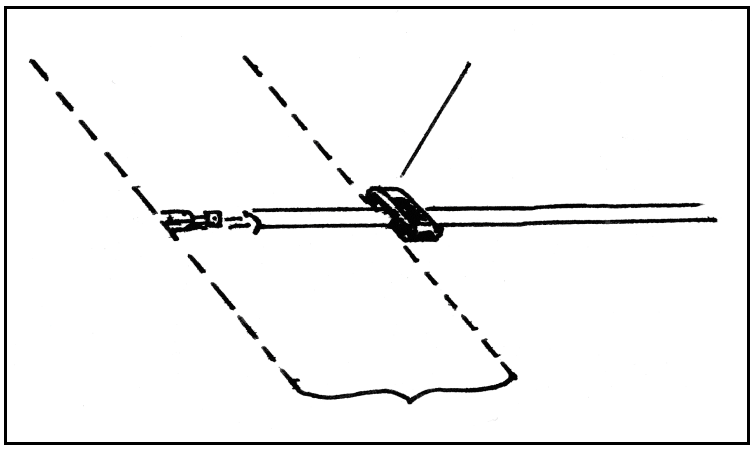


Figure 5.23 Adjusting the collar

9. Grasp tenaculum and gently insert IUD through cervix into uterus.

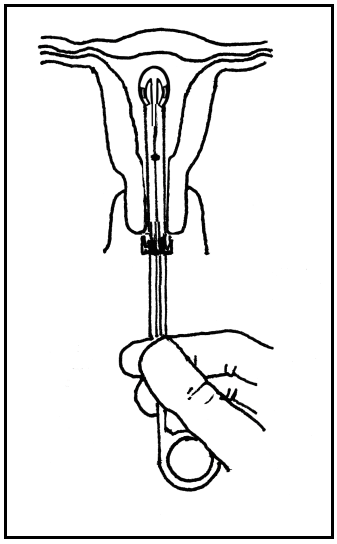


Figure 5.24 Inserting IUD

10. Holding the plunger stationary, withdraw inserter tube until it touches white rod thumb grip.

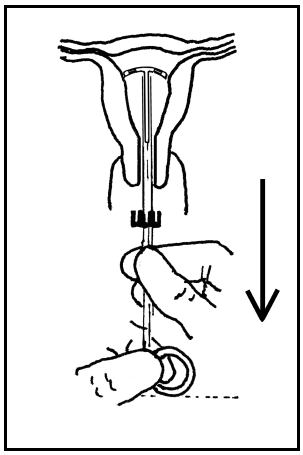


Figure 5.25 Withdraw inserter tube

11. Holding tenaculum stationary, again push the inserter tube upwards to the fundus of the uterus until a slight resistance is felt.

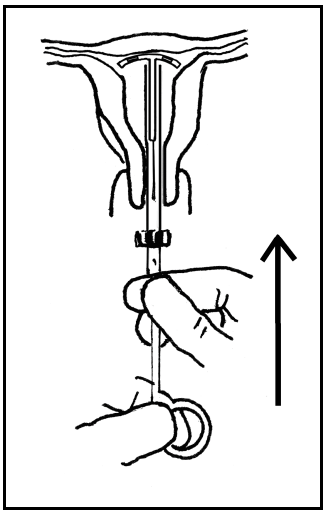


Figure 5.26 Push the inserter tube upwards

12. Remove plunger.
13. Remove inserter tube.
14. Cut string 3-4 cm from cervical os.
15. Instruct client how to check for strings.
16. Invite and answer questions.
17. Give final instructions including warning signs.
18. Instruct regarding follow-up visits.

Postpartum insertion technique

This procedure should only be carried out by service providers who have received special training to perform it.

Manual insertion (immediate post placental insertion)

1. Put on sterile or HLD gloves.
2. Insert IUD by grasping it between the index and middle fingers.
3. Place the IUD strings on the back of the hand.
4. Use the opposite hand to firmly stabilize the uterus externally via abdominal palpation.
5. Place the IUD at the top (fundus) of the uterine cavity.
6. Gently remove the hand from the uterine cavity.
7. Inspect the vagina. If the IUD strings are visible, the IUD is placed too low and should be reinserted.

Insertion using ring forceps (before discharge insertion)

1. Put on sterile or HLD gloves.
2. Grasp the IUD with the ring forceps.
3. Using a retractor or a speculum, visualize the anterior lip of the cervix.

4. Grasp the anterior lip of the cervix with another ring forceps.
5. Hold the cervix and keep it in view while introducing the IUD through the cervix into the uterine cavity.
6. Release the hand that is holding the cervix with the second ring forceps and move it to the lower abdomen.
7. Stabilize the uterus externally with firm pressure on the abdomen.
8. Advance the IUD to the tip (fundus) of the uterine cavity.
9. Confirm fundal placement with both the abdominal hand and the ring forceps inserting the IUD.
10. Open the ring forceps to release the IUD, gently remove the ring forceps, holding the cervix.
11. Inspect the vagina. If the IUD strings are visible, the IUD is placed too low and should be reinserted.

Intra-operative insertion at the time of cesarean section

This method is appropriate for use at the time of cesarean section, after delivery of the placenta and after the bleeding from the uterine incision has been controlled.

1. Massage the uterus until the bleeding stops.
2. Place the IUD at the top (fundus) of the uterine cavity manually or with the ring forceps.
3. Before closing the uterine incision, place the strings in the lower uterine segment.

IUD Removal

1. Discuss the removal with the client and obtain consent.
2. Perform a bimanual examination.
3. Determine direction of the uterus and cervix.
4. Perform a speculum examination.
5. View cervix and locate IUD string.
6. Grasp the anterior lip of the cervix with a volsellum.
7. Grasp string with Kocher or artery forceps.
8. Pull string steadily and gently with forceps, steady the cervix with the volsellum until IUD is removed.
9. Record in the medical record:
   a. The type of IUD removed
   b. Reason for removal
   c. Problems encountered in the process
10. Refer client if problems are encountered.

Follow-up Procedure

Scheduled follow-up visits

- Following an interval IUD insertion, the client is to return to check the IUD string after the first menses, and to check if infection is present.
- Following a postpartum IUD insertion, the client is to return after four weeks for the postpartum visit. During the check for the presence of the IUD strings. If the strings are not seen, refer for further investigations.
- When the IUD needs replacement (after ten years of use or when client desires), removal or change of method, a return visit should be scheduled.
- Document visit and findings in medical record and *Woman's Health Card*.

Non-scheduled follow-up visits

- The client is to return in case of:
  - Missed menstrual period
  - Severe or prolonged bleeding
  - Suspicion of being pregnant
  - Abnormal/offensive vaginal discharge
  - Increasing pain in the lower abdomen
  - The string can not be felt
  - The IUD comes out
- Ask the client about side effects
- Document the visit and findings in the medical record and *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of Copper 380A IUDs

Table 5.6 Management of clinical problems associated with the use of Copper 380A IUDs

Problem: Vaginal discharge	
Advice	**Action**
	Inoffensive Smell
	(See Chapter 21 Reproductive Tract and Sexually Transmitted Infections)
	Treat infection, if present. If no evidence of infection, reassure client that excessive discharge is due to the presence of the IUD.
	If at risk of PID, counsel client regarding IUD use and take appropriate action.
	Offensive Smell
	Associated with severe lower abdominal pain, tenderness and fever. (This may denote PID).
Problem: Potential user would accept an IUD but is afraid of infertility	
Advice	**Action**
Assure client that the IUD does not affect future fertility and that fertility returns quickly after removal.	
Problem: Potential user would accept an IUD but is afraid of the IUD moving around in the body	
Advice	**Action**
Assure client that the IUD cannot move from inside the uterus into any other parts of the body (i.e., heart, stomach).	
Problem: Spotting	
Advice	**Action**
For a few days before onset of menstruation	
Reassure the client that spotting is a common occurrence.	
Intermenstrual	
Remind the client of the Al-Azhar fatwa that this is *estehada* and should not prevent her from performing religious duties e.g., praying and fasting.	

Problem: Bleeding	
Advice	**Action**
Menorrhagia	**Menorrhagia**
Reassure the client that this may occur in the first few post-insertion periods.	If persistent: supply iron. Exclude other causes.
	If severe: remove the device.
	Metrorrhagia
	Give iron. Exclude other causes
	If severe and persists, remove the device.
	If persists after removal of device, refer to hospital for evaluation.

Problem: Pain (lower abdominal)	
Advice	**Action**
Slight pain after insertion	**Slight pain after insertion**
Advise client that pain usually disappears after a few hours or between one and two days.	Give simple analgesics (e.g., aspirin or Ibuprofen).
	Severe pain during insertion
	Give analgesics.
	Consider perforation at insertion. Carefully examine client and refer if necessary.
	Give client another appointment to examine the length of the string after first cycle. If string gets shorter or disappears, it may denote uterine perforation, refer to specialist.
	Severe pain after insertion
	Refer client for testing to exclude possibility of ectopic pregnancy.

Problem: Dysmenorrhea or intermenstrual pain	
Advice	**Action**
	Try one of the following:
	1. Analgesics e.g., paracetamol
	2. Acetaminophen
	3. A prostaglandin inhibitor e.g., Ibuprofen.
	If severe and does not respond to above, remove the device.
	Pain is severe
	Exclude ectopic pregnancy by referring client for diagnostic testing.
	Pain is colicky, recurrent
	Instruct the client to watch the thread carefully (it may be the beginning of expulsion of the device).
	Consider treatment with anti-prostaglandin medication (e.g., Ibuprofen).

Problem: Amenorrhea	
Advice	**Action**
	Examine client for length of the thread and signs of pregnancy.
	Do a pregnancy test if the thread becomes shorter or disappears or if there are signs suggestive of pregnancy.
	Consider client's age. Is she menopausal?

Problem: Pregnancy	
Advice	**Action**
Thread visible	**Thread visible**
Inform user that risk of abortion is about 50%.	Remove IUD gently.
	Refer for prenatal care.
	Thread not visible
	Refer to Ob/Gyn specialist for consultation who will likely recommend ultrasonic scan. (If the IUD is not present, denotes unnoticed expulsion. If the IUD is present, there is no increased risk of congenital malformations, but risk of abortion is 50%. This abortion is more likely to be septic, so increased attention and follow-up is needed.)

Problem: Client wants to use an IUD, but does not want to run the risk of failure (or client wants to decrease possibility of pregnancy while using an IUD)	
Advice	**Action**
Reassure the client that the IUD is a very safe method. If she insists, she can combine it with periodic abstinence (safe period), or use of foam tablets (or condom) at mid-cycle.	

Problem: Client cannot feel the thread	
Advice	**Action**
	Look for signs and symptoms of possible pregnancy.
	Expose the cervix with a speculum:
	1. If the thread is visible, be sure that the client knows the proper way of feeling the thread.
	2. If there is excessive mucus discharge and a lacerated cervix, clean the cervix and look carefully for the thread in the depth of the cervical laceration.
	3. If there are no signs of pregnancy, have client use another method and evaluate after next menses.

	4. If the thread is still not seen, refer to specialist for an ultrasonic scan or x-ray, to exclude unnoticed expulsion. (If the device is found in the pelvis, attempts will be made to ascertain whether its location is intra-uterine or extra-uterine and appropriate measures will be taken for its removal).
Problem: Client notices that the thread is getting shorter	
Advice	**Action**
	Examine carefully for signs of pregnancy and do a pregnancy test.
	If the thread gets shorter or disappears, repeat the pregnancy test and refer to a specialist.
Problem: Client notices that the thread is getting longer	
Advice	**Action**
	Expose the cervix and look for the following:
	1. If the lower part of the plastic device is seen (partial expulsion), extract the device and if client desires, replace with another.
	2. If not, recommend that client use an additional contraceptive (condom or spermicide) as lower displacement of the IUD reduces protection against pregnancy. Refer client to a specialist for further evaluation.
Problem: Husband feels discomfort or pain during sexual intercourse	
Advice	**Action**
	Expose the cervix with a speculum and look for the following:
	1. If thread is too short, change the device and cut the thread 5 cm from the cervix.
	2. If the lower part of the plastic device is seen (partial expulsion), remove the device and insert another one.
	3. If client desires, remove IUD and provide another contraceptive method.
Problem: Client wants to replace the IUD with a new one to maintain effectiveness	
Advice	**Action**
Explain to client that: The Cu 380A device remains effective for at least 10 years, and Removal and reinsertion of another device may result in bleeding and/or infection and is resorted to only when absolutely necessary.	

Problem: Potential user wants to use an expensive IUD	
Advice	**Action**
Explain to potential user that the Cu 380A is an excellent contraceptive that is very effective, lasts for a long time and is not of lower quality than other types of IUDs simply because of its lower cost.	
If client is bleeding from the IUD, she can use a progestagen-loaded IUD if she wants to continue and can afford it.	

Problem: Potential user wants to postpone her first pregnancy by using an IUD	
Advice	**Action**
Explain that IUDs are usually not recommended for nulliparous women, and that there are more suitable contraceptive methods for them. (The Cu 380A is difficult to place through a nulliparous cervix and expulsion is more common). However, the patient can receive her method of choice.	

Problem: Cervical erosion found on routine check up	
Advice	**Action**
	(See Chapter 21 Reproductive Tract and Sexually Transmitted Infections).
	If the erosion is not infected, continue using the IUD.
	If indicated, refer for cervical cancer test (Pap smear).
	If an STI is present treat appropriately, provide alternative contraception and remove IUD.

Problem: Cervical infection, erosion and/or mucopurulent discharge	
Advice	**Action**
	(See Chapter 21 Reproductive Tract and Sexually Transmitted Infections).
	Evaluate client for STI risk.
	Evaluate for possibility of PID.
	Treat problem.
	Leave IUD in place.

Problem: IUD thread tears when pulled on for removal of the IUD	
Advice	**Action**
	Traction should be gentle and steady.
	Steady the cervix with a tenaculum if you encounter resistance.
	May use crocodile forceps or Bozeman to locate IUD and then complete the removal within clinic, or refer to hospital.

Hormone-releasing Intrauterine System (IUS)

Counseling

What is the method?

The hormone-releasing intrauterine system (IUS) is a small plastic device in the shape of a T. The vertical limb contains a hormone, which is slowly released into the womb. It should not be used as a substitute for the copper IUD. It may be used only by women who bleed from the copper IUD, still want to use an IUD and can afford its high price.

How does it work?

The released hormone causes the cervical mucus to thicken, which stop the sperm from entering the womb. Occasionally, it prevents the release of an ovum from the ovaries. In addition, it stops the ovum from attaching itself to the womb's lining.

How effective is it?

The method is highly effective in preventing pregnancy with a failure rate far less than 1%.

How is it used?

- The IUD is inserted in the womb by a trained service provider. After insertion, the client has to check the nylon thread in the vagina periodically.
- The IUD can be removed at any time by a trained service provider.

Advantages

- Very safe and highly effective; complications, such as expulsion, are rare
- Easy to use; requires no action at time of marital relations.
- Does not affect breast milk and can be used safely by breastfeeding women
- The woman can check the nylon filament if she wants to make sure it is in the womb.
- Long-acting (five years) and easily removed by a service provider; fertility returns very soon after removal
- Decreases the amount of blood loss and can help treat anemia, irregular menstruation and possibly prevents PID (salphigytis)

Disadvantages

- Insertion and removal must be performed by a trained service provider.
- Side effects may occur, particularly increased menstrual loss or irregular vaginal bleeding. Pain and severe cramps (dysmenorrhea) are less commonly encountered.
- Increased risk of pelvic infection if infection prevention measures are not applied during insertion or if STIs occur.
- Expensive

Follow-up

- Advise the client to return to the clinic one month after insertion to check for the nylon thread and its length.
- Tell the client to return to the clinic immediately if she experiences any problem. Inform the client that she should return five years after insertion for removal of the device.
- Tell the client to return to the clinic if she wishes to remove the device before the five-year period ends.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

The eligibility criteria for the IUS are not yet available, but they are thought to be similar to those of both progestin-only methods and of IUD use.

WHO Medical Eligibility Criteria for Starting IUS

The eligibility criteria for the IUS are similar to those of IUD use.

Clinical and Technical Procedures

- The IUS is an expensive method and is not among the FP methods provided in the MOHP service provision facilities.
- The IUS is not a substitute for the copper-bearing IUD
- IUS can be used if a woman complains of excessive bleeding with copper IUD, which she cannot tolerate, but still wants to use an intrauterine device, and can afford the high price of the hormone-releasing IUS.

Follow-up Procedure

- Following an interval IUD insertion, the client is to return to check the IUD string after the first menses, and to check if infection is present.
- Following a postpartum IUD insertion, the client is to return after four weeks for the postpartum visit and check for the presence of the IUD strings. If the strings are not seen, refer for further investigations.
- When the IUD needs replacement, after five years of use or when client desires removal or change of method, a return visit should be scheduled.
- Document the visit and findings in the medical record and *Woman's Health Card*.

CONDOMS

Counseling

What is the method?

The provider should hold a condom and show it to the client while explaining that a condom is a sheath made of a rubbery substance designed to fit over a man's erect penis.

How does it work?

The condom prevents both pregnancy and sexually transmitted diseases. The semen is collected inside the condom.

How effective is it?

- Effective when used correctly and consistently with every act of intercourse. Under such circumstances, failure rate is about 3%.
- However, it is only somewhat effective as commonly used. Under ordinary circumstances of use, failure rate is about 14%, which is not very effective.

How is it used?

- Place on the erect penis before entering the vagina. Deflate the tip before putting on so there is room in the end for the semen.
- Carefully roll the condom onto the erect penis.
- Withdraw the penis after ejaculation while still erect holding the base of the condom before withdrawal to prevent slipping.
- The use of vaginal spermicides with the condom reduces the chances of pregnancy if the condoms tears.
- Discard after use and use a new condom with every act.

Advantages

- No medical examination or provider's help needed
- Helps prevent STIs
- No hormones are involved
- Can use while breastfeeding
- May help decrease premature ejaculation
- May help protect against cervical cancer

Disadvantages

- Efficacy depends on correct and consistent use
- Can interrupt sexual foreplay

- Objections to its use, including decreased sexual sensations
- Possibility that condom slips or tears during intercourse
- Requires cooperation of the husband

Possible Side Effects

- An allergic reaction (rarely encountered)

Follow-up

- Advise the client to return to the clinic as needed for re-supply.
- Encourage the client to visit the clinic at any time if she or he has any concerns.

WHO Medical Eligibility Criteria for Using Condoms

- According to the WHO medical eligibility criteria, there are no restrictions on using condoms (Category 1).
- Precautions to use: allergy to latex or spermicides in either the man or the woman.

Clinical and Technical Procedures

To increase effectiveness of counseling, a condom and a penile device are needed to demonstrate how the condom is used.

A demonstration of the use of a condom along with verbal and maybe written instructions should be given to men coming to the clinic or to wives to give to their husbands.

- The condom should be unrolled onto the erect penis before the penis enters the vagina, because the pre-ejaculatory fluid may contain active living sperm.
- If the condom does not have a reservoir at the end, about one centimeter should be left at the tip for collection of the ejaculate.
- Withdraw the penis before losing the erection, holding the condom's base with the fingers so that the condom will not slip and spill semen. Very carefully ease condom off penis, pooling the ejaculate into end of condom without spilling.
- The condom should be used only once and discarded.
- Keep an extra supply of condoms on hand, but do not store them in a warm place or they will deteriorate and may tear during use.
- In order to prevent STIs, condoms should be used during every act of sexual intercourse.
- Combination with spermicides such as foaming tablets, creams or foam increase efficacy.

Follow-up Procedure

- The client is to return if:
  - In need of further supplies
  - Has problems or questions
- Document visit and findings in medical record and *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of Condoms

Table 5.7 Management of clinical problems associated with the use of condoms

Problem: Forgot to use the condom OR condom ruptured	
Advice	**Action**
	If woman presents herself within 72 hours from unprotected intercourse, advise her to take one of the following three emergency contraception options: 1. Take one tablet containing 0.75 mg of levonorgestrel (Postenor) and repeat after 12 hours. 2. Take 25 tablets of POP (all at once) and repeat the same dose after 12 hours. 3. Take four tablets of COCs and repeat the same dose after 12 hours.
	If she presents herself within five days of intercourse: 1. Immediate insertion of Cu-T 380 A IUD 2. Refer to specialist for immediate follow-up.
Problem: Condoms repeatedly rupture	
Advice	**Action**
Look at manufacture date on package, if more than five years old, use more recently manufactured brands.	
Empty the teat of air before putting on the condom, and prolong the love-play until the vagina is wet; or	
Use a lubricant (contraceptive foam, gel or cream) but not oily lubricants.	
Problem: Client wants to continue using the condom but would like to increase effectiveness.	
Advice	**Action**
Condom slips during withdrawal	
Hold the open end during withdrawal.	

DIAPHRAGM

Counseling

What is the Method?

- The provider must hold a diaphragm and show it to the client.
- It is a soft rubber cup with a spring ring intended to be put obliquely in the vagina to close off the entrance into the womb.

How does it Work?

It prevents the sperm from entering the womb and should be used together with spermicides.

How Effective is it?

Effectiveness depends on correct and consistent use. Failure rates are between 2-6%.

How is it Used?

- The service provider determines the correct size.
- Place a spermicidal cream or jelly around the edge and in the dome.
- Insert the diaphragm in the vagina before intercourse.
- Do not remove the diaphragm or douche for six hours after intercourse; then remove, wash and dry.
- Insert an additional applicator of spermicide for each further act of intercourse.

Advantages

- Safe
- Helps prevent some STDs
- No hormonal side effects
- Can use while breastfeeding

Disadvantages

- For some women, it may be difficult to insert and remove
- Interrupts sexual foreplay if not inserted beforehand
- Efficacy depends on correct and consistent use
- Requires physical examination and periodic re-examination to estimate correct size
- Some couples may be allergic to spermicides or may complain of a messy sensation

Follow-up

- Advise the client that she should return to the clinic two weeks after initial visit to check the fit.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Advise the client to return for re-supply of spermicides when needed.
- Inform the client that she should visit for re-estimation of size after labor or vaginal operations.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Using the Diaphragm

This method may be provided to the client provided the reason(s) are documented and the client is informed of the risks and alternatives. It may not be provided in cases of:

- Allergy to rubber or spermicide
- Repeated urinary tract infections
- Prolapsed vaginal wall or uterine prolapse
- Post Toxic Shock Syndrome
- High risk of HIV, existing HIV infection, or AIDS

Clinical and Technical Procedures

1. Take the client's medical history using the approved medical record.
2. Explain procedure, purpose and obtain consent.
3. Perform a bimanual examination. A general physical examination is also encouraged.
4. Ask client to empty her bladder and wash her hands.
5. Ask client to undress from the waist down.
6. Position client in dorsal position on the examining table.
7. Conduct a speculum examination to inspect the cervix and vagina.
8. Perform a vaginal examination to determine the size of diaphragm to be used.
9. Use a fitting diaphragm set to check size.
10. Ask the woman to practice putting the diaphragm in and taking it out.
11. Recheck to make sure that the woman has placed the diaphragm correctly and that the size is correct.
12. Give the client a diaphragm of her size, spermicidal cream and instructions for use.

Client Instructions

1. Use diaphragm and spermicide with each act of intercourse.

2. Empty bladder and wash hands.
3. Check the diaphragm for holes.
4. Place two teaspoons of spermicidal cream into the center of the diaphragm and around the rim. Squeeze the rim together.
5. Insert the diaphragm and cream back in the vagina and push the front rim up behind the pubic bone.
6. Put finger in the vagina and feel the cervix (like the tip of your nose) through the rubber to make sure it is covered.
7. The diaphragm can be placed in the vagina up to six hours before intercourse. If intercourse occurs more than six hours after insertion, another application of spermicide should be put in the vagina. Additional cream is needed for repeated intercourse.
8. Leave the diaphragm in for at least six hours after the last intercourse before removing it. Do not leave the diaphragm in for more than 24 hours.
9. Take the diaphragm out by hooking a finger behind the front rim and pulling it out. If necessary, put finger between the diaphragm and the pubic bone to break the suction before removing.
10. Wash the diaphragm with mild soap and water and dry it thoroughly. Dust with starch prior to putting in the container.
11. Do not douche after intercourse, or before removing the diaphragm.

Follow-up Procedure

- To check diaphragm fit, the client should return two weeks after initial visit.
- The client should return:
  - When in need for re-supply of spermicides
  - If there are problems or questions
  - After childbirth or vaginal surgery
- Document visit and findings in medical record

Management of Clinical Problems Associated with the Use of the Diaphragm

Table 6.7 Management of Clinical Problems Associated with the Use of the Diaphragm

Problem: Spermicide cream is not available	
Advice	**Action**
Use another method, as the diaphragm alone is ineffective.	
Problem: Client feels pain or difficulty with urination while putting in the diaphragm	
Advice	**Action**
	Check the size of the diaphragm, client may need a smaller size.
	If this is a recurrent problem, use another method.
Problem: The diaphragm is displaced or expelled with straining or defecation by client	
Advice	**Action**
	Avoid using the diaphragm in cases of vaginal wall prolapse (use another method).
	Check the diaphragm size. May need a larger size diaphragm.
	Recheck the size of the diaphragm every few years and after delivery.
Problem: Client can not insert the diaphragm properly	
Advice	**Action**
	Instruct client in the proper way of inserting the diaphragm, particularly her position during insertion (either squatting or putting one foot on a chair).
	Observe the client practicing insertion during clinical visit.
Problem: Client develops repeated dysuria and frequency of micturation	
Advice	**Action**
Change to another method and laboratory test a urine sample to exclude cystitis.	
Problem: Client develops foul-smelling vaginal discharge	
Advice	**Action**
Advise client to remove the diaphragm six to eight hours after intercourse.	Examine the vagina to exclude ulceration of the vaginal wall. If present, change to another method.
Problem: More than one intercourse is practiced during one night	
Advice	**Action**
Do not remove the diaphragm (keep it in place) and apply a spermicide before every act of intercourse.	

SPERMICIDES

Counseling

What is the Method?

The provider should hold foam tablets, tube and applicator or spray and show them to the client.

Spermicides are foam sprays, creams, jellies or foam tablets that contain chemical substances that kill sperm or make them unable to move towards the ovum.

How does it Work?

Put in the vagina, they kill or immobilize sperm and prevent it from entering the womb to meet the ovum.

How Effective is it?

Effectiveness depends on correct and consistent use. Failure rates between 2-6%.

How is it Used?

- The foam tablet or cream is put high up in the vagina before each intercourse.
- No douching should be done until six hours after intercourse.

Advantages

- Requires no examination or a service provider
- Does not affect breast milk
- Lubricates the vagina
- No hormonal side effects

Disadvantages

- Occasional burning or irritation of the vagina, vulva or penis
- Occasional failures particularly with incorrect and inconsistent use
- Frequent use several times a day may increase risk of infection by STIs/HIV.

Follow-up Visits

- Advise the client that she should return to the clinic as required for re-supply.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Using Spermicides

According to the WHO medical eligibility criteria, spermicides can be used without restriction except in the following conditions:

- Cervical cancer
- High risk of HIV infection or existing HIV infection or AIDS
- Allergy to the spermicide

Clinical and Technical Procedures

- Using the approved medical record, take the client's medical history. Note if client is allergic to spermicide.
- No physical examination is required in order for the client to obtain a spermicide; however, it should be encouraged as a screening preventive health measure.
- The spermicides (contraceptive foam, foaming tablet or cream) are provided to the client. Clients should always keep an extra supply available. Clients may stop use of method at any time either to become pregnant or to use another contraceptive.

Foaming tablets

1. One tablet is used with each act of intercourse.
2. Dip the tablet in water and immediately remove and insert in the vagina 10 minutes before intercourse.
3. If more than 30 minutes pass before intercourse occurs, insert another tablet.
4. If tablet fails to melt or foam, it is less effective.
5. Vaginal douche should not be taken within six hours of last intercourse.
6. Warn the client that a warm sensation may be felt because of chemical reaction of foaming.

Foam

1. Shake container before use.
2. Place container in upright position, and place the applicator over the valve.
3. Press applicator to the side and fill with foam.
4. While lying down, insert applicator high in vagina.
5. Push plunger and release foam.
6. Spermicide is immediately effective.
7. Applicator should be washed with soap and water after each use.
8. Do not douche for six hours after intercourse.
9. Another application of the foam is needed if intercourse is repeated.

Contraceptive cream

1. Fill applicator (squeeze from tube) with contraceptive cream.
2. Insert applicator high in vagina.
3. Push plunger and release cream.
4. Cream is immediately effective.
5. Applicator should be washed with soap and water after each use.

Follow-up Procedure

- Clients should return when they need a re-supply.
- Document visit and findings in medical record and *Woman's Health Card*.

Management of Clinical Problems Associated with the Use of Spermicides

Table 5.8 Management of clinical problems associated with the use of spermicides

Problem: Client feels a sensation of heat in the vagina after inserting the tablet	
Advice	**Action**
Explain to client that this is due to the foaming reaction while the tablet is dissolving and that this sensation of heat does not denote inflammation or irritation.	
Problem: The tablet does not dissolve in the vagina	
Advice	**Action**
Check that the tablet package is intact and check the expiration date of the tablets.	See Advice
Problem: Client finds putting the tablet high up in the vagina difficult because of vaginal dryness	
Advice	**Action**
Instruct client to dip the tablet in a small amount of water, rapidly remove it and insert it in the vagina.	
Problem: Sometimes more than one sexual act takes place during one night	
Advice	**Action**
Use another tablet before every sexual act. Do not douche.	
Problem: Client is satisfied with the method, but wants to increase its effectiveness	
Advice	**Action**
Combine with coitus interruptus, the safe period or using condoms.	
Problem: Redness at the vulva and itching	
Advice	**Action**
Change to another method.	Advise client on alternative methods. Exclude infection.
Problem: Client's husband complains of local irritation or of excessive moisture	
Advice	**Action**
Change to another method.	Advise client on alternative methods.

LACTATIONAL AMENORRHEA METHOD

Counseling

What is the Method?

Lactational Amenorrhea Method (LAM) is the use of breastfeeding as a way to prevent pregnancy.

How does it work?

Stimulation of the nipples by suckling releases a hormone that prevents pregnancy.

How Effective is it?

If used as prescribed, it can prevent pregnancy in over 98% of cases.

How is it Used?

- There are three important requisites for LAM to be effective:
  - Breastfeeding should be practiced day and night with no supplementation.
  - Menstruation should not occur (not any amount of blood, not even drops).
  - Client must be within the six months following childbirth.

Note: If breastfeeding is supplemented by other feeding, menstruation is occurring or if it is more than six months after childbirth, the method is not reliable for prevention of pregnancy.

Advantages

- An effective method (provided the three requisites are present) that can be used immediately after childbirth
- Good for the baby
- Cheap

Disadvantages

- It may be difficult for some women to maintain the required breastfeeding pattern
- Can only use it for six months

Possible Side Effects

- None

Follow-up

- Encourage the client to come when she no longer breast-feeds fully, starts menstruating or if the baby is older than six months.

- Encourage the client to visit the clinic at any time if she has any concerns.

WHO Medical Eligibility Criteria for Using LAM

According to the WHO medical eligibility criteria, LAM can be used without any restrictions. There are no known reasons for not using LAM as a contraceptive method provided that all conditions for LAM exist.

In cases of HIV infection and where affordable and where safe alternatives to breastfeeding are available, HIV-infected women should not breast-feed.

Clinical and Technical Procedures

There are no clinical or technical elements to note when recommending breastfeeding as the contraceptive method. This method presents a counseling challenge to the provider.

- Using the approved medical record, take the client's medical history.
  - Specifically ask the client three questions:
    - Are you exclusively breastfeeding?
    - Is the child less than six months old?
    - Are you still not bleeding?
  - If the answer to all three questions is yes, breastfeeding is an appropriate method of contraception. If the answer to any question is no, the client needs to use another contraceptive method.
- Perform a physical examination that includes but is not limited to:
  - Examining the nipple, especially for retraction and fissures
  - Giving breast self-examination instructions

Follow-up Procedure

- The client should be seen for the routine six-week postpartum visit.
- Unless one of the answers to the three questions outlined above changes, the client need not be seen until six months following childbirth.
- The client should return to clinic if she can answer yes to any of the three questions outlined above. It is possible to become pregnant while breastfeeding. If symptoms of pregnancy occur, the client should return for evaluation.
- The client must have a backup method available if one of the conditions asked about in the three questions outlined above change.
- Document visit and findings in medical record and *Woman's Health Card*.

VOLUNTARY TUBAL LIGATION FOR MEDICAL INDICATIONS

Voluntary tubal ligation is not a family planning method in Egypt. Special consultation and consideration, however, must be given to the client who is put at risk of mortality or inevitable morbidity if she should become pregnant, because her medical condition. Such conditions include, but are not limited to the following.

Problems that Would Threaten the Woman's Life if She Became Pregnant

- Severe cardiac disease (e.g., heart failure)
- History of breast cancer
- HIV/AIDS
- Diabetes with vascular complications
- Severe kidney disease (e.g., renal failure)

Under such conditions, a permanent method of birth control has to be considered. In addition, when a client who has these medical indications is seen for antenatal care, it is an opportunity to discuss with her that she can request voluntary tubal ligation if she needs a cesarean section. For this reason it is included here.

The provider should discuss the procedure with the client detailing the surgical procedure and highlighting its permanent nature. Written consent is necessary.

Referrals should be made to a hospital or other appropriate facility.

Counseling

What is the Method?

- A safe method for permanent contraception: the uterine tubes are blocked to prevent passage of the ovum to meet the sperm. The ovaries are not removed and hormone secretion is not affected.
- Because the method is a surgical procedure, it requires hospital services after meeting specific medical criteria.

How does it Work?

When the tubes are blocked, the ovum can not meet the sperm.

How Effective is it?

- Highly effective and permanent
- Failure rates are less than 0.5%

How is it Used?

- The health care provider closes the tube. The method requires:
  - A consultation with a gynecologist in a hospital
  - A minor surgery to accomplish the procedure
  - Alternatively, it can be done during a cesarian section

Advantages

- Highly effective
- Requires a single decision for life-long contraception
- No action needed with relation to marital relations

Disadvantages

- Requires a minor surgery
- Permanent, irreversible method
- Complications of surgery rarely occur

Possible Side Effects

- Wound infection
- Surgical complications are rare
- Consult a service provider if signs of pregnancy occur after surgery

Follow-up Appointments

- Advise the client that she should return to the clinic four weeks after surgery to ensure proper healing of the wound.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns or complaints.
- Documents the visit and findings in medical record and *Woman's Health Card*.

VASECTOMY

Counseling

What is the Method?

A vasectomy is a permanent procedure designed to block the passage of sperm through the tubes from testes to penis.

How does it Work?

After a vasectomy, the transport of sperm is blocked so there is no sperm in the fluid.

How Effective is it?

- Vasectomy are among the most effective methods of contraception. In most studies they have failure rates of less than 1%.
- Most failures are due to:
  - Men store sperm. It takes three months before the stored sperm is finished, so you must use another contraceptive method during this three-month period.
  - Rarely, the connection between the testes and penis is made again.

Possible Side Effects

Vascetomy and vas occlusion are safe and simple procedures. Short-term or post-operative side effects are minor and most subside within one or two weeks.

- The most common complaints are swelling of the scrotal tissue, bruising and pain for about a week.
- Most serious complications are infection and hematoma in less than 3%.
- Deaths are extremely rare and in most cases can be avoided by
  - Very careful sterile technique during surgery
  - Proper care of the incision during surgery

Reversibility

Vasectomy should be considered a permanent procedure; however, vasectomy reversal can be achieved by a surgical technique to rejoin the vas. Vasectomy reversal is unlike the original procedure, and must be performed by a highly trained and experienced surgeon in a fully equipped hospital. Under the most favorable circumstances, the success rate for restoring fertility is not more than 50%.

Clinical and Technical Procedures

Referral

ABSTINENCE

Counseling

What is the Method?

Client and her husband avoid marital relations.

How does it Work?

Sperm does not touch the woman.

How Effective is it?

Highly effective and permanent

How is it Used?

The couple choose not to have intercourse.

Advantages

- Cheap
- No additional hormones

Disadvantages

- Sometimes difficult to follow in practice
- Very unreliable method in practice

Clinical and Technical Procedures

- No history taking is needed, except for health screening purposes, if a couple is to use abstinence as their method of birth control.
- No physical examination need be done, except for health screening measures, if a client states he/she is going to use this method.
- All clients should have a backup method (condom, spermicides, emergency contraception) available if they are relying upon abstinence as their means for not becoming pregnant. Those clients must be aware that if unprotected intercourse does take place, emergency contraception can be practiced to prevent pregnancy.

Precautions to Use

None

Follow-up Procedure

None

COITUS INTERRUPTUS

Counseling

What is the Method?

Withdrawal of the penis from the vagina before ejaculation

How does it Work?

Sperm is deposited outside the vagina and can not enter the womb.

How Effective is it?

- The failure rate depends on the ability of the man to control himself so as to withdraw in the proper time.
- The pre-ejaculatory fluid may contain some sperm resulting in some failures.
- The method is less effective than COCs, IUDs, injectables or condoms.

How is it Used?

During intercourse, the man removes his penis from the vagina before ejaculation so that the semen is not deposited in the womb.

Advantages

- Requires no medication or a service provider
- Always available under any circumstances

Disadvantages

- A considerable failure rate depending on ability of the husband to control himself.
- Objections from the husband or the wife because it interferes with sexual pleasure.

Possible Side Effects

None

Follow-up

- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

Clinical and Technical Procedures

- No history taking is needed, except for health screening purposes, if a couple plans to use coitus interruptus (withdrawal) as their method of birth control.
- No physical examination need be done, except for health screening measures, if a client states he/she is going to use this method.
- Clients should understand clearly that the husband should remove the penis from the vagina at the proper time so that all ejaculate is delivered outside the vaginal opening.
- All clients should have a backup contraceptive method available (emergency contraception) if they are relying upon coitus interruptus. Emergency contraception is the best method to be used if failure to withdraw at the proper time takes place.

Precautions to Use

This method may be recommended to the client provided the reason(s) are documented and the client is informed of the risks and alternatives. This method may not be used in the case of:

- Problems with premature ejaculation
- Couples who repeatedly do not comply with appropriate timing of withdrawal
- Men who have significant semen seepage prior to ejaculation

Follow-up Procedure

There are no follow-up procedures necessary for clients using coitus interruptus.

Management of Clinical Problems Associated with use of Coitus Interruptus

Table 5.9 Management of clinical problems associated with the use of coitus interruptus

Problem: Wife does not like the method	
Advice	**Action**
Change to another method	
Problem: Husband cannot control himself	
Advice	**Action**
Change to another method.	
Problem: Client is satisfied with the method, does not want to change to a more effective method, but wants to increase effectiveness of this method	
Advice	**Action**
Use a spermicide in addition.	
Problem: Husband failed to withdraw	
Advice	**Action**
	If wife presents herself within 72 hours from unprotected intercourse, advise her to take one of the following three emergency contraception options:
	1. Take one tablet containing 0.75 mg of levonorgestrel (Postenor) and repeat after 12 hours.
	2. Take 25 tablets of POP (all at once) and repeat the same dose after 12 hours.
	3. Take four tablets of COCs and repeat the same dose after 12 hours.
	If she presents herself within five days of intercourse:
	1. Immediate insertion of Cu-T 380 A IUD
	2. Refer to specialist for immediate follow-up.

FERTILITY AWARENESS METHODS (SAFE PERIOD METHODS)

Counseling

What is the Method?

With fertility awareness methods (safe period methods) the woman learns how to know the fertile time of her menstrual cycle either by:

- Calculating by a calendar
- Feeling the cervical secretion or feeling the cervix
- Measuring her body temperature

How does it Work?

During the fertile days, the client either abstains from marital relations or uses another contraceptive method.

How Effective is it?

- Failures depend on the ability of the woman to learn ways to detect fertile days and on motivation of the couple.
- Failures rates are higher than with COCs, IUDs, injectable or condoms.

How is it Used?

- Record menstrual bleeding on a calendar and observe the fertile days before the menses.
- Observe when the cervical mucus becomes thin, clear or copious.
- Measure the basal body temperature, which rises immediately after ovulation.

Advantages

- Requires no medication
- Always acceptable to some religions that do not allow use of other methods.

Disadvantages

- Requires motivation and training by a knowledgeable service provider. Failure rate higher than other methods
- Some conditions may obscure the signs of fertile days.

Possible Side Effects

None

Follow-up

- Advise the client that she should return to the clinic as required for encouragement, education and motivation.
- Encourage the client to visit the clinic at any time if she has any concerns.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Using the approved medical record, take the client's medical history, with special emphasis on:
  - Menstrual history
    - Length of cycles
    - Regularity of cycle
  - Menstrual symptoms
    - Presence of mid-cycle pain
- No physical examination is needed (but can be done if indicated)

The descriptions of the methods are divided into a number of categories, depending on the specific fertility awareness method. The following sections provide a summary of what the client is taught about each method.

Calendar Method

Description

- Calculation of the fertile phase is based on the knowledge that:
  - Ovulation occurs fourteen days before menses
  - Sperm can live up to four days in a woman's body
  - The ovum can be fertilized as late as 24 hours after ovulation
- Because the cycle varies from woman to woman and even from cycle to cycle within the same woman, the user must estimate the approximate days of fertility by keeping track of her cycles on a "calendar" for six months prior to using the method.

Instructions to Client

- Maintain a menstrual calendar to record the length of each menstrual cycle for at least six months. (The cycle begins on day one, the first day of menstrual bleeding, and ends the day before the next menstrual bleeding begins).
- Identify the longest and shortest cycles.
- The safe (not fertile) and unsafe (fertile) times are calculated as follows:
  - Take the shortest menstrual cycle (over the past number of months) and subtract 18 days.

    - The number you determine is the first unsafe or fertile day of the cycle.
    - Take the longest menstrual cycle and subtract 11 days.
    - The number you obtain is the last unsafe (or fertile) day of the cycle.
    - The days in the cycle from the first unsafe (or fertile) until the last unsafe day are days when the woman could become pregnant.
- To avoid pregnancy, there are three options during the unsafe or fertile days:
    - Abstain from all sexual activity.
    - Avoid vaginal intercourse and engage in other sexual activity that does not cause semen to be deposited in or near the vagina.
    - Use a temporary method of birth control, such as condoms, spermicides or a diaphragm.
- If the menstrual cycles vary greatly in length, contact a physician or counselor.
- This method is not reliable for women whose cycles are irregular.

Description

The hormones produced at ovulation cause a slight increase in the body temperature (0.2 to 0.5 degrees Celsius), which remains elevated until menstruation begins. A user of this method may consider herself fertile (unsafe) from the beginning of the cycle until the temperature has been elevated for three consecutive days. The woman must make accurate measurements of her temperature to detect this rise. Illness, stress, disturbed sleep and other conditions can affect the temperature pattern.

Instructions to client

- Take your temperature every morning, before getting out of bed, eating or drinking.
    - Note any changes in normal routine, such as sleep, illness, etc.
- Insert the thermometer for five minutes.
    - Use an accurate thermometer. Special BBT thermometers may be available which measure more accurately than the more common ones.
    - The temperature rises 0.2 to 0.5 Celsius at ovulation. If the temperature does not stay elevated, ovulation has not occurred.
    - The safe time (non-fertile time) is the time following three days of sustained temperature elevation.
- To avoid pregnancy, there are three options during the unsafe or fertile days (the time prior to sustained temperature rise):
    - Abstain from all sexual activity.
    - Avoid vaginal intercourse and engage in other sexual activity that does not cause semen to be deposited in or near the vagina.
    - Use a temporary method of birth control, such as condoms, spermicides, or a diaphragm.
- If you have any questions or wish further training, talk with a family planning worker.

Cervical Mucus Method (Billings Method)

Description

Cervical mucus changes throughout the menstrual cycle. Women can learn to recognize these changes, which occur near or during ovulation, to identify their unsafe or fertile period. This method requires extensive client training and a very good knowledge of the physiology of ovulation.

After menses and before ovulation (days 5-10 of the menstrual cycle), the discharge is absent or scanty, with a whitish or yellowish tint. As ovulation approach (days 11-13), the mucus becomes more clear and abundant, with a slippery texture. The mucus becomes elastic so that a drop placed between thumb and forefinger can be stretched six centimeters or more. Under the microscope, a drop of dried mucus has the appearance of fern leaves.

In general, ovulation occurs one day after the abundant, clear, elastic mucus disappears (day 14). A woman who uses the cervical mucus method should assume that she may have ovulated as early as two days before the appearance of the peak mucus signs (if the peak is day 12, then this means day 10), and that she will be fertile until four days after the last day of abundant, slippery mucus (thus day 17 or 18).

The cervical mucus, until menstruation, is either thick or scanty or none. The mucus is watery for about two days just before menses.

Instructions to Client

- Check the cervical mucus each day by washing hands and putting a clean finger inside the vagina, then recording the findings. The nature of the cervical mucus can be changed by douching, vaginal infections, semen, contraceptive foams and creams, medications and sexual arousal.
- While learning the method, abstain from intercourse on alternate “dry days” prior to feeling or observing mucus. It is easier to notice the beginning of the mucus discharge when no semen is present.
- Abstain from intercourse when mucus becomes clear and slippery, until four days after “peak” mucus signs.
- This method is most effective if the couple abstains from unprotected intercourse during the first half of the cycle, until four days after “peak” mucus signs.

Sympto-thermal Method

Description

The sympto-thermal method combines measurements of basal body temperature with observations of vaginal discharge and other common symptoms. If a woman can not clearly interpret one set of symptoms or signs, she can rely on a combination. Although this method may increase a woman’s confidence that she has correctly identified her fertile and infertile days, the complex technique is more difficult for some women to learn and interpret. Among some women, the different signs and symptoms do not coincide to clearly indicate fertility.

Precautions to use

- This method may be provided to the client provided the reason(s) are documented and the client is informed of the risks and alternatives.
- The method can not be used by:
  - Women with irregular menstrual cycles
  - Women who are breastfeeding, who may find the signs difficult to interpret

Management of Clinical Problems Associated with the Use of Fertility Awareness Methods

Table 5.10 Management of clinical problems associated with the use of fertility awareness methods

Problem: Husband (couple) cannot abstain during the fertile days	
Advice	**Action**
Change to another method OR If client wants to continue the method, she can have sexual intercourse during the fertile period while using condom, spermicides, or diaphragm.	
Problem: Client would like to continue the method, but wants to increase the effectiveness	
Advice	**Action**
Extend the dangerous period for few days before and after AND/OR Use condom or spermicides when sexual intercourse is practiced during these additional days.	

EMERGENCY CONTRACEPTION

Counseling

What is the Method?

Emergency contraception (EC) is the use of certain contraceptive methods (hormones or IUDs) immediately after unprotected marital relations to prevent pregnancy.

How does it Work?

Depending on the time of administration during the menstrual cycle, the method may prevent or delay release of an ovum or have other contraceptive effects. The method does not interfere with an already established pregnancy.

How Effective is it?

The method prevents more than 85% of pregnancies if taken within 72 hours of unprotected sexual relations. The earlier the pills are taken or the IUD is inserted, the more effective they are.

How is it Used?

- EC can be achieved either by:
  - Progestagen-only pills
    - POPs are more effective and have less side effects than the combined pills.
    - One dose is taken as soon as possible (and no later than 72 hours) after marital relations and a second similar dose is taken after 12 hours.
  - Copper 380T IUD
    - Can be inserted within five days after marital relations.
    - The client should be counseled to consider leaving it in place as an ongoing contraceptive.
  - COCs
    - Take four pills as soon as possible (and within 72 hours) and take another four pills 12 hours later.

Advantages

- Prevents an unwanted pregnancy
- Prevents pregnancy in cases of coercive sex or rape and in cases of condom tear

Disadvantages

- Effectiveness depends on starting as soon as possible after marital relations:

  - Within 72 hours in the case of hormonal methods
  - Within five days in the case of IUD insertion
- Side effects may occur, particularly nausea, vomiting and vaginal bleeding, but these are less likely with POPs than COCs.
- It is never as good as regular family planning methods and should not be used as an alternative to regular contraception.

Possible Side Effects

- Most common: nausea and vomiting
- Less common: headache, dizziness, breast tenderness and spotting or bleeding
- Side effects are more common when using combined pills than when using progestagen-only pills

Possible Serious Side Effects

None

Follow-up

- Advise the client to return to the clinic during menses after initial visit.
  - If menses is delayed, pregnancy must be excluded.
- Encourage the client to return for an annual examination.
  - More frequent examination is unnecessary.
- Encourage the client to visit the clinic at any time if she has any concerns.

Key Counseling Topics for Emergency Contraception

- ECs should not be used as an alternative for regular, continuous contraception.
- ECs lack reliability in comparison to regular, continuous contraception.
- ECs do not interfere with an already established pregnancy.
- EC is more effective the sooner it is initiated after intercourse.
- Side effects (nausea and vomiting) may occur, especially with Yuzpe regimen.
- Next menses may come a week early or late.
- EC does not protect you if you have intercourse again tomorrow. You need to use a regular family planning method for continuous protection.
- When IUD is used, client should be counseled in advance to consider it for on-going contraception.
- EC does not provide protection against STIs/HIV.

Clinical and Technical Procedures

Note: Emergency contraception does not interfere with an already established pregnancy.

Contraceptive Pills for Emergency Contraception

Progestin-only pills regimen

1. First dose of 0.75 mg of levonorgestrel should be taken as soon as possible, and no later than 72 hours after unprotected intercourse
2. Repeat same dose 12 hours after first dose:
   a. Pills containing 0.75 mg of levonorgestrel = 1 pill per dose
   b. Pills containing 0.0375 mg of levonorgestrel = 20 pills per dose
   c. Pills containing 0.03 mg of levonorgestrel = 25 pills per dose

Combined oral contraceptive pills regimen

(Combined oral contraception pills regimen is also known as the Yuzpe Regimen)

Each dose should contain at least 0.1 mg of ethinyl estradiol and 0.5 mg of levonorgestrel, which equals four tablets of the standard low-dose COCs.

1. First dose must be taken as soon as possible and no later than 72 hours after unprotected intercourse.
2. Repeat same dose 12 hours after first dose.

Effectiveness

POP regimen is more effective than COCs regimen:

- Progestin-only pills: 85% of pregnancies prevented in typical use
- Combined pills: 57% of pregnancies prevented in typical use

Note: The sooner EC pills are taken after unprotected intercourse, the more effective they are.

Copper IUD for Emergency Contraception

- Inserted within five days after unprotected intercourse
- Highly effective (0.1% pregnancy rate)
- Side effects include cramping, heavy menstrual bleeding and spotting
- After insertion, can be left to provide ongoing contraception

CONTRACEPTION FOR SPECIAL GROUPS

Contraception for Newly Wed Young Couples

The evidence is clear on the relationship between young age and the use of various contraceptives. Age alone does not constitute a medical reason for denying any method to this group of people. There is no harm from the use of contraceptives in young age; overall, there is a beneficial effect of contraceptive use in this group.

Newly wed young couples are eligible to use any method of contraception (except for sterilization), and must be allowed the access to a variety of contraceptive choices.

It is clear that the same instructions regarding appropriate contraceptive use that apply to older clients, apply to young people.

Social and behavioral considerations play an important role in the young newly wed couples' choice and use of contraceptive methods. The duration of contraceptive use and the future plans for conception are of utmost importance in decision making. Social and familial influences are most evident in these areas.

Approach to Newly Wed Young Couples

The newly wed young couple has been shown to be less tolerant of side effects and therefore have high discontinuation rates. Expanding the number of method choices offered can lead to improved satisfaction, increased acceptance and increased prevalence of contraceptive use.

Proper education and counseling both before and at the time of method selection can help the newly wed young couple address their specific problems and make informed and voluntary decisions.

Some concerns and persistent rumors

Contraceptive use and the return of fertility

The use of contraceptive methods, with the exception of sterilization, does not result in an irreversible change in fertility.

Return to fertility is immediate with all methods, with the exception of DMPA for which the median delay in return to fertility is 10 months, from the date of the last injection, regardless of the duration of use.

Effect of contraceptive use on growth

There is no evidence that the use of COCs affects the growth of young adults. The use of DMPA in nursing mothers does not affect the growth of their infants, even after following them to puberty.

Effect of contraceptive use on the risk of developing a spontaneous abortion in subsequent pregnancies

There is no evidence that women stopping COCs are at an increased risk of spontaneous abortion compared to non-users.

Effect of contraceptive use on bone mineral density

The use of DMPA in young women is associated with significant bone mineral density (BMD) loss. The BMD loss associated with the use of DMPA is reversible. The BMD loss is not associated with an increase in menopausal fracture rate.

The use of COCs is associated with a decrease in menopausal fracture rate. There is evidence that the use of COCs during the perimenopause is protective against menopausal bone fractures.

Effect of contraceptive use on overall mortality

There is no evidence of increased overall mortality associated with the use of any contraceptive method.

Effect of contraceptive use on the risk of developing breast cancer

There is no increase in the probability of developing breast cancer in young women using hormonal contraception. The evidence shows that breast cancer is not initiated by the use of any hormonal contraception. For women in general, prolonged or early use seems to make no difference to increased risk.

The use of hormonal contraceptives might promote the growth of some pre-existing tumors. This possibility of this happening in young newly wed women, where the incidence of breast cancer is in the rate of 1 in 10,000, is minimal.

Effect of contraceptive use on the risk of developing endometrial cancer

Evidence confirms that the use of COCs in young women protects against endometrial cancer. The protection increases with the duration of use.

Effect of contraceptive use on the risk of developing ovarian cancer

Evidence confirms that the use of COCs in young women protects against ovarian cancer. The protection increases with the duration of use.

Effect of contraceptive use on the risk of developing pelvic inflammatory disease and ectopic pregnancy

The use of COCs in young women protects against PID and ectopic pregnancy.

Women using the IUD do not have an increased risk of infertility or ectopic pregnancy.

Effect of contraceptive use on the risk of developing benign breast disease

The use of COCs and/or DMPA is protective against benign breast conditions.

Effect of contraceptive use on the risk of developing colorectal cancer

The use of COCs by young women may protect them against colorectal cancer.

Hormonal contraceptives and their role in treatment of endometriosis

COCs and DMPA are an effective treatment for endometriosis.

All types of COCs are equally effective in treating endometriosis. DMPA is another effective treatment of endometriosis and is equally effective to COCs.

Hormonal contraceptives and their role in treatment of dysmenorrhea

COCs and DMPA are an effective treatment for dysmenorrhea, especially that associated with endometriosis.

Hormonal contraceptives and their role in treatment of menstrual irregularities

COCs are an effective treatment for menstrual irregularities.

Hormonal contraceptives and their role in treatment of benign ovarian cysts

The use of COCs or DMPA by young women decreases the incidence of benign ovarian cysts.

Recommendations

Oral Contraceptives

Contraceptive pills are a safe and effective method that causes no harm and provides multiple health benefits, such as preservation of fertility, rapid return of fertility on discontinuation and the prevention of anemia. COCs may be very suitable for delaying a first conception in newly wed young women.

IUDs

The IUD have been avoided by newly wed young women for a false belief that it increases both the incidence of PID and ectopic pregnancy. There is evidence that IUD use in nulliparous women is NOT associated with any adverse fertility consequences.

The occurrence of PID in IUD users is not related to a certain age group, but rather to her being at risk for sexual transmitted disease. Every effort should be made to assure proper choice of the IUD client, proper choice of the IUD type and proper technique and timing of IUD application.

Women using the IUD are deprived from health benefits associated with the use of COCs or DMPA; on the other hand, women with contraindications to hormonal contraceptive use, as stated by the WHO eligibility criteria categories 3 and 4, may find it suitable to use the IUD.

DMPA

The return of fertility after discontinuation of DMPA and NET-EN is slightly prolonged in comparison with most of the other methods. The median delay in return to fertility with these methods is 10 and 6 months respectively, from the date of the last injection, regardless of the duration of their use.

It is important to clearly counsel newly wed young women planning to become pregnant, and they should be specifically informed about the details of this fact.

DMPA use in young females is associated with a decrease in BMD, and this warrants specific attention. However, this effect is known to be reversible, and the use of DMPA is not linked to increased fracture rate, neither during use nor after years of discontinuation.

Implants

Norplant is an effective and safe contraceptive method with immediate return of fertility on discontinuation. However, the long duration of contraception which Norplant was designed to provide may not be suitable for young newly wed women who might require a shorter duration of contraception.

The new implantable contraceptives such as Implanon may provide a more suitable option for this group of women.

Natural family planning

Natural Family Planning (NFP) has both positive and negative outcomes. Its use by newly wed young couples warrants special counseling and sexual education. NFP requires periodic abstinence, and partner cooperation is mandatory to prevent pregnancy.

Barrier methods

The use of barrier methods by newly wed young couples requires special counseling and sexual education, especially when dealing with the fitting of barriers, such as the diaphragm and cervical cap.

When dealing with the issue of barriers during the process of counseling of newly weds, the service provider should consider convenience and effectiveness, and stress must be made upon the techniques and timing of using each method.

Postpartum Contraception

Description

Postpartum contraception is defined as contraceptive methods that can be used during the period of six weeks following childbirth.

Approach to Postpartum Couples

- Encourage postpartum women to ask questions about their concerns, especially regarding:
  - Resumption of sexual intercourse after labor
  - Effect of contraception on:
    - Breast feeding
    - Infant development
  - Correct use of contraceptives
- Ask especially about:
  - Whether the couple wants more children or whether they are content with their family size
  - If they want more children, how long would they like to wait between this child and the next one (three to five year intervals between births are optimal).
  - Their level of satisfaction and success or failures with contraceptive methods used previously
  - Their plans as regards breast feeding and encourage breast feeding

It will be helpful if you use a counseling flipchart and show them the different methods of contraception you suggest.

Non-breastfeeding Women

If the woman is not breastfeeding, she can use:

- Low dose oral combined oral contraceptive pills and combined injectables three weeks after labor.
- Progestagen-only contraceptives immediately after childbirth
    - Progestagen-only pills
    - DMPA
    - Norplant
    - Implanon
- IUDs
    - Immediate post placental insertion within 10 minutes after placental separation can be done provided the necessary counseling took place during the antenatal period.
    - Insertion can be done before discharge from the hospital (within 48 hours after childbirth) if the necessary counseling and consent can be done during that period.
    - Otherwise, a copper IUD can be inserted four to six weeks after childbirth (six to eight weeks after caesarean section delivery). An IUD should not be inserted between 48 hours and six weeks after childbirth.
- Sterilization
    - If there is a medical reason for sterilization (see Voluntary Tubal Ligation for Medical Reasons p.145), refer to an appropriate health facility.
    - The four periods for postpartum sterilization are as follows:
        - Immediate postpartum sterilization by minilaparotomy, provided she is appropriately counseled and the necessary consent has been given during the antenatal period
        - Within seven days after childbirth, before discharge from hospital
        - Six weeks after childbirth, sterilization can be done by either laparoscopy or minilaparotomy
        - During cesarean section

Breastfeeding Women

If the woman is breastfeeding:

- The first choice is a non-hormonal method
    - LAM
        - Encourage her to fully breast-feed (i.e., no supplementary feeding).
        - Encourage her to feed “on demand” and “day and night.”
        - Inform her that this method is effective provided that she doesn’t begin menses (any amount of blood, even drops, should be considered menses).
        - Explain to her that she should use another method of contraception—in addition to breastfeeding—when the child reaches six months of age.

- IUD
  - Immediate post-placental insertion (within 10 minutes after placental separation), provided the necessary counseling and consent is obtained during the antenatal period.
  - Insertion can be done within 48 hours after childbirth, before discharge from hospital, if the necessary counseling and consent can be obtained during that period.
  - Insertion can be done four to six weeks after labor (six to eight weeks after cesarean section children).
    - An IUD should not be inserted between 48 hours and six weeks after childbirth.
- Condoms and spermicides can also be used if chosen by the couple.
- Sterilization
  - Can be performed only if there is a medical reason for sterilization
  - Immediate postpartum sterilization can be performed following childbirth by minilaparotomy, provided the necessary counseling and consent has been given during the antenatal period.

Can be performed within seven days after childbirth, before discharge from hospital if necessary counseling and consent has not been given during the antenatal period

  - Is not to be performed between 48 hours and six weeks after labor.

- The second choice is a progestagen-only contraceptive:
  - Progestagen-only pills
  - Progestagen-only injectable (DepoProvera)
  - Norplant
  - Implanon

Note: Progestagen-only contraceptives should only be started six weeks after childbirth. Although they do not affect the quality or quantity of breast milk, the liver of the newly born is thought to be incapable of metabolizing the small amount secreted in the milk.

- The third choice is combined estrogen-progestagen contraceptives
  - Combined oral contraceptives
  - Combined injectable contraceptives

Note: Combined estrogen-progestagen contraceptives should not be started until six months after childbirth or after completion of breastfeeding because estrogen reduces the amount of breast milk, particularly during the first six months after labor.

Initiation

Table 5.11 Contraception for breastfeeding women

Delivery	3 weeks	6 weeks	6 months	Onward
Lactation Amenorrhea Method (LAM)				
IUD		IUD		
Female/Male Sterilization				
Condom/Spermicide				
		Diaphragm		
		Progestin-only methods		
		Natural Family Planning		
			Combined Estrogen-Progestin	

Table 5.12 Contraception for non-breastfeeding women

Delivery	3 weeks	6 weeks	6 months	Onward
IUD		IUD		
Female/Male Sterilization				
Condom/Spermicide				
Progestin-only Methods				
	Natural Family Planning			
	Combined Estrogen-Progestin			
		Diaphragm		

Management of Clinical Problems Associated with the Use of Postpartum Contraception

Breastfeeding women

The following are options from which the client can choose which method of contraception she would like to use. They do not have adverse effects on duration of lactation, milk volume or composition, or on infant growth and development. Breastfeeding will delay the return to fertility, but careful counseling is important.

- Lactation amenorrhea method (LAM):
  - In order to be eligible to use this method, the client must meet all of the following criteria:
    - Be within six months of delivery
    - Be amenorrheic
    - Be fully or nearly fully breastfeeding (no routine supplementation)
  - If all of these criteria are not met, the client should use another method of contraception.
- Intrauterine contraceptive device (postpartum IUD insertions are performed in selected hospitals by trained specialists):
  - Can be inserted immediately postpartum (within 10 minutes of placental expulsion), during cesarean section, within 48 hours, or six weeks postpartum.

  - There are fewer insertion-related problems and lower removal rates due to bleeding and pain among breastfeeding women.
- Condoms and spermicides
- Diaphragm (six weeks postpartum)
- Progestin-only contraceptives:
  - Progestin-only pills
  - Injectable contraceptives
  - Norplant
- Voluntary tubal ligation for medical indications:
  - Sterilization procedures require considerable counseling under the established guidelines. Tubal ligation should not be done except by trained physicians in approved settings. The tubal ligation procedure may be performed at time of cesarean section, after a vaginal delivery or at a time not related to pregnancy.

Diabetic Women

- Diabetic women should have only the pregnancies they want, or that are medically safe for them. Inform the client of increased risk to herself and her fetus/infant during pregnancy with diabetes mellitus. When diabetic women decide to become pregnant they should be in optimal medical condition and have very tight control of blood sugars to have the best possible pregnancy outcomes. Pre-pregnancy care and pregnancy care should be provided.
- Hormonal contraception containing estrogen may alter glucose tolerance, thus requiring adjustment of insulin dosage for the client. This is usually very minor, but the physician providing the diabetic care should be informed of the use of this method if it is chosen by the client.
- Intrauterine devices can be used.
- Condoms and/or spermicides can be used.
- Because the obstetric complications of diabetes increase with advanced age, and because limitations for the use of hormonal methods may occur with long duration of diabetes, it is advisable to minimize birth spacing intervals and perform surgical sterilization after the client has had her desired number of children.

Women with Rheumatic or Valvular Heart Diseases

Long term, effective contraception is extremely important for these women. The risk/benefit of the disease with a pregnancy and the contraceptive must be considered.

- Injectable contraceptives, Norplant or Implanon may be used with these clients.
- Low-dose combination oral contraceptives may be provided by a specialist provided that it is documented in the client record and strict follow-up is discussed with the client.
- IUDs may be used. However, clients and providers should be aware of the rare possibility of developing bacterial endocarditis.
- Condoms and/or spermicides can be used.

- It is advisable that these women should only have one or two children, if their health status and cardiac condition allow it, and then perform surgical sterilization.

Hypertensive Women

- COCs should never be used if systolic BP is more than 160 mmHg or diastolic more than 100 mmHg (see WHO Category 4). COC can be used with caution if systolic is 140-160 mmHg or diastolic is 90-100 mmHg.
- DepoProvera should be used with caution (see WHO Category 3) if systolic BP is more than 160 mmHg or diastolic is more than100 mmHg.

Women Approaching Menopause (40+ years)

A highly effective contraceptive is needed by this category as they usually have their desired number of children.

All current methods of birth control are acceptable. Highly effective long-term methods such as IUDs, Progestin-only methods (injectables, Norplant or Implanon) and surgical contraceptive methods are also options worth considering. Combined oral contraceptives should be used with caution if the woman is a light smoker (less than 15 cigarettes a day). COCs should never be used if the client is a heavy smoker (more than 15 cigarettes a day). As always, condoms should be emphasized to men and women at high risk for STI and HIV.

Anemic Women

- Intrauterine contraceptive devices may be temporarily unsuitable until correction of anemia because they may cause excessive blood loss.
- Hormonal contraceptives (oral pills, injectables, Norplant, Implanon) help to improve the hematological parameters.

Liver Cirrhosis and Jaundice

- All contraceptive choices should be discussed with the client. The risk of pregnancy with such a serious medical problem should be taken into consideration when making a contraceptive decision. Norplant, Implanon and DepoProvera should be used with caution.
- Progestin-only contraceptives may be used after discussing with client and documenting in record.
- COCs should never be used in severe decompensated cases (WHO Category 4).
- POPs should never be used in WHO Category 3 cases.
- Other contraceptives may be used.
- If problem is chronic, consider medical indication for sterilization.
- Once infective hepatitis is resolved, client may be provided any contraceptive.

Epilepsy and Tuberculosis

- Note that drugs used to treat these conditions (Epanutin and Rifampicin) reduce effectiveness of COCs, POPs and implants. A backup method might be used by these women, particularly by those who have breakthrough bleeding.
- Injectable contraceptives, IUDs, condoms and spermicides can be used.

- Tubal ligation can be considered if medically indicated.

History of Deep Venous Thrombosis

Women who have a history of deep venous thrombois are not eligible for the use of combined hormonal contraceptives (WHO Category 4).

History of Cerebro-vascular Accidents

Women who have a history of cerebro-vascular accidents are not eligible for the use of combined hormonal contraceptives (WHO Category 4). DeproProvera is to be used with caution.

Breast Cancer

Women who currently have breast cancer are not eligible for any hormonal method (WHO Category 4). Non hormonal contraceptions are better options.

Women who have a history of breast cancer are not eligible for estrogen containing contraceptives (WHO Category 4) and regarding progestagens containing contraceptives are considered (WHO Category 3)

Severe Depression

All methods can be used.

Migraine/Severe Headaches

Women with migraines should not use estrogen containing methods, particularly if they are older than 35 years or have migraines with auras.

Fibroid Uterus

- Distortion and/or enlargement of the uterine cavity makes women illegible for the use of intrauterine contraceptive devices because of a high failure rate, and possible difficulty with insertion.
- Hormonal contraceptives can be used. Watch for increase in size or tenderness of the tumor and watch for fever.
- Where indicated, refer to specialist for careful evaluation.

Pelvic Inflammatory Disease

- Do not use IUDs in women:
  - Having or with a recent history of pelvic inflammatory disease
  - With an increased risk of STIs
  - With a hydrosalphinx or a pyosalphinx
- Refer for careful evaluation and/or treatment.
- Hormonal contraceptives, condoms, spermicides can be used.

Purulent Vaginal and/or Urethral Discharge or Warts

(See Chapter 21 Reproductive Tract and Sexually Transmitted Infections)

- Hormonal contraceptives can be used if not otherwise contraindicated.
- IUDs can not be used in cases of PID or discharge from the cervix.

Dysfunctional Uterine Bleeding

In case of dysfunctional uterine bleeding (menorrhagia or metrorrhagia), if organic pathology is excluded, oral contraceptive pills can serve the purpose of contraception as well as regulation of menstruation.

Severe Medical Conditions

Special consultation and consideration must be given to the client who is put at risk of dying because of severe medical problems if she should become pregnant again.

- Conditions include:
  - Severe cardiac or lung disease
  - History of breast cancer
  - Diabetes
  - Severe kidney disease
  - Other conditions which would threaten the woman's life IF she became pregnant, including grand multiparity or repeated cesarean section deliveries.
- A permanent method of birth control might be made available to the woman (surgical contraception, i.e., tubal ligation) (see page145).
- Referral to a clinical site for consultation with a specialist can be made.

6

Antenatal Care and High-risk Pregnancy

Antenatal Care and High-risk Pregnancy[1]

ANTENATAL CARE

This chapter defines antenatal care and provides information concerning the following topics:

- The initial visit
- Periodic visits
- Health education for pregnant women
- Alarming signs and symptoms

Antenatal Care in Egypt

Efforts are being made to strengthen those aspects of antenatal care most likely to have an effect on the outcome of pregnancy. It is important for the pregnant woman to be cared for by a physician who can correctly take a full history and conduct a complete physical examination, then diagnose any problems and manage the pregnancy. Women, families, and traditional birth attendants (dayas) need to have enough information to recognize the danger signs of pregnancy and the puerperium so they can seek care promptly in an appropriate facility.

The Egypt National Maternal Mortality Study 2001 reported that poor quality antenatal care was found to contribute to 15% of maternal deaths and to 13 maternal deaths per 100,000 live births. It played a more important role in death associated with hypertensive diseases (34%). In cardiac disease lack of antenatal care and poor quality antenatal dare were considered to be avoidable factors in19% and 28% of cases, respectively.

Definition

Antenatal care is a preventive obstetric health care program aimed at optimizing maternal-fetal outcome through regular monitoring of pregnancy. Antenatal care will help ensure:

- Best possible health status for mother and fetus
- Early detection and timely referral of high-risk pregnancy,
- Education of the mother about:
  - Physiology of pregnancy
  - Nutrition
  - Alarming signs and symptoms
  - Infant care
  - Breastfeeding
  - Child spacing

[1] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chaps. 5 and 6.

- Reduction of maternal and perinatal mortality and morbidity rates.

Schedule of Antenatal Care Visits

Antenatal visits-area time-when women are particularly receptive to messages about pregnancy. Antenatal care can detect anemia, hypertensive disease, infections and other existing conditions and diseases that lead to high-risk pregnancy.

Antenatal visits should take place:

To 28th weeks gestation → every 4 weeks

28th-36th weeks → every 2 weeks

Thereafter → every week

In a normal pregnancy, with no complications, a minimum of three antenatal visits is acceptable in the first 20 weeks. Refer to Antenatal Care Tables (pp. 185-187).

The Initial Visit

The first antenatal visit should take place as early as possible during the first trimester. The first antenatal clinic visit should include both booking procedures (registration) and a physical examination. The information should be recorded on the *Antenatal Care Card*.

Note: Accurate record keeping is indispensable for the work of antenatal clinics.

Booking Procedures and/or Registration

- Personal history:
  - Name
  - Age
  - Address
  - Occupation (both partners)
  - Duration of marriage
  - Consanguinity
  - Potentially harmful habits (i.e., smoking)
- Complaints:
  - In detail and duration
- Menstrual history:
  - First day of the last normal menstrual period (LNMP)
  - Calculation of gestational age, and expected date of delivery (EDD)
- Obstetric history:
  - Antepartum care, labor, and puerperium of previous pregnancies
  - Mode of delivery
  - Number and sex of living children

  - Birth weights
  - Mode of infant feeding
  - Date of last labor and last abortion (LL and LA)
- Present obstetric history
  - Symptoms of pregnancy
  - Symptoms of pre-eclampsia
  - Symptoms of disease in other organ systems
  - Fetal movements
- Family history:
  - Diabetes mellitus
  - Hypertension
  - Multiple pregnancies
  - Congenital anomalies
- Medical history:
  - Diseases:
    - Diabetes mellitus
    - Hypertension
    - Urinary tract infections
    - Heart diseases
    - Viral infection
    - Drugs/allergies
- Other:
  - Blood transfusion
  - Rh incompatibility
  - X-ray exposure
- Surgical history:
  - Dilation and curettage
  - Vaginal repair
  - Cesarean section
  - Cerclage
  - Non-Gynecologic operations
- Family planning history
- Immunization history
- Breastfeeding history

Examination: Minimal Physical Parameters to be Evaluated

- General (systemic)
  - Physical signs (vital signs, weight, height, pallor, and jaundice
  - Breast examination
  - Skeletal or neurological abnormalities
- Chest and heart examination
- Abdominal (obstetric)
  - Inspection:
    - Contour and size of abdomen
    - Scars of previous operations
    - Signs of pregnancy
    - Fetal movements
    - Varicose veins
    - Hernial orifices and back
    - Edema
  - Palpation:
    - Fundal level (FL)
    - Fundal grip
    - Umbilical grip
    - Pelvic grip
  - Auscultation - Fetal Heart Sounds (FHS)
    - At 10 weeks, by Sonicaid
    - At 20 weeks, by Pinard's fetal stethoscope
  - Laboratory investigations:
    - Urine analysis
    - Stool analysis for ova and parasites
    - Blood analysis:
      - Complete blood count
      - ABO grouping and Rh typing
      - Hepatitis B antigen
      - Wasserman reaction
      - Rubella antibody
      - For patients with risk factors for diabetes, a random one-hour 50 gm oral glucose challenge test is performed. If levels are < 140 mg/dl, the test should repeated at 24-28 week of gestation. If test shows levels > 140mg/dl, refer the patient to the higher level of health care facility.

- Pelvic ultrasound

Counsel for the Place of Delivery

The health care provider should encourage the woman to deliver at a health facility (maternal and chilled health center, primary health care unit, district or general hospital). If the woman and/or her family decides to defiler at home, counsel her for home birth (see Chapter 9 Clean and Safe Home Birth).

Woman's Health Card

The health care provider should check the patient's *Woman's Health Card* and fill in the data at each antenatal care visit. The health car provider should encourage the woman to bring this card to each visit and to her delivery, whether at home or at health facility.

Periodic Visits

Record the information obtained at these visits on the *Antenatal Care Card*.

Examination of the Pregnant Woman

At each visit the following examinations should be done.

- General:
  - Blood pressure
  - Body weight
- Abdominal:
  - Fundal level
  - Fetal lie
  - Fetal presentation
  - Fetal heart sounds (FHS)
- Record any new complaints
- Urine examination:
  - By dipstick for protein, glucose and ketones
- Assessment of fetal well-being
  - Fetal size through assessment of fundal level (FL)
  - Fetal kick count: at least 10 movements every12 hours
  - Fetal movements: absence precedes intrauterine fetal death (IUFD) by 48 hours
  - Fetal heart sounds
  - Ultrasound if it is available
  - At 37 Weeks
    - Assessment of fetal size, lie, presentation

Health Education for Pregnant Women

Adequate Nutrition

- Calories (2500/day)
  - Excess calories lead to fat deposition and obesity.
  - The caloric requirement is the same as in the non-pregnant state.
  - During pregnancy increased metabolism is compensated for by decreased activity.
- Protein (85 gm/day):
  - Animal sources: meat, fish, cheese, milk, and eggs
  - Plant sources: peas, beans, and lentils
  - Insufficient protein in diet leads to:
    - Fetal prematurity and intrauterine growth retardation (IUGR)
    - Maternal anemia and edema
- Calcium (1,500 mg/day)
  - Sources: milk, cheese, yogurt, calcium carbonate
  - Insufficient calcium in the diet may lead to:
    - Rickets in infants
    - Osteomalacia in mothers
- Iron (30 mg/day)
  - Animal sources: liver, red meat
  - Plant source: green vegetables
  - Drug sources: ferrous gluconate, ferrous fumarate, ferrous sulphate
  - Insufficient iron in the diet least do maternal iron deficiency anemia
- Fats
  - If 2/3 of protein is delivered from animal sources, fat intake should be adequate.
- Carbohydrates
  - Carbohydrates can be slightly reduced to compensate for the increased calorie value of the proteins and more severely restricted if weight reduction is necessary.
- Folic acid (1 mg tablet/day)
  - Megaloblastic anemia from deficiency of folic acid may occur during pregnancy. To prevent megaloblastic anemia, it is recommended that women take 0.4 mg of folic acid a day.
  - It is recommended that women at high risk for neural tube defects take 5 mg of folic acid supplement daily prior to conception and for the first 12 weeks of pregnancy.

Clothing

- Should be loose, light, and hanging from shoulders.
- Avoid high heels, shoes with thin soles, belts, and corsets.

Dental Care

- Have teeth examined twice during pregnancy.
- Brush teeth after meals
- Tooth extraction is allowed even for pregnant women with rheumatic heart disease if prophylactic antibiotics are given.

Breast Care

- Daily washes to reduce cracking
- Massage
  - Express breast secretion
  - Open lacteal ducts and sinuses
- Nipples
  - If there is dry secretion, treat with a mixture of glycerin and alcohol.
  - If retracted, treat by pulling out.
  - Brassiere (light and not tight) to support heavy breasts

Sexual Activity

- To be avoided in pregnant women with threatened abortion, preterm labor, or antepartum hemorrhage (APH)

Traveling

- Allowed when comfortable
- In patients with a history of APH or preterm lavor it is better to be avoided.

Weight Gain (10-12 kg)

- First trimester 1-2 kg
- Average weight gain from 20 weeks onward is 0.4 kg/week (range 0.2 - 0.6 kg/week)

Baths

- Showers are preferable over tub baths.
- No vaginal douches are allowed.

Exercise

- Exercise should be mild, preferably walking.
- Housework, if not overtiring, is allowed.

Rest and Sleep

- Rest eight hours at night and two hours in the afternoon.
- Increase rest and sleep towards term.

Drugs

- Avoid all unnecessary drugs during pregnancy.
- Minor complaints should be managed without the use of drugs whenever possible, by reassuring the patient.

Smoking

Smoking leads to spasm of placental blood vessels which can lead to the following:

- Fetal anoxia
- Low birth weight neonates (LBW)
- IUGR
- Prematurity
- Premature rupture of membranes (PROM)
- Placental abruption

Immunization

- Live attenuated vaccines are contraindicated.
- Any pregnant woman who comes in contact with rubella should be tested for rubella antibodies.
- Tetanus toxoid should be administered to prevent tetanus if the mother has not already been immunized (See Table 6.1)

Table 6.1 Tetanus toxoid

TT1	At first contact, or as soon as possible during pregnancy (better after the first trimester).
TT2	At least four weeks after TT1
TT3	At least 6 months after TT2 or during subsequent visits
TT4	At least 6 months after TT3 or during subsequent visits
TT5	Minimum 1 year after TT4 or during subsequent visits

- Rh-prophylaxis in Rh-negative women who did not produce anti Rh-D antibodies during pregnancy and who have given birth to an Rh-positive infant: such women should receive anti Rh-D 300 mcg within 24 hours or at the latest 72 hours postpartum. This prevents Rh-sensitization of the mother.

Irradiation

- Avoid exposure to irradiation for its teratogenic effect on fetus.

Common Complaints of Pregnancy

- Nausea and vomiting
- Heartburn and hyperacidity
- Ptyalism (excessive salivations)
- Constipation
- Hemorrhoids and varicose veins
- Edema
- Leg cramps
- Leukorrhea (excessive odorless, colorless vaginal discharge not associated with burning sensation or pruritis vulvae)
- Backache

Alarming Signs and Symptoms

Pregnant women should be advised to seek immediate medical care if they experience any of the following symptoms or signs:

- Vaginal bleeding
- Severe edema
- Escape of fluid from vagina
- Abnormal gain or loss of weight
- Decrease or cessation of fetal movements
- Severe headache
- Epigastric pain
- Blurred vision
- Fever

During antenatal care the occurrence of any of these signs or symptoms necessitates further evaluation.

The physician should evaluate patients with such symptoms for the following:

- Vaginal Bleeding
- Pre-eclampsia, including:
  - Severe persistent headache
  - Blurring of vision
  - Epigastric pain.
  - Generalized edema (lower limbs, face, and fingers)

- Abdominal pain (second half of pregnancy)
  - Placental abruption suspected if any of the following:
    - Trauma
    - Pre-eclampsia
    - Fundal level > period of arnenorrhea
    - Fetal parts difficult to feel
    - Hard tender uterus
    - Intrauterine fetal death

Other signs or symptoms or signs to be investigated include:

- Persistent vomiting
- Dysuria
- Chills or fever
- Escape of fluid from vagina (PROM)
- Abdominal size too big or too small for gestational age

All these patients will need referral to a higher level of health care facility.

Combined Management

The following high-risk situations require referral to a higher level of health care facility for combined clinical management:

- Diabetes
- Heart disease
- Hypertension (pregnancy-induced hypertension and pre-eclampsia and/or eclampsia)

Management and Treatment of Pregnancy Related Disorders

Table 6.2 Management and treatment of pregnancy related disorders

Problem: Nausea and vomiting	
Advice	**Action**
Explain to client that it's a normal symptom during the first months and will disappear spontaneously by the end of the third month	Prescribe vitamin B1 and B6
Reassure client and advise small frequent meals as well as eating light food (i.e., crackers) before getting out of bed in the morning.	If needed: Primperan
	If severe vomiting: refer to hospital.
Problem: Persistent vomiting continues and affect the general condition of the client	
Advice	**Action**
Hyperemesis gravidarum: Refer to hospital	
Problem: Constipation	
Advice	**Action**
Increase fluid intake, include fruits and vegetables in the diet	Mild laxatives can be prescribed when needed.
Problem: Leukorrhea (Excessive normal discharge)	
Advice	**Action**
Reassure client and advise concerning personal hygiene.	Exclude premature rupture of membrane.
Advise against vaginal douches, only vulval wash.	
Problem: Heart burn	
Advice	**Action**
	Anti acids containing magnesium hydroxide
Problem: Varicose veins	
Advice	**Action**
Advise client to frequently elevate her legs and avoid standing for long periods of time.	
Wear elastic stocking if necessary.	
Problem: Hemorrhoids	
Advice	**Action**
	Application of stringent ointments or suppositories such as Anusol OR Scheriproct
	Avoid constipation or diarrhea.

	Topical local anesthetics such as: Lignocaine Ointment OR Lignocaine Suppositories if associated with anal fissure.
	Surgery is not advisable during pregnancy.
Problem: Anemia	
Advice	**Action**
Preventive measure: recommend food rich in vitamins, iron and folic acid.	Investigate for parasitic infestation.
	Prophylactic dose of iron/folic acid started early where anemia is prevalent.
	Estimate hemoglobin and hematocrit value.
	Prescribe iron/folic acid.
	If severe anemia, refer to hospital.
Problem: Acute urinary tract infection	
Advice	**Action**
	Cystitis: Refer to hospital.
	Pyelitis: Refer to hospital.
Problem: Hypertensive disorders	
Advice	**Action**
Mild: BP less than 140/90, no oedema, or proteinuria: Advise rest; avoid excessive salt in diet, and frequent measurement of blood pressure.	
Moderate: BP 140-160/90-100 or severe with symptoms such as headache, blurred vision, or generalized edema	Refer to hospital.
Problem: Vaginal bleeding during pregnancy	
Advice	**Action**
	No vaginal examination.
	Refer to the nearest hospital.

Family Planning Counseling

Tell all ANC clients about the impact of FP and child spacing on women's and child health and on the family welfare. Explain contraceptives suitable during the postpartum period (see page 157).

Antenatal Care Tables

Table 6.3 ANC first visit booking or registration

First Visit Booking or Registration: As early as possible in the first trimester before 12 weeks				
History Taking	**Physical**	**Investigation**	**Education and Counseling**	**Immunizations**
Personal history	Height and weight	Urine analysis	When to seek medical care	Tetanus toxoid
Obstetric history	Blood pressure	Stool analysis for ova and parasites	Adequate nutrition	
Family history	Fundal level	Complete blood count	Persoanl hygiene	
Medical history	FHS	ABO grouping and Rh typing	Dental care	
Surgical history		Wasserman reaction	Breast care	
Complaints		Arrange for hepatitis B antigen	Exercise	
		Arrange for Rubella antibody	Smoking	
		Arrange for pelvic ultrasound	Counsel for Home Birth	
			Fill out the *Woman's Health Card*	
			Schedule next appointment	

Table 6.4 ANC second visit

Second Visit: 22-26 weeks				
History Taking	**Physical**	**Investigation**	**Education and Counseling**	**Immunizations**
History of any complaint	Weight	Urine analysis by dipstick	When to seek medical care	Tetanus toxoid
	Blood pressure	Screen for DM	Adequate nutrition	
	Fundal level		Personal hygiene	
	FHS		Breastfeeding	
			Fetal movement awareness	
			Fill out the *Woman's Health Card*	
			Schedule next appointment	

Table 6.5 ANC third visit

Third Visit: 30-32 weeks			
History Taking	**Physical**	**Investigation**	**Education and Counseling**
History of any complaint	Weight	Urine analysis by dipstick	When to seek medical care
	Blood pressure		Adequate nutrition
	Fundal level		Personal hygiene
	FHS		Fetal movement awareness
			Arrange for home visit
			Travel
			Warning symptoms of pre-eclampsia
			Birth preparedness and complication readiness
			Fill out the *Woman's Health Card*
			Schedule next appointment

Table 6.6 ANC fourth visit

Fourth Visit: 34-36 weeks			
History Taking	**Physical**	**Investigation**	**Education and Counseling**
History of any complaint	Weight	Urine analysis by dipstick	When to seek medical care
	Blood pressure		Adequate nutrition
	Fundal level		Personal hygiene
	FHS		Fetal movement awareness
	Fetal presentation		Warning symptoms of pre-eclampsia
			Postpartum care
			Contraception
			Fill out the *Woman's Health Card*
			Schedule next appointment

Table 6.7 ANC fifth visit

Fifth Visit: 38-40 weeks			
History Taking	**Physical**	**Investigation**	**Education and Counseling**
History of any complaint	Height and weight	Urine analysis by dipstick	When to seek medical care
	Blood pressure		Adequate nutrition
	Fundal level		Personal hygiene
	FHS		Breast care
	Fetal presentation		Fetal movement awareness
			Warning symptoms of pre-eclampsia
			Post term management
			Postpartum vaccination
			Fill out the *Woman's Health Card*
			Schedule next appointment

HIGH-RISK PREGNANCY

Introduction

Risk factors are conditions associated with child bearing that may jeopardize maternal or fetal welfare. There are five major categories:

1. Personal factors
2. Obstetrical history
3. Past health history
4. Family health history
5. Ongoing maternal and/or fetal problems

The following tables describe each of these categories in detail along with the potentially adverse effects of this condition and actions to be taken in this situation.

Personal Factors and High-risk Pregnancy

Table 6.8 Personal factors and high-risk pregnancy

Personal Factors	Potentially Adverse Effects on Pregnancy	Actions to be Taken
Less than 18 years old	Unplanned pregnancy Poor clinic attendance Increased incidence of: Abortion IUGR Preterm labor Pre-eclampsia	Intensive and repetitive health education during pregnancy Prevention and early diagnosis of such adverse effects Referral to a higher level health care facility when indicated
More than 35 years old	Down syndrome Increased incidence of: Pre-eclampsia IUGR Fetoplacental dysfunction Prolonged labor Incidence of obstructed labor	Refer to a higher level health care facility
Lives far from hospital or health facility	Delivery on the way to the hospital Birth trauma Neonatal asphyxia or hypothermia	Schedule admission early in/before labor
Positive consanguinity	Congenital malformations Repeated/habitual abortion	Prenatal health education Supplementary counseling
Smoking	Increased incidence of spontaneous abortion, prematurity, PROM, low birth weight and placental abruption Chronic fetoplacental dysfunction	Prenatal health education Assessment of fetoplacental function
Long duration of marriage with infertility and use of ovulatory drugs	Anxiety with pregnancy Multiple pregnancy Preterm labor Increased incidence of ectopic pregnancy	Intensive and repetitive health education Reassurance via careful prenatal care Rule out multiple or ectopic pregnancy Ultrasound
And referral to a higher level health care facility whenever indicated		

Obstetrical History and High-risk Pregnancy

Table 6.9 Obstetrical history and high-risk pregnancy

Obstetrical History	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Parity ≥ 5	Prolonged or obstructed labor Uterine rupture Postpartum hemorrhage Chronic fetoplacental dysfunction	Refer to a higher level of health care facility
No spacing	Nutritional deficiencies Weak general health	Improve nutrition Contraceptive advice
Previous IUFD or neonatal death	Dependent on the cause of death Prematurity IUGR Fetal malformation Chronic fetoplacental dysfunction Recurrence of risk factors	Refer to a higher level of health care facility
Previous small for gestational age	IUGR Chronic fetoplacental dysfunction Fetal demise Recurrence of risk factors	Refer to a higher level of health care facility
Previous large for gestational age	Gestational diabetes Diabetes mellitus Recurrence of risk factors Dystocia Birth trauma Excessive weight gain Polyhydramnios	Prenatal health education Screen for diabetes Serial measurement of fetal weight by ultrasound Refer to a higher level health care facility when indicated
Previous fetal malformation	Congenital anomalies Hereditary disorders	Refer to a higher level of health care facility
Previous spontaneous second (2nd) trimester abortion or preterm labor	Persistence of risk factors Preterm delivery Incompetent cervix	Refer to a higher level of health care facility
Recurrent first trimester abortion	Recurrence of risk factors	Refer to a higher level of health care facility
Previous hypertensive disorders during pregnancy	Pregnancy-associated hypertension Renal affection Chronic fetoplacental dysfunction IUGR Prematurity	Careful prenatal care Monitor protein in urine Refer to a higher level health care facility if the patient develops hypertension

Obstetrical History	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Previous cesarean section delivery	Dehiscence of the previous scar Uterine rupture	Refer to a higher level of health care facility
Previous retained placenta or postpartum hemorrhage	Recurrence of the problem	Refer to a higher level of health care facility
Previous Rh isoimmunization or hydrops fetalis	Stillbirth Fetomaternal incompatibility	Refer to a higher level of health care facility
Duration of labor < 4 hours	Delivery on the way to the hospital Neonatal asphyxia and/or hypoxia Neonatal hypothermia Postpartum hemorrhage	Schedule admission early in/before labor
Previous instrumental delivery (vacuum extraction or forceps)	Prolonged labor Obstructed labor Uterine rupture Cephalopelvic disproportion	Try to detect the cause Prevention of recurrence Arrange for delivery in well-equipped hospital

Past History and High-risk Pregnancy

Table 6.10 Past history and high-risk pregnancy

Past History	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Hypertension	Pregnancy exaggerated hypertension Renal affection Chronic fetoplacental dysfunction Chronic hypertension	Refer to a higher level of health care facility
Heart disease or heart murmur	Heart failure and pulmonary edema Respiratory distress	Refer to a higher level of health care facility
Tuberculosis or intake of antituberculous drugs	Congenital infection of the newborn Teratogenicity of antituberculous drugs	Refer to a higher level of health care facility
Epilepsy or intake of antiepileptic drugs	Teratogenicity of antiepileptic drugs (AEDs) Traumatic seizures	Preconception and prenatal health education Refer to a higher of level health care facility
Chronic illness	The illness may affect the pregnancy or vice versa	Refer to a higher level of health care facility
Uterine anomalies including uterine fibroid or other pelvic masses	Second trimester miscarriage Preterm labor IUGR Abnormal placentation Malpresentation Antepartum and/or postpartum hemorrhage Abdominal pain due to fibroid degeneration Uterine rupture	Refer to a higher level of health care facility
Previous myomectomy	Uterine rupture Abnormal placentation Antepartum and/or postpartum hemorrhage Retained placenta	Refer to a higher level of health care facility
Previous cerclage	Incompetent cervix Increased incidence of abortion Increased incidence of preterm labor	Refer to a higher level of health care facility
Previous successful classical repair	Difficult delivery Soft tissue obstruction Ruptured vagina	Arrange for timely referral to hospital preferably 4 weeks before delivery

Past History	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Previous successful repair of fistula	Increased incidence of recurrence	Arrange for timely referral to hospital preferably 4 weeks before delivery
Previous blood transfusion	Fetomaternal incompatibility	Indirect Coombs test
And referral to next level of health care facility whenever indicated.		

Family History and High-risk Pregnancy

Table 6.11 Family History and High-risk Pregnancy

Family History	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Fetal abnormality	Fetal malformations	Refer to a higher level health care facility
Twin or multiple pregnancy of mother and sister	Increased incidence of twins and multiple pregnancy	Ultrasound evaluation
Hypertension	Pregnancy-aggravated or induced hypertension	Close observation of blood pressure
Diabetes	Gestational diabetes Spontaneous abortion Congenital anomalies Macrosomic neonate	Screen for diabetes Prevention of excessive weight gain
And referral to next level of health care facility whenever indicated		

Ongoing Maternal and/or Fetal Problems and High-risk Pregnancy

Table 6.12 Ongoing Maternal and/or Fetal Problems and High-risk Pregnancy

Current Situation	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Unknown last menstrual period (LMP)	Post date Failure to diagnose IUGR	Clinical evaluation of gestational age Consider ultrasound
Gait: "Limping"	Cephalopelvic disproportion Obstructed labor	Assess pelvic capacity Allow smooth, safe vaginal delivery otherwise refer to hospital
Color: Pallor	Anemia with pregnancy IUGR Preterm labor	Laboratory evaluation of hemoglobin Prenatal health education about diet Iron supplementation
Color: Jaundice	Biliary colic Obstructive jaundice Acute cholecystitis Pancreatitis	Refer to a higher level of health care facility
Maternal weight > 90 kg "excessive obesity"	Gestational diabetes Hypertension Inadequate maternal weight gain Macrosomic infants Prolonged second stage Shoulder dystocia Primary cesarean delivery Wound/episiotomy infection	Prenatal health education on diet Early screening for diabetes Allow smooth, safe vaginal delivery otherwise refer to hospital
Maternal weight < 45 kg	IUGR Preterm labor Fetoplacental dysfunction	Prenatal health education on diet Serial assessment of fetoplacental function
Maternal length ≤ 150 cm	Cephalopelvic disproportion Obstructed and/or prolonged labor	Refer to a higher level of health care facility
Marked varicosities of lower limbs	Severe leg pain Increased incidence of vulval and uterovesical plexus varicosities Increased incidence of hemorrhoids	Prenatal health education to avoid prolonged standing Advise for leg elevation and elastic stocking Plan for smooth, safe delivery

Current Situation	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Hyperemesis gravidarum	Hypotension Tachycardia Dehydration Weight loss Electrolyte imbalance Jaundice Bile pigments in urine Retinal changes Oliguria	Rule out other causes of nausea and vomiting Simple dietary instructions Refer for hospitalization for fluid, electrolyte replacement, sedatives, antiemetics, emotional support and reassurance
Nonimmune against tetanus neonatorum	Tetanus neonatorum	Consider giving TT1 and TT2 for the first time after third (3rd) month of pregnancy (4 weeks apart) or further dose if she is immune
Absent fetal movements	Molar pregnancy IUFD	Ultrasound Refer to a higher level of health care facility when indicated
Marked changes in frequency and/or intensity of fetal movements	Fetoplacental dysfunction IUFD IUGR	Count fetal kick (not fewer than 10 movements in 12 hours continuously) Refer to a higher level health care facility to assess fetal well-being
Smaller uterine size than gestational age	Inaccurate LMP IUGR IUFD Oligohydramnios Missed abortion	Consider ultrasound Refer to a higher level health care facility when indicated
Larger uterine size than gestational age	Inaccurate LMP Diabetes mellitus Multiple pregnancy Molar pregnancy Polyhydramnios	Consider ultrasound Screen for diabetes Serial assessment of fetoplacental function
Vaginal bleeding in early pregnancy	Ectopic pregnancy	Refer to hospital for ultrasound and serum beta HCG
	Threatened abortion	Bed rest Advise no intercourse or traveling
	Missed abortion	Refer to hospital for induction of abortion
	Molar pregnancy	Refer to hospital for suction curettage and postevacuation follow-up of HCG to zero
Blood pressure ≥ 140/90 mmHg	Increased incidence of eclampsia IUGR Renal disease Placental abruption Fetoplacental dysfunction	Refer to hospital following the protocol for pre-eclampsia

Current Situation	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Excess amniotic fluid	Postpartum hemorrhage Fetal malformations Preterm labor Maternal respiratory distress Fetal macrosomia	Refer to a higher level health care facility
Diminished amniotic fluid	Fetal malformations (renal, ureteral, pulmonary hypoplasia) IUGR Stillbirth IUFD	Refer to a higher level health care facility
Preterm uterine contractions	Preterm labor	Refer for admission to hospital for tocolysis and fetal monitoring
Third trimester vaginal bleeding	Placenta previa Placental abruption IUGR IUFD Intrapartum hemorrhage Postpartum hemorrhage DIC	First aid management Refer to a higher level health care facility
Sudden gush of vaginal watery fluid	Ruptured membranes prematurely (PROM) Prematurity Cord prolapse Maternal infection (chorioamnionitis) Fetal infection IUFD Stillbirth Neonatal infection	Refer to a higher level of health care facility
Hemoglobin < 11 gm	Anemia in pregnancy IUGR Prematurity Anemia of the newborn	Dietary instructions: iron and folic acid supplementation Refer to a higher level of health care facility if the diagnosis is doubtful
Proteinuria > +1	Urinary tract infection Renal disease Pre-eclampsia	Urine analysis Urine culture Uric acid Creatinine Referral to hospital when indicated
Glucosuria	Gestational diabetes	Screen for diabetes

Current Situation	Potential Adverse Effects on the Current Pregnancy	Actions to be Taken
Rubella exposure	Severe fetal damage or death if infection occurred during the first 4 months of pregnancy Congenital fetal infection (heart damage, cataract, deafness, mental retardation) Severe disease during the neonatal period (bleeding hepatosplenomegaly, myocarditis, thrombocytopenia)	Test for rubella IgM for any woman exposed to rubella or who has any rash similar to rubella, unless woman was previously known to have rubella antibodies present Counsel on basis of severe damage to the fetus Consider termination in case of affected fetus Referral to hospital when indicated
Herpes	Spontaneous abortion Generalized flu-like symptoms Reactivation Neonatal herpes infection Prematurity IUGR and IUFD	Refer to a higher level of health care facility
Nonengagement of fetal head at 40 weeks gestation in primigravida	Cephalopelvic disproportion Malposition (mainly occipitoposterior)	Refer for delivery in well-equipped hospital and estimation of pelvic capacity
Malpresentation (breechor transverse lie)	Prematurity PROM Uterine rupture Prolonged labor Obstructed labor Cord presentation Cord prolapse	Ultrasound Rule out congenital anomalies Refer to hospital if gestational age > 34 weeks
Bacteriuria (> 100,000 bacteria in urine culture)	Urinary tract infection Pyelonephritis Pyelitis	Urine culture and sensitivity Antibiotics given accordingly
And referral to next level of health care facility whenever indicated		

7

Bleeding in Pregnancy

Bleeding in Pregnancy[2]

This chapter deals with bleeding in early pregnancy (before twenty weeks gestation); bleeding after twenty weeks gestation, antepartum hemorrhage and procedures for first aid management and referral of the patient to the hospital.

Bleeding Before 20 Weeks Gestation

Problem in Egypt

Abortion is the major cause of bleeding in the first twenty weeks of pregnancy. According to the Egypt National Maternal Mortality Study (ENMMS) 2000, 4% of all maternal deaths and 4% of all direct obstetric deaths were caused by abortion. Identifying deaths due to abortion and correctly classifying them as spontaneous or induced is notoriously difficult. However, of the 20 cases involving abortion in the survey, 11 (55%) were judged to be spontaneous and nine (45%) were judged to be induced. The maternal mortality ratio was٢ /١٠٠،٠٠٠ for spontaneous abortion and 2/100,000 for induced abortion[3].

Definition

Escape of blood from the genital tract before 20 weeks of gestation.

Possible Causes

- All types of abortions
- Ectopic pregnancy
- Trauma
- Molar pregnancy
- Local causes e.g., polyps, cervicitis, foreign body or cancer of the cervix

Diagnosis

History Taking

Personal history

Obstetric history

- Record the first day of the last menstrual period.
- Record any vaginal bleeding that has occurred during pregnancy and note whether it has been mild (spotting or less than an average blood loss during menstruation or a brown vaginal discharge) or severe (more than a menstrual period, frank hemorrhage or passage of blood clots).

[2] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chap. 7

[3] Egypt NMMS, 2000, Ministry of Health and Population, Healthy Mother/Healthy Child Project, Cairo, 2002

- Record any lower abdominal pain, colic or menstrual-like cramps.
- Record any fainting episodes or dizziness.

Physical Examination

General examination

- Pulse, blood pressure and temperature
- Signs of shock including sweating, cold clammy skin, oliguria and fainting.

Abdominal examination

- Note tenderness or rigidity, the size of the uterus if palpable, any palpable masses or rebound tenderness

Local examination

- Meticulous examination of the external genitalia and vagina for lesions, signs of trauma or infection.
- Speculum examination to document suspected local causes such as:
  - The presence of blood or products of conception in the vagina cervix
  - The condition of the cervix:
    - Cervicitis
    - Polyp or tumor
  - Gentle birnanual examination documenting:
    - Open or closed cervix
  - Size and consistency of the uterus
  - Pain and/or adnexal masses

Laboratory Examinations

- Blood group and Rh factor
- Urine analysis
- Complete blood count or at least hemoglobin to check for anemia
- Pelvic ultrasound if available

Management

Management will depend on the amount of bleeding and the general condition of the patient.

First aid management

If the patient is hemodynamically unstable or there is severe vaginal bleeding begin first aid management

- Insert two wide bore IV cannulae (size 16 or 18)
- Obtain a blood sample to type and cross match blood (ABO, RH, Hb)

- Immediately start a crystalloid (Ringer's or saline) infusion at fast drip rate (1 liter/hour)
- Provide 100% oxygen via mask and warm the patient.
- Insert Foley catheter.
- Monitor blood pressure and pulse every five minutes.
- Monitor the urine output every 30 minutes.

After first aid management is started the patient should be referred to the next level of health care facility level.

Referral

Refer to a higher level of health care facility according to guidelines.

If the patient is hemodynamically stable, there is mild vaginal bleeding, ultrasound is available, and the case is diagnosed as threatened abortion, the following treatment is recommended:

- Bed rest
- No sexual relations
- Weekly follow-up in the outpatient clinic
- Seek immediate medical attention at the hospital if bleeding or lower abdominal pain/discomfort increases
- If the patient is hemodynamically stable not available or diagnosis includes ectopic pregnancy, missed abortion, or molar pregnancy, refer the patient to the hospital for further management.

Important Considerations

- The key to good treatment is early diagnosis.
- The key to early diagnosis is high clinical suspicion.
- Consider an ectopic or molar pregnancy when a patient presents with bleeding prior to twenty weeks gestation.
- Consider if a patient was anemic before she became pregnant.
- Timely referral of a patient with bleeding in early pregnancy to a higher health care facility level can save lives.

Family Planning Counseling following Postabortion Treatment

The health care provider may need to follow-up on the patient after her discharge from the hospital, making sure that counseling has taken place. If not, he/she will provide counseling.

- Treat the woman with respect.
  - If she does not feel well, counsel her later when she feels better.
  - Show concern for her feelings and her experience.

  - Keep counseling in a private atmosphere.
- Find out about the woman's needs and situation.
  - Ask the woman if she wants to become pregnant again soon.
  - Ask if she has practiced family planning before and if there were any problems during use or counsel her about the preferred method to use.
- Provide the information that is appropriate for her.
  - Help her get her preferred contraceptive method if she had not already started, especially if the abortion was induced.
  - Do not pressure her to use contraception if she wants to get pregnant again soon in case of spontaneous abortion.
  - Make follow-up appointments or referrals for any other reproductive health problems or needs.
- Every woman treated for abortion complications needs to know the following facts:
  - She can become pregnant again within two weeks.
  - She can delay or prevent another pregnancy by using a family planning method.
  - Her health care provider can help her get and use a family planning method. All family planning methods are suitable.

Bleeding After 20 Weeks Gestation (Antepartum Hemorrhage)

Problem in Egypt

Hemorrhage is the leading cause of maternal mortality in Egypt.The ENMMS 2000 reported that hemorrhage accounted for 38% of all maternal deaths and almost half (48%) of all direct obstetric deaths. The maternal mortality ratio for hemorrhage, was 32/100,000. The maternal mortality ratio for antepartum, hemorrhage (APH) was 8/100,000. A large majority of APH deaths were associated with placental abruption while the remainder was due to placenta previa.

The most important avoidable factors in deaths associated with antepartum hemorrhage were substandard care by obstetricians once the woman reached a health facility (61%), delay in recognizing the problem or seeking medical care (27%) and lack of blood (23%).

Definition

Antepartum hemorrhage is bleeding from or within the genital tract after twenty weeks of gestation.

Possible Causes

- Placenta previa
- Placental abruption
- Trauma
- Tumors

- Infection
- Vasa previa
- Rupture of the uterus

The two major, important causes of antepartum hemorrhage are placenta previa and placental abruption.

Placenta previa

Placenta previa is the implantation of the placenta in the lower uterine segment with different grades of encroachment on the cervix. There is usually no pain and the uterus is soft. Bleeding is usually causeless, but may be precipitated by sexual intercourse. The principal danger in placenta previa is heavy blood loss when labor begins or during uterine contractions prior to the initiation of true labor.

Placental abruption

Placental abruption is the premature separation of a normally implanted placenta that may be precipitated by sudden increase in blood pressure or trauma. The uterus may be painful and tense (as if in a tetanic contraction). Fetal parts are difficult to feel and fetal heart sounds may be absent. There are often signs of hypovolemia (tachycardia, hypotension, nausea, vomiting, oliguria, and shock) in the absence of visible external hemorrhage. Coagulopathies occur in 30% of cases in which the abruption is severe enough to kill the fetus. Dark brownish-colored amniotic fluid suggests a placental abruption. A patient with placental abruption may be nonmotensive because this condition is very common in hypertensive patients.

Diagnosis

- Personal history
- History taking
  - Length of pregnancy more than twenty weeks gestation
  - Vaginal bleeding even spotting should be taken seriously. Some bleeding may be severe enough to endanger the patient's life.
  - Lower abdominal pains or colic
  - Symptoms of hypovolemia (nausea, vomiting, dizziness)
  - The presence or absence of fetal movements
  - Urinary symptoms
  - Past history of medical diseases such as hypertension
  - History of sexual intercourse before the onset of bleeding
  - History of trauma or previous surgery

Physical Examination

General examination

- Take the pulse, blood pressure, and temperature
- Examine for signs of shock (cold clammy skin)
- Lower limb edema.

Abdominal examination

- Perform an abdominal examination noting uterine size softness, tenderness, rigidity and the presence or absence of fetal heart sounds.

Local examination

- Meticulously examine the external genitalia and vagina for lesions, signs of trauma or infection.

Laboratory Examinations

- Blood group and Rh factor
- Hematocrit complete blood count with platelet count or hemoglobin level, whichever is available
- Urine analysis

Note: Never perform a vaginal examination. The amount of vaginal bleeding may be misleading as mild vaginal bleeding may occur in cases of concealed placental abruption.

Management

Because the amount of bleeding may be misleading, the management of a pregnant woman with vaginal bleeding after twenty weeks gestation should entail first aid management and referral to a higher health -cart facility level.

First Aid Management

Insert two wide bore IV cannulae (size 16 or 18).

Obtain a blood sample to type and cross match blood (ABO; RH, Hb).

Immediately start a crystalloid (Ringer's or saline) infusion at fast drip (1 liter/hour).

- Provide 100% oxygen through a mask and warm the patient.
- Insert Foley catheter.
- Monitor blood pressure and pulse every five minutes.
- Monitor the urine output every 30 minutes.

Referral

- Refer according to guidelines (see BEOC Appendix A.1).

Complications of Placental Abruption

- **Renal failure.** The principle cause of maternal death is renal failure due to prolonged hypertension. Do not under estimate the amount of hemorrhage.
- **Fetal death.** A 50% abruption is sufficient to cause fetal death.
- **Coagulopathy**. The possibility of maternal coagulopathy is 30%. These patients may need massive blood transfusions to save their lives. Coagulopathy may be sever enough to cause disseminated intravascular coagulation (DIC), which his seen almost exclusively when the fetus is dead. Sometimes, the coagulopathy resolves without treatment in a matter of days once delivery takes place is there is no active bleeding.
- **Uterine atony.** Uterine atony is due to the passage of blood between the muscle fibers of the myometrium (Couvelaire uterus).
- **Amniotic fluid embolism.** Can lead to sudden maternal death.

Complications of Placenta Previa

- **Placenta accrete**. As many as 15% of patients with a placenta previa will also have a placenta accreta. There is a high risk of mortality and, in most cases, a hysterectomy is the only way to save the mother's life.
- **Other complications** due to a prolonged state of shock including renal failure and adult respiratory distress syndrome may occur.

8

Recognize and Manage Labor

Recognize and Manage Labor[4]

This chapter covers the management of labor and delivery. It is divided into the following sections'

- Labor Management
- First Stage of Labor: Vertex Presentation
- The Partograph
- Second Stage of Labor
- Third and Fourth Stages of Labor
- Indications of Cesarean Delivery
- Breech Presentation
- Neonatal Resuscitation
- Breastfeeding

Labor Management

Standard Admission Orders for Labor Ward

- Admit to labor ward.
- Request and review the *Antenatal Care Card* and/or *Woman's Health Card*.
- Take the labor history (full history if not booked or if no antenatal care booklet is presented).

History Taking

- Personal history
- Obstetric history
  - Number, mode and outcome of previous deliveries.
  - Warning symptoms (vaginal bleeding or rupture of membranes)
  - Last normal menstrual period (LMP)
  - Expected date of delivery (EDD)
- Medical and surgical history

Physical Examination

General examination

- General condition of the woman
  - Psychological state

[4] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chap. 12.

  - Hydration
  - Hemorrhage
  - Nausea, vomiting
- Vital signs
  - Chart pulse, blood pressure and temperature on the Partograph
  - Encourage the woman to pass urine every two hours. Measure and record output. Test urine for protein and sugar.

Chest and heart examination

- For wheezes, crepitations or murmurs

Abdominal examination

- Fetal condition
  - Monitor and record fetal heart rate before, during and after a contraction or every 30 minutes.
  - Observe color of liquor.
  - Check for molding of the fetal skull.
- Progress of labor
  - Uterine contractions should be monitored and recorded during the last ten minutes of every half an hour for frequency, duration, and strength.
  - Monitor the descent of presenting part, using the Rule of Fifths (see page 221).
- Local examination
  - Monitor cervical dilation. This is the most important indicator of the progress of labor.
  - Presenting part and its station.
  - Condition of the membranes.

Laboratory Examinations

Obtain laboratory examinations and diagnostic studies as indicated by clinical examination. Always include:

- Hemoglobin
- Hematocrit
- ABO and Rh blood grouping
- Urine analysis
- Random blood glucose. If the level is > 140 mg/dl refer the patient to a higher level of health care facility.

Note: Complete the Partograph for every patient in labor.

Recommendations for Diet and Activity

Diet

- Clear-fluids

Activity

- Ambulatory if membranes are intact or with ruptured membranes, if the presenting part is well engaged.
- Bed rest if membranes are ruptured and the presenting part is not well engaged.

Labor Management

- Evaluate according to the case.
- Decide on a management plan for the patient.
- Record and report all abnormal changes immediately.

Note: Analgesia should be offered during labor according to each case.

First Stage of Labor: Vertex Presentation

Definitions

The first stage of labor is defined by the onset of uterine contractions "true labor pains" and ends when the cervix is fully dilated.

Normal Labor

Normal labor is a retrospective diagnosis (a diagnosis that has been made after delivery is completed). It is defined as the delivery of:

- A single living fetus
- Vertex presentation
- Anterior position
- At term gestation
- Delivered spontaneously through the birth canal
- Within a reasonable time
- Without surgical intervention (except episiotomy)
- Without fetal or maternal complications

True Labor Pains

True labor pains are regular, frequent, uterine contractions that produce cervical effacement and dilation.

Laboratory Examinations

Laboratory examinations should be administered in accordance with standard admission orders.

Management of the First Stage of Labor

- Confirm the diagnosis of labor (true labor pains, bulging membranes, and progress in cervical dilation). If the diagnosis is not firm, if the patient lives far away from the facility or if it is nighttime, the patient may be asked to stay in the hospital for 12 hours of observation.
- Take a full history.
- Conduct a complete physical and abdominal examination.
- Perform a vaginal examination.
- Admit patient to labor ward. Reassure her and explain all procedures to her. Keep the family informed of progress.
- Monitor labor carefully, using the partograph.

Fetal Condition

- Assess fetal size.
- Monitor and record fatal heart rate before, during, and after every contraction or every 30 minutes.
- Evaluate fetal well-being and detect abnormalities in the fetal heart rate using the following types:
  - Type I or early deceleration is characterized by a slowing of the fetal heart rate, the nadir of which coincides with the peak of the uterine contraction and returns back to the baseline with the end the contraction
  - Type II or late deceleration in which the slowing of the fetal heart rate falls to the slowest rate after the peak of the uterine contraction has passed and the fetal heart recovery lags after the contraction has ceased.
  - Marked variable decelerations, bradycardia or tachycardia.
- Observe the color of the amniotic fluid.
- Assess degree of molding of fetal skull.
- Recognize position of occiput.

Progress of Labor

- Monitor and record uterine activity during the last 10 minutes of every 30 minutes of observation. Contractions should increase in frequency, duration, and strength.
- A vaginal examination should be performed every four hours during the latent phase (if there is no other indication) under strict conditions of asepsis and hygiene. The latent phase of labor is defined in The Partograph, Part II - Progress of Labor, page 220. This examination should assess:
  - The consistency, length, and dilation of the cervix

  - The descent, caput formation, head molding, and degree of flexion
  - The state of the membranes and the color of the amniotic fluid, if the membranes are ruptured
  - Evidence of cephalopelvic disproportion
- The findings of each examination must be recorded.

Use the Partograph for every patient. If labor does not progress well according to the Partograph criteria, refer the patient to the higher level of health care facility. Normal progress is a minimum of 1 cm/hour cervical dilation in the active phase (defined in The Partograph Part II - Progress of Labor, p.220).

Maternal Condition

- Monitor and record vital signs every hour (blood pressure, pulse, temperature, and respiration).
- Monitor hydration, psychological attitude, and reaction to pain.
- Encourage the woman to pass urine every two hours.
- Record intake and output every two hours.

Important Considerations

- Always respect the privacy of patients Keep them covered during examinations and when transferring from one room to another, Always speak to them with respect and dignity.
- The duration of the labor should be recorded from the time the patient is admitted with a diagnosis of labor to the time she gives birth. In the majority of cases this does not exceed 12 hours.
- There should be a maximum of six personnel in the delivery room at any given time (preferably fewer).
- Perform an episiotomy when indicated (Second Stage of Labor, Episiotomies p.230)
- The physician must be present at every delivery.
- The physician must be present for the suturing of all episiotomies and/or lacerations.
- The mother must be given the opportunity to hold her newborn and initiate breastfeeding immediately (if her medical condition permits it).
- Analgesics should always be offered during labor.
  - Non-pharmaceutical analgesics: reassurance, explanations, sympathy, and companionship
  - Pharmaceutical analgesics: inhalation (such as nitrous oxide), and drugs such as meperidine (pethidine).

The Partograph

Introduction

This section describes the partograph, its components, and how the partograph is used to monitor and manage the progress of labor. The information is presented in the following sections:

- Definition of Partograph
- Part I - Fetal Condition
- Part II - Progress of Labor
- Part III - Maternal Condition
- Management of Labor Using the Partograph
- Abnormal Progress of Labor
- Using the Partograph: Points to Remember
- Important Considerations

Definition of Partograph

A partograph is a graphical record of progress during labor. Progress is measured by cervical dilation against time in hours. As well the partograph provides a record of the important conditions of the mother and fetus that may arise during the process of labor. The partograph was developed and extensively tested by the World Health Organization (WHO).

Overview

The Partograph can be used by health workers with adequate training in midwifery who are able to:

- Observe and conduct normal labor and delivery
- Perform vaginal examination during labor and assess cervical dilation accurately.
- Plot cervical dilation accurately on a graph against time

There is no place for the partograph in deliveries at home conducted by attendants other than those trained in midwifery. Partograph users must be trained and supervised wherever they use the partograph, in health centers or in hospitals.

Purpose of the Partograph

- To detect abnormal progress of labor as early as possible
- To prevent prolonged labor
- To recognize cephalopelvic disproportion long before obstructed labor
- To assist in early decision on transfer, augmentation, or termination of labor
- To increase the quality and regularity of all observations of mother and fetus
- To recognize maternal or fetal problems as early as possible

Partograph Function

The partograph is designed for use in all maternity settings, but has a different function at different levels of health care (See Figure 8.1 The Partograph p.219).

- In the health center, the partograph's critical function is to give early warning if labor is likely to be prolonged and to indicate that the woman should be transferred to a hospital (Alert Line function).
- In the hospital setting, moving to the right of the Alert Line serves as a WARNING for extra vigilance, but the Action Line is the critical point at which specific management decisions must be made.
- Other observations on the progress of labor are also recorded on the partograph and are essential features in the management of labor.

Components of the Partograph,

- Part I: Assessment of fetal condition.
- Part II: Progress of labor
- Part III: Assessment of maternal condition
- Part IV: Outcome of labor

Part I – Assessment of Fetal Condition

This part of the graph is used to monitor and assess fetal condition

Fetal Condition

Fetal heart rate

- > ١٦٠ bpm = Tachycardia
- <١٢٠ bpm = Bradycardia
- > 100 bpm = Severe bradycardia

Membranes and liquor

Plotting of the condition of the membranes and liquor in the partograph is as follows:

Intact membranes	I
Ruptured membranes + **C**lear liquor	C
Ruptured membranes + **M**econium-stained liquor	M
Ruptured membranes + **B**lood-stained liquor	B
Ruptured membranes + **A**bsent liquor	A

Molding the Fetal Skull Bones

Molding is an important indication of how adequately the pelvis can accommodate the fetal head. Increasing molding with the head high in the pelvis is an ominous sign of cephalopelvic disproportion.

It is plotted as follows:

Separated bones, sutures felt easily	→	0
Bones just touching each other	→	+
Overlapping bones (reducible)	→	++
Severely overlapping bones (non-reducible)	→	+ + +

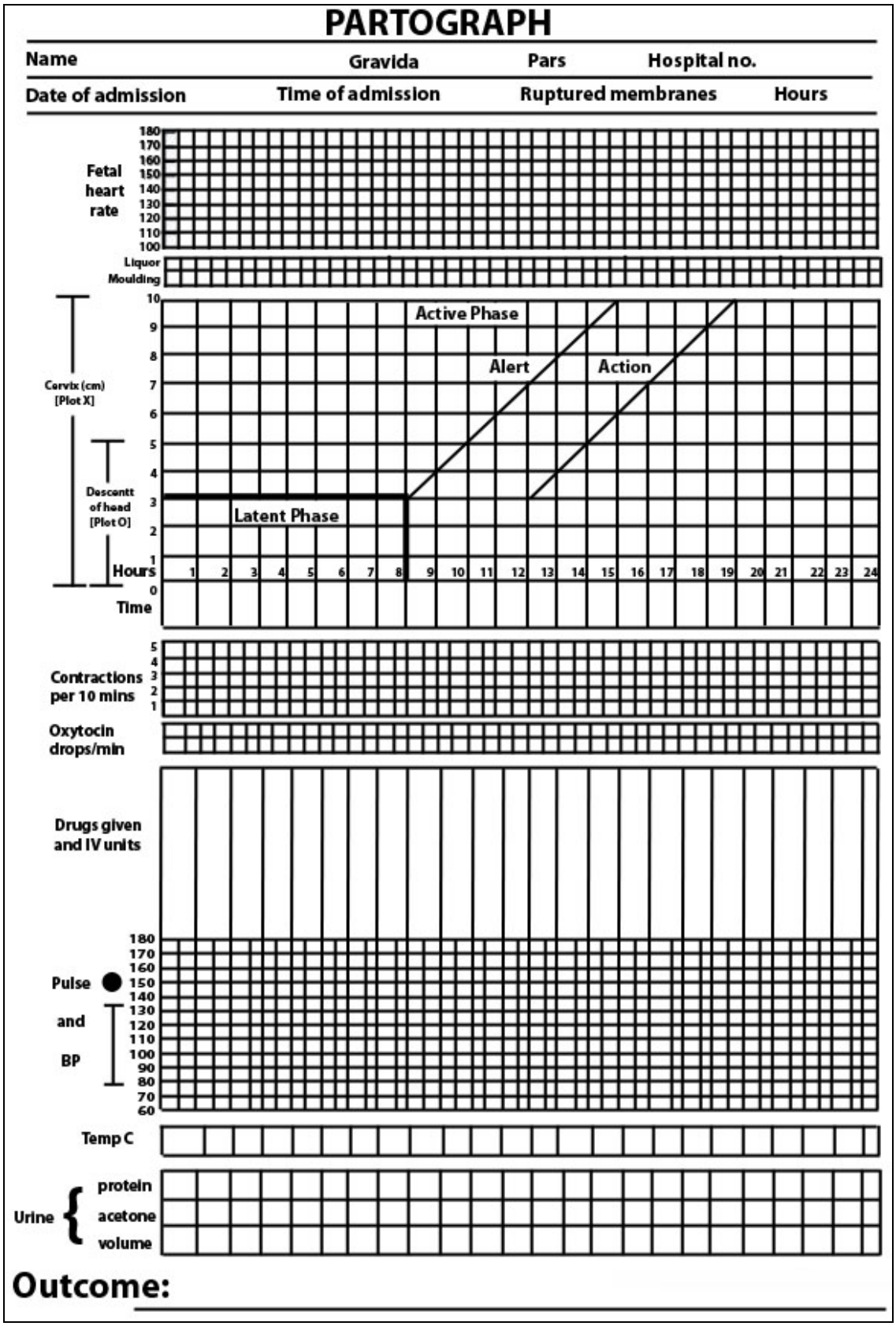


Figure 8.1 Partograph

Part II - Progress of Labor

This section of the partograph has as its central feature a graph of cervical dilation against time. Cervical dilation is divided into a latent phase and an active phase.

Latent Phase

- Starts from onset of labor until the cervix reaches 3 cm dilation. Once 3 cm dilation is reached, labor enters the active phase.
- Lasts eight hours or less
- Contractions occur at least twice every 10 minutes with each lasting > 20 seconds.

Active Phase

- Contractions occur at least three times every ten minutes each lasting > 40 seconds.
- The cervix should dilate at a rate of 1 cm/hour or faster.

Alert Line (Health Facility Line)

The Alert Line drawn from 3 cm 10 cm dilation represents the rate of dilation of 1 cm/hour. Moving to the right of the Alert Line means the patient should be referred to a hospital.

Action Line (Hospital Line)

The Action Line is drawn 4 hours to the right of the Alert Line and parallel to it. This is the critical line at which specific management decisions must be made at the higher level of health care facility.

Cervical Dilation

Cervical dilation is the most important information and the surest way to assess progress of labor, even though other findings discovered on vaginal examination are also important. When the progress of labor is normal and satisfactory, plotting of cervical dilation remains on the Alert Line or to left of it.

- If a woman arrives in the active phase of labor, recording of cervical dilation starts on the Alert Line.

Note: When the active phase of labor begins, all recordings are transferred and start by plotting cervical dilation on the Alert Line.

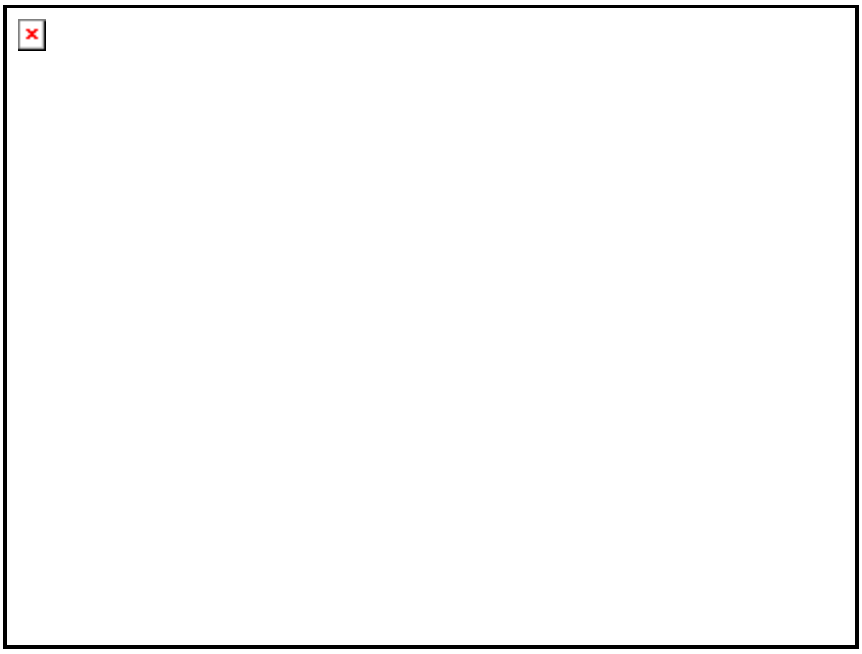


Figure 8.2 Measurement of cervical dilation

Note: this figure is not to scale.

Descent of the Fetal Head

Descent of the fetal head should be assessed by abdominal examination immediately before doing a vaginal examination, using the Rule of Fifths to assess engagement. The Rule of Fifths means the palpable fifths of the fetal head are felt by abdominal examination to be above the level of symphysis pubis. When 2/5 or less of the fetal head is felt above the level of symphysis pubis, this means that the head is engaged, and by vaginal examination, the lowest part of vertex has passed or is at the level of ischial spines.

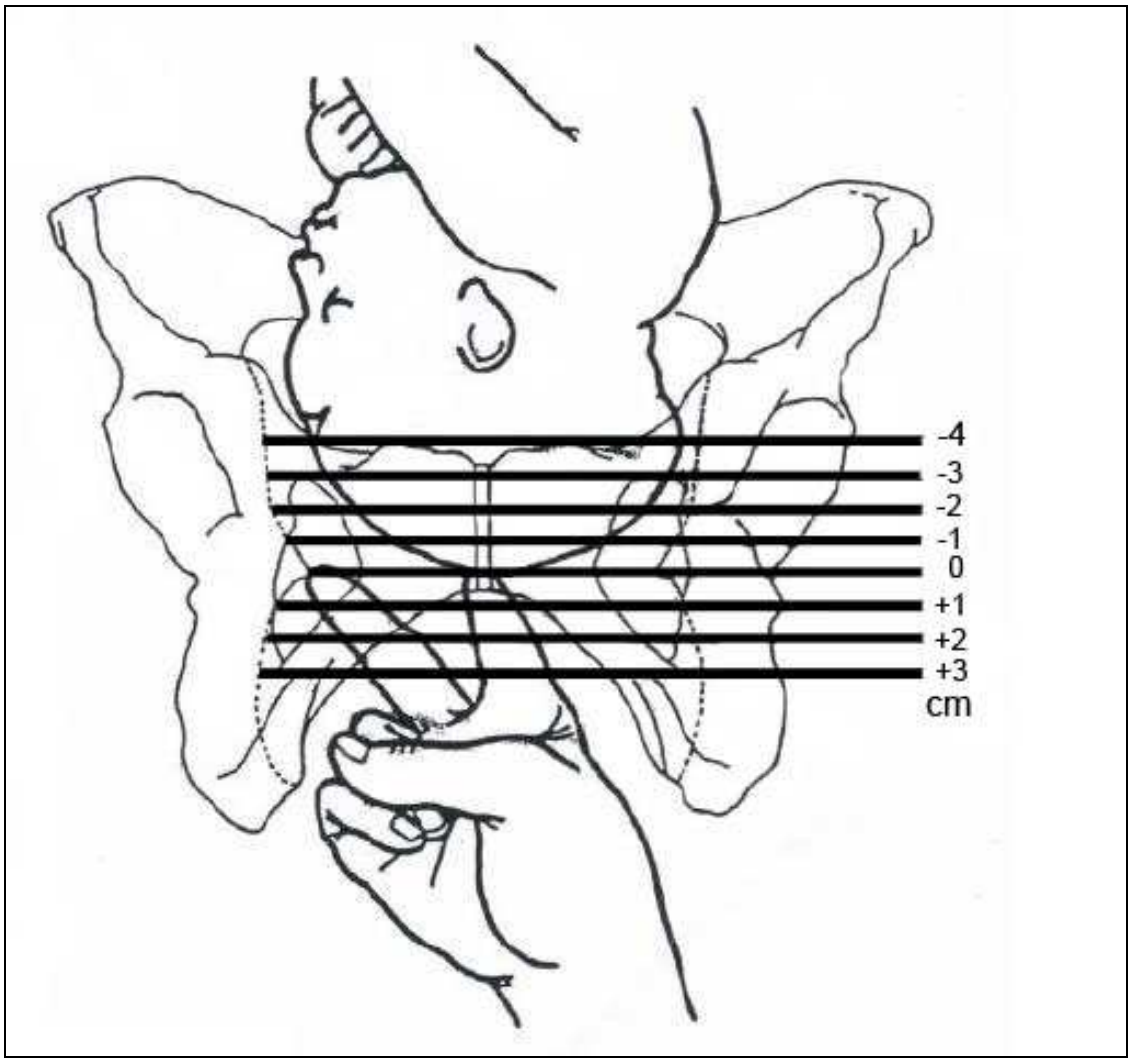


Figure 8.3 Assessing the descent of the fetal head by vaginal examination

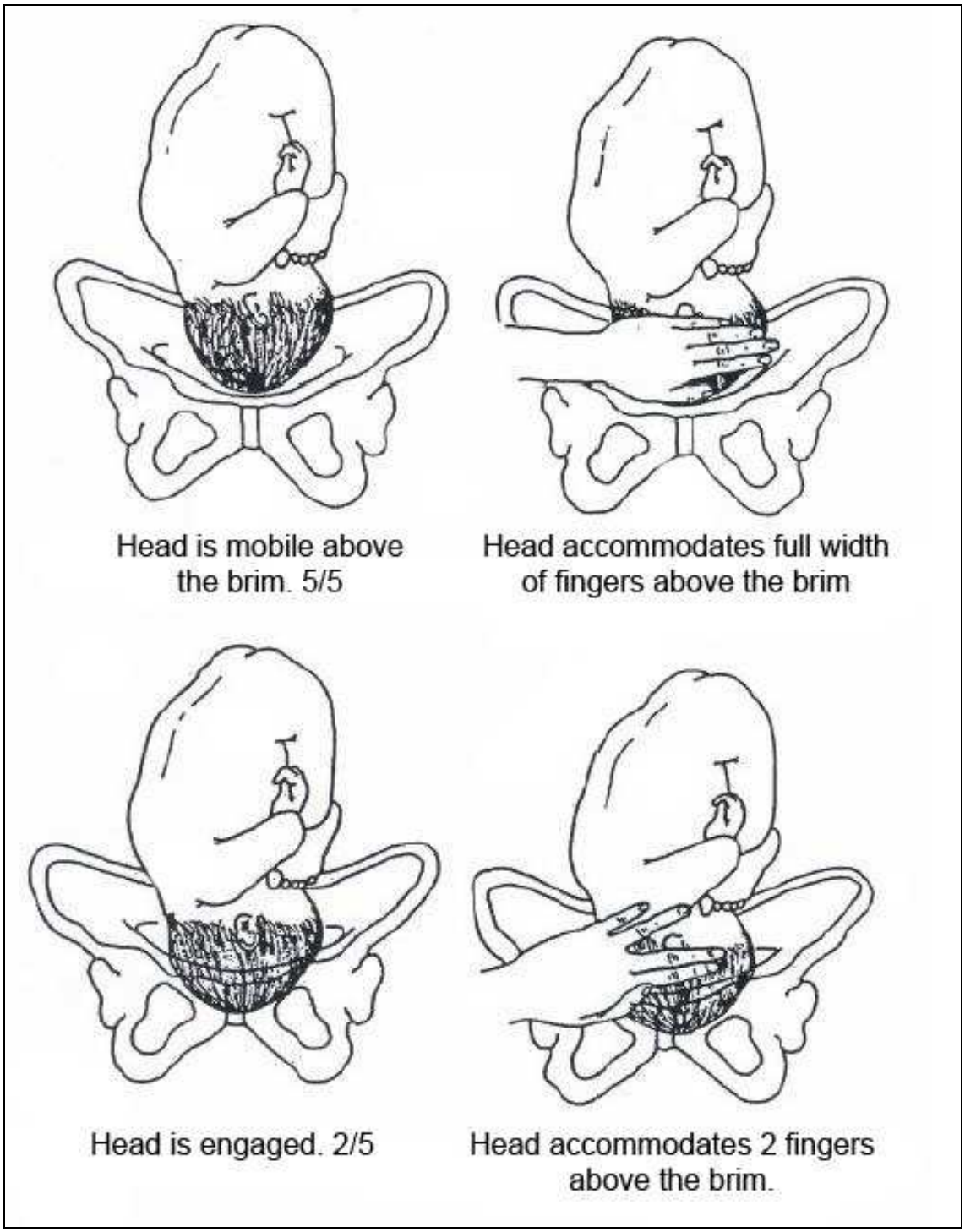


Figure 8.4 Descent of head as assessed by abdominal examination

Uterine Contractions

Observations of the contractions are made every hour in the latent phase and every half-hour in the active phase.

Frequency

- How often are they felt?
- Frequency of contractions is assessed by then number of contractions in a 10-minute period.

Duration

- How long do they last?
- Measured in seconds from the time the contraction is first felt abdominally, to the time the contraction phases off.

Each square represents one contraction.

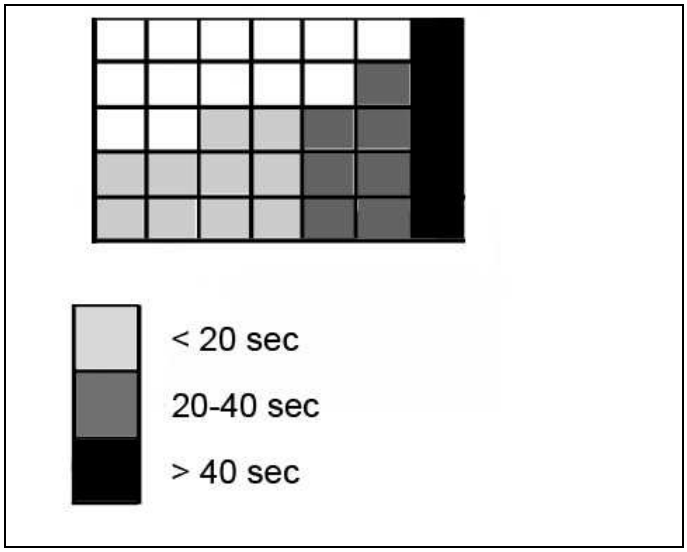


Figure 8.5 Observing contractions

Part III - Maternal Condition

- Assess maternal condition regularly by monitoring:
  - Drugs, IV fluids
  - Pulse, blood pressure
  - Temperature
  - Urine volume, analysis for protein and acetone

Management of Labor Using the Partograph

- Latent phase is less than eight hours.
- Progress in active phase remains on or left of the Alert Line.
- Do not augment with oxytocin.
- Artificial rupture of membranes (ARM):
  - No ARM in latent phase
  - ARM at any time in the active phase

- Between Alert and Action Lines
  - If in a health center, the woman must be transferred to a hospital with facilities for cesarean delivery.
  - ARM may be performed if the membranes are still intact.
  - Observe labor progress for a short time before transfer.
  - Continue routine observations.
- At or beyond Action Line
  - If the patient is properly monitored, her condition should not reach the action line at the primary health care facility.

Abnormal Progress of Labor

One of the main functions of the Partograph is to detect early deviation from the normal progress of labor:

- Moving to the right of Alert Line is a WARNING, the woman should be transferred from health center to hospital.
- Reaching the Action Line. This line should not be reached at the primary health care facility, as the patient should be referred earlier

Prolonged Latent Phase

If a woman is admitted in labor in the latent phase (less than 3 cm dilation) and remains in the latent phase for the next eight hours, progress is abnormal and she must be transferred to a hospital for a decision about further action.

This is why there is a heavy line drawn on the Partograph at the end of eight hours of the latent phase (See Figure 8.6 below).

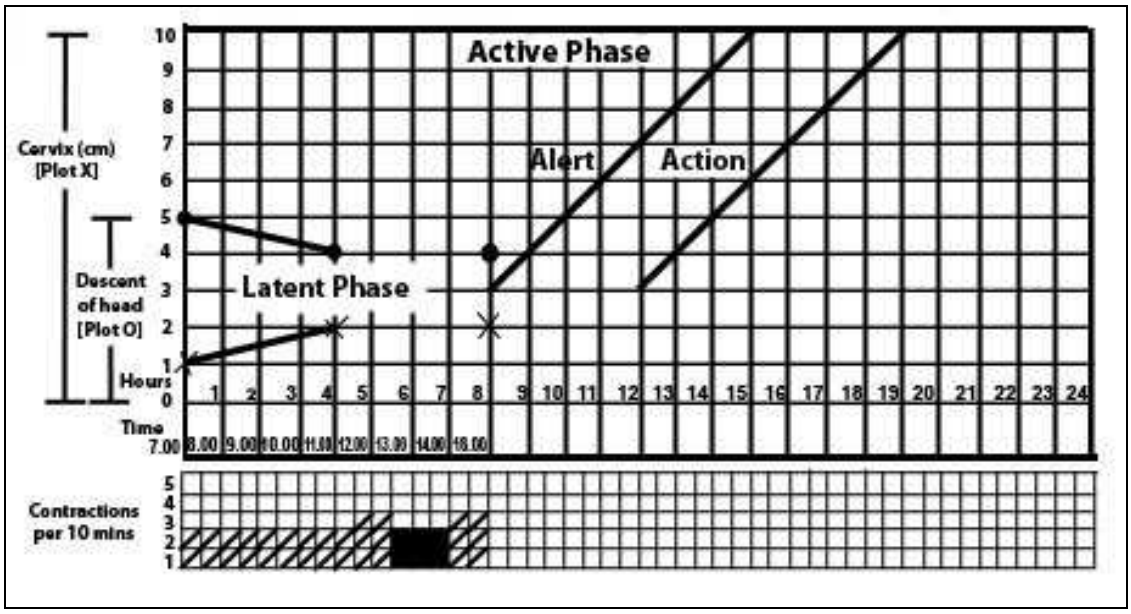


Figure 8.6 Prolonged latent phase

Prolonged Active Phase

In the active phase of labor, plotting of cervical dilation will normally remain on or to the left of the Alert Line. But some cases will move to the right of the Alert Line and this warns that labor may be prolonged. This will happen if the rate of cervical dilation in the active phase of labor is < l cm/hour.

- A woman whose cervical dilation moves to the right of the Alert Line must be transferred and managed in a hospital with adequate facilities for obstetric interventions.

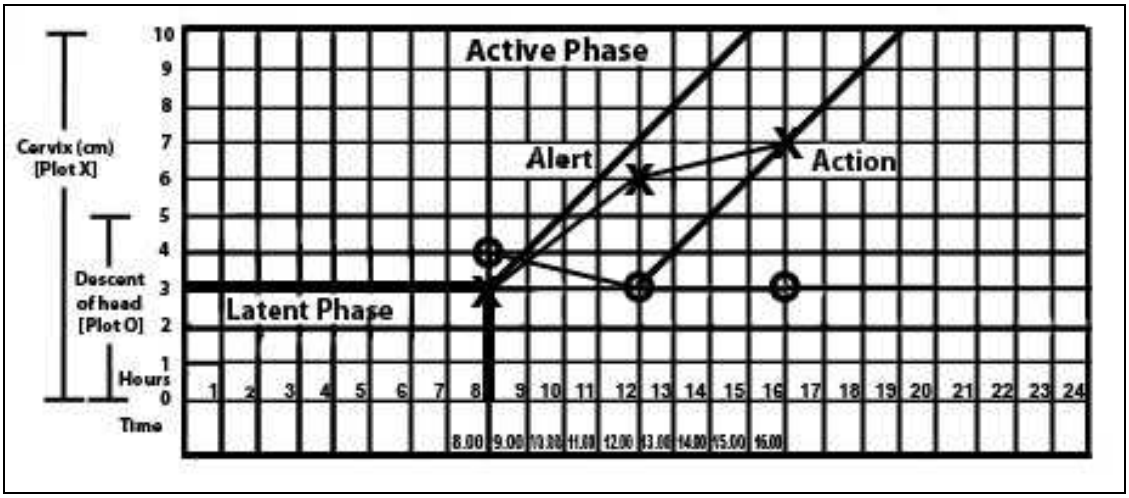


Figure 8.7 Prolonged active phase

Secondary Arrest of Cervical Dilation

Abnormal progress of labor may occur in cases with normal progress of cervical dilation then followed by secondary arrest of dilation.

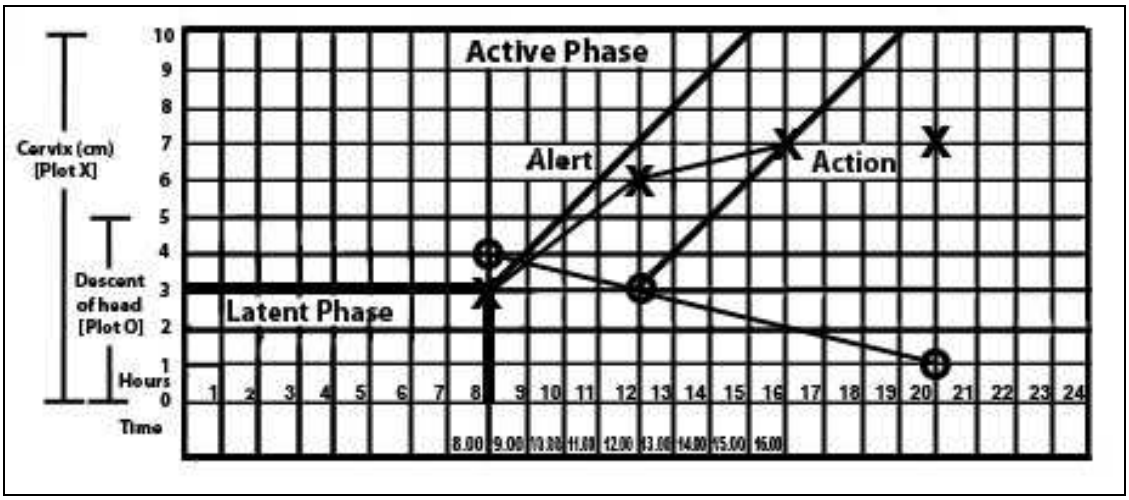


Figure 8.8 Secondary arrest of dilation

Secondary Arrest of Head Descent

Abnormal progress of labor may occur with normal progress in decent of the fetal head then followed by secondary arrest of descent of the fetal head.

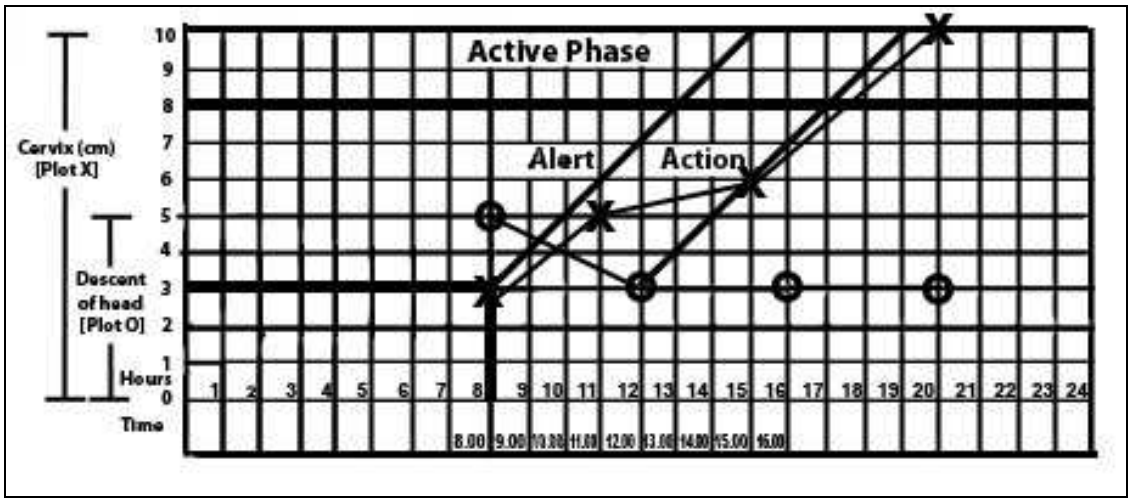


Figure 8.9 Secondary arrest of head descent

In these two conditions of secondary arrest of cervical dilation or head descent the patient should be referred to the hospital.

Using the Partograph: Points to Remember

- It is important to realize that the partograph is a tool for managing labor progress only. The partograph does not help to identify other risk factors that may have been present before labor started.
- Only start a partograph when you have checked that there are no complications of the pregnancy that require immediate referral.
- A partograph chart must only be started when a woman is in labor.
- If progress of labor is satisfactory, the plotting of cervical, dilation will remain on or to the left of the Alert Line.
- If the progress of labor is satisfactory, the dilation should not move to the right of the Alert Line.
- The latent phase, 0-3 cm dilation, is accompanied by gradual shortening of the cervix. Normally, the latent phase should not last more than eight hours.
- The active phase, 3-10 cm dilation, should progress at the rate of at least 1 cm/hour.
- When admission takes place in the active phase, the admission dilation is immediately plotted on the Alert Line.
- When labor goes from latent to active phase, plotting of the dilation is immediately transferred from the latent phase area to the Alert Line.
- Dilation of the cervix is plotted (recorded) with an X, descent of the fetal head is plotted with an O, and uterine contractions are plotted with differential shading.
- Descent of the head should always be assessed by abdominal examination (by Rule of Fifths felt above the pelvic brim) immediately before doing a vaginal examination.
- Assessing descent of the head assists in detecting the progress of labor.
- Increased molding with a high head is a sign of cephalopelvic disproportion and requires immediate referral to a hospital.

- Vaginal examination should be performed infrequently, as this is compatible with safe practice (once every four hours is recommended).
- When the woman arrives in the latent phase the time of admission is 0 time.
- A woman whose cervical dilation moves to the right of the Alert Line must be transferred and managed in an institution with adequate facilities for obstetric interventions.
- When a woman in labor passes the latent phase in less than eight hours, i.e., transfers from latent to active phase, the most important feature is to transfer plotting of cervical dilation to the Alert Line using the letters TR, leaving the area between the transferred recording blank. The broken transfer line is not part of the process of labor.
- Do not forget to transfer all other findings vertically.
- Referral of a patient in labor should follow the referral guidelines beside putting in consideration the following important points:
    - The woman should like in a left lateral position.

Give broad-spectrum antibiotics (Ampicillin 2 gm IV) if membranes are ruptured or temperatures > 37.6°C.

Second Stage of Labor

Definition

The second stage of labor is the stage of fetal expulsion. It begins with complete dilation of the cervix and ends with expulsion of the fetus.

The second stage of labor is a serious process since utero-placental circulation is reduced due to the strong contractions with resulting retraction of the uterus that, in turn, results in decreased oxygenation of the fetus. The decrease in oxygenation is accompanied by acidosis. Therefore, the health care provider should carefully monitor the condition of the fetus during the second stage of labor.

Onset of the Second Stage

The second stage begins when the cervix is fully dilated (10 cm) between uterine contractions. The following events can accompany the second stage of labor:

- Woman feels the urge to bear down
- Involuntary urination and defecation
- Vulval separation
- Membranes rupture spontaneously

Onset of Pushing during the Second Stage

The physiological approach is to wait until the woman feels the urge to bear down. The expulsion phase may start spontaneously ten or twenty minutes after full dilation; delayed pushing will not have any hazardous effect on fetal or neonatal outcomes.

- Make sure that the cervix is fully dilated.
- Wait until the woman feels the urge to bear down.

- Encourage her to push during contractions and to relax between contractions.

Urinary Catheterization

The practice of urinary catheterization to empty the bladder as a routine procedure:

- Is unnecessary (the woman must be encouraged to urinate spontaneously during the first stage of labor)
- Maybe difficult and traumatic when the head is firmly engaged
- Might cause infection of the urinary tract

Procedure of Pushing during the Second Stage

Two practices of pushing have been compared in several trials, exhalatory bearing-down and Valsalva bearing-down:

1. Exhalatory bearing down efforts and a woman's spontaneous pattern of expulsive efforts:
   a. Result in three to five relatively brief (4 to 6 seconds) bearing-down efforts with each contraction.
2. Valsalva bearing down efforts:
   a. Are sustained, directed patterns of expulsive efforts accompanied by breath holding
   b. Result in 10-30 second duration of sustained bearing down efforts
   c. Result in a shorter second stage of labor
   d. May cause respiratory induced alterations in heart rate and stroke volume
   e. If the woman is lying flat on her back, Valsalva bearing down efforts may be associated with compression of the aorta and reduced blood flow. to the uterus and the fetus.
3. Fundal pressure: the practice of fundal pressure during the second. stage of labor should be avoided because:

- Maternal discomfort is increased
- It is suspected to be harmful for the uterus, the perineum and the fetus.
- It may increase the incidence of shoulder impaction at delivery.

Duration of the Second Stage

During recent decades the number of operative deliveries worldwide has increased sharply due to the rigid adherence to a prefixed duration of the second stage. If maternal and fetal conditions are good and there is progress of labor, there are no grounds to interfere. Unnecessary interventions are harmful to women and neonates.

The second stage of labor USUALLY should not exceed:

- Two hours in primipara
- One hour in multipara

Maternal Position during the Second Stage

The position of the mother during the second stage of labor affects the condition of the fetus as it does in the first stage. The laboring woman may sit upright or in a dorsal position, with or without lateral tilt.

- Advantages of upright position:
  - More comfortable
  - Less difficult to bear down
  - Less labor pain and backache
  - Less perineal/vaginal trauma and wound infections
  - Shorter duration of second stage
- Disadvantages of upright position:
  - Causes more labial tears
  - Increases the number of third degree perineal tears
  - Increase the percentage of the postpartum hemorrhage (could be due to increased pressure on the pelvic and vulval veins).
  - Excessive edema and hemorrhoids

Note: In both the first and second stages, women may adopt any position they like, preferably avoiding long periods lying supine. Birth attendants need training to perform births in positions other than the supine in order not to inhibit the choice of position.

Guarding and Massaging the Perineum

Supporting the perineum

Use the palm of one hand to support the perineum during contractions, while the second hand applies pressure to the fetal head to control the speed of extension and crowning, thus trying to reduce and prevent damage to the perineal tissues. This support is applied more easily if the woman is in the supine position.

Massaging the perineum

During the last part of the second stage, "ironing out" or massaging the perineum in an attempt to stretch the tissues may be done with an emollient such as olive, mineral, or paraffin oil. However, there are doubts about the benefits of sustained rubbing of tissues that are already highly vascularized and edematous.

Episiotomies

Types

Mediolateral

The most commonly used incision, effectively avoids the anal sphincter and the rectum.

Midline

Midline episiotomies are more easily sutured, leave less scar tissue, cause less bruising, and women begin intercourse significantly earlier than those who had mediolateral episiotomies. This incision also results in better cosmetic appearance and texture:

Indications for performing an episiotomy

- Insufficient progress of delivery at the end of labor due to rigid perineum
- Signs of fetal distress
- Threatening signs of an emerging tear
- Third degree tear in previous delivery
- Extensive Female Genital Cutting (FGC)

Use of episiotomies

Liberal use of episiotomies is justified due to the following benefits:

- Prevention of damage to the anal sphincter and rectal mucosa
- Easier repair than with spontaneous tear
- Prevention of trauma to fetal head due to compression and decompression
- Prevention of serious damage to the muscles of pelvic floor
- Lower frequency of anterior vaginal and labial tears
- More specific protective effect on the tissues around the bladder neck

Note: Physicians who do an episiotomy should be able to suture it in layers under local anesthetic, taking proper precautions to prevent infection.

Perineal Tears

Perineal tears occur frequently and are classified into three degrees,

- **First degree tears** involve only the skin, and vaginal mucosa.
- **Second degree tears** involve the perineal body up to, but not involving the anal sphincter with a corresponding tear in the vaginal mucosa.
- **Third degree tears** involve the anal sphincter and usually expend for 2 cm or more up the anal canal. Sometimes the tears cuts through the sphincter to open the mucosa of the anal canal and perhaps the rectum also.

Note: Cutting into the rectum is considered a third degree tear that needs immediate care.

First and second degree tears must be sutured (can be done easily under local anesthesia). Vaginal mucosa is sutured from the apex, which must be clearly identified, down to the introitus. The perineal body is then repaired with stitches of the same material. Third degree tears should be referred to hospital.

Note: Extensive tears of the vaginal walls can occur without a tear in the perineum and they should always be carefully inspected after delivery. Minor lacerations can also occur on the anterolateral vaginal wall. It is important to repair all perineal lacerations immediately to prevent any infection of the raw surface.

Aftercare of Perineal Tears

- Wash the perineum each day with warm water and antiseptic solution; then carefully dry the perineum.
- Order a low-residue diet.
- If the woman has extensive tears and retains urine, order catheterization.
- Rarely does the perineal wound become infected. Should infection occur, sufficient sutures are to be removed to permit drainage, and antibiotics given.

Third and Fourth Stages of Labor

Definition

The third stage of labor begins immediately after delivery of the fetus and ends with the delivery of the placenta and fetal membranes. The third stage of labor is the stage of separation and expulsion of the placenta.

The main risks for the mother during this stage are:

- Postpartum hemorrhage
- Retained placenta
- Inverted uterus

The first two hours immediately following delivery are critical and it has been designated by some as the "fourth stage of labor." Even though ecbolics are administered, postpartum hemorrhage as the result of uterine atony is more likely at this time.

Active Versus Expectant Management of the Third Stage of Labor

Caregivers have a number of choices in the third stage of labor. The first is whether to take an active or expectant (physiological) approach:

The active management approach uses the effect of oxytocin, early clamping, division of the umbilical cord, controlled cord traction and uterine massage.

The literature gives preference to active management because:

- Postpartum hemorrhage occurs less often.
- Postpartum hemoglobin levels are higher.

The expectant management approach means taking a physiological approach to labor. This approach involves waiting for signs of spontaneous separation and descent of the placenta before clamping and division of the umbilical cord and no use of ecbolic drugs, cord traction, or fundal pressure.

In practices the two approaches are not as separate as they first appear; some commentators suggest a third category that combines the best of both approaches.

Mechanism of Placental Separation

Uterine contractions continue after the birth of the neonate reducing the size of the upper segment. The contractions reduce the area of the uterine surface to which the relatively incompressible placenta is attached, causing separation. The consequent reduction in intrauterine volume tends to force the placenta into the relaxed lower segment, thus further assisting in the separation process.

Management of the Third Stage

Prophylactic use of ecbolics

- The drug used now is oxytocin. It decreases the estimated postpartum blood loss.
- Palpate the abdomen to rule out the presence of an additional infant(s).
- 10 IU oxytocin (Syntocinon) is administered. IM:
  - Immediately with the delivery of the anterior shoulder
  - Or after delivery of the fetus
- Side effects of oxytocin include:
  - Nausea
  - Vomiting
  - Headache
  - In the case of undiagnosed twins, entrapment of the second twin may lead to its demise.
- The available evidence suggests that the oxytocin is a better choice than ergot derivatives. Oxytocis is preferred over other uterotonic drugs because it is effective 2 to 3 minutes after injection, has minimal side effects and can be used in all women.
- Rare but serious complications that may be associated with ergot derivatives include:
  - Cardiac arrest
  - Intracerebral hemorrhage
  - Myocardial infarction
  - Pulmonary edema
- If oxytocin is not available misoprostol 400-600 mcg orally can be used.
- Administration of oral tablets of ergometrine immediately after birth has little effect on blood loss after childbirth.

Cord Clamping

Early clamping means clamping immediately after delivery of the neonate

Late clamping means clamping after pulsation of the cord ceases 3-4 minutes after delivery of the neonate. It is the physiological way of treating the cord. This results in a shift of about 80

ml of blood from the placenta to the neonate, providing about 50 mg of iron to the neonate's reserve and reducing the frequency of iron deficiency anemia later in infancy.

Observations and trials found that:

- There is no evidence that timing of cord clamping has a significant effect on the incidence of postpartum hemorrhage or on feto-maternal transfusion.
- Theoretically, the transfusion of 80 ml of blood from the plaeenta to the neonate might cause:
  - Hypovolemia
  - Polycythemia
  - Hyperviscosity
  - Hyperbilirubinemia (due to destruction of the increased erythrocytes percentage by hemolysis).
- Neonates born after early cord clamping have:
  - Lower hemogolobin values
  - Lower hematocrit values
  - Lower neonatal bilirubin levels
  - No different in neonatal morbidity
- Early clamping is an intervention that needs justification such as:
  - Rhesus sensitization
  - Preterm birth
  - Controlled cord traction
  - Twin delivery
- Research supports late clamping because it may prevent iron deficiency anemia in childhood. This may be of special importance in developing countries.

Controlled Cord Traction

Controlled cord traction involves traction on the cord' combined with counter-pressure upward on the lower segment of the uterus, using a hand placed above the symphysis pubis.

When compared with entailing fundal pressure, (less active, approach), lower mean blood loss and shorter third stages were, found in a controlled traction group.

How to do controlled cord traction

- Clamp the cord close to the perineum (once pulsation stops in a healthy newborn) and hold in one hand.
- Place the other hand just above the woman's pubic bone and stabilize the uterus by applying counter-pressure during controlled cord traction.
- Keep slight tension on the cord and await a strong uterine contraction (2 to 3 minutes).
- With the strong uterine contraction, encourage the mother to push and very gently pull downward on the cord to deliver the placenta. Continue to apply counter-pressure to the uterus.

- If the placenta does not descend during 30 to 40 seconds of controlled cord traction do not continue to pull on the cord:
  - Gently hold the cord and with until the uterus is well contracted again.

With the next contraction, repeat controlled cord traction with counter-pressure.

- As the placenta delivers, hold the placenta in two hands and gently turn it until the membranes are twisted. Slowly pull to complete the delivery.
- If the membranes tear, gently examine the upper vagina and cervix wearing sterile/disinfected gloves and use a sponge forceps to remove any pieces of membrane that are present.
- Look carefully at the placenta to be sure none of it is missing. If a portion of the maternal surface is missing or there are torn membranes with vessels, suspect retained placenta fragments.

Note: Never apply cord traction (pull) without applying counter traction (push) above the pubic bone on a well-contracted uterus.

Rare but serious complications associated with controlled cord traction include:

- Cord rupture (3%)
- Inversion of the uterus (due to wrong application of the method

Uterine Massage

How to do uterine massage

- Immediately massage the fundus of the uterus until the uterus is contracted.
- Palpate for a contracted uterus every 15 minutes and repeat uterine massage as needed during the first two hours.
- Ensure that the uterus does not become relaxed (soft) after you stop uterine massage.

Early Initiation of Breastfeeding

Early suckling and/or breast feeding should be encouraged immediately after birth. The sucking on the nipple stimulates uterine contractions that minimize postpartum hemorrhage. Early and frequent feedings may bring in the mother's milk more quickly and avoid breast engorgement.

Immediate Care for the Newborn

There should be attention given to the condition of the newborn during and immediately after birth. This attention is considered an integral part of a normal birth.

WHO stresses the importance of a unified approach in the care of the mother and the neonate. Immediate care involves:

- Ensuring that the airway is clear
- Taking measures to maintain body temperature
- Clamping and cutting the cord using sterile instruments,for the prevention of infection

- Putting the neonate to the breast as early as possible (within the first hour after birth)
- Inspecting the neonate for possible congenital abnormalities
- Attaching 1D bracelet for neonate's identification

Complications of the Third Stage

Postpartum hemorrhage

Postpartum hemorrhage is one of the main causes of maternal mortality and the major killer of young pregnant women in Egypt. Postpartum hemorrhage is defined by WHO as blood loss of greater than or equal to 500 ml. The 500 ml limit should be considered an Alert Line. The Action Line is reached when the vital functions of the woman are endangered, usually occurring after blood loss is greater than 1,000 ml in a healthy woman. The diagnosis is made by a clinical estimate of blood loss and often is significantly underestimated.

At the primary health care unit, a blood loss more than average or the presence of active bleeding necessitates referral to a higher level of health care facility. The distinction is crucial to minimize an unnecessary blood transfusion and its risks, including hepatitis infection.

The appropriate management of the third stage influences the incidence of complications and the amount of blood loss. The care of a woman with postpartum hemorrhage depends on a rapid, careful assessment of the cause and prompt arrest of bleeding.

Retained placenta

It may be more effective to wait 30 minutes before referral to hospital, in absence of bleeding. During this time continuous uterine massage is performed and oxytocin 20 IU/liter in normal saline or Ringer's solution is given by IV infusion.

Inversion of the uterus

Inversion may occur as a result of excessive cord traction while the uterus is still relaxed, vigorous fundal pressure, or exceptionally high intra-abdominal pressure as a result of vomiting or coughing. In such cases, the patient should be referred to hospital for replacement of the inversion under general anesthesia.

Care of the Mother Immediately after Delivery of the Placenta (Fourth Stage of Labor)

The placenta should be examined carefully after its delivery to detect any abnormalities such as:

- Infarcts
- Hematomas
- Abnormal insertion of the cord'
- Two-vessel cord
- Incompleteness of placenta.

Give the mother one vitamin A capsule (100,000 IU) at this time.
The mother should be observed carefully every half hour during the first two hours postpartum for:

- Amount of blood loss

- Uterine fundal height (blood may accumulate in the uterine cavity)
- State of the uterus contraction (if poorly contracted, gentle abdominal massage of the uterus can be helpful)
- General condition of the mother (blood pressure, pulse, and temperature)
- Presence of a full bladder
- The physician should counsel the mother about the importance of breastfeeding and family planning before discharge.

The physician should fill out the *Woman's Health Card* after the delivery is complete.

Indications of Cesarean Delivery

Indications

Maternal

- Cephalopelvic disproportion
- Failure of labor to progress with partograph monitoring
- Previous cesarean deliveries
- Placenta previa or placental abruption
- Soft-tissue obstruction
- History of obstetric complications/problems
- Placental insufficiency combined with signs of fetal distress
- Failed induction when an indication is present
- Prior surgery on fundus of uterus (e.g., classical cesarean section or myomectomy that entered uterine cavity)

Fetal

- Persistent fetal distress
- Malpresentation
- Postmaturity, if there is fetal distress with induction
- Multiple pregnancy
- Cord prolapse.

Any patient presented with any of the previous conditions should be referred to the next level of health care facility for cesarean delivery.

Breech Presentation

Introduction

A breech presentation is characterized by the fetus' breech or buttocks presenting in the lower uterine segment with the fetus' head in the uterine fundus. Simply put, breech is the opposite of vertex.

Types of Breech

Complete

- Hips and, knees are flexed (fetus in squatting position)

Incomplete

- Where, hips and/or knees are extended:
  - Frank: hips flexed and knees extended
  - Knee: chips extended and knees flexed
  - Footling: both hips and knees are extended

Predisposing Factors

- Prematurity
- Multiparity and uterine relaxation
- Polyhydramnios and oligohydramnios.
- Hydrocephaly and anencephaly
- Pelvic tumors
- Uterine anomalies

Diagnosis

Physical examination

- Abdominal palpation reveals hard, round mass of fetal head in fundal grip and soft, irregular buttocks in pelvic grip.
- Vaginal examination reveals lower pole of the fetus occupying the lower uterine segment.
- The anus and ischial tuberosities form a straight line distinguishing the breech from a face, in which the mouth and malar prominences form a triangle.

Management

Refer patient to the hospital according to referral guidelines.

9

Clean and Safe Home Birth

Clean and Safe Home Birth[5]

This chapter deals with the importance of providing a clean and safe home birth when a family wishes to give birth at home.

Introduction

HM/HC fully supports the MOHP policy of encouraging institutional birth. However, it is important for health care providers to recognize that the tradition of giving birth at home in Egypt remains strong. The transition from home birth to hospital birth is a process that takes place over time and is best achieved by offering the highest and most humane quality of care to families, whatever their choice of birthplace.

A relationship of **mutual respect** and understanding between the physician, the midwife and the daya is critical to ensure a clean and safe home birth. The goal is to ensure quality obstetric and neonatal care, no matter who attends the birth or where the delivery takes place.

"It is everyone's responsibility to help families choosing to give birth at home to have a safe and clean labor, delivery, and postpartum experience" (Ross, 1998).

Problem in Egypt

Thee ENMMS 2000 showed that over 50% of all births in Egypt take place at home. Of these, 10% were conducted by physicians, 13.9% by a nurse or nurse/midwife, and 68.6% by dayas. The study also showed that 29% of all maternal deaths and 75% or more of neonatal deaths occurred at home. The majority of maternal deaths occur within 24 hours of delivery, and 81% occur due to one or more avoidable factors.

Reasons Families Choose to Give Birth at Home

"It is safe to say tat a woman should give birth in a place she feels is safe, and at the most peripheral level at which appropriate care is feasible and safe" (WHO, 1996).

For a low-risk pregnant woman, delivery can be at home, at a primary health care unit, or at a maternity clinic or center. However, it must be a place where all attention and care are focused on her needs and safety, and it must be as close to her home and to her own culture as possible.

- Reasons families choose to give birth at home include:
- Local tradition and/or customs
- Greater comfort and privacy
- Trust in the daya who is often known and respected in the local community.

[5] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chap. 13.

Factors that Contribute to Maternal and Neonatal Mortality and Morbidity at Home

Two major factors contribute to maternal and neonatal mortality and morbidity at home:

- Harmful practices b providers
- Delays in recognizing complications, and seeking and receiving care

Harmful Practices

Research in Egypt conducted within the past five years has shown that one of the biggest problems contributing to maternal and neonatal mortality and morbidity is HARMFUL PROVIDER PRACTICES while attending home births.

Harmful practices identified during research include the following:

- Extensive use of oxytocin and ecbolics (misoprostol) to speed up labor (mothers had received oxytocin to speed up labor in 63% of all still births)
- Use of forceps and vacuum extractions at home by doctors and sometimes by nurses
- Application of fundal pressure to speed up delivery
- Performance of cesarean sections at home (3% of birth at home in one study)
- Lack of infection control precautions

Four Delays

There are four common delays that may occur during home birth that are responsible for many maternal and neonatal deaths:

- **Delay # 1:** Delay in recognizing the problem (lack of awareness of danger signs)
- **Delay #2:** Delay in deciding to seek care (health facility inaccessible, fear of costs, fear of poor treatment).
- **Delay #3:** Delay in reaching the health facility (lack of transportation).
- **Delay #4:** Delay in receiving adequate treatment once a woman has arrived at the health facility (lack of equipment, supplies, trained personnel, drugs, blood).

Symptoms and Signs that Identify Women at Risk

It is important to identify women at risk to deliver at home in terms of four types of existing risk factors, and also to screen women for symptoms and signs that may arise during pregnancy that make delivery at health facilities safer than at home.

Table 9.1 Women at risk to deliver at home

Home	Obstetrical	Medical	Fetal
Infectious disease present (e.g., hepatitis)	Pre-eclampsia or eclampsia	Cardiac disease	Breech or transverse lie
Unsanitary conditions	Multiple gestation	Tuberculosis	Gestation < 37 weeks
	Placenta previa	Diabetes	Gestation > 42 weeks
	Polyhydramnios	STI	Previous or current

Home	Obstetrical	Medical	Fetal
			pregnancy with intrauterine fetal death
	Rh isoimmunization	Essential hypertensions	Previous or current pregnancy with intrauterine growth retardation
	Previous cesarean section	Severe anemia	Previously diagnosed congenital fetal malformation
	Previous still birth or neonatal death	History of infertility	
	Multipara > 4		

Table 9.2 High-risk Symptoms and signs that Necessitate Referral to the Hospital during Pregnancy

Symptoms	Signs
Vaginal bleeding Premature rupture of the membranes (PROM) Preterm labor pains before 37 weeks Decreased or absent fetal movements Severe headache Severe epigastric pain Blurring of vision Convulsions	Height > 150 cm Blood pressure ≥ 140/90 mmHg Temperature > 37.5°C Fundal height < period of amenorrhea Fundal height > period of amenorrhea Abnormal fetal heart rate (< 120 bpm or > 160 bpm) Marked edema of the anterior abdominal wall

Counseling for Home Birth

Women should be counseled n the importance of a facility-based delivery. However, if the woman is adamant on delivering at home, then she needs to be counseled on the importance of ensuring the following:

1. A family birth plan
2. Birth preparedness
3. Complication readiness
4. Awareness of danger symptoms and signs that might occur during the course of birth (obstetrical complications)

Birth Plan

Every family should have a "birth plan" that addresses the following topics, regardless of where they plan to deliver:

- **Communication.** How will the person attending the birth (daya, midwife, or physician) as well as the support people be contacted (for example: cell pone, local phone, neighbor's phone, send someone)?

- **Knowledge of danger signs.** How will the family and birth attendant decide when to seek help and/or transport the woman to the referral center? What are the danger signs they should look for?
- **Who decides?** Who will make the decision to transport the woman, if necessary (for example: father, mother-in-law)?
- **Transportation.** How will the woman be transported to a health facility when needed (for example: taxi, community vehicle, ambulance)?
- **Where?** Where will the woman be transported and is there an arrangement wit ha referral facility and/or provider (private doctor)?
- ***Antenatal Care Card.*** This card contains important prenatal and medical history data, such as blood type, obstetrical history, history of the present pregnancy, vital signs, and immunizations. It should be carried with the pregnant woman at all times.
- **Cost.** What is the cost of transportation and of care at the referral facility? How will it be paid (for example: family savings, a loan)?
- **Blood donation.** Who will donate blood, if necessary?

Birth Preparedness

Despite local traditions, it is critical that pregnant women and their families be prepared for any eventuality of birth and the possibility of an emergency. Being prepared for a safe home delivery yet ready for a prompt transfer in case of an emergency will reduce these life-threatening delays and save the lives of both mother and newborn.

Birth preparedness includes the following plan for the woman and her family:

- Know what to expect during pregnancy, including self-care (e.g., nutrition and workload) and the expected date of delivery.
- Plan the appropriate location within the home for the delivery.
- Choose a skilled provider (PHC physician, nurse/midwife), or at an absolute minimum when a skilled provider is not available in the area, a trained birth attendant (daya).
- Have the needed supplies to conduct a clean and safe delivery. Use a birth kit. If not available obtain a clean sheet or plastic to use as a clean delivery surface, a new sterile blade, a cord clamp for tying the cord, disinfectant soap and water (see Preparation for Home Birth Checklist p.246).
- Have the needed supplies for a clean postpartum period for the mother and newborn (clean clothes for the mother and newborn, a towel or cloth to wipe the newborn, a clean wrap for the newborn sanitary pads or cloth for the mother).
- Identify support people to help with transportation, to take care of the children and/or household, and to accompany the woman to a health facility in an emergency.

Complication Readiness

Since birth-related complications cannot be reliably predicted, it is important to provide all pregnant women and their families with adequate information about the signs of an obstetric emergency, actions required if a complication should arise, and the importance of seeking care without delay when complication do occur.

- Determine a way to communicate with a source of help (skilled attendant, facility or transportation).
- Identify and contact support people to help with transportation, to take care of the children and/or household, and to accompany the woman to a health facility in an emergency.
- Know the location of the nearest health facility where essential obstetric care is available and functioning 24 hours a day.
- Have a means of transportation to this facility.
- Set aside funds for medical care in advance so that the woman can reach the appropriate medical facilities as quickly as possible.
- Know who will be the blood donor and know the mother's blood type.

High-risk Symptoms and Signs during Birth that Necessitate Referral to the Hospital

Women need to be counseled on the importance of awareness of the following danger symptoms and signs that might occur during the course of birth (obstetrical complications):

- Gestation < 37 weeks
- Vaginal bleeding (fresh, bright blood)
- Temperature > 37.5°C
- Blood pressure ≥ 140/90 mmHg
- Abnormal fetal lie or presentation
- Abnormal fetal heart rate (< 120 bpm or > 160 bpm)
- Prolapse of the umbilical cord
- Progress of labor crosses the Alert Line of the partograph
- Delivery of the fetus delayed > 4 hours after the rupture of the membranes
- Meconium stained liquor

Woman's Health Card

The health care provider should fill in the *Woman's Health Card* at each antenatal care visit and should stress the importance of having this card with the pregnant woman at each subsequent visit and at birth.

Assessment of the Place of Birth

During an antenatal care visit, the nurse who is working in the primary health care facility should arrange a home visit with the woman. The aim of this visit is to identify the address of the patient's home and the quickest way to get there, and to inspect the home for the following:

- Ensure the availability of clean water.

- Choose a room or area in the home to be the place for delivery. The room should be clean, with enough light, and an adequate distance from where animals are present. It should be as near as possible to the main entrance of the home to prevent delay if referral is needed.
- Ensure the availability of the supplies needed during birth to make the delivery clean and safe using the Preparation for Home Birth Checklist, which appears below.
- Plan with the woman and/or her family a way to communicate between the home and the caregiver in case and emergency arises.
- Ensure that he woman and the people in the home are aware of the danger symptoms and signs during pregnancy and labor and the immediate necessary actions to be taken.

Preparation for Home Birth Checklist

Give the family this checklist at least a month before the due date if they are planning a home birth, to help ensure they have everything ready for a safe home birth.

The nurse/midwife or daya should visit the home at least two weeks before the expected date of delivery with this checklist to make sure the family is prepared.

- Family birth plan
- Clean home
- Clean surfaces in room where woman will give birth
- Light for birth attendant (flashlight is OK if no electricity)
- Clean gowns for mother
- Sanitary napkins
- Bath towels
- Clean sheets with pillowcases
- Plastic sheeting to protect mattress (to be placed under sheets during delivery – can cut up large plastic bags if necessary)
- Disinfectant soap
- Cord clamp
- Disposable sterile scalpel (to cut the cord)
- Disposable single-use gloves
- One trash can (preferably lined with plastic bags) for trash and/or waste prducts
- Clean cotton blankets to receive newborn
- Diapers
- Clean clothes for newborn
- If it is cold, a source of heat should be provided so that the newborn is not born into a cold environment.

Service Standard for the Home Birth Kit (for Physicians)

Supplies

- Alcohol 70% or alcohol swabs for umbilical stump care
- Head cover and mask (one)
- Plastic disposable mattress cover (one)
- Povidone iodine 10% for disinfection (200 ml)
- Bowls of different sizes for emesis and povidone iodine (two)
- Four-inch square gauze pads (6 packs, 2 per pack = 12 total)
- Dipsticks for urine testing (protein and glucose)
- Disposable single-use gloves (one pack)
- Sterile rubber gloves (one pair for delivery, one pair for handling the neonate)
- Disposable plastic gloves for antepartum assessment (one packet)
- Disposable syringes (one each 3 ml, 5 ml, 10 ml)
- Oral and rectal thermometers
- Umbilical cord clamps (two)
- Disposable plastic urinary catheter (one)
- Disposable plastic apron (one)
- Bulb syringe for nasopharyngeal suction (one)
- Black (packages and wraps) and yellow (body fluid contaminated material) plastic bags for waste disposal
- Small, hard plastic box for sharp instrument disposal
- Vicryl #0 stitches (two)
- IV canula size 18 (two)
- IV infusion set (one)
- Maternity size sanitary napkin (two)
- Adhesive plasters/band aids
- Airway size 3 "green" (one)

Instruments

- Sphygmomanometer
- Adult stethoscope
- Pinard fetal stethoscope
- Tape for neonatal measurements
- Neonatal scale
- Needle holder (one)

- Kocher clamp (two)
- Curved episiotomy scissor (one)
- Sterile scalpel blade for umbilical cord cutting (one)
- Sim's speculum (one)
- Toothed tissue forceps (one)

Drugs

- Xylocaine 1% for local perineal infiltration (one bottle)
- Syntocinon (oxytocin) for postpartum use (four ampules, 5 IU each)
- Lactated Ringer's solution 500 ml (two bottles)
- Methergine ampules in case of postpartum hemorrhage (two)
- Antibiotic eye drops
- Vitamin A capsule (100,000 IU)

Steps Required to Conduct a Clean and Safe Home Birth

Step #1 Upon Arrival at the Home

- Ensure cleanliness of the place of delivery and that the assigned place for delivery fulfills the expected criteria.
- Reconfirm the availability of transportation in case of complications or if an emergency arises.
- Review the *Woman's Health Card* to have an updated overview of the patient's prenatal care.

Step #2 History Taking

- LMP and EDD
- History of the onset of labor pains, their frequency, and duration
- History of vaginal bleeding
- History of rupture of membranes
- History of decreased fetal movements
- History of severe headache
- History of severe epigastric pain
- History of blurring of vision
- History of convulsions

Step #3 Physical Examination

General

- Blood pressure

- Pulse
- Temperature
- Respirations
- Check for pallor or jaundice

Abdominal examination

- Fundal level
- Fetal lie and presentation
- Fetal heart sounds
- Inspection for any scars

Pelvic examination

- Examination of the vulva for rigid perineum, existing scars, or marked varicosities
- Cervical dilation
- Status of the membranes and color of amniotic fluid
- Presenting part

Step #4 Management of Labor

Diagnosis of true labor

Determining that true labor has started is one of the most important aspects of the management of labor. Active labor is differentiated from latend or false labor when:

- The cervix has dilated > 3 cm.
- The rate of dilation is at least 1 cm/hour.
- The fetal descent has begun.
- A bag of forewater forms.

High-risk Symptoms and Signs during Birth that Necessitate Referral to the Hospital

- Gestation < 37 weeks
- Vaginal bleeding (fresh, bright red blood)
- Temperature > 37.5°C
- Blood pressure ≥140/90 mmHg
- Abnormal fetal lie or presentation
- Abnormal fetal heart rate (< 120 bpm or > 160 bpm)
- Prolapse of the umbilical cord
- Progress of labor crosses the Alert Line of the partograph
- Delivery of the fetus delayed > 4 hours after the rupture of the membranes
- Meconium stained liquor

Management of the First Stage of Labor

Best Practices to Follow during the First Stage of Labor

Encourage movement and changes in position

- There is no evidence to support the encouragement of the supine position during the first stage of labor. The only exception is if the membranes have ruptured in the presence of a non-engaged fetal head.
- Encourage the woman to move and to choose the position she prefers.
- Encourage the woman to have a shower – the water is healing and relaxing.

Maintain hydration in labor

- Allow the woman to have plenty of nutritious fluids (lemon juice, tea with honey).

Implement infection control precautions

The risk of infection increases during labor and childbirth and therefore it is imperative that preventive practices are adopted in order to safeguard the woman and the neonate.
Provide for and ensure the "six cleans" for labor and childbirth:

- Clean hands
- Clean perineum
- Clean delivery surface
- Clean cord-cutting instrument
- Clean cord care (clean cord ties and cutting surface)
- Nothing unclean should be introduced into the vagina.

Provide supportive care to the woman and her family

Continuous empathetic and physical support during labor results in:

- Shorter labor less medication for pain management
- Fewer operative deliveries
- Fewer Apgar scores of < 7

All **mother** deserve supportive care during labor, delivery and postpartum. Many traditional societies use an individual who provides support throughout labor and childbirth. This individual, mother, a female friend or relative). Supportive care is important not just because it is "compassionate"; it improves outcomes by helping to prevent conditions such as dehydration and prolonged labor.
The family members as well as the birth companion can provide supportive care. Teach family members how to provide this care.

- **Massage** the woman's back and shoulders between contractions and hold her hand during contractions. This helps make the labor pains more tolerable.
- **Wipe the woman's face and neck** with a clean, cool, wet cloth. Labor is hard work.

- **Offer encouragement and comforting words.** Tell the woman that every contraction brings her closer to having the baby. She can do it. Labor will not last forever. Praise her for getting through the contractions.
- **Breathe with her during contractions.** Teach the woman how to inhale through her nose and exhale a long slow breath through her mouth while making a "shhhh" sound. She should use this breathing during each contraction. It helps her to relax and it distracts her during the labor pains. Breathe with her.

Manage labor using the partograph

Using the partograph encourages regular monitoring of both the mother's and fetus' condition. Proper use of the partograph guides in the early detection of prolonged or obstructed labor.

- Monitor uterine contractions (labor pains), their frequency and duration every 30 minutes.
- Check fetal heart sounds and rate every 30 minutes.
- Perform vaginal examination.
  - Clean hands are required and should be covered by disposable single-use gloves.
  - Ideally only one examination is needed to diagnose active labor.
  - Perform at a maximum frequency of once every two hours.
  - Check cervical dilation, decent of the head and status of the membranes. (If membranes are ruptured, check the color of the amniotic fluid. If it is meconium stained, this reflects fetal distress and the woman should be referred).

Provide pain management

Provide non-pharmacological methods of pain relief:

- Calm, gentle voice
- Relaxation techniques (deep breathing exercises and massage)
- Cool cloth to forehead
- Encouragement, reassurance and praise
- Assistance in voiding or changing positions

Practices that are not recommended

The following practices are **no longer recommended** for management of labor:

- Use of an enema: enemas are uncomfortable, can damage the bowel, and do not shorten labor or decrease neonatal infection or perinatal wound infection.
- Shaving of the pubic area: shaving does not reduce infection and, in fact, may increase the risk of infection or transmission of HIV or hepatitis to the fetus if the mother has open cuts on the perineum. Shaving may also lead to discomfort with the regrowth of hair.
- Restricted mobility during labor
- Restriction of fluids during labor
- Frequent vaginal examinations

- Guided expulsive efforts and/or sustained bearing-down efforts
- Fundal pressure
- Nursing the woman in the supine position

Management of the Second Stage of Labor

Diagnosis of the Onset of the Second Stage of Labor

- The woman feels an urge to bear down.
- The cervix is fully dilated.
- The membranes may rupture spontaneously.
- The presenting part descends into the pelvic cavity; this can be determined by abdominal examination.
- Duration of the second stage of labor is normally two hours in a primigravida and one hour in a multipara.

Best Practices to Follow during the Second Stage of Labor

Position

- The upright (sitting or semi-sitting) position is preferred in the second stage to help with the descent of the fetal head into the obstetric axis.

Bearing down

- Encourage spontaneous pushing, 3-5 times for a relatively brief duration (each 4-6 seconds) using a bearing-down effort with each contraction.

Fetal heart rate

- Check the fetal heart rate every five minutes.

Care of the perineum

Perineal care should be minimal to avoid excess damage. The most effective way to avoid perineal tearing is to provide a SLOW delivery of the fetal head. Ask the woman to pant, not push, as the head is crowning and delivering. Coach her to pant using supportive words (e.g., you're doing well, that's good, keep panting).

Episiotomy

- A reason for episiotomy is when there are signs of fetal distress (fetal heat rate < 120 bpm or meconium stained liquor) and the head is crowning.
- Episiotomy is not indicated because of insufficient progress of delivery alone (be patient – there is no urgency if there is no fetal distress); if the second stage of labor is prolonged, this necessitates referral, not an episiotomy.

Delivery of the newborn

- Immediately place the newborn directly on the mother's stomach, dry the newborn and cover it with a clean cotton blanket.

- Do not hurry to cut the cord.
- After clamping the cord, use a clean sterile blade to cut it.

Immediate care of the newborn

The vast majority of neonatal deaths occur right after delivery (from birth asphyxia, trauma or from care provided immediately after delivery, e.g., failure to maintain the temperature of the newborn). Immediate care of the newborn to prevent neonatal death must include the following:

- Provide warmth – put the newborn directly on the mother's stomach, dry the newborn, cover with a dry cloth.
- Clear the upper airway, establish breathing.
- Wipe the newborn's mouth and nose with a clean gauze pad.
- Rub the newborn's back or flick the toes to stimulate respiration.
- If there are excessive secretions, use a clean sterile bulb syringe, suctioning the mouth first (starting with the sides), then the nose.
- Facilitate immediate breastfeeding (do not allow the family to take the newborn and give it anything other than breast milk).
- Clamp and cut the umbilical cord correctly, following correct infection control measures.

Practices that are not Recommended

The following practices are **no longer recommended** and can be harmful:

- Slapping the back or any other part of the newborn (causes trauma)
- Hanging the newborn upside down by it's feet
- Squeezing the rib cage (can break ribs or puncture lungs)
- Forcing the thighs onto the abdomen
- Shaking the newborn (can cause brain damage)
- Using hot or cold compresses or baths

Management of the Third Stage of Labor

Active Management

Postpartum hemorrhage is the primary cause of maternal mortality according to the *ENMMS 2000*. Active management of the third stage compares favorably with physiological management because postpartum hemorrhage occurs less often and hemoglobin levels postpartum are higher. Active management includes:

- Controlled cord traction
- Uterine massage
- Oxytocin 10 IU given intramuscularly

- Delayed cord clamping until the pulsations stop. This is the physiological way of treating the cord and s\is not associated with adverse effects in normal deliveries.
- Use two sterile Kocher clamps to clamp the cord temporarily, and cut the cord between them to deliver the placenta.

Placental separation and controlled cord traction

Signs of placental separation are:

- Hardening of the uterus
- Lengthening of the cord
- Spurt of blood from the vagina

Following the signs of placental separation gently pull the cord until the placenta appears at the vulva. Grasp the placenta, and by using a gentle twisting motion pull it out. Check for the complete delivery of the placenta and the membranes (no missing cotyledons or membranes) AVOID putting hands inside the uterus as it is painful, it raises the possibility of infection, and it may cause rupture of the uterus.

- Perform uterine massage immediately after delivery of the placenta.
- Repair any perineal tears or episiotomy.

Referral to the Hospital in the Third Stage of Labor

Mother

Refer the mother for:

- Retained placenta (not delivered after half an hour of delivery of the newborn)
- Hemorrhage (insert an IV canula size 18, start a normal saline or Ringer's lactate crystalloid infusion at a fast drip, apply a vaginal pack, and perform bimanual compression)

Newborn

Refer the newborn if:

- Having difficulty breathing, blue, cold, smells bad, poor muscle tone (clear airways with a bulb syringe and maintain warmth during referral)

The birth attendant should accompany the woman and/or newborn and provide continuous monitoring during referral to the health facility.

Note: In rare circumstances when a newborn does not respond to tactile stimulation (no crying or spontaneous breathing) and clearing of the airways with a bulb syringe, refer to the hospital. But immediately initiate chest compressions using two finger tips over the sternum combined with gentle and careful mouth-to-mouth respirations (gentle puffs). Be careful as too much air pressure can burst the newborn's lungs and result in the death of the newborn. Wrap the newborn to keep warm during referral.

Management of the Fourth Stage of Labor

Observation and Management

The birth attendant should observe the woman and her neonate for AT LEAST the first two hours after delivery.

Mother

For the first two hours check and record every 30 minutes:

- Blood pressure
- Pulse
- Vaginal bleeding and firmness of the uterus

Perform uterine massage every 30 minutes. Teach the woman and her family how to perform uterine massage. Tell them to rub from her navel down in a circular motion, and that the abdomen should feel like a big orange.

Newborn

If the newborn is a healthy color, warm, has good muscle tone and is breathing well, keep it with the mother and encourage breastfeeding. Supporting and facilitating the bonding process and immediate and exclusive breastfeeding should be the priority during the first hour or two postpartum. There is no urgency to put in the eye drops or care for the cord.

Referral to the Hospital in the Fourth Stage of Labor

Mother

Refer the mother for:

- Hemorrhage (insert an IV canula size 18, start a normal saline or Ringer's lactate crystalloid infusion at a fast drip, apply a vaginal pack, and perform bimanual compression)
- Tachycardia (pulse > 100 bpm)
- Hypotension (BP < 90/60 mmHg)
- Temperature > 38°C

Newborn

Refer the newborn if:

- Having difficulty breathing, blue, cold, smells bad, poor muscle tone (clear airways with a bulb syringe and maintain warmth during referral)

The birth attendant should accompany the woman and/or newborn and provide continuous monitoring during referral to the health facility.

Postpartum Care and Counseling

Introduction

The birth attendant should continue to be an important source of information and support after the birth. He/she can be of great comfort during the postpartum period when mothers have questions or problems. The nurse/midwife will continue to check in on the mother, infant and family for a usual time frame of six weeks, although some midwives will continue to get calls for a much longer time. Some families and midwives form lasting friendships based on the joy and trust they shared at birth.

Before the birth attendant leaves the home it is important to provide both postpartum care and postpartum counseling.

Postpartum Care

Perform a quick checkup of the mother

- Ensure there is no excessive vaginal bleeding.
- Measure the blood pressure
- Ensure that he uterus is firm.
- Give one vitamin A capsule (100,000 IU)

Perform a quick basic assessment of the newborn

Wash hands with clean water and soap before touching the newborn, and then do the following:

- Ensure the newborn is breathing without difficulty.
  - Look for the rise and fall of the chest and abdomen.
  - Listen for exhaled air and feel for the exhaled air flow at the mouth.
  - If there are retractions of the intercostal muscles or grunting, refer the newborn to a hospital.
- Ensure the newborn has a pink color. If cyanosed, refer to a hospital.
- Ensure the newborn does not feel cold.
- Check for the absence of obvious congenital malformations (spina bifida, abdominal wall defects or abnormal limbs).
- Look for signs of prematurity in the newborn: lack of foot creases, lack of body fat, small size and/or weight < 2,500 grams, and extensive dark hair on back, arms and shoulders.
- Assess the presence of good muscle tone, the presence of a strong cry, and that the newborn grasps the birth attendant's finger.
- Weigh the newborn and record the weight using the portable scale in the birth kit.
- If the newborn is crying, healthy in color and warm to the touch wrap the newborn in his/her clothes, covering the head with a cap.

Cord care

- Use a sterile blade or scalpel for cutting the cord. The cord must be tightly clamped before cutting.
- The length of the umbilical stump after cutting is usually 2-3 cm from the abdominal wall.
- Wipe the umbilical stump with a piece of sterile gauze with alcohol 70% from the tip downwards.

Eye care

- Chlamydial trachomatis and other infections of the newborn's eyes are endemic in Egypt. It is recommended to use eye prophylaxis in the form of Chloramphenicol eye drops 0.5%, one drop in each eye three times per day for three days.

Breastfeeding

- Observe breastfeeding to ensure correct positioning of the mother and newborn and correct attachment. See pages 302-303.

Waste disposal

- **Placenta:** it is recommended to bury the placenta in the soil at least 50 cm below the surface. DO NOT THROW THE PLACENTA IN THE NILE RIVER.
- **Used syringe, soiled swabs or cotton:** put these in a plastic bag, close tightly, take to a place away from the home and burn.
- **Used needles and the trocar of the cannula:** put inside a small plastic or hard cardboard box and take back to the health care facility for proper disposal.
- **Soiled towels and bed sheets:** advise washing them separately.

Record keeping

Record the details of the current delivery in the *Woman's Health Card*.

Postpartum Counseling

Ensure that the woman and her family are aware of the maternal and neonatal danger signs and the importance of seeking immediate medical care if they arise.

Maternal danger symptoms and signs

- Vaginal bleeding: excessive in amount (passage of blood clots or continuous flow of blood), or change in the color of blood to bright red
- Severe headache, blurring of vision, severe epigastric pain or convulsions
- Fever or malodorous vaginal discharge
- Painful calf muscle
- Abdomen very tender when pressed (different from normal cramping of the uterus postpartum when breastfeeding)
- Chest pain or dyspnea
- Fainting

Neonatal danger symptoms and signs

Teach parents the "handful of danger signs for newborns" and the importance of seeking immediate medical care if present:

- Fever or cold skin
- Rapid respiration (panting)
- Poor, weak sucking (inability to latch on to the nipple and breast-feed easily)
- Poor color (blue body) and/or poor muscle tone "lethargy" (does not grab finger, floppy)
- Weak and/or constant painful cry

Also call for medical advice if the newborn:

- Has convulsions or is continuously asleep
- Refuses feeding for two successive times
- Has delayed passage of stools or urine for more than 24 hours
- Has diarrhea or excessive vomiting
- Has abnormal color - pale, dusky or yellow
- Has an umbilical stump that is red, oozing pus or has a bad odor
- Has an eye/eyes that are swollen, sticky or draining pus or discharge

Wrapping

Teach the importance of wrapping the newborn and covering the head to control temperature. Wrap the newborn in his/her clothes, covering the head with a cap.

Breastfeeding

Encourage exclusive and frequent breastfeeding. Mothers who start to breast-feed immediately and exclusively have fewer problems with breastfeeding and generally exhibit more affectionate behavior towards their infants.

It is a common belief that colostrum is not enough for the newborn and that newborns need to be given water or other supplements in addition to breast milk. COLOSTRUM IS ALL A NEWBORN NEEDS and sucking on the breast stimulates milk production.

- Do NOT give the newborn anything but breast milk
- Water, sugar water, teas, fresh or powdered milk is HARMFUL to the newborn and can cause illness (e.g., diarrhea), decrease breast milk production and interfere with breastfeeding.
- Exclusive breastfeeding means that no food or drink other than breast milk is offered to the newborn for up to six months and that he/she is fed on demand, day or night, with no restriction on the length and frequency of breastfeeding.
- Keep the newborn and mother together, day and night.
- Put the newborn to the breast to feed whenever the newborn displays hunger cues (hand to mouth, movement, rooting, crying).

- Discuss with the woman and her family the importance of good nutrition during lactation.

Cord care

Teach the mother and her family how to take care of the umbilical stump:

- Keep the umbilical stump dry and exposed to air or loosely covered with clean clothes.
  - The diaper should be folded so that it does not touch the umbilical stump; stool and urine should not come in contact with the umbilical stump; do not cover the umbilical stump with bandages, or apply unclean substances.
  - Observe for the presence of redness, oozing pus or bleeding from the umbilical stump.
  - Keep the umbilical stump clean.
  - Apply alcohol 70% to the umbilical stump with each diaper change.

Bathing the newborn

Teach the mother and her family how to bathe the newborn. Bathing is not recommended earlier than 3-4 hours after delivery and then only when the newborn's temperature is stable.

Materials for bathing

- Soap and warm water
- Clean towels
- Basin
- Clean clothes
- Blanket

Method for bathing

- Wash your hands before starting the newborn's bath.
- Fill the basin with warm water.
- Remove the newborn's clothes and wrap him in a towel.
- Wash his eyes with a piece of cotton soaked with warm water. Start at the inner aspect of the eye and wipe toward the outer aspect.
- Clean his nares with a new piece of cotton soaked with warm water.
- Clean his external ears only with a new piece of cotton soaked with warm water.
- Hold the newborn on your left arm while supporting his head with your left hand. Start washing with soap and warm water, especially the area behind his ears and his neck. Wash his hair with warm water and baby shampoo if available.
- Wash the front and the back of his chest and trunk using your hands or a soft sponge soaked with soap and water.
- If the cord has fallen off, put the lower half of the newborn in the basin and wash him with soap and water. If the cord has not fallen off, clean the lower half of the newborn with your hands or with a soft sponge soaked with water.

- Take the newborn out from the basin and put him on a dry towel and begin drying the newborn. Start with the newborn's head and move down his body.
- Use zinc oxide cream to protect the diaper area from any inflammation before putting on the diaper.
- Dress the newborn including a cap, wrap him in a blanket and put him on his side.

Points to remember

- Bathing should be performed before feeding.
- The room should be warm.
- Avoid air currents.
- Close windows and doors firmly.
- Care should be taken during the bath to minimize heat loss.
- Warm water alone is sufficient for bathing, but sometimes mild soap can also be used.
- Never leave the newborn alone in the water.

Further Postpartum Visits

- Encourage the mother and family to have the newborn checked by a doctor within two days after the delivery. Advise the mother to bring the newborn for a congenital hypothyroidism screening within the first week.
- Orient the mother about the postpartum care visits that will be carried out on days 1, 4, and 7, and with the care that will be provided during these visits. Stress the importance of the day 40 visit to the clinic (see Chapter 10 Postpartum Care; and Postpartum Care Tables pp.281-283).

Family Planning

- Discuss with the woman and her husband the importance of family planning, and review the most suitable methods they can use (see Chapter 10 Postpartum Care).

10

Postpartum Care

Postpartum Care[6]

This chapter deals with the necessary maternal and child health care that should be provided both in facilities and at homes, as well as the proper number and timing of postpartum care visits and procedures that should be followed.

Problem in Egypt

The *ENMMS 2000* reported that 26% of maternal deaths occurred during the postpartum period (11% in week one, 7% in week two and 8% in weeks three to six postpartum). Causes included postpartum hemorrhage, genital sepsis and hypertensive disease. According to the World Health Organization (WHO 1998) less than 30% of women receive postpartum care in developing countries, with as few as 5% receiving such services in the poorest areas. Ninety-nine per cent of all women in developed countries do have postpartum care available to them.

Postpartum is a time when problems may develop quickly, which if not diagnoses promptly and treated effectively, can lead to illness and death of the mother or infant. It is an area of maternal care that deserves more attention and consideration. Care during the postpartum period provides the opportunity to ensure the mother and infant are progressing well, to support the breastfeeding mother and to detect and manage any problem. Postpartum care does present a special challenge, because there are two patients with very distinct needs: a newly delivered woman and her infant. This chapter on postpartum care in the BEOC Protocols is one of many told being developed by the HM/HC Project in an effort to reduce this maternal morbidity and mortality in Egypt.

Definition

The postpartum period, or puerperium, starts about two hours after the delivery of the placenta and continues for 42 days. It is the period of time when the anatomic and physiologic changes of pregnancy are reversed and the body returns to the normal non-pregnant state.

Skilled care and early identification of problems during this time could reduce the incidence of death and disability.

Needs of Women and Infants during the Postpartum Period

Needs of Women

In the postpartum period, women need the following:

- Information and/or counseling including:
  - Care of the infant and breastfeeding
  - Physical changes of their bodies, including signs of possible problems
  - Self care, hygiene and healing

[6] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chap. 14.

  - Sexual life
  - Contraception
  - Nutrition
- Support from the following:
  - Health care providers
  - Husband and family, both emotional and phychological
- Health care for potential or current complications
- Time to care for the infant
- Help with domestic tasks
- Maternity leave
- Social reintegration into their families and communities

Women may experience anxiety regarding:

- Inadequacy
- Loss of marital intimacy
- Isolation and depression
- Constant responsibility for infant care and other family members

Needs of Infants

In the postnatal period infants need:

- Easy access to the mother
- Appropriate feeding
- Adequate environmental temperature
- A safe environment
- Parental care
- Cleanliness
- Observation of physical status by a concerned caregiver who is able to recognize and manage potential problems
- Access to health care guidance and management of any potential complications
- Nurturing, cuddling, stimulation
- Protection from the following:
  - Disease
  - Harmful practices
  - Abuse and/or violence
- Acceptance of the following:
  - Sex
  - Appearance

  - Size
- Recognition by the state (vital registration system)

Main Anatomic and Physiologic Changes during the Postpartum Period

The postpartum period is a critical transitional time for the woman on physiological, emotional and social levels. It is an important and integral phase of a woman's reproductive life cycle.

Pelvic Organs

The principle change is uterine involution. The process of involution is aided by the release of oxytocin during breastfeeding. It is important to monitor the fundal height because a delay in involution may indicate infection or retained products of placenta.

Within the endometrial cavity, the decidua is cast off as a result of ischemia and is lost as the lochia flow. In the first few days postpartum, the lochia is a blood-tinged discharge and includes decidual shreds. It is called lochia rubra. After the fifth postpartum day, the lochia flow becomes serous and paler and is called lochia serosa. In the second postpartum week it becomes thicker, mucoid and whitish in color, lochia alba, and usually ceases completely within four weeks of delivery.

Breasts

Colostrum is the yellowish alkaline secretion from the breasts that may be present in the last months of pregnancy and or the first three days after delivery. It has high protein, vitamin A and immunoglobulin contents. Colostrum has a laxative effect on the infant and is an idea, natural initial food. The normal flow of milk secretion begins during the third postpartum day. Continued production is maintained though suckling and the actual emptying of the ducts and alveoli.

Blood Coagulation

On the third postpartum day, a rapid and dramatic increase in both platelet numbers and adhesiveness of platelets as well as an increase in fibrinogen and other clotting factors, puts the woman at higher risk for thrombotic complications.

Major Maternal Health Challenges during the Postpartum Period

In some areas of Egypt the majority of deliveries are at home. In other areas they occur in a health center, hospital or other institution. In Egypt, the *ENMMS 2000* showed that over 50% of all births take place at home. Sometimes a mother and her infant can stay in the health facility for a few days, but often she is discharged within a couple of days or even hours. Care for these mothers and infants is sometimes quite limited.

Many serious complications can occur in the postpartum period. These complications include the following.

Postpartum Hemorrhage

According to WHO (1998), postpartum hemorrhage is the major cause of maternal death in the world. The majority of these deaths 88%, occur within four hours of delivery, indicating they are a consequence of events in the third stage of labor. The primary causes of hemorrhage are uterine atony and retained placenta. Vaginal or cervical lacerations and uterine rupture or inversion also play a role. Anemia, which is prevalent in developing countries, is a significant predisposing factor.

In Egypt, the *ENMMS 2000* showed that postpartum hemorrhage is the first direct cause of maternal death, associated with 197 maternal deaths contributing to 34% of all maternal deaths.

The first hours postpartum are especially critical in the diagnosis and management of abnormal bleeding.

However, there are cases when the first signs of abnormal bleeding occur some days later following the birth. This is a secondary postpartum hemorrhage and is often due to retained parts of the placenta or subinvolution, possibly related to infection. The bleeding may be quite excessive and the woman should be transported to a hospital or referral center, where adequate therapy can be provided.

Pre-eclampsia

In Egypt, the *ENNMS 2000* showed that hypertensive disorders of pregnancy are the second direct cause of maternal mortality, associated with 126 maternal deaths contributing to 22% of all maternal deaths.

The symptoms may become more aggravated during the first postpartum days, and occasionally the symptoms (severe headache, blurring of vision, and severe epigastric pain) develop initially in the postpartum period. The most serious complication is intracranial hemorrhage. A woman suffering from eclampsia or severe pre-eclampsia in the first days postpartum should be hospitalized and actively managed.

Puerperal Genital Tract Infection

Puerperal infections are still a major cause of maternal mortality in developing countries. In Egypt, the *ENMMS 2000* showed that sepsis was associated with 45 maternal deaths contributing to 8% of all maternal deaths.

Predisposing factors for puerperal genital tract infections are prolonged labor, premature rupture of the membranes, frequent vaginal examination, and cesarean section. Although cesarean section is the most important risk factor, the role of non-compliance to infection control precautions i.e., lack of gloves, clean water, soap etc., needs to be considered and addressed.

Sepsis may develop from an intrauterine infection during labor or in the early postpartum period. Shortly after delivery or during the first days postpartum period. Shortly after delivery or during the first days postpartum the patient may present with fever, myalgia and diarrhea. The patient may progress rapidly into serious illness, developing septic shock with low blood pressure and signs of disseminated intravascular coagulopathy. Early symptoms must be detected quickly and the patient referred to a hospital as soon as possible.

Thromboembolic Disease (TED)

Pulmonary embolism is the most serious manifestation of TED. In Egypt, the *ENMMS 2000* showed that pulmonary embolism was associated with 20 maternal deaths contributing to 4% of all maternal deaths.

The clinical symptoms can vary from a clinically "silent" embolism capable of causing sudden death, to severe cardiovascular and respiratory manifestation (dyspnea, chest pain and cyanosis), depending on the size of the embolus. Deep venous thrombosis occurs more commonly than pulmonary embolism and in the patient is manifested by edema of the lower limb (usually unilateral) and painful calf muscle. A patient suspected of embolism should be transported immediately to a hospital for further diagnosis and treatment.

Early mobilization after delivery is the major prophylactic measure against TED. Few women in developed or developing countries have a prolonged period of bed rest after birth. Predisposing factors for TED are anemia, obesity, immobilization, past history of TED, sickle cell disease and congenital deficiencies of anticoagulant factors (antithrombin III, protein C and S).

Complications of the Urinary Tract

Retention of urine

During the first days postpartum, retention of urine with bladder distention is a frequent phenomenon. It is caused by several factors. During the second stage of labor the presenting part of the fetus, usually the head, pressed against the urethra and the bladder and may cause edema. Lacerations and pain in the vulval region may also inhibit the voiding of urine. The changed anatomy in the lower abdomen after birth may reduce the sensation of the bladder. Once over distension occurs, bladder sensation and detrusor muscle function are further impaired. In the first days after delivery the production of urine is increased, as extracellular fluid is excreted. During the first 12 to 24 hours postpartum, bladder distension may gradually occur. The woman may complain of increasing pain in the lower abdomen, and subsequent involuntary loss of small amounts of urine, i.e., overflow incontinence.

Incontinence

Many women experience some kind of stress incontinence in the postpartum period, but serious incontinence present early in the puerperium should raise the suspicion of a vesicovaginal fistula. This is cause d by prolonged pressure of the fetal head against the bladder and the urethra in protracted and obstructed labor, or by traumatic instrumental delivery.

Infection

Urinary tract infections, cystitis and pyelonephritis, frequently occur during the postpartum period manifested by dysuria, frequent micturition and/or loin pain. During pregnancy, stasis in the urinary tract and asymptomatic bacteriuria contribute to the development of infections. Catheterization during labor and postpartum urinary retention can also predispose to infection.

Complaints about the Perineum and the Vulva

Both in the immediate and later postpartum period, pain in the perineum and the vulva can be problematic for many mothers. If trauma occurred during the second stage of labor, she may have perineal and/or labial tears or an episiotomy.

Regular inspection of the perineum is recommended to treat promptly any wound infection.

Breast Problems

In the early stages, incomplete emptying of the milk due to poor suckling technique may lead to engorgement of the breasts which become heavier, painful and firmer in consistency. The breastfeeding technique should be corrected, with improved attachment of the infant to the breast, otherwise mastitis may develop and the breast becomes more firm, painful and hot. Fever is usually present.
In a minority of cases a breast abscess develops. The therapy of choice is surgical.

Psychological Problems in the Postpartum Period

Although the days after birth are generally considered period of intense happiness, this period can be difficult. This postpartum period should be considered a vulnerable time when emotional and psychological disorders may develop.
Three different types of postpartum psychological disorders have been disordered.

Postpartum blues

Mild mood disturbances, marked by emotional instability, crying, insomnia, exaggerated cheerfulness, anxious tension, headache and irritability. This condition develops within the first week postpartum and may continue for sever hours to ten days. This disorder often spontaneously resolves.

Postpartum depression

A more protracted and depressive mood disorder. The woman is gloomy, depressed, irritable and sad. She may have complaints of insomnia, lack of appetite, disturbance of concentration, loss of libido. The most vulnerable period is between eight and twenty weeks postpartum. Depression occurring later in the postpartum period is more serious than that occurring earlier.

Puerperal psychosis

A much more serious disturbance. It occurs in 0.1% - 0.2% of all postpartum women. Usually starting in the second postpartum week, the woman is anxious, restless, and sometimes manic, with paranoid thoughts or delusions. She reacts abnormally towards her family members. These women also have an increased risk of psychotic disorders in other stressful circumstances.

Danger Symptoms and Signs during the Postpartum Period

Mother

The mother should seek medical care if any of the following danger symptoms arise during the postpartum period:

- Vaginal bleeding: excessive in amount (passage of blood clots or continuous flow of blood), or change in the color of blood to bright red
- Severe headache, blurring of vision, severe epigastric pain or convulsions

- Fever or malodorous vaginal discharge
- Painful calf muscle
- Abdomen very tender when pressed (different from normal cramping of the uterus postpartum when breastfeeding)
- Chest pain or dyspnea
- Fainting

The health care provider should refer the mother to the health care facility if any of the following signs were detected during postpartum home visits:

- Pulse > 100 bpm
- Blood pressure > 140/90 mmHg
- Temperature > 38°C
- Tender or hard breast
- Tender calf muscles
- Lower abdominal tenderness
- Malodorous vaginal discharge or infected perineal wound (episiotomy or tear)

Infant

The mother should be educated immediately after delivery about the danger symptoms her infant may develop that necessitate tht she immediately seeks medical care:

- Convulsions or continuous sleep
- Refusal of feeding for two successive times

Note: Had a delayed passage of stool or urine for more than 24 hours

- Diarrhea or excessive vomiting
- Fever or cold skin
- Has an abnormal color – pale, dusky or yellow
- Has an umbilical stump that is red, oozing, draining pus or discharge
- Rapid respirations (panting)
- Poor, week sucking (inability to latch onto the nipple and breast-feed easily)
- Poor color (blue body) and/or muscle tone, "lethargy" (does not grasp finger, floppy)
- Weak and/or constant painful cry
- Has an eye/eyes that are swollen, sticky or draining pus or discharge

The health care provider should refer the infant to the health care facility if any of the following signs were detected during the postpartum home visits:

- Temperature >38°C or < 36°C
- Respiratory rate > 60/minute
- Flaccid, not reactive infant

- Jaundice, cyanosis or pallor
- Difficulty in breathing manifested by nasal flaring and retraction of the chest wall during respiration
- Bloody or purulent discharge from the umbilical stump

Care and Service Provision during the Postpartum Period

Unlike prenatal and intrapartum care, where clear standards are usually available, specific postpartum care objectives are often lacking.

Postpartum complications can be grouped into acute and life-threatening conditions, short-term complications, and long-term chronic conditions. Increased awareness of warning signals and appropriate intervention is needed at all levels.

With respect to clinical problems, emphasis is on the prevention, early diagnosis and treatment of diseases and complications, recognizing when hospital referral is appropriate.

Postpartum care must be collaboration between parents, families, trained or traditional caregivers, health professionals, health planners, health care administrators, other related sectors, community groups, policy makers and politicians. They all need accurate information regarding appropriate and comprehensive care in the postpartum period.

Aim of Postpartum Care

The goals of postpartum care include:

1. Support of the mother and her family in the transition to a new family constellation, and response to their needs.
2. Prevention, early diagnosis and treatment for complications of mother and infant.
3. Referral of mother and/or infant for specialist care when necessary.
4. Counseling on infant care.
5. Support of breastfeeding.
6. Counseling on maternal nutrition, and supplementation, if necessary.
7. Counseling and provision of contraception and advice regarding resumption of sexual activity. (see p.163)
8. Immunization of the infant.

Timing and Services of Postpartum Care (Plan of Postpartum Care)

There seem to be "crucial" moments when the mother's contact with the health system is optimal in the early identification of any possible complications and in response to her needs. The following plan for postpartum care visits suggests the guidelines of care that can be offered at each point of contact during the puerperium (See Postpartum Care tables).
The first three postpartum care visits are conducted by a nurse in the patient's home. The primary health care physician should use the clinical performance monitoring indicator 16A. Postpartum Care – Home Visits (in Arabic) to monitor the performance of the nurses and as a

checklist for them[7]. The nurse conducting the home visit should fill in the findings in the *Woman's Health Card*.

First Visit (within 24 hours)

Monitoring and assessing the mother's and the infant's health status during this early period is extremely important. Most of the maternal mortality cases due to postpartum hemorrhage and postpartum eclampsia occur during the first 24 hours after delivery.

Mother

The health provider examines the mother first during the postpartum care visits.

History taking

The health provider must ask the patient directly about any abnormal bleeding, the number of perineal pads changed, and the amount of its soaking, sever headaches, visual disturbances, epigastric pain, and urination or any of the danger symptoms. Also, inquire whether the mother received a vitamin A capsule (100,000 IU) after delivery.

Physical examination

- **General:** Take the mother's temperature, pulse, and blood pressure. Examine the breasts for retracted nipples. Examine the lower limbs.
- **Abdominal:** Palpate the fundal height and assess firmness.
- **Local:** Note the mount of vaginal bleeding and examine the perineum for any infections, laceration or hematomas.

Health education and counseling

The health provider should then encourage the mother to ambulate early and explain the benefits, initiation and establishment of successful breastfeeding. The importance of seeking medical aid if danger symptoms or signs appear must be stressed.

Infant

History taking

Ask the mother about danger symptoms, and any concerns she has about her infant.

Physical examination

- **General:** Tone, color, and respiratory rate.
- **Chest:** Examine the chest for retracted chest wall during respiration.
- **Abdominal:** Examine the umbilical stump for signs of infection or bleeding.

Health education

Give the mother instructions regarding proper temperature regulation, care of the umbilical cord, care of the eyes, and potential danger signs. This is very important as most of neonatal mortality occurs during the first week after delivery.

[7] See Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), pp.363-366.

Second Visit (day 4 after birth)

On this visit the normal milk flow has begun. The health provider must make sure the infant is nursing adequately, is appropriately clothed and the mother able to meet his needs.

Mother

History taking

Ask the mother about problems or danger symptoms she may be encountering. Specific questions regarding calf and/or chest pain (thrombotic complications) or foul smelling discharge and fever or chills (peurperal sepsis) must be asked.

Physical examination

- **General:** Take the temperature, pulse and blood pressure of the mother. Examine the breasts for engorgement, cracked nipples or mastitis. Examine the lower limbs for tender calf muscles.
- **Abdominal:** Palpate the abdomen for tenderness.
- **Local:** Note the color, smell and amount of lochia and examine the perineum for signs of infection or hematoma.

Health education and counseling

A health education message is then given to the mother regarding the importance of good nutrition, the importance of periodic suckling and complete emptying of the breasts. Education about abdominal muscle tone and exercises is explained.

Infant

History taking

Ask the mother about danger symptoms, and any concerns she has about her infant.

Physical examination

- **General:** Note the infant's tone, color, weight, temperature and respiratory rate.
- **Abdominal:** Examine the umbilical stump for signs of infection or bleeding.

Health education and counseling

Give the mother instructions regarding care of the umbilical cord, care of the eyes and potential danger signs. Counsel the mother to have her infant screened for congenital hypothyroidism within the first week.

Third Visit (day 7)

At this time the umbilical stump should have fallen off or be totally dry.

Mother

History taking

The mother should be asked about problems or danger symptoms she may be encountering. Assess how breastfeeding is progressing.

Physical examination

- **General:** Take the temperature, pulse and blood pressure of the mother. Examine the breasts for engorgement, cracked nipples or mastitis.
- **Abdominal:** Palpatate the abdomen for tenderness, and check the uterus for involution.
- **Local:** note the color, odor and amount of lochia and examine the perineum for signs of infection or hematoma.

Health education and counseling

- A health education message is then given to the mother regarding the importance of good maternal nutrition. The importance of seeking medical advice if she notices any of the danger symptoms is emphasized.
  - Counsel the mother about contraception (see p.163) and the importance of optimal birth spacing of children 3-5 years apart.
- Encourage the woman to visit the health care facility as the last postpartum visit on Day 40.

Infant

History taking

Ask the mother about danger symptoms, and any concerns she has about her infant.

Physical examination

- **General:** Note the infant's color, weight and temperature and perform a thorough examination to check for the presence of danger signs.
- **Abdominal:** check if the umbilical stump has fallen off and whether it is totally dry.

Health education and counseling

Give the mother instructions regarding the importance of seeking medical advice if she notices any of the danger signs in her infant, and the importance of the infant vaccination schedule.

Fourth Visit (clinic visit at day 40)

The Middle Eastern fortieth day celebration signifies a time of happiness for the extended family. They celebrate that both mother and infant have passed the critical postpartum period and wish them health and long life thereafter. Despite the importance of postpartum follow-up, most women are not aware of its significance. It is imperative that the mother's full recover from the effects of pregnancy and labor is confirmed by the examination on day 40. This also provides the opportunity to discuss any problems or anxieties which the woman may have, and follow up with any complications that may have occurred during pregnancy and labor. This fourth postpartum care visit is conducted by a physician in a health care facility.

Mother

History taking

The doctor must inquire about her general health: whether the lochia has ceased, about bladder function, especially inquiring about stress incontinence and if she is still breastfeeding

her infant full time. Tactful inquiry should be made to determine if sexual intercourse has resumed and if there ae any associated problems. Also, ask the mother if she received a vitamin A capsule (100,000 IU) after delivery and if not, give her one during this visit.

Physical examination

- **General:** Take temperature, pulse and blood pressure. Examine the chest, heart, breasts and lower extremities.
- **Abdominal:** Perform a thorough examination and note the condition and tone of the abdominal wall muscles. If the patient had a cesarean section, observe the incision.
- **Local:** Inspect the vulva and perineum to check that any lacerations have healed normally.

Use a bivalve speculum to examine the cervix for tears. Cervical erosion is a common finding and usually regresses spontaneously before the twelfth week postpartum, when the woman should be seen again. If the erosion persists and causes discharge, which is sufficient to trouble the woman, it should be treated.

Note if there is a vaginal wall prolapse or vaginitis while removing the speculum.

Next perform a bimanual examination to assess the size, position, mobility and consistency of the uterus.

Examine the adnexa for any masses or tenderness.

Any positive finding from the examination must be diligently pursued regarding investigations, treatment, and follow up.

Investigations

- Hemoglobin estimation to assess for anemia and complete urine analysis must be performed for all women.

Health education and counseling

The doctor has the opportunity to advise the woman about spacing of pregnancies and must counsel her about the use of contraception. (see p.163)

Although the doctor may have a variety of contraceptive forms, combined and progestin-only pills, injectable long acting progesterone, Norplant implants, and intrauterine contraceptive devices, etc., s/he must keep in mind the cultural and social practices o the client. The doctor must know the absolute and relative contraindications of these contraceptives in order to help the client choose the right method. S/he must inform the patient of the purpose of the contraceptive, how it works, advantages and disadvantages of her chosen method, changes that may occur to her while she uses it, and the way to correctly use the contraceptive. S/he needs to reassure her that, when she decides to have another child, her fertility will not be affected by her method of contraception.

With proper counseling the doctor should be able to administer the appropriate contraceptive during this visit.

Infant

History taking

Ask the mother about danger symptoms and any concerns she has about her infant.

Physical examination

- **General:** Note color, weight and temperature and perform a thorough examination to check for the presence of any danger signs.

Health education and counseling

- Give the mother instructions regarding the importance of seeking medical advice if she notices any of the danger signs in her infant, stress the importance of the infant vaccination schedule. Administer the BCG vaccine. Check if the infant was screened for congenital hypothyroidism. If not, perform the screening.

Postpartum Educational Services

Immunization

Policies may vary in different countries. Immunizing the mother is an important way of preventing a disease or a malformation in the newborn.

Maternal Immunization Schedule in the Prenatal and Postnatal Periods

Tetanus toxoid vaccination

The Egyptian Expanded Program on Immunization (EEPI) recommends a tetanus toxoid schedule for others (see Antenatal Care Tables pp.185-187).

If pregnant women have documentation of prior receipt of tetanus-toxoid-containing vaccines in early childhood or during their school-age years, they should receive only booster dose during each pregnancy for a maximum of five times.

Postpartum rubella vaccination

The postpartum period is an appropriate time for the mother to receive immunization against rubella. Thus, congenital malformations due to rubella in subsequent pregnancies may be prevented. If the mother has documentation of prior receipt of the rubella vaccine in adulthood she does not need one at this time.

Infant Immunization Schedule

The following schedule for bacillus Calmette-Guérin vaccine (BCG), oral poliomyelitis vaccine (OPV), diphtheria, pertussis and tetanus toxoid vaccine (DPT), and hepatitis B vaccine (HB) is recommended for the infant, starting soon after birth.

Table 10.1 Infant immunization schedule

Neonatal Age		Vaccines	
At 1 month of age	BCG		
At 2 months of age	OPV (1)	DPT (1)	HB (1)
At 4 months of age	OPV (2)	DPT (2)	HB (2)

At 6 months of age	OPV (3)	DPT (3)	HB (3)
At 9 months of age	OPV (4)	Measles	
At 18 months of age	OPV (5)	DPT (4)	

Breastfeeding

According to WHO there are ten steps to successful breastfeeding (see Figure 12.1).

Benefits of breastfeeding for infants

Nutritional benefits

Human milk is the most suitable nutrition for infants. Colostrum has the following benefits:

- Present in small amounts during the first few days postpartum (about 80-100 ml/day), the right amount for the newborn stomach capacity
- Acts as a laxative, facilitating the passage of meconium
- Higher in protein, cholesterol, antioxidants (vitamin A), macro-minerals (sodium, potassium, chloride) and microminerals (zinc and copper); and rich in immunoglobulins, especially immunoglobulin A (IgA)
- Low in fats and lactose

Mature breast milk has the following benefits:

- Contains protein, fat, carbohydrates, minerals and antibodies
- Has more nutritional value than any other food for infants up to six months of age
- Contains all the water an infant needs, even in hot climates (breast milk is 87% water)
- Secreted in amounts regulated by the infant's suckling

Growth

Exclusively breast-fed infants achieve an optimal growth pattern in the first six months.

Infants will continue to grow well if supplementation with other foods begins at six months of age.

Immunity

Exclusively breast-fed infants have less risk of diarrhea, respiratory and skin infections, and allergies.

Protection from infection continues as long as the infant breast-feeds.

Dental development and protection

Muscles used for breastfeeding favor normal facial development.
Breastfeeding prevents malocclusion, which occurs more commonly in bottle-fed infants.

Psychosocial issues

Frequent skin-to-skin contact and attention and interaction with the mother stimulate psychomotor and social development.

The lipids in human milk foster mental and intellectual development.

Other issues

Breastfeeding reduces the risk of gastrointestinal disorders and decrease the incidence of sudden infant death syndrome (SIDS).

Maternal benefits of breastfeeding

Prevention of postpartum hemorrhage

Oxytocin from the posterior pituitary, stimulated by suckling, aids uterine contraction, which controls postpartum hemorrhage.

Uterine involution

Oxytocin causes the uterus to contract aiding postpartum involution.

Birth spacing

Exclusive breastfeeding is one of the most efficient methods of child spacing for the first six months postpartum, provided the mother breast-feeds regularly, day and night.

Other considerations

Lactational amenorrhea prevents iron loss. Breastfeeding reduces the risk of breast and ovarian cancer. Breastfeeding fosters a strong bond between mother and infant.

Benefits of breastfeeding for the family and community

Economic benefits

- Inexpensive
- Reduces cost of medical consultation
- Reduces work absenteeism
- Acts as a contraceptive method (Lactational amenorrhea method or LAM)

Community benefits

- Reduces health care costs
- Reduces fertility

Contraceptive benefits of lactation

In traditional societies, and in developing countries, lactation plays a major role in prolonging birth intervals and thereby reducing fertility. (see p.143)

Lactational amenorrhea method (LAM) of contraception

Women who breast-feed can make use of breastfeeding's natural contraceptive effect. If the infant is fed only its mother's breast milk (or is supplemented only minimally) and the woman has not experienced her first postpartum menses, then breastfeeding provide more than 98% protection from pregnancy in the first six months following a birth. Four prospective clinical studies of the contraceptive effect of this lactation amenorrhea method (LAM) demonstrated cumulative six month life-table perfect-use pregnancy rates of 0.5%, 0.6%, 1.0% and 1.5% among women who relied solely on LAM (Contraceptive Technology, 1989).

LAM requires "full or nearly full" breastfeeding because the infant who obtains nearly all nutritional requirements through breastfeeding is providing maximal suckling stimulation at the breast. As long as additional foods do not decrease this optimal amount of suckling, small amounts of supplementation should have little or no effect on the return of fertility.

Thus, if LAM is to be used, supplements should be given only infrequently, in small amounts, and not by bottle. When a LAM user does give supplements, correct use of LAM can be challenged; it may be difficult to determine how much supplementation can be tolerated without affecting lactational infertility.

Milk expression, such as by hand pump, is not a substitute for breastfeeding in terms of its fertility-inhibiting effect.

If a woman wishes to avoid becoming pregnant after LAM protection expires, she must begin to use another contraceptive method at that time.

Ask the mother three questions, according to the following figure.

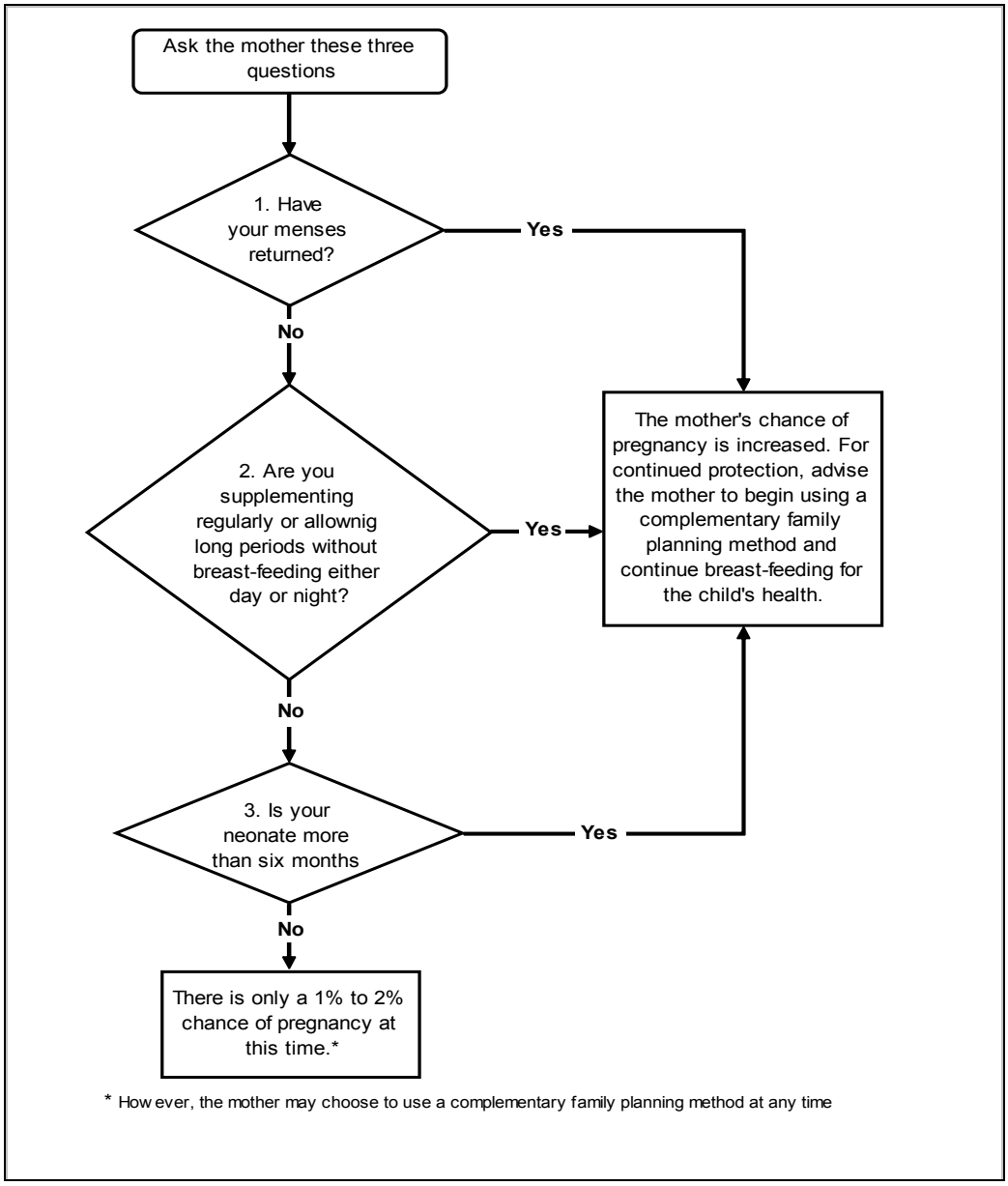


Figure 10.1 How to test lactation as a reliable method of contraception

Source: Houwie, P.W. 1991. Breastfeeding: a natural method per child spacing. Am. J. Obstet. Gynecol., Dec., 165(6 Pt 2): 1990-91

Postpartum Sexuality

Among lactating women, 66% are sexually active in the first month postpartum and 88% are sexually active in the second month postpartum. Contraception is only one counseling issue for postpartum women. Women and men both may experience altered sexual feeling associated with bodily changes caused by pregnancy and delivery. Discussing these bodily changes may alleviate a couple's anxiety.

- Tenderness in the perineum may make intercourse painful, especially if there has been an episiotomy.
- Couples may find that the exhaustion caused by the around-the-clock responsibilities of being new parents temporarily decreases sexual drive.
- Lactation may diminish the erotic significance of the breasts.
- Bonding between mother and child creates skills and commitment in the mother and trust and security in the infant, but it may interfere with the mother's emotional availability to her partner.
- Conversely, having an infant, especially if planned, can be an exceedingly joyous experience that can enhance sexual intimacy.

Contraception

Traditionally, worldwide, a woman has a postpartum follow-up consultation at about six weeks (forty days) as the uterus has involuted and healed by this time.

Counseling for postpartum contraception should begin in the prenatal period. Many methods can be provided at the time of delivery or during the hospital stay, such as intrauterine devise (IUDs), female sterilization, Norplant or DepoProvera.

When the couple's method of choice cannot be initiated during the hospital stay after delivery, they can choose temporary methods, such as LAM or condoms, and make a specific plan to initiate a longer-term method later.

At the third postpartum visit (day 7) check on the mother's postpartum recovery and confirm and support her personal contraception plan.

If the couple has been unable to select a contraceptive method by the time of hospital discharge, suggest a postpartum visit be scheduled for three weeks after delivery.

Consider the following when counseling and providing contraceptives to the postpartum woman:

- Condoms are useful in preventing transmission of sexually transmitted diseases (STI). Spermicides provide modest protection against some STIs. Spermicides and condoms by be used safely even in the immediate postpartum period.
- Withdrawal may e a simple but relatively unreliable method for couples in the postpartum period.
- Postpartum endometritis is a serious complication. The risk of introducing bacteria into the uterus is elevated before cervical closure is complete.

- Episiotomies may still be tender. Fitting a woman for a cervical cap or diaphragm may cause discomfort. Moreover, the risk of toxic shock syndrome is increased when blood, including postpartum lochia, is present.
- Postpartum abstinence is 100% effective in preventing pregnancy. It can, however, be notoriously difficult to maintain.
- IUDs can be inserted with care postpartum
  - Immediate postpartum insertion
    - Immediately after the expulsion of the placenta (post placental insertion)
    - Within 48 hours of delivery
- Insertion at six weeks postpartum
- An IUD can be inserted immediately after a cesarean delivery through the uterine incision.
- Due to risk of infection, avoid IUD insertion when a woman has had premature rupture of the membranes, prolonged labor, or fever, whether after a cesarean or a vaginal delivery.

Postpartum contraception for the non-breastfeeding woman

The non-breastfeeding woman should begin using a contraceptive method immediately postpartum or a t least by the beginning of the fourth postpartum week. Most non-breastfeeding mothers have few restrictions on which method of contraceptive they can choose. The woman can choose one of the following contraceptive methods:

Combined oral contraceptives (OCs) may be prescribed immediately postpartum. Caution women not to use them until threes weeks after delivery. The risk of postpartum thrombophlebitis and thromboembolism is greatest just after delivery. Delaying combined OC use for at least two weeks tends to bypass the period of peak risk for postpartum thrombotic complications.

Fertility awareness methods women should be cautioned that it is difficult to practice fertility awareness before their cycles are reestablished and cyclic signs of fertility return.

- **Lubricated condoms** are a good option to suggest at least for the short period before the woman is ready to use her preferred method.

Progestin-only contraceptives (POCs) such as Norplant can be inserted and DepoProvera can be injected immediately postpartum. Discuss these options before delivery to ensure fully informed consent.

Postpartum contraception for the breastfeeding woman

- The following considerations are relevant for women who are breastfeeding.

Non hormonal methods

- **IUDs** are good choices for breastfeeding women. The copper on the Copper T IUD does not affect the quantity or quality of breast milk.
- **Spermicides and barrier methods** have not effect on the ability to breast-feed.
- **Lactational amenorrhea method (LAM)** provides effective protection against pregnancy for up to six months postpartum.

- **Fertility awareness methods** can be difficult to use during the time awaiting return o fertility which can extend for many cycles during lactation.

Hormonal methods

- **Progestin-only contraceptives (POCs)** such as Norplant, the Levonorgestrel (LNg20) IUD, the Progestasert IUD, DepoProvera, and minipills cause no adverse effects on lactation, and some studies suggest they may even increase milk volume. POCs do not have adverse effects on child growth or development. These methods are good options for lactating woman because they are simple to use and their contraceptive efficacy is high.
- **Combined oral contraceptives** generally should not be used by breastfeeding mothers. A reduction in milk supply is associated with the estrogen component in combined pills, even those with low-dose preparations.

Postpartum Care Tables

Table 10.3 PPC first visit

First Visit: Day 1		**At home**
History Taking	**Physical Examination**	**Health Education and Counseling**
Mother		
Amount of vaginal bleeding	Blood pressure, pulse and temperature	Check if mother received a vitamin A capsule (100,000IU) after delivery. If not, provide one.
Severe headache or blurring vision	Examine the breasts	
Urination	Fundal height and uterine firmness	Encourage early ambulation
Ask about any other danger signs	Amount of vaginal bleeding	Explain benefits of breastfeeding
Ask mother about danger symptoms	Examine the perineum	Advise when to seek medical care
		Fill out the *Woman's Health Card*
Neonate		
	Tone, color and respiratory rate	Potential danger signs
	Examine the chest	Proper temperature regulation
	Examine the umbilical stump	Care of umbilical cord
	Check for presence of any danger signs	Care of eyes
		Counsel the mother to have her infant screened for congential hypothyroidism within the first week

Table 10.4 PPC second visit

Second Visit:		**Day 2**
History Taking	**Physical Examination**	**Health Education and Counseling**
Mother		
Calf or chest pain	Blood pressure, pulse and temperature	Periodic suckling and complete emptying of the breast
Fever or chills	Examine the breasts	Importance of good nutrition
Foul smelling vaginal discharge	Fundal height and uterine firmness	Abdominal muscle exercise
Ask about any other danger signs	Note color of the lochia	Advise when to seek medical care
Ask mother about danger symptoms	Examine the perineum	Fill out the *Woman's Health Card*
Neonate		
	Color, weight and temperature	Potential danger signs
	Examine the umbilical stump	Care of the umbilical cord
	Check for the presence of any danger signs	Care of eyes

Table 10.5 PPC third visit

Third Visit: At home		**Day 2**
History Taking	**Physical Examination**	**Health Education and Counseling**
Mother		
Ask how breastfeeding is proceeding	Blood pressure, pulse and temperature	Importance of good nutrition
Ask about any other danger signs	Examine the breasts	Contraception
Ask mother about danger symptoms	Fundal height and uterine firmness	Schedule the Day 40 visit at the health facility
	Note color of the lochia	Advise when to seek medical care
	Examine the perineum	Fill out the *Woman's Health Card*
Neonate		
	Color, weight and temperature	Potential danger signs
	Check if the umbilical stump has fallen off	Infant vaccination schedule
	Check for the presence of any danger signs	

Table 10.6 PPC fourth visit

Fourth Visit: At the health facility			**Day 40**
History Taking	**Physical Examination**	**Investigations**	**Health Education and Counseling**
Mother			
Ask about stress incontinence	Blood pressure, pulse and temperature	Hemoglobin	Check if mother received a vitamin A capsule (100,000IU) after delivery. If not, provide one.
Inquire how breastfeeding is proceeding	Examine the breasts	Complete urine analysis	
Inquire about general health	Fundal height and uterine firmness		Contraception
Ask the mother about danger symptoms	Examine the perineum		Fill out the *Woman's Health Card*
	Inspect the cervix		
	Examine the uterus and adnexa		
	Examine the chest and heart		
	Examine the lower limbs		
	Tone of abdominal muscles		
Neonate			
	Color, weight and temperature	BCC vaccination	Potential danger signs
	Check for the presence of any danger signs		Check if the infant was screened for congenital hypothyroidism and if not, arrange screening
			Infant vaccination schedule

11

Care of the Newborn

Care of the Newborn

PREPARATION FOR DELIVERY

1. Before the delivery of the baby. Neonatal hypothermia could be prevented by:
   a. Closing all the doors and windows
   b. Turning off all fans in the room
   c. Pre-warm the towels and other linens. Which will be used in wrapping the baby.
   d. Keep the room warm using a heater (radiator) if available.

Table 11.1 Causes and prevention of heat loss in the delivery room:

Heat loss	Reason	Counter measures
Evaporation	Baby wet	Dry with towel (preferably warmed)
Radiation	Many cold surfaces (e.g. windows)	Wrap in warm dry towel or blanket
Convection	Draughts	Close doors and windows
Conduction	Cold surface of trolley. Cot or Bed	Pre-warm with overhead heater

2. Prevent neonatal infection to great extent by simply good hand washing up to elbow. Then put on sterilized gloves (which also protects you against blood-transmitted diseases e.g. AIDS. Hepatitis….etc.
3. Check resuscitation equipment

If you are in Primary Health Care Center (PHC)

- Bulb syringe or oral mucous extractor
- Oxygen source with adjustable flow meter. If available and with adequate length of tubing.
- Stethoscope
- Alcohol
- Sterile towels. Scissors and Cord Clamps
- Intravenous Cannulae 18.21.25
- Sterile syringes sizes (1 ml. 3ml. 5ml. 10ml)
- Sterile gauze

4. Check medications for resuscitation.

Neonatal Resuscitation at Primary Health Care Level

- At least two persons are needed for neonatal resuscitation. One to ventilate and if necessary intubate and the other to monitor and perform Chest compression.
- There are four major steps:

1. Initial stabilization and evaluation.
2. Ventilation including bag-mask ventilation and endotracheal intubation
3. Chest Compression
4. Administration of fluids and drugs if possible.

Most newborns will require only the first step.

Initial Stabilization

The neonate should be placed on his/her back or side- *with the neck slightly extended*.

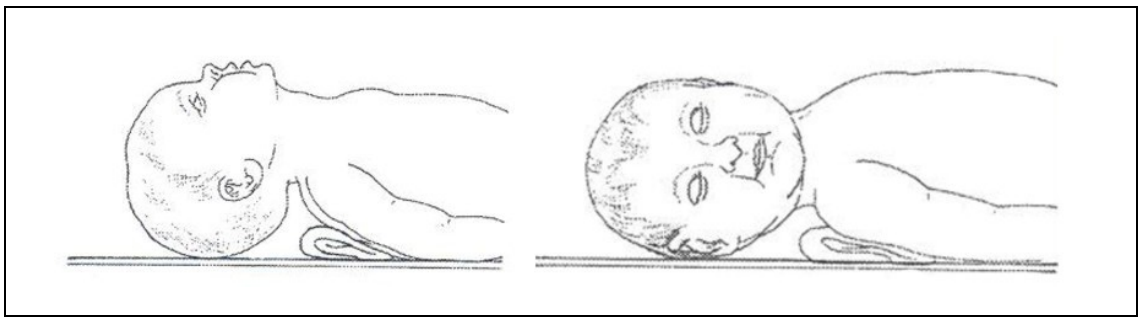


Figure 11.1 Neonate placed on back or side

Suctioning

- Then open the airway by suctioning the mouth then the nose by a bulb syringe or oral mouth sucker after turning the head to one side.
- Evaluate the infant on the basis of three vital signs
- Respiratory effort
- Heart Rate
- Color

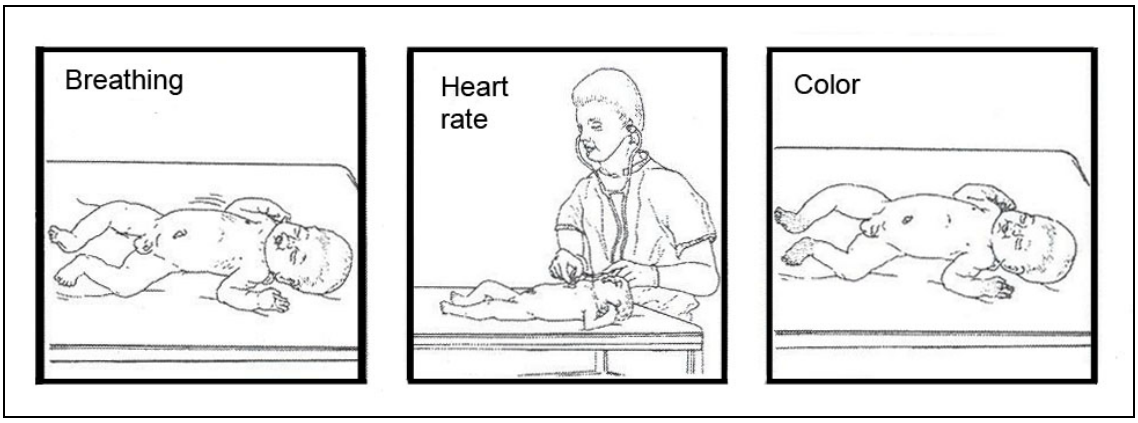


Figure 11.2 Breathing, heart rate color

Follow the algorithm below.

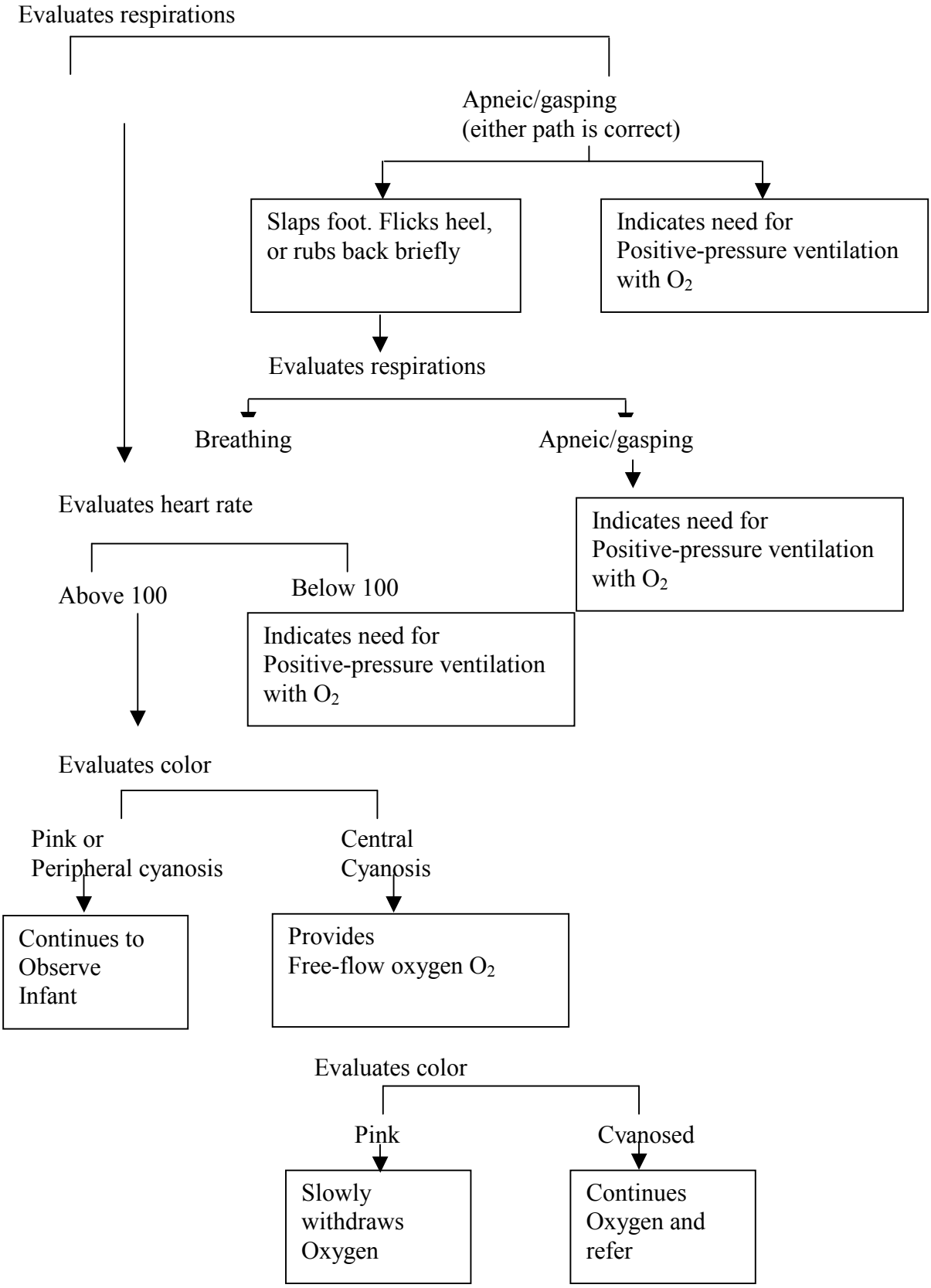


Figure 11.3 Algorithm for neonatal resuscitation

Ventilation

Indications:

1. Apnea or gasping respiration
2. Heart rate < 100 /min
3. Persistent central cyanosis despite 100% Oxygen.

Mouth to Mouth and nose breathing in PHC:

- Extend the neck slightly
- Put a piece of sterile gauze over the baby's mouth and nose
- Give expiration from the puffs of cheeks only otherwise pneumothorax develop
- The rate of breathing is 30/min.

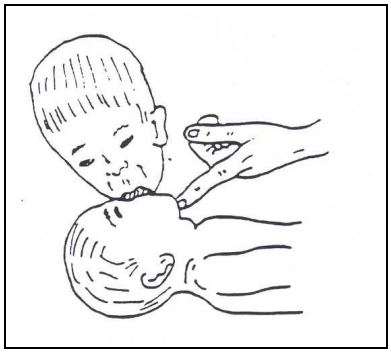


Figure 11.4 Mouth to mouth

Cardiac Compression

Indications

Heart rate 60/min.or between 60-80- min. and not rising despite adequate ventilation

- Site of Cardiac compression is at the lower third of the sternum. Care must be used to avoid applying pressure to the xiphoid. To locate the area. Imagine a line drawn between the nipples. The lower third of the sternum is just below this line.

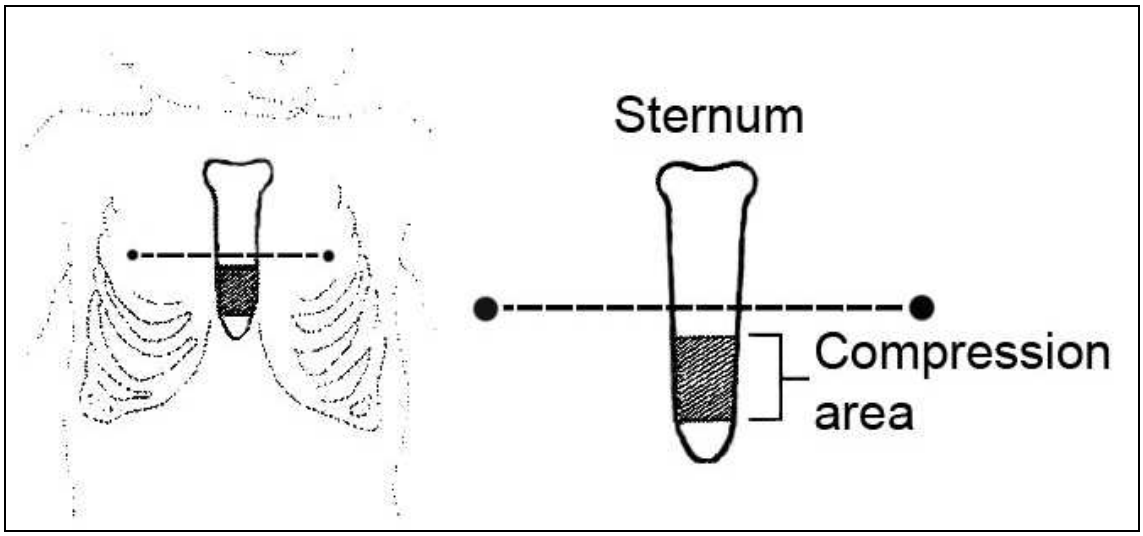


Figure 11.5 Depth of chest compression on the sternum

Drugs and Fluids

If the previous procedures fail and drug medications are available:

- Adrenaline 0.01-0.03 mg/kg (0.1-0.3 ml/kg of 1:10 000 dilution)
  - Intravenous or through the endotracheal tube but not intracardic
- Naloxone (morphine antagonist) can be used for reversal of respiratory depression for babies of mothers that received morphia.
- Soduim bicarbonate 1-2 mEq/kg intravenous very slowly and diluted (1-2 ml/kg of an 8.4% 10 mEq/10 ml solution).

Post Resuscitation Care

After successful resuscitation. The newborn should be monitored closely. Which allows referral to special care unit in the hospital in the suitable time.

Routine Care of the Newborn

Delivery of the Newborn

- Immediately place the newborn directly on the mother's stomach, dry the newborn, and cover it with a clean cotton blanket
- Do not hurry to cut the cord
- After clamping the cord, use a clean sterile blade to cut it

Immediate Care of the Newborn

The vast majority of neonatal deaths occur right after delivery (from birth asphyxia, trauma, or from failure to maintain the temperature of the newborn). Immediate care of the newborn to prevent neonatal death must include the following:

- Provide warmth – put the newborn directly on the mother's stomach, dry the newborn, cover with a dry cloth
- Clear the upper airway, establish breathing
- Wipe the newborn's mouth and nose with a clean gauze pad
- Rub the newborn's back or flick the toes to stimulate respiration
- If there are excessive secretions, use a clean sterile bulb syringe, suctioning the mouth first (starting with the sides), then the nose
- Facilitate immediate breastfeeding (do not allow the family to take the newborn and give it anything other than breast milk)
- Clamp and cut the umbilical cord correctly, following correct infection control measures

Practices that are not recommended

The following practices are **no longer recommended** and can be harmful:

- Slapping the back or any other part of the newborn (causes trauma)
- Hanging the newborn upside down by it's feet
- Squeezing the rib cage (can break ribs or puncture lungs)
- Forcing the thighs onto the abdomen
- Shaking the newborn (can cause brain damage)
- Using hot or cold compresses or baths

Newborn care

If the newborn is pink in color allover, warm, has good muscle tone, and is breathing well, keep it with the mother and encourage breastfeeding. Supporting and facilitating the bonding process and immediate and exclusive breastfeeding should be the priority during the first hour or two postpartum. There is no urgency to put in the eye drops.

Perform a quick basic assessment of the newborn

Wash hands with clean water and soap before touching the newborn, and then do the following:

- Ensure the newborn is breathing without difficulty:
  - Look for the rise and fall of the chest and abdomen
- Listen for exhaled air and feel for the exhaled air flow at the mouth
- If there are retractions of the intercostal muscles or grunting, refer the newborn to a hospital
- Ensure the newborn has a pink color. If cyanosed, pale or plethoric refer to a hospital.
- Ensure the newborn temperature is 36.5°C –37.5°C
- Check for the absence of obvious congenital malformations e.g. (spina bifida, abdominal wall defects or abnormal limbs)
- Look for signs of prematurity in the newborn: lack of foot creases, lack of body fat, small size and/or weight < 2,500 grams, and extensive dark hair on back, arms and shoulders
- Assess the presence of good muscle tone, the presence of a strong cry, and that the newborn grasps the birth attendant's finger
- Weigh the newborn and record the weight using the portable scale in the birth kit
- If the newborn is crying, pink in color and warm to the touch wrap the newborn in his/her clothes, covering the head with a cap

Refer if the newborn is:

- Having difficulty breathing, blue, cold, smells bad, poor muscle tone, or any obvious congenital malformations (maintain warmth and clear airways during referral)

The birth attendant should accompany the woman and/or newborn and provide continuous monitoring during referral to the health facility.

Cord Care

- Use a sterile blade or scalpel for cutting the cord. The cord must be tightly clamped before cutting.
- The length of the umbilical stump after cutting is usually 2-3 cm from the abdominal wall.
- Wipe the umbilical stump with a piece of sterile gauze with alcohol 70% from the tip downwards.

Eye Care

Chlamydial trachomatis and other infections of the newborn's eyes are endemic in Egypt. It is recommended to use eye prophylaxis in the form of Chloramphenicol eye drops 0.5%, one drop in each eye three times per day for three days.

Breastfeeding

Observe breastfeeding to ensure correct positioning of the mother and newborn and correct attachment. See Chapter 12: Breastfeeding.

Health Education

Neonatal danger symptoms and signs

Teach parents the "handful of danger signs for newborns" and the importance of seeking immediate medical care if present:

- Fever or cold skin
- Rapid respiration (panting)
- Poor, weak sucking (inability to catch on to the nipple and breast-feed easily)
- Poor color (blue body) and/or poor muscle tone "lethargy"
- Weak and/or constant painful cry

Wrapping

Teach the importance of wrapping the newborn and covering the head to control temperature. Wrap the newborn in his/her clothes, covering the head with a cap.

Cord care

Teach the mother and her family how to take care of the umbilical stump:

- Keep the umbilical stump dry and exposed to air or loosely covered with clean clothes
  - The diaper should be folded so that it does not touch the umbilical stump; stool and urine should not come in contact with the umbilical stump; do not cover the umbilical stump with bandages, or apply unclean substances
  - Observe for the presence of redness, oozing pus or bleeding from the umbilical stump
  - Keep the umbilical stump clean
  - Apply alcohol 70% to the umbilical stump with each diaper change

Bathing the newborn

Teach the mother and her family how to bathe the newborn. Bathing is not recommended earlier than 3-4 hours after delivery and then only when the newborn's temperature is stable.

Materials for bathing

- Soap and warm water
- Clean towels
- Basin
- Clean clothes
- Blanket

Method for bathing

- Wash your hands before starting the newborn's bath.
- Fill the basin with warm water.
- Remove the newborn's clothes and wrap him in a towel.
- Wash his eyes with a piece of cotton soaked with warm water. Start at the inner aspect of the eye and wipe toward the outer aspect.
- Clean his nose with a new piece of cotton soaked with warm water.
- Clean his external ears only with a new piece of cotton soaked with warm water.
- Hold the newborn on your left arm while supporting his head with your left hand. Start washing with soap and warm water, especially the area behind his ears and his neck. Wash his hair with warm water and baby shampoo if available.
- Wash the front and the back of his chest and trunk using your hands or a soft sponge soaked with soap and water.
- If the cord has fallen off, put the lower half of the newborn in the basin and wash him with soap and water. If the cord has not fallen off, clean the lower half of the newborn with your hands or with a soft sponge soaked with water.
- Take the newborn out from the basin and put him on a dry towel and begin drying the newborn. Start with the newborn's head and move down his body.
- Use zinc oxide cream to protect the diaper area from any inflammation before putting on the diaper.
- Dress the newborn including a cap, wrap him in a blanket and put him on his side.

Points to remember

- Bathing should be performed before feeding.
- The room should be warm.
- Avoid air currents.
- Close windows and doors firmly.
- Care should be taken during the bath to minimize heat loss.
- Warm water alone is sufficient for bathing, but sometimes mild soap can also be used.

- Never leave the newborn alone in the water.

Examination

Good observation and careful inspection of the newborn is needed

- Normal values: heart rate
  - Average 125/min
  - The pulse may vary from 90-180 min.
- Respiratory rate:
  - Average 40/min
  - Tachypnea is more than 60/ min
- Weight:
  - At birth average 3.5 kg (2.5 – 4 kg)
  - Then loses weight and attains his birth weight at 10th day
- Length:
  - Average 50cm at birth
- Head circumference:
  - Average 35cm

General Appearance

- Alertness. activity, oedema, symmetry, general proportions, cyanosis should be noticed
- Acrocyanosis (cyanosis of hands and feet)is harmless and occur especially with cold
- Mottling of skin due to circulatory instability may be associated with serious illness
- Mongolian spots (blue well-demarked areas of pigmentation over buttocks and back) tend to disappear within the first year.

Neck

The neck appears relatively short. Abnormalities are not common e.g. webbing, goiter, cystic hygroma etc

Eyes

Notice size, spacing, coloboma, cataract or ptosis.

Ears

Notice anomalies of shape and placement

Mouth

Notice any clefts and natal teeth

Table 11.2 Caput Succedaneum and Cephalhematoma

Caput Succedaneum	Cephalhematoma
It is diffuse. Oedematous discolored swelling over the presenting part. It consists of serosanguinous fluid collection between the periosteum and the scalp tissue that cross the suture line	It is subperiosteal hemorrhage, with well-defined margin and the skin overlying is not discolored
It is observed at birth	It appears within few hours after birth
It disappears in few days.	It disappears within few weeks without treatment

Cranial Nerves, Spinal Cord and Periphs Nerve Injuries

- e.g. Erbe's Palsy, which is a common type of brachial plexus injury(5th and 6th cervical nerves stretching).There is flaccidity of the shoulder and upper arm so that the arm hangs by the side fully pronated with the hand in the position of a waiter's bent hand. Moro's reflex is absent in the affected side. Treatment consists of maintaining the limb in a position of rest and relaxation. While the infant is in the crib. The wrist is held to the head of the bed.

Bone Injuries

- Clavicle
- Humerus
- Femur

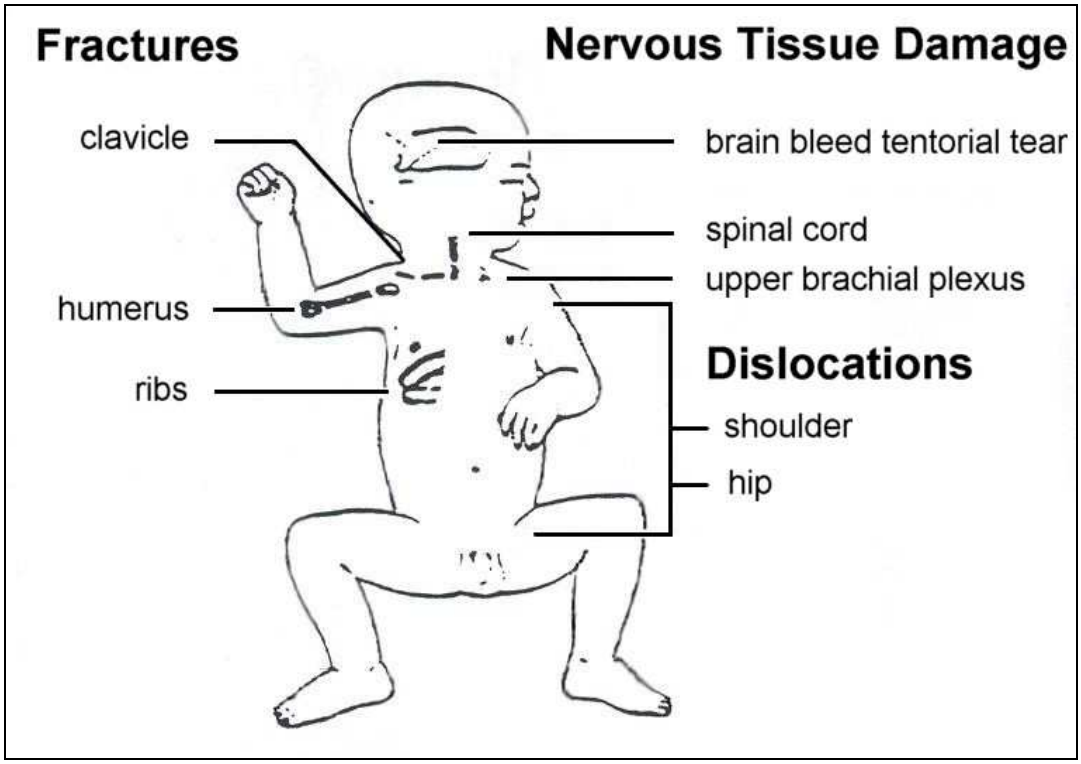


Figure 11.6 Fractures, nervous tissue damage and dislocations

When to Refer

High-risk deliveries

Table 11.3 High-risk deliveries

Mother	Delivery	Fetus
Diabetes mellitus toxemia of Pregnancy Age <20 or > 35 years Parity 5+	Prolonged labor > 24hrs Breech presentation Cord prolapse Multiple Pregnancy Large doses of sedatives Premature rupture of membranes	Premature Small for dates Fetal distress (heart rate> >160 or <100/m) Meconium staining of liquor

Indications for referral to incubator care in intensive care unit

1. Birth weight less than 2500gm
2. Respiratory distress or tachypnea
3. Feeding difficulties
4. Rectal Temperature fails to rise above 36°C inspite of supplying warmth
5. Jaundice appearing in the first 24 hours or rapidly increasing
6. Major congenital malformations
7. Any neurological abnormality: fits. Failure to move normally. Difficulty to awake
8. No Passage of urine or stool for more than 36hrs
9. Has diarrhea or excessive vomiting
10 Has abnormal color: pale, dusky.
11. Has an umbilical stump that it is red, oozing pus, or has a bad ordor.

Transfer of the newborn in itself is not an emergency. Though it should not be much delayed. Portable incubator is ideal if available. Otherwise the baby can be transferred by any suitable means after assuring the maintenance of warmth throughout the journey. A report of full history and a sample of clotted maternal blood should be also sent.

12

Breastfeeding

Breastfeeding[8]

Definition

Breast milk is the preferred food for all neonates, including the premature infant. Breastfeeding has nutritional, immunizing, and psychological advantages compared with commercial formulas or other types of milk.

- Breast milk from mothers of premature neonates has been found to have even higher amounts of protein, IgA antibodies, cholesterol, and fatty acids than milk from mothers of term infants.
- All healthy full-term neonate and low-risk preterm neonates (born after 32 weeks gestation with no respiratory problems) should be breast-fed exclusively for six months following delivery.
- The neonate should be allowed to feed on demand day and night with no restriction on frequency or length of time.
- Any neonate that demonstrates signs or symptoms of illness such as respiratory distress, poor suck or swallow, lethargy, abdominal distention, or weight loss should be evaluated immediately.

Note: The Egyptian national policy protects, promotes and supports breastfeeding. Each Egyptian National Neonatal Care Program hospital should follow the Ten Steps to Successful Breastfeeding outlined in the WHO/UNICEF statement of 1989.

[8] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Basic Essential Obstetric Care: Protocols for Physicians* (Cairo, 2004), chaps. 12.9.

1. Have a written breast-feeding policy that is routinely communicated to all health care staff.
2. Train all health care staff as needed to implement this policy.
3. Inform all pregnant women about the benefits and management of breast-feeding.
4. Help mothers initiate breast-feeding within a half-hour of birth.
5. Show mothers how to breast-feed and how to lactate even if they should be separated from their infants.
6. Give neonates no food or drink other than breast milk unless medically indicated.
7. Practice rooming-in; it allows mothers and neonates to remain together 24 hours a day.
8. Encourage breast-feeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast-feeding neonates.
10. Foster the establishment of breast-feeding support groups and refer mothers to them upon discharge from the hospital or clinic.

Figure 12.1 Ten steps to successful breastfeeding

Initiation and Maintenance of Breastfeeding

- An adequate milk supply can be initiated and maintained by:
  - Educating the mother about lactation and letdown reflex
  - Providing the mother and infant with a private, stress-free environment for breastfeeding
- Maternal practices that increase milk production:
  - Increased fluid intake
  - Nutritionally balanced diet
  - Frequent rest periods
  - Smaller, frequent breastfeeding attempts
  - Skin-to-skin contact
- All of these signs should be present if the positioning is good:
  - Infant's head and body are straight
  - Infant is facing the breast with his nose opposite the nipple
  - Infant's body is close to mother's body
  - Infant's whole body is supported, not just neck and shoulders
- All of these signs should be present if the attachment is good:
  - Infant's chin is touching breast
  - Infant's mouth is wide open

- Infant's lower lip is turned outward
- More areola is visible above the infant's mouth than below the mouth
- The infant is sucking effectively with slow deep sucks, sometimes pausing

Note: When the infant is not available or able to breast-feed, the mother should be encouraged to pump and store her milk. Nipple confusion can be prevented if supplementation with bottle-feeding is avoided. If an infant cannot be breast-fed, then finger, cup, spoon, or tube feeding should be considered.

Problems of Breastfeeding

Engorgement

Prevention

- Frequent, on-demand breastfeeding
- Application of warm compresses
- Gentle breast massage
- Hand expression of milk to help initiate flow

Management

- Evaluation for signs of mastitis or breast infection that may need to be treated with systemic antibiotics is important.
- Breastfeeding should continue during treatment.

Nipple discomfort

Prevention

- Hand expression of milk to initiate flow
- Breast massage to maintain milk duct patency
- Feeding on the least painful or unaffected breast first
- Careful positioning of the infant close to the mother to ensure appropriate attachment
- Frequent position changes to help to prevent tissue irritation

Management

- The nipples should be kept clean and dry to promote healing.
- Nipples should be dried by exposure to air.
- Thrush may cause sore, cracked, or fissured nipples. A physician should evaluate both the mother and the infant if this condition continues.

Care of the Infant with Breastfeeding Difficulty

- When an infant appears to have a weak or ineffective suck, hand expression of milk may help to initiate the letdown reflex and stimulate the infant breast-feed.
- An infant with the uncoordinated suck and swallow or a sucking defect should be evaluated during breastfeeding to determine if different successful positions or alternative methods of feeding, such as spoon, cup, or tube feedings of expressed breast milk, should be considered.
- Any infant who demonstrates difficulty with breastfeeding should be evaluated according to the following protocols:
  - Review of the perinatal history
  - Through physical assessment including vital signs and the cardiorespiratory status prior to and during breastfeeding, especially the coordination o suck-swallow-breath.
  - Pulse oximetry may be helpful during the evaluation. If necessary, consider supplemental oxygen via nasal catheter or blow-by oxygen to ensure adequate oxygenation.
- During breastfeeding of the at-risk or preterm infant, temperature support may be necessary. The infant's temperature should be monitored frequently. Skin-to-skin contact may be very helpful for this problem.
- Weight gain and nutritional intake must be monitored. This can be done by evaluating infant satisfaction after feeding and by documenting the frequency and length of time of feeding, urine output, and daily weight changes.

Techniques for Expression and Storage of Breast Milk

Indications

- Mother's lack of experience
- Breast engorgement
- Sick and at-risk infants requiring alternative feeding
- Mother unavailable for breastfeeding and the breast milk requiring storage

Hand Expression of Breast Milk

- Milk expression may be performed for several reasons, including:
- To supply breast milk for use while mother and neonate are separated
- To increase milk supply
- To prevent or relieve engorgement

The milk supply is a direct result of stimulation to the breasts. The milk supply will be appropriate for the neonate if the mother either breast-feeds or expresses the milk at least every three hours. Some mother find it difficult to express milk although their neonates have no problem getting enough to satisfy their needs. The overall milk production should not be judged by what the mother is able to express.

Procedure for hand expression of breast milk

These guidelines may be useful in helping mothers with hand expression of breast milk:

- Wash hands well.
- If possible, locate a quiet, restful environment. Imagine being in a pleasant place. Think nice thoughts about the infant. The ability to relax will contribute to a better milk ejection reflex.
- Apply moist heat to breasts for 3-5 minutes before expressing.
- Massage breasts in a circular pattern, followed by light stroking of the breast from the outer edge toward the nipple.
- Gently stimulate the nipples, by drawing them our or rolling them between fingers.
- Express and discard the first 2-3 squirts of milk obtained from each breast.
- Express milk into a clean container (hard plastic or glass).
- Place thumb on the top of the breast at the areola edge and four fingers underneath the breast at the areola edge.
- Press breast toward the ribcage, and then gently press the thumb and fingers together – just behind the areola.
- Repeat in a rhythmical pattern, rotating the position of fingers around the breast to empty all areas.
- Alternate breasts every 5 minutes or when the milk flow slows, remembering to repeat the massage, stroke, express cycle several times at each breast.
- The amount of milk obtained at each expression may vary.
- When complete, apply a few drops of breast milk onto each nipple, and allow to air dry.
- The appearance of the milk will change while expressing. The first few teaspoons will appear clear, and then the milk will be creamy white. Some medications, foods and vitamins may also slightly alter the color of breast milk. The milk fat will rise to the top when the milk is stored.
- To store the milk, seal and label the container with the date, time and amount and refrigerate or freeze immediately after expressing.

Mechanical Expression of Breast Milk

Milk expression may be performed for several reasons:

- To supply breast milk for use while mother and neonate are separated
- To increase milk supply
- To prevent or relieve engorgement

Milk production responds to demand. It is necessary to express or nurse at least eight times in 24 hours to build and maintain a good milk supply. Some mother find it difficult to express milk, although their neonates have no problem getting enough to satisfy their needs. Overall, milk production should not be determined by what is expressed.

Breast pumps can be manual, battery operated, or electric. Choose the right pump for each individual situation. Use of the pump empties the breast effectively and stimulates milk

production. Prior to pumping, apply moist heat to the breast, massage the breast, and stimulate the nipples as in hand expression.

Procedure for mechanical expression of breast milk

These guidelines may be useful in helping with mechanical milk expression:

- If possible, express in a quiet, restful environment. Imagine being in a pleasant place. Think nice thoughts about the infant. The ability to relax will contribute to a better milk ejection reflex.
- Wash hands well.
- Apply moist heat to breasts for 3-5 before expressing.
- Massage breasts in a circular pattern, followed by light stroking of the breast from the outer edge toward the nipple.
- Gently stimulate nipples, by drawing them out or rolling them between fingers.
- Follow the general instructions that came with the breast pump.
- The flow of milk will vary. During the first few minutes it may drip out slowly, and then squirt forcefully after there is a milk ejection. This pattern will repeat several times while expressing each breast.
- The amount of milk obtained at each expression may vary. This is not unusual.
- After expressing, apply a few drips of breast milk to the nipples and allow to air dry.
- The appearance of the milk will change while expressing. The first few teaspoons will appear clear, while after there is a milk ejection, the milk will be creamy white. Some medications, foods, and vitamins may also slightly alter the color of your breast milk. The milk fat will rise to the top when the milk when the milk is stored.
- To store milk: immediately after expressing, seal and label the container with the date, time and amount.

Milk Storage Guidelines for Hospitalized Infants

Breast milk has no preservative and therefore, care must be taken to handle it properly. Once having chosen the method of collecting breast milk, mothers should carefully follow the guidelines from storing, freezing and thawing expressed milk.

A general rule to remember is that the longer milk is stored the more it loses in nutrient and immunological content. Keep in mind that the appearance of the milk may change after milk has been stored, since the different components of the milk often separate. By properly collecting, labeling, and storing breast milk, the neonate will receive the benefits of the breast milk even when breastfeeding is not possible.

General Milk Storage Guidelines

Preparation

Wash hands well with soap and water before handling breast milk.

Container Choices

Express directly into a clean or sterile glass or hard plastic container. Use of soft plastic bags is discouraged.

- **Term infant:** Use clean, heavy plastic, or glass bottles. The container should be washed well in a dishwasher with a sanitizing cycle or washed by hand in hot, soapy water and rinsed well with hot water.
- **Preterm and/or sick infant:** Use sterile, heavy plastic, or glass bottle.

Storage

- Immediately after expressing, seal the container. It is then already to store in the coldest part of refrigerator or freezer. Do not keep in the door area because it is not as cold.
- Always use the oldest milk first.
- Store in amounts equal to what your neonate will take at one feeding.
- Label each container with name, date, time and amount.
- Be certain to leave place in the container for expansion of milk.
- Preterm or sick infants: Extra caution with milk collection and storage is recommended. It is safest to refrigerate milk immediately and not leave it at room temperature.
- Re-freezing: it is not recommended to refreeze breast milk that has thawed or partially thawed. Keep this in mind when transporting milk to the hospital or from work. For this reason, it is usually best to wait to freeze the milk once it has reached its final destination.
- Re-use of an unfinished portion of milk warmed in preparation for feeding is not recommended. Do not re-use milk left over bottle, as infant's saliva may contaminate the milk.

Thawing Milk

- Thaw frozen milk by "slow defrost" overnight in refrigerator.
- Swirl the milk in a bowl of tepid water to warm. Excessive heat modifies or destroys enzymes and proteins.
- Defrost the total amount, as butterfat separates during the freezing process.
- Never use a microwave oven to defrost or warm milk.
- Once thawed, breast milk should be used within 24 hours.

Table 12.3 Shelf-life of milk

Method of Storage	Storage Time
Room temperature	1 hour
Refrigerator (-4°C or 24°F)	48 hours
Freezer (1-door refrigerator)	Not recommended
Freezer (2-door refrigerator)	3 months (up to 6 months for use with healthy infants)

13

Child Health Services

Child Health Services[9]

Introduction

Because the boundaries between normal and handicapped are frequently difficult to delineate, the pediatric identification, evaluation and care of the child requires a considerable level of both technical sophistication and interpersonal sensitivity.

Dramatic changes in social and political attitudes during the past few decades towards persons with developmental disabilities have revolutionized the pediatric approach to children with handicaps.

Diagnosis

The primary care physician is strategically situated to identify young children with possible handicaps, through routine developmental surveillance in the context of general care.

Parental reports of a child's typical skills and behaviors in conjunction with in-clinic screening procedures are important complementary sources of information.

For young children involved in a program outside the home (e.g., child care or pre-school), the impression of the caregiver or teacher are most valuable.

Any concerns raised by parents, non-parental caregivers or teachers, or by direct observation of the child, requires systemic investigation.

Client Flow

Initial Visit

1. Greet the parent and the baby
2. Health bureau:
   a. Administrative forms
   b. Demographic and personal data
   c. Obtaining the *Child Health Card*
3. MCH clinic
   a. Nurse (under physician's supervision):
      i. Record the number on the *Child Health Card.*
      ii. Record the natal history, history of previous pregnancies and family history
      iii. Start of breastfeeding
      iv. Check for weight, length, (head circumference NB not yet in the present program), general condition and obvious congenital anomalies.
   b. Physician

[9] Khattab, Nevein and Mahmoud Rashed, Rashed

i. Full physical examination
ii. History suggestive of being high-risk for hearing impairment
iii. Screening for atypical features
iv. Ask mother her intentions for more children
v. Provide FP service if needed

c. The appropriately trained nurse should perform screening for congenital hypothyroidism between the third and seventh days of life.

4. Health Education Room
   a. Provide information on the following services:
      i. Breastfeeding
      ii. Baby care (especially umbilical care and clothing)
      iii. Sleep problems
      iv. Crying
      v. Sibling management
      vi. Immunization schedule (and fix the first appointment)
      vii. Warning for prolonged jaundice (>14 days)
      viii. Accident prevention (especially bathing)

Return Visit

Routine

(At 2,4,6,9,12,18,24,36,48, 60 months)

1. Nurse
   a. Greet client
   b. The parents present the *Child Health Card*
   c. Medical records are obtained
   d. Update basic medical data including:
      i. weight
      ii. length
      iii. breastfeeding/weaning/nutrution
      iv. usage of bottles or teats
      v. draw the growth chart
2. Lab technician (if the child is ≥ 1 year)
   a. Assess hemoglobin
3. Physician:
   a. Ask if parents have any questions or problems

i. Vaccination

ii. Breastfeeding, nutrition and hemoglobin

iii. Assess Growth Chart

iv. General examination

v. Assess development status and screen for any handicapping condition: aural, visual, mental, etc.

vi. Teething

vii. Ask about drug or food allergy

viii. Ask about hereditary diseases

ix. As the mother about any problems regarding the FP method she is using or if she plans to start FP.

x. Make the follow-up according to vaccination schedule or necessary visit..

4. Health Education Room
   a. Breastfeeding/weaning/nutrition
   b. Immunization
      i. Status
      ii. Fix the next appointment
      iii. Possible side effects of vaccination and how to deal with them
   c. Accident prevention (especially falls, car seats, burns, chocking and passive smoking)
   d. Recognizing illness and what to do
5. Immunization Room (ensure that the mother will not leave and the child will benefit from the prior steps)
   a. Check the immunization status giving the due vaccines.

Non-routine

(non-scheduled)

1. Nurse greets client
2. Nurse gets temperature, body weight, adds the weight to the Weight Chart
3. Nurse refers to physician for:
   a. Care
   b. Registering the diagnosis and treatment
   c. If infectious disease suspected (precautions for family and the community if needed).

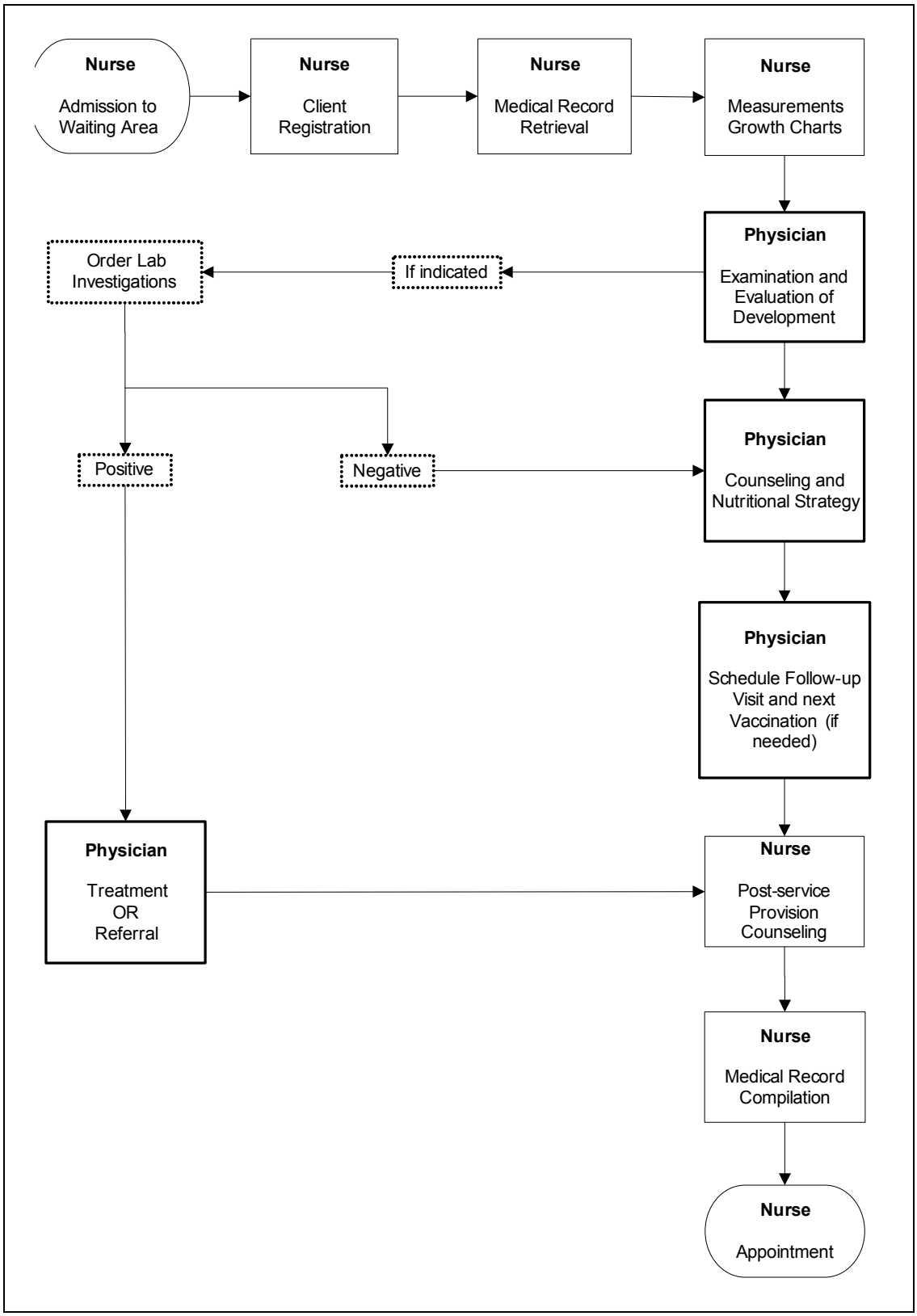


Figure 13.1 Child clients' flowchart: new client

ASSESSMENT OF GROWTH AND DEVELOPMENT OF CHILDREN

Importance of the Follow-up of Growth and Development

1. Public health screening. Assessments of growth and development is the most powerful tool for early identification of children who may not look obviously sick but who, nevertheless have sub-optimal health and nutrition or are suffering from latent illness.
2. Indicator of general health and nutrition of the community
3. Early detection of cases of mental sub normality, visual, auditory or neurological disorders
4. Evaluation of remedial action taken.

Assessment of Growth

1. Body weight
2. Length (height)
3. Head circumference

Body Weight

- A growing child is a healthy one
- Growth is very sensitive to external factors, such as nutrition and disease, and growth monitoring is therefore of great value in child health care.
- Malnutrition can be detected by means of growth monitoring long before signs and symptoms of it become apparent.
- The most sensitive measure of growth is weight for age
- The most convenient way of monitoring weight is by means of growth charts

In our Growth Chart

- The upper reference curve represents the 97th percentile (so children lying above these curves are **obese or overweight**).
- The lower reference curve represents the 3td percentile (so children lying below these curves are **underweight**).
- Children whose weight against age is lying between two curves are **normal**.

When to Measure?

- A growth chart is designed primarily for the longitudinal follow-up of a child, so periodic weighing is therefore necessary.

The Children should be Weighed at Least:

- Five times in the first year of life (2, 4, 6, 9, 12 months of age)
- Twice during the second year of life (18 and 24 months of age)
- Once yearly up to five years of age (36, 48, 60 months of age)
- The service provider should record the newborns weight in his or her first 15 days of age as birth weight (roughly)
- The service provider should get the infant's weight in his first year of life within either 10 days before or 10 days after (± 10 days) of the recommended visits at 2, 4, 6, 9, 12 months.
- The service provider should get the child's weight within 30 days either before or after the recommended visits (± 30 days) at 18, 24, 36, 48, 60 months.

In addition to this schedule, however, every child should be weighed, and the weight plotted on the chart, every time s/he is brought to the health facility? for any reason, particularly if the child is sick.

How to Use the Growth Chart in Monitoring Child Health

- The growth chart is primarily designed as a means of monitoring changes in weight over time.
- A single measure of the weight of a child cannot by itself be properly interpreted on the chart.
- Ideally, the chart should be used from birth. A curve running from the birth weight of the infant, marked on the first column of the chart at the level of the corresponding weight, to the points representing the subsequent periodic weighing, represents the pattern of growth of that particular infant, and is an excellent indicator of its health and nutritional status.

The direction of the growth curve, rather than its position, is of key importance

It is extremely important to emphasize the importance of early detection of slower rising or flat growth curve of the child before the appearance of other signs or symptoms of malnutrition or actual declining in body weight and before the development of stunted growth (since in cases of malnutrition, the effect on weight is much earlier than the effect on height). (see Weight for Age Growth Chart p.368.)

Measurement of Length and Height

Supine length is usually measured until the age of two years after which standing height is measured. A supine length may be up to 1% greater than standing height in any subject. Both measurements require training and skill if reproducible results are to be obtained. Accurate measurements CANNOT be obtained with a tape measure used freehand. A ruler or chart fixed to a wall may be the only equipment available. It is just adequate for screening but is certainly not accurate enough.

Length Measurement

The Harpenden Infant Measuring Table can be used to measure length. The equipment consists of a table with a fixed head piece and a sliding foot piece.

The infant lies with an assistant holding the head against the headboard. The second observer, who stretches the leg downwards, so that head, body and legs are in line, makes the measurement. The sliding foot piece is then brought into contact with the heels and soles and the measurement is recorded.

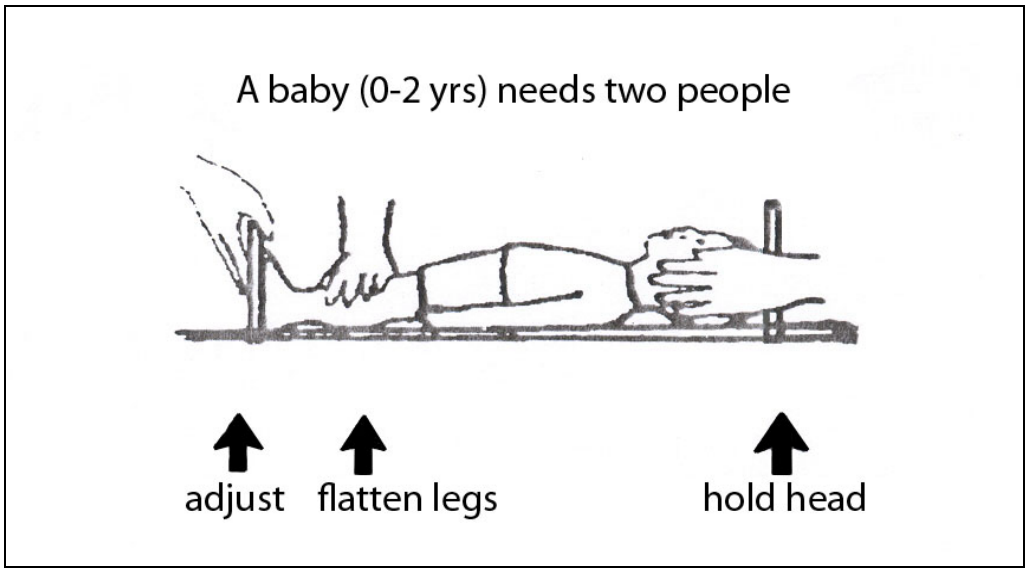


Figure 13.2 A Baby (0-2) years needs two people

Height

- The Harpenden Stadiometer can be used to measure height accurately.
- Measurements should be made without shoes.
- Variation due to head tilt is avoided by ensuring that the outer epicanthus of the eye is at the same level as the external auditory meatus. Gentle upwards pressure under the mastoid process in then exerted. The sliding headpiece is brought down to make the required measurement.

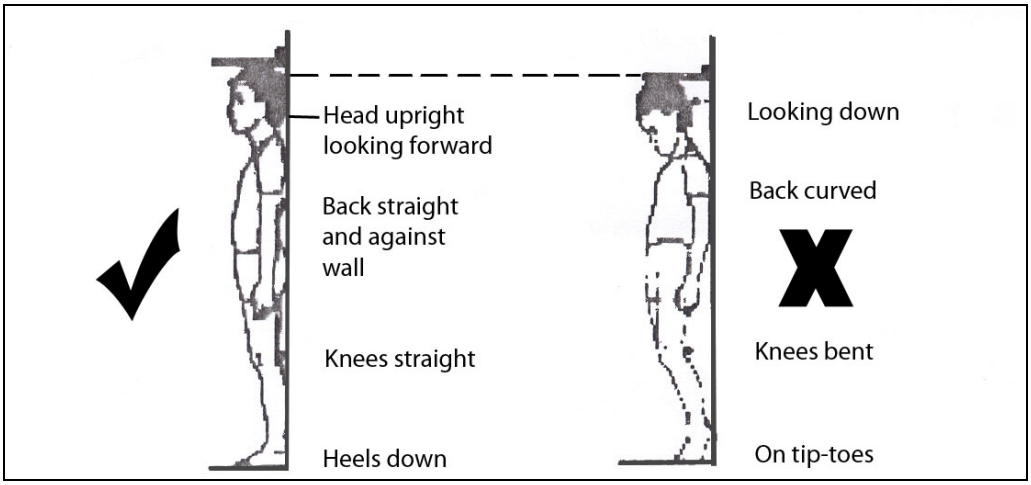


Figure 13.3 Measurement of height

- Length at birth is about 50 cm
- In the first 6 months of life, the body gains two cm/month
- In the second 6 months of life, the body gains 1.5 cm/month
- At one year, the length is 70 – 78 cm
- At two years, the length is 80 -90 cm

After that the following formula can be used as a rough estimate of the height up to puberty.

Height in cm = (age in years X 5) + 80

Figure 13.4 Height formula for height up to puberty

Assessment of Development

The development of infants and pre-school children could be assessed through the assessment of:

- Gross motor development
- Fine motor development
- Hearing and language development
- Social development

Simplified Developmental Screening Test

1. The simplified developmental screening test is not an intelligence test, but a screening instrument designed to detect developmental delays in infancy and in the pre-school children, relaying mainly:
   a. Denver II Developmental screening test
   b. Woodscale development
2. The test items are placed into four categories (sectors):
   a. Gross motor
   b. Fine motor – adaptive
   c. Hearing and language
   d. Behavior – social
3. All items through which the age line passes should be looked for in all the 4 sectors
4. The left end of the rectangular of the square designates the ages at which 25% of the standard children could perform the item.
5. The arrow at the bottom of the square (or rectangle) indicates the ages at which 50% of the standard children could perform the task.
6. The right end of the square or the rectangular is the age at which 90% of the standard children could perform the task.
7. The test relies on:
   a. Reports by the parents

   b. Physician observation of what the child can do, but it should be at the child's ease and it should be done before any painful procedure.

8. In case that a child refuses to do some of the test items requested by the examiner, so it is advisable to ask the mother to do the test, but as prescribed.
9. It is advisable to do the first few test items well below the child's age level in order to assure him an initial successful experience
   a. Put a vertical line on the examination sheet at the appropriate chronological age. For pre-matures, adjust the age for the degree of prematurity.
10. If a child passes an item, a large letter P is written in the rectangular – write down letter F if the child failed to do it – and letter R if the child refused to do it.
11. Failure to perform an item passed by 90% of children of the same age will be considered a “delay”, but if the age line touches the right end of the square or rectangle, the item is not considered a delay.
12. These delays may be due to:
   a. general retardation
   b. pathological factors such as hearing, visual or neurological impairment
   c. familial pattern of slow development in one or more areas.
13. If unexplained development delays are noted, the child should be rescreened about one moth later. If the delays persist, he should be further evaluated with more detailed diagnostic studies.
14. The more the delays in one sector, especially if more than one sector is having delays is suggestive of more severe developmental impairment.

What to concentrate upon in the developmental assessment of children during the first four years.

1st year Motor development

2nd year Language and social development

3rd year language, play and learning

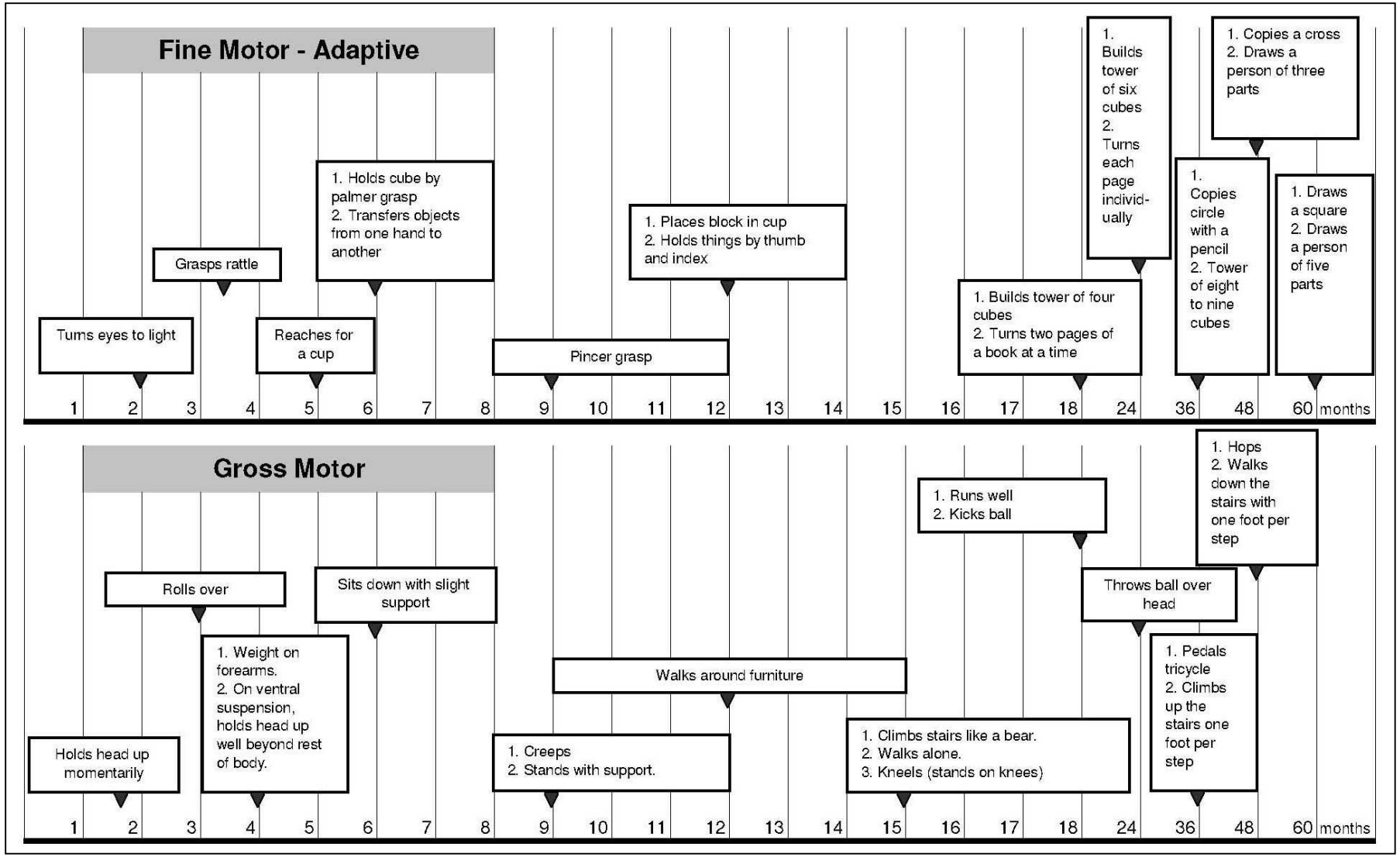


Figure 13.5(a) Child development: fine and gross motor

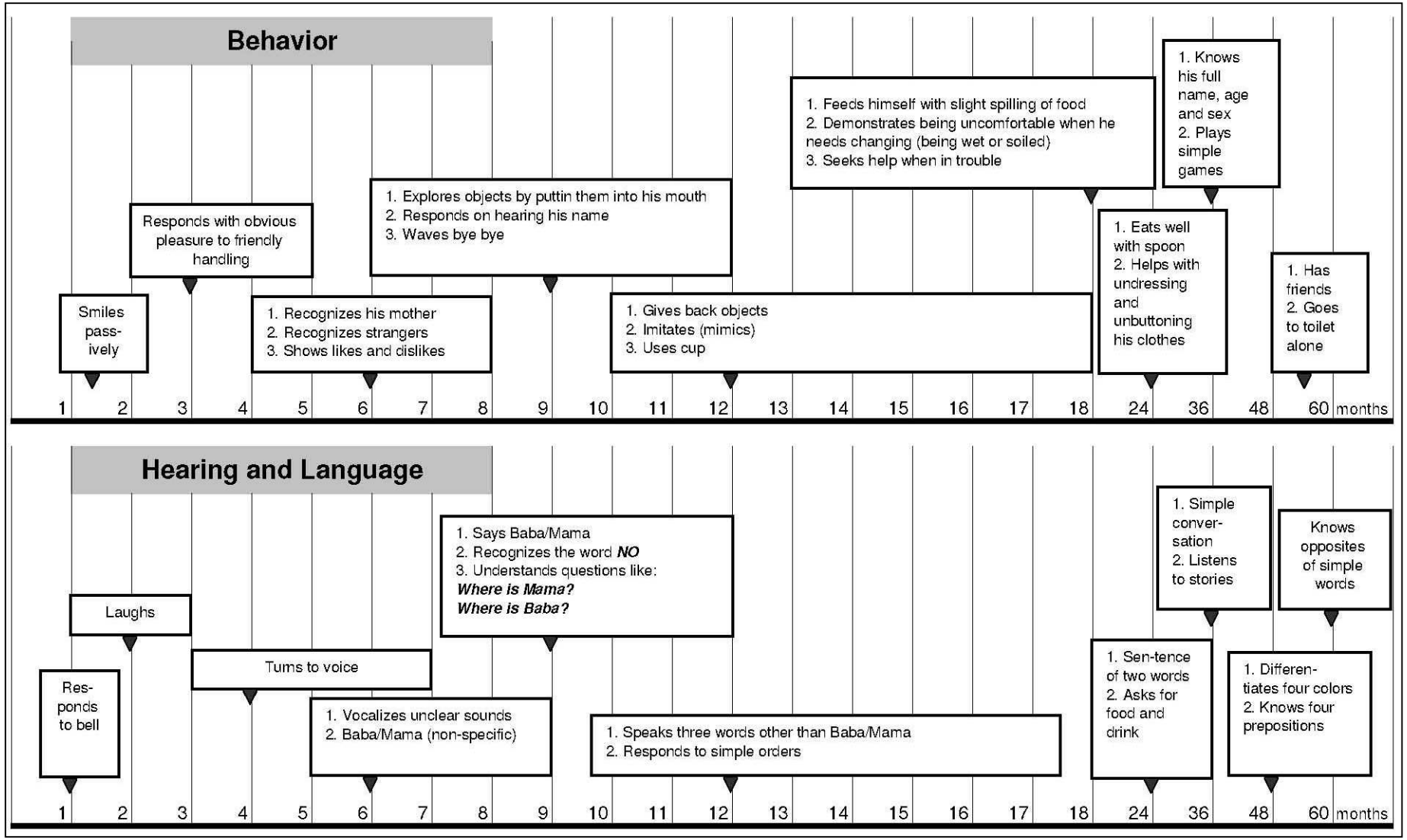


Figure 13.5(b) Child development: behavior and hearing and language

Early Detection of Disability

Handicapping

Definitions

I Impairment

Any loss or abnormality of psychological, physiological or anatomical structure or function.

II Disability

Any restriction or lack (resulting from impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

III Handicapping

A disadvantage for a given individual (resulting from an impairment or a disability) that limits or prevents the fulfillment of a role that is normal (depending on age, sex, social and cultural factors) for that individual.

Prevention of Handicapping

Prevention has three components: primary, secondary and tertiary.

Primary prevention

Aims at the prevention of disease or injury e.g.:

1. Improved nutrition in pregnancy and early childhood
2. Good antenatal, natal and postpartum care
3. Improved neonatal care in neonatal intensive care units for pre-term and sick newborns.
4. Introduction of MMR and Hemophilus influenzae type b vaccine
5. Health education e.g. on accident prevention, raising awareness e.g. symptoms of meningitis, appropriate nutrition, good hygiene, clean water, following the immunization schedule and avoiding medication during pregnancy.

Secondary prevention

Aims at detection of asymptomatic abnormalities e.g.:

1. Genetic counseling: advising families of the known or estimated genetic risk.
2. Antenatal screening including fetal ultrasound, screening for Down's syndrome, etc..
3. Neonatal screening for selected disorders e.g. hypothyroidism, phenylketonuria, galactosemia, hyperlipidemia and cystic fibrosis.
4. Targeted selective screening of at risk groups e.g. premature and sick newborns.
5. Routine child health surveillance programs especially in response to antenatal concern for early identification of impairment.

Tertiary prevention

The limitation of progress of the established disease or disability by appropriate treatment.

Atypical Features that may be Associated with Increased Incidence of Disability

- Hair
  - Double whirl
  - Fine, friable, prematurely gray or white locks
  - Sparse or absent
- Eyes
  - Micropthalmia
  - Hypertelorism
  - Hypotelorism
  - Upward and outward, or downward and outward slant
  - Inner or outer epicanthal folds
  - Coloboma of iris or retina
  - Brushfield spots
  - Eccentrically placed pupil
  - Nystagmus
- Ears
  - Low-set pinna
  - Simple or abnormal helix formation
- Nose
  - Flattened bridge
  - Small size
  - Upturned nares
- Face
  - Increased length of philtrum
  - Hypoplasia of maxilla or mandible
- Mouth
  - Inverted "V" shaped of upper lip
  - Wide or high-arched palate
- Head
  - Microcrania
  - Macrocrania

- Hands
  - Short fourth or fifth metacarpals
  - Short stubby fingers
  - Long, thin, tapered fingers
  - Broad thumb
  - Clinodactyly
  - Abnormal dermatoglyphics
  - Transverse palm crease
  - Abnormal nails
- Feet
  - Short fourth and fifth metatarsals
  - Overlap of toes
  - Short, stubby toes
  - Broad, large big toes
  - Deep crease leading from angle of first and second toes
  - Abnormal dematoglyphics
- Genitals
  - Ambiguous genitalia
  - Hypospadias
- Skin
  - Café-au-lait spots
  - Depigmental nerve
- Teeth
  - Evidence of abnormal enamelogenesis
  - Abnormal odontogenesis

Thorough pediatric history is essential to identify relevant contributing factors as well as to document the evolving pattern of the child's development skills over time. The product of the history should be a comprehensive inventory of risk factors, both within the child and within his/her environment, which increase the likelihood of developmental impairment.

Family history, neonatal screening, follow-up on physical, mental and developmental growth and careful examination for atypical physical features are all essential in early diagnosis of handicap.

Follow-up care

Primary care providers in health units should refer any children with suspected abnormalities to a pediatrician.

The most powerful diagnostic maneuver available to a pediatrician is the clinical evaluation. In any follow-up visit:

1. Observe.
2. Take a history.
3. Perform a physical examination.
   a. Observation is best done with a younger child in a comfortable position.
   b. Physical examination: The most bothersome maneuver is performed last.
   c. Assessment of growth: weight-height/head circumference.

Detection of Communicable Diseases

Poliomyelitis

This infection is characterized by a spectrum of clinical manifestations varying from nil to extensive paralysis.

Aetiopathogenesis

1. The causative agent is the polio virus, which is one of the enteroviruses. There are three types of polio virus (types 1, 2 and 3).
2. Transmission is mainly by faeco-oral route and the incubation period is 7-14 days.
3. The period of infectivity is six to eight weeks during which the virus can be detected in the stools.

Clinical Picture

This passes through one or more of the following stages:

1. Silent infection (90-95%): no clinical disease develops but the child becomes immune.
2. Abortive polio: invluenza-like virus
3. Paralytic polio: see later

Suspected Polio

All the following:

1. History of abrupt onset of weakness or paralysis of the leg(s) and or trunk.
2. History of no progression of paralysis after the first three days.
3. History that paralysis was not present at birth or associated with serious injury or mental retardation.

Confirmed Polio

1. Suspect case and all the following typical findings on physical examination:
   a. Flaccid paralysis
   b. No sensory affection
   c. Muscle tenderness (early finding)
   d. Wasting of affected muscles (late finding)
   e. Absent or depressed deep tendon reflexes

   f. Asymmetrical distribution of paralysis
2. Suspect case by history and examination and any of the following:
   a. Positive stool virus culture for poliovirus
   b. Residual paralysis 60 days after onset.

Management of Polio

1. In the pre-paralytic stage it is essential to keep the child in bed (complete bed rest) and analgesics should be given.
2. All cases of parlalytic polio should be followed up after doing early splitting of the limb in the position.

Note: Management: In case of suspected polio, notify the Ministry of Health and Population and refer the client to the Polio Institute.

Measles

Measles is an acute viral infection characterized by a maculopapular rash. It is caused by the RNA virus.

- Transmission: it is a very contagious disease, disseminated by a droplet route.
- Clients can transmit the disease during the prodromal stage and seven to nine days after the appearance of the rash stage.
- Immunity: passive immunity is acquired transplacentally from mothers; it persists for the first four to six months and in some cases till the ninth month, interfering with active immunization of infant prior to that period.
- Pathogenesis: the essential lesion of measles is found in the skin, the mucous membrane of the nasopharynx, the bronchi, intestinal tract and conjunctiva.
- Differential diagnosis: it must be differentiated from all maculopapular rashes such as rubella, roseola infantum, scarlet fever, infectious mononucleosis, drug rash, serum sickness, echovirus, coxasackie virus, meningococcemea and kawasaki disease.

Clinical diagnosis

Prodromal symptoms (three to five days)

- Low-grade fever, dry cough, coryza and conjunctivitis.
- Pathognomonic koplik spots (red mottling is present on hard and soft palates) by two to three days; and disappears within 12-18 hours.
- Transverse line of conjunctival inflammation and photophobia may suggest measles before koplik but this line disappears when the entire conjunctiva becomes involved.
- Occasionally the prodromal phase may be severe and with sudden high fever.
- The temperature rises abruptly as the rash appears.

Rash

- Faint macules on upper lateral parts of the neck, behind the ears, along the hairline and on the posterior parts of the cheek. Within 24 hours, rash increases and becomes patchy, and spreads down over back, abdomen, arms and thighs.
- By second or third day, rash reaches the feet and begins to fade from the face.
- In severe cases, the rash covers the skin completely, including palm and soles, and the face is swollen and may be hemorrhagic.
- By the seventh to tenth day, the rash fades, and there is branny desquamation and brownish discoloration.
- Lymph nodes at the angle of the jaw and in the posterior cervical region are usually enlarged.

Health education

- The incubation period of measles is 12-14 days.
- Isolation of the client is important, especially at school age.
- Isolation period for affected patients is during the prodromal stage, if diagnosed up to nine days after the appearance of the rash.

Treatment

- No specific antivirus
- Antipyretics (acetaminophen or ibuprofen)
- Humidification of the room
- Antimicrobial for complications, such as otitis media or pneumonia
- Vitamin A supplementation

Immunization

Immunization represents the most successful and cost effective means to prevent infectious diseases.

Vaccination is the process of inducing artificial immunity in the child. Active immunization stimulates the immune system to produce antibodies and a cellular immune response to protect the body against infectious agents.

All children should be immunized according to the following schedule.

Table 13.3 Immunization schedule

Immunization schedule	Vaccines	Route	Dose	Site
Before 3 months, ideally at 40 day visit	BCG	Intradermal	0.1 ml	Deltoid
2 months	OPV-1 DPT-1 HB-1	Oral Intramuscular Intramuscular	2 drops 0.5 ml 0.5 ml	 Left anterolateral part of thigh Right anterolateral part of thigh
4 months	OPV- 2 DPT- 2 HB-2	Oral Intramuscular Intramuscular	2 drops 0.5 ml 0.5 ml	 Left anterolateral part of thigh Right anterolateral part of thigh
6 months	OPV- 3 DPT- 3 HB-3	Oral Intramuscular Intramuscular	2 drops 0.5 ml 0.5 ml	 Left anterolateral part of thigh Right anterolateral part of thigh
9 months	Measles OPV4	Subcutaneous Oral	0.5 ml 2 drops	Right upper arm
18 – 24 months	OPV- Booster DPT (Booster) MMR	Oral Intramuscular Subcutaneous	2 drops 0.5 ml 0.5ml	 Left anterolateral part of thigh Right anterolateral part of thigh

Vaccine Administration

- Dose
  - Except BCG (which is 0.1ml), all intramuscular or subcutaneous immunization doses are 0.5ml. Intradermal doses are 0.1 ml. Oral doses are 2 drops.
- Route
  - IM: deep into muscle to avoid tissue damage from adjuvants, usually with a 22-25 gauge needle, in infants, toddlers, adolescents and young adults.
  - SC: Into pinched skin fold with a 23-25 gauge needle.
- Frequency
  - Simultaneous administration: Routine childhood vaccines, including live viral vaccines, are safe and effective when administered simultaneously at different sites, generally one to two inches apart. Otherwise, the interval between administrations of live viral vaccines should be one month.

There are no contraindications for vaccinations under the following conditions:

- Breastfeeding
- Mild acute illness, regardless of fever
- Low-grade fever
- Convalescent phase of illness
- Recent exposure to infectious disease
- Mild to moderate local reaction to previous dose of vaccine (soreness, redness, swelling)
- Current anti-microbial therapy
- Prematurity
- Malnutrition
- Allergy to penicillin or other antibiotic (except anaphylaxis reaction to neomycin or streptomycin)
- Pregnancy of mother or another household member (except varicella vaccine may be deferred if there is a pregnant, varicella-susceptible household member).
- Un-immunized household members
- Contraindications are:
- Severely ill children who need hospitalization
- Very high fever
- If a child had severe reaction from DPT (convulsions or shock) do not give that child any more doses of DPT. Give DT instead
- BCG should not be given to children with immune deficiency such as AIDS

Vaccine Management

- Polio and Measles vaccines are damaged by heat. BCG and DPT are damaged by sunlight. Chemicals such as disinfectants will damage all vaccines. The site of the injection should be left to dry after disinfection with alcohol before injecting the vaccine. All vaccines lose their potency after a certain time. Respect the expiry date. Reconstituted vaccines are damaged after a few hours.
- Storage:
  - Keep the refrigerator between 2 and 8 degrees Celsius
  - Keep ice packs to maintain the low temperature of the refrigerator in case of power failure
- At the time of the immunization session, take the vaccines in a container with ice and stand them in a cup of ice while immunizing children throughout the immunization session

Iron and Vitamin A Supplementation in Childhood

Program for Iron and Vitamin A Supplementation

- Vitamin A supplementation for the mother
  - During the first postpartum month: one dose 200,000 IU to increase her vitamin A level and supplement the child with vitamin A through breast milk.
- Two doses of vitamin A in the first 18 months of life for the child
  - One dose of 100,000 IU at the age of 9 months given with the measles vaccine and OPV-4
  - One dose of 200,000 IU at the age of 18 months with the booster dose of a DPT, Polio and MMR.

This prevents vitamin A deficiency in the critical age at which vitamin A deficiency occurs, namely between six and 36 months.

Methods for prevention of iron deficiency anemia

- Variation in nutrition and change in health habits
- Supplementing vulnerable groups with iron and folic acid
- Food enrichment with iron and vitamin A
- Prevention of infections and parasitic diseases
- Promoting breastfeeding and increasing inter-pregnancy spacing

14

Integrated Management of Childhood Illnesses

Integrated Management of Childhood Illnesses[10]

PLEASE TURN OVER THE PAGE.

[10] This chapter is taken from Ministry of Health and Population, Arab Republic of Egypt, *Integrated Management of Childhood Illness*

ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

ASSESS | **CLASSIFY** | **IDENTIFY TREATMENT**

ASK THE MOTHER WHAT THE CHILD'S PROBLEMS ARE

- **Determine if this is an initial or follow-up visit for this problem.**
  - **if follow-up visit, use the follow-up instructions on TREAT THE CHILD chart.**
  - **if initial visit, assess the child as follows:**

CHECK FOR GENERAL DANGER SIGNS

ASK:

- Is the child able to drink or breast-feed?
- Does the child vomit everything?
- Has the child had convulsions?

LOOK:

- See if the child is lethargic or unconscious.
- See if the child is convulsing now.

SIGNS	CLASSIFY AS	TREATMENT (Urgent pre-referral treatments are in bold print)
▶ Any general danger sign.	VERY SEVERE DISEASE	▶ **Treat convulsions if present now.** ▶ **Complete assessment immediately.** ▶ **Give first dose of an appropriate antibiotic.** ▶ **Treat the child to prevent low blood sugar.** ▶ **Refer URGENTLY to hospital*.**

THEN ASK ABOUT MAIN SYMPTOMS:
Does the child have cough or difficult breathing?

IF YES, ASK:

- For how long?

LOOK AND LISTEN:

- Count the breaths in one minute.
- Look for chest indrawing.
- Look and listen for stridor.
- Look and listen for wheeze

} ***CHILD MUST BE CALM***

Classify COUGH or DIFFICULT BREATHING

SIGNS	CLASSIFY AS	TREATMENT
▶ Any general danger sign OR ▶ Stridor in calm child OR ▶ Chest indrawing wheeze (If chest indrawing go directly to "Treat Wheezing" then reassess after treatment)	SEVERE PNEUMONIA OR VERY SEVERE DISEASE	▶ **Give first dose of an appropriate antibiotic.** ▶ **Treat wheezing if present.** ▶ **Treat the child to prevent low blood sugar.** ▶ **Refer URGENTLY to hospital.***
▶ Fast breathing (If wheeze, go directly to "Treat Wheezing" then reassess after treatment.	PNEUMONIA	▶ **Give an appropriate antibiotic for 5 days.** ▶ **Treat wheezing if present.** ▶ If coughing more than 30 days, refer for assessment. ▶ Soothe the throat and relieve the cough with a safe remedy. ▶ Advise mother when to return immediately. ▶ Follow up in 2 days.
▶ No signs of pneumonia or very severe disease (If wheeze, go directly to "Treat Wheezing")	NO PNEUMONIA: COUGH OR COLD	▶ **Treat wheezing if present.** ▶ If coughing more than 30 days, refer for assessment. ▶ Soothe the throat and relieve the cough with a safe remedy. ▶ Advise mother when to return immediately. ▶ Follow-up in 2 days if wheezing. ▶ Follow-up in 5 days if not improving

If the child is:	**Fast breathing is:**
2 months up	**50** breaths per minute or more
12 months up	**40** breaths per minute or more

Does the child have diarrhea?

IF YES, ASK:

- For how long?
- Is there blood in the stool?

LOOK AND FEEL:

- Look at the child's general condition.
  Is the child:
  Lethargic or unconscious?
  Restless and irritable?
- Look for sunken eyes.
- Offer the child fluid. Is the child:
  Not able to drink or drinking poorly?
  Drinking eagerly, thirsty?
- Pinch the skin of the abdomen.
  Does it go back:
  Very slowly (longer than 2 seconds)?
  Slowly?

Classify DIARRHEA

for DEHYDRATION

▶ Two of the following signs: ▶ Lethargic or unconscious ▶ Sunken eyes ▶ Not able to drink or drinking poorly ▶ Skin pinch goes back very slowly.	**SEVERE DEHYDRATION**	▶ **If child has no other severe classification:** **- Give fluid for severe dehydration (Plan C). OR** ▶ **If child also has another severe classification:**** **- Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** **Advise the mother to continue breastfeeding.** ▶ **If child is 2 years or older and there is cholera in your area, give antibiotic for cholera.**
▶ Two of the following signs: - Restless, irritable - Sunken eyes - Drinks eagerly, thirsty - Skin pinch goes back slowly.	**SOME DEHYDRATION**	▶ Give fluid and food for some dehydration (Plan B). ▶ **If child also has a severe classification:** **- Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** **Advise the mother to continue breastfeeding.** ▶ If child is 2 years or older and there is cholera in your area, give antibiotic for cholera. ▶ Advise mother when to return immediately. ▶ Follow-up in 5 days if not improving.
▶ Not enough signs to classify as some or severe dehydration.	**NO DEHYDRATION**	▶ Give fluid and food to treat diarrhea at home (Plan A). ▶ If child is 2 years or older and there is cholera in your area, give antibiotic for cholera. ▶ Advise mother when to return immediately. ▶ Follow-up in 5 days if not improving.

and if diarrhea 14 days or more

▶ Dehydration present.	**SEVERE PERSISTENT DIARRHEA**	▶ Treat dehydration before referral unless the child has another severe classification. ▶ Refer to hospital.
▶ No dehydration.	**PERSISTENT DIARRHEA**	▶ Advise the mother on feeding a child who has PERSISTENT DIARRHEA. ▶ Give multivitamin, mineral supplement. ▶ Advise mother when to return immediately. ▶ Follow-up in 5 days.

and if blood in stool

▶ Blood in the stool.	**DYSENTERY**	▶ **Treat for 5 days with an oral antibiotic recommended for Shigella.** ▶ Advise mother when to return immediately. ▶ Follow-up in 2 days.

*If referral is not possible, manage the child as described in **Management of Childhood Illness**, Treat the Child. ** If the other severe classification is based ONLY on "lethargy", go to Plan C

DANGER SIGNS, COUGH DIARRHEA

ASSESS AND CLASSIFY

Check for throat problem

ASK:
- Does the child have fever? (by history or feels hot or temperature 37.5°C or more)
- Does the child have sore throat?

LOOK AND FEEL:
- Feel for enlarged tender lymph node(s) on the front of the neck.
- Look for red (congested) throat
- Look for white or yellow exudates on the throat and

Classify Throat Problem

▶ Fever OR Sore throat AND **Two of the following:** ▶ Red (congested) throat ▶ White or yellow exudate on the throat or tonsils. ▶ Enlarged tender lymph node(s) on the front of the neck.	**STREPTO COCCAL SORE THROAT**	▶ **Give benzathine penicillin.** ▶ Soothe the throat with a safe remedy. ▶ Give paracetamol for pain. ▶ Advise mother when to return immediately. ▶ Follow up in 5 days if not improving.
▶ Sore throat OR ▶ Not enough signs to classify as streptococcal sore throat	**NON STREPTO-COCCAL SORE THROAT**	▶ Soothe the throat with a safe remedy. ▶ Give paracetamol for pain. ▶ Advise mother when to return immediately. ▶ Follow up in 5 days if not improving.
▶ Not throat signs or symptoms (with or without fever)	**NO THROAT PROBLEM**	▶ Continue assessment of the child.

Does the child have an ear problem?

IF YES, ASK:
- Is there agonizing ear pain?
- Is there ear discharge? If yes, for how long?

LOOK AND FEEL:
- Look for pus draining from the ear.
- Feel for tender swelling behind the ear.

Classify EAR PROBLEM

▶ Tender swelling behind the ear.	**MASTOIDITIS**	▶ **Give first dose of an appropriate antibiotic.** ▶ **Give first dose of paracetamol for pain.** ▶ **Treat the child to prevent low blood sugar.** ▶ **Refer URGENTLY to hospital.**
▶ Pus is seen draining from the ear and discharge is reported for less than 14 days, OR ▶ Agonizing ear pain.	**ACUTE EAR INFECTION**	▶ **Give an antibiotic for 10 days.** ▶ Give paracetamol for pain. ▶ Dry the ear by wicking. ▶ Advise mother when to return immediately. ▶ Follow-up in 5 days.
▶ Pus is seen draining from the ear and discharge is reported for 14 days or	**CHRONIC EAR INFECTION**	▶ Dry the ear by wicking. ▶ Refer to ENT specialist.
▶ No ear pain AND ▶ No pus seen draining from the ear.	**NO EAR INFECTION**	▶ Advise mother to go to ENT specialist for assessment.

Does the child have fever?

(by history or feels hot or temperature 37.5°C or above)

IF YES, ASK:	*LOOK AND FEEL:*	*Classify FEVER*		
▶ For how long? ▶ If more than 5 days, has fever been present every day? ▶ Has the child had measles within the last 3 months?	▶ Look or feel for stiff neck. ▶ Look for signs of MEASLES - Generalized rash and - One of these: cough, runny nose, or red eyes.		▶ **Any general danger sign OR** ▶ **Stiff neck**	**VERY SEVERE FEBRILE DISEASE**	▶ **Give first dose of an appropriate antibiotic.** ▶ **Treat the child to prevent low blood sugar.** ▶ **Give one dose of paracetamol in clinic for fever (38°C or above).** ▶ **Refer URGENTLY to hospital.**
			▶ Apparent bacterial cause of fever present e.g pneumonia dysentery acute ear infection streptococcal sore throat Other apparent causes***	**FEVER-POSSIBLE BACTERIAL INFECTION**	▶ **Give paracetamol for fever (38°C or above).** ▶ **Treat apparent causes of fever.** ▶ Advise mother when to return immediately. ▶ Follow-up in 2 days if fever persists. ▶ If fever is present every day for more than 5 days, refer for assessment.
			▶ No apparent bacterial cause of fever	**FEVER-BACTERIAL INFECTION UNLIKELY**	▶ Give paracetamol for fever (38°C or above). ▶ Advise mother when to return immediately. ▶ Follow-up in 2 days if fever persists. ▶ Fever is present every day for more than 5 days, refer for assessment.
If the child has measles now or within the last 3 months:	▶ Look for mouth ulcers. Are they deep and extensive? ▶ Look for pus draining from the eye. ▶ Look for clouding of the cornea.	***If MEASLES now or within last 3 months, Classify***	▶ General danger sign OR ▶ Clouding of cornea OR ▶ Deep or extensive mouth ulcers OR ▶ Measles now AND pneumonia	**SEVERE COMPLICATED MEASLES******	▶ **Give first dose of an appropriate antibiotic.** ▶ **Treat the child to prevent low blood sugar.** ▶ **Give one dose of paracetamol in clinic for fever (38°C or above).** ▶ **If clouding of the cornea or pus draining from the eye, apply tetracycline eye ointment.** ▶ **Give vitamin A.** ▶ **Refer URGENTLY to hospital.**
			▶ Pus draining from the eye OR ▶ Mouth ulcers.	**MEASLES WITH EYE OR MOUTH COMPLICATIONS ******	▶ **Give paracetamol for fever (38°C or above).** ▶ **If pus draining from the eye, treat eye infection with tetracycline eye ointment.** ▶ **Give vitamin A.** ▶ If mouth ulcers, treat with gentian violet. ▶ Advise mother when to return immediately. ▶ Follow-up in 2 days.
			▶ Measles now or within the last 3 months AND ▶ None of the above signs. ▶ ▶ Measles now or within the last 3 months AND ▶ None of the above signs.	**MEASLES**	▶ **Give paracetamol for fever (38°C or above).** ▶ **Give vitamin A.** ▶ Advise the mother when to return immediately. ▶ Follow- up in 2 days if not improving.

** These temperatures are based on axillary temperature. Rectal temperature readings are approximately 0.5°C higher.

SORE THROAT
EAR PROBLEM
FEVER, MEASLES

THEN CHECK FOR MALNUTRITION AND ANEMIA

LOOK AND FEEL:

- Look for visible severe wasting.
- Look for oedema of both feet.
- Determine weight for age.

LOOK :

- Look for palmar pallor and mucous
- membrane pallor Is it:
- Severe palmar pallor and / or mucous
- membrane pallor?
- Some palmar pallor and / or mucous
- membrane pallor?

Classify NUTRITIONAL STATUS

▶ Visible severe wasting or ▶ Oedema of both feet.	**SEVERE MALNUTRITION**	▶ Give Vitamin A. ▶ Treat the child to prevent low blood sugar.. ▶ Refer URGENTLY to hospital.
▶ Low weight for age.	**LOW WEIGHT**	▶ Assess the child's feeding and counsel the mother on feeding according to the FOOD box on the COUNSEL THE MOTHER chart. ▶ If feeding problem, follow-up in 5 days. ▶ Advise mother when to return immediately. ▶ Follow-up in 30 days.
▶ Not low weight for age and no other signs of malnutrition.	**NOT LOW WEIGHT**	▶ If child is less than 2 years old, assess the child's feeding and counsel the mother on feeding according to the FOOD box on the COUNSEL THE MOTHER chart. ▶ If feeding problem, follow-up in 5 days. Advise mother when to return immediately.

Classify ANEMIA

▶ Severe palmar and / or mucous membrane pallor	**SEVERE ANEMIA**	**▶ Treat the child to prevent low blood sugar** **▶ Refer URGENTLY to hospital**
▶ Some palmar and / or mucous membrane pallor	**ANEMIA**	▶ Assess the child's feeding and counsel the mother on feeding according to the FOOD box on the COUNSEL THE MOTHER chart. - If feeding problem, follow-up in 5 days. ▶ Give Iron. ▶ Advise mother when to return immediately. ▶ Follow-up in 14 days.
▶ No palmar or mucous membrane pallor	**NO ANEMIA**	▶ If child is aged from 6 - 30 months, give one dose of Iron weekly.

THEN CHECK THE CHILD'S IMMUNIZATION AND VITAMIN A SUPPLEMENTATION STATUS

IMMUNIZATION SCHEDULE:

AGE	VACCINE
Before 3 months	BCG
2 months	OPV-1 DPT-1 HB-1
4 months	OPV-2 DPT-2 HB-2
6 months	OPV-3 DPT-3 HB-3
9 months	OPV-4 Measles
18 months	OPV DPT (booster dose) MMR VACCINE

VITAMIN A SUPPLEMENTATION SCHEDULE:

9 months	1st dose of vitamin A (100,000 IU)
18 months	2nd dose of vitamin A (200,000 IU)

ASSESS OTHER PROBLEMS

MAKE SURE CHILD WITH ANY GENERAL DANGER SIGN IS REFERRED after first dose of an appropriate antibiotic and other urgent treatments.**Exception:** Rehydration of the child according to Plan C may resolve danger signs so that referral is no longer needed.

TEACH THE MOTHER TO GIVE ORAL DRUGS AT HOME

Follow the instructions below for every oral drug to be given at home. Also follow the instructions listed with each drug's dosage table.

- Determine the appropriate drugs and dosage for the child's age or weight.
- Tell the mother the reason for giving the drug to the child.
- Demonstrate how to measure a dose.
- Watch the mother practise measuring a dose by herself.
- Ask the mother to give the first dose to her child.
- Explain carefully how to give the drug, then label and package the drug.
- Explain that all the oral drug syrups must be used to finish the course of treatment, even if the child gets better.
- Check the mother's understanding before she leaves the clinic.

Give an Appropriate Oral Antibiotic

- **FOR PNEUMONIA (give for 5 days), OR ACUTE EAR INFECTION (give for 10 days):**
- FIRST-LINE ANTIBIOTIC: AMOXYCILLIN
- SECOND-LINE ANTIBIOTIC: COTRIMOXAZOLE

AGE or WEIGHT	**AMOXYCILLIN** ▶ Give three times daily for 5 or 10 days		**COTRIMOXAZOLE** (trimethoprim + sulphamethoxazole) ▶ Give two times daily for 5 or 10 days
	SYRUP 250 mg per 5 ml	**SYRUP** 125 mg per 5 ml	**SYRUP** 40 mg trimethoprim +200 mg Sulphamethoxazole per 5 ml
2 months up to 12 months (4 - < 10 kg)	**2.5 ml**	**5 ml**	**5.0 ml**
12 months up to 5 years (10 – 19 kg)	**5 ml**	**10 ml**	**7.5 ml**

- **FOR DYSENTERY:**
- Give antibiotic recommended for Shigella for 5 days.
- FIRST-LINE ANTIBIOTIC FOR SHIGELLA: COTRIMOXAZOLE
- SECOND-LINE ANTIBIOTIC FOR SHIGELLA: NALIDIXIC ACID

	COTRIMOXAZOLE SYRUP (trimethoprim + sulphamethoxazole) ▶ Give two times daily for 5 days	**NALIDIXIC ACID** ▶ Give four times daily for 5 days
	COTRIMOXAZOLE SYRUP (trimethoprim + sulphamethoxazole) ▶ Give two times daily for 5 days	**ERYTHROMYCIN ACID** ▶ Give four times daily for 5 days
AGE or WEIGHT	**SYRUP** 40 mg trimethoprim + 200 mg sulphamethoxazole per 5 ml	**SYRUP** 150 mg/5 ml
2 months up to 4 months (4 - < 6 kg)	5.0 ml	2.5 ml
4 months up to 12 months (6 - < 10 kg)	5.0 ml	5.0 ml
12 months up to 5 years (10 – 19 kg)	7.5 ml	7.5 ml

- **FOR CHOLERA:**
- Give antibiotic recommended for Cholera for 5 days. FIRST-LINE ANTIBIOTIC FOR CHOLERA: COTRIMOXAZOLE SECOND-LINE ANTIBIOTIC FOR CHOLERA: ERYTHROMYCIN

AGE or WEIGHT	**COTRIMOXAZOLE SYRUP** (trimethoprim+ sulphamethoxazole) ▶ Give two times daily for 5 days	**ERYTHROMYCIN** ▶ Give four times daily for 5 days
	SYRUP 40 mg trimethoprim + 200 mg sulphamethoxazole per 5 ml	**SYRUP** 200 mg/5 ml
2 months up to 4 months (4 - < 6 kg)	5.0 ml	1.25 ml
4 months up to 12 months (6 - < 10 kg)	5.0 ml	2.5 ml
12 months up to 5 years (10 – 19 kg)	7.5 ml	5 ml

TEACH THE MOTHER TO GIVE ORAL DRUGS AT HOME

Follow the instructions below for every oral drug to be given at home.
Also follow the instructions listed with each drug's dosage table.

Give Paracetamol for Fever (> 38°C) or sore throat or Ear Pain

- Give paracetamol every 6 hours until fever or pain is gone.

PARACETAMOL	
AGE or WEIGHT	**SYRUP** (120 mg / 5 ml)
2 months up to 12 months (4-<10 kg)	5 ml
12 months up to 3 years (10 - <14 kg)	7.5 ml
3 years up to 5 years (14 - 19 kg)	10 ml

Give Iron

- For treatment of anemia: give one dose daily for 14 days, then reassess.
- For Iron supplementation: give one dose per week.

AGE or WEIGHT	IRON SYRUP Iron syrup 30 mg/ 5 ml (6 mg elemental iron per ml)
2 months up to 4 months (4 - <6 kg)	2.5 ml
4 months up to 12 months (6 - <10 kg)	5 ml
12 months up to 3 years (10 - <14 kg)	7.5 ml
3 years up to 5 years (14 - 19 kg)	10 ml

Give Vitamin A

- Give single dose of vitamin A in the clinic.

AGE	VITAMIN A CAPSULES		
	200 000 IU	100 000 IU	50 000 IU
Up to 6 months		1/2 capsule	1 capsule
6 months up to 12 months	1/2 capsule	1 capsule	2 capsules
12 months up to 5 years	1 capsule	2 capsules	4 capsules

Give Multivitamin / Mineral Supplement

- For persistent diarrhea, give one dose daily 5 ml of multivitamin mineral mixture for two weeks each 5 ml includes:

Vitamin A	8000 IU (800 micrograms)		
Folate:	100 micrograms		
Magnesium:	150 mg	Iron:	20mg
Zinc:	20mg	Copper:	2 mg

Give Oral Salbutamol

- Give Salbutamol syrup three times daily for 5 days.

AGE or WEIGHT	SALBUTAMOL SYRUP (Salbutamol syrup = 2 mg / 5 ml)
2 months up to 4 months (4 - <6 kg)	1.0 ml
4 months up to 12 months (6 - <10 kg)	2.0 ml
12 months up to 3 years (10 - <14 kg)	2.5 ml
3 years up to 5 years (14 - 19 kg)	5.0 ml

TEACH THE MOTHER TO TREAT LOCAL INFECTIONS AT HOME

- Explain to the mother what the treatment is and why it should be given.
- Describe the treatment steps listed in the appropriate box.
- Watch the mother as she does the first treatment in the clinic (except remedy for cough or sore throat).
- Tell her how often to do the treatment at home.
- If needed for treatment at home, give mother the tube of tetracycline ointment or a small bottle of gentian violet.
- Check the mother's understanding before she leaves the clinic.

Dry the Ear by Wicking

- Dry the ear at least 3 times daily.
- Roll clean absorbent cloth or soft, strong tissue paper into a wick.
- Place the wick in the child's ear.
- Remove the wick when wet.
- Replace the wick with a clean one and repeat these steps until the ear is dry.

Treat Mouth Ulcers with Gentian Violet

- Treat the mouth ulcers twice daily.
  Wash hands.
  Wash the child's mouth with clean soft cloth wrapped around the finger and wet with salt water.
  Paint the mouth with half-strength gentian violet.
  Wash hands again.

Treat Eye Infection with Tetracycline Eye Ointment

- Clean both eyes 3 times daily.
  Wash hands.
  Ask child to close the eye.
  Use clean cloth and water to gently wipe away pus.
- Then apply tetracycline eye ointment in both eyes 3 times daily.
  Ask the child to look up.
  Squirt a small amount of ointment on the inside of the lower lid.
  Wash hands again.
- Treat until redness is gone.
- Do not use other eye ointments or drops, or put anything else in the eye.

Soothe the Throat, Relieve the Cough with a Safe Remedy

- S
  Breastmilk for exclusively breastfed infant.
  Home made remedies e.g. tea with lemon and honey, anise, tileo, guava leaves decoctions, chicken soup.
- Harmful remedies to discourage:
  Cough syrups containing:
  codeine, antihistamines, alcohol, atropine and expectorants.

ORAL DRUGS
LOCAL INFECTIONS

GIVE THESE TREATMENTS IN CLINIC ONLY

- Explain to the mother why the drug is given.
- Determine the does appropriate for the child's weight (or age).
- Use a sterile needle and syringe. Measure dose accurately.
- Give the drug as an intramuscular injection.

Give an Intrumuscular Antibiotic

FOR CHILDREN BEING REFERRED URGENTLY:

Give first dose of intramuscular chloramphenicol and refer child urgently to hospital.

IF REFERRAL IS NOT POSSIBLE

Repeat the chlorampnenicol injection every 12 hours for 5 days.
Then change to an appropriate oral antibiotic to complete 10 days of treatment.

AGE of WEIGHT	CHLORAMPHENICOL Dose: 40mg per kg Add 5.0ml sterile water to vial containing 1000mg – 5.6ml at 180mg/ml
2 months up to 4 months (4 - < 6 kg)	1.0 ml = 180 mg
4 months up to 9 months (6 - < 8 kg)	1.5 ml = 270 mg
9 months up to 12 months (8 - < 10 kg)	2.0 ml = 360 mg
12 months up to 3 years (10 - < 14 kg)	2.5 ml = 450 mg
3 years up to 5 years (14 - 19 kg)	3.5 ml = 630 mg

Treat a Convulsing Child with Sodium Valporate

Manage the Airway

- Turn the child on his or her side to avoid aspiration
- Do not insert anything in the mouth
- If the lips and tongue are blue, open the mouth and make sure the airway is clear.
- If necessary, remove secretions afrom the throat through a catheter inserted through the nose.

Give Sodium Valporate Rectally

- Dilute sodium valporate solution (200mg/ml) 1:7 with tap water.
- Draw up the dose of sodium valporate into a small syringe. Then remove the needle.
- Attach a piece of nasogastric tubing to the syringe if possible.
- Insert 4 to 5 cm of the tube or the tip of the syringe into the rectum and inject the sodium valporate solution.
- Hold buttocks together for a few minutes.

AGE or WEIGHT	SODIUM VALPORATE GIVEN RECTALLY 25mg/ml solution Dose 20mg/kg
1 week up to 4 months (3 - <6kg)	4 ml
4 months up to 12 months (6 - < 10 kg)	6ml
12 months up to 3 years	10ml
3 years up to 5 years	13ml

IF high fever, lower the fever

- Sponge the child with room temperature water

Treat the child to prevent low blood sugar

Treat Wheezing

Children with wheezing and
GENERAL DANGER SIGN OR STRIDOR → Give one dose of rapid acting bronchodilator and refer immediately

Children with wheezing and
NO GENERAL DANGER SIGN AND NO STRIDOR → Give rapid acting bronchodilator and reassess the child 30 minutes later

IF:
CHEST INDRAWING PERSISTS → Treat for SEVERE PNEUMONIA (Refer)

FAST BREATHING ALONE → Treat for PNEUMONIA
Give further dose of rapid acting bronchodilator. Give oral salbutamol for 5 days

NO FAST BREATHING COUGH OR COLD. → Treat for NO PNEUMONIA:
Give oral salbutamol for 5 days.

RAPID ACTING BRONCHODILATOR	
Nebulized	0.5ml Salbutamol
Salbutamol 5 mg/ml	plus 2.0ml normal saline
Metered Dose Inhaler (MDI) with	
spacer device (100 mcg/dose)	2-3 puffs

ORAL SALBUTAMOL Three times daily for 5 days	
AGE or WEIGHT	2 mg / 5 ml syrup
2 months up to 4 months (4 - <6 kg)	1.0 ml
4 months up to 12 months (6 - <10 kg)	2.0 ml
12 months up to 3 years (10- <14 kg)	2.5 ml
3 years up to 5 years (14 - 19 kg)	5.0 ml

Treat the Child to Prevent Low Blood Sugar

▶ **If the child is able to breast-feed:**

Ask the mother to breast-feed the child.

▶ **If the child is not able to breast-feed but is able to swallow:**

Give expressed breastmilk or a breastmilk substitute.
If neither of these is available, give sugar water.
Give 30-50 ml of milk or sugar water before departure.

To make sugar water: Dissolve 4 level teaspoons of sugar (20 grams) in a 200-ml cup of clean water.

▶ **If the child is not able to swallow:**

Give 50 ml of milk or sugar water by nasogastric tube.

Give An Antibiotic For Streptococcal Sore Throat

Give a single dose of intramuscular benzathine penicillin .

	BENZATHINE PENICILLIN
Age	Add 5 ml sterile water to vial containing 1.200.000 unit = 6 ml at 200.000 unit / ml
< 5 years	3.0 ml = 600.000 unit

INTRAMUSCULAR ANTIBIOTIC
CONVULSING CHILD, WHEEZING,

GIVE EXTRA FLUID FOR DIARRHEA AND CONTINUE FEEDING (See FOOD advice on COUNSEL THE MOTHER chart)

Plan A: Treat Diarrhea at Home

Counsel the mother on the 3 Rules of Home Treatment:
Give Extra Fluid, Continue Feeding, When to Return

1. GIVE EXTRA FLUID (as much as the child will take)

▶ **TELL THE MOTHER:**
- Breastfeed frequently and for longer at each feed.
- If the child is exclusively breastfed, give ORS or clean water in addition to breast milk.
- If the child is not exclusively breastfed, give one or more of the following: ORS solution, food-based fluids (such as soup, rice water, yoghurt drink and belila water), or clean water.

It is especially important to give ORS at home when:
- the child has been treated with Plan B or Plan C during this visit.
- the child cannot return to a clinic if the diarrhea gets worse.

▶ **TEACH THE MOTHER HOW TO MIX AND GIVE ORS. GIVE THE MOTHER A BOX OF 10 PACKETS OF ORS TO USE AT HOME AND 200 ML CUP.**

▶ **SHOW THE MOTHER HOW MUCH FLUID TO GIVE IN ADDITION TO THE USUAL FLUID INTAKE:**
- Up to 2 years 50 to 100 ml after each loose stool
- 2 years or more 100 to 200 ml after each loose stool

Tell the mother to:
- Give frequent small sips from a cup.
- If the child vomits, wait 10 minutes. Then continue, but more slowly.
- Continue giving extra fluid until the diarrhea stops.

2. CONTINUE FEEDING
3. WHEN TO RETURN
} **See COUNSEL THE MOTHER Chart**

Treat Some Dehydration with ORS

Give in clinic recommended amount of ORS over 4-hour period

▶ **DETERMINE AMOUNT OF ORS TO GIVE DURING FIRST 4 HOURS.**

AGE*	Up to 4 months	4 months up to 12 months	12 months up to 2 years	2 years up to 5 years
WEIGHT	< 6 kg	6 - < 10 kg	10 - < 12 kg	12 - 19 kg
In ml	200 - 400	400 - 700	700 - 900	900 - 1400

*Use the child's age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the child's weight (in kg) times 75.

- If the child wants more ORS than shown, give more.
- For infants under 6 months who are not breastfed, also give 100-200 ml clean water during this period.

▶ **SHOW THE MOTHER HOW TO GIVE ORS SOLUTION.**
Give frequent small sips from a cup or cup and spoon (one spoon every 1-2 minutes).
If the child vomits, wait 10 minutes. Then continue, but more slowly.
Continue breastfeeding whenever the child wants.

▶ **AFTER 4 HOURS:**
Reassess the child and classify the child for dehydration.
Select the appropriate plan to continue treatment.
Begin feeding the child in clinic.

▶ **IF THE MOTHER MUST LEAVE BEFORE COMPLETING TREATMENT:**
Show her how to prepare ORS solution at home.
Show her how much ORS to give to finish 4-hour treatment at home.
Give her enough ORS packets to complete rehydration. Also give her a box of 10 packets of ORS as recommended in Plan A.
Explain the 3 Rules of Home Treatment:

1. GIVE EXTRA FLUID
2. CONTINUE FEEDING
3. WHEN TO RETURN
} **See Plan A for recommended fluids and See COUNSEL THE MOTHER chart**

GIVE EXTRA FLUID FOR DIARRHEA AND CONTINUE FEEDING (See FOOD advice on COUNSEL THE MOTHER chart)

Plan C: Treat Severe Dehydration Quickly

FOLLOW THE ARROWS. IF ANSWER IS "YES", GO ACROSS. IF "NO", GO DOWN.

START HERE

Can you give intravenous (IV) fluid immediately? → YES

Start IV fluid immediately. If the child can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Pansol, Polyvalent, or Ringer's Lactate Solution (or, if not available, normal saline), divided as follows:

AGE	First give 30 ml/kg in:	Then give 70 ml/kg in:
Infants (under 12 months)	1 hour*	5 hours
Children (12 months up to 5 years)	30 minutes*	2 1/2 hours

* Repeat once if radial pulse is still very weak or not detectable.

- Reassess the child every 1- 2 hours. If hydration status is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg/hour) as soon as the child can drink: usually after 3-4 hours (infants) or 1-2 hours (children).
- Reassess an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NO ↓

Is IV treatment available nearby (within 30 minutes)? → YES

- Refer URGENTLY to hospital for IV treatment.
- If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip.

NO ↓

Are you trained to use a naso-gastric (NG) tube for rehydration? → YES

NO ↓

Can the child drink? → YES

- Start rehydration by tube (or mouth) with ORS solution: give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- Reassess the child every 1-2 hours:

- If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.
- If hydration status is not improving after 3 hours, send the child for IV therapy.

- After 6 hours, reassess the child. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NO ↓

Refer URGENTLY to hospital for IV or NG treatment.

NOTE:
- If possible, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

IMMUNIZE EVERY SICK CHILD, AS NEEDED

PLAN A, PLAN B, PLAN C

GIVE FOLLOW-UP CARE

- Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.
- If the child has any new problem, assess, classify and treat the new problem as on the ASSESS AND CLASSIFY chart.

PNEUMONIA

After 2 days:

Check the child for general danger signs.
Assess the child for cough or difficult breat } See ASSESS & CLASSIFY chart.
Ask:

- Is the child breathing slower?
- Is there less fever?
- Is the child eating better?
- Is the child still wheezing?

Treatment:

- If child has a general danger sign or stridor or chest indrawing or has fast breathing and wheeze, give a dose of pre-referral intramuscular antibiotic. If wheezing also give dose of rapid acting bronchodilator. Then refer URGENTLY to hospital.
- If child is not wheezing but breathing rate, fever and eating are the same. Change to the second line antibiotic and advise the mother to return in 2 days or refer.(If this child had measles in the last three months, refer.
- If breathing slower, less fever, or eating better, complete the 5 days of antibiotic. If child is wheezing, also treat as below.
- If child is wheezing but has no general danger signs, fast breathing or chest indrawing:

  - If this is the first episode of wheezing or if the child has had previous episodes but has not been referred, continue salbutamol and refer for assessment.

  - If the child has had at least one episode of wheezing before this and has already been referred for assessment, advise mother to continue with treatment prescribed by the referral hospital. Advise the mother to return if the child's breathing becomes more difficult. If this child returns because condition has worsened, refer for further treatment.

NO PNEUMONIA- WHEEZE

After 2 days

Check the child for general danger signs. See ASSESS & CLASSIFY chart.
Assess the child for cough or difficult breath

Treatment:

- If any danger sign or stridor or chest indrawing- Treat as SEVERE PNEUMONIA OR VERY SEVERE DISEASE, give one dose of pre-referral intramuscular antibiotic. Give one dose of rapid acting bronchodilator and refer URGENTLY to hospital.
- If fast breathing-treat as PNEUMONIA, also give oral salbutamol.
- If child is wheezing but has no general danger signs, fast breathing or chest indrawing:
  - If this is the first episode of wheezing or if the child has previous episodes but has not been referred. Continue salbutamol and refer for assessment.
  - If the child has already been referred for a pervious episode of wheezing advise the mother to continue with treatment prescribed by the referral hospital. Advise the mother to return if the child's breathing becomes more difficult. If this child returns because condition has worsened, refer URGENTLY to hospital for further treatment.
- If no wheezing- complete 5 days of oral salbutamol.

DYSENTERY

After 2 days:

Assess the child for diarrhoea. > See ASSESS & CLASSIFY chart.
Ask:

- Are there fewer stools?
- Is there less fever?
- Is the child eating better?
- Is there less blood in the stool?
- Is there less abdominal pain?

Treatment:

- If the child is **dehydrated**, treat dehydration.
- If **number of stools, amount of blood in stools, fever, abdominal pain, or eating is the same or worse:**

Change to second-line oral antibiotic recommended for Shigella.
Give it for 5 days. Advise the mother to return in 2 days. Refer to hospital.

Exceptions - if the child: - is less than 12 months old, or
- was dehydrated on the first visit, or
- had measles within the last 3 months

- If **fewer stools, less blood in the stools, less fever, less abdominal pain, and eating better,** continue giving the same antibiotic until finished.

GIVE FOLLOW-UP CARE

- Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.
- If the child has any new problem, assess, classify and treat the new problem as on the ASSESS AND CLASSIFY chart.

PERSISTENT DIARRHEA

After 5 days:
Ask:
- Has the diarrhea stopped?
- How many loose stools is the child having per day?

Treatment:
- If the **diarrhea has not stopped (child is still having 3 or more loose stools per day)**, do a full reassessment of the child. Give any treatment needed. Then refer to hospital.
- If the **diarrhea has stopped (child having less than 3 loose stools per day)**, tell the mother to follow the usual feeding recommendations for the child's age.
- Tell the mother to continue giving the child the multivitamin mineral supplement.

FEVER-POSSIBLE BACTERIAL INFECTION AND FEVER-BACTERIAL INFECTION UNLIKELY

If fever persists after 2 days:

Do a full reassessment of the child. > See ASSESS & CLASSIFY chart.
Assess for other causes of fever.

Treatment:
- If the child has any **general danger sign or stiff neck**, treat as VERY SEVERE FEBRILE DISEASE.
- If the child has any **apparent bacterial cause of fever** provide treatment.
- If the child has no **apparent bacterial cause of fever:**

Advise the mother to return again in 2 days if the fever persists.
If fever has been present every day for more than 5 days, refer for assessment.

EAR INFECTION

After 5 days:
Reassess for ear problem. > See ASSESS & CLASSIFY chart.
Measure the child's temperature.

Treatment:
- If there is **tender swelling behind the ear or ear pain or high fever (38°C or above)**, refer URGENTLY to hospital.
- **Acute ear infection: if ear discharge** persists, treat with 5 more days of the same antibiotic. Continue wicking to dry the ear. Follow-up once again in 5 days. If ear pain or discharge persists refer.
- If **no ear pain or discharge,** praise the mother for her careful treatment. Ask the mother to continue the same antibiotic for other 5 days.
- If **discharge**, for 14 days or more, refer.

MEASLES WITH EYE OR MOUTH COMPLICATIONS

After 2 days:
Look for red eyes and pus draining from the eyes.
Look at mouth ulcers.
Smell the mouth.

Treatment for Eye Infection:

- If pus is **draining from the eye**, ask the mother to describe how she has treated the eye infection. If treatment has been correct, refer to hospital. If treatment has not been correct, teach mother correct treatment.
- If the **pus is gone but redness remains**, continue the treatment.
- If **no pus or redness**, stop the treatment.

Treatment for Mouth Ulcers:

- If **mouth ulcers are worse, or there is a very foul smell from the mouth**, refer to hospital.
- If **mouth ulcers are the same or better,** continue using half-strength gentian violet for a total of 5 days.

GIVE FOLLOW-UP CARE

- Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.
- If the child has any new problem, assess, classify and treat the new problem as on the ASSESS AND CLASSIFY chart.

MEASLES

If not improving after 2 days:
Do a full reassessment of the child > see ASSESS & CLASSIFY chart.

Treatment:

- If **general danger sign or clouding of the cornea or deep extensive mouth ulcers or pneumonia**, treat as SEVERE COMPLICATED MEASLES.
- If **pus draining from the eye or mouth uclers**, treat as MEASLES WITH EYE OR MOUTH COMPLICATIONS.
- If **none of the above signs**, advise the mother when to return immediately.
- Follow up in two days if not improving.

* If the child received already the dose of vitamin A in the previous visit, do not repeat.

FEEDING PROBLEM

After 5 days:

Reassess feeding. > See questions at the top of the COUNSEL chart.
Ask about any feeding problems found on the initial visit.

- Counsel the mother about any new or continuing feeding problems. If you counsel the mother to make significant changes in feeding, ask her to bring the child back again.
- If the child is low weight for age, ask the mother to return 30 days after the initial visit to measure the child's weight gain.

Anemia

After 14 days:
Reassess for anemia every 14 days for 2 months

- If severe pallor refer URGENTLY to hospital.
- If pallor stil present or improving, continue giving iron daily for 2 months.
- If the child has pallor after 2 months, refer for assessment.

If the child has palmar pallor and / or mucous membrane pallor after 2 months, refer for assessment.

LOW WEIGHT

After 30 days:

Weigh the child and determine if the child is still low weight for age.
Reassess feeding. > See questions at the top of the COUNSEL chart.

Treatment:

- If the child is **no longer low weight for age**, praise the mother and encourage her to continue.
- If the child is still **low weight for age**, counsel the mother about any feeding problem found. Ask the mother to return again in one month. Continue to see the child monthly until the child is feeding well and gaining weight regularly or is no longer low weight for age.

Exception:
If you do not think that feeding will improve, or if the child has **lost weight**, refer the child.

IF ANY MORE FOLLOW-UP VISITS ARE NEEDED BASED ON THE INITIAL VISIT OR THIS VISIT, ADVISE THE MOTHER OF THE NEXT FOLLOW-UP VISIT.

•

ALSO, ADVISE THE MOTHER WHEN TO RETURN IMMEDIATELY. (SEE COUNSEL CHART.)

COUNSEL THE MOTHER

FOOD

Assess the Child's Feeding

Ask questions about the child's usual feeding and feeding during this illness. Compare the mother's answers to the ***Feeding Recommendations*** for the child's age in the box below.

ASK -

- Do you breast-feed your child?
  - How many times during the day?
  - Do you also breast-feed during the night?

- Does the child take any other food or fluids?
  - What food or fluids?
  - How many times per day?
  - What do you use to feed the child?
  - If low weight for age: How large are servings? Does the child receive his own serving? Who feeds the child and how?

- During this illness, has the child's feeding changed? If yes, how?

MEASLES
FEEDING PROBLEM
PALLOR, LOW WEIGHT

ASSESS FEEDING

COUNSEL

Feeding Recommendations during Sickness and Health

Up to 6 Months o Age

- Breastfeed as often as the child wants, day and night, at least 8 times in 24 hours.
- Do not give other foods or fluids.
- Do not use bottles or teats.
- Only if the child is 4 months of age and is not gaining weight adequately:
  - Add complementary foods (listed under 6 months up to 12 months).
  - Give these foods 1 or 2 times per day after breastfeeding.

6 Months up to 12 Months

- Breastfeed as often as the child wants.
- Give adequate servings of:

- Bread, adse or eggs or pealed fool medamis and drops of oil, strained tomatoes or orange juice.
-Rice or boiled potatoes, squash or carrots (add drops of lemon juice) and fish or meat or chicken (meat or liver).
- Yoghurt with mashed biscuits and banana or rice pudding with milk and mashed banana

(up to 9 months food should be chopped then mashed).

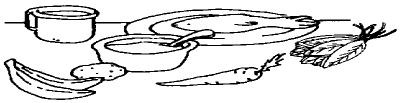
-3 times per day if breastfed;
-5 times per day if not breastfed.
in alternating with breastfeeding.

12 Months up to 2 Years

- Breastfeed as often as the child wants.
- Give adequate servings of:

- Bread and cheese (kareesh with drops of oil or white low salt or processed) and pealed tomatoes.
- Rice and meat or chicken with boiled spinach or molokheya and fruits.
- Koshari and pealed tomatoes.
- Belila with milk and fruits

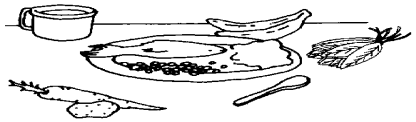
or family foods 5 times per day.



2 Years and Older

- Give family foods at 3 meals each day. Also, twice daily, give nutritious food between meals, such as:

- Sweet potatoes or fried potatoes.
- Bread with eggs or cheese or halawa tehinia or molasse with tehina and tomatoes or carrots.
- Fresh fruits of the season.
- Biscuits, cakes, or dates.



- A good daily diet should be adequate in quantity and include an energy-rich food (for example, thick cereal with added oil); meat, fish, eggs, or pulses; and fruits and vegetables.
- Meals of the same nutritive value will vary in components according to foods available in the community and according to purchasing capacity of the family as well as in different seasons. Feeding Recommendations during Sickness and Health

Feeding Recommendations for a Child Who Has PERSISTENT DIARRHEA

- If still breastfeeding, give more frequent breast-feeds, day and night.
- If taking other milk:
  - replace with increased breastfeeding OR
  - replace with fermented milk products, such as yoghurt OR
  - replace half the milk with nutrient-rich semisolid food as rice, beans and vegetable soup.
  - Give milk not more than 50 ml/kg.
  - Give frequent small meals at least 6 times a day. For other foods; follow feeding recommendations for the child's age.

Counsel the Mother about Feeding Problems

If the child is not being fed as described in the above recommendations, counsel the mother accordingly. In addition:

- If the mother reports difficulty with breastfeeding, assess breastfeeding. (See YOUNG INFANT chart.)
- As needed, show the mother correct positioning and attachment for breastfeeding.
- If the child is less than 4 months old and is taking other milk or foods: or
- If the mother thinks she does not have enough milk
  - Assess breastfeeding:
  - Build mother's confidence that she can produce all the breast milk that the child needs (proper weight gain).
  - Suggest giving more frequent, longer breast-feeds day and night, and gradually reducing other milk or foods.

If other milk needs to be continued, counsel the mother to:

- Breastfeed as much as possible, including at night.
- Make sure that other milk is a locally appropriate breast milk substitute.
- Make sure other milk is correctly and hygienically prepared and given in adequate amounts.
- Finish prepared milk within an hour.

- **If the mother is using a bottle to feed the child:**

- Recommend substituting a cup for bottle.
- Show the mother how to feed the child with a cup.

- **If the child is not being fed actively, counsel the mother to:**

- Sit with the child and encourage eating.
- Give the child an adequate serving in a separate plate or bowl.

- **If the child is not feeding well during illness, counsel the mother to:**

- Breastfeed more frequently and for longer if possible.
- Use soft, varied, appetizing, favorite foods to encourage the child to eat as much as possible, and offer frequent small feedings.
- Clear a blocked nose if it interferes with feeding.
- Expect that appetite will improve as child gets better.
- Express breast milk if necessary.

- **Follow-up any feeding problem in 5 days.**
- **Advise the mother to expose her child to sunlight for prevention of rickets.**

FLUID

Advise the Mother to Increase Fluid during Illness

FOR ANY SICK CHILD:

- Breast-feed more frequently and for longer at each feed.
- Increase fluid. For example, give soup, rice water, yoghurt drinks, belila water, home fluids or clean water.

FOR CHILD WITH DIARRHEA:

- Giving extra fluid can be lifesaving. Give fluid according to Plan A or Plan B on *TREAT THE CHILD chart.*

WHEN TO RETURN

Advise the Mother When to Return to Health Worker

FOLLOW-UP VISIT
Advise the mother to come for follow-up at the earliest time listed for the child's problems.

If the child has:	Return for follow-up in:
PNEUMONIA NO PNEUMONIA- WHEEZE DYSENTERY FEVER, if fever persists MEASLES WITH EYE OR MOUTH COMPLICATIONS MEASLES, if not improving	2 days
PERSISTENT DIARRHEA ACUTE EAR INFECTION FEEDING PROBLEM ANY OTHER ILLNESS, if not improving	5 days
PALLOR	14 days
LOW WEIGHT FOR AGE	30 days

NEXT WELL-CHILD VISIT

Advise mother when to return for next immunization according to immunization schedule.
Advise the mother to give the child (from 6 to 30 months) the weekly dose of iron after recovery.

WHEN TO RETURN IMMEDIATELY

Advise mother to return immediately if the child has any of these signs:	
Any sick child	▶ Not able to drink or breast-feed ▶ Becomes sicker ▶ Develops a fever
If child has NO PNEUMONIA: COUGH OR COLD, also return if:	▶ Fast breathing ▶ Difficult breathing
If child has Diarrhea, also return if:	▶ Blood in stool ▶ Drinking poorly

Counsel the Mother about Her Own Health

- **If the mother is sick, provide care for her, or refer her for help.**
- **If she has a breast problem (such as engorgement, sore nipples, breast infection), provide care for her or refer her for help.**
- **Advise her to eat well to keep up her own strength and health.**
- **Check the mother's immunization status and give her tetanus toxoid if needed.**
- **Check the mother's supplementation with iron and vitamin A according to the national policy.**
- **Make sure she has access to:**
  - **Family planning**
  - **Counseling on reproductive health problems.**
- **Advise mother to use iodized salt for the family foods instead of the ordinary salt.**

FLUID
WHEN TO RETURN
MOTHER'S HEALTH

ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT AGE UP TO 2 MONTHS

ASSESS

ASK THE MOTHER WHAT THE YOUNG INFANT'S PROBLEMS ARE

CLASSIFY

- Determine if this is an initial or follow-up visit for this problem.
  - if follow-up visit, use the follow-up nstructions on the bottom of this chart.
  - if initial visit, assess the young infant as follows:

IDENTIFY TREATMENT

CHECK FOR POSSIBLE BACTERIAL INFECTION

ASK:

- Has the infant had convulsions?
- Is the young infant not able to feed?

LOOK, LISTEN, FEEL:

- See if the infant is convulsing now.
- Count the breaths in one minute. Repeat the count if elevated.
- Look for severe chest indrawing.
- Look for nasal flaring.
- Look and listen for grunting.
- Look and listen for wheeze.
- Look and feel for bulging fontanelle.
- Look for pus draining from the ear.
- Look at the eyes. Is it draining pus? Is draining pus associated with redness and swelling?
- Look at the umbilicus. Is it red or draining pus?
- Measure temperature (or feel for fever or low body temperature).
- Look for skin pustules. Are there many or severe pustules?
- See if the young infant is lethargic or unconscious.
- Look at the young infant's movements. Are they less than normal?

YOUNG INFANT MUS BE CALM

Classify ALL YOUNG INFANTS

SIGNS		TREATMENT (Urgent pre-referral treatments are in bold print)
▶ Convulsions OR ▶ Not able to feed OR ▶ Fast breathing (60 breaths per minute or more) OR ▶ Severe chest indrawing OR ▶ Nasal flaring OR Grunting OR Wheeze OR ▶ Bulging fontanel OR ▶ Pus draining from ear OR Pus draining from the eyes with redness and swelling OR ▶ Umbilical redness extending to skin OR ▶ Fever (37.5°C* or above or feels hot) or low body temperature (less than 35.5°C* or feels cold) OR ▶ Many or severe skin pustules OR ▶ Lethargic or unconscious OR ▶ Less than normal movement.	**POSSIBLE SERIOUS BACTERIAL INFECTION**	▶ **Treat current convulsion with rectal sodium valproate.** ▶ **Give first dose of intramuscular antibiotics.** ▶ **Treat to prevent low blood sugar.** ▶ **Advise mother how to keep the infant warm on the way to the hospital.** ▶ **Refer URGENTLY to hospital.****
▶ Red umbilicus or draining pus OR ▶ Skin pustules OR ▶ Pus draining from the eyes.	LOCAL BACTERIAL INFECTION	▶ Give an appropriate oral antibiotic . ▶ Teach mother to treat local infections at home. ▶ Advise mother to give home care for the young infant. ▶ Follow-up in 2 days
▶ None of the above signs	**BACTERIAL INFECTION UNLIKELY**	▶ Advise mother to give home care for the young infant. ▶ Follow-up in 2 days.

CHECK FOR SIGNIFICANT JAUNDICE

ASK

- Has Jaundice started in the first 24hours of life?

LOOK

- Look for Jaundice: Is it deep jaundice seen in the sclera? Is it extending to palms or soles?

Classify JAUNDICE

▶ Jaundice started in the first 24 hours of life and still present OR ▶ Deep Jaundice seen in the sclera OR ▶ Jaundice extending to palms or soles OR ▶ Jaundice in an Infant aged 2 weeks or more	**SIGNIFI-CANT JAUNDICE**	▶ **Encourage breastfeeding to prevent low blood sugar** ▶ **Advise mother how to keep the infant warm on the way to the hospital** ▶ **Refer URGENTLY to hospital**

THEN ASK:
Does the young infant have diarrhea?

IF YES, ASK:

- For how long?
- Is there blood in the stool?

LOOK AND FEEL:

- Look at the young infant's general condition. Is the infant:
  Lethargic or unconscious?
  Restless and irritable?
- Look for sunken eyes.
- Pinch the skin of the abdomen.
  Does it go back:
  Very slowly (longer than 2 seconds)?
  Slowly?

Classify DIARRHEA

for DEHYDRATION	**Two of the following signs:** ▶ Lethargic or unconscious ▶ Sunken eyes ▶ Skin pinch goes back very slowly.	**SEVERE DEHYDRA-TION**	▶ If infant does not have POSSIBLE SERIOUS BACTERIAL INFECTION: ▶ Give fluid for severe dehydration (Plan C). OR ▶ **If infant also has POSSIBLE SERIOUS BACTERIAL INFECTION:** **Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise mother to continue breastfeeding.**
	Two of the following signs: ▶ Restless, irritable ▶ Sunken eyes ▶ Skin pinch goes back slowly.	**SOME DEHYDRA-TION**	▶ Give fluid and food for some dehydration (Plan B). ▶ **If infant also has POSSIBLE SERIOUS BACTERIAL INFECTION:** **Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** **Advise mother to continue breastfeeding.** ▶ Follow up in 2 days if not improving
	▶ Not enough signs to classify as some or severe dehydration.	**NO DEHYDRA-TION**	▶ Give fluids to treat diarrhea at home (Plan A). ▶ Follow up in 2 days if not improving
and if diarrhea 14 days or more	▶ Diarrhea lasting 14 days or more.	**SEVERE PERSISTENT DIARRHEA**	▶ If the young infant is dehydrated, treat dehydration before referral unless the infant has also POSSIBLE SERIOUS BACTERIAL INFECTION. ▶ Refer to hospital.
and if blood in stool	▶ Blood in the stool.	**BLOOD IN STOOL**	▶ **Treat to prevent low blood sugar.** ▶ **Advise mother how to keep the infant warm on the way to the hospital.** ▶ **Refer URGENTLY to hospital.**

* These thresholds are based on axillary temperature. The thresholds for rectal temperature readings are approximately 0.5°C higher.** If referral is not possible, see Integrated Management of Childhood Illness, Treat the Child, Annex: "Where Referral Is Not Possible."

BACTERIAL INFECTION
DIARRHEA

ASSESS AND CLASSIFY

THEN CHECK FOR FEEDING PROBLEM OR LOW WEIGHT:

ASK:

- Is there any difficulty feeding?
- Is the infant breastfed? If yes, how many times in 24 hours?
  Is the infant breast-feed during night?
- Does the infant usually receive any other foods or drinks? If yes, how often?
- What do you use to feed the infant?

LOOK, LISTEN, FEEL:

- Determine weight for age.
- In newborn: determine birth weight
- Look for ulcers or white patches in the mouth (thrush).

Classify FEEDING

▶ Not able to feed or ▶ No attachment at all or ▶ Not suckling at all.	**NOT ABLE TO FEED - POSSIBLE SERIOUS BACTERIAL INFECTION**	▶ **Give first dose of intramuscular antibiotics.** ▶ **Treat to prevent low blood sugar.** ▶ **Advise the mother how to keep the young infant warm on the way to the hospital.** ▶ **Refer URGENTLY to hospital.**
▶ Poor positioning or ▶ Not well attached to breast or ▶ Not suckling effectively or ▶ Less than 8 breast-feeds in 24 hours or ▶ Receives other foods or drinks or ▶ Low weight for age or low birth weight or ▶ Thrush (ulcers or white patches in mouth)	**FEEDING PROBLEM OR LOW WEIGHT**	▶ **Advise the mother to breastfeed as often and for as long as the infant wants, day and night.** ▶ If not well attached or not suckling effectively, teach correct positioning and attachment. - If low birth weight and problems with attachment and suckling persists after counseling: refer to hospital. ▶ If breastfeeding less than 8 times in 24 hours, advise to increase frequency of feeding. ▶ **If receiving other foods or drinks, counsel mother about breastfeeding more, reducing other foods or drinks, and using a cup.** ▶ If not breastfeeding at all: - Refer for breastfeeding counseling and possible relactation. - Advise about correctly preparing breast milk substitutes and using a cup. ▶ **If thrush, teach the mother to treat thrush at home.** ▶ **Advise mother to give home care for the young infant.** ▶ **Follow-up any feeding problem or thrush in 2 days.** ▶ **Follow-up low weight for age in 14 days.**
▶ Not low weight for age and no other signs of inadequate feeding.	**NO FEEDING PROBLEM**	▶ Advise mother to give home care for the young infant. ▶ Praise the mother for feeding the infant well.

IF AN INFANT: Has any difficulty feeding,
Is breastfeeding less than 8 times in 24 hours
Is taking any other foods or drinks, or
Is low weight for age, or low birth weight (less than 2500 grams)
Is in the first week of life
AND has no indications to refer urgently to hospital:
ASSESS BREASTFEEDING:

▶ Has the infant breastfed in the previous hour?

If the infant has not fed in the previous hour, ask the mother to put her infant to the breast. Observe the breast-feed for 4 minutes.
(If the infant was fed during the last hour, ask the mother if she can wait and tell you when the infant is willing to feed again.)

▶ Is the infant position correct?

poor positioning good positioning

TO CHECK POSITIONING , LOOK FOR:
- Infant's neck is straight or bent slightly back,
- Infant's body is turned towards the mother,
- Infant's body is close to mother's body, and
- Infant's whole body supported.

(If all of these signs are present, the infant's positioning is good)

▶ Is the infant able to attach?

no attachment at all not well attached good attachment

TO CHECK ATTACHMENT, LOOK FOR:
- Chin touching breast
- Mouth wide open
- Lower lip turned outward and,
- More areola visible above than below the mouth

(If all of these signs are present, the attachment is good.)

▶ Is the infant suckling effectively (that is, slow deep sucks, sometimes pausing)?

not suckling at all not suckling effectively suckling effectively

Clear a blocked nose if it interferes with breastfeeding.

THEN CHECK THE YOUNG INFANT'S IMMUNIZATION STATUS:

IMMUNIZATION SCHEDULE:	AGE	VACCINE
	Before 3 months	BCG

ASSESS OTHER PROBLEMS

FEEDING

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

Give an Appropriate Oral Antibiotic

For local bacterial infection:
First-line antibiotic: AMOXYCILLIN
Second-line antibiotic: COTRIMOXAZOLE

AGE or WEIGHT	AMOXYCILLIN Give three times daily for 5 days		COTRIMOXAZOLE (trimethoprim + sulphamethoxazole) ▶ Give two times daily for 5 days
	Syrup 125 mg in 5 ml	Syrup 250 mg in 5 ml	Syrup (40 mg trimethoprim +200 mg sulphamethoxazole) in 5ml
Birth up to 1 month (< 3kg)	1.25 ml		1.25 ml*
1 month up to 2 months (3-4 kg)	2.5 ml	1.25 ml	2.5 ml

* Avoid cotrimoxazole in infants less than 1 month of age who are premature or jaundiced.

Give First Dose of Intramuscular Antibiotics

▶ **Give first dose of both benzylpenicillin AND gentamicin intramuscular.**

WEIGHT	GENTAMICIN Dose: 2.5mg per kg		BENZYLPENICILLIN Dose: 50 000 units per kg
	Undiluted 2 ml vial containing 20mg = 2ml at 10mg/ml	OR Add 6 ml sterile water to 2 ml vial containing 80mg = 8ml at 10mg/ml	To a vial of 600mg (1 000 000 units) add 3.6ml sterile water = 4.0ml at 250 000 units/ml
1 kg	0.25ml		0.2ml
2kg	0.50ml		0.4ml
3kg	0.75ml		0.6ml
4kg	1.00ml		0.8ml
5kg	1.25ml		1.0ml

Referral is the best option for a young infant classified with POSSIBLE SERIOUS BACTERIAL INFECTION. If referral is not possible, give benzylpenicillin and gentamicin for at least 5 days. Give benzylpenicillin every 6 hours PLUS gentamicin every 8 hours. For infants in the frist week of life, give gentamicin every 12 hours.

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

To Treat Convulsing Young Infant, See TREAT THE CHILD Chart.

To Treat Diarrhea, See TREAT THE CHILD Chart.

Immunize Every Sick Young Infant, as needed.

Teach the Mother to Treat Local Infections at Home

- **Explain how the treatment is given.**
- **Watch her as she does the first treatment in the clinic.**
- **She should return to the clinic if the infection worsens.**

To Treat Skin Pustules or Umbilical Infection

Tell her to do the treatment twice daily.
The mother should:

- Wash hands
- Gently wash off pus and crusts with soap and water
- Dry the area
- Paint with gentian violet
- Wash hands

To Treat Thrush (ulcers or white patches in mouth)

Tell her to do the treatment twice daily.
The mother should:

- Wash hands
- Wash mouth with clean soft cloth wrapped around the finger and wet with salt water
- Paint the mouth with half-strength gentian violet
- Wash hands

To Treat Eye Infection:

Tell her to do the treatment 3 times daily.
The mother should

- Wash her hands
- Use clean cloth and water to gently remove pus from the eyes
- Then apply tetracycline eye ointment in both eyes on the inside of the lower lid.
- Wash her hands
- Treat until redness is gone.

ANTIBIOTICS
LOCAL INFECTIONS

TREAT AND COUNSEL

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

Teach Correct Positioning and Attachment for Breastfeeding

- Show the mother how to hold her infant
  - make sure that the mother is in comfortable position,
  - with the infant's head and body straight.
  - facing her breast with infant's nose opposite her nipple
  - with infant's body close to her body,
  - supporting infant's whole body, not just neck and shoulders.

- Show her how to help the infant to attach. She should:
  - touch her infant's lips with her nipple
  - wait until her infant's mouth is opening wide
  - move her infant quickly onto her breast, aiming the infant's lower lip well below the nipple.

- Look for signs of good attachment and effective suckling. If the attachment or suckling is not good, try again.

Teach the Mother To Express Breast Milk If Indicated

- Infant - mother separation e.g.
  - admitted infant to NICU or sick infant
  - sick or working mother
  - mother traveling away from home

- Breast engorgement

Advise Mother to Give Home Care for the Young Infant

- **FOOD**

  FLUIDS

  Breast-feed frequently, as often and for as long as the infant wants, day or night, during sickness and health.

- **WHEN TO RETURN**

Follow-up Visit

If the infant has:	Return for follow-up in:
LOCAL BACTERIAL INFECTION BACTERIAL INFECTION UNLIKELY ANY FEEDING PROBLEM THRUSH	2 days
LOW WEIGHT FOR AGE	14 days

When to Return Immediately:

Advise the mother to return immediately if the young infant has any of these signs:

- Breastfeeding or drinking poorly
- Becomes sicker
- Develops a fever
- Fast breathing
- Difficult breathing
- Blood in stool

MAKE SURE THE YOUNG INFANT STAYS WARM AT ALL TIMES.

- In cool weather, cover the infant's head and feet and dress the infant with extra clothing.

- Advise Mother to Give Home Care for the Young Infant

GIVE FOLLOW-UP CARE FOR THE SICK YOUNG INFANT

LOCAL BACTERIAL INFECTION

After 2 days:
Look at the umbilicus. Is it red or draining pus? Does redness extend to the skin?
Look at the skin pustules. Are there many or severe pustules?
Treatment :
- If pus or redness remains or is worse, refer to hospital.
- If pus and redness are improved, tell the mother to continue giving the 5 days of antibiotic and continue treating the local infection at home.

Look for pus draining from the eye(s). Is it associated with redness and swelling ?
Treatment :
- If pus with redness and swelling , refer to hospital.
- If pus is still draining from the eye(s), treat with local treatment for 5 days and follow up in 3 days, if pus is still draining refer to hospital.
- If improving, tell her to continue local treatment until there is no pus or redness at all.

BACTERIAL INFECTION UNLIKELY

After 2 days:
Reassess the young infant for bacterial infection > see "Check for Possible Bacterial Infection" above.

Treatment:
- If signs of possible serious bacterial infection, refer to hospital.
- If signs of local bacterial infection, treat accordingly.
- If still not improving, continue to give home care.
- If improving, praise the mother for caring the infant well.

BREASTFEEDING
HOME CARE

LOCAL INFECTIONS
BACTERIAL INFECTION
UNLIKELY

FOLLOW-UP

GIVE FOLLOW-UP CARE FOR THE SICK YOUNG INFANT

FEEDING PROBLEM

After 2 days:
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above.
Ask about any feeding problems found on the initial visit.

- Counsel the mother about any new or continuing feeding problems. If you counsel the mother to make significant changes in feeding, ask her to bring the young infant back again.
- If the young infant is low weight for age, ask the mother to return 14 days after the initial visit to measure the young infant's
- weight gain.

Exception:

- If you do not think that feeding will improve, or if the young infant has **lost weight**, refer the child.

LOW WEIGHT

After 14 days:
Weigh the young infant and determine if the infant is still low weight for age.
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above.

- If the infant is **no longer low weight for age**, praise the mother and encourage her to continue.
- If the infant is s**till low weight for age, but is feeding well,** praise the mother. Ask her to have her infant weighed again within a month or when she returns for immunization.
- If the infant is **still low weight for age and still has a feeding problem**, counsel the mother about the feeding problem. Ask the mother to return again in 14 days (or when she returns for immunization, if this is within 2 weeks). Continue to see the young infant every few weeks until the infant is feeding well and gaining weight regularly or is no longer low weight for age.

Exception:
If you do not think that feeding will improve, or if the young infant has **lost weight**, refer to hospital.

THRUSH

After 2 days:
Look for ulcers or white patches in the mouth (thrush).
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above.

- If **thrush is worse**, or the infant has **problems with attachment or suckling**, refer to hospital.
- If **thrush is the same or better**, and if the infant is **feeding well**, continue half-strength gentian violet for a total of 5 days.

MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

Name: _____ Age: _____ Weight:_____ kg_____ Temperature:____ °C Initial Visit? Follow-up Visit?

ASK: What are the infant's problems?

ASSESS (Circle all sign present)	CLASSIFY	TREAT
CHECK FOR POSSIBLE SIGNS OF INFECTION ▶ Has the infant had convulsions? ▶ Is the young infant not able to feed? ▶ Is the young infant convulsing now? ▶ Count the breaths in one minue_____ breaths per minute Repeat if elevated._____ Fast breathing? ▶ Look for severe chest indrawing. ▶ Look for nasal flaring ▶ Look and listen for grunting. ▶ Look and listen for wheeze. ▶ Look and feel for bulging fontanelle ▶ Look for pus draining from the ear. ▶ Look at the eyes. Is it draining pus? Is pus draiing associated with redness and swelling? ▶ Look at umbilicus. Is it red or draining pus? Does redness extend to the skin? ▶ Fever (temperature37.5°C or feels hot) or low body temperature (temperature 35.5°C or feels cool). ▶ Look for skin pustules. Are there many or severe pustules? ▶ See if young infant is lethargic or unconscious. ▶ Look at young infant's movements. Less than normal?		
DOES THE INFANT HAVE SIGNIFICANT JAUNDICE? Yes No ▶ Has jaundice started in the frirst 24 hours? ▶ Look for jaundice. Is it deep jaundice seen in the sclera? Is it extending to the palms or soles?		
DOES THE YOUNG INFANT HAVE DIARRHOEA? Yes ____ No ____ ▶ For how long? days ▶ Is there blood in the stools? ▶ Look at the young infant's general condition. Is the infant: Lethargic or unconscious? Restless or irritable? ▶ Look for sunken eyes. ▶ Pinch the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds)? Slowly?		

ASSESS (circle all signs)	CLASSIFY	TREAT
THEN CHECK FOR FEEDING PROBLEM OR LOW WEIGHT ▶ Is there any difficulty feeding? Yes___ No___ ▶ Is the infant breastfed: Yes___ No___ If yes, how many times in 24 hours?____Times If yes, is the infant breastfed at night? ▶ Does the infant usually receive any other foods or drinks? Yes___ No___ If yes, how often? ▶ What do you use to feed the child? ▶ Determine weight for age. Low____Not low___ ▶ Look for ulcers or white patches in the mouth (thrush).		
If the infant has any difficulty feeding, is feeding less than 8 times in 24 hours, is taking any othe food or drinks, or is low weight for age or low birth weight (less than 2500gm) or is in the first week of life AND has NO indications to refer urgently to hospital: ASSESS BREASTFEEDING. **ASSESS BREASTFEEDING** If infant has not fed in the previous hour, ask the mother to put her infant to her breast. Observe the breastfeed for 4 minutes. ▶ Is the infant position correct? To check positioning look for: Infant's neck straight or bent slightly back Yes No Infant's body turned towards mother? Yes No Infant's body close to mother? Yes No Infant's whole body supported? Yes No Poor positioning good positioning ▶ Is the child able to attach? To check attachment, look for: Chin touching breast Yes No Mouth wide open Yes No Lower lip turned outward Yes No More areola above than below the mouth? Yes No No attachment at all not well attached good attachment ▶ Is the infant suckling effectively (that is slow deep sucks, sometimes pausing)? Not suckling at all not suckling effectively suckling effectively		
CHECK THE YOUNG INFANT'S IMMUNIZATION STATUS **Circle immunizations needed today.** Return for follow-up in: _____ Give any immunizations needed today: _____ Return for next immunization on: _____		

MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

Name: _____ Age: _____ Weight: _____ kg _____ Temperature: ____ °C _____ Initial Visit? _____ Follow-up Visit? _____

ASK: What are the infant's problems? _____

ASSESS (Circle all sign present)	CLASSIFY	TREAT
DOES THE CHILD HAVE ANY GENERAL DANGER SIGNS? **Yes No** NOT ABLE TO DRINK OR BREASTFEED VOMITS EVERYTHING HISTORY OF CONVULSIONS LETHARGIC OR UNCONSCIOUS CONVULSING NOW		
DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? **Yes No** ▶ For how long?_____ days ▶ Count the breaths in one minute. _____ breaths per minute. Fast breathing? ▶ Look for chest indrawing. ▶ Look and listen for stridor. ▶ Look and listen for wheeze.		
DOES THE CHILD HAVE DIARRHOEA? **Yes No** ▶ For how long?___ days ▶ Is there blood in the stools? ▶ Look at the child's general condition. Is the child: Lethargic or unconscious? Restless and irritable? ▶ Look for sunken eyes. ▶ Offer the child fluid. Is the child: Not able to drink or drinking poorly? Drinking eagerly, thirsty? ▶ Pinch the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds)? Slowly?		
CHECK FOR THROAT PROBLEM ▶ Does the child have fever? (by history or feels hot/temperature 37.5°C or above) ▶ Does the child have sore throat? ▶ Feel enlarged tender lymph node on the front of the neck. ▶ Look for red (congested) throat. ▶ Look for white or yellow exudates on the throat and tonsils.		
DOES THE CHILD HAVE AN EAR PROBLEM? **Yes No** ▶ Is there agonizing ear pain? ▶ Is there ear discharge? If Yes, for how long?____ days		

▶ Look for pus draining from the ear ▶ Feel for tender swelling behind the ear.		
DOES THE CHILD HAVE FEVER? Yes No (by history or feels hot/temperature 37.5°C or above) ▶ For how long? ____ days ▶ If more than 5 days, has fever been present every day? ▶ Has child had measles within the last three months? ▶ Look or feel for stiff neck Look for signs of MEASLES: ▶ Generalized rash AND ▶ One of these: cough, runny nose, red eyes		
If the child ha measles now or wihin the last 3 months: ▶ Look for mouth ulcers If yes, are they deep and extensive? ▶ Look for pus draining from the eye. ▶ Look for clouding of the cornea		
CHECK FOR MALNUTRITION AND ANEMIA ▶ Look for palmar and mucous membrane pallor. Severe palmar and/or mucous membrane pallor? Some palmar and/or mucous membrane pallor? ▶ Look for visible severe wasting. ▶ Look for oedema of both feet. ▶ Determine weight for age. Low ___ Not low ___		
CHECK THE CHILD'S IMMUNIZATION STATUS AND VITIMIN A SUPPLEMENTATION STATUS **(Circle immunization and vitamin A needed today)** BCG _____ OPV1 ____ DPT1 ____ HBV1 ____ OPV2 ____ DPT2 ____ HBV2 ____ OPV3 ____ DPT3 ____ HBV3 ____ OPV4 ____ Measles ____ Vitamin A (1st dose) ____ OPV Booster ____ DPT Booster ____ MMR ____ Vitamin A (2nd dose)		
ASSESS CHILD'S FEEDING if child has ANEMIA OR LOW WEIGHT or is less than 2 years old. ▶ Do you breastfeed your child? Yes ____ No ____ If Yes, how many times in 24 hours? _____ times Do you breastfeed during the night? Yes ____ No ____ ▶ Does the child take any other food or fluids? Yes ____ No ____ If Yes, what food or fluids? _____ _____ How many times per day? _____ times What do you use to feed the child: _____ ▶ If low weight for age: how large are servings? _____ ▶ Does the chld receive his own serving? _____ ▶ Who feeds the child and how? _____		

▶ During the illness, has the child's feeding changed? Yes __ No __ If Yes, how? _____		
ASSESS OTHER PROBLEMS:		
Return for follow-up in: _____ **Advise mother when to return immediately __** **Give any immunizations or vitamin A supplementation needed today: _____** **Feeding advice: _____**		

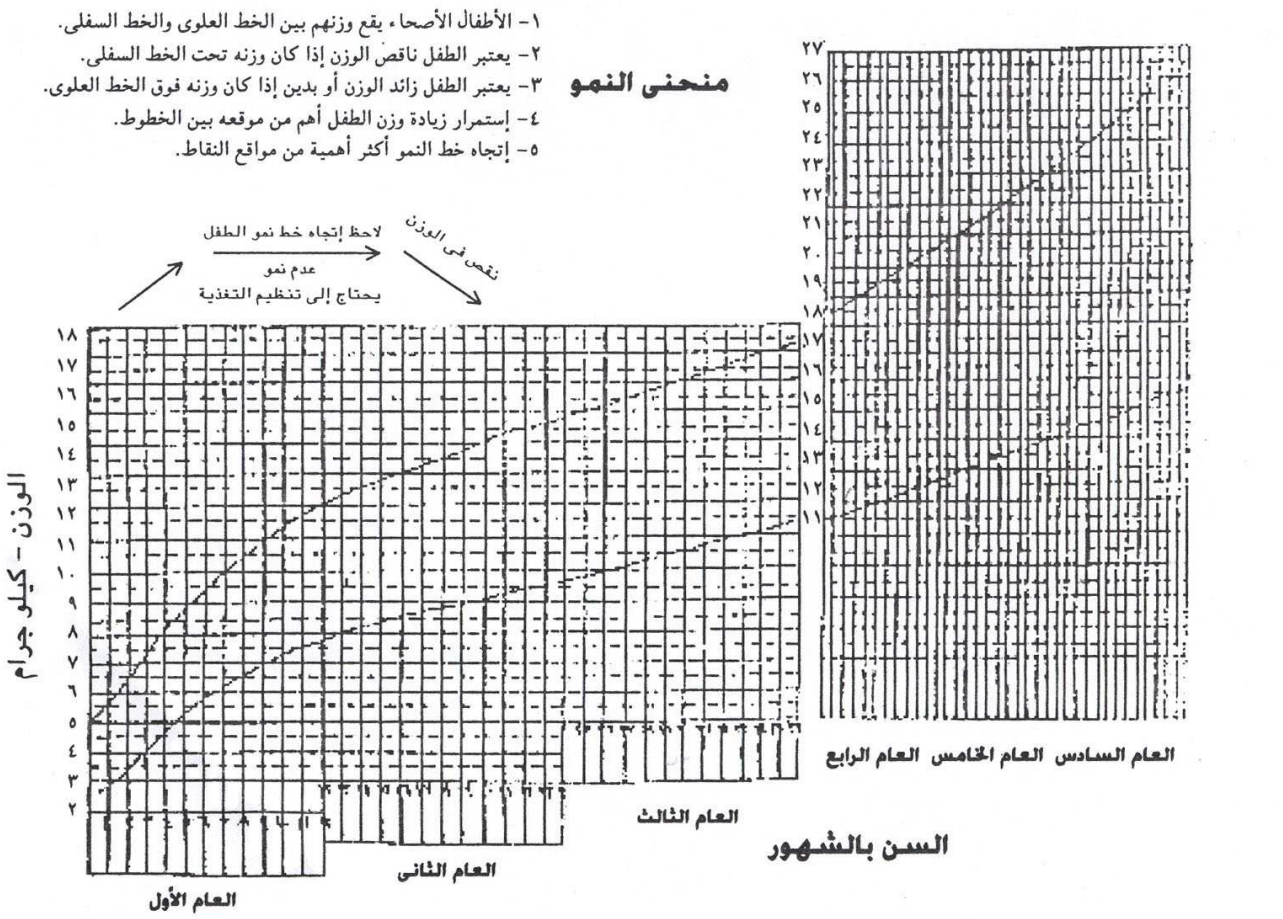


Figure 14.1 Weight for Age Growth Chart

15

Female Genital Cutting

Female Genital Cutting

Role of the Service Provider: Education

The following groups, in particular, are in need of information, education and counseling about female genital cutting (FGC):

- Women who have female children less than five or six years old
- Residents of lower socioeconomic, rural communities or of semi urban and urban slum areas
- Illiterate women
- Female teachers
- Grandmothers who have granddaughters
- Recently married couples

Encourage clients/clients to participate in the communication processes (two-way communication).

Explain to clients the following issues:

- God creates the external genitalia (clitoris, labiae minorae and labiae majorae) to perform certain, mainly sensory, functions that play an important role in marital life. Excision of these organs results in sexual and psychological problems that cannot be prevented even if the procedure is done by a skilled provider.
- In addition, there are other complications such as:
  - Unsatisfied sexual intercourse
  - Pelvic congestion which might lead to :
  - Menorrhagia
  - Lucorrhea
  - Infertility
  - Chronic pelvic pain

Communicate the following information to the clients:

- There is no reference to female circumcision in the Islamic or Christian doctrines.
- Female circumcision is not practiced in the majority of other Islamic countries.
- Ministerial decrees prohibit performing female circumcision.
- FGC doesn't help achieve local cleanliness, nor does it ensure chastity after puberty, as that depends primarily on good upbringing.
- Practicing female genital cutting does not affect the sexual desire, but it affects the sexual satisfaction.
- Female circumcision does not eliminate sexual desire; it only causes difficulty in reaching orgasm, a condition that cannot be corrected after marriage.

Explain clearly the fallacy that the performance of the operation by physicians obviates these drawbacks and hazards.

- Female genital cutting is not a part of medical students' curriculum or house officers' training and thus they have no experience in a procedure which they were not trained to do.
- Hospitals report many complicated cases after circumcision done by physicians.

Note: Physicians and nurses must create a dialogue on female circumcision with clients. This can start after clinical examination and observation of the external genital organs that have undergone circumcision.

Complications

Explain the health professional's personal experience with complications of female circumcision.

Note: The complications are usually dealt with under stress, in a hurry and under inappropriate circumstances, threatening the life of the young girls.

Stress the complications of female circumcision which include, but are not limited to:

- Remote complications:
  - The most significant are those affecting the marital and sexual lives of women, such as
  - Unsatisfied sexual intercourse
  - Pelvic congestion which might lead to:
    - Menorrhagia
    - Lucorrhea
    - Infertility
  - Chronic pelvic pain
  - Difficulty reaching orgasm, causing:
    - Frigidity
    - Refusal of sex
  - Disfiguring scars, keloids
  - Bleeding.
  - Dyspareunia

Note: The previously mentioned remote complications have adverse effects on the marital life of the couple as a result of lack of sexual satisfaction. This status may lead to divorce, polygamy, the use of narcotics and drug addiction and other sorts of violence against women. These complications cannot be eliminated even if the procedure is performed by a physician and under the best circumstances.

16

School Age Health Care

School Age Health Care

Iron Supplementation in School Age Children

- The sources of iron are mainly liver, red meat, egg yolk, green vegetables, whole grains and nuts. The recommended daily allowance of iron for school-age children is 10 mg.
- Distribution of iron tablets on a weekly basis to students is recommended.
- Teachers should take the responsibility of distributing the iron tablets with the cooperation and supervision of the relevant MOHP and HIO and staff.
- Providing students with health education sessions on anemia is important.

School Age Nutrition Education

Basic Daily Diet

- Daily selection from each group provides a balanced diet with sufficient macro- and micro-nutrients.
- Explain to the parents of the child the content of a basic diet, and:
  - Emphasize its importance to proper growth.
  - Emphasize its importance to good health.

Eating Habits

- Most children adapt themselves to a schedule of three meals a day by about the end of the first year of life.
- Meal times should be pleasant.
- Conversation on an interesting topic during meals is encouraged.
- Food should be properly prepared and attractive.
- Seating should be comfortable.
- The child's appetite should be respected.
- The child's likes and dislikes should be respected.
- Eating habits are taught by parental behavior.
- Healthy snacks (such as fruit) should be provided between meals.

Immunization at School Age

- Accurate recordkeeping by the physician is required.
- Accurate, up-to-date immunization records for the parents are also required.

Recommended Immunization Schedule

For children under seven years not immunized in the first year of life

Table 16.1 Recommended immunization schedule

Recmmended Time/Age	Immunization
First visit	HBV-MMR-OPV-DTP
Interval after first visit	
1 month	DTP-HBV-OPV
2 months	DTP-OPV
8 months	DTP-HBV-OPV
At 6 years	DTP-OPV-MMR

Diphtheria/tetanus vaccines and tetanus immunoprophylaxis

DTP

Diphtheria and tetanus toxoids combined with pertussis vaccine are the preferred formulation for children under 7 years.

Contraindications

- General contraindication: Anaphylactic reaction to vaccine or vaccine constituent.
- Contraindication to pertussis vaccine: Encephalopathy not attributable to another cause within seven days of a prior dose of pertussis vaccine. Use DT for remaining doses in series.

Precautions

- General precaution: Moderate or severe acute illness regardless of fever.
- The following adverse events after a prior dose of pertussis vaccine are considered precautions to subsequent doses:
  - Convulsion, with or without fever, within three days.
  - Persistent, inconsolable crying for more than three hours within 48 hours.
  - Collapse or shock-like state (hypotonic-hyporesponsive episode) within 48 hours.
  - Temperature higher than 40.5°C not explained by another cause within 48 hours.

Side effects

- Minor side effects within three days:
  - Erythema (26% to 39%)
  - Swelling (15% to 30%)
  - Pain (4% to 11%)
  - Fever higher than 38.30 C (3% to 5%)
  - Anorexia (19% to 25%)
  - Vomiting (7% to 13%)
  - Drowsiness (40% to 47%)
  - Fussiness (14% to 19%)
- Moderate to severe side effects:

- Anaphylaxis (1/50,000)
- Seizures
- Persistent crying for over three hours
- Hypotonic-hyporesponsive episod
- Temperature higher than 40.50°C (rare)

Haemophilus Influenzae Type B Immunoprophylaxis

- Children not immunized against HIB before seven months of age: Give all doses two months apart (one month is acceptable to accelerate immunization).
- Starting immunization at:
  - 7-11 months: give three doses
  - 12-14 months: give two doses
  - 15-59 months: give one dose
  - Immunization is not necessary for immunocompetent children over 60 months.
- Un-immunized children over15 months with underlying conditions predisposing them to invasive HIB disease (e.g., lgG_2 deficiency, HIV) require two doses of vaccine.
- Children undergoing a splenectomy may benefit from an additional dose seven to 10 days before procedure, even if series was previously completed.
- Children with invasive HIB disease who are under 24 months: Begin HIB immunization one month after acute illness and continue as if previously un-immunized.

Contraindication

- Anaphylactic reaction to vaccine or vaccine constituent

Precaution

- Moderate or severe acute illness regardless of fever

Side effects

- Local pain, redness and swelling in 25% of recipients

Hepatitis A Virus Immunoprophylaxis

Hepatitis A vaccine (HAV) is an inactivated adsorbed vaccine; two brands are available, both with pediatric and adult formulations. It is licensed only for children of two years.

Indications

- Children living in regions of elevated hepatitis A rates (consult local public health authority; see Figure 15-1 for schedule)
- Clients with clotting factor disorders
- Clients with chronic liver disease, including HBV or hepatitis C (HCV)
- Persons at risk of occupational exposure

- Immunocompromised individuals may be immunized, although efficacy is not established in immunocompromised children
- Consider use in staff of institutions with ongoing or recurrent outbreaks

Contraindication

- Anaphylactic reaction to vaccine or vaccine constituent

Precaution

- Moderate or severe acute illness regardless of fever

Side effects

- Local reactions include:
  - Induration and redness
  - Swelling (18%)
  - Headache (12%)
  - Fever (6%)
  - Fatigue
  - Malaise
  - Anorexia
  - Nausea (1% to 10%)
- No serious adverse events have been reported.

Table 16.2 Recommended dosages and schedules

Age (yr)	Vaccine	Antigen	Volume (ml)	No. of doses	Schedule
2-18	Havrix Vaqta	750 ELU 25 U	0.5 0.5	2 2	Initial and 6-12 months later Initial and 6-18 months later
> 19	Haverix Vaqta	1440 ELU 50 U	1.0 1.0	2 2	Initial and 6-12 months later Initial and 6-12 months later

17

Adolescent Health

Adolescent Health

The adolescent needs to be informed about the changes his/her body is going through and the importance of hygiene, exercise and good nutrition in keeping healthy.

The provider should bear in mind the psychological changes of adolescence and be appropriately sensitive when counseling.

Client Flow and Recordkeeping

Client flow and recordkeeping for adolescent health are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Nutritional Education and Counseling

The aim of nutritional education and counseling is to increase the individual's awareness, knowledge, skills and motivation for healthy dietary choices. The educational process is especially dependent on the practitioner's knowledge of adolescent growth and development and understanding of dietary patterns, malnutrition risk and chronic disease status.

Approach to Nutritional Counseling

The strategies for nutritional counseling for adolescents are based on the following principles:

- Using simple, culturally sensitive terms
- Discussing food choice, amounts and preparation methods
- Building on positive aspects of the current diet
- Explaining that all foods can be eaten in moderation
- Addressing barriers to change
- Providing positive support and encouragement
- Being aware of cultural, socioeconomic and psychological factors influencing diet and exercise patterns

Nutritional Counseling

Nutritional education and counseling should contain the following key messages:

- Eat a variety of foods.
- Try to eat food that is not fatty.
- Eat plenty of fruit, vegetables and grains.
- Use salt that is iodized.
- Try to avoid sweets.

Smoking and Addiction

The Scope of the Problem

Children that start tobacco use at an early age are most likely to continue smoking in adult life. The message "tobacco kills" accurately highlights the seriousness of this. Heroin, cocaine and codeine (such as in cough syrup) are highly addictive and threaten the health, especially of young people

Nicotine as a Psychoactive Drug

Addiction to nicotine is a common consequence of tobacco use. Ninety percent of those who will become regular smokers start smoking before age 19, and dependence is common after smoking as few as 100 cigarettes.

Nicotine dependence, like that for heroin and cocaine, is a primary, chronic disease with genetic, psychosocial and environmental factors influencing its development and manifestations.

Dangers of Use

Consequences of smoking include increased incidence of upper respiratory infection, cough, asthma, sinusitis, cardiovascular disease, cancer, impaired fertility, premature aging and death, as well as loss of time from work and school. Smoking in children and youth has been shown to interfere almost immediately with both the growth and functioning of the lungs. These dangers also apply to smoking shisha. Consequences of addiction to psychotropic substances include many diseases in addition to negative effects on the social and psychological functioning of the individual and the family.

Risk Factors for Initiation of Tobacco and Drug Use

Initiation of tobacco and drug use is more closely associated with environmental factors, while progression from the first cigarette to additional cigarettes, and from the first shot to additional shots, appears more influenced by personal and pharmacologic factors. The socio-demographic factors of low socioeconomic status, low level of parent education and being in the transition years between elementary and high school (ages 11-16 years) correlates closely with initiation. Protective factors in the individual, family and environment that can guard against risky behaviors such as tobacco and drug use include close communication with parents, positive parental support, high self-esteem, assertiveness, social competences, school success and a strong sense of right and wrong—factors that can be encouraged in the context of a clinic visit.

Approach to Smoking Counseling

- Anticipate: provide age-appropriate education to parents and children. Compliment children and youth who are nonsmokers.
- Ask: inquire about tobacco use by parents, children and youth, and record it prominently in the client's chart or in the problem list.
- Advise: use clear, personal and relevant messages to advise parent and youth who use tobacco to quit.

- Assess: evaluate if the tobacco user is ready to quit. Use motivational interviewing techniques and repetition to encourage those not yet ready to quit to consider quitting.
- Assist: target self-help and referral information to those who are ready to quit.

Smoking Counseling

Smoking education and counseling should contain the following key messages:

- Smoking is addictive.
- Smoking is expensive.
- Smoking can cause infections, asthma, heart disease and cancer.
- Shisha is smoking.

In addition, no smoking signs should be clearly displayed in the clinic. Staff should not smoke.

Micro-nutrient Supplementation

Iron Deficiency

Iron requirements increase during adolescence, because the rapid growth of lean body mass increases demand for iron as part of myoglobin. The increased androgens of puberty in males stimulate erythropoietin, resulting in increased haemoglobin, increasing sexual maturity.

Clinical picture of iron deficiency

Symptoms of iron deficiency may be subtle and non-specific. They include increased tiredness or lethargy, headache, dizziness, palpitations, shortness of breath, decreased exercise performance, susceptibility to infection and school or behavioral problems. Screening is therefore recommended once for the adolescent without risk factors.

Iron Deficiency Counseling

Micro-nutrient education and counseling should contain the following key messages:

- Adolescents sometimes have low blood levels, called anemia, because the food they eat does not have enough iron in it.
- You can prevent low blood count by eating leafy green vegetables, meat and citrus fruits.
- If you feel tired all the time and out of breath, you may have low blood count. Please come to the clinic—there is an easy treatment.

Screening for Iron Deficiency Anemia

Screening adolescents once for anemia is advised.

Treatment of Iron Deficiency Anemia

- Ferrous sulfate 100 mg/d orally.
- Counsel patient not to take the capsules with milk, coffee or tea.
- If there is no effect within one month, consider other causes.

Reproductive Health

The information in the preparatory and secondary school curricula must be used.

Information on anatomy and physiology must be provided in a manner appropriate for the age of the adolescent.

Requirements

To be properly suited for youth friendly services, the clinic needs to have:

- Providers trained in providing youth friendly services
- Special opening hours for adolescents to make it easier for them to come. Opening hours should be clearly advertised.
- Clearly advertised no smoking signs
- IEC material on:
  - Smoking
  - Addiction
  - Healthy Nutrition
  - Use of iodized salt
  - Family Planning services
  - Maternal and Child Health services
- Active links with youth centers in the community and/or with youth programs such as New Visions, New Horizons, etc. For example, the staff of the clinic offer lectures in these programs or the program meetings are held in the clinic.
- Premarital services should be offered (see Chapter 4 Premarital Package).

18

Management of Infertility

Management of Infertility

Definition of Infertility

There are two types of infertility:

- Primary infertility: inability to get pregnant after one year of continuous marital relations, in the absence of contraceptive use.
- Secondary infertility: inability to get pregnant for one year after last delivery or abortion, in the absence of contraceptive use.

Client Flow and Recordkeeping

Client flow and recordkeeping for infertility services are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Principles of Management of the Infertile Couple

- Both husband and wife should participate in the infertility work-up.
- Privacy is crucial in communicating with the infertile couple.
- Infertility management needs special, secured and detailed filing system in which details of the history, results of examinations and investigations as well as treatment modalities are carefully recorded in details.
- History taking, clinical examination, treatment of relevant gross pelvic lesions and counseling can be started anytime the couple are present for treatment. Investigations should not, however, be started until after at least one year of continuous marital relations.
- Investigations of the wife should never be started until after the result of husband's semen analysis is available.
- Treatment should not be started until all basic investigations are performed and an accurate diagnosis is reached. These include:
  - Semen analysis
  - Tubal patency test
  - Ovulation detection test
  - Laparoscopy is considered as a basic investigation by some protocols to exclude local pathology.
    - There is debate as regards the value of the post-coital test
- Remember that about 30% of couples get pregnant after simple history taking, examination, investigations and counseling without starting any treatment.
- Remember that unnecessary treatment of husbands or wives draws on available resources and can harm or affect future fertility.

- The provider can contribute to lowering the incidence of infertility and prevent some cases of infertility in their community by:
  - Providing education on the prevention, symptoms and importance of early treatment of reproductive tract infections (RTIs) and sexually transmitted infections(STIs).
  - Integrating diagnosis and treatment of RTIs and STIs in the reproductive health package.
  - Providing better obstetric and postabortion care especially as regards infection prevention measures.
  - Providing contraceptive knowledge and services to prevent unwanted pregnancies that may end in induction of abortion.
  - Educating clients about the possible harmful effects of folk methods to treat infertility and undergoing unnecessary procedures or operations that can interfere with future fertility.
  - Not overestimating the role of some local pelvic conditions such as retroversion flexion, small fibroids, non-infected cervical ectopy, etc.; in most cases, these are not the cause of infertility.
  - Educating mothers about the hazards of FGC.

Approach to the Infertile Couple

Explain the following to the infertile couple:

- Infertility can result from one or more causes in the male and/or the female and it is important that both husband and wife should present themselves for examination and investigation.
  - Incidence of infertility is approximately 15% globally.
  - Female and male causes are nearly equally responsible for infertility (30-40% for each).
  - In 20% of cases, there is a combination of male and female causes.
  - In 10% of cases, no cause can be detected for the infertility problem after examination and investigation of both partners (unexplained infertility).
  - It is essential to evaluate both partners during the management of an infertility problem.
- In many cases, a cause cannot be found by clinical examination; under such conditions, it is not advisable to prescribe a treatment until after performing investigations to ascertain the cause of infertility.
- Explain that investigations have a therapeutic value and that some couples get pregnant before treatment.
- Investigation of the husband's semen analysis should be done before any investigations are done on the wife.
- Treatment should not be started until all basic investigations are done and results received (semen analysis, a tubal patency test and an ovulation detection test).

- Diagnostic evaluation takes place in three steps:
  1. History taking and examination
  2. Semen analysis, hormonal analysis and tests for ovulation
  3. Invasive techniques such as hysterosalpingography

Step 1 can be taken at primary health care clinics. Steps 2 and 3 should be done by a specialist.

History Taking from the Wife

- Personal history
  - Age
  - Period of marriage
  - Number of marriages
- Habits
  - Smoking, alcohol, drugs
- Menstrual history
  - Age of menarche
  - Regularity of menstruation
  - Duration of the menstrual flow
  - Amount of the menstrual flow
  - Associated dysmenorrhea
  - Vaginal discharge
  - Date of last menstruation
- Obstetric History
  - Previous pregnancies, labors, or abortions
  - The occurrence of puerperal infection
- Coital History
  - Frequency
  - Severe premature ejaculation or other coital difficulties
  - Post-coital douching
  - Use of lubricants
- Past history
  - Previous treatment (RTI and STI)
  - Gynecological or other operations

Examination of the Wife

General examination

In addition to a systematic general examination check for:

- Obesity, body contour
- Distribution of hair and hirsuitism
- Development of the breasts and breast examination
- Head and neck
- Eyes (exophtalmicus)
- Thyroid

Abdominal examination

- Pubic hair distribution
- Abdominal scars
- Abdominal masses

Pelvic examination (speculum and bimanual examination)

- Female circumcision
- Abnormal vaginal discharge
- Cervical infection
- Uterine or adnexal tenderness or masses, position, mobility
- Nodules in Douglas pouch

Note: If any abnormality is found, refer to specialist for further investigations and treatment.

History Taking from the Husband

- Past history
  - Mumps
  - Operations (hernia, hydrocoele)
  - RTI or STIs
- Habits
  - Smoking, alcohol or drug intake
  - Exposure to heavy metals/lead

- Coital history
  - Frequency
  - Number of partners
  - Severe premature ejaculation
  - Other coital abnormalities

Examination of the Husband

- General examination (personal history, age, occupation)
- Obesity
- Distribution of hair
- Undecended testicles
- Size of testicles, varicocoele
- Hypospadius

Note: If any abnormality is found, refer to specialist for further investigations and treatment.

Semen analysis

- Instructions should emphasize:
  - Sexual abstinence for three days is required.
  - All the ejaculate should be collected by masturbation in a wide container.
  - If sample taken at home, it should be carried in outside pocket (at ordinary temperature) and brought immediately to laboratory within one hour.
  - If any abnormality is detected, no treatment should be started until semen analysis is repeated, preferably, two weeks from the first.
- Normal semen picture: according to WHO standards, normal semen should be as follows:
  - Spermatozoa concentration:
    - More than 20 millions per ml
    - Motility either:
      - More than 25% grade (A) motility
      - More than 50% grade (A) and (B) motility
    - Morphology: more than 30% normal head forms
    - Less than 10% of motile spermatozoa are antibody coated and no agglutination

- Seminal plasma:
  - Volume: more than 2.0 ml
  - Normal appearance and consistency
  - pH between 7.2 and 7.8
  - Biochemistry: normal
  - White blood cells: normal
  - Culture: negative, i.e., less than 1000 bacteria per ml.
- Wide variations are observed among normal men.
- If semen analysis shows any abnormality, refer to specialist for further management.

Hospital Investigations

If all the previous findings are normal, refer the wife to hospital for the following investigations:

- Hormonal analysis
- Ovulation test
  - Monitoring by ultrasound
  - Premenstrual endometrial biopsy
  - Recording the basal body temperature
- Tubal patency test, e.g., by hysterosalpingography
- Laparoscopy and hysteroscopy may be needed in certain cases in order to be able to reach a definite diagnosis.

19

The Menopause

The Menopause

Definition of Menopause

Menopause is the period in life after the natural and permanent cessation of menstruation. It may be abrupt or preceded by a period of hypomenorrhoea or oligohypomenorrhea.

The term climacteric refers to the period during which there is gradual decline in the ovarian function.

Note: Any irregular or excessive bleeding at this period should be considered as pathological until proven otherwise.

Client Flow and Recordkeeping

Client flow and recordkeeping for clients with menopausal complaints are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Management of the Client in Menopause

- If the menopausal woman needs treatment, refer her to an Ob/Gyn specialist.
- In addition to the previous general measures, the following medications may be prescribed when needed:
  - Mild hypnotics, sedatives or tranquilizers
  - Calcium, vitamin D
  - Estrogen ovules or cream for vaginal dryness
  - Hormone Replacement Therapy (HRT) is to be prescribed only by specialists

Counseling

Communicate with clients concerning the following facts about the menopause:

- Inform clients that the menopause is a physiological process and that only some women experience symptoms.
- Reassure the clients who experience one or more of the following related symptoms that they may be due to the menopause:
  - Hot flushes and sweating
  - Nervous symptoms such as irritability, depression, headache and insomnia
  - Rheumatic pains
  - Tendency to flatulent dyspepsia and constipation
  - Increase in weight
  - Changes in libido
  - Dryness of the vagina

- Inform the client that:
  - The menopause usually occurs between the ages of 45–50 years, but may occur earlier or later.
  - Menstruation rarely stops abruptly; it is usually delayed every month, and the amount of bleeding diminishes gradually until it stops.
  - Any abnormal bleeding or bleeding after cessation of the menstruation is a reason to return to the clinic.
  - Menopause symptoms occur as a result of diminished ovarian functions (hormone secretions).
  - Menopause symptoms can last for a few months but usually last for years and disappear spontaneously when the body is accustomed to its new hormonal status.
  - Hormone replacement therapy may be indicated only in certain cases to compensate for the diminished hormone secretion by the ovaries. This type of therapy is to be advised by a gynecologist and under strict supervision.
  - A periodic medical checkup is recommended every year, even after cessation of menstruation.
- Advise clients to:
  - Avoid obesity by regulation of diet
  - Exercise (e.g., walking)
  - Increase calcium intake
  - Avoid smoking

Clinical Procedures

- Create a medical record for each client.
- Specially ask all clients about the following symptoms:
  - Hot flushes and sweating
  - Nervous symptoms such as irritability, depression, headache and insomnia
  - Rheumatic pains or history of bone fracture
  - Flatulent dyspepsia and constipation
  - Unusual increase in weight
  - Pain or dryness during sexual intercourse
  - Changes in libido

Examination

Conduct a full general, abdominal and pelvic examination particularly noting the following:

- Any breast abnormality or mass
- Vaginal atrophy or dryness
- Genital prolapse

Hormone Replacement Therapy

Clients wishing hormone replacement therapy should be referred to a specialist.

20

Early Detection of Breast and Genital Malignancy

Early Detection of Breast and Genital Malignancy

Definition of Early Detection

Early detection of genital malignancy (screening and early detection of cancer) involves testing people who are asymptomatic to detect hidden or pre-clinical diseases. The rationale for screening is that if diagnosis is made early and treatment undertaken before development of signs or symptoms of the disease, the results of treatment will be much better than when diagnosis is made after the signs and symptoms become clinically evident.

Cancer screening must be considered for the majority of women attending the clinic for any reason and breast and cervical cancer are the most important tumors to be screened for. It is essential that all clients understand the importance of cancer screening.

Client Flow and Recordkeeping

Client flow and recordkeeping for clients with menopausal complaints are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Screening for Breast Cancer

Approach to the Client

- Explain to the client the importance of breast examination as a tool for early detection of abnormalities especially cancer that results in better prognosis.
- Explain and train all clients to perform breast self-examination and instruct them when, how to do it and abnormalities to look for.
- Maintain good communication channels with the clients whose screening shows suspicious results to ensure that follow-up can be achieved: note the client's telephone, address and who to contact.

History Taking

- Ask about risk factors:
  - Family history of breast cancer
  - Menstruation after age of 55 or before age of 12
  - Menstrual cycles lasting more than 40 years
  - Hormone administration
  - Obesity
  - Smoking
  - Previous uterine cancer
  - First pregnancy after age 30 or no pregnancies

- Ask about symptoms:
  - Pain
  - Swelling in breast or armpit
  - Discharge from nipple
- Note all findings in the medical record.

Inspection

- The physician must examine the client's breasts annually.
  - Refer client to a MOHP hospital if needed.
- Explain the procedures to the client, and ask her to undress to the waist and stand relaxed.
- Ask the client to put her hands on her waist, and to push inwards to contract the chest muscles.
- Inspect both breasts for any puckering, abnormalities of the skin, change in the nipple such as swelling or retraction, asymmetric appearance or nipple discharge.
- While the client lies on her back, inspect breasts to detect any abnormalities.
- Note all findings in the medical record.

Palpation

- Palpate the breast tissue for any breast masses as well as the axilla and supraclavicular area for any enlarged lymph nodes.
- Be sure that all parts are felt carefully.
- Milk the nipple after massage of the areola medially to identify any fluid discharge.
  - Describe as none, clear, milky, pinkish or dark-bloody color.
- If any abnormality is detected by examination, refer to specialist for mammography.
- Note all findings in the medical record.

Breast Self Examination

- Tell the client to conduct breast self-examination once every month after the end of menstruation starting at the age of 20 years for life.
- Instruct client to self-examine her breasts as follows:
  - Undress to the waist and stand relaxed, in front of a mirror, in good light, with your arms by your sides.
  - Turn from side to side to have a complete view of the breasts and nipples.
  - Do not hurry; look at your breasts carefully and pay special attention to any changes in size and shape; alterations in the surface of the breast such as swelling, dimpling, rash, discoloration of the skin or very prominent veins and note the direction of the nipples and whether they are turned in.

- With your hands on your waist, look at your breasts; turn from side to side, push your elbows inwards towards the centre until you feel your chest muscles tighten. Look again at your breasts as previously described while you keep pressing.
- Place your hands lightly on the top of your head and again look at your breasts carefully. This position emphasizes any differences in size or shape of the breasts.
- Stretch your arms high above your head; this emphasizes any differences between the two breasts.
- Finally, squeeze each nipple gently to check for any bleeding or discharge.
- Lie down comfortably on a firm surface with your head on a pillow. Put a folded towel under your shoulder blade, slightly raising the side that you are examining. This helps to spread the breast tissue, making it easier to examine. Use your right hand to examine your left breast and vice versa. Examine one breast at a time.
- Use the flat of the fingers of your hand and not the fingertips. Keep your fingers flat and close together. If you press too hard it will dull your sensations and, if you press too lightly, you will not be able to feel deeply enough. With a little practice you will be able to use the right degree of pressure.
- Never rush palpation of the breasts; it must be done slowly, gently and thoroughly. Start from the collarbone above your breast. Press the breast gently but firmly towards the body. Move your fingers in small circles, working right around the outside of the breast and feel gently for any unusual lump or thickening. When you reach the starting point, work round again in a slightly smaller circle. Continue to do this systematically until you have felt the whole of the breast. This may take two or three complete circles depending on the size of your breast. Any unusual discrete lumps or nodules should be noted.
- It is important to note the normal consistency of your breasts at the first examination so that you will be aware of any changes in subsequent examinations.
- If you detect any of the following, you should come to the clinic immediately:
  - Breast lumps
  - Lumps under the arms or above the collar bone
  - Persistent skin rash, flaking or eruption near the nipple
  - Dimpling, pulling, retraction in one area of the breast
  - Nipple discharge
  - Sudden change in nipple position

Note: Palpation of the breasts during bathing can be recommended. Soap and water on the skin facilitates palpation of the breast tissue.

Screening for Cervical Cancer

History Taking

- Ask about symptoms.
- Ask about risk factors.
  - Start of sexual intercourse at a young age
  - Multiple sexual partners (ask in special circumstances: need extra skills).
  - Male sexual partner having other partners (ask in special circumstances: need extra skills)
  - Clinical history of infection by human papilloma virus or the presence of condylomata acuminate
- Note all findings in the medical record

Inspect the Cervix

- Visual inspection of the cervix after painting with acetic acid (3-5% VIA) and observation of aceto-white areas after 1 minute should be done for all women above age of 30 years attending the clinic once annually. Give the report to the client and keep a copy in their medical file.
  - The objective of the aided visual inspection is solely to be able to recognize clinically normal areas that do not stain with acetic acid or stain with iodine.
  - Women who display a white area after painting with 2% iodine solution, do not stain brown with iodine, or who have a suspicious lesion on the cervix should be referred to a specialist.
- The aim is to detect and treat cervical dysplasia in asymptomatic women to prevent development of invasive cervical cancer. Clients with abnormalities need to be referred.
- Note all findings in the medical record.

The procedures

- Carefully explain the procedure and the reason for doing it to the client.
- Put client in the lithotomy position.
- Good visualization is essential. Direct the light source to the genital area.
- Observe and record any abnormal findings in the external genitalia.
- Lubricate the speculum with warm water and insert it into the vagina.
- Open the speculum and adjust the light source so as to get a clear view of the cervix.
- If there is excess mucus or discharge, clean it with a cotton swab soaked in normal saline solution.
- Observe any abnormal findings.

- Apply acetic acid (3-5%) to the cervix, then dry the cervix and inspect it.
  - Abnormal areas stain white.
  - Normal areas do not stain white.
- OR paint the cervix with a 2% aqueous solution of iodine.
  - Abnormal areas look white.
  - Normal areas stain brown.

Note: Refer a woman with abnormal areas to a specialist for further evaluation and treatment.

Pap Smears

- Inform the client about the advantages of performing a Pap smear once every two years before the age of 30 years and annually after the age of 30 years.
- Explain the procedure to the client and refer her if indicated or desired.

21

Reproductive Tract and Sexually Transmitted Infections

Reproductive Tract and Sexually Transmitted Infections

Note: Information in this chapter will be updated in the next edition of the *Standards of Practice for Integrated Maternal and Child Health and Reproductive Health*.

Definition and Terminology

The terms reproductive tract infections (RTIs), sexually transmitted infections (STIs), and sexually transmitted disease (STDs) are sometimes used when caring for women in the clinical setting. In considering which definition to use in the context of this initiative, some observations might be made:

- Many women who suffer from a vaginal infection do not have a sexually acquired nor a sexually transmissible infection. Infections such as vaginal or perineal monilial (yeast) infections are "endogenous" in nature. Certain environmental factors can assist the "fungus" to seat itself and then to "invade" the host.
- Pelvic inflammatory disease (PID) can originate as a sexually acquired infection (i.e., Gonococci or Chlamydia) or as a pregnancy-related or contraceptive-related occurrence.
- The use of the word "infection" as opposed to disease can lead to considerable discussion. Proper use of language would favor use of the term infection, but tradition favors the use of the word disease. In general, the name is important only to be consistent in training, and general communication, so that we all understand one another and the clients understand what we are talking about.
- Urinary tract infections form a significant clinical area requiring diagnosis and treatment in women because Bilharziasis is endemic in Egypt.

Client flow and Recordkeeping

Client flow and recordkeeping for clients with reproductive tract or sexually transmitted infections are the same as those for the reproductive health checkup (see Chapter 3 Reproductive Health Checkup).

Classification of RTIs

- Endogenous
  - Candida Albicans
  - Bacterial Vaginosis
- Pregnancy-related
  - Obstetric-related
  - Abortion-related

- Latrogenic
  - Female circumcision
  - Cystitis
- Sexually transmitted
  - Bacterial
    - Chlamydia
    - Gonorrhea
    - Syphilis
    - Chancroid
    - Granuloma Venereum
  - Yeast
    - Candida Albicans
  - Viral
    - Herpes
    - Human Papilloma Virus (HPV)
    - AIDS
    - Hepatitis B
  - Protozoal
    - Trichomonas

Reproductive Tract Infections (RTIs) Counseling

- Explain early symptoms and warning signals of RTIs to vulnerable clients, and explain the importance of early diagnosis and treatment.
- Ask clients to report to the clinic if they feel one of the following symptoms:
  - Unusual vaginal discharge
  - Burning or pain during micturition
  - The appearance of ulcers, vesicles, or rash on or around the genitalia
  - Vulval itching
  - Unpleasant (offensive) odor
  - If husband complains of burning micturition, ulcers on the genital area, discharge from the penis or itching in the genitalia
- Tell clients that not all RTIs are sexually transmitted.
- Explain the significance of husband referral for evaluation and treatment if indicated.
- Explain that compliance with the prescribed treatment and behavior is crucial for achieving a cure.

- Instruct about ways to prevent RTIs; promote the use of condom as a tool to prevent the spread of RTIs; explain the proper use.
- Instruct client about the schedule for follow-up visits.

Approach to Diagnosis and Treatment

The Syndromic Management Approach supplemented with simple laboratory tests is recommended. This approach is characterized by:

- Diagnosis is based mainly on symptoms and signs.
- Treatment is provided during the client's first visit.
- Prescriptions should include the appropriate drugs, accurate dosage and amount necessary to complete the course of treatment.
- Health education, prevention, counseling, condom promotion, adherence to treatment and partner referral are all recommended as an integral part of effective management.
- If necessary, refer for more advanced laboratory tests (laboratory approach) and further sophisticated laboratory investigations.

Steps for the Syndromic Management Approach

- Fill in a medical record.
- Conduct a complete physical examination.
  - Clients/clients should be examined in a private place, and the physician should always wear disposable gloves.
  - Infection prevention procedures should be taken to protect service providers and clients.
  - All equipment used must be appropriately sterilized if not disposable.
  - Examination should include the following:
    - Abdominal examination
    - Inspection of external genital organs
    - Bimanual examination
    - Speculum examination
- Counseling
  - All clients need to be informed about RTIs and other STIs. The four Cs are considered crucial in the treatment of anyone diagnosed with a STI.
    - **C**ondom Use with every intercourse
    - **C**ounseling Male and Female
    - **C**ontacts examination and treatment
    - **C**ompliance with treatment and instructions
  - Common symptoms of RTIs and STIs
  - Prevention measures, particularly the use of condoms

- The need to return if they do not get better and at the end of treatment to ensure cure before resumption of sexual intercourse
- The importance of partner referral for evaluation or treatment if needed
- The importance of compliance with medical treatment to ensure cure and to avoid the development of resistant strains of microorganisms.

Categories of diagnosis and treatment approach

Table 21.1 Vaginal discharge

Table 21.1(a) Assess vaginal discharge

	Candida Albicans	Bacterial Vaginosis	Trichomonia-sis	Acute Cervicitis (Gonorrhea or Clamydia)
Discharge Description	White, curd-like	Thin, grey Non-purulent	Thin, frothy	Purulent Yellow Abundant
Symptoms	Vulvar itching	Fishy smell	Vulvar itching	Pelvic pain with coitus Urinary symptoms
pH		> 4.7		
Wet smear[1]	Budding cells or hyphae	Clue cells	Motile Flagellated Protozoon	WBC's
KOH2		Whiff test Amine (fishy) smell		
Lab Test		KOH (2)	Wet smear (1)	
Specific Counseling Advice	Cotton panties Personal hygiene	Take meds Personal hygiene	Take meds Husband Rx	Take meds Husband examination Transmission
General Advice	4 Cs Conditions for return visit	4 Cs Conditions for return visit	4 Cs Conditions for return visit	4 Cs Conditions for return visit

1. Immerse a cotton swap moistened with vaginal discharge in a test tube containing 1ml warm normal saline. Stir, then place one drop of the solution on a slide and place a cover. Examine at once under low power microscope.
2. Add one drop from the test tube containing normal saline mixed with vaginal discharge to a clean dry slide, then add one drop of 10% potassium hydroxide. The test is positive if a fish-like odor ensues.

Table 21.1(b) Treatment for abnormal vaginal discharge

Candida Albicans	Bacterial Vaginosis	Trichomoniasis	Acute Cervicitis
Choose one of the following: Mycostatin vaginal tablets 100,000 unit once daily for 14 days Myconazole (Daktrin) 200 mg vaginal suppositories once daily for 3 days OR 100 mg once daily for 7 days Clotrimazol (Canestin) 500 mg vaginal tablets single dose OR 100 mg vaginal tablets once daily for 7 days OR 200 mg once daily for 3 days Ketoconazole (Nizoral) 400 mg orally, once daily for 5 days	Choose one of the following: Metronidazole (Flagyl) 2 gm as a single dose OR 500 mg tablets twice daily, for 7 days Clindamycin (Dalacin C) capsules 150 mg every 6 hours for 5 days. Clindamycin vaginal cream 2%, daily for 7 days	Choose one of the following: Metronidazole (Flagyl) 2 gm orally as a single dose Metronidazole (Flagyl) 500 mg tablets orally twice daily for 7 days	Possible gonorrhea or clamydia Ofloxacin (Tarivid) 400 mg orally twice daily for 7 days

Management of urethritis

In Egypt there are very few cases of gonorrhea, thus the treatment would be only at the outset for Non-Gonorrheal Urethritis (NGU)

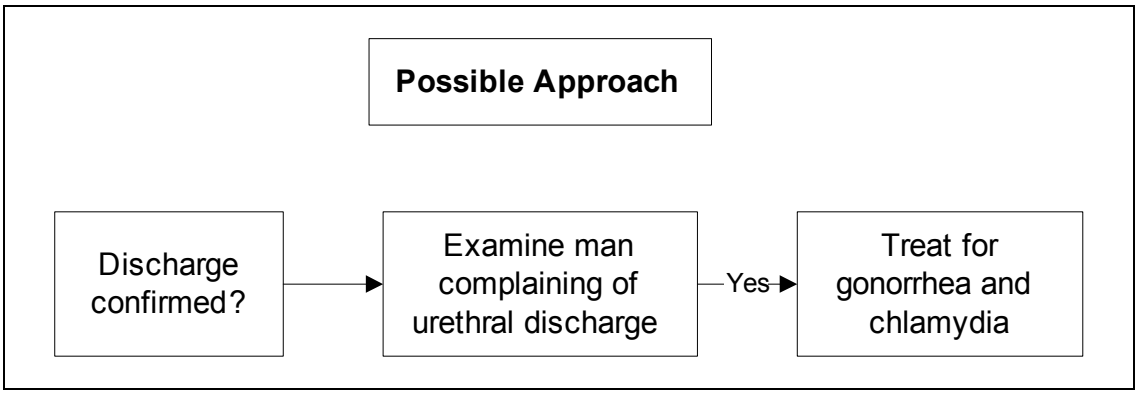


Figure 21.3 Algorithm: urethral discharge

Treatment of NGU

- Antibiotics (choose one):
  - Doxycycline (Vibramycin) capsules 100 mg twice daily for 7 days
  - Ofloxacin (Tarivid) 300 mg orally twice daily for 7 days
- If client is pregnant (choose one):
  - Amoxycilin 500 mg orally three times per day for 7 days
  - Erythromycin 500 mg orally every six hours for 7 days
- Ask about relevant symptoms for the husband.

- Ensure the 4 Cs
  - Counseling
  - Compliance
  - Contact tracing
  - Condom

Note: If discharge persists, refer to specialist for further evaluation

Management of genital ulcer

- If client complains of genital ulcers differentiate between:
  - Herpes Simplex
  - Chancroid (caused by Ducrey bacillus)
  - Granuloma Venerium (caused by Donovan bodies)
  - Syphilis

Use the following tables and figures as guidelines.

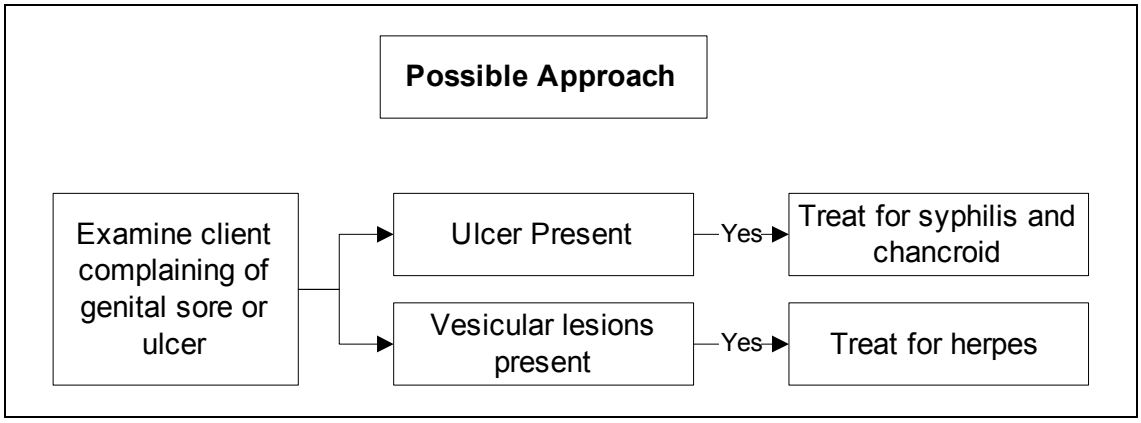


Figure 21.4 Algorithm: genital ulcer

Table 21.2 Genital ulcers

Management of Herpes	Management of Chancroid	Management of GV	Management of Syphilis
Acyclovir (Zovirax) 400 mg orally, 3 times a day for 7days Pain control using aspirin, acetamenophen or ibuprofen Avoid intercourse when lesion(s) are present	Chose one of the following antibiotics Azithromycin 1 gm orally as a single dose Erythromycin 500 mg every 6 hours for 5 days Ciprofloxacin 500 mg twice daily for 3 days	Chose one of the following: Sulphamethoxa-zole (Septrim) two tablets orally twice daily Doxycyclin 100 mg twice daily for 3 weeks Ciprofloxacin 750 mg Orally twice daily Erythromycin 500 mg orally 4 times daily	Benzathine Penicillin 2.4 million units intra-muscularly as a single dose
If no cure after specified period, refer to an Ob/Gyn specialist			

Management of abdominal pain

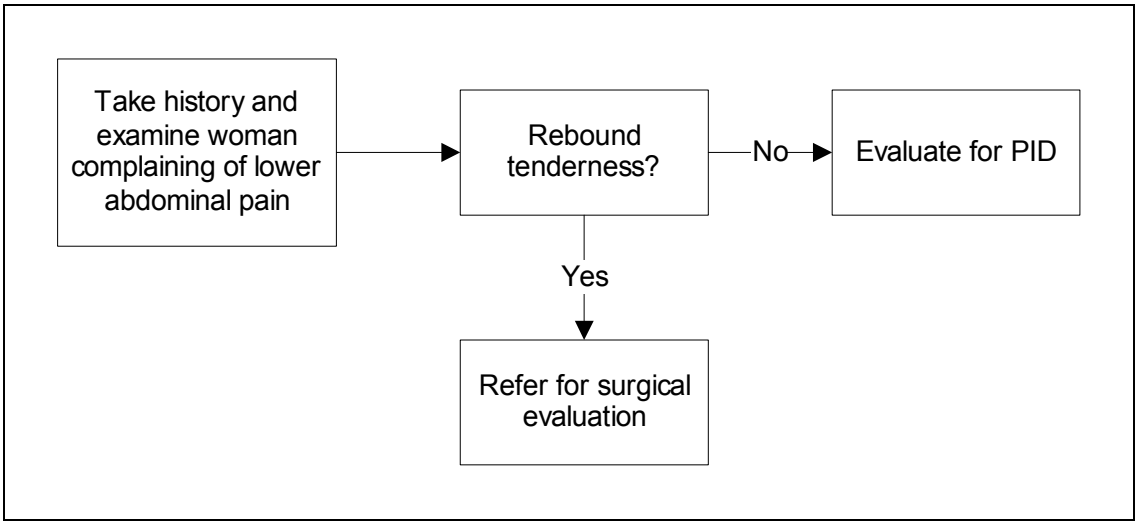


Figure 21.5 Management of lower abdominal pain

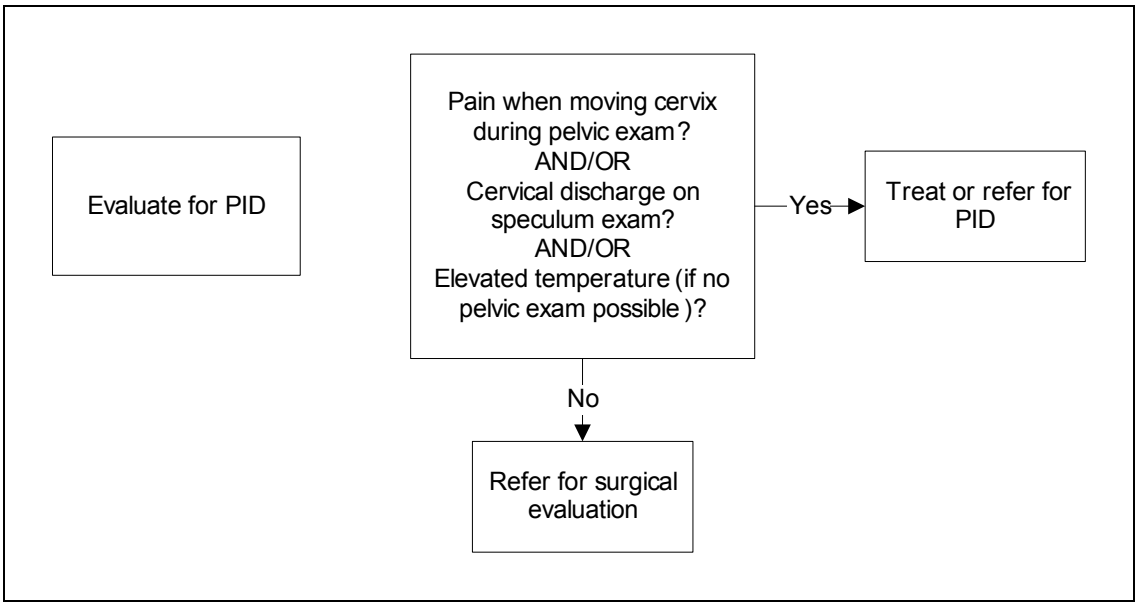


Figure 21.6 Lower abdominal pain: algorithm

22

Infection Control

Infection Control[11]

Importance of Infection Control

Health care associated or hospital-acquired infections (nosocomial infections) are a worldwide problem. They represent infections acquired during or associated with delivery of care in contrast to infections present or incubating at the time of the care delivery episode. Hospital-acquired infections are among the leading causes of death and they cause significant morbidity among patients who receive health care. These complications of care require expensive use of health care resources and they often lead to increased use of medication and supplies, to more laboratory studies, and to increased duration of hospitalization. They also may impair the quality of life of the patient with a hospital-acquired infection even after treatment. Prevention of hospital- acquired infections is therefore cost effective and achievable even when resources are limited.

Hospital-acquired infections are often caused by antimicrobial-resistant microorganisms. Factors associated with transmission of resistant strains of these microorganisms include poor attention to hygiene, overcrowding, lack of an effective infection control program, and shortage of trained infection control providers.

General Information

Uniform infection control standards in family planning and reproductive clinics are extremely important to minimize the risk of infection for clients attending the clinics and for personnel working in the clinics. Infection control techniques include:

- Aseptic techniques
- Hand washing
- Gloves
- Linen management
- Environmental cleaning
- Cleaning, disinfection and sterilization of medical equipment
- Waste management

[11] Taken from Ministry of Health and Population, Arab Republic of Egypt, *National Guidelines for Infection Control.*

ASCEPTIC TECHNIQUES

Introduction

Aseptic technique is a general term involving practices that minimize the introduction of microorganisms to patients during patient care. There are two categories of asepsis; general asepsis which applies to patient care procedures outside the operating theatre and surgical asepsis relating to procedures/processes designed to prevent surgical site infection. This chapter will focus on general aseptic procedures.

Aseptic techniques are used to reduce the risk of post-procedure infections and to minimize the exposure of health care providers to potentially infectious microorganisms.

Note: Aseptic techniques include practices performed just before, during, or after any invasive procedures.

Poor adherence to aseptic techniques results in considerable morbidity and mortality. Even in countries with well-established infection control programs, hospital-acquired infections related to poor compliance with aseptic techniques is an important public health problem. For example, in the United States surgical site infections are the third most frequently reported infection accounting for 14% to16% of all hospital-acquired infections. Data on surgical site infections is not available in Egypt; however, other sources of data suggest that there is poor compliance in aseptic techniques during critical procedures. Poor adherence to aseptic techniques, such as the reuse of needles and syringes between patients has been implicated in transmission of blood-borne pathogens (e.g., HIV and HCV) in Egypt.

It is important that all health care facilities establish policies regarding procedures that require aseptic techniques. Health care personnel who perform these procedures should be trained in aseptic technique and should demonstrate competency. It is particularly important for staff to understand why aseptic techniques are needed and for the director to ensure that adequate equipment and supplies are available. Supervision and monitoring of infection control activities is a critical element of infection control.

Principles of Asepsis

Numerous non-surgical procedures require aseptic techniques in order to prevent transmission of infectious agents.

Procedures with the highest risk for causing infections include:

- The placement of medications or devices into sterile body spaces, such as intravenous lines
- Wound care
- During the preparation and administration of intravenous fluids
- During insertion of intravenous and intramuscular injections of medication, especially from multidose vials

Key processes for performing medical (non-surgical) procedures with aseptic techniques include:

- Hand antisepsis and the appropriate use of gloves
- Skin antisepsis of the site of insertion of invasive devices, e.g., IVs
- Using and maintaining sterile patient care equipment, e.g., multidose medication vials, IV fluids and devices, by minimizing contact with non-sterile surfaces or reuse of equipment and devices intended for single patient use.
- The introduction of a sterile item into a patient should always be performed with a no-touch-technique. This means that the skin in the area of insertion should not be touched after skin antisepsis. Similarly, IV administration tubing should be kept sterile and tops of vials of medication should be disinfected prior to aspiration.

Aseptic techniques are practiced for all invasive medical procedures. Types of handwashing and gloves are different according to the procedure performed (see table below). Most disease transmission occurs due to actions of health care personnel that ignore basic concepts of aseptic techniques such as the reuse of syringes/needles, the touching of a sterile device onto a non-sterile surface, and the entering of a sterile solution without adequate decontamination of the lid or top.

Hands of health care workers are the most common source of cross-infection. A clear policy on hand hygiene is therefore essential and should be followed by all personnel. Although the use of gloves reduces the transmission of bacteria, hand washing is still essential after the gloves have been taken off in order to remove any contamination that might have occurred via small punctures, and the multiplication of organisms that occurred in the warm, moist environment caused by glove wearing.

Table 22.1 Recommendations for preparing hands and skin during procedures requiring aseptic techniques

Procedure	Example	Hand hygiene	PPE	Preparation of skin	Critical steps
Insertion of peripheral (IV) catheter	IV therapy	Routine handwash. (Antiseptic hand wash/ handrub (in high risk areas or immunocompromised patients)	Disposable nonsterile gloves (Use sterile gloves in high risk areas or immunocompromised patients).	Fast acting antiseptic is needed (Alcohol is OK but the site needs to be thoroughly cleaned).	Do not touch the area of insertion after antisepsis of the skin. Apply sterile dressing after insertion. Remove IV: If any sign of infection (redness, swelling, pus, tenderness) or no longer needed. After 72-96 hours.
Preparation of IV fluids and medications	Mixing of IV fluids and medication	As indicated above	As indicated above	Not applicable	Use a special clean area that is not in contact with biological materials and that has a surface that can be easily cleaned. Disinfect the port of entry (rubber or plastic) with alcohol prior to each insertion of a needle. Use only sterile diluent to reconstitute the medication Use a new sterile syringe and needle every time you add something to the IV fluid.
Administration of injectable medications	IV injection	As indicated above	As indicated above	Fast acting antiseptic is needed (alcohol is OK but the site needs to be thoroughly cleaned)	Disinfect rubber opening with alcohol prior to administration of medication. For ampoules and multidose vials: Use a new sterile syringe and needle each time you enter an IV. Never enter vial with a syringe that has been used on another patient. Get rid of ampoules immediately after single use. Never reuse opened ampoules. Follow manufacturers recommendations for storing and discarding multidose vials

Intravenous Therapy

Definition

An intravenous catheter is a catheter with a lumen that is inserted into a vein to provide intravenous therapy. Since this is a foreign body, which produces a reaction in the host, it can cause production of a film of a fibrinous material on the inner and outer surfaces of the catheter. This biofilm may become colonized by microorganisms and will protect them from host defense mechanisms. Microbial contamination may cause local sepsis or septic thrombophlebitis or bacteremia / septicemia. Infection control measures are designed to prevent the microorganisms from entering the equipment, the catheter insertion site, or the bloodstream.

Intravenous Infusion – Sites of Possible Contamination

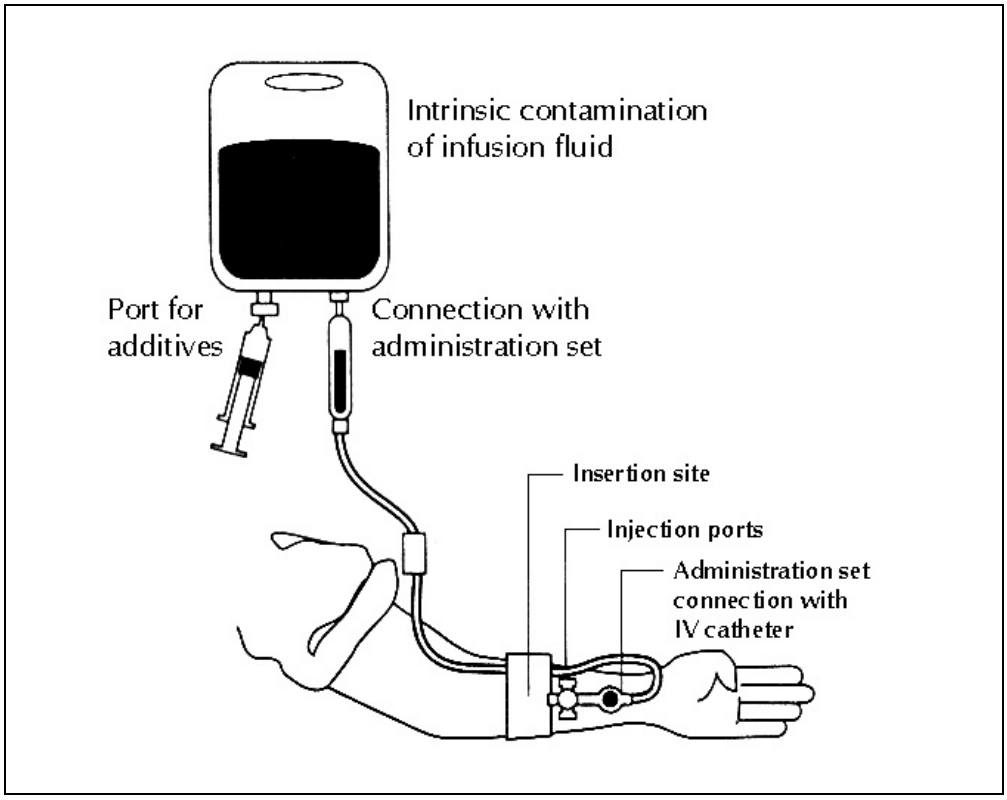


Figure 22.1 Intravenous infusion system

Note: Indications for insertion of catheters should be strict (e.g. severe dehydration). Good asepsis is required during insertion of the catheter and during maintenance of the insertion site. The site should be kept dry and free from contamination by covering with a dressing that is secure and comfortable for the patient.

Sources and Routes of Transmission

Sources of infection may be:

- **Intrinsic:** This is usually due to contamination or faulty sterilization of fluids during manufacture. Examples of organisms growing in the infusate are Klebsiella, Enterobacter or Pseudomonas spp. Infection will arise only rarely from intrinsic contamination; however, if the infusate is contaminated during preparation it can result in widespread infection among recipients of this product.
- **Extrinsic:** This is due to contamination of the IV catheter during the insertion, the administration of the fluid, or from the hands of the physician inserting or caring for the IV device. However, the most important reservoirs of pathogens causing catheter-related infection are the skin flora at the insertion site and at the hub. Infection is caused mainly by microorganisms residing on the patient's skin, e.g., Staphylococcus epidermidis, Staphylococcus. aureus, and diphteroids. Microorganisms almost universally grow in a biofilm on the catheter surfaces (initially on the external surface but with longer duration, also the inner surface) and may be released into the bloodstream.

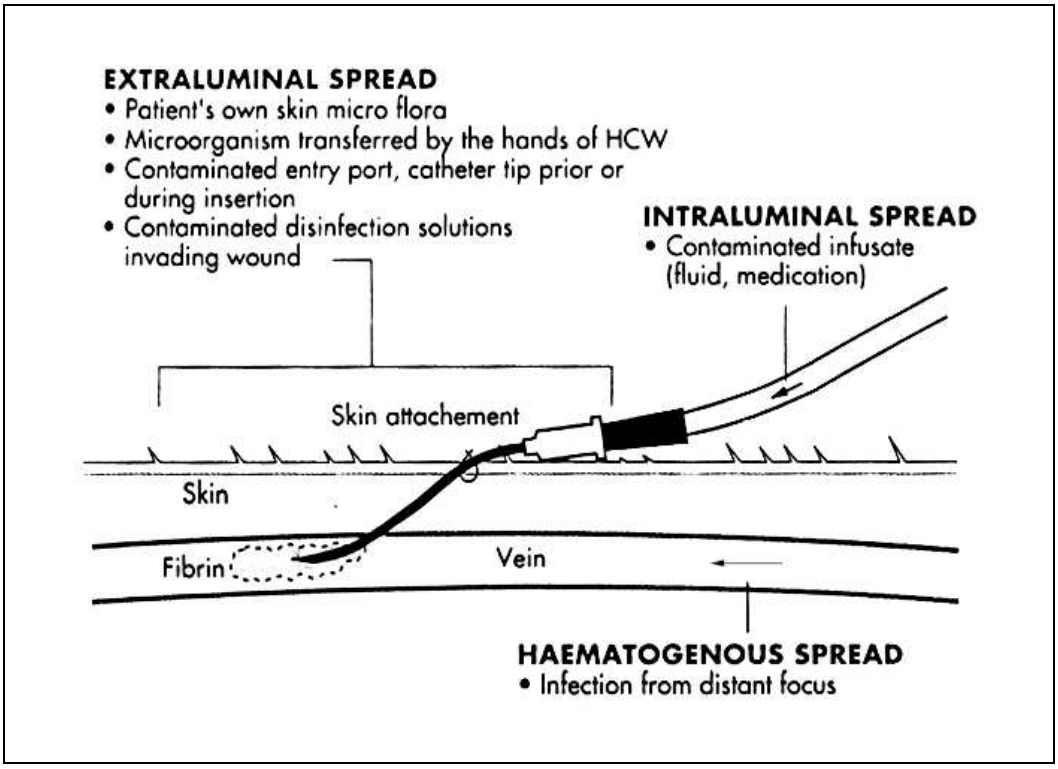


Figure 22.2 Sources and routes of transmission of infection from IV System

Procedure for Inserting Peripheral IV Cannulae

1. Ensure that the patient is comfortable and is aware of the procedure – this reduces anxiety.
2. Collect all equipment necessary to set up an IV infusion.
3. Select a cannula that will fit easily into the vein – size 18 or 20 gauge is usually appropriate. The correct sized cannula reduces trauma and congestion of the vein.
4. Place the patient's arm on a clean towel.

5. Avoid shaving the skin insertion site. Instead, clip hair if necessary.
6. Wash hands routinely and wear clean gloves. If the patient is in high risk ward or immunocompromised, use antiseptic hand wash or antiseptic handrub and sterile gloves.
7. Apply a tourniquet to the patient's non-dominant forearm.
8. Apply skin antiseptic to the IV insertion site with 70% isopropyl alcohol for at least 30 seconds and allow to dry before inserting the cannula.

Note: The IV site should not be touched after disinfection. If the tourniquet has been in place for a sufficient length of time, touching should not be necessary.

9. Insert the cannula into a vein, preferably of an upper limb, using the no touch technique. Do not attempt repeated insertions with the same cannula. If the first insertion is not successful, then the procedure should be repeated with a new cannula.
10. Look out for flash-back and advance the cannula slowly.
11. Release the tourniquet and apply a sterile dressing.
12. Connect up the administration set.
13. Clean site with a 70% isopropyl alcohol swab.
14. Anchor the cannula with clean tape and label the tape with insertion date.
15. Leave the site visible and dry.
16. Discard all sharps carefully in the container provided.
17. Wash and dry hands.

Possible Sources of Infection

Factors related to equipment and to fluids

- Cannula-material that is itself thrombogenic. For example, polyethylene and polypropylene are more reactive than Teflon©, which is in turn more reactive than steel or silicone-coated Teflon©.
- Contaminated administration sets
- Needles puncturing IV fluid bottles used as air inlets or for other reasons
- Three-way taps and stopcocks
- Infusion fluids
- Contaminated or loose dressings, adhesive tapes, or film
- Contaminated splints used to stabilize joints
- Large bandages used to cover the insertion site (these can be contaminated by the patient's blood and body fluids)

Factors related to insertion and to duration

- Patient's skin flora if skin antisepsis is inadequate
- Hands of staff, other patients, or visitors
- Contaminated skin antiseptics
- Unstable cannulae – movement increases the risk of bacterial contamination
- Cannulae left in for over 96 hours
- Insertion of cannula into a previously infected vein. Alternate arms should be used for IV therapy that lasts longer than 96 hours
- Septicaemia (endogenous infection)

Protective Clothing for Inserting IV Cannula

Masks, caps, and gowns are not necessary. Non-sterile gloves are used when inserting IV cannula (sterile gloves are used in high risk and immunocompromised patients). The use of gloves and of an apron or gown will protect the physician if profuse bleeding is likely.

Maintenance of IV Lines

- Inspect regularly for swelling or for signs of infection
- Keep the insertion site clean and dry
- Assess the need for continuing catheterization every 24 hours
- Remove the catheter at first sign of infection or at 72-96 hours
- The change of IV administration set:
  - The closed circuit system should always be maintained and it is not allowed to disconnect the IV set from the cannula unless for changing it.
  - When changing solutions, this may require a change of IV line if solutions are known to have expected interactions. If not, we may use the same IV administration line, if the IV line is removed from the port of the completed solution and reinserted at the new one immediately.
  - Change IV lines after 72 hours.
- Avoid cut downs, especially in legs.
- Wipe the hub of the cannula with an alcohol-impregnated swab before attaching the administration set. The Luer lock should be kept as clean and dry as possible.

Minimal Requirements

- Thorough hand washing/hand rub by the physician before the insertion of the catheter and during maintenance procedures.
- Thorough antisepsis of skin at insertion site
- No touch technique during insertion, maintenance, and removal of catheter.
- Secure the IV line to prevent movement of catheter.
- Maintain the closed system.

- Protect the insertion site with a sterile dressing.
- Inspect the insertion site daily and remove catheter as early as possible and if there are any signs of infection.
- Only well trained staff should set up and maintain infusions.

Injection Safety and Proper Use of Multidose Vials

WHO estimates that at least 50% of the world's 12 billion injections administered each year are unsafe. Among adverse events associated with injections, infections with the blood-borne pathogens hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV)) contribute to the heaviest disease burden. WHO estimates that unsafe injections result in 80,000 – 160,000 new HIV infections, 8 – 16 million new HBV infections, and 2.3 – 4.7 million new HCV infections each year and result in 1.3 million deaths. Unsafe injections also transmit parasitic (malaria), bacterial, and other viral infections. Some adverse events associated with injections, such as abscesses, appear relatively quickly, whereas other infections may not be obvious for years or decades, e.g. HIV, and HCV.

Table 22.2 Reported infectious injection adverse events

Bacterial infections	Viral	Parasitic
Abscesses Septicemia Toxic shock syndrome Tetanus	Hepatitis B virus infection Hepatitis C virus infection Human Immunodeficiency Virus infection Viral hemorrhagic fevers	Malaria

In Egypt a high percentage of injections occur outside the formal health care setting. It is estimated that 20-40% of injections are provided by persons who have no formal training in the provision of medical care. Injection-associated transmission of blood-borne pathogens can be prevented through a strategy to reduce injection overuse and to achieve injection safety.

Instruction for Giving a Safe Injection

Definition: A safe injection does not harm the recipient, does not expose the provider to any avoidable risks, and does not result in any waste that is dangerous for other people.

The best infection control practice for safe injections is to eliminate unnecessary injections. Besides decreasing the risk of infection transmission, this also saves resources. If an injection is unavoidable, providers should follow the following guidelines:

Use sterile injection equipment

- Use a sterile syringe and needle for each injection and to make the medication.
- Inspect the packaging for breaks in the package. Discard needle and/or syringe if the package has been punctured, torn, damaged by exposure to moisture, or if it has expired.

Prevent contamination of injection equipment

- Prepare each injection in a clean designated area where blood or body fluid contamination is unlikely.
- Discard any needle that has been touched or contaminated in a safety box.

Prevent needle stick injuries to the provider

- Anticipate and take measures to prevent sudden patient movement during injection.
- Avoid recapping and other hand manipulations of needles. If recapping is necessary, use a single-handed scoop technique. Do not bend, break, or cut needles prior to disposal.
- Collect used syringes and needles at the point of use in a safety box that is puncture-proof and leak-proof and that can be sealed before becoming completely full.

Prevent access to used needles

- Close and seal safety boxes when they are three quarters full for transport to a secure area for disposal. After closing and sealing safety boxes, do not open, empty, re-use, or sell them.
- Manage sharps waste in an efficient, safe, and environment-friendly way in order to protect people from voluntary and accidental exposure to used injection equipment.

Other practice issues

- Provider's hand hygiene and skin integrity. Perform hand hygiene (i.e., wash or antiseptic hand wash/handrub) prior to preparing injection material and before giving injections. Avoid giving injections if skin integrity is compromised by local infection or other skin condition (e.g., weeping dermatitis, skin lesions, cuts).
- Swabbing of vial tops or ampoules. Swabbing of tops of multi-dose vials with disinfectant before re-entering with a new needle is recommended. For swabbing use an appropriate disinfectant (e.g., alcohol 70-90%) and a clean disposable swab and maintain appropriate contact time. Do not use cotton balls that have been stored wet.
- Skin preparation prior to injection. Wash skin that is visibly dirty. Swab the skin with an appropriate antiseptic (e.g., alcohol 70-90%) prior to giving an injection. Use a clean disposable swab and maintain appropriate contact time. Do not use cotton balls that have been stored wet.

Aseptic Injection Practices

Keep the needle and syringe sterile. Because any part of the syringe that you touch becomes contaminated, you should not touch parts that come into contact with the injectable medication. If you touch any of these parts by accident, the syringe and needle are no longer sterile. Discard them immediately and replace them with a sterile syringe and needle.

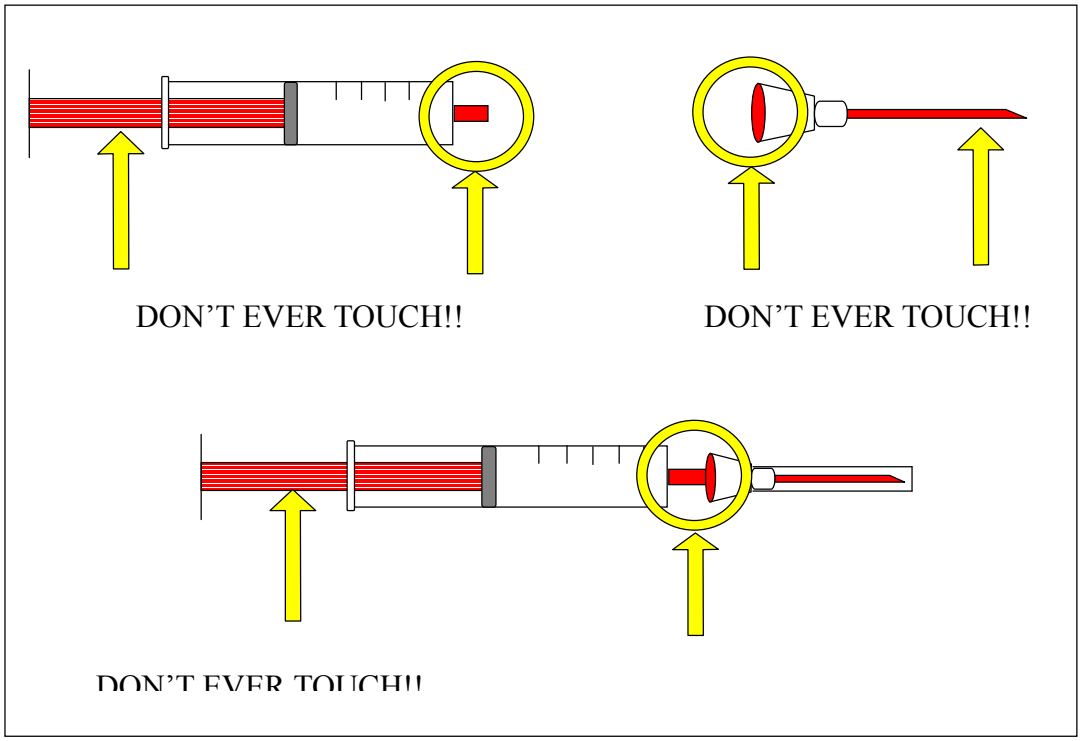


Figure 22.3 Areas of a sterile syringe and needle that should not be touched

Don't touch the needle with your fingers. Health workers sometimes place their fingers on the needle to help guide it in when pushing through the skin. Touching the needle with your fingers contaminates the needle.

Don't touch the injection site with your fingers

After an injection health workers sometimes apply pressure to the injection site with their fingers or with a piece of cotton wool to reduce bleeding. It is a better practice to ask the patient or the adult accompanying small children to hold the cotton on the injection site. If the nurse contaminates his or her fingers with blood, he or she can transmit pathogens from a patient's injection site to another patient.

Tips for injection safety

Practices that can harm recipients and should be avoided

- Changing the needle but reusing the syringe.
- Loading the syringe with multiple doses and injecting multiple doses.
- Applying pressure to the bleeding sites using a finger.
- Leaving the needle in the vial to withdraw additional doses.
- Touching the needle.
- Reusing a syringe or needle.

Practices that can harm the health care worker and should be avoided

- Recapping, bending, breaking, and cutting needles.
- Placing needles on a surface or carrying them any distance prior to disposal.

Practices that can harm the community and should be avoided

- Leaving used syringes in areas with public access.
- Giving or selling used syringes to vendors who resell them.
- Providing used syringes to patients for personal reuse.

Procedure for Injection Administration

1. Gather all items needed for the injection, e.g.:
   - Sterile needle and syringe
   - Medication
   - 70-90% alcohol
   - Cotton pads
   - Gloves, (for IV injection)
2. Band aid, if necessary
3. Tourniquet, if necessary
4. Prepare patient (position)
5. Wash hands (routine hand-wash)
6. Put on gloves for IV injection

Ten Steps to Administer an Intravenous Injection or Take a Blood Sample

1. Apply tourniquet.
2. Search for an appropriate vein.
3. Wash your hands and wear gloves.
4. Apply skin antiseptic (e.g., alcohol) to insertion site.
5. Insert the IV injection using a new sterile syringe.
6. Remove tourniquet
7. Inject medication slowly under strict aseptic conditions (observe patient's reaction carefully).
8. Remove needle while pressing cotton pad onto the injection site.
9. Discard needle/syringe immediately in a puncture resistant safety box - do not recap needle.
10. Cover the site with an adhesive bandage if necessary.

(N.B. The same steps should be applied for drawing blood sample)

Seven Steps to Administer an Intramuscular Injection (IM)

1. Define injection area.
2. Wash hands if possible.
3. Apply antiseptic to injection site.

4. Inject medication under strict aseptic conditions using a new sterile syringe.
5. Remove needle while pressing cotton pad onto injection site.
6. Discard needle/syringe immediately in a puncture resistant safety box - do not recap needle.
7. Cover the site with an adhesive bandage if necessary.

Observe the Patient when Beginning an IV Infusion

If fever or shivering develops during infusion of an IV fluid, stop using the IV fluid even if the fluid is clear and change to a new sterile fluid since pyrogens or bacteria which are not visible could be responsible.

Proper Use of Multi-dose Vials

Multi dose-vials of medication or of other fluids can become vehicles for transmitting infections between patients.

Before filling a syringe from a multi-dose vial:

- Inspect for and discard medications with visible contamination or breaches of integrity (e.g., cracks, leaks).
- Check the safety of the product (e.g. not expired, read the label of vial, no particulate matter in the vial, and not turbid).
- Wipe the top of the vial with a fresh cotton swab soaked with 70-90% alcohol and allow it to dry.

Figure 22.4 Use of multi-dose vial

To reduce the risk of transmitting infections between patients:

- Use single dose-vials rather than multi-dose vials.
- If multi-dose vials must be used, always pierce the stopper with a sterile needle and syringe every time fluid is withdrawn from a multi-dose vial. Reusing the same syringe to give injections to multiple patients – even if the needle is changed – is not a safe practice, because infections contaminate the multi-dose vial and can be transmitted from patient to patient.
- Avoid leaving a needle in place in the stopper of the vial. This provides a direct route for microorganisms to enter the vial and to contaminate the fluid between each use.

- If multi-dose vials are used that need to be reconstituted, the needle and syringe that was used to reconstitute must be discarded, and for each draw from the vial a new sterile needle and syringe must be used.
- Follow product-specific recommendations for reconstitution, storage, handling, and discarding unused doses.
- Discard needles that have touched an unsterile surface.

Wound Inspection and Wound Care

Traumatic Wounds

These are potentially contaminated with environmental and fecal bacteria and may become colonized with hospital pathogens, which may then be transferred to other patients via the hands of the staff.

Procedure for Wound Care

Wounds must not be touched with dirty hands and wound care should be an aseptic procedure:

1. Lay up a trolley with a sterile wound dressing pack.
2. Remove old dressing and inspect the wound.
3. Wash hands aseptically, dry hands and wear sterile gloves.
4. Clean the wound thoroughly using forceps and cotton wool or gauze soaked in a cleaning solution. Do not use hands.
5. Exude any fluids from an infected wound by pressing with two sterile gauze pieces held with two forceps.
6. Take specimens of pus or exudates for bacteriological examination.
7. Apply necessary medication.
8. Wipe the wound site as dry as possible.
9. Cover the wound if indicated.
10. Discard all dirty dressings in a clinical waste bag.
11. Wash and dry hands.

Note: Individual sterile wound dressing packs containing all of the sterile items required to dress a wound are preferable.

HAND WASHING

Hand hygiene is one of the most important procedures for preventing the transmission of hospital-acquired infections. Hand hygiene is a general term that encompasses hand washing, antiseptic hand wash, antiseptic hand rub or surgical hand antisepsis.

Microbial Flora of the Skin

The microbial flora of the skin can be divided into two categories:

- Resident microorganisms (colonizing or endogenous flora) include Staphylococcus species and diptheroids. These microorganisms are considered permanent residents of the skin and are not readily removed by mechanical friction. Resident microorganisms in the deep layers may not be removed by hand washing with plain soaps and detergents, but they can usually be killed or inhibited by hand hygiene with products that contain antimicrobial ingredients.
- Transient microorganisms (non-colonizing or exogenous flora) include microorganisms that come into contact with skin through interactions with patients equipment or the environment. Non-colonizing flora are not consistently present in the majority of persons and survive only a limited period of time. These organisms are most frequently associated with hospital-acquired infections and are often acquired through activities that involve close contact with a patient's secretions or excreta. Non-colonizing flora are easily removed by routine hand washing.

Table 22.3 Types of hand hygiene

Technique	Main Purpose	Influence on Hand Flora	Agents	Speed of Anti-Microbial Action	Residual Effect
Routine Hand Wash	Cleansing after patient contact & contamination	Partly removes transient flora	Plain non-antimicrobial soap	Slow	Short
Antiseptic Hand Wash or Alcohol-based Hand Rub	Hand antisepsis prior to invasive procedures, or to remove pathogens (e.g., antimicrobial resistant strains)	Kills transient and reduces resident flora	Chlorhexidine, Hexachloraphene, Iodin, Iodophors, Para-chloro-meta-xylenol Alcohol-based waterless antiseptic	Varies by type of agent Fastest for alcohol	Can be sustained for agents such as chlorhexidine; less so for alcohol and iodophors
Surgical Hand Antisepsis	Preoperative antisepsis	Kills transient flora and reduces resident flora	Chlorhexidine, Hexachloraphene, Iodine, Iodophors, Para-chloro-meta-xylenol (PCMX) Alcohol-based waterless antiseptic (after washing hands by soap and water)	Varies by type of agent Fastest for alcohol	Can be sustained for agents such as chlorhexidine; less so for alcohol and iodophors

Routine Hand Wash

Routine hand washing is the removal of dirt, organic material and transient microorganisms. For most routine activities washing with plain soap is sufficient, since soap will remove most transient microorganisms. Routine hand washing is an essential step before surgical scrub and it is preferably done before aseptic hand wash or alcohol rub if the hands are visibly contaminated.

Indications

In the absence of a true emergency, personnel should always wash their hands:

- AFTER completing invasive procedures.
- AFTER taking care of particularly susceptible patients, such as those who are severely immunocompromised and newborns.
- AFTER dealing with wounds, whether surgical, traumatic or associated with an invasive device.

- AFTER situations during which microbial contamination of hands is likely to occur, especially those involving contact with mucous membranes, blood or body fluids, secretions or excretions.
- AFTER touching things that are likely to be contaminated with virulent or epidemiologically important microorganisms; these sources include urine-measuring devices or secretions collection apparatuses.
- BEFORE and AFTER contact with patients.
- AFTER using the toilet or latrine.
- AFTER removing gloves.
- BEFORE serving meals or drinks.
- BEFORE leaving work.

Hand Washing Technique

Figure 22.5 Hand washing technique

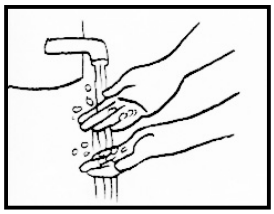
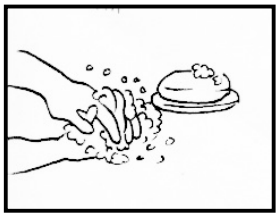
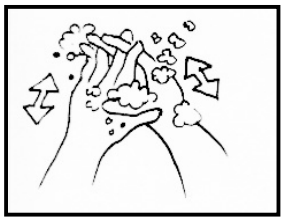
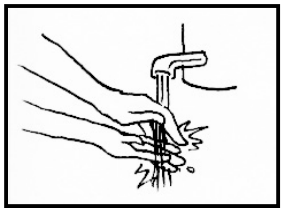
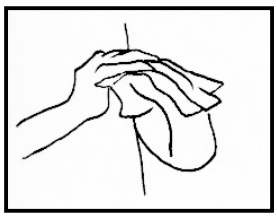
1. Remove all jewelry. **2.** Turn on tap with elbow or hands. **3.** Wet hands with running water that is as warm as tolerable.	
4. Apply soap agent and thoroughly distribute over hands. Make sure to rub all parts of your hand.	
5. Rub fingers together back and forth for 15-30 seconds (longer if hands are visibly soiled). Wash area around the nails and remove debris under the fingernails because this area has higher microbial counts. Rub all parts of the hands paying attention to the frequently missed areas.	
6. Rinse hands under a stream of running water until all soap is gone. Never dip hands into a basin or standing pool of water.	
7. Dry hands with a clean single use towel	
8. If possible, turn tap off with elbows, or with a paper towel after drying of the hands.	

Figure 22.6 Steps for routine hand wash

Routine Hand Washing Tips

Jewelry

- Rings should either be removed or moved to ensure washing underneath them.
- Rings can make donning gloves more difficult and may cause gloves to tear more readily.

Condition of nails and hands

- Nails should be kept short, rounded and unvarnished, and the routine use of nail brushes should be avoided.
- The hands, including the nails, should be inflammation free.
- Artificial nails should be avoided.

Soap

Plain (non-antimicrobial) soap comes in several forms:

- If bar soap is used, small bars (that can be changed frequently) are preferred.
- Soap should have drainage and should be kept on racks
- Liquid soap containers should be cleaned when empty and refilled with fresh soap; liquids should not be added to a partially full dispenser.

Water

Always use running water. If running water is not available consider using:

- Containers with a tap that can be turned on and off
- Containers and pitchers
- Alcohol hand rubs

Antiseptic Hand Wash or Alcohol-based Hand Rub

An antiseptic hand wash or alcohol-based hand rub is one that will reduce concentration of resident flora as well as inactivate transient microorganisms from hands. Hand antisepsis is achieved by hand washing with antiseptic preparations (iodophors or chlorhexidine) or by use of alcohol-based antiseptic hand rubs.

Indications for Hand Antisepsis

Hand antisepsis is recommended in the following instances:

- BEFORE the performance of invasive procedures (e.g., placement of IVs).
- BEFORE dressing wounds.
- BEFORE patient care at high risk of infection (e.g., newborns, immunocompromised patients).
- BEFORE preparation of intravenous fluids and medication.
- When persistent antimicrobial activity on the hands is desired. When it is important to reduce numbers of resident skin flora in addition to transient microorganisms.

In settings where hand washing facilities are inadequate and where hands are not soiled with dirt or heavily contaminated with blood or other organic material, alcohol-based hand rubs are recommended for use. In case the hands are soiled with dirt, it is necessary to wash hands routinely before the alcohol-based hand rub. Because using alcohol alone tends to dry the skin, it is best to use an alcohol hand rub solution by adding 2 ml of glycerine, propylene glycol or sorbitol and 100 ml of 60%-90% alcohol.

Antiseptic Hand Washing Tips

Products

Most antimicrobial products have a dose response effect and a minimum of 3 to 5 ml is recommended. Betadine (Iodophor) or a 70-90% ethyl alcohol + 0.5% glycerine solution (alcohol hand rub) are highly effective.

Duration

The duration of antiseptic hand washing is important not only for mechanical action to be effective, but also to allow antimicrobial products sufficient time to be effective. Minimal time required for hand rub before rinsing is 2 minutes or according to manufacturer's instructions.

Antiseptic Hand Washing Technique

- Wet hands and forearms till 2.5 cm below the elbow.
- Use an antiseptic hand wash preparation (e.g., chlorhexidine gluconate 4% or Betadine (Iodophor).
- Apply the selected product to palm of one hand and rub hands and fingers together, covering all surfaces of hands and forearm (as described in the routine hand washing steps) till 2.5 cm below the elbow for at least 2 minutes.
- Follow the manufacturer's recommendations on volume and duration of use of the antiseptic used.
- Dry the hands using sterile towels before wearing sterile gloves.

Alcohol Hand Rub Technique

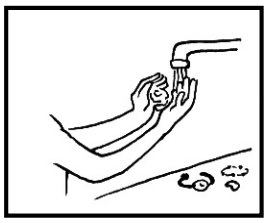
- Make sure that your hands are clean and have no visible dirt or blood.
- If hands are visibly dirty, wash hands by routine hand wash.
- Pour 3-5 ml of an alcohol hand rub (70-90% ethyl alcohol + 0.5% glycerine solution) into the palm of your hand and rub hands together using the same technique of hand antisepsis until they are completely dry.

Surgical Hand Wash

Surgical hand scrub must be performed for implant insertion.

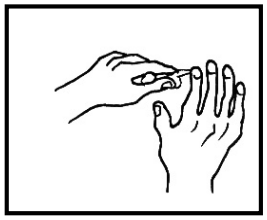
1. Remove all jewelry on hands and wrists.

2. Adjust water to a warm temperature and thoroughly hands and forearms to 5 cm above the elbows in order to remove dirt and transient flora.



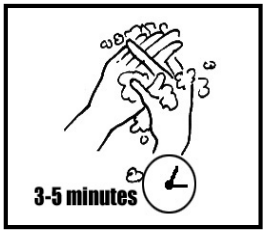
3. Clean under each fingernail and around the nail bed with a nail cleaner prior to performing the first surgical scrub of the day.

4. Keep nails short and do not wear artificial nails or fingernail polish.

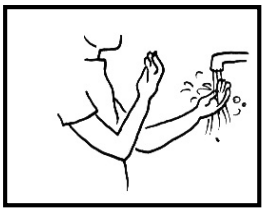


5. Holding hands up above the level of the elbow, apply antimicrobial agent to hands and forearms up to the elbows.

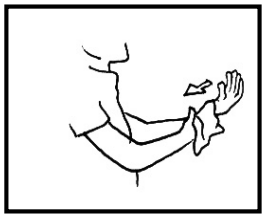
6. Using a circular motion, begin at the fingertips of one hand and lather and wash between the fingers, continuing from fingertip to 5 cm above the elbow. Repeat this process for the other hand and arm. Continue rubbing for 3-5 minutes.



7. Rinse each arm separately, fingertips first, holding hands above the level of the elbow.



8. Using a sterile towel, dry the fingertips to 5 cm above the elbow. Use one side of the towel to dry the first hand and the other side of the towel to dry the second hand.



9. Keep hands above the level of the waist and do not touch anything before putting on sterile gown and/or sterile gloves.

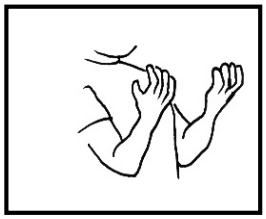


Figure 22.7 Steps of surgical hand wash

GLOVES

Types of Gloves

There are three main types of gloves used in the health care setting:

- Sterile gloves: Mostly used for surgery. They are disposable, sterile and individually wrapped items. They are used whenever there will be a percutaneous or permucosal contact with tissues (e.g., surgical procedures, Implanon insertion).
- Non-sterile gloves (latex-rubber gloves): Non-sterile disposable, single use gloves (e.g. latex gloves) are usually not individually wrapped. They are used to protect against direct skin exposure to blood or other body fluids or for anticipated contact with mucous membranes (e.g., vaginal examination) and prior to contact with contaminated equipment or surfaces. These types of gloves should be discarded after one use followed by hand hygiene.
- Utility (heavy duty) gloves.

General Indications for Gloves

Staff should wear gloves when they anticipate their hands will come into contact with blood, body fluids, non-intact skin or tissue or equipment and surfaces that are visibly contaminated with body fluids.

Indications for Sterile Gloves

- Before surgery
- Before any invasive procedure that require aseptic technique (e.g., insertion of urinary catheter, Norplant or Implanon insertion or removal, insertion of IUD [hand loaded], insertion of postpartum IUD).
- Before wound dressing.
- Mixing I.V. fluids and using multidose vials.

Indications for Disposable Non-sterile Gloves(Latex-rubber Gloves)

- Insertion of IUD, with non-touch technique.
- Removal of IUD.
- Insertion of a peripheral IV catheter (except in high risk areas).
- When handling soiled dressings.
- When cleaning up spills of blood or body fluids (It is preferable to use double non-sterile disposable gloves).
- When handling soiled equipment, instruments or other items that may be contaminated with blood, urine, feces or drainage.

- When handling specimens and their containers.
- When suctioning the respiratory tract of a patient or performing oral care in which fingers need to be placed inside the patient's mouth.

Indications for Utility Gloves

- When handling medical waste.
- When using chemicals such as cleaning products and disinfectants.

Gloving Tips

Washing hands

Hand hygiene is always recommended after removing gloves because gloves may become perforated during use and bacteria can multiply rapidly on gloved hands.

Gloves must be changed

- Between patients.
- Before each procedure if more than one procedure is done for the same patient.
- If they become soiled, contaminated or perforated while caring for a single patient.

Reusing disposable gloves

Never reuse any type of disposable gloves (e.g., latex gloves, surgical gloves) as they are difficult to reprocess properly and the protective integrity of the glove is usually compromised when attempting to clean and reuse.

Washing utility gloves

Always wash utility gloves before you take the gloves off your hands.

Putting on surgical gloves

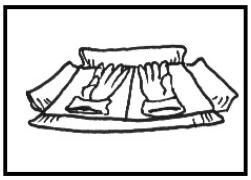
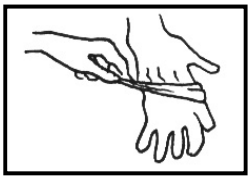
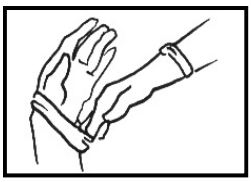
1. Prepare a large, clean, dry area for opening the package of gloves. Perform surgical hand washing and ask someone (e.g., circulating nurse) to open the package of gloves.	
2. Open the inner glove wrapper, exposing the cuffed gloves with the palms up.	
3. Pick up the first glove by the cuff, touching only the inside portion of the cuff (the inside is the side that will be touching your skin when the glove is on).	
4. While holding the cuff in one hand, slip your other hand into the glove. (Pointing the fingers of the glove toward the floor will keep the fingers open). Be careful not to touch anything, and hold the gloves above your waist level.	
5. Pick up the second glove by sliding the fingers of the gloved hand under the cuff of the second glove. Be careful not to contaminate the gloved hand with the ungloved hand.	
6. Put the second glove on the ungloved hand by maintaining a steady pull through the cuff. Adjust the glove fingers and cuffs until the gloves fit comfortably.	

Figure 22.8 Steps for putting on surgical gloves

Removing surgical gloves

When removing gloves, you should not allow the outside surface of the gloves to come into contact with your skin. Avoid letting the gloves snap, as this may cause contaminates to splash into your eyes or mouth or onto your skin or other people in the area. It is important to remove used gloves before touching anything that can become contaminated through contact.

Steps for removing surgical gloves

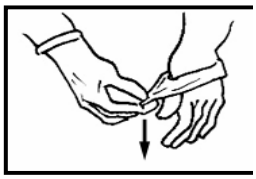
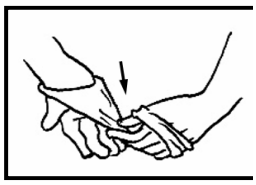
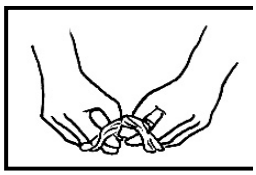
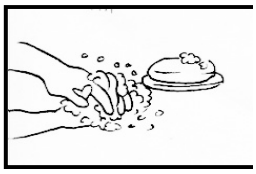
1. Grasp glove near the cuff and pull it partway off. The glove will turn inside out. Keep the first glove partially on before removing the second one to protect you from touching the outside of a glove with your bare hand.	
2. Leaving the first glove over your fingers, grasp the second glove near the cuff and pull it partway off. Keep the second glove partially on.	
3. Pull off the two gloves at the same time, being careful to touch only the inside surface of the gloves with your bare hand and make sure not to result in splashes in the environment.	
4. Gloves are disposed immediately. Wash hands immediately after gloves are removed.	

Figure 22.9 Steps for removing surgical gloves

LINEN MANAGEMENT

Linen

Although soiled linen can be contaminated with pathogenic microorganisms, actual disease transmission from linen has been demonstrated to be negligible if it is handled, transported and laundered in a manner that avoids dispersal.

Note: There is no evidence that linen used by patients who are under isolation precautions carries any greater microbial load or risk of disease transmission than patients who are not in isolation.
Wet or linen saturated with body fluids should be folded with the wet areas inside in order to minimize contamination of the health care facility environment.

General Prinicples to Prevent Infection

- All personnel involved in collection, transport, sorting, and washing of used linens should be adequately trained, should wear appropriate protective clothing, and should have access to hand-washing facilities.
- Dirty linen should be carefully removed with a minimum of agitation in order to minimize dispersion of the microorganisms into the air. Linen should then be placed in strong and appropriate bags or into a container at the bedside. Never place linen on chairs or on other surfaces.
- After removal of linen, soiled linen must be handled with care at all times. It should be placed into fluid resistant bags at the point of generation as soon as possible. Dirty linen bags should not exceed the weight of 20 kgs and should be be securely tied or otherwise closed to prevent leakage. Rinsing soiled laundry at the point of generation should not be done.
- Assume all used linen is contaminated. No need for color coding.
- Laundry bags: Single bags of sufficient tensile strength are adequate for containing laundry; leak-proof containment is needed as the laundry maybe wet and can soak through a cloth bag.
- Transport of soiled linen: Soiled linen in bags or containers should not be transported manually to the laundry processing area. If available, carts or containers with lids should be used for this task.
- Unnecessary handling of linen should be avoided.

Note: Be sure that no miscellaneous items (e.g. needles) are collected with linen. Such items constitute a special hazard to laundry staff.

Changing Linen

Change bed linens daily and whenever soiled.

Laundry

Linen, surgical drapes, window curtains, rags, mops, uniforms, gowns, lab coats and others could be laundered. Sorting in the laundry area is essential. Sorting should be done separate from clean areas with limited traffic. Work surfaces are at or above the waist height. The sorting area needs to be equipped with sink, disposable gloves, soap and towels. The area should be provided by sharps containers.

The Sorting System in the Laundry

Sorting of laundry should be done either before or after washing.

Sorting before washing:

- Remove objects that might be attached before washing.
- Sort same textile, same fiber or sort by products needed or by those who are packed together (gowns, curtains, etc.).

Sorting after washing

Benefits of sorting after washing includes fewer microbial exposure by the workers, however, it shortens the life of fabrics and causes more lint on surgical materials.

Washing, drying and storing linen

- Linen is washed in washing machines or by hand. It is important not to overload the washing machine. A temperature 71°C for at least 25 minutes is generally recommended. A preheating period for at least 5 minutes should be allowed. These temperatures along with these times are capable of killing most vegetative bacteria and viruses. However, addition of chemicals assists in adjusting the pH of the water- plus additional chemicals such as bleach facilitate inactivation of pathogens that might be present in the linen.
- Addition of bleach: Bleaches provide bactericidal action and disinfect heat labile materials when added to rinse water.
- An acidic agent (sour; e.g. vinegar) may also be added. These agents are added to prevent yellowing of fabrics but also produce a rapid shift in pH that aids bactericidal action.
- Facilities for manual washing of linen may be available and may offer a temporary alternative where is there is any lack of access to or a problem with mechanical washing processes.
- Spreading linen to dry in sunlight and open air (if away from any source of contamination or pollution) may be possible in some situations. In addition to cost reduction this allows exposure to ultraviolet sunrays, which produces natural disinfection.
- Dryer heat is also effective in ensuring total bacterial kill. Ironing has the same effect but linen need not be sterilized.
- Store clean linen and supplies in a separate place away from the soiled linens. Three clean sets of linen per bed should be available.

Bed covers

There are two types of bed covers, one for the summer and one for the winter. They should be changed and washed between each patient or whenever soiled.

Mattresses and pillows

- May be a major source of contamination if not properly protected.
- Wet mattresses must be changed.
- Must be covered with an impervious layer (plastic, rubber) so that they can be cleaned or disinfected thoroughly between patients.
- Covers must be cleaned with warm water and detergent.
- Never admit new patients onto soiled, stained, or contaminated mattresses.
- Rubber covers can be uncomfortable in hot countries. It may be possible to cover the mattress cover with absorbable paper, which should be changed frequently.

ENVIRONMENTAL CLEANING

Introduction

The cleanliness of a health care facility is vital to the health and safety of its patients, staff, and visitors as well as of the community. It is one of the foundations for preventing the transmission of infections in the facility. Routine cleaning is necessary in order to ensure a hospital environment that is visibly clean and free from soil and dust. 90% of microorganisms are present within "visible dirt", and the purpose of routine cleaning is to eliminate this dirt. An additional benefit is that a clean facility looks appealing and improves the morale of staff and patients. This orderliness has been shown to enhance both the safety and quality of patient care and when absent can lead to clusters of hospital-acquired infections.

Definition

The term "environmental cleaning" refers to the general cleaning of environmental surfaces and to the maintenance of cleanliness in a health care facility. It is the physical removal of organic materials such as soil and dirt, which removes a large proportion of microorganisms, followed by complete drying.

The staff responsible for environmental cleaning (housekeeping) is a specially trained worker. These personnel, hereafter referred to as housekeepers, are at risk of infection because they may be exposed to blood, body fluids, secretions, and excretions in the process of completing their duties unless they are properly trained in the use of protective equipment. Therefore, it is important that they have a good understanding of standard precautions and of infection control practices through education and training.

General Guidelines for Cleaning

Cleaning Schedules

Cleaning schedules should be developed by the head nurse in accordance with hospital policies and should be posted to where all staff that responsible for housekeeping can see and follow them closely. Regular supervision of their performance is important and is provided by the "Worker Supervisor". Routine cleaning is necessary to maintain a standard of cleanliness.

Protective Clothing for Cleaning

During cleaning, workers should always wear gloves (preferably heavy utility gloves) and shoes that cover the toes. If there is a potential for splashing or for splattering (e.g., during the cleaning of toilets), they may need additional protection such as an impermeable apron, mask, and protective eyewear.

Cleaning Principles

Warm water and detergent removes 80% of microorganisms. The majority of these microorganisms are skin flora and spores.

- Cleaning should be done in a way that minimizes the scattering of dust and dirt. A damp cloth or wet mop should be used for walls, floors, and surfaces instead of dry dusting or sweeping.
- Cleaning should begin from the least soiled area to the most soiled area, which is usually the toilets and soiled storage areas. Surfaces should be washed from top to bottom so that debris falls to the floor and is cleaned up last. The highest fixtures should be cleaned first, working downward to the floor (e.g. ceiling lamps, shelves, tables, and lastly, the floor).
- Scrubbing is the most effective way to remove dirt and microorganisms in every cleaning procedure.
- The floors should be mopped with warm water and detergent and dried. Cleaning solutions should be changed frequently. If a disinfectant is used, the disinfectant solution is less likely to kill infectious microorganisms if it is heavily soiled.
- Cleaning of environmental surfaces should be performed by using separate buckets. One container should contain detergent and the other one should contain plain water. The procedure starts by wiping or scrubbing with detergent, followed by rinsing with water, and drying at the end.
- Cleaning procedures for environmental surfaces must not be applied to patient care equipment/instruments (e.g., dental instruments, thermometer). The cleaning methods and products may differ significantly. Reusable equipment (e.g., bed, chairs) is not used for the care of another patient until it has been cleaned appropriately.
- Buckets should be washed and rinsed out after use and stored dry.
- Mops should be laundered daily in very hot water and detergent or in a washing machine (if available) and dried thoroughly. Wet mops should not be left standing in a bucket.
- Ward surfaces, rails, bedsteads, etc. should be damp-dusted with a detergent cleaner.
- Toilets must be cleaned regularly and surfaces dried. Toilet room floors must be dried thoroughly.
- If there is a reason to use a disinfectant in addition to the detergent cleaner, make up the solution and use as directed by the label.

Note: Disinfectants are NOT recommended for routine use.

Cleaning Staff

- An adequate number of cleaning staff should be available to enable the healthcare facility to maintain a clean environment.
- Personnel who clean patient-care equipment must receive special training on the proper procedures. Written cleaning instructions should be available for each piece of equipment.
- Cleaning personnel should have their work inspected on completion in order to ensure that the cleaning has been done properly.

Common Methods for Cleaning

Dry Cleaning Method

The dry cleaning method relies on sweeping to loosen and to remove large objects and particulate soil but does not remove stains.

Dry cleaning is not suitable for wet or greasy areas.

Sweeping

The use of dry brooms, dry mops and dry dusters should be avoided in patient treatment and food preparation areas as it is not efficient and it is potentially hazardous. It leads to the dissemination of bacteria carrying particles and increases the air-borne bacterial count nearly tenfold.

If sweeping is unavoidable, it should not be permitted in the immediate vicinity of patients with exposed wounds and other sites where patients are at high risk for infection. Enough time should be allowed for disseminated bacteria-carrying particles to settle.

Wet Cleaning Method

Wet cleaning is accomplished manually by a damp cloth, damp mop, or deck scrubber using water with or without detergent and with or without disinfectant. In addition to water, scrubbing is used. Routine use of chemical disinfectants is not necessary.

If a detergent cleaner is used, rinsing is recommended, since detergents become concentrated, leading to a build-up of a detergent film.

Drying is essential. Moist surfaces are considered potentially contaminated because moisture encourages bacterial growth. Direct patient care and food preparation areas should not be used until completely dry.

Types of cleaning solutions used during housekeeping

Plain detergent and water (i.e. detergent solution)

Detergent cleaners are used for general cleaning tasks. Detergents, e.g., soap, remove dirt and organic material and dissolve or suspend grease, oil, and other matter for easy removal by scrubbing.

Disinfectant

Disinfectants rapidly kill or inactivate infectious microorganisms during the cleaning process. In most settings a chlorine solution made from locally available bleach is the cheapest and most accessible disinfectant.

Disinfectants are also used to clean up spills of blood or other body fluids and to decontaminate items of infected patients.

Disinfectants rapidly kill or inactivate infectious microorganisms during the cleaning process while detergents remove dirt and organic material. Removal of dirt and organic material cannot be done by water or disinfectants alone.

Note: Chlorine (bleach) solutions should never be mixed with cleaning products that contain ammonia or phosphoric acid. Combining these chemicals will result in the release of a chlorine gas, which can cause nausea, eye irritation, tearing,

headache, and shortness of breath. These symptoms may last for several hours. If you are exposed to an unpleasantly strong odor following the mixing of a chlorine solution with a cleaning product, leave the room or area immediately until the fumes have cleared completely. Accidents can be avoided by ensuring all solutions are clearly labeled and only one type of disinfectant solution is available in the cleaning supplies storage area.

Environmental Disinfection

Disinfectants

- The term disinfectant should be reserved for chemicals used on environmental surfaces. The term antiseptic is used for chemicals used on skin (alcoholic handrubs) for hand hygiene or cleansing patient skin.
- Are most efficient if used according to instruction and at the correct dilution.
- Differ in their properties depending on the circumstances.
- May be rapidly inactivated by organic matter, e.g. blood. Any object that is to be disinfected must therefore be cleaned thoroughly with warm water and detergent prior to disinfection.

Hard Surfaces

Hard surfaces do not usually require disinfectants for effective cleaning. Warm water with detergent is usually sufficient to remove all organic contamination. A disinfectant may be used with a high degree of contamination such as a large blood spill that may involve blood-borne pathogens.

Rules for Disinfectants

- Read the label and follow the manufacturer's instructions.
- Check the expiration date of the solution.
- Ensure that the correct dilution is used.
- Always wash and clean articles before disinfection.
- Do not refill disinfectant containers without cleaning and drying the container between each use – topping off a partially filled container is not permitted.
- Disinfectants should be supplied in a ready-for-use dilution from the pharmacy.
- Empty containers should be returned to the pharmacy. Do not use empty containers to store any other solutions – this is dangerous as the wrong solution might be used in the wrong situation.
- Open containers of disinfectant should not be tolerated in any environment as there is a serious risk of contamination with multiply-antimicrobial-resistant bacteria, such as Pseudomonas species and spores.
- Where disinfectants are indicated for use on surfaces allow the disinfectant to remain on the surface for a sufficient amount of time to inactivate microbes. The instructions for use on the label of the disinfectant usually specify the contact time.

Table 22.4 Commonly used disinfectants

	Alcohol	Chlorine-based disinfectants	Hydrogen peroxide
Antimicrobial activity	Alcohol does not penetrate well into organic matter, especially protein-based (e.g., blood), and should therefore be used only on physically clean surfaces.	They are fast acting and have a broad spectrum of antimicrobial activity. Diluted solutions are unstable and should be freshly prepared daily unless prepared in an opaque container, in which case the solution remains stable for >1 week. They are inactivated by organic matter e.g., blood particularly if used in low concentrations. They are incompatible with cationic detergents.	Hydrogen peroxide and peroxygen compounds have a broad spectrum of antimicrobial activity. This activity depends on use concentration; for hydrogen peroxide, this needs to be >6% for semicritical devices. At lower concentrations this chemical has limited capabilities for surface disinfection.
Uses	Mainly as an antiseptic: Can also be used for disinfecting physically clean equipment or hard surfaces such as stethoscopes.	It is very active against viruses and is the disinfectant of choice for environmental decontamination of blood and body fluids. It can also be used for environmental disinfection on hard surfaces, e.g. baths or sinks.	Can be used for semicritical items such as endoscopes; Peroxygens are effective in penetration of organic matter but can cause damage to devices.
Precautions	Alcohol should be stored in cool places as it is flammable. Bottles should always be capped.	They should not be used in the presence of formaldehyde as some of the reaction products are carcinogenic. Skin and eyes should be protected when using undiluted hypochlorite solutions. Do not mix with ammonium.	Manufacturer's approval should be obtained before using on equipment where corrosion may present problems. Wear eye protection when pouring high concentration hydrogen peroxide (>6%); splash into the eye can cause irreversible damage.

Preparation of Different Concentrations of Hypochlorite Solution

Chlorine solutions are supplied by manufactures in Egypt by different concentrations, mostly as 5%. However, there are variable concentrations as 5.25% or others are available. Therefore, for ensuring appropriate concentrations, parts per million will be used instead of percentages. Different parts per million are used for different purposes as cleaning, disinfection (low, intermediate, high) and sterilization (see table below).

Chlorine-containing compounds are described as having a certain percentage of "active" chlorine. The amount of active chlorine is usually described as a percentage. It is important to know the concentration of chlorine so that a solution with the appropriate percentage of active chlorine can be prepared. With liquid bleach, this information is often noted on the bottle. Any concentration of bleach can be used to make the required part per million solution by using the following formula:

$$\left(\frac{[\text{\% active chlorine in liquid bleach}]}{\text{PPM chlorine desired}}\right) - 1 = \text{Number of parts of water added to one part of bleach}$$

Example: To make a 100 PPM chlorine solution from 5% active chlorine

[5% / 100 PPM] – 1 = (5 / 100) / (100 / 1000000) – 1 = 500 – 1 = 499 parts of water for each part of bleach.

So to prepare 100 PPM chlorine solution from 5% chlorine we should add 499 parts of water (499 cc-or approximately ½ liter) to each part (1 cc) of the concentrated (5%) chlorine.

Table 22.5 Classification of chlorine concentrations

Cleaning	Disinfection			Sterilization*
	Low	Intermediate	High *	
100 PPM	200 PPM	500 PPM	1,000 PPM	52,000 PPM

* Chlorine in these concentrations is very corrosive and not practically used.

Cleaning Techniques

Double-Bucket and Triple-Bucket Technique

The double-bucket technique is the most common and preferred method for cleaning floors. Using two buckets minimizes recontamination of mopped areas.

Double-bucket systems can extend the useful life of the detergent solution. Fewer changes of the detergent solution are required.

One bucket contains the detergent (or disinfectant detergent) solution and the other one water. The mop is always rinsed and wrung out before it is dipped into the detergent bucket. The efficacy of the disinfectant decreases with increased soil or microbial load.

Cleaning Levels for Different Clinic Areas

Low-risk Areas: Waiting Rooms, Administrative Areas

These areas are usually not contaminated with blood or body fluids or with associated infectious microorganisms so the risk of infection is minimal. Routine cleaning- the kind of cleaning you would do in your home – is usually good enough for these areas. In general, clean these areas with a cloth or mop dampened with detergent and water.

Intermediate Risk Areas: Examination Rooms

These are areas used for the care of patients who are not obviously infectious and not highly susceptible. These areas are usually cleaned by procedures that control dust, such as damp mopping with detergent cleaners. Dry sweeping or vacuum cleaners are not recommended. The use of detergent solution improves the quality of cleaning. Spills of blood and body fluids are cleaned up with a disinfectant solution.

Cleaning Supplies/Equipment

Cleaning supplies must be kept dry and stored properly. Reusable cleaning supplies should be washed and disinfected after use.

Cleaning supplies/equipment include:

- Dry sweeper
- Mop with long handles
- Heavy duty gloves
- Damp cloth
- Mop bucket
- Detergent (e.g., liquid soap)
- Disinfectant (chlorine solution)
- Water
- Closed plastic shoes

Reprocessing, Washing of Cleaning Equipment

Dry sweeper

- Reprocess or wash if overloaded with dust or after max. 1-2 days.
- Alternatively a single-use disposable cover may be used and disposed of after each use.
- Non-disposable dust mop covers must be vacuumed after each use.
- Use single-use covers impregnated with mineral oil to enhance dust attracting properties.

Mop with long handles

Wet

- Mop heads must be changed daily.
- Reprocess by machine washing in hot water (80 °C) (i.e., thermal disinfection) and tumble dry.

Mop bucket

Buckets should be washed with detergent (e.g. soap), rinsed with water, dried, and stored inverted.

Frequency of Cleaning

- Low-risk clinical areas: Once daily and whenever needed.
- Intermediate-risk areas: At least once daily, and whenever needed, e.g. after visits. Immediate removal of organic material.
- High-risk areas: cleaning will be more frequent. These areas must be cleaned between each patient and thoroughly at the end of the day.

A cleaning policy developed should take into consideration immediate cleaning after any organic contamination e.g. blood spills, vomitus, urine, stool, body fluids, etc.

Cleaning Up Spills

Clean up spills of potentially infectious fluids immediately. Besides preventing the spread of infection, prompt removal also prevents accidents.

When cleaning up spills:

- Always wear gloves, such as disposable or heavy duty gloves.
- If the spill is small, wipe it with a disposable cloth and then disinfect the surface area of the spill with another disposable cloth that has been saturated with a disinfectant (10,000 PPM chlorine solution).
- If the spill is large, place a disposable paper or cloth towel over the spill to soak up the fluid then add non-diluted chlorine. Still wearing gloves, pick up the towel, dispose into a bag to be disposed as biological waste and then soak the area with non-diluted chlorine. Leave it for considerable time then dry the surface.
- Do not simply place a cloth over the spill for cleaning up later; someone could easily slip and fall on it and be injured.
- Remember, contaminated equipment spreads, rather than reduces, microorganisms in the environment. Supplies and equipment used for cleaning also need to be cleaned (see under cleaning of equipment).

Cleaning of Equipment and Patient Care Articles

Table 22.6 Cleaning of equipment and patient-care articles

Equipment, patient-care articles	Routine or preferred method	Acceptable alternative or additional recommendations	Cleaning schedule
Bowls (emesis)	Wearing gloves, empty, rinse and wash with detergent and hot water, rinse and dry.	Infected patients: Disinfect after cleaning with a 200 PPM hypochlorite solution.	After each use
Ceilings	Wash with detergent solution	Keep in good repair. Physical integrity of ceiling is important because fungi and mold can grow on moist/water-damaged surfaces.	Clean if visibly soiled
Carpets	Vacuum and clean with detergent as needed.	Carpets are not allowed in patient care areas.	
Drains	Wearing heavy utility gloves, clean the area around the drain. Wash hands after removal of gloves. Chemical disinfection is not required.	Regular maintenance is a must. Cover with insect screen. When blockage occurs, contact Maintenance Department.	On a regular basis.
Floors	Wash with a hot detergent solution. Disinfection is not routinely required except in high-risk areas.	If contaminated, clean and disinfect using a chlorine solution.	At the beginning of the day, and whenever necessary.
Furnishings	Clean cloths are used for each room, soaked with detergent or disinfectant-detergent solutions contained in a basin. Double-basin system minimizes the recontamination inherent in a single-basin technique. Alternatively, spray the surface with the disinfectant-detergent solution. Vigorously wipe the sprayed surface with a clean cloth saturated with the solution.		Each day, and whenever necessary
Patient partition	Clean partitions with a detergent solution.	Should be disinfected if contaminated with blood or body fluids.	Each week and if dirty
Thermometers (Always separate rectal from orally used thermometers at all stages)	Wash in warm water (not hot!) and detergent and dry. Soak in 70% alcohol for 10 min.	Never leave soaking in disinfectants for long time or till been reused. Thermometers should be stored dry in a clean place till reused.	After each use

Equipment, patient-care articles	Routine or preferred method	Acceptable alternative or additional recommendations	Cleaning schedule
Toilet bowl and seat	Using heavy-duty utility gloves, wash bowl and seat with a hot detergent solution and dry the seat with a disposable paper towel. Wash your hands after removal of gloves.	Infected patients or if grossly contaminated: After cleaning, disinfect with 200 PPM chlorine solution, rinse and dry. This is important in an area where soiling is more likely, e.g. Gynecology, Maternity, Urology Department, etc. This area should not be cleaned with the same supplies used for cleaning patient care areas!	Daily, and whenever necessary
Trolleys	Wipe with warm water and detergent to remove dust. Dry.	Disinfect if contaminated with blood or body fluids.	Daily. Trolley tops before and after use.
Wash basins/sinks	Scrub with detergent; use cleaner for stains, etc. Disinfection is normally not required.	Disinfection may be required if contaminated.	Each day, and whenever necessary
Waste container	Wash waste container with a disinfectant cleaning solution, rinse, and dry with a disposable paper towel.		At the end of the day, and whenever necessary
Walls	Walls must be spot cleaned of spills and splashes and completely cleaned when they are soiled.	Disinfect if contaminated with blood or body fluids.	The needs increase In high-risk areas (weekly-monthly), and whenever necessary.
Working surfaces	Clean with a detergent solution, rinse and dry.	If there is visible spillage of blood or organic material, first remove spill and disinfect using a chlorine solution.	Several times during the day, and whenever they are soiled.

CLEANING, DISINFECTION AND STERILIZATION OF MEDICAL EQUIPMENT

Introduction

Medical equipments and surgical instruments are examples of devices that are essential to the care of patients; however, because they typically are designed for reuse, they also can transmit pathogens if any of the steps involved in reprocessing, cleaning, disinfection, or sterilization are inadequate or experience failures. Because the vast majority of pathogens are present in organic matter, e.g. visible soil, the first step in reprocessing, cleaning, is the most important. Any failure to remove soil at this point creates the potential for transmission of infection as the efficacy of subsequent disinfection or sterilization will be compromised. Decontamination is the process by which microorganisms are removed or destroyed in order to render an object safe. It includes:

- Cleaning,
- Disinfection, and
- Sterilization

All hospitals and health care facilities should have a decontamination policy and help staff to decide what decontamination process should be used for which item of equipment.

Processing Instruments

Definition of Terms

Antimicrobial agent: Any agent that kills or suppresses the growth of microorganisms.

Biocide: A chemical or physical agent that kills all living organisms, pathogenic and nonpathogenic.

Cleaning: Cleaning is a process, usually involving detergent or enzymatic presoak that removes foreign material (e.g. dirt or microorganisms) from an object. Cleaning is the most essential step in reprocessing instruments and equipment.

Decontamination: The use of physical or chemical means to remove, inactivate, or destroy pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, for use, or for disposal. Decontamination could comprise cleaning, disinfection or sterilization as appropriate.

Disinfection: Any process, chemical or physical, that destroys pathogens such that an item is safe to handle for its intended use.

Disinfectant: A disinfectant is a chemical agent that destroys most pathogens but may not kill bacterial spores. Chemical disinfection should only be used if heat treatment is impractical or if it may cause damage to the equipment. There is a broad spectrum of chemical disinfectants that have different anti-microbial activities. Most of them do not necessarily kill all microorganisms or spores that are present on an inanimate object but instead reduce the

number of microorganisms to a level that is not harmful to health. Disinfectants are used on inanimate objects only and not on living tissue. Chemicals used to kill microorganisms on skin or living tissue are known as antiseptics.

The broad category of disinfection may be subdivided into high-level, intermediate-level, and low-level disinfection according to the anti-microbial activity of the disinfectant.

High-level disinfectant (HLD): A high-level disinfectant is a chemical or physical agent or process that is capable of killing some bacterial spores when used in sufficient concentration, temperature, and under suitable conditions. It is therefore expected to be effective against vegetative bacteria, fungi, viruses and other microorganisms. It does not kill high numbers of bacterial spores.

Note: Some of the chemicals used for disinfection can also be used as chemical sterilants which can kill bacterial spores. Contact with the heat-sensitive items normally requires prolonged exposure times. For more details about chemical sterilants see the sterilization section in this chapter.

Pasteurization: A process developed by Louis Pasteur of heating milk, wine, or other liquids to 60 C to 100 C for approximately 30 minutes to reduce or to significantly kill the number of pathogenic and spoilage organisms. The higher the temperature, the shorter the time needed. Also termed as “heat disinfection”.

Sterilant: An agent that destroys all viable forms of microbial life to achieve sterilization.

Sterilization methods remove or destroy all forms of microbial life including bacterial spores by either physical or chemical processes. It is recommended that any instrument or equipment classified as critical that comes in contact with the blood stream or with subdermal tissues be cleaned and sterilized in between each use. Sterilization is accomplished principally by steam under pressure, by dry heat, and by chemical sterilants.

The choice of the method for sterilization depends on a number of factors including the type of material that the object to be sterilized is made of, the number and type of microorganisms involved, the classification of the item, and availability of sterilization methods.

Instrument Processing (Decontamination Steps)

There are two steps to processing items that are used during clinical and surgical procedures. Cleaning is the first and the most important step. Cleaning is followed by either sterilization or disinfection and by immediate use or proper storage of the item.

Risks of Infection from Equipment

The risks of infection from equipment may be classified into three categories. Placing instruments and equipment into one of the following categories can be helpful in choosing the proper level of disinfection or sterilization needed in order to protect the patients and the health care personnel.

Low risk (noncritical items)

Noncritical items are items that come into contact with normal and intact skin as stethoscopes or with the inanimate environment (e.g. walls, floors, ceilings, furniture, sinks, etc.). Cleaning with a detergent and drying is usually adequate. Stethoscopes are usually cleaned and in rare cases they should be disinfected if used on infectious patient or highly susceptible patient.

Intermediate risk (semi-critical items)

Semi-critical items are items that do not penetrate the skin or enter sterile areas of the body but that are in close contact with mucous membranes or with non-intact skin. Cleaning followed by HLD is usually adequate. Examples include laryngoscopes, specula, thermometers, and other similar instruments.

High risk (critical items)

High risk items are items that penetrate sterile tissues such as body cavities and the vascular system. These items are called critical items because of the high risk of infection if such an item is contaminated with any microorganism before penetrating the tissue. Cleaning followed by sterilization is required. High-level disinfection may sometimes be appropriate if sterilization is not possible. Examples of high-risk items include surgical instruments, intra-uterine devices, vascular catheters, implants, etc.

Single use items

These items may be used in critical, semi-critical, or noncritical areas; however, they are single use items that are prepackaged with the appropriate level of disinfection or sterilization and are disposed of after a single use. Examples include gloves, needles, syringes, and tongue depressors.

The figure below shows the relationship between types of items and the sterilization or disinfection that they must undergo.

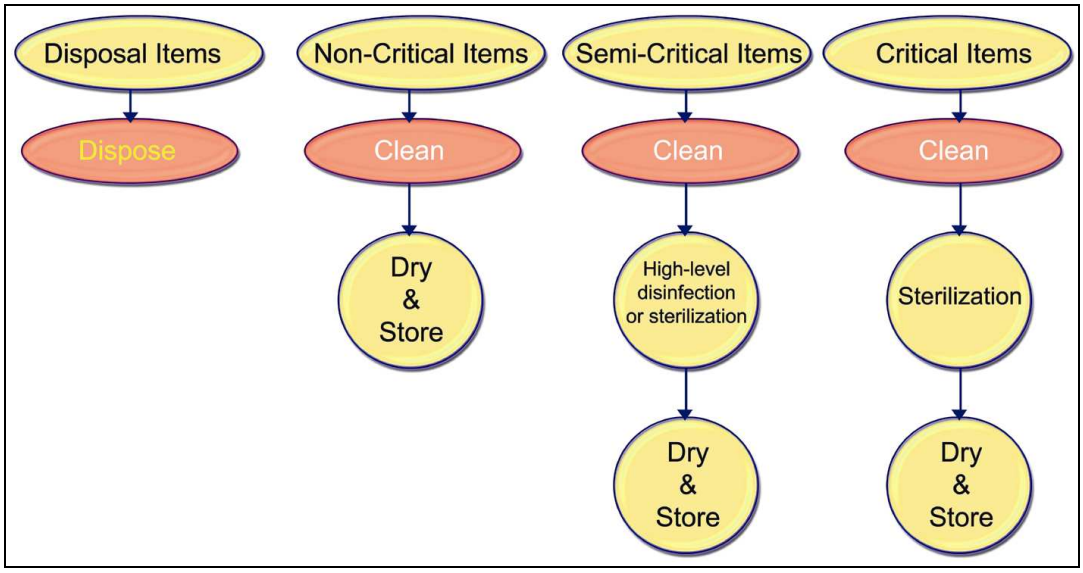


Figure 22.10 Relation between type of item and its decontamination

Cleaning

Cleaning is the removal of all foreign material (dirt and organic matter) from the object being reprocessed. Two key components of cleaning are friction to remove foreign matter and fluids to remove or rinse away contamination. Thorough cleaning will remove most organisms from a surface and should always precede disinfection and sterilization procedures. If instruments

and other items have not been cleaned, sterilization and disinfection may not be effective because microorganisms trapped in organic material may survive sterilization or disinfection.

Cleaning is normally accomplished by the use of water, detergents and mechanical actions. Detergent is essential to dissolve proteins and oil that can reside on instruments and equipment after use.

Cleaning may be manual or mechanical. Mechanical cleaning includes ultrasonic cleaners or washer/disinfectors that may facilitate cleaning and decontamination of some items and may reduce the need for handling.

The solution used most often to clean is an enzymatic presoak (protease formula that dissolves protein). Alternatively a detergent can be used. Detergents lower surface tension and lift dirt or oil away from the device. Studies have shown that thorough cleaning alone can provide a 10,000 fold reduction in contaminant microbes from endoscopes. Cleaning can be very effective in removing microbial contaminants from surgical devices.

Manual Cleaning

All items requiring disinfection or sterilization should be dismantled before cleaning. Cold water is preferred; it will remove most of the protein materials (blood, sputum, etc.) that would be coagulated by heat and would subsequently be difficult to remove. The most simple, cost-effective method is to thoroughly brush the item while keeping the brush below the surface of the water in order to prevent the release of aerosols. The brush should be decontaminated after use and should be dried.

Finally, items should be rinsed in clean water and then should be dried. Items are then ready for use (noncritical items) or for disinfection (semi-critical items) or for sterilization (critical items).

Manual cleaning is necessary when:

- Mechanical cleaning facilities are not available
- Delicate instruments have to be cleaned
- Complex instruments need to be taken apart to be cleaned
- Items with narrow lumens need to be cleaned (endoscopes)

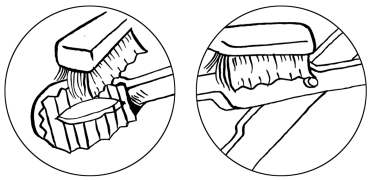
Manual or hand-cleaning must be done with extreme caution. The staff should follow the set procedure:

Steps for cleaning

1. Wear heavy-duty rubber gloves, a plastic apron, eye protection, and mask during cleaning.

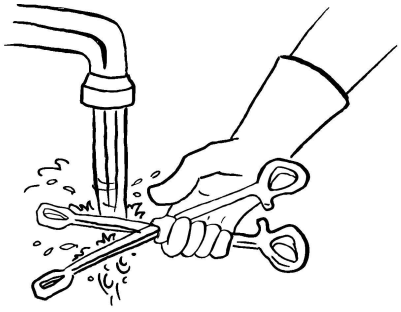
2. Soak the instruments in normal tab water containing a detergent.

3. Scrub instruments and other items vigorously to completely remove all foreign material using a soft brush or old toothbrush, detergent, and water. Hold items under the surface of the water while scrubbing and cleaning to avoid splashing. Disassemble instruments and other items with multiple parts, and be sure to brush in the grooves, teeth, and joints to items where organic material can collect and stick.



4. Flush through lumens with an adapted water jet.

5. Rinse items thoroughly with clean water to remove all detergent. Any detergent left on the items can reduce the effectiveness of further processing.



6. Inspect items to confirm that they are clean.

7. Allow items to air dry or dry them with a clean towel if chemical disinfection is going to be used. This is to avoid diluting the chemical solutions used after cleaning. Items that will be high-level disinfected by boiling or steaming do not need to be dried.

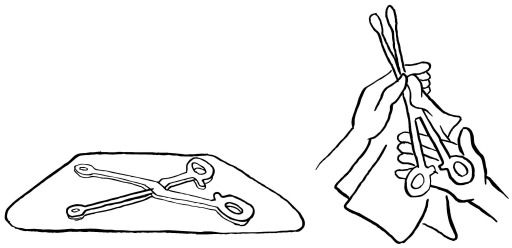


Figure 22.11 Steps for cleaning

Remember when cleaning

- Do not use hand soap to clean instruments because fatty acids in the soap react with hard water to leave a soap scum on the instruments.
- Always wear utility gloves, a mask, and eye protection when cleaning instruments.
- Do not use abrasive materials that scratch or pit instruments. Scratches, pits, or grooves can harbor microorganisms and promote corrosion. Automatic washing machines are preferable to washing by hand.

Soaking of Instruments Prior to Cleaning

Sometimes the level of contamination of the instrument makes it necessary to soak items prior to cleaning. A deep container, e.g. a bucket, containing a wire-mesh basket can be filled with water and detergent. The instruments are placed in the wire basket, agitated for 3-5 minutes, and then lifted out. The basket is overturned onto a table or tray in order to separate the instruments prior to cleaning, packing and autoclaving.

Disinfection

Disinfection can be carried out either by thermal or chemical processes. Thermal disinfection is preferred whenever possible. It is generally more reliable than chemical processes, leaves no residues, is more easily controlled, and is non-toxic. Heat sensitive items have to be reprocessed with a chemical disinfectant.

Organic matter (serum, blood, pus or fecal material) interferes with the antimicrobial efficiency of either method. The larger the number of microbes present, the longer it takes to disinfect. Thus scrupulous cleaning before disinfection is of greatest importance.

High Level Disinfection (HLD) - Semi-critical items

There are two types of HLD used in primary healthcare facilities:

- Boiling
- Chemical disinfection

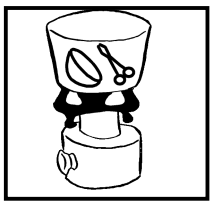
Note: When sterilization is not available, HLD is the only acceptable alternative for instruments and other items (i.e. semi-critical items) that will come into contact with the bloodstream or tissues under the skin.
Boiling is HLD, not sterilization. Flaming is not an effective method of HLD because it doesn't effectively kill all microorganisms.

HLD by boiling

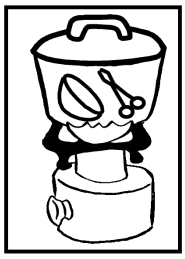
High-level disinfection is best achieved by moist heat such as boiling in water (100°C for one minute holding time), which kills all organisms except for a few bacterial spores. It is important to note that boiling equipment items in water will not achieve sterilization.

Steps of boiling

1. Clean all items to be high-level disinfected.



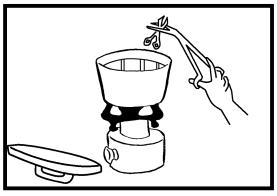
2. Open all hinged instruments and disassemble those with sliding or multiple parts. Place bowls and containers upright so they fill with water. Make sure that all items are completely submerged because water must touch all surfaces for HLD to be achieved.



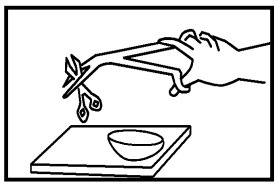
3. Cover the pot or close the lid on the boiler and bring the water to a gentle, rolling boil.

4. Once the water is in a rolling boil, start timing for at least 1 minute. Use a timer or make sure to record when the boiling begins. From this point on do not add or remove any water or items.

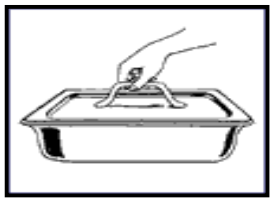
5. Lower the heat to keep the water at a gentle, rolling boil. Too vigorous boiling may damage items and will speed the evaporation of the water.



6. After 1 minute holding time, remove items using dry, high-level disinfected pickups. Place items to air-dry on a high-level disinfected tray or on a high-level disinfected container that is away from dust and insects and in a low-traffic area. Never leave boiled instruments and other items in water that has stopped boiling; they can become contaminated as the water cools.



7. Store the dry items in a high-level disinfected and covered container and use items immediately or keep in a covered, dry, high level disinfected container and use within one week.



8. The boiler should be emptied and dried daily.

Figure 22.12 Steps for boiling

Note: Addition of a 2% solution of sodium bicarbonate elevates the temperature and helps to prevent corrosion of the instruments and utensils.

Tips for HLD by boiling

- Instruments and other items must be completely covered with water. Open all hinged instruments and other items and disassemble those with sliding or multiple parts.
- Always boil for 1 minute. Start counting the one minute when the water reaches a rolling boil. If you forget to start timing the HLD procedure, start timing at the point at which you realize that you did not begin timing.
- Do not add anything to or remove anything from the pot/boiler once boiling begins.
- A white, scaly deposit may be left on instruments and other items that have been boiled frequently and on the pot/boiler itself. These are lime deposits caused by lime salts in the water.
- To minimize lime deposits:
- Add some vinegar to the water to remove deposits from instruments, other items, and the inside of the pot/boiler.
- Boil the water for 10 minutes at the beginning of each day that the pot/boiler is used; this will precipitate the lime (make it come out of the water and settle on the bottom or sides of the pot/boiler instead of on the instruments or other items) before the instruments or other items are added.
- Use the same water throughout the day, adding only enough to keep the instruments and other items below the surface.
- Drain and clean out the pot/boiler at the end of each day that it is used.
- A high-level disinfected tray or container can be prepared either by:
  - Boiling it for 1 minute and drying thoroughly, or
  - Filling it with a 0.5% chlorine solution and letting it soak for 20 minutes, draining the chlorine solution, and rinsing thoroughly with boiled water.
- Stainless steel containers are preferred as containers for HLD.

Chemical HLD

Before deciding to use a chemical disinfectant, consider whether a more appropriate method is available. Chemical disinfection is used most commonly for heat-labile equipment where single use is not cost effective.

A limited number of disinfectants can be used for this purpose. e.g.:

- Glutaraldehyde 2% for 20 min.,
- Hydrogen peroxide 6% - 7.5% for 20 - 30 min.,
- Peracetic acid 0.2 - 0.35% for 5 min.
- Ortho-phthalaldehyde (OPA) for 5 - 12 min.

The object must be thoroughly rinsed with sterile water after disinfection. If sterile water is not available, freshly boiled water can be used. After rinsing, items must be kept dry and stored properly.

Steps

1. Clean and dry all items to be high-level disinfected. Water from wet instruments and from other items dilutes the chemical solution, thereby reducing its effectiveness.
2. When using a glutaraldehyde solution: Preparations of glutaraldehyde are non-corrosive to metals and other materials and inactivation by organic matter is very low. Alkaline solutions require activation; once activated they remain active for at least 2 weeks depending on the frequency of use. If the solution is not activated prepare it in a sterile container by following the manufacturer's instructions. Fresh solution should be made each day (or sooner, if the solution becomes cloudy).
3. If using a previously prepared solution, use an indicator strip to determine if the solution is still effective. If preparing a new solution, put it in a clean container with a lid and mark the container with the preparation date and expiration date.
4. Open all hinged instruments and other items and disassemble those with sliding or multiple parts; the solution must contact all surfaces in order for HLD to be achieved.
5. Place all items in the solution so that they are completely submerged. Place bowls and containers upright, not upside-down, so that they fill with the solution.
6. Cover the container and allow items to soak for 20 minutes. During this period, do not add or remove any items from the container. Monitor the time.
7. Remove the items from the container using, dry, high-level disinfected pickups (e.g., forceps).
8. Rinse thoroughly with boiled water to remove the chemical residue that is left on items. This residue is toxic to skin and to tissues.
9. Place items to air-dry on a high-level disinfected tray or in a high-level disinfected container before use or storage. Use instruments and other items immediately or keep them in a covered, dry, high-level disinfected container and use within one week.

Notes on disinfectants

- There is no all purpose disinfectant. The best housekeeping disinfectants are not the best instrument disinfections. Example, 2% gluteraldehyde is a good instrument and equipment disinfectant but it is inappropriate for the floors and walls.
- Environmental sampling to verify the effectiveness of disinfectants is of no value.
- For selection of a disinfectant, the level of disinfection required should be determined according to the contamination likely to be present.
- Antiseptics should never be used for HLD. They are for use on the skin and mucous membranes, not on inanimate objects.Disinfectants should always be stored in a cool, dark place; they should never be stored in direct light or excessive heat.

Table 22.7 Comparison of the characteristics of chemical sterilants used primarily as high–level disinfectants.

	HP(6%-7.5%)	PA (0.2%)	Glut (≥2.0%)	OPA (0.55%)	HP/PA (7.35% 0.23%)
HLD claim	20-30m @ 20°C	5m@40°C	20m	12m	15m
Sterilization claim (sporicidal effect)	6h@20°C	10m@40°C	10h	None	3h@20°C
Activation	No	No	Yes (alkaline glut)	No	No
Reuse life[1]	21 days	Single use	14-30days (acid glut-1yr)	14d	14d
Shelf life stability[2]	2yrs	6mo	2yrs	2yrs	2yrs
Disposal restrictions	None	None	Local[3]	Local[3]	None
Materials compatibility	Good	Fair	Excellent	Excellent	No data
Monitor MEC[4]	Yes (6%)	No	Yes (1.5% or higher)	Yes (0.3% OPA)	No
Safety	Serious eye damage (safely glasses)	Serious eye and skin damage (conc soln) [5]	Respiratory	Eye irritant, stains skin	Eye damage
Processing	Manual or automated	Automated	Manual or automated	Manual or automated	Manual
Organic material resistance	Yes	Yes	Yes	Yes	Yes

Abbreviations: HLD = high-level disinfectant; HP - hydrogen peroxide; PA = peracetic acid; glut = glutaraldehyde; HP/PA = hydrogen peroxide and paracetic acid; OPA = ortho-phthaladehyde; m = minutes; h = hours; NA = not applicable; TWA = time-weighted average for a conventional 8-hour workday.

[1] number of days a product can be reused as determined by re-use protocol; [2]time a product can remain in storage (unused); [3]no U.S. EPA regulations but some states and local authorities have additional restrictions; [4]MEC= minimum effective concentration is the lowest concentrated of active ingredients at which the product is still effective; [5]Conc soln=concentrated solution.

Note: Concentration of used disinfectant and contact time should be revised because different companies provide different concentrations for a single disinfectant, so manufacture's instructions should be carefully read before use of any disinfectant.

Table 22.8 Disinfectant properties (high level disinfection)

	Properties[1]				Antimicrobial activity				
Disinfectant	**Stability**	**Inactivation Organic matter**	**Corrosive/ Damaging**	**Irritant/ Sensitizing**	**Spores**	**Myco-bacterial**	**Other Bacteria**	**Viruses**	
								E	**NE**
Glutaraldehyde 2% (20 min.)	Moderately (14-28 days)	No (fixative)[2]	No	Yes[3]	Good 3h	Good[6] 20 min.	Good 5-10 min.	Good 5-10 min.	Good 5-10 min.
Peracetic acid 0.2-0.35% (5-10 min.)	No (< 1 day)	No	Slight	Slight	Good	Good	Good	Good	Good
Alcohol[4] 60-90% (ethanol or isopropanol) (10 min.)	Yes (in closed container)	Yes (fixative)[2]	Slight	No	None	Good	Good	Good	Moderate
Peroxygen compounds 6-7.5% (20-30 min.)	Moderately (7 days)	Yes	Slight	No	Variable	Variable	Good	Good	Variable
Chlorine releasing agents 200-1000 PPM	No (< 1 day)	Yes	Yes	Yes[5]	Good	Good	Good	Good	Good
Clear soluble phenolics[7]	Yes	No	Slight	Yes	None	Good to moderate	Good	Moderate	Poor
Quaternary ammonia compounds[8]	Yes	Yes	No	No	None	Variable	Moderate	Moderate	Poor

[1]Use protective clothing when handling disinfectant; [2]Poor penetration; [3]Should only be used in a well ventilated room; [4]Flammable; [5]In high concentration; [6]Less active against M. avium intracellulare; [7]Potentially toxic; [8]Diluted solutions may allow the growth of Gram-negative bacilli; E = enveloped; NE = non enveloped

Sterilization

Sterilization is a process which achieves the complete destruction or killing of all microorganisms, including bacterial spores.

Sterilization is principally accomplished by:

- Steam under pressure (Autoclaving)
- Dry heat (Hot Air Oven)
- The use of chemicals such as ethylene oxide gas (which is mainly used in industry) or other low temperature methods (e.g. hydrogen peroxide gas plasma).

Note: Boiling and flaming are not effective sterilization techniques because they do not effectively kill all microorganisms.
Large health care facilities should have more than one type of sterilization system in case of power outage, equipment failure, or shortage of supplies.

Pressure Steam Sterilization (autoclaving)

Steam sterilization is the most common and most preferred method employed for sterilization of all items that penetrate the skin and mucosa if they are heat stable. Steam sterilization is dependable, non toxic, inexpensive, sporicidal, and has rapid heating and good penetration of fabrics.

Method

The steam must be applied for a specified time so that the items reach a specified temperature. For unwrapped items:

- 121°C for 20 min. at 1.036 Bar (15.03 psi) above atmospheric pressure (see table 22.9).
- 134°C for 3-4 minutes at 2.026 Bar (29.41 psi) above atmospheric pressure (see table 22.9).

Types of steam sterilizers

Small table-top sterilizers

- Sometimes used in physicians' and dentists' offices and clinics.
- Are essentially horizontal pressure cookers.
- Holding temperature for unwrapped items:
  - 121ºC for 20 minutes or 134 °C for 3-4 minutes.

Portable steam sterilizer

These can be adapted for processing critical devices in low resource settings. In addition, pressure cookers can provide adequate steam sterilization in situations where conditions and resources are severely limited.

Gravity downward-displacement sterilizers

- Larger than tabletop sterilizers with addition of more automatic controls.
- The chamber fills with steam, displacing the air downward and forcing it out of the drain valve.
- Holding temperature for unwrapped items: 121ºC for 20 minutes or 134 °C for 3-4 minutes.

Emergency (flash) sterilizers (these are a form of gravity-displacement sterilizer)

- Normally located in operating room suite.
- Quick sterilization cycle at 134ºC for 3-4 minutes.
- Should be used only when there is insufficient time to sterilize an item by the preferred prepackaged method.
- Only for unwrapped items.

High-speed prevacuum vacuum sterilizers (porous load autoclaves)

- Similar to downward-displacement sterilizers, with the addition of a vacuum pump system.
- Vacuum pump removes the air from the chamber before the steam is admitted, reducing the penetration time and total cycle time.
- Holding temperature 134ºC for 3-4 minutes for wrapped items.
- Ideally used for wrapped items and porous loads (fabrics, swabs, instruments with lumens).

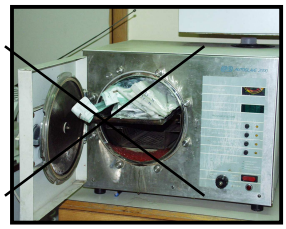
Table 22.9 Sterilization times

Type of instruments to be sterilized	Sterilization time
Gravity sterilizer	
Unwrapped 121 ºC (1.036 Bar)	20 min.
Unwrapped: 134 ºC (2.026 Bar) (metal and glass only)	3 min.
Unwrapped: 134 ºC (2.026 Bar) (e.g., rubber)	10 min.
Wrapped 121 ºC (1.036 Bar)	30 min.
Wrapped 134 ºC (2.026 Bar)	15 min.
High-speed vacuum sterilizer	
Wrapped: 134 ºC (2.026 Bar)	4 min.

Note: Sterilization time does not include the time it takes to reach the required temperature or the time for exhaust and drying; therefore, it is shorter than the total cycle time.
The temperatures required for steam sterilization are lower than those for dry-heat sterilization because moist heat under pressure allows for more efficient destruction of microorganisms.

Steps for pressure steam sterilization

1. Clean all items to be sterilized.
2. Open or unlock all hinged items and disassemble items with multiple parts. Do not arrange items close together.
3. Arrange all labeled packs, drums, or unwrapped items in the chamber of the autoclave in a way that allows the steam to circulate freely. DO NOT STACK.



4. Follow the manufacturer's instruction for operating the autoclave. Adjust time, temperature and pressure according to the table before. It is best to use a timer, which helps ensure that the appropriate timing is achieved.
5. Do not begin timing until the autoclave reaches the desired temperature and pressure
   - If the timing process is forgotten, start the cycle again. If the autoclave is automatic, the heat will shut off and the pressure will begin to fall off once the sterilization cycle is complete.
   - If the autoclave is not automatic, turn off the autoclave after achieving the required time.
6. Wait until the pressure gauge reads "0" to open the autoclave. Open the lid or door to allow remaining steam to escape. Leave all items in the autoclave until they dry completely. It may take up to 30 minutes.
7. Remove packs, drums, or unwrapped items from the autoclave using sterile pick-ups to handle unwrapped items. The packs of equipment should come out of the autoclave dry. ***Wet packs must be considered non-sterile.*** Do not store packs, drums or unwrapped items until they cool to room temperature. This may take several hours.
8. Store items using the following guidelines:
   - Wrapped items: The length of time (i.e. shelf life) that a wrapped, sterile item is considered sterile depends on whether or not a contaminating event occurs not necessarily on how long an item has been stored. Store items in a closed, dry, cabinet with moderate temperature and low humidity in an area that is not heavily trafficked. A wrapped pack can be considered sterile as long as it remains intact and dry. When in doubt about the sterility of a pack, consider it contaminated and re-sterilize the items.
   - Unwrapped items: Use immediately after removal from the autoclave or keep them in a covered, dry, sterile container for up to one week.

9. Label accurately with contents, date of processing and expiration date and store wrapped materials in storage cabinet.

Advantages and Disadvantages of Steam Sterilization

Advantages

- Highly effective
- Rapid heating and rapid penetration of instruments
- Nontoxic
- Inexpensive
- Can be used to sterilize liquids

Disadvantages

- Items must be heat and moisture resistant
- Will not sterilize powders, ointments or oils
- Needs good maintenance

Wrapping Instruments and Other Items for Steam Sterilization

Wrapping instruments and other items before steam sterilization helps to decrease the likelihood that, after sterilization, they will be contaminated before use.

To wrap instruments and other items for steam sterilization, use two layers of material such as paper, newsprint, or muslin or cotton fabric. Do not use canvas because it is difficult for steam to go through canvas. Make points while wrapping the instruments and other items so that the packs can be easily opened without contaminating their contents.

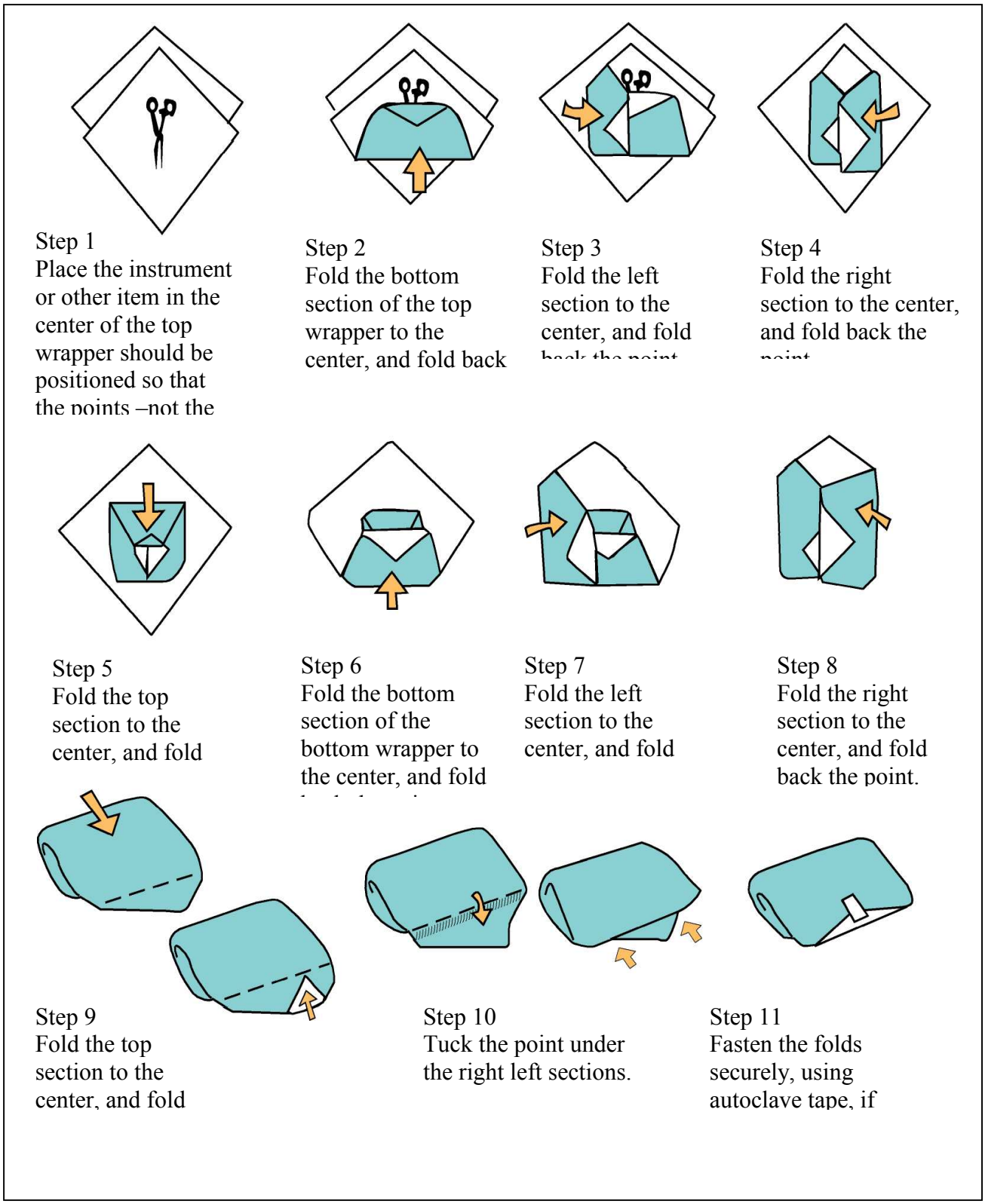


Figure 22.13 Steps for wrapping instruments and other items

Autoclave Maintenance

The autoclave should be checked each time it is used in order to make sure that it is functioning properly. An equipment log should be used to monitor performance including temperature, timing, and cycle.

The autoclave is not working correctly if:

- Steam comes out of the safety valve instead of the pressure valve. In such a case, the pressure valve must be cleaned and inspected.
- Steam comes out from under the lid or around the door. If this happens, the gasket must be cleaned and dried or replaced.

Note: To ensure that the autoclave is properly maintained, routine maintenance should become standard procedure. Someone should be assigned to be responsible for this task. The manufacturer's instructions should be followed whenever possible since autoclave maintenance varies depending on the type of autoclave.

Dry-heat Sterilization

Dry heat sterilization (hot air oven)

For dry heat-sterilization to be achieved, a constant supply of electricity is necessary. Dry heat is preferred for reusable glass, metal instruments, oil, ointments and powders. Do not use this method of sterilization for other items, which may melt or burn.

Dry heat ovens should have fans to give even temperature distribution and faster equilibrium of load to sterilization temperatures.

Steps of dry-heat sterilization

1. Clean and dry all items to be sterilized.
2. Either (1) wrap with foil or (2) place unwrapped items on a tray or shelf, or (3) put them in a closed metal container.
3. Place items in the oven and heat to the holding temperature.

Table 22.10 Dry heat sterilization temperatures and times

Holding temperature	Sterilization time (After reaching the holding temperature)
180 ºC	30 minutes
170ºC	1 hour
160ºC	2 hours
149ºC	2.5 hours
141ºC	3 hours

4. Leave items in the oven to cool to room temperature before removing. When items are cool, remove instruments and other items (using sterile pickups for unwrapped items) and use immediately or store.
5. Proper storage is as important as the sterilization process itself.

Store items using the following guidelines:

- Wrapped items – store in a closed, dry, cabinet with moderate temperature and low humidity in an area that is not heavily trafficked.
- Unwrapped items – use immediately after removal from the autoclave or hot oven, keep them in a covered, dry, and sterile container for up to one week.

Note: The oven must have a thermometer or temperature gauge to make sure that the designated temperature is reached.
Do not begin timing until the oven reaches the desired temperature.
If the timing process is forgotten, start it when the oversight is realized.

Advantages and disadvantages of dry-heat sterilization

Advantages

- Can be used for powders, anhydrous oils, and glass
- Reaches surfaces of instruments that cannot be disassembled
- No corrosive or rusting effect on instruments
- Low cost

Disadvantages

- Penetrates materials slowly and unevenly.
- Long exposure times necessary
- High temperatures damage rubber goods and some fabrics
- Limited package materials

Maintenance of dry-heat ovens

Dry heat ovens should be checked to make sure that they are functioning properly. Staff should:

- Keep the oven clean.
- Check that the temperature gauge is working correctly on a regular basis – every few weeks is sufficient. To check the temperature gauge, put a thermometer in the oven and compare the temperature reading with the one on the gauge.

Chemical Sterilization

Before deciding to use a chemical sterilant, consider whether a more appropriate method is available. Chemical sterilants are primarily used for heat- labile equipment where single use is not cost effective. Instruments and other items can be sterilized by soaking in a chemical solution followed by rinsing in sterile water. The immersion time to achieve sterilization or sporicidal activity is specific for each type of chemical sterilant. The difficulty lies in the fact that immersion for the appropriate time, rinsing with sterile water, and then transferring the device to a sterile field for use is challenging. Also, in contrast with steam sterilization methods, a biological indicator is not available for most chemical sterilants. Given these limitations most liquid chemical sterilants are instead used for high-level disinfection. If an

item is sterilized chemically, it should be used immediately after sterilization, to be sure that it is sterile.

Types of Chemical Sterilants

Glutaraldehyde is a commonly available solution that can be used for sterilization. Other chemical sterilants may be locally available, such as peracetic acid, 7.5% hydrogen peroxide, or hydrogen peroxide (1%) plus peracetic acid (0.08%). Formaldehyde is obsolete and toxic.

Glutaraldehyde

Uses: A 2% glutaraldehyde solution for at least 10 hours that can be used to sterilize heat labile items. Glutaraldehyde solution is irritating to the skin, to the eyes, and to the respiratory tract. There are two types of glutaraldehyde available in Egypt. One alkaline solution that requires activation (e.g., Cidex®) and one acidic solution that is stable and does not require activation but is slower in activity than the activated alkaline buffered solution.

Precautions: Glutaraldehyde is an eye and nasal irritant and may cause respiratory illness (asthma) and allergic dermatitis. Glutaraldehyde should not be used in an area with little or no ventilation. Eye protection, a plastic apron, and gloves must be worn when glutaraldehyde liquid is made up, disposed of, and used for sterilization. Latex gloves may be worn and discarded after use if the duration of contact with glutaraldehyde is brief, e.g. less than 5 minutes. For longer duration, nitrile gloves must be worn. Glutaraldehyde should be stored away from heat sources and in containers with close-fitting lids. The length of time that glutaraldehyde solutions can be used varies but they are usually good for up to 14 days. Solutions should be replaced any time they become cloudy.

Peracetic acid

Uses: A 0.2 – 0.35% peracetic solution for 10 minutes can be used to sterilize heat-labile items (e.g. arthroscopes, dental instruments). A special advantage of peracetic acid is that it has harmless decomposition products and leaves little residue on sterilized items. It remains effective in the presence of organic matter and is sporicidal even at low temperatures. Peracetic acid can corrode copper, brass, bronze, plain steel, and galvanized iron, but additives and pH modification can reduce these effects. It is considered unstable, particularly when diluted. It is more effective than glutaraldehyde at penetrating organic matter, e.g. biofilms. It is known to be highly corrosive and its use as a disinfectant in its natural state is therefore limited unless there is a corrosion inhibitor in the formulation. Nu-Cidex® is stabilized peracetic acid solution with a corrosion inhibitor. The solution is activated to provide the appropriate in-use strength. Once prepared the current manufacturer's recommendations is that it should be used within 24 hours.

Sterilization using peracetic acid can be done through an automated reprocessor that dilutes the 35% peracetic acid to a use concentration of 0.2%. This system can only be used if the device being reprocessed is immersible as endoscopes. Filtered water is used to rinse the device. Connectors to assure free flow of the liquid chemical sterilant are important and the connectors are very specific to each model of device being reprocessed. This system is used to chemically sterilize both flexible and rigid endoscopes.

Steps for Chemical Sterilization

1. Wear protective clothing.
2. Clean, and dry all items to be sterilized.

3. Prepare the chemical sterilization solution following the manufacturer's instructions.
4. If using a previously prepared solution, use an indicator strip to determine if the solution is still effective.
5. If preparing a new solution, put it in a sterile container with a lid and mark the container with the preparation date and expiration date.
6. Open all hinged instruments and other items. Disassemble those instruments with sliding or multiple parts because the solution must contact all surfaces for sterilization to be achieved.
7. Place all items in the solution so that they are completely submerged. Place bowls and containers upright so that they are filled with the solution.
8. Cover the container and follow the manufacturer's instructions regarding the time necessary for sterilization. During this period, do not add or remove any items from the container.
9. Remove the items from the container using large sterile pickups.
10. Rinse thoroughly with sterilized water to remove the residue that chemical sterilants leave on items.
11. Place items on a sterile tray or in a sterile container and allow to air dry before use or storage.
12. When items are dry, use or store immediately.
13. If items are to be stored, keep them in a covered, dry, sterile container for up to one week.

Monitoring the Effectiveness of Sterilization

To ensure that sterilization has been successful the process of sterilization (and not the end product) is tested. Indicators have been developed to monitor the effectiveness of sterilization by measuring various aspects of the process through different indicators.

Mechanical indicators

These indicators, which are part of the autoclave or dry-heat oven itself, record and allow you to observe time, temperature, and/or pressure readings during the sterilization cycle.

Chemical indicators

- Tape with lines that change color when the intended temperature has been reached.
- Pellets in glass tubes that melt, indicating that the intended temperature and time have been reached.
- Indicator strips that show that the intended combination of temperature, time, and pressure has been achieved.
- Indicator strips that show that the chemicals and/or gas are still effective.
- Chemical indicators are available for testing ethylene oxide, dry heat, and steam processes. These indicators are used internally, placed where steam or temperature take longest to reach, or put on the outside of the wrapped packs to distinguish processed from nonprocessed packages.

Biological indicators

These indicators use heat-resistant bacterial endospores to demonstrate whether or not sterilization has been achieved. If the bacterial endospores have been killed after sterilization, you can assume that all microorganisms have been killed as well. After the sterilization process the strips are placed in a broth that supports aerobic growth and incubated for 7 days. The advantage of this method is that it directly measures the effectiveness of sterilization. The disadvantage is that this indicator is not immediate, as are mechanical and chemical indicators. Bacterial culture results are needed before sterilization effectiveness can be determined.

Recommended ideal monitoring system

Perform the following monitoring activities whenever possible.

For steam sterilization

- If the autoclave has recording chart, review it after each load. If not, record the temperature, time and pressure information in a log book that is reviewed after each load.
- Place heat-and steam-sensitive chemical indicators, if available, on the outside of each pack.
- Perform testing with biological indicators weekly (or monthly, if testing weekly is not possible).
- Indicators should be in the middle of the item reprocessed (the most difficult part of the load).
- A thermometer could be put in the most difficult part of the load.

For dry-heat sterilization

- If the oven has a recording chart, review it after each load. If not, record the temperature and time information in a log that is reviewed after each load.
- Place heat-sensitive chemical indicators, if available, on the outside of each pack.
- Perform testing with biological indicators weekly (or monthly, if testing weekly is not possible).
- A thermometer could be put in the most difficult part of the load.

For chemical sterilization

- Record the time information in a log that is reviewed after each load.
- Use an indicator strip, if available, to determine if the solution is still effective.

Correcting sterilization failure

- If monitoring indicates a failure in sterilization, attempt to determine the cause of the failure and arrange for corrective steps, as follows:
  - Immediately check that the autoclave or dry-heat oven is being used correctly or replace the chemical solution.
  - If correct use of the unit has been documented and monitoring still indicates a failure in sterilization, discontinue using the unit and have it serviced.

- Any instruments or other items that have been processed in the faulty autoclave or dry-heat oven must be considered nonsterile and must be processed again with the unit is functioning properly.

WASTE MANAGEMENT I

Introduction

Health-care medical waste is a by-product of health care that includes sharps, non-sharps, blood, body parts, chemicals, pharmaceuticals, medical devices, and radioactive materials. Poor management of health care waste may expose health care personnel, waste handlers, and the community to infectious agents, to toxic materials, and to an increased risk of injury. It may also damage the environment (e.g., contamination of water, air, and food). In addition, if waste is not disposed of properly, members of the community may have an opportunity to collect disposable medical equipment (particularly syringes) and to resell these materials. Medical waste can potentially be reused without sterilization. This reuse of unsterilized waste material causes a large portion of the diseases that develop due to poor waste management. An extensive survey of medical waste generated at a Saudi Arabian hospital found that a comprehensive waste program was able to reduce the amount of waste being discarded as medical from 1163 kg/day to 407 kg/day or a 65% reduction. A substantial portion of items that were being discarded as medical waste were plastics such as IV bags and tubing, disposable, uncontaminated paper wraps used for instruments which did not meet this country's definitions of medical waste.

Magnitude of Medical Waste in Egypt

Although there are no accurate figures on the magnitude of medical waste generated from health care facilities in Egypt, some limited reports describe the amount of medical waste generated per bed per day to be on the average of 1 kg. There are approximately 123,000 beds distributed in governmental and private health care facilities (excluding military and police hospitals). This means that the total hospital waste is estimated to be on average 123 tons/day. Almost 80% of the total waste generated by health care activities is general waste (comparable to domestic waste), while the remaining 20% of waste is considered to be hazardous and may be infectious, toxic, or radioactive. In other words, Egypt generates an average of 24,600 tons of hazardous or infectious waste daily.

Legislation for Egypt

Law No. 4 for the protection of the environment was issued in 1994. Its implementation policy was issued by a decree from the board of ministers, number 338 for year 1995. Law No. 4 is concerned with the protection of the environment (protection of air, water, and ground) from all aspects of pollution, including pollution with dangerous waste.

Dangerous waste was defined as all material which harms the health of human beings or which has a negative impact on the environment as infectious, toxic, or radioactive material.

Law No. 4 includes 100 elements. Element no. 29 stresses the prevention of handling of dangerous waste without a license from the responsible administrative area. Those who do not comply with element no. 29 could be punished by prison for a period of not less than 5 years and by being fined an amount of money not less than 20,000 L.E.

General Principles of Waste Management

A clear facility policy for waste management should be available for proper implementation of a waste management system. The policy should describe in detail the methods of waste segregation, collection, storage, and disposal, according to the resources available in each health facility.

Roles and responsibilities of the different team members responsible for waste management should be clarified. One main person should be assigned to be responsible for waste management in each facility.

All used sharps must be discarded without re-sheathing in a puncture-resistant container that is readily accessible.

All clinical waste, e.g., waste contaminated with blood and/or bloody fluids, should be discarded into a colored bag (e.g. red or yellow). Segregation of waste should take place at its source of origin.

The Different Types of Waste

Wastes and by-products cover a diverse range of materials and can be divided into two categories:

Non-medical Waste (or Non-hazardous Waste)

General or non-medical waste poses no risk of injury or infection to staff, to patients, to visitors, or to the community at large. It is similar in composition to household trash.

Note: General waste represents 80% of the total waste from health care activities.

Examples include:

Kitchen waste, paper, boxes, packaging materials, bottles, plastic containers, hand towels, tissues, food related trash, and similar materials that are not contaminated with body fluids.

Medical Waste (Component of Hazardous Waste)

Medical waste consists of several different subcategories that should all be dealt with in the same way:

Infectious Waste

Potentially infectious waste includes all waste items that are contaminated with or suspected of being contaminated with body fluids.

Examples include:

Blood and blood products, used catheters and gloves, cultures and stocks of infectious agents, waste from dialysis and dentistry units, wastes from isolation units, wound dressings, nappies, wastes contaminated with blood and its derivatives, discarded diagnostic samples, infected animals from laboratories, and contaminated materials (swabs, bandages, and gauze) and equipment (disposable medical devices, e.g., IV fluid lines, and disposable spatulas).

Anatomic Waste

Anatomic waste consists of recognizable body parts and tissues (e.g., placenta), extracted tumors, waste from microbiology labs, and animal carcasses.

Note: Infectious and anatomic wastes make up the majority of hazardous waste and account for up to 20% of the total waste from health care activities.

Sharps Waste

Sharps waste consists of used syringes, needles, disposable scalpels and blades, etc.

Note: Sharps waste represents about 1% of the total waste from health-care activities.

Chemical Waste

Waste containing chemical substances e.g., laboratory chemicals, empty bottles of lab or pharmacy chemicals, disinfectants that have expired or are no longer needed; solvents, diagnostic kits, poisonous and corrosive materials, and cleaning agents and others. 95

Pharmaceutical Waste

Waste containing pharmaceutical substances.

Examples include:

Expired, unused, and contaminated pharmaceuticals, e.g., expired drugs, vaccines and sera.

Note: Chemical and pharmaceutical waste account for about 3% of waste from health-care activities.

Heavy Metals

Heavy metal waste consists of both materials and equipment with metals and derivatives.

Examples include:

Batteries, broken mercury thermometers, manometers.

Note: Genotoxic waste, radioactive matter and heavy metal content represent about 1% of the total waste from health care activities.

Sorting, Handling, Interim Storage, and Disposal of Medical Waste

Establishing a Medical-waste Management Plan

Since disposal of medical waste is frequently a problem, it is useful to develop a medical waste management plan and to designate a staff member to coordinate the management of medical waste. The management plan should include training all personnel handling medical waste and orienting the entire staff to the overall plan.

A waste management plan should address four components of waste management:

Definitions

Sorting: Sorting is separating waste by type (e.g., infectious waste, pharmaceutical waste) into color coded bags at the place where it is generated.

Handling: Handling is collecting and transporting waste within the facility.

Interim storage: Interim storage is storing waste within the facility until it can be transported for final disposal.

Final disposal: Final disposal is the elimination of solid medical waste, liquid medical waste, sharps, and hazardous chemical waste from the health facility.

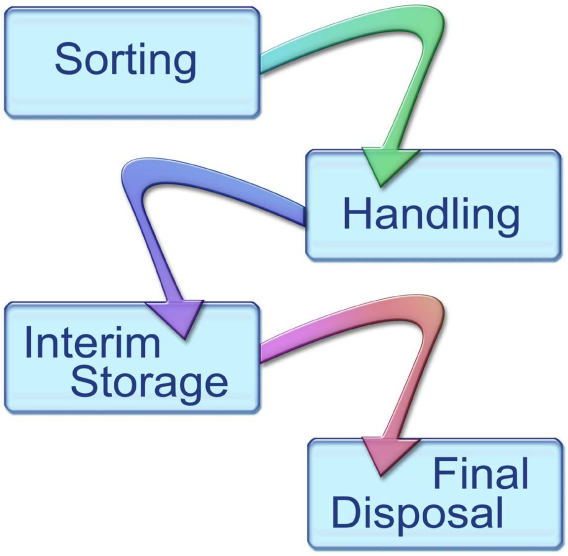


Figure 22.14 Steps of medical waste management

Sorting

Only a small percentage of the waste generated by a health care facility is medical waste that must be specially handled to reduce the risk of infections or of injury. Therefore, sorting the waste at the point at which it is generated can greatly reduce the amount that needs special handling.

Separate containers should be used for disposing of general and medical waste. The person who generates it should segregate the waste by type.

Colored plastic bags should be used to help distinguish between general- and medical-waste containers.

A two-bin system for waste sorting should be established as follows:

- Red bags are used for infectious and pathologic waste that needs to be incinerated.
- Black bags are for general waste that is to be disposed with the normal general waste and is to be transferred by the municipals.

Waste sorting tips

- Sort waste at the point where it is generated;
- Always keep separate containers in convenient places wherever both general and medical waste are generated;

- Use colored plastic bags to help distinguish between general and medical waste containers;
- Place sharps containers in convenient places to minimize the distance that staff need to carry sharps;
- Sharps containers should be puncture-resistant and leak proof on three sides, e.g., tin cans with lids, or plastic bottles;
- Medical waste containers should be cleaned with a disinfectant solution at least once per day. Housekeepers should wear heavy utility gloves and eye protection during cleaning of the containers.

Handling

Medical waste should be handled as little as possible before disposal. Medical waste should not be collected from patient-care areas by emptying it into open carts; this may lead to contamination of the surroundings and to scavenging of waste as well as to an increase in the risk of injury to staff, clients and visitors.

Bag filling

Waste and sharps containers should be discarded when they become three quarters full and at least once daily or after each shift. The reason for this is to reduce the risk of plastic bags splitting open and of an injury from a protruding sharp item in sharps containers.

Waste handling tips

- Handle medical waste as little as possible.
- Medical waste and sharps containers should be discarded when they are three quarters full or at least once per day.
- Never put hands into a container that holds medical waste.
- Do not empty medical waste into open carts because this increases the risk of injury to staff, patients, and visitors, and may lead to spills and to environmental contamination.

Interim Storage

- Waste should be transported at the end of every day.
- To reduce the risk of infection and of injury, minimize the amount of time waste is stored at the health care facility. Waste should be stored in an area of controlled access that is minimally trafficked by staff, clients, and visitors. Interim storage time should not exceed two days. It is preferable to have a room to store waste in each facility.
- The storage area should be included in a cleaning schedule.

Interim storage tips

Since medical waste poses a serious health threat to the community:

- Never store medical waste in open containers
- Never throw waste into an open pile.
- Waste should be stored in containers with lids to minimize the potential for insect, rodent, or other animal infestation, and to minimize the smell.

Final Disposal of Solid Medical and General Waste

There are two different ways of final disposal at a facility: Burn and non-burn techniques.

Non-burn techniques

- Community waste collecting system.
- Disposal of general or non-hazardous waste.
- Burying solid medical waste.

To use the burial method of waste disposal there must be enough space available to dig a burial pit and to enclose it in a fence or a wall.

When burying solid medical waste, adhere to the following guidelines:

- Burial should be at least 50 meters from the nearest water source, located downhill from any wells, free of standing water, and in an area that does not flood.
- Burial pit should be 1-2 meters wide and 2-5 meters deep. The bottom of the pit should be at least 1.8 meters above the water table.
- Erect a fence or a wall around the site to keep out animals.
- Every time solid medical waste is added to the pit, cover it with 10-30 cm of dirt.
- When the level of waste reaches to within 30-50 cm of ground level, fill the pit with dirt, seal it with concrete, and dig a new pit.

In order to bury medical waste in Egypt, a facility must apply for a license.

Transporting solid medical waste

Transporting solid medical waste is an option for final disposal if a facility is unable to use burn or non-burn techniques. It is the least desirable option for disposal because it is likely that non-medical personnel will put themselves at risk by being involved in the disposal process. If this option is used, facility staff must educate the waste transport and disposal personnel to the risks involved in the disposal process and must teach them how to dispose of solid medical waste safely.

Burn technique

Incineration of solid medical waste

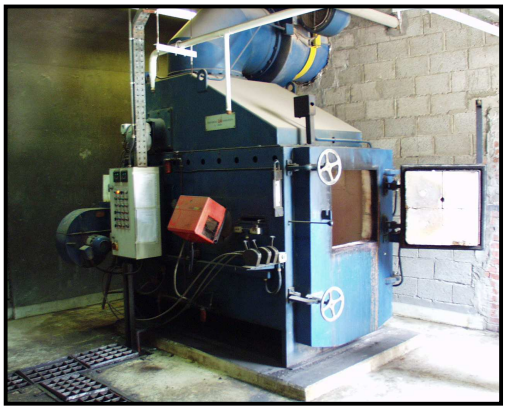


Figure 22.15 Incinerator

Incinerating is the best option for solid waste disposal, since the high temperature (1300 ˚C) destroys microorganisms and reduces the amount of waste. Burning in an incinerator or oil drum is recommended.

Facilities that generate low levels of solid medical waste, such as primary health care facilities, can use a small drum incinerator. A drum incinerator can be made from a 200 liter or 55 gallon oil drum. Alternatively, facilities can manke arrangements with local district hospitals for collection of the medical waste.

Using a drum incinerator

- The drum incinerator should be sited downwind from the facility.
- Put a fence around the incinerator or never leave the fire unattended in order to ensure the safety of staff, patients, visitors, and the community at large.
- Place the incinerator on hard earth to prevent grass or vegetation from catching fire.
- The drum incinerator should have sufficient air inlet to allow for efficient and complete burning of medical waste.
- Burn only medical waste to minimize the amount of waste to be burned.
- Use kerosene as an accelerant. To avoid an explosion add kerosene before ignition.
- Treat ash from incineration as general waste and dispose of it properly.

Tips for disposal of solid medical waste

Always wear heavy utility gloves and shoes when handling solid medical waste.

The disposal site for solid medical waste should be on the grounds of the medical facility. This allows staff who are knowledgeable about the risks of medical waste to supervise the disposal process.

Final Disposal of Liquid Medical Waste

Liquid medical waste can be poured down a sink, drain, and flushable toilet. If none of these are available, liquid medical waste should be buried in a pit. Points to remember when disposing of liquid medical waste:

- Always wear heavy utility gloves and shoes when handling or transporting liquid medical waste. Afterwards, wash both gloves and shoes.
- Consider where the sink, drain or toilet empties. It is hazardous to have medical waste flowing through open gutters or emptying onto the grounds of the facility.
- When carrying or disposing of liquid medical waste, avoid splashing the waste on yourself, on others or on surfaces.
- After disposal rinse the sink, drain, or toilet to remove residual waste, being careful to avoid splashing. Clean the fixture with a disinfectant solution at the end of each day or more often if heavily soiled.
- Decontaminate the container that held the liquid medical waste by filling it with a 0.5% chlorine solution and letting it sit for 10 minutes before washing.

Final Disposal of Hazardous Chemical Waste

- Always wear heavy utility gloves and shoes when handling or transporting hazardous chemical waste. Afterwards, wash both gloves and shoes if they become contaminated.
- Cleaning solutions and disinfectants should be handled as liquid medical waste.
- After disposal, rinse containers thoroughly with water, wash glass containers with detergent and water. Do not reuse plastic containers.

Note: Final waste disposal should follow the Egyptian regulations published in "The guidelines of final medical waste disposal" (MOHP and the WHO, 1998).

WASTE MANAGEMENT II: SAFE SHARPS DISPOSAL

Introduction

The term "sharps" refers to any object that can cut or puncture the skin including, but not limited to, needles (hypodermic and suture) scalpels, lancets, broken vials or glass, broken capillary tubes, slides and coverslips, and exposed ends of dental wires. The primary cause of occupational exposure to blood-borne pathogens in all health care personnel is injury from needlesticks or other sharp objects. At least 20 pathogens have been known to be transmitted following percutaneous exposure to blood. The most important of these pathogens are hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV. Infections with each of these pathogens are potentially life threatening – and preventable.

Risk from Needlestick Injuries

The estimated risk of infection following a needlestick injury varies from one virus to another. The estimated risk of infection after exposure to an HBV infected person from a needlestick injury ranges from 6%-30%. The risk of HCV infection ranges from 0% to 7% with an average of 1.8% by injury while the average transmission rate of HIV is estimated to be 0.3%. Most of this variability in risk of infection is related to the concentration of virus in the source patient's blood.

Frequency and Causes of Needlestick Injuries in Egypt

A survey conducted in Egypt revealed that almost 70% of all health care personnel have been exposed over their lifetime to needlestick injuries. Overall, the average number of needlestick injuries per year varied greatly among different job categories. Estimated annual numbers of needlestick injuries were highest among laboratory technicians. Injuries occurred while needles were two-hand recapped, when patient or staff members made sudden movements, during collection of the garbage, or during bending of the needle prior to final disposal. Studies from other countries reveal an overall needlestick and sharps injuries rate of 33 per 1,000 persons; the highest proportion of exposures was to nurses at the point of use.

Most needlestick injuries occur during the following activities:

- Recapping, bending, or breaking needles;
- Inserting a needle into a test tube or specimen container and missing the target;
- Injury from a person carrying unprotected sharps;
- Sharps that are present in unexpected places, like linens;
- During complex surgical procedures;
- Handling or disposing of waste that contains used sharps, and;
- Patients moving suddenly during injections

Note: 38% of sharp injuries occur during use, 42% occur after use before disposal. The most common cause of needlestick injuries in Egypt occurs during recapping of needles after use.

One-hand Recapping ("Scoop") Technique

Many accidental needlesticks occur when staff recap needles. Recapping is a dangerous practice: If at all possible, dispose of needles immediately without recapping them. If it is necessary to recap a needle (for example, to avoid carrying an unprotected sharp when immediate disposal is not possible), do not bend or break the needle or remove the needle from the syringe by hand.

To safely recap needles use "the one-hand" technique

Step 1

Place the cap on a flat surface, then remove your hand from the cap.

Step 2

With one hand, hold the syringe and use the needle to "scoop up" the cap.

Step 3

When the cap covers the needle completely, use the other hand to secure the cap on the needle hub. Be careful to handle the cap at the bottom only (near the hub).

Figure 22.16 One-hand recapping technique

Hands-free Technique for Passing Sharps

Health care personnel can accidentally stick each other when passing sharps during a procedure. Always pass sharps in such a way that the surgeon and assistant are never touching the item at the same time. This is known as the "hands-free" technique.

To use the hands-free technique:

- The assistant puts the sharp in a sterile kidney basin or other"safe zone" in the sterile field.
- The assistant tells the service provider that the sharp is in the safe zone.
- The provider picks up the sharp item, uses it, and returns it to the safe zone.

Figure 22.17 Hands-free technique for passing sharps

Tips to Prevent Sharp Injuries

- Do not bend, break, or cut sharps. Shearing or breaking of needles is prohibited;
- Concentrate on what you are doing and don't get distracted;
- Dispose of all sharps in an approved puncture-resistant container as soon after use as possible. The location of this container should be close to the area where sharps are used;
- Needle and syringe should be disposed as one unit if possible. If a needle must be removed, it should not be done by hand;
- Do not recap needles unless absolutely necessary. If recapped, never use two hands, instead use the one-hand "scoop" technique (see above);
- Do not overfill sharps disposal container. Seal the container and replace when it is ¾ full;
- Do not empty sharps containers. Dispose of whole container as one unit.
- Wear utility gloves when disposing of medical waste including sharps containers.
- Use the hands-free technique (see above) when passing sharps.
- To prevent sharp injuries during transport of medical waste, use a puncture proof container that remain closed.

Sharps Sisposal Containers (Safety Box)

Never discard needles and sharps in clinical waste bags, as the housekeeping staff might get injured.

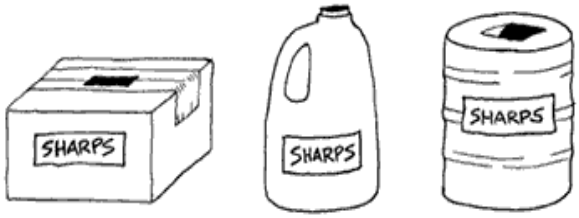


Figure 22.18 Safety Boxes

Tips for performance criteria of sharps containers

There are four major criteria for sharps disposal container safety performance: functionality, accessibility, visibility, and accommodation:

Functionality: Containers should remain in a good state during their entire usage. They should be leak resistant on their sides and bottoms, and puncture resistant until final disposal. Individual containers should have adequate volume and safe access to the opening.

Accessibility: Containers should be accessible to all workers who use, maintain, or dispose of sharp devices. Containers should be placed in all areas where sharps are used and, if necessary, portable within the workplace.

Visibility: Containers should be plainly visible to the workers who use them. Workers should be able to see the degree to which the container is full and proper warning labels.

Accommodation: Container designs should be convenient, environmentally sound, and easy to store.

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