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INSTRUCTIONAL DESIGN SKILLS *for* REPRODUCTIVE HEALTH PROFESSIONALS

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The JHPIEGO Corporation (an affiliate of Johns Hopkins University) is a nonprofit corporation dedicated to improving the health of women and families globally. JHPIEGO works to increase the number of qualified health professionals trained in modern reproductive healthcare, especially family planning. JHPIEGO's main office is located in Baltimore, Maryland, USA.

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PREFACE

This manual is a companion piece to the reference manuals *Clinical Training Skills for Reproductive Health Professionals* and *Advanced Training Skills for Reproductive Health Professionals*. It is designed to assist the advanced trainer or preservice faculty member to function as an **instructional designer** in the design, delivery and evaluation of reproductive health training.

Early versions of the *Instructional Design Skills* manual were titled *Advanced Training Skills for Reproductive Health Professionals*. This manual was field-tested with trainers from several countries over an 18-month period. During this time it became clear that our audience had training skills needs beyond those of conducting a training course. Many requests came for training in how to design and develop training courses and materials. These individuals designing and developing training would not necessarily be the same people who would deliver the course. Therefore, we decided to write two separate manuals—one focusing on facilitation and problem-solving skills (advanced training skills), and one devoted solely to how to design and develop training courses (instructional design skills).

The authors gratefully acknowledge the valuable assistance of our international colleagues, representatives from other organizations and JHPIEGO staff who have reviewed this manual in both of its versions (see page *iv* for the list of reviewers). We are indebted to them for their suggestions, comments and, most important, for their time and effort in reading the drafts of the manual.

Writing a manual requires the help and support of many individuals. The authors especially would like to thank JHPIEGO consultant Dr. Gary Bergthold. Gary was an author of the *Clinical Training Skills* reference manual and his contribution of the clinical coaching process continues to influence the training approach outlined in this manual. The authors also would like to thank Dr. Ronald Magarick of JHPIEGO. Ron was an author of the *Clinical Training Skills* manual and provided valuable suggestions during the development of this manual.

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INTRODUCTION

Since the 1970s, use of modern contraceptives has increased dramatically throughout the world. According to recent surveys, however, over 100 million married couples who want family planning do not have adequate access to contraceptive information, qualified service providers or supplies. Moreover, during the next 20 years the need for family planning services will triple—to more than 400 million couples.

Family planning, however, is just one of the many services that must be offered in order to improve reproductive health. For example, the World Bank, UNFPA and World Health Organization offered these statistics at the United Nations' Conference on Population and Development in 1994:

- 500,000 women die every year, one every minute, from pregnancy-related causes—99 percent of them in developing countries.
- Every year, more than 15 million girls aged 15 to 19 give birth.
- Over 300 million new cases of sexually transmitted diseases occur every year, affecting 1 in every 20 adolescents.

These and other statistics point to the increasing need for accessible, high quality reproductive health services. Sustainable reproductive health programs are achieved as countries develop the capacity to train their own health personnel. To assist in this process of developing a national training system, JHPIEGO published *Clinical Training Skills for Reproductive Health Professionals* in 1995. This manual, which had been under development since 1991, describes a competency-based approach to clinical skills training. It was designed to help **expert service providers** become **effective clinical trainers** who could, in turn, train other service providers in clinical reproductive health skills such as IUD insertion or infection prevention. Training based on this approach is creating cadres of skilled clinical trainers in many countries around the world.

To sustain a national training system, it also is necessary to develop a core group of advanced and master trainers who will be responsible for training other trainers. In addition to direct training, these advanced and master trainers will assume many of the other tasks traditionally performed by external consultants (e.g., conducting training needs assessments, developing new courses and training materials, and evaluating training).

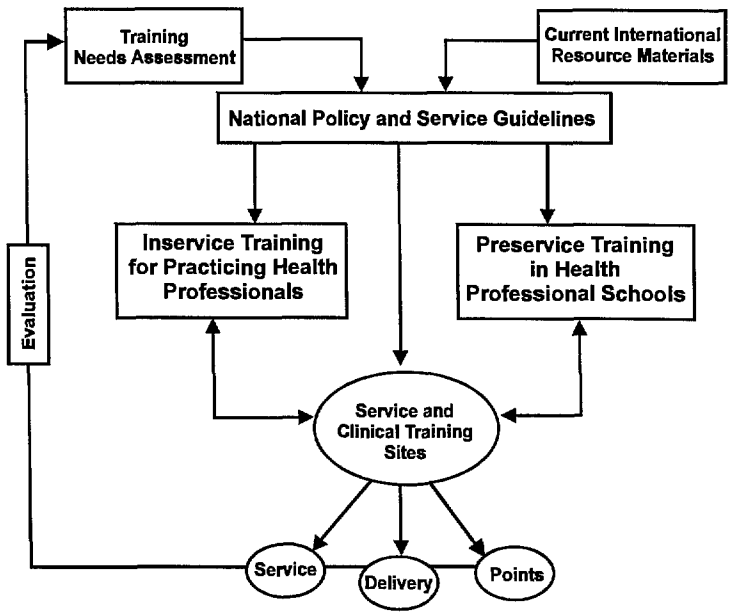
Faculty and clinical trainers who wish to become advanced or master trainers require additional training and experience in training delivery. The *Advanced Training Skills for Reproductive Health Professionals* manual addresses the problem-solving and group facilitation skills needed by those who will train service providers to become clinical trainers.

The *Instructional Design Skills for Reproductive Health Professionals* manual was written for trainers and preservice faculty members who will function as instructional designers to design, deliver and evaluate reproductive health courses, workshops, seminars and other learning events. These instructional designers will work in both the inservice and preservice setting.

Framework for Integrated Reproductive Health Training

Reproductive health training for a country may be seen as a network of pathways aimed at linking the national system of higher education, the healthcare system, the political system and cultural norms to strengthen reproductive health policy, training and services. This integrated training model (**Figure 1**) brings together the educational and health systems of a country to focus on the preparation of a cadre of providers who can deliver standardized, high quality services. Within the realms of preservice education and inservice training are the courses which are the responsibility of the instructional designer. To design these courses effectively, the designer must understand all components of this framework for reproductive health training.

Figure 1. Framework for Integrated Reproductive Health Training



The components of the framework for integrated reproductive health training include the following:

- **Training needs assessments** are conducted at national, institutional and facility levels to document how constraints to quality family planning service delivery can be addressed through training interventions such as courses.

- **International resource materials** and accurate scientific information are essential to the development of national policy and guidelines upon which inservice and preservice courses are based.

- **National policy** defines a government's strategy toward reproductive health (e.g., who will receive services, which services will be provided, through which service delivery mechanisms they will be provided, what the standards of quality are). **Service guidelines** are more technically focused and specifically address the provision of services (e.g., how each service is to be provided, who should deliver specific services, what counseling should accompany each service, what the indications and precautions are for each method, how side effects and complications should be managed, what the minimum requirements are for delivery of each service).

- **Inservice training** ensures that health professionals already providing services have the opportunity to update their knowledge and skills according to the latest scientific information and practices.

- **Preservice training** represents all the institutions (e.g., schools of medicine, nursing, midwifery) that are concerned with initial or basic training and education of health service providers at all levels.

- **Service and clinical training sites** for both the preservice and inservice systems are treated the same way: all are standardized as to essential equipment, supplies, infection prevention practices and contraceptive services.

- **Service delivery points** are those sites where trained clinical service providers work to provide quality reproductive health services.

- **Evaluation** approaches are used to provide feedback to assess how well the integrated training system is functioning.

Based on the results of needs assessments, preservice and inservice training interventions (e.g., courses, workshops, updates, seminars) consistent with national policy and service delivery guidelines may be

required in order for service providers to be able to provide quality services. The **instructional design** process is used to ensure that these training interventions are designed and implemented in a logical and systematic manner to support the integrated reproductive health training framework.

ONE

AN APPROACH TO CLINICAL TRAINING

INTRODUCTION

The training approach described in this chapter is guided by principles of adult learning. These principles are based on the assumption that people participate in training courses because they:

- Are **interested** in the topic
- Wish to **improve** their knowledge or skills, and thus their job performance
- Desire to be **actively involved** in course activities

WHAT I HEAR, I FORGET;
WHAT I SEE, I REMEMBER;
WHAT I DO, I UNDERSTAND.

Confucius

To be effective, clinical trainers must use appropriate training strategies. The participatory, "hands-on" training techniques emphasized in this manual are best reflected in this ancient Chinese proverb.

Chapter Objective

After completing this chapter, the participant will be able to describe a mastery learning approach that incorporates adult learning principles and features competency-based training, coaching and humanistic training techniques.

Enabling Objectives

To attain the chapter objective, the participant will:

- Identify the goal of clinical training
- Describe the mastery learning approach to training
- Describe the key features of effective clinical training
- Identify the responsibilities of clinical trainers and participants
- Identify the criteria for selecting and training clinical and advanced trainers

GOAL OF CLINICAL TRAINING

The **goal of clinical training** is to assist health professionals in learning to provide safe, high quality reproductive health services to clients through improved work performance. Training deals primarily with obtaining the knowledge, skills and attitudes needed to carry out a specific procedure or activity, such as inserting an IUD or providing counseling. Training presumes an immediate application of the information or physical skill(s) being learned.

Education, in contrast, is defined most often in terms of future goals. For example, an individual attends a school or university in order to prepare for a future role as a nurse or doctor. Her or his education provides a broad array of knowledge (and skills) needed to perform that role and from which the student can later select what is needed, according to a given situation.

No matter how effective training is in conveying information or influencing attitudes, if participants are unable to satisfactorily perform the procedure or activity assigned to them, the training will have failed. Therefore, clinical trainers must focus their energies on transferring skills as well as on modeling the appropriate attitudes and providing the essential facts required by participants to perform their jobs.

Effective clinical training emphasizes application of knowledge in the performance of skills.

MASTERY LEARNING

The **mastery learning** approach to clinical training assumes that all participants can master (learn) the required knowledge, skills or attitudes provided sufficient time is allowed and appropriate training methods are used. The goal of mastery learning is that 100 percent of those being trained will "master" the knowledge and skills on which the training is based. While some participants are able to acquire new knowledge or a new skill immediately, others may require additional time or alternative learning methods before they are able to demonstrate mastery. Not only do people vary in their abilities to absorb new material, but individuals learn best in different ways—through written, spoken or visual means. Effective learning strategies, such as mastery learning, take these differences into account and use a variety of teaching and training methods.

The mastery learning approach also enables the participant to have a self-directed learning experience. This is achieved by having the clinical trainer serve as facilitator and by changing the concept of testing and how test results are used. In courses that use traditional testing methods, the trainer administers pre- and post-tests to document an increase in the participants' knowledge, often without regard to how this change affects job performance.

The philosophy underlying the mastery learning approach, however, is one of a continual assessment of participant learning. With this approach, it is essential that the clinical trainer regularly inform participants of their progress in learning new information and skills and **not** allow this to remain the trainer's secret.

With the mastery learning approach, a precourse knowledge assessment (e.g., precourse questionnaire) is used to determine what the participants, individually and as a group, know about the course content. This allows the clinical trainer to identify topics that may need additional emphasis or, in many cases, those that will require less classroom time during the course. Providing the results of the precourse assessment to participants enables them to focus on their individual learning needs. A second knowledge assessment, the midcourse questionnaire, is used to assess the participants' progress in learning new information. Again, results of this assessment are reviewed with participants.

With the mastery learning approach, assessment of learning is:

- **Competency-based**, which means assessment is keyed to the course objectives and emphasizes acquiring the essential knowledge and attitudinal concepts needed to perform a job, not simply acquiring new knowledge.

- **Dynamic**, because it enables clinical trainers to provide participants with continual feedback on how successful they are in meeting the course objectives and, when appropriate, adapt the course to meet learning needs. (Trainers using pre- and post-tests often do **not** review the correct answers with the participants. As a consequence, participants may leave the course not knowing why some of their answers were incorrect.)

- **Less stressful**, because from the outset participants, both individually and as a group, know what they are expected to learn, know where to find the information and have ample opportunity for discussion with the clinical trainer.

KEY FEATURES OF EFFECTIVE CLINICAL TRAINING

Effective clinical training is designed and conducted according to **adult learning principles**—learning is participatory, relevant and practical—and:

- Uses **behavior modeling**
- Is **competency-based**
- Incorporates **humanistic training techniques**

Each of these features is described briefly in this section.

Adult Learning Principles

The training techniques and approaches discussed throughout this manual are based on the following eight principles:

- Learning is most productive when the participant is **ready to learn**. Although motivation is internal, it is up to the clinical trainer to create a climate that will nurture motivation in participants.
- Learning is more effective when it **builds** on what the participant already knows or has experienced.
- Learning is more effective when participants are **aware** of what they need to learn.
- Learning is made easier by using a **variety** of training methods and techniques.
- Opportunities for **practicing** skills initially in controlled or simulated situations (e.g., through role play or use of anatomic models) are essential for **skill acquisition** and for development of **skill competency**.
- **Repetition** is necessary to become competent or proficient in a skill.
- The more **realistic** the learning situation, the more effective the learning.
- To be effective, **feedback** should be **immediate**, **positive** and **nonjudgmental**.

Behavior Modeling

Social learning theory states that when conditions are ideal, a person learns most rapidly and effectively from watching someone perform

(model) a skill or activity. For modeling to be successful, however, the trainer must clearly demonstrate the skill or activity so that participants have a clear picture of the performance expected of them.

Behavior modeling, or observational learning, takes place in three stages (**Figure 1-1**). In the first stage, **skill acquisition**, the participant sees others perform the procedure and acquires a mental picture of the required steps. Once the mental image is acquired, the participant attempts to perform the procedure, usually with supervision. Next, the participant practices until **skill competency** is achieved and s/he feels **confident** performing the procedure. The final stage, **skill proficiency**, only occurs with repeated practice over time.

Figure 1-1. Levels of Performance

Skill Acquisition	Knows the steps and their sequence (if necessary) to perform the required skill or activity but **needs assistance**
Skill Competency	Knows the steps and their sequence (if necessary) and **can perform** the required skill or activity
Skill Proficiency	Knows the steps and their sequence (if necessary) and **efficiently performs** the required skill or activity

Competency-Based Training

Competency-based training (CBT) is distinctly different from traditional educational processes. Competency-based training is learning by **doing**. It focuses on the specific knowledge, skills and attitudes needed to carry out a procedure or activity. How the participant performs (i.e., a combination of knowledge, attitudes and, most important, skills) is emphasized rather than just what information the participant has acquired. Moreover, CBT requires that the clinical trainer facilitate and encourage learning rather than serve in the more traditional role of instructor or lecturer. Competency in the new skill or activity is assessed objectively by evaluating overall performance. While CBT traditionally has been used for inservice training, elements of this approach are also applicable to the preservice setting. Finally, CBT has a sound scientific basis. As shown in **Table 1-1**, a person's ability to recall essential information is vastly increased when s/he learns the material through participatory methods as compared to more passive methods such as just listening to a lecture or obtaining new information through reading.

Table 1-1. Learning Recall Related to Type of Presentation

TYPE OF PRESENTATION	PERCENTAGE OF MATERIAL RECALLED	
	After 3 Hours	After 3 Days
Verbal (one-way) lecture	25%	10–20%
Written (reading)	72%	10%
Visual and verbal (illustrated lecture)	80%	65%
Participatory (role plays, case studies, practice)	90%	70%

Adapted from: Dale 1969.

To successfully accomplish CBT, the clinical skill or activity to be taught first must be broken down into its essential steps. Each step is then analyzed to determine the most efficient and safe way to perform and learn it. This process is called **standardization**. Once a procedure, such as insertion of Norplant® implants, has been standardized, competency-based skill development (learning guides) and assessment (checklists) instruments can be designed to make learning the necessary steps or tasks easier and evaluating the participant's performance more objective (see **Chapter 6**).

An essential component of CBT is **coaching**, which uses positive feedback, active listening, questioning and problem-solving skills to encourage a positive learning climate. Unfortunately, the teaching model with which most health professionals are familiar is the classroom instructor lecturing to a group of students who anxiously take notes so that they can pass a written examination. This approach to teaching, used by a skilled clinical trainer, can be effective in providing basic knowledge. It is, however, a very poor way of transferring clinical skills (such as inserting an IUD), strengthening problem-solving skills or changing attitudes towards clinical practice.

What is needed is an approach to clinical training that is different from classroom teaching. Coaching has been used successfully for technical training by industry for many years. To use coaching, the clinical trainer should first explain the skill or activity and then demonstrate it using an anatomic model or other training aid such as a slide set or videotape. Once the procedure has been demonstrated and discussed, the trainer/coach then observes and interacts with the participant to guide her/him in learning the skill or activity, monitoring her/his progress and helping her/him overcome problems.

The coaching process ensures that the participant receives feedback regarding performance:

- **Before practice**–The clinical trainer and participant should briefly meet prior to each practice session to review the skill/activity including the steps/tasks that will be emphasized during the session.

- **During practice**–The clinical trainer observes, coaches and provides feedback to the participant as s/he performs the steps/tasks as outlined in the learning guide.

- **After practice**–This feedback session should take place immediately after practice. Using the learning guide, the clinical trainer discusses the strengths of the participant's performance and also offers specific suggestions for improvement.

When CBT is integrated with **adult learning principles** and is based on **behavior modeling**, the result is a powerful and extremely effective method for providing technical training. And, when the use of **anatomic models and other training aids** is incorporated, training time (and training costs) can be reduced significantly.

Humanistic Training Techniques

The use of more humane (humanistic) techniques also contributes to better clinical training. A major component of humanistic training is the use of anatomic models, which closely simulate the human body, and other training aids such as slide sets and videotapes. The effective use of models facilitates learning, shortens training time and minimizes risks to clients. (The humanistic training approach is discussed more fully in **Chapter 7** of the *Clinical Training Skills* manual.) For example, by using anatomic models initially, participants more easily reach the performance levels of skill competency and beginning skill proficiency before they begin working in the clinical setting with clients (see **Figure 1-1**).

Before a participant attempts a clinical procedure with a client, two learning activities should occur:

- The clinical trainer should demonstrate the required skills and client interactions several times using an anatomic model and appropriate audiovisual aids (e.g., training slide sets or videotapes).

- While being supervised, the participant should practice the required skills and client interactions using the model and actual instruments in a simulated setting which is as similar as possible to the real situation.

The number of procedures the participant needs to observe, assist in and perform using models will vary depending on her/his background. Only when skill competency and some degree of skill proficiency have been demonstrated with models, however, should the participant have her/his first contact with a client.

Incorporating the use of anatomic models and other training aids can significantly reduce training time and the number of cases needed for skill competency. Moreover, practicing with models helps participants correct mistakes in technique that could hurt the client. For example, in a study conducted in Thailand in 1991, the traditional IUD training method (6-week course) was compared with a 2-week course using the CBT approach described above. When participants were allowed to learn and practice repeatedly with pelvic models, 70 percent of the 150 participants were judged to be competent after just two insertions with clients and 100 percent by six. By contrast, of the 150 participants taught without the use of pelvic models, 50 percent obtained competency only after an average of 6.5 insertions and 10 percent never achieved competency (i.e., were not qualified) even after 15 (Limpaphayom et al 1997; McIntosh 1993).

RESPONSIBILITIES OF THE CLINICAL TRAINER AND COURSE PARTICIPANTS

In CBT, the responsibility for meeting learning objectives is shared by the clinical trainer and each participant. The clinical trainer's goal is to help each participant attain full competency in a skill or activity, not just earn a high grade on a test of knowledge. If a participant does not reach full competency, the clinical trainer should not attribute failure simply to the participant's lack of ability but should look for ways to improve training methods or provide additional practice for the participant.

The role of the clinical trainer is to facilitate learning. The clinical trainer guides participants toward the discovery of new knowledge and the acquisition of new or improved skills. The clinical trainer also seeks to influence participant attitudes by serving as a role model. For example, the trainer always should demonstrate the skill completely and accurately—poor performance is never acceptable.

Participants are actively involved in the learning process, and are encouraged to contribute what they know about the topic being discussed. The knowledge participants bring to the training situation is as essential to the total training process as the knowledge the clinical trainer offers. The success of this approach is based on the willingness of participants to take an active part in the training and to share their experiences and knowledge with other group members.

SELECTING AND TRAINING CLINICAL, ADVANCED AND MASTER TRAINERS

The key to successful clinical training is transference: assisting health professionals who are experts in their field in learning how to transfer their knowledge and skills to others.

In the highly specialized fields of health and industry, organizations are finding that it is better to select outstanding technical (content) experts and teach them training skills, rather than to use training professionals who are not proficient in the technical skills being taught.

Perhaps the most crucial decision in designing a clinical training course is the selection of the trainer(s). It often has been assumed that anyone with strong academic credentials and good clinical skills could be a trainer, but experience in many parts of the world has shown that performing and teaching clinical skills are two very different things.

In selecting potential clinical trainers, the following criteria should be considered:

- **Demonstrated proficiency.** S/he must first be an expert service provider in the clinical skill(s) to be taught.
- **Interest in training.** A health professional who is genuinely interested in training will be more likely to take the time necessary to learn and practice clinical training skills.
- **Humility.** A good clinical trainer is able to admit when s/he makes mistakes and does not try to prove that participants will never attain her/his skill level.

Process for Becoming a Clinical, Advanced and Master Trainer

Until recently, trainers had few ways to learn training skills. To some it came "naturally," but usually only after many years of trial and error. A fortunate few had the opportunity of being taught by good clinical trainers whose style they could copy. For most, however, little training in these skills was available. It is recommended that a series of steps be used to assist clinicians in making the transition from service provider to clinical trainer to advanced and finally to master trainer (see **Figure 1-2**).

First, the clinician must acquire service delivery skills, such as counseling or IUD insertion, through training and experience. Over a period of time, usually months or even years of repeated practice, the clinician becomes expert (proficient) in providing the clinical skill or activity.

Once proficient, the clinician who wants to become a clinical trainer may attend a clinical training skills course which focuses on learning the skills necessary to effectively transfer her/his expertise to others. During this course, s/he will learn coaching and humanistic training techniques which are based on adult learning principles. In addition, the clinician will learn a standardized approach to performing the clinical procedure and how to use competency-based skill assessments to evaluate participant performance. S/he will also learn how to present information more effectively through use of illustrated lectures, demonstrations, role plays, case studies, group discussions and audiovisuals and other training aids.

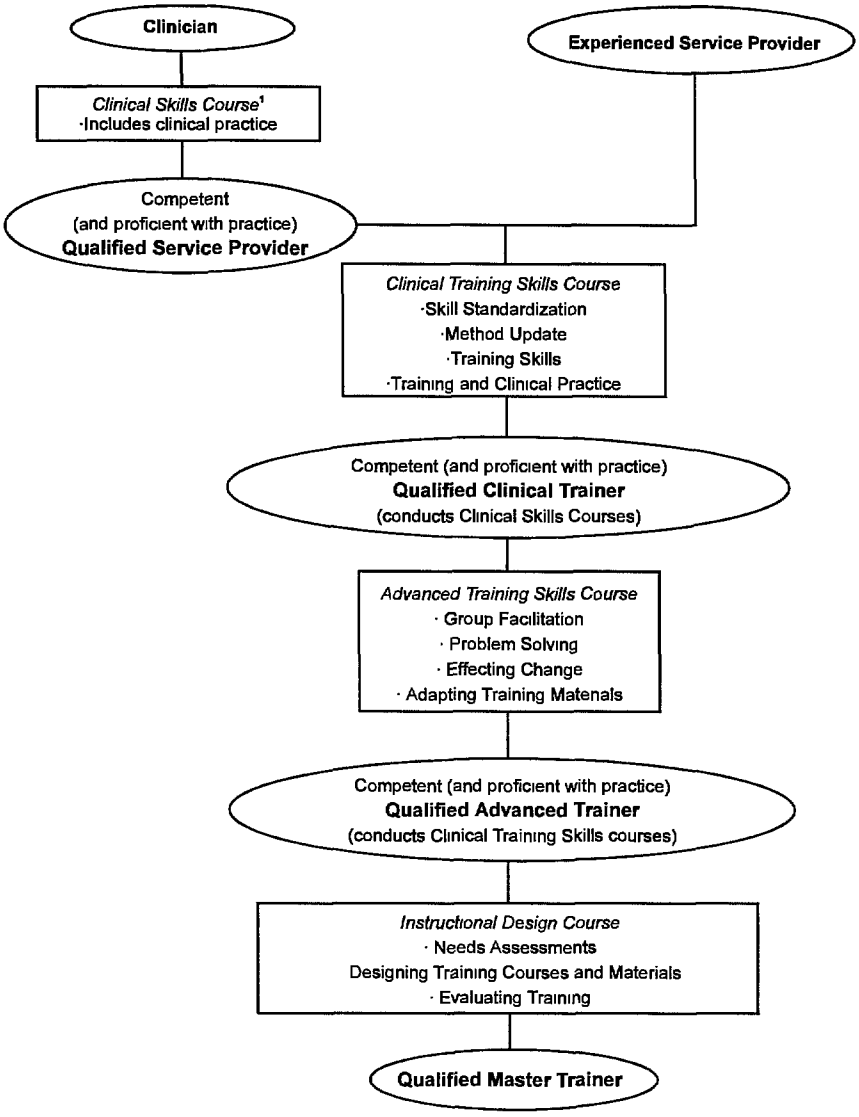
Following this, the new clinical trainer should serve as a cotrainer for one or more clinical training courses for service providers. If possible, cotraining should be done with the advanced trainer who taught the clinical training skills course. In subsequent courses, as the new clinical trainer becomes more skilled in training, s/he will be assisted by an advanced trainer only as needed.

Once proficient, the clinical trainer selected to become an advanced trainer will focus on learning the skills necessary to effectively transfer her/his training expertise to others by training them as clinical trainers. During this course, s/he will learn group facilitation and problem-solving skills and how to identify and adapt training materials.

The advanced trainer will then conduct several clinical training skills courses, usually with a master trainer. Over a period of time the advanced trainer strengthens and expands her/his skills through training delivery.

Selected advanced trainers may have the interest and capabilities to pursue additional training in the area of instructional design. While this training focuses on designing appropriate training courses and materials, information is also included on needs assessments and evaluation of training. Instructional design training also is appropriate for preservice faculty members who may not have responsibilities for clinical skills training. An individual who undergoes training and gains appropriate experiences in clinical, advanced and instructional design training skills may be considered a master trainer.

Figure 1-2. Trainer Development Process



[1] Clinical Skills Courses = IUD, infection prevention, Norplant implants, minilaparotomy, etc.

SUMMARY

Clinical training in family planning assists healthcare workers in performing their jobs more effectively. When mastery learning that is based on adult learning principles and behavior modeling is integrated with CBT, the result is a powerful and extremely effective method for providing clinical training. And when humanistic training techniques such as using anatomic models and other training aids are incorporated, training time and training costs can be reduced significantly.

Because the goal of clinical training is to help healthcare workers learn to provide safe, high quality services, the responsibility for achieving the training objectives is shared by the clinical trainer and each participant. If a participant does not meet the course objectives, the clinical trainer should not simply attribute failure to the participant's lack of ability, but s/he should look for additional ways to assist the participant and to improve training methods.

Finally, not every expert service provider can become a good clinical, advanced or master trainer. Therefore, the criteria for selecting potential candidates should include a sincere interest in training, in addition to proficiency in a clinical skill or activity.

TWO

THE INSTRUCTIONAL DESIGN PROCESS

INTRODUCTION

Effective preservice and inservice courses do not just happen—they are designed! The most effective training courses are not isolated events but are part of a larger training framework. To ensure that a course is designed to meet the needs of those to be trained and support the overall training framework, a process referred to as **instructional design** is used. Instructional design is the systematic process of designing education and training courses from start to finish. The instruction might be delivered through preservice education classes, inservice training courses, on-the-job training, computer-assisted learning or by means of distance or open learning. While there are many instructional design models, most contain five essential phases. In this chapter, each of the phases will be described briefly to provide an overview of the instructional design process.

Chapter Objective

After completing this chapter, the participant will be able to identify the components of each phase of the instructional design process.

Enabling Objectives

To attain the chapter objective, the participant will:

- Apply the instructional design process to reproductive health training
- Describe the role of the instructional designer in preservice education and inservice training
- Identify the components of a training package

INSTRUCTIONAL DESIGN PROCESS FOR REPRODUCTIVE HEALTH TRAINING

Instructional design (also known as instructional systems design or ISD) is the systematic development of instruction using adult learning and design theories and techniques. While many trainers and instructors focus on the delivery of content, instructional design is concerned with what occurs before, during and after the actual learning event. This systematic approach ensures that:

- there is a need for training,
- the learning events are well-designed,

- quality training materials are developed,
- learning events are implemented using appropriate strategies or approaches, and
- learning events are evaluated to ensure that learning has taken place.

There are numerous instructional design models used in preservice education and inservice training. Most of these models contain five essential phases:

- analysis,
- design,
- development,
- implementation, and
- evaluation.

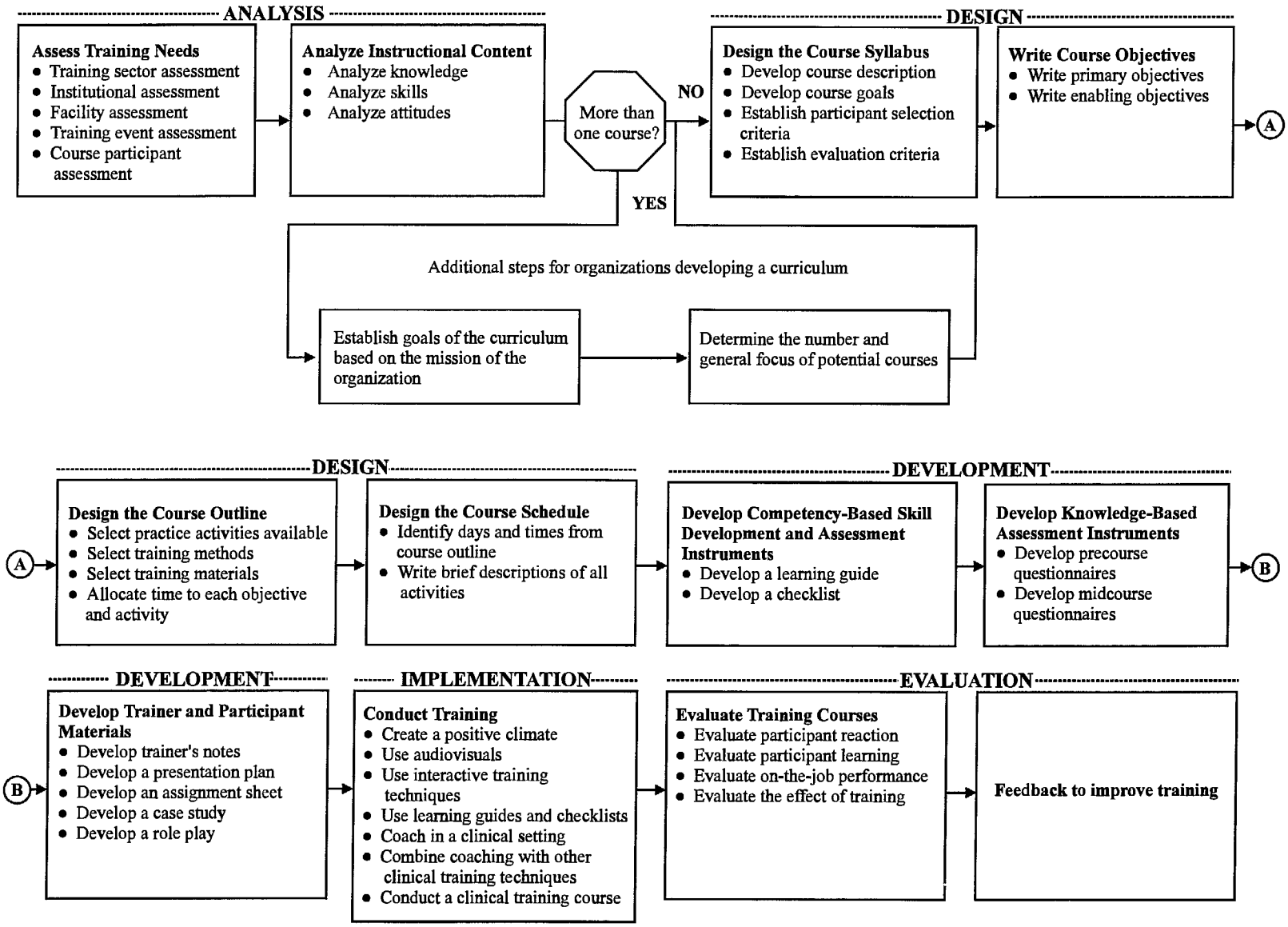
The instructional design process is illustrated in **Figure 2-1**. Following this process, the instructional designer incorporates the principles of clinical training described in **Chapter 1** to develop highly interactive, participant-centered learning events.

The individual responsible for designing a training event is referred to as an **instructional designer**. In some cases this individual may be an advanced or master trainer who also has acquired instructional design skills so that s/he is able to design, deliver **and** evaluate training. In other cases, the designer may not possess reproductive health knowledge and skills. In this case, it is critical that the designer work with a reproductive health subject matter expert to ensure that the design is realistic and will meet the identified needs. In either case, a team approach (e.g., instructional designer, clinical trainer, training support staff) to course design is often the most effective.

Analysis

The **analysis** phase provides the information needed to carry out all other phases of the instructional design process. The purpose of this phase is to identify barriers or constraints to quality family planning service delivery, define the problem(s), identify the cause of the problem(s) and determine possible solutions. Solutions may require inservice training of service providers or changes to the preservice education system. There also may be non-training solutions. For example, problems and solutions may relate to the physical infrastructure of service delivery points, contraceptive logistics, staffing patterns or management and supervisory

Figure 2-1. Instructional Design Process for Reproductive Health Training



systems. Common analysis techniques include **needs assessments** (see **Chapter 3**) and, when it is a problem correctable through training, **instructional content analysis** (see **Chapter 4**).

The results of the needs assessments include statements of the problems and possible solutions. The instructional content analysis process produces a list of information to be taught, tasks to be learned and attitudes to be developed.

To **assess training needs**, a team conducts one or more needs assessments including training sector, institutional and facility assessments. A fourth type of needs assessment, the training event assessment, is conducted when there are specific reproductive health problems or situations which may best be corrected by designing and conducting events such as courses, workshops or seminars. As part of the training, usually there is an assessment of participant knowledge, skills and expectations. The instructional designer may or may not be involved in conducting the needs assessments; however, s/he uses the assessment data as the basis for the design process. The designer is responsible for ensuring that time is built into the course schedule for conducting participant assessments at the beginning of the course.

Assuming that needs assessment data show a gap between the present performance of workers and the desired performance, indicating the need for a training intervention, the next step in the needs assessment process is to **analyze instructional content**. This requires the designer to use various techniques to analyze the knowledge, skills and attitudes the workers need in order to improve their performance on the job.

Design

The **design** phase uses the results of the analysis phase to create the structure of the course. The instructional designer will develop the course **syllabus**, write course objectives and create the course **outline** and **schedule**. These documents serve as a map for the delivery of training. **Chapter 5** contains more information on their design.

It is critical that the instructional designer be very familiar with effective classroom and clinical training skills if s/he is going to be able to design interactive, participatory, competency-based courses (see **Chapter 1**). It is suggested that those involved in designing reproductive health courses should first observe one or more clinical skills courses (e.g., training in IUD or Norplant implants service provision) and attend a training skills course to help ensure that they are as familiar as possible with this approach to training.

Development

The focus of the **development** phase is on generating the course documents and materials used by faculty, trainers and participants during the delivery of the course as designed. Documents produced during this phase include **competency-based learning guides** and **checklists, pre-** and **midcourse questionnaires, trainer's notes, presentation plans, assignment sheets, case studies** and **role plays**. More information on developing these materials may be found in **Chapters 6, 7** and **8**.

Implementation

The **implementation** phase of the instructional design process refers to the actual delivery of the instruction as designed. Instruction could take place in a group-based inservice training course for family planning service providers, within the curriculum of a nursing or midwifery school or in an on-the-job training program. The product of this phase is a competent individual who has mastered the knowledge and skills presented during the learning process.

When designing a new course, the design and materials should be tested during a **pilot course**. This pilot course affords the instructional designer and trainers an opportunity to review and revise the course before it is fully implemented.

The trainer or faculty member who actually delivers the training must be knowledgeable and skilled in the competency-based training approach used by the instructional designer when designing the course.[1]

Evaluation

The **evaluation** phase refers to the systematic collection, processing, analysis and interpretation of data to determine whether education or training has met its objectives (e.g., whether an individual's knowledge, skills and attitudes related to job performance have improved). This phase also identifies aspects of the process that should be strengthened. Types of evaluation include **participant reaction, participant learning, on-the-job performance** and **effect of training**. The results of this phase are recommendations for improving all of the other phases of the instructional design process: analysis, design, development and implementation.

DESIGNING PRESERVICE EDUCATION AND INSERVICE TRAINING COURSES

Preservice education as used in this manual refers to the professional preparation of physicians, nurses and midwives in medical, nursing and

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[1] The mastery learning approach for conducting clinical training is fully described in Sullivan R et al. 1995. *Clinical Training Skills for Reproductive Health Professionals*. JHPIEGO Corporation: Baltimore, Maryland.

midwifery schools respectively. Students in preservice education acquire new knowledge, skills and attitudes but may not apply these in a work setting until they have completed their education. **Inservice training** refers to providing new knowledge, skills and attitudes to practicing health professionals with the opportunity for immediate application on the job. The instructional designer may be called upon to design individual courses or an entire curriculum. While the specific tasks performed by the designer will depend on the situation, the design phases will be the same.

Preservice Education

From the standpoint of instructional design, **nursing and midwifery** education is structured as a series of courses connected to form a **curriculum**. These courses are taught by faculty members or tutors during classroom sessions. Students learn the essential knowledge needed in order to perform their jobs. During the clinical practice portion of the curriculum, the students observe skill demonstrations, practice skills using anatomic models under the supervision of clinical instructors and demonstrate skill performance, first with models and then with clients.

During the assessment of training or learning needs (**Chapter 3**), the instructional designer should ask the following questions pertaining to the design of the reproductive health component of a preservice nursing or midwifery curriculum:

- Within which courses are the knowledge, skills and attitudes related to family planning presently being taught?
- How much time is being devoted to classroom teaching of family planning in the curriculum?
- How much time is being devoted to development of family planning skills during clinic practice periods? How structured (i.e., use of models, list of skills to be developed, skill assessments) are the clinical practice periods?
- How and when are students tested to determine that they have acquired the essential knowledge related to family planning?
- Do the same faculty teach the classroom and clinical portions of the curriculum or are there classroom faculty and clinical instructors? Are classroom faculty proficient clinicians?
- What specific family planning skills are graduates of the schools expected to be able to use immediately upon graduation?

What knowledge and attitudes are required to support the use of these skills?

- Can the entire curriculum be revised or only specific courses within the curriculum?
- How supportive are faculty of revising the curriculum?
- What groups or committees at the school or national level are to be involved in approving changes to the curriculum?

Answering these and other questions (see **Chapter 3**) will provide the instructional designer direction during the design of the classroom and clinical portions of the curriculum. The goal of the instructional designer is to ensure that all courses in the curriculum use the same design and materials. This helps students to have a consistently delivered, quality learning experience in both the classroom and clinic.

The curriculum structure is somewhat different in **medical schools**. The information medical students require is presented during numerous lectures which, in some schools, are clustered into courses. During the student's clinical rotation, s/he will work with practicing physicians to observe, practice and develop clinical skills. Many of the questions asked when working with nursing and midwifery schools also apply to medical schools. In addition, the instructional designer will want to know:

- Are the anticipated changes to the curriculum being planned for only the Ob/Gyn portion of the medical curriculum? Will related knowledge, skills and attitudes taught elsewhere within the medical school need to be considered?
- What information currently is taught within the lectures? Is there a recommended sequence of lectures?
- How are medical students tested to ensure that they understand the information presented within the lectures?
- What teaching/learning methods are used by faculty during the lectures?
- How are clinical experiences planned? How and when do medical students observe and practice clinical skills? How and when are anatomic models used in the development of clinical skills?

- Which bodies both within the medical school (e.g., curriculum committee) and at the national level (e.g., Ministry of Health, Ministry of Education, medical certifying board) need to be involved in revising the curriculum?

These and many other questions (see **Chapter 3**) will need to be answered if the instructional designer is going to be successful in working on preservice curricula in medical, nursing and midwifery schools.

Inservice Training

The focus in inservice training is usually on a single course or other learning event (e.g., workshop, seminar, knowledge update). In addition, the topic of inservice training usually is limited to a specific procedure, skill or content area. The training must be designed to provide opportunities for immediate application and practice of the new knowledge and skills. Using a clinical setting which is as similar as possible to the real situation is the most effective method. An additional challenge to the designer is to develop training that is short in length (e.g., 5 to 10 days) yet delivers all of the required content.

During the analysis phase of both preservice and inservice instructional design activities, the instructional designer asks many questions. Based on the answers to the questions, learning events or courses are designed to solve a problem or improve the knowledge, skills and attitudes of family planning service providers. The primary difference in the role of the instructional designer with regard to preservice education and inservice training lies in the analysis and question-asking stage. Once key questions have been answered and the appropriate needs assessments completed, the focus then shifts to the design of individual preservice or inservice courses using the tasks presented in **Figure 2-1** and explained in detail in the remaining chapters of this reference manual.

TRAINING PACKAGES

To improve the quality of clinical training, model training packages may be developed that standardize the way training is conducted and participant performance is evaluated. Having such a model training package available is important because a single trainer rarely will be responsible for the entire process of designing, delivering and evaluating training. These training packages are generally designed to transfer knowledge and skills in specific subject areas such as IUDs, Norplant implants, voluntary sterilization or infection prevention. It is intended that the package serve as a model for training, and be easily adapted to local needs.

A comprehensive clinical training package usually consists of:

- A **reference manual**[2] which provides all the essential information on a specific clinical reproductive health topic (e.g., providing IUD services). Because the manual serves as the text for participants and reference source for the trainer, additional handouts usually are not needed. In addition, because the manual contains only information that is consistent with the course goals and objectives, it becomes an integral part of all classroom exercises—from giving an interactive presentation to providing problem-solving information. Finally, it provides a readily available reference for review of newly learned information and for problem solving when the participant returns to her/his home clinic or hospital.

- A **participant's course handbook** which serves as the road map to guide the participant through each phase of the course. It contains a model **course syllabus** and **schedule** (see **Chapter 5**) as well as the precourse knowledge assessment, skill learning guides and course evaluation.

- A **trainer's notebook** which contains the participant handbook materials as well as trainer-specific information such as the course outline, answer keys to the pre- and midcourse questionnaires, performance checklists and practical tips for conducting the course.

- **Anatomic models, audiovisual and other training aids** which are used for classroom demonstrations and practice of skills and activities. Examples include a pelvic model (e.g., ZOE®) for IUD skills training or the training arm for Norplant implants training, as well as training videotapes.

The typical components of a training package are shown in **Figure 2-2**.

Because of the availability of many well-designed training packages, instructional designers may not need to create a new course or design new training materials. Rather, they need to know how to adapt the materials in an existing training package to the local setting and conduct the course using appropriate training methods.

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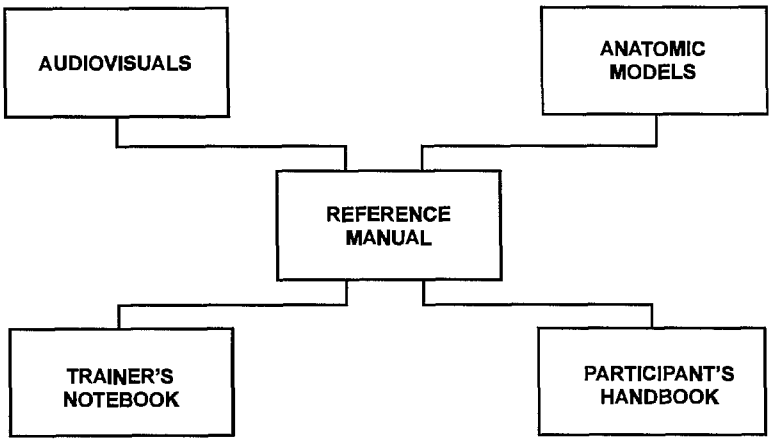
[2] Developing a reference manual or textbook requires considerable expertise and experience in the content area as well as access to resources for editing, graphics and printing support. Undertaking such a task is not generally the responsibility of the instructional designer and is beyond the scope of this manual.

In practice, the reference manual requires few or no changes. Country-specific supplemental material, however, may need to be prepared (e.g., information on the country's demographic profile, medical records and reporting system, or local drug lists). In addition, the course schedule and outline, which are found in the course handbook and notebook, will need to be adapted to accommodate specific program or participant needs. While the course outline in the model training package suggests appropriate learning activities, ultimately it is the trainer's responsibility to decide how best to deliver the content within the course framework. For example, the trainer must choose the appropriate training methods and select suitable materials from those provided in the training package. S/he also may need to develop additional case studies, role plays and practice exercises that are more appropriate to the local sociocultural conditions.

Figure 2-2. Components of a Training Package



SUMMARY

Integral to the success of preservice education and inservice training systems is the design and delivery of quality training events (e.g., courses, workshops, updates, seminars). The comprehensive and systematic process used to design these events is known as **instructional design** and is shown in **Figure 2-1**. Through the analysis, design, development and implementation phases of the instructional design process, the designer is able to create well-designed learning events and materials.

THREE

ASSESSING TRAINING NEEDS

INTRODUCTION

A country's Ministry of Health is planning to develop a national training system to address ongoing family planning needs. At one time, there was an active family planning training system, but service provider training stopped several years ago. When an advanced trainer travels to the country to help reactivate the training system, a number of questions come to mind:

- What should be done first?
- What does the country need?
- What is the current contraceptive prevalence?
- Will training be inservice, preservice or both?
- What types of classroom and clinical facilities are available?
- What are the conditions in the clinics?
- Which family planning methods will be provided?
- What family planning clinical skills do service providers possess?
- Who needs to be trained?
- What types of training materials are available?

Questions such as these are part of various types of needs assessments.

Chapter Objective

After completing this chapter, the participant will be able to assist with assessing training needs.

Enabling Objectives

To attain the chapter objective, the participant will:

- Identify the components of a training sector assessment
- Describe data to be collected during an institutional needs assessment
- Describe data to be collected during a facility needs assessment
- Conduct a training event needs assessment
- Assess participant training needs during a course

TYPES OF TRAINING NEEDS ASSESSMENTS

Clearly, there are a number of factors to consider before developing a family planning training program for a country or designing a training course. This chapter examines five types of assessments that can provide relevant information on such factors (see **Table 3-1**).

Note that while these five assessments ideally are completed in the order in which they are presented (i.e., country level followed by institutional level, followed by facility level), the instructional designer is most closely involved with the last two assessment types (i.e., training event and participant needs).

Table 3-1. Needs Assessments

TYPE OF NEEDS ASSESSMENT	PURPOSE
Training Sector	Documents how constraints to quality family planning service delivery can be addressed through training interventions. This assessment may be conducted at the country or subnational level.
Institutional	Documents the capacity and capability of a specific training or educational institution to conduct quality family planning training.
Facility	Documents the capacity and capability of a specific facility to offer quality family planning services and the potential for quality clinical training.
Training Event	Delineates family planning service delivery problems or situations that can be improved through a specific training event.
Course Participants	Identifies the level of knowledge and skills that the participants bring to training.

TRAINING SECTOR ASSESSMENT

A training sector assessment is a macro-level needs assessment. It indicates whether constraints to quality family planning service delivery in a defined geographic area (e.g., province, country) can be addressed through training.

The purpose of the assessment is to fully describe the status of family planning training in the defined area. This information, along with data gathered through the other types of needs assessments described in this chapter, are used to help formulate a training strategy which can, in turn, be used to design and carry out specific training program activities.

Data collected as part of a training sector assessment can be categorized into five areas:

- Family planning statistics
- Physical and human resources supporting family planning services
- Preservice training in medical, nursing and/or midwifery educational institutions
- Inservice training for practicing medical, nursing and midwifery personnel
- Identified training needs

Family Planning Statistics

Family planning statistics help outline family planning service delivery training needs. They also serve as a baseline for measuring programmatic change or improvements over time. Examples of relevant family planning statistics include contraceptive prevalence and total fertility rates (generated from national surveys) and couple-years of protection (tabulated from facility-based contraceptive stock issue data).

Resources Supporting Family Planning Services

In examining the resources supporting family planning services, the data collector describes the family planning service delivery system, including the physical infrastructure, record keeping, contraceptive logistics, staffing patterns and management and supervisory systems.

The goals and objectives of national policies which directly affect the reproductive health rights and behavior of individuals, as well as any problems or barriers to quality family planning care caused by national policies, also should be specified.

Preservice Medical and Paramedical Family Planning Training

The data collector should examine the existing undergraduate medical, nursing and midwifery educational institutions in the country, including their curricula, admission requirements and annual number of graduates. Which of these institutions currently offers family planning training as part of the curriculum also should be determined. Relevant questions for which answers are sought include the following:

- If no prescribed family planning component of the curriculum exists, how have schools with family planning courses decided upon the course content?
- To what standard is a school's curriculum applied, if any?
- Are course objectives clearly described?

- Are there written expectations of the skill levels to be achieved by students?
- How much time is devoted to family planning topics within the broader undergraduate curriculum?
- Is the curriculum in line with the job description?
- Who teaches family planning?
- What training have teachers received in either family planning topics or training methodology?
- What percentage of the total family planning curriculum is devoted to clinical practice?
- Are there objectives written specifically for the clinical activities?
- Is the clinical practice experience limited to observation or do students actually engage in hands-on practice?
- Where are clinical practice activities conducted?
- Are there designated preceptors for clinical practice?
- What training have preceptors received to oversee clinical practice effectively?

Inservice Medical and Paramedical Family Planning Training

Another important aspect of the training sector assessment is the inservice family planning training capacity of the geographical area, including facilities and personnel.

Relevant questions to be answered include the following:

- Who (or which organization) is responsible for overseeing inservice training?
- Is there an established countrywide inservice training plan specifying the number of practitioners to be trained, in which skill areas and on what schedule inservice training will be provided?
- Is inservice training in family planning provided for all or just some categories of practitioners?

- How are training needs established and updated?
- Is inservice training consistent with practitioners' job descriptions?
- How does preservice training, where it exists, complement inservice training?
- How many people, by category of personnel, currently receive inservice training each year?
- Where are the classroom and clinical training sites?
- Does the available client caseload support the current and anticipated number of trainees?

In examining inservice training, the data collector should also consider the types and origin of course materials used; the training techniques and manuals used; the trainers' ability to develop their own training materials; the balance between classroom training and clinical practice; the levels of performance expected; and the types of performance assessment methods used.

Identified Family Planning Training Needs

The final area to be included in a training sector assessment is the identified training needs. Answers to all of the questions listed above provide a basis for outlining family planning training needs.

The assessment information should be used to design a national (or subnational) training capacity- and capability-building strategic (action) plan. The results should be summarized in a report that includes all of the sections described above and makes recommendations for future training interventions.

INSTITUTIONAL NEEDS ASSESSMENT

An institutional needs assessment documents the presence or absence of specific factors known to affect the capacity and capability of an individual institution to offer quality training (e.g., adequacy of the curriculum, availability of audiovisual equipment, presence of trained staff). Institutions organizing training courses operate at both preservice and inservice levels. The management capabilities of selected institutions (including their potential to develop a self-sustaining training program) and the statutes governing the institutions also should be considered as part of an institutional needs assessment. The Ministry of Health is an

example of an inservice training institution. A midwifery school is an example of a preservice educational institution that can offer reproductive health training.

Selection of the institutions for assessment will depend on the recommended national training strategy as well as national reproductive health policies. These policies define the categories of health professional that can provide specific, clinic-based services in the country.

Data collected through a **preservice** institutional needs assessment ideally include the following:

- school profile (e.g., number and type of faculty, number of students, number of graduates, professional categories, duration of studies, courses of study, organizational chart);
- classroom instruction currently provided (including a description of the extent to which family planning topics are integrated into the school's curriculum);
- human resources (including a description of staff teaching/training experience);
- teaching equipment (e.g., anatomic models, audiovisual equipment and other aids); and
- clinical training currently provided (including a description of the clinical, skill-related curricular elements of the family planning services).

An **inservice** institutional needs assessment covers similar items but the training is usually conducted as a course, not as part of a multi-year curriculum, and the participants are practicing health workers, not students.

Whether the needs assessment is carried out for a preservice or an inservice institution, a facility needs assessment is often a part of the assessment.

FACILITY NEEDS ASSESSMENT

Facility needs assessments (also known as clinic assessments) are conducted to identify clinical sites that provide quality family planning

services and have the capacity, including adequate client caseload, to provide quality training.

Clinical courses in family planning usually include a classroom instruction component; therefore, one criterion for the appropriateness of a facility is the existence of an affiliated institution or other site where instruction can take place (if not at the clinic itself). For traditional, group-based training, this involves determining the availability of classroom space, audiovisual equipment, electricity, restrooms, etc. If a facility assessment is conducted as part of a more comprehensive institutional needs assessment, then this information will already have been collected.

For the clinical training component, a facility assessment looks at the adequacy of proposed clinics to provide clinical training and typically includes:

- availability of family planning services (days/hours);
- number of staff (by category) routinely involved in family planning services;
- qualifications of service providers;
- types of family planning services offered;
- average number of new/continuing family planning users, by contraceptive method;
- adequacy of current counseling practices;
- adequacy of infection prevention practices;
- availability of appropriate equipment and consumable supplies; and
- training capacity/capability of the site.

A facility assessment should be carried out for all sites that will be used for clinical training. The data collected also can be used as baseline information if the effect of training interventions at the service delivery level is to be evaluated.

TRAINING EVENT NEEDS ASSESSMENT

The three needs assessments described above are designed to assess the general training infrastructure. A training event needs assessment identifies any gaps between the present performance of a health worker

and the desired performance. A discrepancy between the two is often stated in terms of what is necessary to perform a job or series of tasks as compared to the worker's actual abilities. These abilities can be classified into three learning areas or domains:

- **Knowledge**, which focuses on the knowledge and understanding necessary to perform a job or task (also called the cognitive domain)
- **Skill**, which looks at the skills and practices necessary to perform a job or task (also called the psychomotor domain)
- **Attitude**, which examines the attitudes or beliefs associated with performing a job or task (also called the affective domain)

A training event needs assessment specifies job performance problems or situations which may be solved through training. The word "may" is used here because, as noted above, the identified problem or situation may **not** best be resolved through training but through other means such as improving the delivery of supplies, providing adequate equipment or implementing policy changes. All elements of a training event strategy flow from the needs assessment—it is the basis for all activities involved in the training design, delivery and evaluation process. When completed, a training event needs assessment will identify:

- **who** should be trained;
- **tasks** that health workers are required to perform (job responsibilities);
- **specific task requirements** (i.e., knowledge and skills required to perform a task);
- **new knowledge** that should be included in the course;
- **attitudes** that need to be reinforced during training;
- who should **conduct** the training; and
- **where** training should be conducted.

When a needs assessment is not done, the training event may not have the appropriate content or may be designed for individuals who do not need training. The needs assessment, therefore, is the initial step in the development of an appropriate training event.

Even when the same courses or curricula are being offered repeatedly over the years, their design may need to change based on new

technologies or the composition of the new group being trained, or as a result of new or different identified needs.

The following steps will determine whether family planning workers lack the necessary knowledge, skills or attitudes to do the job:

- Identify performance problems.
- Identify the knowledge, skills and attitudes necessary to perform a job.
- Assess health workers' knowledge, skills and attitudes.
- Analyze needs assessment findings.

Step #1: Identify Performance Problems

To identify performance problems, the trainer should answer the following questions:

- **What is the specific problem or situation?** Try to develop a clear, concise description of the problem or situation.

  Examples:

  During a series of family planning clinic assessments, it was determined that 53 percent of the clinics performed three or more infection prevention practices inadequately.

  Of 14 individuals selected to train service providers, only three have formal training as clinical trainers.

  Within a country there are relatively few master trainers and instructional designers capable of designing reproductive health training events and developing the materials needed to support these events.

- **What exactly is the desired outcome?** With the problem in mind, develop a clear, concise description of the *ideal* situation.

  Examples:

  Every family planning clinic should follow recommended infection prevention practices.

  All trainers of service providers should be qualified clinical trainers.

There should be a core group of instructional designers and master trainers with instructional design skills to design training events and develop supporting training materials.

- **Can the problem best be solved through training?** One of the three problem statements presented above indicated that there were inadequate infection prevention practices in over half the clinics assessed. Closer investigation reveals that medical equipment and supplies in rural areas are limited. It turns out that the problem is a distribution problem rather than a training problem. The trainer might still work to resolve the problem; the solution, however, will not be training. The trainer must be certain that training can solve the problem before designing and delivering a course.

Step #2: Identify the Knowledge, Skills and Attitudes Necessary to Perform a Job

The second step in the training event needs assessment process is to develop a complete picture of the desired performance. As many of the following sources of data as possible should be used to obtain this information.

- **Observe** any health workers who are skilled in the clinical area in which there is an identified service provision problem (e.g., IUD insertion and removal, method-specific counseling, infection prevention practices).
- **Review** job descriptions.
- **Interview** health workers' supervisors.
- **Interview** program personnel (e.g., maternal and child health/family planning division managers).
- **Review** clinic records and program statistics.
- **Review** current reference manuals.
- **Review** any existing skill development learning guides or performance checklists focusing on the skill(s) related to the problem.

At this point, the objective is to identify the general knowledge, skills and attitudes required to do the job.

Example:

After research and interviews, some of the general knowledge and skill areas needed by an instructional designer are identified as follows:

- *Analyze needs and instructional content*
- *Design preservice and inservice learning events*
- *Develop materials for preservice and inservice learning events*
- *Evaluate preservice and inservice learning events*

More information on analyzing the knowledge, skills and attitudes necessary to perform a job may be found in **Chapter 4**.

Step #3: Assess Health Workers' Knowledge, Skills and Attitudes

The third step in the training event needs assessment process is to determine what knowledge, skills and attitudes the health workers currently possess.

Do health workers currently have the necessary knowledge, skills and attitudes to carry out their job responsibilities? By observing health workers and conducting individual and group interviews, the trainer may determine that a group of counselors has good basic counseling skills but does not possess the essential knowledge, skills and attitudes to provide method-specific counseling.

How does the workers' performance differ from the desired performance? The trainer determines that the counselors must:

- become knowledgeable about all available family planning methods,
- learn approaches to family planning and sexuality counseling, and
- understand issues related to informed choice and informed consent.

What are the causes of the discrepancies between current and desired performance? In our example, the discrepancies are caused by the counselors' lack of training in method-specific family planning counseling. In other situations, performance discrepancies may be caused by lack of preservice clinical skills training or lack of access to continuing education.

Can the desired performance be obtained through training? Yes—the counseling personnel, in all likelihood, can be trained to provide method-specific counseling.

What obstacles are facing the workers? If training is not provided, counselors will encounter problems when attempting to provide family planning counseling. Lower continuation rates for family planning methods typically are observed in clinics where counselors do not receive appropriate training.

The results of the assessment of current performance are then compared with the data that were collected to identify the knowledge, skills and attitudes necessary to perform the job. As in the following example, the gaps identified through the two assessments become the focus for the design of the training event.

Example:

> *Because there are only a few trained instructional designers, advanced and master trainers and existing materials developers must be trained to become instructional designers. In this situation, the gap between present and desired performance is immediately obvious and the knowledge, skills and attitudes required to do the job become the focus of the training course to be designed.*

Data Collection Instruments

When the information needed to conduct a training event needs assessment is not available through existing data sources, the instructional designer may use specially designed data collection instruments, such as questionnaires or checklists, with individuals or groups.

Many times, more than one data collection instrument will be needed. To determine the appropriate type of needs assessment instruments and techniques to use, ask the following questions:

- How much time is available to complete the needs assessment?
- How many individuals are to be contacted?
- How will the data be collected?
- What are the cost constraints?
- Is the anonymity of respondents important?
- Can the data collector administer the instrument easily?

- Can the respondent complete the instrument easily?
- What level of precision is required?
- How will the results be analyzed (e.g., by hand, computer, etc.)?

Each of these questions should be addressed before data collection begins in order to avoid many potential pitfalls of the needs assessment process. Only information needed to design the training event should be collected.

A useful technique for efficiently developing needs assessment instruments is to review sample instruments. **Sample 3-1** at the end of this chapter presents a portion of a performance checklist for observing service providers on the job and assessing their Norplant implants counseling and clinical skills. This type of checklist is used to observe health workers in order to identify strengths and limitations in performance of clinical and counseling skills. Refer to **Chapter 6** for information on developing checklists.

Step #4: Analyze Needs Assessment Findings

Analysis of data from the training event needs assessment and other relevant information will determine the nature and structure of the needed training event.

The needs expressed by potential participants are categorized as **felt** needs while those identified based on the assessments are referred to as **observed** needs. Generally, it is not prudent to base a training course on only one of the two. Combining felt needs and observed needs is the most effective approach and promotes a sense of participation in those who may be trained.

Results from the needs assessment should be collated so that decisions regarding the need and type of training can be made. Any report should include:

- a brief overview of the purpose and objectives of the needs assessment,
- the method(s) used to collect the information,
- the potential number and profiles of participants to be trained,
- significant findings from the needs assessment, and
- recommendations regarding the training.

Once the data have been analyzed, the trainer should prepare recommendations. The recommendations should be arranged so that the

most critical issues or training areas can be addressed first. The data, in summary form, should be shared with the group sponsoring the training (e.g., Ministry of Health) to encourage its involvement in setting priorities for training.

In **summary**, the trainer should follow the steps below in conducting a training event needs assessment:

- **Identify the performance issue.** Clearly define the problem or situation using observable, measurable terms. Attempt to reach consensus with all parties on the definition of any problems that can be corrected by training.

- **Identify the knowledge, skills and attitudes necessary to perform a job.** Clearly describe or list the specific knowledge, skills and attitudes family planning workers must possess in order to correct identified problems.

- **Assess health workers' knowledge, skills and attitudes.** Through interviews and observations, identify the health workers' present knowledge, skills and attitudes.

- **Analyze needs assessment findings and make recommendations based on the findings.**

PARTICIPANT NEEDS ASSESSMENT

It is important for the trainer to assess the knowledge and skill levels of participants attending training and to determine their expectations before and during training. The designer is responsible for ensuring that time is built into the course schedule for conducting participant assessments at the beginning of the course. Among the approaches that can be used to clarify individual training needs are:

- assessment of the level of participant knowledge about the course content (**precourse knowledge questionnaire**),

- assessment of participant skills in performing specific steps or tasks of the clinical procedure(s) to be learned (**competency-based performance checklist**), and

- exercises to learn **participant expectations**.

Precourse Knowledge Questionnaires

The main objective of a precourse knowledge assessment is to determine what the participants, individually and as a group, know about the course topic. This allows the trainer to identify topics that may need additional emphasis or, in some cases, require less classroom time during the course. Providing the results of the precourse assessment to the participants enables them to focus on their individual learning needs. In addition, the questions alert participants to the content that will be presented in the course.

Sample 3-2 at the end of this chapter shows a portion of a precourse questionnaire for training in the provision of IUD services. The questions and answers are keyed to training objectives and specific chapters in the corresponding reference manual.

If changes in knowledge post-training are to be measured, the trainer can use the participants' scores on the precourse questionnaire as a basis for comparison.

Competency-Based Performance Checklists

At the beginning of a course, participant clinical skills may be assessed to determine whether the participant:

- is performing a specific procedure according to the locally accepted, standardized method; or
- has requisite skills for specialized training (e.g., can competently perform a pelvic examination before being trained in IUD insertion).

Use of a competency-based performance checklist that measures clinical skills or other observable behaviors (e.g., counseling) relative to a predetermined standard allows the trainer to:

- evaluate objectively the skill level at which the participant performs a particular clinical task or activity, and
- tailor skills training to meet a participant's specific needs.

Skills are most easily assessed at the beginning of a course through use of an anatomic model or role play. The trainer observes each participant and completes a competency-based performance checklist which lists the essential clinical skills.

A more detailed description of how to carry out competency-based skill and knowledge assessments may be found in the reference manual *Clinical Training Skills for Reproductive Health Professionals*.

Participant Expectations

Participant expectations should be assessed continually. The following are examples of exercises that can be used to learn the needs of participants at the beginning of training, to meet new needs which have emerged since the initial assessment or to make adjustments in schedule or content during the course:

Give-Get. This is a simple but useful exercise which can be used at the beginning of training. Participants are asked to list on a flipchart:

- What they expect to **give** during the training
- What they expect to **get** from the training

Refer to the list during training to ensure that the course is engaging participants in the ways that they desired and, to the extent possible, that participants' training expectations are being met.

Listing Problems/Questions. Another useful approach is to list session topics on the flipchart and to post them around the classroom. Ask participants at the beginning of the training to list questions or problems that they have encountered on the job regarding session topics. Be sure to discuss each of the questions listed for each topic.

Meeting with Participants. At the end of each day, the trainer can meet with participants as a group to assess how well the course is meeting their needs, to review highlights of the day's activities or to determine if new needs have emerged as a result of the day's training.

SUMMARY

The primary purpose of a needs assessment, in the context of family planning training, is to identify the needs of a country, institution, facility or group of health workers. When the four-step assessment process is completed, it will identify specific job performance requirements, describe the current performance level of the health workers and outline the nature of any training that may be required. Training events designed as a result of such assessments are more likely to meet real needs.

This chapter has examined five types of assessments. They are listed below in the ideal order in which they are carried out. The instructional designer is likely to be most closely involved in the final two assessments.

- **Training sector assessment.** Documents how constraints to quality family planning services can be addressed through training interventions.

- **Institutional needs assessment.** Documents the capacity and capability of a specific institution to conduct quality family planning training.

- **Facility needs assessment.** Documents the capacity and capability of a specific facility to offer quality family planning services, and the potential for quality clinical training.

- **Training event needs assessment.** Delineates family planning service delivery problems that can be improved through a specific training event.

- **Participant training needs assessment.** Identifies the level of knowledge and skills that the participants bring to the training course.

SAMPLE 3-1

CHECKLIST FOR NORPLANT IMPLANTS COUNSELING AND CLINICAL SKILLS: INSERTION

Place a "✓" in case box if step/task is performed **satisfactorily**, an "**X**" if it is **not** performed **satisfactorily**, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Not Observed: Step or task or skill not performed by participant during evaluation by clinical trainer

CLINICIAN_____ **NAME OF CLINIC** _____

CHECKLIST FOR NORPLANT IMPLANTS COUNSELING AND CLINICAL SKILLS: *INSERTION*						
SKILL/ACTIVITY	**CASES**					
PRE-INSERTION COUNSELING						
1. Greets client respectfully and with kindness.						
2. Asks woman about her reproductive goals and need for protection against GTIs and STDs.						
3. If Norplant implants counseling not done, arranges for counseling prior to performing procedure.						
4. Determines that the woman's contraceptive choice is Norplant implants.						
5. Reviews Client Screening Checklist to determine if Norplant implants are an appropriate choice for the client.						
6. Performs (or refers for) further evaluation, if indicated.						
7. Assesses woman's knowledge about Norplant implants' major side effects.						
8. Is responsive to client's needs and concerns about Norplant implants.						
9. Describes insertion procedure and what to expect.						
SKILL/ACTIVITY PERFORMED SATISFACTORILY						
INSERTION OF NORPLANT CAPSULES						
Getting Ready						
1. Checks to be sure that client has thoroughly washed and rinsed her entire arm.						
2. Tells client what is going to be done and encourages her to ask questions.						
3. Positions woman's arm and places clean, dry cloth under her arm.						
4. Using template, marks position on arm for insertion of capsules.						

CHECKLIST FOR NORPLANT IMPLANTS COUNSELING AND CLINICAL SKILLS: *INSERTION*						
SKILL/ACTIVITY	**CASES**					
5. Determines that required sterile or high-level disinfected instruments and six Norplant capsules are present.						
Pre-Insertion Tasks						
6. Washes hands thoroughly and dries them.						
7. Puts sterile or high-level disinfected gloves on both hands (if powdered, removes powder from glove fingers).						
8. Preps insertion site with antiseptic solution.						
9. Places sterile or high-level disinfected drape over arm (optional).						
10. Injects local anesthetic (1% without epinephrine) just under skin; raises a small wheal.						
11. Advances needle about 4 cm and injects 1 ml of local anesthetic in each of three subdermal tracks.						
12. Checks for anesthetic effect before making skin incision.						
Insertion						
13. Makes a shallow 2 mm incision with scalpel just through skin (alternatively, inserts trocar directly subdermally).						
14. While tenting the skin, advances trocar and plunger to mark (1) nearest hub of trocar.						
15. Removes plunger and loads capsule into trocar with gloved hand or forceps.						
16. Reinserts plunger and advances it until resistance is felt.						
17. Holds plunger firmly in place with one hand and slides trocar out of incision until it reaches plunger handle.						
18. Withdraws trocar and plunger together until mark (2) nearest trocar tip just clears incision (does not remove trocar from skin).						
19. Moves tip of trocar away from end of capsule and holds capsule out of the path of the trocar.						
20. Redirects trocar about 15° and advances trocar and plunger to mark (1).						
21. Inserts remaining capsules using the same technique.						
22. Palpates capsules to check that six capsules have been inserted in a fan distribution.						
23. Palpates incision to check that all capsules are 5 mm clear of incision.						
24. Removes trocar only after insertion of last capsule.						

CHECKLIST FOR NORPLANT IMPLANTS COUNSELING AND CLINICAL SKILLS: *INSERTION*						
SKILL/ACTIVITY	**CASES**					
Postinsertion Tasks						
25. Removes drape and wipes client's skin with alcohol.						
26. Brings edges of incision together and closes it with Bandaid® or surgical tape with sterile cotton.						
27. Applies pressure dressing snugly.						
28. Before removing gloves, fills or flushes needle and syringe with 0.5% chlorine solution and places all instruments in 0.5% chlorine solution for 10 minutes.						
29. Disposes of waste materials by placing in leakproof container or plastic bag.						
30. Immerses gloved hands in 0.5% chlorine solution. Removes gloves by turning inside out. • If disposing of gloves, places in leakproof container or plastic bag. • If reusing gloves, places them in 0.5% chlorine solution for 10 minutes for decontamination.						
31. Washes hands thoroughly and dries them.						
32. Completes client record, including drawing position of capsules.						
SKILL/ACTIVITY PERFORMED SATISFACTORILY						
POSTINSERTION COUNSELING						
1. Instructs client regarding wound care and makes return visit appointment, if necessary.						
2. Discusses what to do if client experiences any problems following insertion or side effects.						
3. Assures client that she can have capsules removed at any time if she desires.						
4. Asks client to repeat instructions and answers client's questions.						
5. Observes client for at least 15 to 20 minutes before sending her home.						
SKILL/ACTIVITY PERFORMED SATISFACTORILY						

PARTICIPANT IS ☐ **QUALIFIED** ☐ **NOT QUALIFIED** TO INSERT NORPLANT IMPLANTS, BASED ON THE FOLLOWING CRITERIA:

- Score on Midcourse Questionnaire _____% (Attach Answer Sheet)
- Counseling and Clinical Skills Evaluation: ☐ Satisfactory ☐ Unsatisfactory
- Provision of services (practice): ☐ Satisfactory ☐ Unsatisfactory

Trainer's Signature_____ Date_____

SAMPLE 3-2

IUD PRECOURSE QUESTIONNAIRE AND ANSWER KEY

COUNSELING

1.	The physician is the person best qualified to choose a contraceptive method for a woman in good health.	**FALSE**	Participant Objective 1 (Chapter 2)
2.	Counseling is to be integrated into each interaction with the client.	**TRUE**	Participant Objective 1 (Chapter 2)
3.	Knowing that the IUD has few side effects will help make a woman more confident about choosing the IUD as her contraceptive method.	**TRUE**	Participant Objective 1 (Chapter 2)
4.	Clients need to be counseled that following IUD insertion, heavy vaginal discharge which requires frequent douching often occurs.	**FALSE**	Participant Objective 1 (Chapter 2)

INDICATIONS, PRECAUTIONS AND CLIENT ASSESSMENT

5.	A good candidate for using an IUD is a woman who wants long-term (3 years or more) contraception.	**TRUE**	Participant Objective 3 (Chapter 3)
6.	A woman who had a postpartum pelvic infection more than 3 months ago can have an IUD inserted.	**TRUE**	Participant Objective 3 (Chapter 3)
7.	If a woman is found to have a retroverted (posterior) uterus, she cannot have an IUD inserted.	**FALSE**	Participant Objective 3 (Chapter 3)
8.	Women who are not in a mutually faithful relationship (i.e., either partner has more than one sexual partner) are at increased risk for STDs.	**TRUE**	Participant Objective 3 (Chapter 3)
9.	The physical examination of a potential IUD client **must** include breast, abdominal and pelvic (speculum and bimanual) examinations.	**FALSE**	Participant Objective 4 (Chapter 4)
10.	Microscopic examination of a vaginal discharge done by saline and KOH wet mounts will identify most clients with trichomoniasis and candidiasis.	**TRUE**	Participant Objective 5 (Chapter 5)

FOUR

INSTRUCTIONAL CONTENT ANALYSIS

INTRODUCTION

Needs assessments identify performance problems or deficiencies in reproductive health service delivery that can be corrected through inservice training or changes to a preservice curriculum. The next step is to **analyze the instructional content** to identify the specific **knowledge, skills** and **attitudes** personnel require to correct problems and overcome deficiencies. This instructional content is then used in the design and development of both the course and supporting materials.

Chapter Objective

After completing this chapter, the participant will be able to identify instructional content for reproductive health education and training.

Enabling Objectives

To attain the chapter objective, the participant will:

- Analyze knowledge for instructional purposes
- Analyze skills for instructional purposes
- Analyze attitudes for instructional purposes

KNOWLEDGE ANALYSIS

The delivery of a reproductive health inservice or preservice course requires the transfer of current and accurate **information** or **knowledge** from the trainer or other source (e.g., reference manual, textbook, computer-assisted learning package, journal articles) to the course participants. This knowledge area of learning is also known as the **cognitive learning domain**. In most situations, the cognitive information or content for an inservice or preservice course is found in one of two ways:

- the information appears in an existing reference manual, textbook, journal article or is available electronically (e.g., in a computer package, through the Internet); or

- an outline of the general knowledge areas or topics is developed during the needs assessment process.

Using Existing Information

Many times there will be existing training and teaching materials available which can be used or adapted for inservice and preservice

courses. There may be a temptation on the part of the instructional designer, trainers, faculty and others to use these existing materials in order to save time and resources. Just because materials are available, however, does not mean they are appropriate. These materials should be carefully reviewed by experienced and knowledgeable clinicians together with the instructional designer. They will need to decide if the materials are out of date, inaccurate, incomplete or poorly designed; in other words, whether they meet the needs identified in the needs assessments.

After appropriate materials have been identified, they can be used in the instructional content analysis process to develop the training course. The following example shows how existing materials can be used in the instructional content analysis process.

***Example**:*

Following a training sector and several institutional assessments, it is determined that nursing tutors need training in abdominal and pelvic examinations. Once these tutors have their knowledge and skills updated, they will be better prepared to teach nursing students. In researching and reviewing materials, the instructional designer discovers a reference manual on physical examination with chapters on abdominal and pelvic examination. Reviewing the content of the chapters, the designer develops the following list of ***knowledge areas or topics*** *to be presented during the course:*

- *Anatomy of the female reproductive system*
- *Purposes of the abdominal and pelvic examinations*
- *Appropriate setup of the examining room and preparation of the client*
- *Infection prevention practices*
- *Abdominal examination*
- *Inspection and palpation of the external genitalia*
- *Speculum examination*
- *Bimanual examination*
- *Rectovaginal examination*

Further analysis of the content in the manual expands the information for each of these topics. For example, the expanded content outline for the speculum examination is:

- *Why the speculum examination is performed*
- *How to position the client*
- *How to insert the speculum*
- *How to examine the walls of the vagina*
- *How to examine the cervix and cervical opening*
- *What abnormalities of the cervix and vagina to watch for*
- *When and how to take laboratory specimens, if appropriate*

Assuming that the reference manual is current and accurate, not only can the content outlines presenting the topics and subtopics be used during the remaining phases of the design process, the reference manual itself can be adopted for use by the trainer and participants during the course. If this is a single manual and is not part of an existing **training package**, then many of the documents (e.g., syllabus, schedule, outline, learning guides, checklists) described in **Chapters 5 and 6** would need to be developed to support the manual and create a comprehensive training package.

Consider how having a complete training package has a significant impact on the instructional content analysis process.

***Example**:*

Due to a revision of the national service delivery guidelines by a country's Ministry of Health, nurses are now permitted to insert and remove Norplant implants. It will require a great deal of time to revise the curriculum in the nursing schools and then graduate nurses with the knowledge and skills to insert and remove implants. A decision is made to design a Norplant implants inservice training course. The instructional designer responsible for designing this course locates a copy of a Norplant implants training package which contains the following components related to the information to be transferred during the course:

- *Reference manual which contains essential, need-to-know information*
- *Course syllabus including learning objectives which outlines the major knowledge areas participants will learn*

- *Course schedule which shows when various knowledge topics are taught and skills are practiced*
- *Course outline which offers suggestions for the trainer for each knowledge and skill area*
- *Pre- and postcourse assessments which measure progress in learning*

Given a comprehensive training package such as this, there is little instructional content analysis the designer is required to do because the design work has been completed. The instructional designer, working with proficient clinicians and subject matter experts, will ensure that the reference manual contains current and accurate information and that the training package meets the needs of the target audience. The designer may need to adapt the course schedule and outline (see **Chapter 5**) but will not need to devote extensive time to content analysis. When a decision is made to teach Norplant implants knowledge and skills in the preservice nursing curriculum, this same package can be adapted for use in preservice classroom and clinical experiences.

Developing an Outline of General Knowledge Areas

During the needs assessment process, the knowledge (along with the skills and attitudes) necessary to perform a job was identified. This is the general knowledge or cognitive information clinicians must possess in order to effectively provide services. For example, during a needs assessment it is determined that family planning service providers lack the knowledge to counsel clients correctly about receiving progestin-only injectable contraceptives (PICs). The workers possess general counseling skills and the clinical skills to administer injections. Their knowledge concerning PICs is deficient, however, resulting in few clients receiving PICs. The question facing the instructional designer is "What is the exact information about PICs that the service provider needs to know in order to provide this service to clients?"

When a training event needs assessment as described in **Chapter 3** has been completed, the instructional designer will have an outline of the **general** knowledge needed by service providers. That list now must be analyzed to identify the **specific** information to be delivered during the learning process. Following is an example of the general content or topical outline for PICs identified during a needs assessment.

Example:

The family planning service provider must know:

- *Types of PICs*
- *Mechanisms of action*
- *Contraceptive benefits*
- *Noncontraceptive benefits*
- *Limitations*
- *Clients who can use PICs*
- *Clients who should not use PICs*
- *Conditions requiring precautions*
- *When to start PICs*
- *Management of common side effects*
- *Client instructions*
- *Who can provide PICs*
- *Where PICs can be provided*

Given an outline of the general knowledge areas, the instructional designer has a clearer picture of exactly what the participants in a course or workshop must learn in order to improve their job performance. In the design phase of the instructional design process, these topics will form the basis of course objectives (**Chapter 5**) and eventually will be expanded to identify the specific information that will appear in notes and presentation plans (**Chapter 8**).

Knowing that these general knowledge areas will eventually be expanded to present specific training content, the instructional designer, working with experienced and knowledgeable clinicians, will usually continue the analysis process and identify the supporting content. If not, individual trainers or instructors may need to determine exactly what is to be taught in relation to each area (e.g., what is taught in relation to the mechanisms of action of PICs). When this occurs, the information transferred during the learning process becomes trainer dependent and there is a risk that different groups of participants will receive different information. To help ensure the **standardized transfer of information**, the instructional designer will expand the general content outline and identify as much of the content to be delivered as possible.

The instructional designer can use several approaches to identify specific information within each of the general areas:

- **Research** each area or topic using accurate, current, scientifically-based resource materials.

- Bring a small group of **subject matter experts** together to brainstorm the essential information required within each general area.

- **Interview** family planning service providers on the job who are familiar with the knowledge or information being analyzed.

The purpose of this process is to expand each general topic to indicate the essential information which needs to be transferred to participants during the learning process. The instructional designer should not attempt, however, to identify every specific point the trainer or instructor will make during the delivery of the course. Not only is this time-consuming, but the trainers and instructors must be given the opportunity to personalize the content during the learning process.

For each of the general knowledge areas, the instructional designer asks the question "What is it that participants must learn about this area?" For example, after doing research and discussing the contraceptive benefits of progestin-only injectable contraceptives with subject matter experts, the instructional designer develops the following information outline which will eventually appear in the notes or presentation plans used by the trainer or instructor.

Contraceptive benefits:

- Highly effective (0.3–1 pregnancies per 100 women during the first year of use)
- Rapidly effective (< 24 hours)
- Intermediate-term method (2 or 3 months per injection)
- Pelvic examination not required prior to use
- Do not interfere with intercourse
- Do not affect breastfeeding
- Few side effects
- No supplies needed by client

- Can be provided by trained nonmedical staff
- Contain no estrogen

This analysis process is repeated until the designer has all of the instructional content to support each of the general areas identified. Note that this expanded content outline is **not** meant to be a training or teaching document. This outline will form the basis of trainer's notes and presentation plans developed later in the process and described in **Chapter 8**. By identifying essential information at this point, the designer is helping to ensure the development of standardized training materials and the consistent transfer of information.

Table 4-1 summarizes the options the designer has available for identifying the knowledge content in preparation for the design phase of the instructional design process.

Table 4-1. Content Analysis Options

INPUT	ROLE OF THE DESIGNER	OUTPUT
General knowledge areas or topics based on the content in a stand-alone reference manual or textbook	Expand each topic to identify specific content	List of topics and subtopics forming the basis of subsequent design steps
General and specific knowledge in a reference manual that is part of a comprehensive training package	Adapt to current needs (Instructional content analysis completed during the design of the original reference manual)	Content in the existing reference manual adapted if necessary
General knowledge areas or topics from the needs assessment process	Expand each topic to identify specific content	List of topics and subtopics forming the basis of subsequent design steps

SKILL ANALYSIS

The majority of reproductive health inservice and preservice courses have a skill component. The **skill area** or **psychomotor learning domain** looks at the skills and practices necessary to perform a job or task. Below are several examples of clinical skills:

- Load an IUD in a sterile package
- Insert an IUD
- Remove an IUD
- Perform a minilaparotomy under local anesthesia

- Use effective infection prevention practices when performing a minilaparotomy
- Counsel a family planning client

Skills required by service providers should be identified during the needs assessment process. Typically it is only the skill that is identified in the problem statement or needs assessment recommendations (e.g., physicians need to be trained to perform a minilaparotomy under local anesthesia, nurses need to improve their infection prevention skills). The responsibility of the instructional designer is to work with subject matter experts to identify the steps individuals will need to learn in order to be able to competently perform each skill. Supporting the development of the clinical skills is the acquisition of the essential **information** or **knowledge** as described previously in this chapter.

Task Analysis

The primary approach used to analyze psychomotor tasks or skills is the **task analysis**. A task analysis is used when the skill or procedure has a fixed or standard sequence and is almost always performed in that sequence (e.g., inserting an IUD). Once the steps within the procedure are identified, they are used in the development of **learning guides** and **checklists** (see **Chapter 6**).

An instructional designer is told there is a need to prepare family planning service providers to perform a specific procedure or task. After talking with proficient service providers, the designer determines that this procedure consists of a number of steps which are usually performed in the same sequence. In order to identify the steps within the procedure and their sequence, the designer has the following alternatives:

- locate an existing learning guide and checklist for this skill, review the steps and sequence within these instruments and adapt them to fit the situation; or
- identify the steps and sequence by observing proficient clinicians perform the procedure.

In both of these approaches, it is critical that the designer ensure that there is **consensus** among a group of proficient clinicians that this is the **standard** way of performing the procedure. This task analysis and consensus building process is also referred to as a **clinical skill standardization**.

The skill standardization process involves identifying the essential steps of a clinical procedure and analyzing the steps to determine the safest,

most efficient way to perform it and to train others. A standardized procedure provides the basis for developing competency-based learning guides and checklists.

The advantages of developing a standard method for performing a procedure are:

- Trainers have a model to use in performing and teaching the procedure. This promotes standard training throughout a country, regardless of who does the training, or where it is done.
- Learning the necessary steps or tasks is easier and evaluating the participant's performance is more objective.
- The standard method is used in practice because local clinicians participated in its development.
- Followup assessment of clinical skills is easier and more objective because those being evaluated are aware of the criteria.
- Followup also can be done by a variety of individuals, not just the trainer, because everyone learned and uses the same standard procedure.
- Development of training materials is easier and more cost-effective, particularly for supporting audiovisuals which show the steps of the procedure (e.g., a videotape showing the steps of the standardized procedure).

Standardization of a clinical procedure involves the following steps:

- **Identify a group of clinicians who are proficient in performing the procedure.**
- **Observe several of the clinicians performing the procedure.** Record each step that each of the clinicians performs. Take photographs or videotape the procedure if possible.
- **Develop an initial list of steps.** This could be developed during group discussions or while viewing the videotape.
- **Discuss the procedure with the same group of clinicians.** Review the steps, discuss common techniques, study any differences and reach a consensus on the best approach to performing the procedure.

- **Test the initial procedure.** Test the steps by performing the procedure using an anatomic model, if possible. Make any revisions to the list based on feedback from the clinicians.

- **Test the final standard procedure.** Testing of the standard procedure should occur first using an anatomic model and then with clients, in both training and service delivery settings. This testing ensures that all of the steps, in the correct sequence, have been included.

Table 4-2 presents a portion of the standardized procedure for inserting Norplant implants. These skills, coupled with several others, will be used to develop a learning guide for a clinical skill. Note that the first word in each step of the procedure begins with an action verb reinforcing the fact that this is a psychomotor skill. Refer to **Chapter 6** for more information on how to use the steps in a standardized skill to develop a learning guide and a checklist.

Table 4-2. Standard Procedure for Inserting Norplant Implants

Pre-insertion Tasks
1. **Wash** hands thoroughly with soap and water and dry with clean, dry cloth or air dry.
2. **Put** sterile or high-level disinfected surgical gloves on both hands. (If gloves are powdered, wipe powder off glove fingers with sterile gauze soaked in sterile or boiled water.)
3. **Arrange** instruments and supplies on sterile or high-level disinfected tray.
4. **Count** to make sure that there are six capsules.
5. **Apply** antiseptic solution to the incision area two times using a circular motion for 8 to 13 cm; allow to air dry.
Steps continue through completion of the procedure. . . .

ATTITUDE ANALYSIS

The majority of reproductive health and family planning inservice and preservice courses have an attitudinal component. The **attitude area** or **affective learning domain** looks at the attitudes and feelings necessary to perform a job or task. Below are several examples of steps in the counseling process which have a strong attitudinal component:

- Treat a client with respect
- Greet a client warmly

- Respond to client concerns and questions
- Correct client misinformation

A family planning service provider may be highly knowledgeable and competently skilled, but if s/he has a negative attitude toward clients, then this clinician will not be effective. Therefore, in addition to analyzing the **knowledge** and **skills** service providers should possess, the instructional designer must also consider the required **attitudes** to ensure that individuals completing a course possess the necessary knowledge, skills and attitudes.

A service provider's attitudes are most critical when s/he has contact with clients, especially during the counseling process. From an instructional content analysis standpoint, the techniques used to identify the essential attitudinal "skills" required of a family planning service provider are the same as those used to identify knowledge and skills:

- **Observations** of proficient service providers demonstrating appropriate client-centered attitudes when in contact with clients
- **Interviews** and **discussions** with subject matter experts
- Use of **existing information** in reference manuals, textbooks, learning guides and checklists

Using one or more of the approaches which were described previously in this chapter, the instructional designer can identify the essential attitudinal skills to be integrated into the design of an inservice or preservice course. **Table 4-3** presents a number of steps within clinical procedures that contain a strong attitudinal component. For example, when the clinician *"Asks a woman about her reproductive goals,"* s/he must do so with a positive and caring attitude. The designer will find that these attitudinal skills may be difficult to identify, as they can be very subjective (i.e., what is positive and caring may differ from provider to provider). The designer must use the necessary tools, however, to identify the attitudes required of service providers and build these into the design of the course.

Table 4-3. Examples of Clinical Skill Steps with an Attitudinal Component

Greets woman respectfully and with kindness.
Asks woman about her reproductive goals and need for protection against GTIs and other STDs.
Determines that the woman's contraceptive choice is the IUD.
Is responsive to client's needs and concerns about the IUD.
Determines that client has been counseled for insertion procedure.
Obtains or reviews a brief reproductive health history.
Discusses sexual risk behaviors.
Tells client what is going to be done and encourages her to ask questions.
Drapes woman appropriately for pelvic exam.
Checks to be sure client is not having excessive cramping and answers any questions.

SUMMARY

When analyzing instructional content, the role of the instructional designer is to use appropriate tools and techniques to ensure that the general **knowledge, skills** and **attitudes** identified during the needs assessment process are analyzed, expanded and included in the inservice training or preservice education course(s). When the required content appears in an existing training package, there may be little for the designer to do during this stage of the instructional design process. When the information exists in a single reference manual or textbook, or in the minds and hands of proficient service providers and technical experts, however, the designer must actively pursue the information using several approaches:

- **Knowledge analysis**, resulting in a list of the general and specific information (e.g., topics and subtopics) to be taught during the course and which eventually appear in **trainer's notes** and **presentation plans**

- **Skill analysis**, using a **task analysis** approach resulting in a standardized, fixed-sequence procedure which then appears in a **learning guide** and **checklist**

- **Attitude analysis**, using many of the same techniques used in analyzing knowledge, resulting in a list of the attitudes required of service providers which then appear in **learning guides** and **checklists** and in course activities such as **role plays** and **case studies**

The output of **instructional content analysis** is a clear picture of the knowledge, skills and attitudes required of those to be trained. This content forms the foundation for the remaining phases of the instructional design process (i.e, design, development, implementation, evaluation). **Table 4-4** is a portion of the content analysis summary for a course being designed to teach abdominal and pelvic examinations. When completed, this information will help to ensure that those being trained will have the knowledge, skills and attitudes to assist women presenting with obstructed labor.

Table 4-4. Abdominal and Pelvic Examinations: Knowledge, Skills and Attitudes Required of Nursing Tutors

KNOWLEDGE	SKILLS	ATTITUDES
Anatomy of the female reproductive system • Normal external genitalia • Abnormalities of the external genitalia • Normal internal genitalia • Abnormalities of the internal genitalia **Purposes of the abdominal and pelvic examinations** • • **Appropriate setup of the examining room and preparation of the client** • • **Infection prevention practices** • • **Abdominal examination** • • **Inspection and palpation of the external genitalia** • • **Speculum examination** • Why the speculum examination is performed • How to position the client • How to insert the speculum • How to examine the walls of the vagina • How to examine the cervix and cervical opening • What abnormalities of the cervix and vagina to watch for • When and how to take laboratory specimens, if appropriate **Bimanual examination** • • **Rectovaginal examination** • •	**Skills that form the basis for learning guides and checklists** Perform the abdominal examination Perform the inspection and palpation of the external genitalia Perform the speculum examination Perform the bimanual examination Perform the rectovaginal examination Collect laboratory specimens	Explain the procedure to the client Communicate with the client throughout the examination Monitor the client for signs of discomfort or pain during the examination Explain findings of the examination to the client

FIVE

DESIGNING A TRAINING COURSE

INTRODUCTION

Once a need for a preservice education or inservice training event is established through one or more types of needs assessments, the next step is to **design the training**. The most common unit of instructional design is a course, although the design principles apply to other types of training events as well. This phase involves developing objectives, selecting methods, media and materials needed to deliver the course and developing materials for the trainer(s) and participants. Systematic planning is crucial to the success of any training course. When specific decisions related to training are made as part of the design process, the resulting training is more likely to focus on the needs of the participants and enable them to achieve the learning objectives.

With regard to course design and materials development, the instructional designer has two options—adapt an existing course design and its supporting materials, or create a new design and materials. In most situations, the designer will do a little of both. The designer should, therefore, analyze existing materials in order to determine what is needed for any new course.

Chapter Objective

After completing this chapter, the participant will be able to design an effective, interactive training course.

Enabling Objectives

To attain the chapter objective, the participant will:

- Develop a course syllabus
- Develop training objectives
- Select practice activities
- Select training methods
- Select training materials
- Develop a course outline
- Develop a course schedule

DEVELOPING A COURSE SYLLABUS

The **course syllabus** provides a summary of the major components of a course and may be given to individuals requiring information about the course in advance of training. A syllabus usually contains the following information:

- Course description
- Course goals
- Participant learning objectives
- Description of training methods
- Description of training materials
- Participant selection criteria
- Methods of course evaluation
- Course duration
- Suggested class size
- Course dates
- Course organizer

It is important for the syllabus to describe accurately course content, goals and objectives. This enables individuals to be aware of course content before they attend the course. The course syllabus also helps to assure that participants are at an appropriate skill or knowledge level. **Sample 5-1** presents a course syllabus from a Norplant implants training course. **Sample 5-2** is a blank form which can be used to develop a syllabus.

The first steps in the course design process are to write the following four sections of the syllabus (the remaining sections are completed after the course outline is finalized):

- Course description
- Course goals
- Participant selection criteria
- Evaluation criteria

Course Description

The preliminary course description is developed first. It is preliminary because it may change slightly during the design process. The focus of

the course description is the problem or situation identified during the needs assessment process. Consider these points in developing the course description:

- Be brief and to the point. A clear course description should require no more than two or three crisp, well-written sentences.

- Use active, energetic, clear words to describe the training. Think of the course description as an advertising or marketing tool. Will a service provider or manager of a family planning program be interested in the course after reading the description? Or will it put them to sleep?

- Be accurate. Describe exactly what the course is designed to do. Avoid describing a course that appears to be all things to all people. Publishing an inaccurate description will result in serious problems when participants arrive and discover the course is not what it claimed to be.

- Describe the overall behavior participants will demonstrate as a result of attending the course. This behavior can be a combination of knowledge, skills and attitudes. Action verbs are used to clearly describe what participants will be able to do after completing the course.

  ***Examples**:*

  - *Counsel individuals for family planning.*
  - *Insert and remove Norplant implants.*
  - *Perform a minilaparotomy under local anesthesia.*
  - *Manage clinic logistics.*
  - *Maintain infection prevention standards.*
  - *Insert an IUD.*

The following examples may be used as models when developing a course description.

Examples:

Course Description for an Infection Prevention Course

This 5-day course is designed to prepare participants to use recommended infection prevention practices for maternal and child health/family planning service delivery programs. This course can be used alone, or it can be adapted for use in pre- or inservice training in obstetrics, gynecology and general surgery.

Course Description for an IUD Course

This 2-week (10–12 day) clinical training course is designed to prepare the participant to counsel individuals concerning the use of IUDs as a contraceptive method and to become competent in inserting and removing the Copper T 380A IUD and in managing side effects and other health problems associated with the use of IUDs.

Course Goals

After writing a clear course description, develop the course goals. The goals or overall course objectives are based on the end-of-course behavior(s) outlined in the course description. Typically, there will be five to ten course goals that lead to achieving the end-of-course behaviors. Consider these points in developing course goals:

- As in the course description, use words that are active, energetic and clear.
- Write course goals as phrases rather than as complete sentences.
- Present the goals in the order in which the course information will be presented.
- Clearly describe the knowledge, skills and attitudes that participants will acquire during the course.

Example:

Course Goals from an Infection Prevention Course

- *To influence in a positive way the attitudes of the participant toward the benefits of using appropriate infection prevention practices*

- *To provide the participant with training in simple, inexpensive infection prevention practices*

- *To provide the participant with the knowledge and skills needed to establish or improve infection prevention practices in her/his home institution*

Participant Selection Criteria

One of the most important aspects of the training design process is determining the participant selection criteria. Without a clear picture of who will be attending the course, it is difficult to design a course that will meet participants' needs. Are physicians, nurses, midwives or a combination of all three being trained? Are trainers being trained? Will nonmedical personnel be attending the course? What previous experience(s) must the participants have had? This task is facilitated by using the results of the needs assessment in which the target audience was identified.

Keep the following points in mind when developing participant selection criteria:

- Be specific. If the course is for service providers currently working in a family planning clinic, say so. Using criteria that are broad or vague may increase the number of participants, but will create major problems when the wrong people arrive for training.

- Indicate required credentials if necessary.

- Indicate recommended previous training or experience if appropriate.

Example:

Participant Selection Criteria for an IUD Course

Participants for this course should be clinicians (physicians, nurses or midwives) and counselors working in a healthcare facility (clinic or hospital) that provides women's health services. The facility should have an anticipated caseload sufficient to support the provision of IUD services.

Evaluation

The fourth section of the course syllabus is the course evaluation criteria. Based on the course description, goals and target audience, decide how to evaluate those attending the course. In some situations, the course evaluation criteria are selected after the training objectives have been

written (see next section). The most common evaluation techniques include:

- Precourse questionnaire—trainer evaluates participants' precourse knowledge
- Precourse skills assessment—trainer evaluates participants' precourse skills
- Midcourse questionnaire—trainer evaluates participants' mid- or end-of-course knowledge
- Learning guides—participants evaluate their own skills
- Checklists—trainer evaluates participants' skills
- Training course evaluation —participants evaluate the course

DEVELOPING TRAINING OBJECTIVES

A training objective is defined as a statement indicating what the participant will know or be able to do after completion of training.

Example:

> *After attending this session of the Norplant implants training course, the participant will be able to identify indications and precautions (warnings) for Norplant implants use. Competency will be demonstrated by scoring at least 85% on the Indications and Precautions section of the midcourse questionnaire.*

Participants reading this objective will have a clear understanding that the focus of the training session will be indications and precautions for use of Norplant implants. They also know what will be expected of them on completion of the session. The trainer reading this objective knows that s/he must select appropriate methods and materials to support the presentation and write questions focusing on this session for the midcourse questionnaire.

Example:

> *A trainer receives two requests to design training sessions focusing on infection prevention. The question is posed: "What*

is the expected outcome of this training?" The first clinic manager replies, "Better infection prevention practices." The second clinic manager, responding to the same question, answers, "We are working on improving the quality of our family planning services and are concerned about protecting nurses, physicians and clients against infection from dirty needles. We specifically want to focus on disposal of needles after Norplant implants procedures."

The first manager is not providing the trainer with sufficient direction to begin the design process. The second manager, however, is providing more useful information by focusing on a specific objective for the training.

The development of **precise and measurable training objectives** is a key step in course design. Course goals and objectives outlined in the course description provide direction for the trainer, assist in identifying training outcomes and clearly define the trainer's responsibility for the training. Objectives also ensure that participants are aware of what will occur during training and provide a detailed picture of what participants will be able to do upon completing the course. In addition, objectives serve as the basis for evaluation of the course, the participants and the trainer(s).

Trainers using existing training packages and materials should carefully review and modify, if necessary, the objectives appearing in existing materials to meet the needs of the current training situation. It is critical that clear objectives be written for all training courses.

Levels of Objectives

This reference manual uses two levels of objectives: **primary** and **enabling**. The instructional designer should be aware that different terms may be used to describe these objectives (as noted below) but that regardless of terminology, each level of objective has a distinct purpose.

A **primary objective** (also known as a terminal objective, course objective or participant learning objective) describes what the participant will know or be able to do after completing a section of training.

Example:

After completing this session, the participant will be able to demonstrate the recommended infection prevention practices to use when inserting Norplant capsules.

An **enabling objective** (also known as a secondary, specific or instructional objective) supports the primary objective and outlines the knowledge and skills required to achieve the primary objective.

Example:

Identify the purposes of handwashing.

Each chapter in this manual is based on a **chapter (primary) objective** (see page 5-1). If a training course is divided into a series of sessions, then primary objectives could be **session objectives**. When lesson plans are used as the basic training document, **lesson objectives** are written. Regardless of how a course is divided (chapter, session or lesson), there will always be **primary objectives**.

Writing Primary Objectives

There are four basic components that make up a primary objective:

- **When the knowledge or performance is to be demonstrated**

  Primary objectives should specify the section of training to be completed in order to demonstrate the expected level of knowledge, behavior or performance.

  Examples:

  - *After completing this chapter*
  - *After completing this module*
  - *After completing this course*
  - *After completing these four sessions*
  - *After completing this lesson*

- **Who is to demonstrate competency**

  The **exhibitor of performance** is stated as part of the primary objective.

  Examples:

  - *The participant*
  - *The clinician*
  - *The trainer*

- **A description of the performance expected**

  This portion of the objective states what the individual will know or be able to do. These are the major knowledge, skills and attitudes identified during a needs assessment (**Chapter 3**) and analyzed during instructional design analysis (**Chapter 4**). The statement should begin with an action verb which is followed by the object of that action.

  Examples:

  - *Remove Norplant implants*
  - *Counsel a client*
  - *Insert an IUD*
  - *Sterilize instruments using dry heat*
  - *Identify indications and precautions*

- **How well the performance must be demonstrated**

  When participants will be tested or evaluated to measure their acquisition of the knowledge and skills presented in the section of training, a standard for performance must be included in the objective.

  Examples:

  - *With 90% accuracy*
  - *As outlined in the competency-based checklist*
  - *By scoring 85% or more on the midcourse questionnaire*

  The part of the objective indicating the standard typically begins with the following statement:

  "Competency will be demonstrated by. . . ."

  Example:

  After completing this session, the participant will be able to demonstrate the recommended infection prevention practices to use when inserting Norplant capsules. Competency will be demonstrated by correctly performing all infection prevention

tasks outlined in the Checklist for Norplant Implants Clinical Skills.

When participant competency will be assessed through both performance- and knowledge-based tests, the measurement standard for each must appear in the objective.

Example:

After completing this session, the participant will be able to demonstrate skills and knowledge needed to use recommended infection prevention practices when inserting the Copper T 380A IUD. Competency will be demonstrated by correctly performing all infection prevention steps outlined in the competency-based checklist and by scoring at least 85% on the session post-test.

If there is no formal assessment, the primary objectives will not contain a standard.

All four components can be found in the following objective:

After completing this Norplant implants training course, the clinician will be able to insert and remove Norplant implants. Competency will be demonstrated by correctly performing the steps outlined in the checklist and by scoring at least 85% on the midcourse questionnaire.

Consider this objective from the participant's viewpoint. It appears that the trainer will present information on and demonstrate Norplant implants insertion and removal techniques. The participant will be expected to competently perform the steps of the procedure and achieve a minimum score on a knowledge assessment. This objective provides valuable direction for the trainer and important information for the participant.

Writing Enabling Objectives

As noted earlier, enabling objectives are training-related and typically accompany a primary objective. They outline the knowledge, skills and attitudes that the participant must acquire during training in order to achieve the primary objective. In order to insert an IUD, for example, the clinician also must be able to identify the indications and precautions for IUD use. Achieving this enabling objective (along with many others) will "enable" the participant to reach the primary objective (i.e., to insert an IUD). Enabling objectives also form the basis for knowledge and skill assessments.

Example:

Primary objective: *After completing this training course, the participant will be able to provide IUD services to a client.*

Enabling objectives:

- *List three benefits of IUDs.*
- *List three limitations of IUDs.*
- *List five precautions for IUD use.*
- *Put in order the steps of the IUD insertion.*
- *Demonstrate how to insert an IUD using a model.*
- *Demonstrate giving instructions to clients regarding followup care.*

Enabling objectives are written in the same way as primary objectives. The format for enabling objectives is not as complex, however. There are two basic components that make up enabling objectives:

- **Specific action to be taken**

  The specific action describes what the participant must do to demonstrate understanding of the content or demonstrate competence in performing the skill. These actions may represent all three learning areas. Common action verbs for enabling objectives are shown in **Table 5-1.** Words or expressions to avoid because they are open to interpretation and are difficult to measure also are shown in this table.

Table 5-1. Action Verbs for Enabling Objectives

KNOWLEDGE AREA	SKILL AREA	ATTITUDE AREA	WORDS TO AVOID
Adopt, analyze, categorize, classify, compare, compile, contrast, describe, devise, differentiate, discriminate, estimate, evaluate, explain, interpret, organize, predict, show, solve, summarize, tabulate	Adjust, arrange, assemble, demonstrate, follow, identify, insert, inspect, locate, model, organize, perform, place, point to, practice, prepare, recognize, remove, sort	Accept, ask, assist, attend to, choose, comply, conform, contribute, cooperate, defend, demonstrate, display, follow, help, initiate, join, listen, observe, participate, practice, propose, report, share, suggest, support, use	Appreciate, believe, internalize, know, realize, understand

- **Object of the action**

  The object of the action is the specific content or skill the participant is expected to know or demonstrate. Each of the following enabling objectives includes the **action verb** and the **object of the action** (**boldface** type).

  Examples:

  - ***Label** a diagram with the **organs of the male and female reproductive systems**.*
  - ***Complete** statements concerning **client assessment**.*
  - ***List** the **steps in inserting an IUD**.*
  - ***Demonstrate sterilization of instruments**.*
  - ***Identify** the **equipment needed to insert Norplant capsules**.*

The following example presents a **course objective** and the associated skill-based **enabling objectives**.

Example:

> ***Course Objective**: After completing this training course, the participant will be able to perform interval minilaparotomy using local anesthesia. Competency will be demonstrated by correctly performing the tasks outlined in the competency-based checklist.*
>
> ***Enabling Objectives**: After completing this training course, the participant will be able to:*
>
> - *Perform a pelvic examination*
> - *Perform a vaginal prep*
> - *Perform abdominal skin prep and infiltrate local anesthetic*
> - *Make a skin incision*
> - *Perform a blunt dissection of the subcutaneous tissue*
>
> *[List of enabling objectives continues]*

Objectives are crucial in the design process. Note that for this chapter there is a chapter objective which is supported by seven enabling objectives. Note also that there are seven major sections in this chapter,

one for each enabling objective. The objectives provide a framework for the development of not only the chapter (or session) but for course activities as well.

GUIDED PRACTICE ACTIVITIES

Guided practice activities (also known as learning experiences or activities) are key to the success of any training course. Design and development of these activities are based on two essential elements of competency-based training—**practice** and **feedback**.

Participants receiving information or developing skills must be given the opportunity to practice or apply their newly acquired knowledge and skills, or training will be ineffective. Participants also must be aware of how they are performing with regard to the criteria provided in the objectives. The designer must be aware of the importance of practice and feedback and ensure that both components are built into the training course through guided practice activities.

Practice Practice activities should be active, continual and require the participant to use the content learned. The same types of activities should not be repeated in every training session; instead, a variety of practice exercises should be used. To help maintain participant interest, practice should occur at different times during training. Examples of practice activities in all three learning areas (knowledge, skill and attitude) are given below:

Examples:

Knowledge:

Solve a series of problems	*Answer a series of questions*
Label a drawing	*Locate information in a manual*
React to a case study	*Make a drawing or sketch*

Skill:

Practice a skill following the steps outlined in a competency-based learning guide
Practice IUD insertion on a model

Attitude:

Participate in a role play	*Conduct an interview*

Feedback Feedback regarding each participant's performance should be given as soon as possible. It should be clear and be provided throughout training.

Feedback can take many forms and should include praise (positive feedback) as well as suggestions for improvement.

Examples:

- *Provide answers to assignments and practice exercises.*
- *Return materials to participants with written comments.*
- *Question and interact during training sessions.*
- *Review results of written and performance tests on an individual basis.*
- *Provide informal comments, praise and discussion in the classroom, during practice sessions and during breaks.*

The instructional designer should incorporate both practice and feedback into the course design and select forms of each that are appropriate for the objectives, participants and training course. For clinical skills training, practice and feedback must continue until the participant reaches competency.

TRAINING METHODS

Once the designer has developed objectives and incorporated practice and feedback into the course design, the next step in the design process is to select the methods for the actual training. There are many methods from which to choose.

This section offers factors to consider in selecting training methods, provides definitions of the most common methods and presents a matrix to aid in selecting a variety of methods. When selecting a training method, answer the following questions:

- **Is this method appropriate for the objectives?** If the objectives are in the knowledge area, selecting a method related to the skill area may be inappropriate.

- **Are there sufficient trainers available to use this training method?** Some methods require more than one trainer and could pose a problem in a single-trainer situation.

- **Are the resources available to use this training method?** Some methods of training require additional materials, supplies and equipment.

- **Are clinical facilities required?** Many clinical training courses have a need for clinic sites. Is client load sufficient to support the clinical training requirements? Are there adequate quantities of equipment and supplies at the clinical sites to conduct training?

- **What is the projected size of the group to be trained?** Some methods are more appropriate for a small group than for a larger group. This is an important consideration, because selection of an inappropriate method can have a negative impact on the training environment. For example, a training skills workshop could have as many as 15 to 20 participants, while the ideal size for a clinical skills course (e.g., IUD, Norplant implants) is 10. Group size is, of course, ultimately dependent upon the number of trainers, caseload and the training facilities.

- **Is a special classroom arrangement required?** Some methods require a special classroom arrangement. Not only must the room be able to accommodate this arrangement, but the trainer must be aware of the special setup in advance.

- **Is this method appropriate for group training, individualized training or both?** A method must be appropriate either for group or individual training before it can be effectively used for that purpose.

- **What times are available for training?** Will training be conducted during the workday? After hours? One-hour periods? All day? On the job? The times available for training affect the design, training methods and trainer's attitude as well as the attitudes of the participants. For example, when training lasts all day, it is important to build in several small-group activities.

- **What is the background of the participants?** The design of a course for participants receiving refresher training in laparoscopy will differ from a training course for preservice students in anatomy and physiology. The trainer must gather as much information as possible about the target participants in order to select the most appropriate training methods.

- **Will the methods selected stimulate interest and provide variety?** Even the most exciting training method becomes boring if it is used

all the time. The trainer should select methods that will stimulate interest and should change methods as needed to provide variety.

Common Training Methods

Fourteen of the most common training methods are examined in **Table 5-2.** For each method there is a definition, the learning area(s) for which each method is appropriate and the primary advantages and limitations of each method.

These definitions and the matrix shown in **Table 5-3** will assist the trainer in selecting appropriate training methods.

To select training methods:

- read the training objectives,
- review the definitions of the various training methods, and
- consider the appropriate area(s) for each method in addition to the advantages and limitations of each.

The designer should use the matrix to consider:

- Requirement for more than one trainer
- Additional equipment and materials required
- Need for a clinic site
- Group size
- Special classroom arrangements

This information, coupled with the type of training, will ensure that appropriate training methods are selected for the course.

Table 5-2. Common Training Methods

METHOD	DEFINITION	AREA(S)	ADVANTAGES	LIMITATIONS
Case Study	Training method using realistic scenarios that focus on a specific issue, topic or problem Participants typically read, study and react to the case study in writing or during a discussion	Primarily knowledge and attitude	Focuses participant attention on a real situation Participants may work separately or in small groups May require use of higher levels of learning	Requires considerable development time
Coaching	Approach in which the trainer explains procedures or routines; demonstrates tasks, modeling the exact performance of the skill or activity; and provides ongoing feedback to participant regarding performance Trainer observes and interacts with the participant to monitor progress and overcome problems	Knowledge, skill and attitude	Useful when a small group or one person needs instruction and training	Requires coach to be available when the participant needs instruction and feedback
Demonstration	Presentation by the trainer of the steps necessary for the completion of a procedural or clinical task or activity	Skill	Provides the participant with a step-by-step procedure for performing a specific skill or activity Demonstration is an effective method for applying knowledge in an observable situation	Requires planning, practice and a high degree of skill on the part of the trainer
Discussion	Interactive process of sharing information and experiences related to achieving a training objective	Knowledge and attitude	Gives participants an opportunity to share their knowledge and feelings on the topic Trainer serves as facilitator	When not properly conducted, may be dominated by a few participants or may move off the topic Participants need background information about the topic prior to participating in the discussion

Table 5-2. Common Training Methods *(continued)*

METHOD	DEFINITION	AREA(S)	ADVANTAGES	LIMITATIONS
Game	Learning activity which usually has a set of rules and is often competitive Purpose of the game must relate to the training objectives	Knowledge and attitude	Highly motivational and stimulating Usually involves most or all of the participants	Requires planning time May have minimal impact if the game does not relate to the objectives and/or there is no discussion following the game
Guest Speaker	Presentation related to the training objectives conducted by an expert in the field	Knowledge, skill and attitude	Allows participants to interact with expert in the field and acquire information that may not be available in the regular classroom	Is only as effective as the guest speaker Requires that the trainer plan for the session and prepare both the speaker and participants
Guided Practice (also known as practicum)	Opportunity for participants to practice or apply the content presented in a training session Trainer guides or supervises the participants as they practice in the classroom, clinic or through individual study	Knowledge, skill and attitude	Provides participants an opportunity to practice	May not be useful in the trainer fails to monitor and provide feedback
Illustrated Lecture	Verbal presentation of information by the trainer; content presentation is supplemented with a variety of questions, interaction, audiovisuals and instructional materials	Primarily knowledge	Delivers a lot of information in a relatively short period Effective for both large and small groups Trainer maintains primary control of the pace of the presentation	Demands high levels of concentration on the part of the participants and the trainer Participant interaction may be minimal Without questioning and interaction, the trainer may have a difficult time determining whether participants understand the information being presented
Individual Tutorial	Individual study of information by participant under the instruction of a trainer or tutor Supplements other training methods	Knowledge, skill and attitude	Gives the participant an opportunity to learn content at her/his own pace	Requires trainer to identify materials appropriate for individual study

Table 5-2. Common Training Methods *(continued)*

METHOD	DEFINITION	AREA(S)	ADVANTAGES	LIMITATIONS
Individualized Training	Process in which training objectives are reached by participants working at their own pace through individual training packages	Knowledge, skill and attitude	Gives each participant an opportunity to move through the training objectives at a pace appropriate for her or his background, experience and interest	Requires extensive course planning and program revisions Requires that participants have the motivation to be successful in individualized learning
Panel Discussion	Discussion related to the training objectives that is presented by a panel of individuals or content experts	Primarily knowledge	Allows participants to interact with experts in the field and acquire information that may not be available in the regular classroom	Is only as effective as presenters and moderator Requires that the trainer plan for the session and prepare both participants and panel members
Role Play	Process in which participants play out roles in a simulated situation related to the training objectives	Primarily knowledge and attitude	Provides a highly motivational climate, as participants actively take part in a realistic situation	Requires considerable development time in addition to ensuring that participants are prepared to participate in the role play
Simulation	A representation of a real or hypothetical situation, process or system	Knowledge, skill and attitude	Provides a highly motivational climate as participants actively take part in a realistic situation Allows participants to practice a clinical skill without fear of harming a client	Requires planning and development time to ensure simulation is realistic and will provide a positive learning experience
Study Trip	Learning situation outside the regular classroom, travel to another location in a facility or outside the facility	Primarily knowledge	Participants are able to observe activities and facilities outside the regular classroom	Is only as effective as the host of the trip Success depends on how closely the training objectives relate to the study tour Requires extra planning and coordination Cost

Table 5-3. Matrix for Selecting Training Methods

METHOD	SELECTION FACTORS TO CONSIDER						
	May require more than one trainer	May require additional equipment/materials	May require a clinical facility	Appropriate for small groups (5–9)	Appropriate for large groups (10–30)	Appropriate for individual study	May require special classroom setup
Case Study	X			X	X		
Coaching	X		X	X		X	X
Demonstration		X	X	X	X		X
Discussion				X	X		
Game		X		X	X		X
Guest Speaker				X	X		
Guided Practice	X	X	X	X		X	
Illustrated Lecture		X		X	X		
Individual Tutorial	X			X		X	
Individualized Training	X	X	X	X	X	X	X
Panel Discussion					X		
Role Play	X	X		X	X		X
Simulation	X	X		X	X		X
Study Trip			X	X	X	X	

The following examples illustrate how various factors influence the selection of training methods. In each example there is an objective, a specific course format and other factors that must be taken into consideration when selecting appropriate training methods.

Example:

IUD Insertion

Objective: After completing this course the clinician will be able to provide method-specific counseling and insert an IUD. Competency will be demonstrated by correctly counseling the client and competently inserting an IUD following the steps outlined in the competency-based checklist.

Factors to Consider: This objective is the basis for a set of trainer's notes used by one trainer to conduct training for groups of four clinicians.

Training Methods. The trainer may:

- *Select the **illustrated lecture** to present facts and knowledge.*
- *Use a **discussion** to follow the illustrated lecture and focus on areas where the participants have prior knowledge and experience.*
- *Use **case studies** with clinical examples similar to those the clinicians will face on the job. A discussion may be used following the case study method.*
- *Practice **counseling** using **role play**.*
- *Organize a **panel discussion** focusing on appropriate client selection for IUD.*
- *Use **demonstration, coaching** and **guided practice** with a pelvic model until competency is demonstrated. Then the participants will work with actual clients.*

The designer must now develop the trainer's notes and include content for the illustrated lectures, discussion questions, case studies and role plays. In addition, the notes must remind the trainer to arrange for the panel discussion. The next example also involves the knowledge and skill learning areas.

Example:

Minilaparotomy Using Local Anesthesia

Objective: After completing this course, the participant will be able to perform interval minilaparotomy using local anesthesia. Competency will be measured by correctly performing the procedures outlined in the clinical checklist and by scoring at least 85% on the midcourse questionnaire.

Factors to Consider: This objective forms the basis of a course conducted by two clinical trainers for groups of six to eight participants. There is a clinical facility in addition to a traditional classroom.

Training Methods: The trainer may:

- *Select the **illustrated lecture** method to present facts and knowledge related to performing an interval minilaparotomy.*
- *Use **demonstration** with a pelvic model to present the steps participants will follow to perform an interval minilaparotomy.*
- *Use **coaching** and **guided practice** first with models and then with clients in the clinical setting to provide feedback to participants performing an interval minilaparotomy.*

The designer now develops or reviews the training materials and includes content for the illustrated lectures in the classroom and the demonstrations and coaching exercises for the clinic. In addition, the materials will contain a written knowledge assessment and a skills evaluation (performance) checklist.

TRAINING MATERIALS

Training materials are critical in the delivery of training. This section examines five types of training materials, defines the most common forms of materials and considers factors that affect the selection of materials.

Effective use of training materials can ensure that a variety of learning stimuli are used during training. Integrating different types of materials

into training will help maintain the interest and attention of participants. Also, each person in a training course will have a different learning style. Some may learn better through listening, others by reading and still others by viewing and doing at the same time. By using a variety of training materials the trainer is more likely to meet the needs of all participants. Some concepts and principles are best presented through the use of specific materials. Showing a videotape and demonstrating a procedure using an anatomic model is a more effective way to show how to insert an IUD than presenting a lecture with transparencies. When selecting training materials the instructional designer should keep in mind that, just as for training methods, the excessive use of any one type of material will decrease its effectiveness.

There are five general classifications of training materials. These include:

- Printed materials
- Non-projected materials
- Projected materials
- Audiovisual materials
- Computer-based materials

Following are descriptions and definitions of each with examples of the most common types of materials found within each classification.

Printed Materials

Printed materials include all text to be read, studied and used by participants. These materials may be available in a training package or developed by the designer. The most common forms of printed materials include the following:

- Reference manuals, course handbooks for participants and course notebooks for trainers
- Assignment sheets
- Case studies
- Role plays
- Learning guides and checklists
- Textbooks

Non-Projected Materials

Non-projected (and non-electronic) materials include those that can be shown to a group of participants without the aid of projection equipment. The most common include:

- Displays
- Flipcharts
- Posters
- Writing boards (chalkboards)
- Anatomic models

Projected Materials

Projected materials include those that require projection equipment but do not include movement or sound with the visual image. The most common types include:

- Overhead transparencies
- Slides
- Computer text and images projected on a screen

Audiovisual Materials

Audiovisual materials consist of pure audio or linked audio and visual signals. The most common types are:

- Audiotapes
- Videotapes

Computer-Based Training Materials

These are training materials that use the computer to communicate information to participants. The most common type is computer-based training. In most computer-based or computer-assisted training, the participant interacts with the computer throughout the training process. The concept is the same as that for group-based training except here the computer, not a person, presents the information, provides feedback on completed exercises and assesses the participant's understanding of the content.

Evaluating Materials

Whether adapting existing materials or selecting new ones, the designer must evaluate materials critically to ensure that those selected are the most appropriate. Consider the following questions in evaluating training materials:

- Are the materials appropriate for the training objectives?
- Are the materials relevant and culturally sensitive?
- Is the content biased?
- Will the materials work with the available equipment?
- Is the necessary equipment available and working?

- Is the format of the materials consistent with that of existing materials?
- Is the quality of the materials consistent with that of existing materials?
- Is the information contained within the materials current?
- Is the information contained within the materials factual?
- Is the reading level of the materials appropriate for the participants?
- Is the cost of the materials reasonable?

The designer must consider these questions in selecting and evaluating materials for use in a training course. This will ensure that the materials selected for use in training will have the greatest impact on the participants.

DEVELOPING A COURSE OUTLINE

The course outline is a plan of the training to be delivered—it is a design document, not a teaching or presentation document. While participants may be interested in the course outline, the primary user is the trainer who will be delivering the course. For each enabling objective presented during the course, the designer must select appropriate practice activities, training methods and materials. Combining all of these elements creates the course outline. **Sample 5-3** shows a portion of a model course outline for a clinical training skills course. A blank form which may be used to develop a course outline may be found in **Sample 5-4**.

The course outline is divided into four columns.

- **Time.** This section of the outline is completed last and indicates the approximate amount of time to be devoted to each enabling objective and training activity. This helps the designer allocate time so that all objectives are addressed in the allotted amount of time.

- **Objectives/Activities.** This column lists the enabling objectives and training activities. Because the objectives outline the sequence of training, the objectives are presented here in order. The combination of the objectives and activities (introductory activities, small-group exercises, clinical practice, breaks, etc.) outlines the **flow** of training.

- **Training/Learning Methods.** In this column the designer will list the various methods, activities and strategies to be used to deliver the

content and skills related to each enabling objective. It is important that a variety of methods be used.

- **Resources/Materials.** The fourth column in the training outline is for the resources and materials needed to support the training methods.

DEVELOPING A COURSE SCHEDULE

The **course schedule** is a day-by-day description of all training activities. The participants are given the course schedule so they can see the sequence of course activities. Information appearing on a course schedule includes:

- Course name
- Days of training (days of the week and/or day number)
- Time blocks for all training activities
- Brief description of all training activities

Information for the final course schedule is obtained from the course outline. The trainer may develop the initial course schedule before starting on the course outline. As the course outline evolves, the course schedule may change until the final schedule is produced. **Sample 5-5** is a model schedule for a 2-week IUD service providers' course. A blank form which may be used to develop a course schedule is presented in **Sample 5-6**.

SUMMARY

Designing the training course is a crucial step in the delivery of training. Some trainers jump from the identification of a need for training to preparing notes, without giving thought to the development of objectives or the selection of practice activities, training methods and training materials. When a thorough analysis has been conducted and the training course has been designed properly, the resulting training course is more likely to meet the needs of participants.

The products of the design process include a **course syllabus, course outline and course schedule**. The **course syllabus** includes a description of the course content, goals and objectives, and training methods. The **course outline** is a plan of the training to be delivered and serves as a map outlining what will occur during the delivery of training. The course

outline consists of the enabling objectives, practice activities, suggested training methods and required training materials. The **course schedule** is a day-by-day description of training activities and is developed in conjunction with the course outline.

SAMPLE 5-1

COURSE SYLLABUS FROM A NORPLANT IMPLANTS TRAINING COURSE

Course Description

This 3-day clinical training course is designed to prepare the participant to counsel individuals concerning the use of Norplant implants as a contraceptive method and to become competent in inserting and removing Norplant implants and managing side effects and other health problems associated with their use.[1]

Course Goals

- To influence in a positive way the attitudes of the participant toward the benefits and appropriate use of Norplant implants
- To provide the participant with general counseling skills as well as special training in method-specific counseling for Norplant implants
- To provide the participant with the knowledge and skills needed for Norplant implants insertion and removal
- To provide the participant with the knowledge and skills needed to manage side effects and health problems related to use of Norplant implants
- To provide the participant with the knowledge and skills needed to organize and manage a quality Norplant implants service

Participant Learning Objectives

By the end of the training course, the participant will be able to:

1. Counsel a client interested in using Norplant implants as a contraceptive method.
2. Explain how Norplant implants prevent pregnancy, and their most common side effects.
3. Explain the indications and precautions for using Norplant implants.
4. Screen clients requesting Norplant implants and determine whether further medical evaluation is needed.
5. Use recommended infection prevention practices that minimize the risk of postinsertion/postremoval infections and transmission of serious diseases, such as hepatitis B and HIV/AIDS, to clients and healthcare staff.
6. Insert Norplant implants (clinicians only).
7. Provide counseling to the client following Norplant implants insertion.
8. Provide followup management of the client with Norplant implants, including appropriate management of side effects and other health problems.
9. Explain the indications for when to remove Norplant implants.
10. Remove Norplant implants from the training arm model and, when available, from clients (clinicians only).
11. Describe the skills needed to organize and manage quality Norplant implants services.

Training/Learning Methods

- Illustrated lectures and group discussion
- Individual and group exercises
- Role plays
- Simulated practice with the Norplant Subdermal Implant Training Model
- Guided clinical activities (counseling and Norplant implants insertion and removal)

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[1] Depending on the needs of the participants, the course may be given over a longer period (5 to 8 days). For example, additional sessions may be needed on counseling, infection prevention practices or other aspects of Norplant implants service delivery.

SAMPLE 5-1 *(continued)*

Training Materials. This course handbook is designed to be used with the following materials:

- Reference Manual: *Norplant Implants Guidelines for Family Planning Service Programs*, 2nd ed. (JHPIEGO)
- Annotated slide set: *Norplant Implants Insertion and Removal* (JHPIEGO)
- Training videotapes: *Infection Prevention for Family Planning Service Programs* (AVSC and JHPIEGO)
- Norplant implants insertion and removal instrument kits and sets of Norplant implants
- Norplant Subdermal Implant Training Models

Participant Selection Criteria

- Participants for this course should be clinicians (physicians, nurses or midwives) and counselors working in a healthcare facility (clinic or hospital) that provides women's health services. The facility should have an anticipated caseload sufficient to support the provision of Norplant implants services.

Methods of Evaluation

Participant
- Pre- and Midcourse Questionnaires
- Learning Guides and Practice Checklists for Norplant Implants Counseling and Clinical Skills
- Checklists for Norplant Implants Counseling and Clinical Skills (to be completed by clinical trainer)

Course (to be completed by participant)
- Course Evaluation

Course Duration

- 6 sessions in a 3-day sequence

Suggested Course Composition

- 10 health professionals or 5 teams
- 2 clinical trainers
- 1 counseling or infection prevention or clinic management trainer

SAMPLE 5-2

COURSE SYLLABUS

Course Description:

Course Goals:

Participant Learning Objectives:

Training/Learning Methods:

Training Materials:

Participant Selection Criteria:

Method of Evaluation:

***Participant*:**

***Course*:**

Course Duration:

Suggested Course Composition:

MODEL CLINICAL TRAINING SKILLS COURSE OUTLINE (10 DAYS, 20 SESSIONS)			
TIME	**OBJECTIVES/ACTIVITIES**	**TRAINING/LEARNING METHODS**	**RESOURCES/MATERIALS**
Session One: Day 1, AM (240 minutes)			
10 minutes	**Activity**: Welcome	Welcome by representatives of the organization(s) sponsoring the training course.	**Course equipment**: Overhead projector, slide projector, screen, flipchart with markers, video player and monitor, video camera, blank videotapes and appropriate anatomic models and supplies and instruments
20 minutes	**Activity**: Introductions	Participants divide into pairs, interview and then introduce each other sharing their partner's name, position and any unique characteristics.	
10 minutes	**Activity**: Provide an overview of the course (goals, objectives and schedule)	Review the course syllabus and schedule.	**CTS Handbook**: Syllabus and schedule
40 minutes	**Activity**: Assess participants' precourse knowledge	Complete precourse questionnaires for clinical skill or activity and clinical training skills.	Precourse questionnaires in the appropriate handbook and the **CTS Handbook**
15 minutes	**Break**		
10 minutes	**Activity**: Review course materials	Distribute, review and discuss materials used in this course. Review the tables of contents of the *Clinical Training Skills for Reproductive Health Professionals* and clinical reference manuals being used in this course.	**CTS Reference Manual, CTS Course Handbook**, clinical reference manual and handbook
25 minutes	**Activity**: Identify individual and group learning needs	Group grades both questionnaires and completes an Individual and Group Assessment Matrix for each.	Individual and Group Assessment Matrix from each handbook
5 minutes	**Activity**: Identify participant expectations	Ask participants to share their expectations of the course and record responses on the flipchart. Attach the flipchart page to wall for reference throughout the course.	

MODEL CLINICAL TRAINING SKILLS COURSE OUTLINE (10 DAYS, 20 SESSIONS) *(continued)*			
TIME	**OBJECTIVES/ACTIVITIES**	**TRAINING/LEARNING METHODS**	**RESOURCES/MATERIALS**
10 minutes	**Chapter 1: An Approach to Clinical Training** **Objective**: Identify the goal of clinical training	Ask participants to describe the differences between training and education. Ask for examples of each. Review the information in the chapter.	**CTS Reference Manual**
30 minutes	**Objective**: Describe the principles of clinical skills training	Divide the participants into four groups. Assign each group two of the principles. Groups are to explain each principle and offer examples related to each principle.	
10 minutes	**Objective**: Define the five elements of coaching	Ask for examples of a "coach" (sports, academics, father teaching child, etc.). How do these coaches train? Relate the example(s) to the five elements of coaching.	
20 minutes	**Objective**: Describe the key features of competency-based training	Divide the participants into four groups and assign one of the following to each group: competency-based training, mastery learning, humanistic training and the three levels of performance. Each group should offer a definition and several examples of the assigned concept. The trainer should stress the three levels of performance.	
15 minutes	**Objective**: Identify responsibilities of clinical trainers	Brainstorm a list of the major responsibilities of trainers and list the results on the flipchart. Review the information in the chapter.	
15 minutes	**Objective**: Identify the criteria for selecting and training clinical trainers	Ask participants how trainers are currently selected and trained within their own institutions. Discuss the advantages and limitations of methods currently being used. Review the information presented in the chapter. Stress the trainer development process shown in Table 1-2. Discuss how the trainer development process would work in their situations.	
5 minutes	**Activity**: Chapter summary	Review the key points and concepts presented in the chapter. Involve participants as much as possible in summary.	

COURSE OUTLINE FOR: _____

TIME	OBJECTIVES/ACTIVITIES	TRAINING/LEARNING METHODS	RESOURCES/MATERIALS

MODEL IUD COURSE SCHEDULE (STANDARD COURSE: 10 DAYS, 20 SESSIONS)

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
0830–1200	**0830–1200**	**0830–1200**	**0830–1200**	**0830–1200**
Opening • Welcome • Participant expectations **Overview of course** • Goals and objectives • Approach to training • Review of course materials **Precourse Questionnaire** Identify individual and group learning needs **Exercise**: "How People Learn"	**Review** day's scheduled activities **Demonstration**: Standard Copper T 380A insertion and removal methods using: • slide set • videotape • pelvic models **Exercise**: How to use the learning guides for IUD clinical skills **Tour of clinic facilities**	**Review** day's scheduled activities **Review key steps** in: • Counseling a client • IUD insertion/removal **Classroom Practice**: Divide into two groups to practice: • Counseling a client • IUD insertion/removal using pelvic models Participants assess each other's performance using learning guides	**Review** day's scheduled activities **Classroom Practice**: Divide into two groups to practice: • Counseling a client • IUD insertion/removal using pelvic models Participants assess each other's performance using learning guides or practice checklist Trainer assesses participants for skill competency on models	**Review** day's scheduled activities **Classroom Practice**: Divide into two groups to practice: • Counseling a client • IUD insertion/removal using pelvic models Participants assess each other's performance using practice checklist Clinical trainer assesses participants for skill competency on models
LUNCH	**LUNCH**	**LUNCH**	**LUNCH**	**LUNCH**
1330–1630	**1330–1630**	**1330–1630**	**1330–1630**	**1330–1630**
Precourse Assessment Assess each participant's skills: • Counseling (role play) • Pelvic exam (pelvic models) **Lecture/Discussion**: Key features of Copper T 380A IUD **Demonstration and Practice**: Loading the Copper T 380A IUD in the sterile package **Review of the day's activities**	**Review of** counseling methods: • Framework for family planning (FP) counseling • Essential components • Characteristics of a good counselor **Role Play**: Divide into teams to practice counseling: • FP acceptor • IUD acceptor Participants assess each other's performance with learning guides **Review of the day's activities**	**Discussion**: • How IUDs work • Indications, precautions and other conditions • Client screening and assessment **Exercise/Discussion**: Reducing risk of HBV/HIV transmission in FP clients **Exercise**: "Who Has AIDS?" **Review of the day's activities**	**Discussion/Videotape**: Role of infection prevention practices in IUD services • Definitions • Handwashing and use of gloves • Processing instruments • Waste disposal **Demonstration**: In simulated clinical area, demonstrate infection prevention practices for each step of IUD insertion/removal **Review of the day's activities**	**Discussion**: Managing GTIs in family planning clients • Simplified approach to diagnosing GTIs • Client screening and assessment • GTIs and IUD use **Midcourse Questionnaire** **Review of the day's activities**
Reading Assignment: Chapters 1, 2, 7, Appendix A	**Reading Assignment**: Chapters 3, 4, Appendix B	**Reading Assignment**: Chapter 6	**Reading Assignment**: Chapter 5	**Reading Assignment**: Chapters 1, 8 and 9

MODEL IUD COURSE SCHEDULE (STANDARD COURSE: 10 DAYS, 20 SESSIONS)

DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
0830–1200 **Review** day's scheduled activities **Clinic Practice**: Provide IUD services in the clinic: • Counseling clients • GTI screening • Client assessment • IUD insertion • IUD removal (if available) • Followup care • Management of problems Participants assess each other's performance using practice checklist	**0830–1200** **Review** day's scheduled activities **Clinic Practice**: Provide IUD services in the clinic: • Counseling clients • GTI screening • Client assessment • IUD insertion • IUD removal (if available) • Followup care • Management of problems Participants assess each other's performance using practice checklist	**0830–1200** **Review** day's scheduled activities **Clinic Practice**: Provide IUD services in the clinic: • Counseling clients • GTI screening • Client assessment • IUD insertion • IUD removal (if available) • Followup care • Management of problems Competency-based evaluation by clinical trainer using checklist (qualification)	**0830–1200** **Review** day's scheduled activities **Clinic Practice**: Provide IUD services in the clinic: • Counseling clients • GTI screening • Client assessment • IUD insertion • IUD removal (if available) • Followup care • Management of problems Competency-based evaluation by clinical trainer using checklist (qualification)	**0830–1200** **Review** day's scheduled activities **Clinic Practice**: Provide IUD services in the clinic: • Counseling clients • GTI screening • Client assessment • IUD insertion • IUD removal (if available) • Followup care • Management of problems Competency-based evaluation by clinical trainer using checklist (qualification)
LUNCH	**LUNCH**	**LUNCH**	**LUNCH**	**LUNCH**
1330–1630 **Clinical Conference** **Discussion**: Management of side effects and other problems **Demonstration/Exercise**: Management of lost strings and lost IUDs (hand-held and pelvic models) **Role Play**: Managing side effects. Clinical trainer reviews results of Midcourse Questionnaire with each participant (½ class) **Review of the day's activities**	**1330–1630** **Clinical Conference** **Discussion/Role Play**: Postinsertion and followup care **Discussion**: Indications for removal **Role Play**: Counseling a client for followup care after IUD removal. Clinical trainer reviews results of Midcourse Questionnaire with each participant (½ class) **Review of the day's activities**	**1330–1630** **Clinical Conference** **Discussion**: Assessing and improving quality of IUD services **Discussion**: Organizing and managing an IUD service **Review of the day's activities**	**1330–1630** **Clinical Conference** **Discussion**: Medical barriers and policy issues **Discussion**: Problems and constraints to IUD service delivery in participant's own clinical setting **Review of the day's activities**	**1360–1630** **Clinical Conference** **Discussion**: Course accomplishments relative to objectives, training methods and materials Course Evaluation by participants **Closing**
Reading Assignment: Chapters 8 and 9	**Reading Assignment**: Chapters 10 and 11			

SAMPLE 5-6

COURSE SCHEDULE

NAME OF COURSE (___ Days, ___ Sessions)				
DAY 1	**DAY 2**	**DAY 3**	**DAY 4**	**DAY 5**
LUNCH	**LUNCH**	**LUNCH**	**LUNCH**	**LUNCH**
Assignment:	**Assignment:**	**Assignment:**	**Assignment:**	**Assignment:**

SIX

DEVELOPING COMPETENCY-BASED SKILL DEVELOPMENT AND ASSESSMENT INSTRUMENTS[1]

INTRODUCTION

Providing participants with good counseling and clinical skills is one of the central purposes of most family planning training courses. The ability to satisfactorily measure progress in learning and objectively evaluate performance is critical to improving the quality of clinical training. The use of well-designed competency-based skill development and assessment instruments enables the participant and trainer to share the responsibility for achieving the training objectives.

Skill development instruments, often called learning guides, break the skill or activity down into its essential elements and allow each participant to chart her/his progress in learning new skills and pinpoint areas for improvement.

Evaluating whether participants have acquired new skills can be accomplished using skill performance instruments, often called checklists. These checklists can be used to measure a wide variety of participant skills and behaviors in realistic job-related situations.

Chapter Objective

After completing this chapter, the participant will be able to develop competency-based skill development and assessment instruments for measuring progress in learning and evaluating performance.

Enabling Objectives

To attain the chapter objective, the participant will:

- Define terms associated with competency-based skill development and assessment instruments
- Identify the three levels of skill performance
- List the advantages and limitations of learning guides and checklists
- Identify two types of assessment (rating) systems
- List the steps in designing learning guides and checklists
- Use competency-based learning guides and checklists

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[1] *Adapted from*: Sullivan R et al. 1995. *Clinical Training Skills for Reproductive Health Professionals*. JHPIEGO Corporation: Baltimore, Maryland.

9+

SKILL ASSESSMENTS

Definitions

The design of competency-based skill development and assessment instruments involves terms that may be new to the instructional designer. They are:

- **Psychomotor domain.** The domain or area of learning that involves performing skills which typically require the manipulation of instruments and equipment (e.g., inserting an IUD).
- **Competency-based skill development.** The process of learning clinical skills or activities according to a predetermined standard.
- **Competency-based skill assessment.** The process of objectively measuring a participant's performance of clinical skills or activities.
- **Learning guide.** A competency-based skill development instrument that breaks down a skill or activity into its essential steps or tasks, in sequence (if necessary). Participants use learning guides to measure their progress in developing new skills.
- **Checklist.** A competency-based skill assessment instrument that focuses on the key steps or tasks needed to perform a skill or activity. Checklists are used by trainers to evaluate a participant's performance of the skill or activity.

Levels of Skill Performance

Progress in developing a skill is measured in terms of various levels of performance. The three levels of performance in acquiring a new skill are:

- **Skill acquisition.** The **initial phase** in learning a new clinical skill or activity. One or more practice sessions are needed for learning how to perform the required steps and the sequence (if necessary) in which they should be performed. Assistance and coaching are necessary to achieve correct performance of the skill or activity.
- **Skill competency.** The **intermediate phase** in learning a new clinical skill or activity. The participant can perform the required steps in the proper sequence (if necessary) but may not progress from step to step efficiently.
- **Skill proficiency.** The **final phase** in learning a new clinical skill or activity. The participant efficiently and precisely performs the steps in the proper sequence (if necessary).

Advantages and Limitations

Competency-based assessments facilitate learning a wide variety of skills or activities in a realistic job-related situation and make evaluation of performance more objective. Advantages of using competency-based assessments are that they:

- Ensure that training is based on a standardized procedure
- Help standardize training materials
- Form the basis of trainer demonstrations
- Function as a self- or peer-assessment tool
- Ensure that all participants are having their skills measured according to the same standard
- Provide a basis for followup evaluations of trained clinicians

Limitations of competency-based assessments are that they:

- Require time and effort to develop
- Must be used by clinical trainers who are proficient in the clinical procedure or activity to be learned
- Require an adequate number of skilled clinical trainers to conduct the training because competency-based clinical training usually requires a one-on-one relationship

TYPES OF ASSESSMENT (RATING) SYSTEMS

Two types of **rating systems** that can be used when designing competency-based skill development and assessment instruments are **numerical or multi-level** and **pass/fail**.

Numerical Rating System

A **numerical or multi-level rating scale** assigns numbers to specific **levels** of performance. This allows participants to easily measure their progress in learning clinical skills or activities. Typically, a numerical rating scale is used with learning guides because it allows participants and trainers to rate improvement in performing a skill or activity.

In the sample Learning Guide for IUD Clinical Skills (**Sample 6-1**), the participant's performance of each step is rated on a three-point scale as follows:

1 **Needs Improvement**: Step or task not performed correctly or out of sequence (if necessary) or is omitted

2 **Competently Performed**: Step or task performed correctly in proper sequence (if necessary) but participant does not progress from step to step efficiently

3 **Proficiently Performed**: Step or task efficiently and precisely performed in the proper sequence (if necessary)

Yes/No Rating System

A second type of rating scale is the **yes/no** (e.g., pass/fail, satisfactory/unsatisfactory) system, which often is used with checklists (see below). As the participant performs each step of the procedure or activity, the evaluator (clinical trainer) "checks" whether or not the step has been satisfactorily completed.

Example:

Yes/No Rating Scale

Step or Task	***Rating***	
1. Decontaminated, cleaned and dried all instruments	*Yes*	*No*
2. All jointed instruments are in the open position	*Yes*	*No*
3. Packs arranged in the chamber to allow free air circulation	*Yes*	*No*

In the Checklist for IUD Counseling and Clinical Skills (**Sample 6-2**), a "satisfactory/unsatisfactory" rating scale is used, with the following definitions:

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Not Observed: Step, task or skill not performed by participant during evaluation by trainer

DESIGNING COMPETENCY-BASED LEARNING GUIDES AND CHECKLISTS

While learning guides are used to facilitate **learning** the steps or tasks (and sequence, if necessary) in performing a skill or activity, checklists are used to evaluate objectively **performance** of the skill or activity.

A learning guide contains the individual steps or tasks in sequence (if necessary) required to perform a skill or activity in a standardized way. Learning guides are designed to help the participant learn the correct steps and sequence in which they should be performed (**skill acquisition**) and measure progressive learning in small steps as s/he gains confidence and skill (**skill competency**).

The checklist generally is derived from a learning guide. Unlike learning guides, which are of necessity quite detailed, competency-based checklists focus only on the key steps or tasks. Well-constructed checklists should contain only sufficient detail to permit the clinical trainer to evaluate and record the participant's overall performance. If a checklist is too detailed, it can distract the clinical trainer from its primary purpose. For example, there are 18 steps for inserting the IUD in the Learning Guide for IUD Clinical Skills (**Sample 6-1**); however, in the Checklist for IUD Counseling and Clinical skills (**Sample 6-2**) there are only seven steps.

Steps in Designing

The **first step** in designing a competency-based assessment instrument is to identify the steps or tasks needed to perform the skill. This is done by:

- conducting a standardization activity (described in **Chapter 4**), which includes observing and working with expert clinicians, or
- adapting an existing learning guide.

Placing the tasks in the correct sequence is the **second step**.

The **third step** consists of identifying the standards or minimum level of performance for each of the key steps or tasks to be measured. Either a numerical (e.g., 3-2-1 with 3 being the best and 1 being the worst) or multilevel (e.g., excellent-good-fair-poor) rating scale can be used. Select the rating scale that best fits the types of items that are to be measured.

The **fourth step** is to provide an explanation of any equipment, instruments or materials that are required for the participant to learn and practice the skill or for the trainer to conduct the assessment. Directions should include the purpose of the assessment, steps or procedures to

follow in conducting the assessment and a description of the expected standards or levels of performance.

The **fifth and final step** is to field-test the assessment instrument to be certain that all steps or tasks are listed. Field-testing also will determine whether the rating scale meets its intended purpose.

Key Elements

The following key elements are included in most competency-based learning guides or checklists:

Title: The title should specify the type of instrument (learning guide or checklist) and the skill or activity being learned or evaluated.

Identifying information: A space should be provided on the form for the name of the participant and the name and dates of the course.

Instructions: These describe the rating scale and tell the participants or clinical trainer how to use the instrument.

Rating scale: This allows the participant to assess progress (learning guide) or the trainer to assess competency (checklist) for each step of the overall procedure. The rating system should be explained in the instructions.

Evaluator's signature: Checklists often are used to evaluate performance for qualification; therefore, the person administering it should **sign and date** the completed checklist.

USING COMPETENCY-BASED LEARNING GUIDES AND CHECKLISTS

Even the best-designed learning guides and checklists will not be successful in facilitating learning or measuring performance if they are not used correctly. To facilitate the use of competency-based assessment instruments, the clinical trainer should be certain that:

- the training environment (i.e., classroom or clinic) is equipped with all equipment, materials and other supplies needed to perform the skill or activity;

- the clinical skills setting (procedure area or operating room) is as similar as possible to the environment in which the participant normally works; and

- directions are carefully reviewed with the participants and any questions are answered before the practice session or assessment begins.

Learning Guides

An example of how learning guides (**Sample 6-1**) can be used at different stages of training include:

- **Initially**, participants can use the learning guides to follow the steps as the clinical trainer role plays counseling a client or demonstrates a clinical procedure using an anatomic model.

- **Subsequently**, during the classroom sessions when participants are paired, one "service provider" participant performs a step or task while the other participant uses the learning guide to prompt the "service provider" on each step. During these sessions, the clinical trainer circulates among the participants to see how learning is progressing and ensure that the participants are following the steps outlined in the learning guide.

- Once participants become confident in performing the skill or activity (e.g., inserting an IUD in the pelvic model), they can use the learning guide to rate each other's performance. This exercise can serve as a point of discussion during a clinical conference before participants provide services to clients.

- Prior to the first clinic sessions, participants again are paired. Here, one "service provider" participant performs the procedure while the other observes and uses the learning guide to remind the "service provider" of any missed steps. During this session, the clinical trainer circulates, coaching the participants as necessary as they perform the steps or tasks.

Checklists

Checklists can be used by the trainer as a final evaluation of the participant's performance of clinical skills and activities. In determining whether the participant is competent, the clinical trainer will observe and rate the participant's performance for each step of the skill or activity. The participant must be rated "satisfactory" in each skill or activity to be evaluated as competent (see **Sample 6-2**).

Using checklists in competency-based clinical training:

- Ensures that participants have mastered the clinical skills and activities being taught

- Ensures that all participants will have their skills measured according to the same standard

- Forms the basis for followup observations and evaluations after training (see **Chapter 9**)

When completed, this checklist, together with the clinical trainer's comments and recommendations, provides objective documentation of the participant's level of performance. Furthermore, it serves as one part of the process of attesting that the participant is qualified to provide the clinical service or activity.

SUMMARY

One of the central purposes of most family planning training courses is providing participants with good counseling and clinical skills. The use of well-designed competency-based skill development and assessment instruments such as learning guides and checklists can make mastering these skills easier and evaluating participant performance more objective.

A number of factors must be considered when designing skill development and assessment instruments. Design steps include:

- Identifying the steps or tasks needed to perform the skill or activity according to a predetermined standard

- Placing the steps in the correct sequence (if necessary)

- Identifying the standards or minimal levels of performance and choosing an appropriate rating scale

- Writing clear, concise directions for using the instrument

- Testing the assessment instruments adequately before they are put into final form

Learning guides and checklists can be used throughout training to enable the participant and trainer to share responsibility for achieving the training objectives. The time invested in designing effective instruments will be rewarded as participants acquire the knowledge and skills to provide quality family planning services.

SAMPLE 6-1

LEARNING GUIDE FOR IUD CLINICAL SKILLS
(To be used by **Participants**)

Rate the performance of each step or task observed using the following rating scale:

1 **Needs Improvement**: Step or task not performed correctly or out of sequence (if necessary) or is omitted

2 **Competently Performed**: Step or task performed correctly in proper sequence (if necessary) but participant does not progress from step to step efficiently

3 **Proficiently Performed**: Step or task efficiently and precisely performed in the proper sequence (if necessary)

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
CLIENT ASSESSMENT						
1. Greet client respectfully and with kindness.						
2. Determine that client has been counseled for insertion procedure.						
3. Take a reproductive health history. Ask for and record the following information to determine if the IUD is an appropriate choice for the client: • Date of last menstrual period, menstrual interval (days) and bleeding pattern • Parity, pregnancy outcomes and date of last pregnancy • History of ectopic pregnancy • Severe dysmenorrhea (painful periods) • Severe anemia (Hb < 9 g/dl or HCT < 27) • Recent history of sexually transmitted genital tract infections (GTIs), PID or other STDs in last 3 months • Multiple sexual partners (either partner) • Known or suspected cancer of genital tract						
Abdominal Examination						
4. Check that client has recently emptied her bladder and washed and rinsed her genital area if necessary.						
5. Tell client what is going to be done and encourage her to ask questions.						
6. Help client onto examination table.						
7. Wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
8. Palpate abdomen and check for lower abdominal, especially suprapubic, tenderness and masses or other abnormalities.						
Pelvic Examination						
9. Drape woman appropriately for pelvic exam.						
10. Provide adequate light to see cervix.						
11. Open high-level disinfected instrument pan or sterile pack without touching instruments.						
12. Put new examination or high-level disinfected surgical gloves on both hands.						
13. Arrange instruments and supplies on high-level disinfected or sterile tray.						
14. Inspect external genitalia and urethral opening.						
15. Palpate Skene's and Bartholin's glands for tenderness or discharge.						
16. Insert vaginal speculum.						
17. Perform speculum exam: • Check for vaginal lesions or discharge. • Inspect cervix. • Obtain vaginal and cervical and/or urethral specimens for microscopic examination if indicated (and testing is available).						
18. Gently remove speculum and either set it aside in kidney basin or place in 0.5% chlorine solution for 10 minutes for decontamination if another high-level disinfected speculum is available for use.						
19. Perform bimanual exam: • Determine if there is cervical motion tenderness. • Determine size, shape and position of uterus. • Rule out pregnancy or any uterine abnormality. • Check for enlargement or tenderness of adnexa.						
20a. If performing rectovaginal exam, keep gloves on and go to **steps 21a and b**.						
20b. If **not** performing rectovaginal exam, immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning inside out. • If disposing of gloves, place in leakproof container or plastic bag. • If reusing surgical gloves, submerge in 0.5% chlorine solution for 10 minutes for decontamination.						
21a. Perform rectovaginal exam only if: • Position or size of uterus is questionable. • Possible mass behind the uterus.						
21b. After completing rectovaginal exam, immerse both gloved hands in 0.5% chlorine solution, remove gloves by turning inside out and dispose of gloves in leakproof container or plastic bag.						

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
22. Wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						
Microscopic Examination (if indicated and available)						
23. Test specimen with pH tape.						
24. Prepare saline and KOH wet mounts.						
25. Identify: • Vaginal epithelial cells • Trichomoniasis (if present) • Monilia (if present) • Clue cells (if present)						
26. Prepare Gram stain (if indicated and available) and identify: • WBC (polymorphonuclear white cells) • Gram-negative intracellular diplococci (GNID) (if present)						
27. If microscopic exam done, wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						
INSERTION						
Pre-Insertion Tasks						
1. Tell client what is going to be done and encourage her to ask questions.						
2. Load Copper T 380A in sterile package: • Partially open package and bend back white backing flaps. • Put white rod inside inserter tube. • Place package on flat surface. • Slide I.D. card underneath arms of the IUD. • Hold tips of IUD arms and push on the inserter tube to start bending arms. • When arms touch sides of inserter tube, pull tube away from the folded arms of IUD. • Elevate inserter tube and push and rotate to catch tips of arms in tube. • Push folded arms into inserter tube to keep them fixed in the tube.						
Insertion						
3. Put new examination or high-level disinfected surgical gloves on both hands.						
4. Insert vaginal speculum to see the cervix.						
5. Apply antiseptic solution two times to the cervix, especially the os, and vagina.						
6. Gently grasp cervix with tenaculum.						
7. While gently pulling on the tenaculum and without touching side walls of vagina or speculum blades, gently pass sound through cervix to the top of the uterus.						
8. Confirm whether the position of the uterus is anterior or posterior. Remove sound.						

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
9. Determine depth of uterine cavity.						
10. Set depth gauge to measured uterine depth with IUD still in sterile package, then completely open package.						
10a. Check to be sure the folded arms and the depth gauge are lying flat against the card.						
11. Remove loaded inserter tube without touching anything that is not sterile; be careful not to push the white rod towards IUD.						
12. Hold blue depth gauge in horizontal position. While gently pulling on tenaculum, pass loaded inserter tube through the cervix until depth gauge touches cervix or resistance is felt.						
13. Hold tenaculum and white rod stationary in one hand.						
14. Release arms of Copper T 380A IUD using **withdrawal** technique (pull inserter tube toward you until it touches thumb grip of white rod).						
15. Remove white rod and carefully push in on the inserter tube until slight resistance is felt.						
16. Partially withdraw the inserter tube and cut IUD strings to 3–4 cm length.						
17. Remove inserter tube.						
18. Gently remove the tenaculum and place in 0.5% chlorine solution for 10 minutes for decontamination.						
19. Examine cervix and if there is bleeding at the tenaculum puncture site(s), place cotton (or gauze) swab over bleeding and apply gentle pressure for 30–60 seconds.						
20. Gently remove speculum and place in 0.5% chlorine solution for 10 minutes for decontamination.						
Postinsertion Tasks						
21. Before removing gloves, place all instruments in 0.5% chlorine solution for 10 minutes for decontamination.						
22. Dispose of waste materials such as cotton balls or gauze by placing in a leakproof container or plastic bag.						
23. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning inside out. • If disposing of gloves, place in leakproof container or plastic bag. • If reusing surgical gloves, submerge in 0.5% chlorine solution for 10 minutes for decontamination.						
24. Wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
25. Check to be sure client is not having excessive cramping and answer any questions.						
26. Complete IUD card and record in client record.						
REMOVAL OF THE COPPER T 380A IUD						
1. Greet client respectfully and with kindness.						
2. Check to be sure client has emptied her bladder and washed and rinsed her genital area if necessary.						
3. Tell the client what is going to be done and encourage her to ask questions.						
4. Help client onto examination table.						
5. Wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						
6. Put new examination or high-level disinfected surgical gloves on both hands.						
7. Perform bimanual exam: • Determine if there is cervical motion tenderness. • Determine size, shape and position of uterus. • Palpate adnexa for abnormalities or enlargements.						
8. Insert vaginal speculum to see cervix and IUD strings.						
9. Apply antiseptic solution two times to the cervix, especially the os, and vagina.						
10. Grasp strings close to the cervix with hemostat or other narrow forceps.						
11. Pull on strings slowly but firmly to remove IUD.						
12. Show IUD to client.						
13. Immerse IUD in 0.5% chlorine solution and dispose of in a leakproof container or plastic bag.						
14. Gently remove speculum and place in 0.5% chlorine solution for 10 minutes for decontamination.						
Postremoval Tasks						
15. Before removing gloves, place all instruments in 0.5% chlorine solution for 10 minutes for decontamination.						
16. Dispose of waste materials by placing in leakproof container or plastic bag.						
17. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning inside out. • If disposing of gloves, place in leakproof container or plastic bag. • If reusing surgical gloves, submerge in 0.5% chlorine solution for 10 minutes for decontamination.						

LEARNING GUIDE FOR IUD CLINICAL SKILLS						
STEP/TASK	**CASES**					
18. Wash hands thoroughly with soap and water and dry with clean, dry cloth or air dry.						
19. Record IUD removal in client record.						

SAMPLE 6-2

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS

(To be completed by **Clinical Trainer**)

Place a "✓" in case box if step/task is performed **satisfactorily**, an "**X**" if it is **not** performed **satisfactorily**, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Not Observed: Step or task or skill not performed by participant during evaluation by clinical trainer

PARTICIPANT _____ **Course Dates** _____

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS					
STEP/TASK	**CASES**				
IUD INSERTION					
Pre-Insertion Counseling					
1. Greets client respectfully and with kindness.					
2. Asks woman about her reproductive goals and need for protection against GTIs and other STDs.					
3. If IUD counseling not done, arranges for counseling prior to performing procedure.					
4. Determines that the woman's contraceptive choice is the IUD.					
5. Reviews Client Screening Checklist to determine if the IUD is an appropriate choice for the client.					
6. Assesses woman's knowledge about the IUD's major side effects.					
7. Is responsive to client's needs and concerns about the IUD.					
8. Describes insertion procedure and what to expect.					
SKILL/ACTIVITY PERFORMED SATISFACTORILY					
INSERTION OF COPPER T 380A IUD					
Pre-Insertion Tasks					
1. Obtains or reviews brief reproductive health history.					
2. Checks that client has recently emptied her bladder and washed and rinsed her genital area if necessary.					

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS					
STEP/TASK	**CASES**				
3. Tells client what is going to be done and encourages her to ask questions.					
4. Washes hands thoroughly and dries them.					
5. Palpates abdomen and checks for lower abdominal, especially suprapubic, tenderness and masses or other abnormalities.					
6. Puts new examination or high-level disinfected surgical gloves on both hands.					
7. Arranges instruments and supplies on high-level disinfected or sterile tray.					
8. Performs speculum examination.					
9. Collects vaginal and cervical (urethral) specimens if indicated.					
10. Removes speculum and either sets aside in kidney basin or places in 0.5% chlorine solution for 10 minutes for decontamination if another high-level disinfected speculum is available for use.					
11. Performs bimanual examination.					
12. Performs rectovaginal examination if indicated. • Immerses both gloved hands in 0.5% chlorine solution. • Removes gloves by turning inside out and disposes of gloves in leakproof container or plastic bag.					
13. If **not** performing rectovaginal examination, immerses both gloved hands in 0.5% chlorine solution. Removes gloves by turning inside out. • If disposing of gloves, places in leakproof container or plastic bag. • If reusing surgical gloves, removes gloves by turning inside out and submerges in 0.5% chlorine solution for 10 minutes for decontamination.					
14. Washes hands thoroughly and dries them.					
15. Performs microscopic examination if indicated (and equipment is available).					
16. If microscopic exam done, washes hands thoroughly and dries them.					
17. Loads Copper T 380A in sterile package.					
IUD Insertion					
18. Puts new examination or high-level disinfected surgical gloves on both hands.					
19. Inserts vaginal speculum to see cervix.					
20. Applies antiseptic solution two times to cervix, especially the os, and vagina.					

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS					
STEP/TASK	**CASES**				
21. Gently grasps cervix with tenaculum.					
22. Sounds uterus using no-touch technique.					
23. Inserts the Copper T 380A IUD using the **withdrawal** technique.					
24. Cuts IUD strings to 3–4 cm in length.					
25. Gently removes tenaculum and speculum and places in 0.5% chlorine solution for 10 minutes for decontamination.					
Postinsertion Tasks					
26. Before removing gloves, places all instruments in 0.5% chlorine solution for 10 minutes for decontamination.					
27. Disposes of waste materials in leakproof container or plastic bag.					
28. Immerses both gloved hands in 0.5% chlorine solution and removes gloves by turning inside out. • If disposing of gloves, places in leakproof container or plastic bag. • If reusing surgical gloves, submerges in 0.5% chlorine solution for 10 minutes for decontamination.					
29. Washes hands thoroughly and dries them.					
30. Completes client record.					
SKILL/ACTIVITY PERFORMED SATISFACTORILY					
POSTINSERTION COUNSELING					
1. Teaches client how and when to check for strings.					
2. Discusses what to do if client experiences any side effects or problems.					
3. Provides followup visit instructions and answers any questions.					
4. Assures client that she can have the IUD removed at any time.					
5. Observes client for at least 15 to 20 minutes before sending her home.					
SKILL/ACTIVITY PERFORMED SATISFACTORILY					
IUD REMOVAL					
Preremoval Counseling					
1. Greets client respectfully and with kindness.					
2. Asks client her reason for removal and answers any questions.					
3. Reviews client's reproductive goals and need for protection against GTIs and other STDs.					

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS					
STEP/TASK	**CASES**				
4. Describes the removal procedure and what to expect.					
SKILL/ACTIVITY PERFORMED SATISFACTORILY					
REMOVAL OF COPPER T 380A IUD					
1. Checks to be sure client has emptied her bladder and washed and rinsed her genital area if necessary.					
2. Tells client what is going to be done and encourages her to ask questions.					
3. Washes hands thoroughly and dries them.					
4. Puts new examination or high-level disinfected surgical gloves on both hands.					
5. Performs bimanual exam.					
6. Inserts vaginal speculum to see cervix and IUD strings.					
7. Applies antiseptic solution two times to the cervix, especially the os, and vagina.					
8. Grasps strings close to cervix and pulls slowly but firmly to remove IUD.					
9. Shows IUD to client.					
10. Immerses IUD in 0.5% chlorine solution and disposes of in leakproof container or plastic bag.					
11. Gently removes speculum and places in 0.5% chlorine solution for 10 minutes for decontamination.					
Postremoval Tasks					
12. Before removing gloves, places all instruments in 0.5% chlorine solution for 10 minutes for decontamination.					
13. Disposes of waste materials in leakproof container or plastic bag.					
14. Immerses both gloved hands in 0.5% chlorine solution. Removes gloves by turning inside out. • If disposing of gloves, places in leakproof container or plastic bag. • If reusing surgical gloves, submerges in 0.5% chlorine solution for 10 minutes for decontamination.					
15. Washes hands thoroughly and dries them.					
16. Records IUD removal in client record.					
SKILL/ACTIVITY PERFORMED SATISFACTORILY					

CHECKLIST FOR IUD COUNSELING AND CLINICAL SKILLS						
STEP/TASK	**CASES**					
POSTREMOVAL COUNSELING						
1. Discusses what to do if client experiences any problems and answers any questions.						
2. Counsels client regarding new contraceptive method, if desired.						
3. Helps client obtain new contraceptive method or provides temporary (barrier) method until method of choice can be started.						
SKILL/ACTIVITY PERFORMED SATISFACTORILY						

PARTICIPANT IS ☐ **QUALIFIED** ☐ **NOT QUALIFIED** TO DELIVER IUD SERVICES, BASED ON THE FOLLOWING CRITERIA:

- Score on Midcourse Questionnaire _____% (Attach Answer Sheet)
- Counseling and Clinical Skills Evaluation: ☐ Satisfactory ☐ Unsatisfactory
- Provision of services (practice): ☐ Satisfactory ☐ Unsatisfactory

Trainer's Signature_____Date_____

SEVEN

DEVELOPING KNOWLEDGE-BASED ASSESSMENT INSTRUMENTS

INTRODUCTION

Trainers organize and conduct training directed toward specific objectives. The trainer needs to determine whether the training has met its design objectives and to assess whether each participant has mastered the knowledge defined by the training objectives. Assessment or testing of knowledge acquired by participants is an essential component of measuring the success of training. Testing is conducted to:

- Assess the knowledge participants bring to a training course
- Motivate participants to study course material
- Identify problems with training materials, content, activities and methods
- Assess how well each participant can perform relative to the training objectives
- Determine whether training objectives have been achieved

The information presented in this chapter will assist the instructional designer in developing and administering knowledge-based assessment instruments.

Chapter Objective

After completing this chapter, the participant will be able to develop and administer knowledge-based assessment instruments.

Enabling Objectives

To attain the chapter objective, the participant will:

- Identify characteristics of knowledge-based assessment instruments
- Apply general guidelines to the development of knowledge-based assessment instruments
- Develop true-false items
- Develop multiple-choice items
- Develop matching items
- Assemble a knowledge-based assessment instrument

- Administer a knowledge-based assessment instrument
- Apply a mastery learning approach to knowledge assessment

CHARACTERISTICS OF KNOWLEDGE-BASED ASSESSMENT INSTRUMENTS

Measuring an individual's acquisition of knowledge using an assessment instrument or test is a complex process. To measure knowledge acquisition effectively, a test must be well-designed. A good test:

- Measures accurately what it is supposed to measure (**validity**)
- Measures consistently what it is designed to measure (**reliability**)
- Is objective (**objectivity**)
- Differentiates between those participants who do and do not know the information (**discrimination**)
- Contains a liberal sampling of items across all training objectives (**comprehensiveness**)
- Is easy to use (**ease of administration and scoring**)

Content Validity

A knowledge-based assessment instrument is considered valid when it measures what it is intended to measure (i.e., it is based on the objectives).Validity is the most important characteristic of any test. It is determined by comparing the content of the test with the training objectives. The questions in any test must be based on the content of the training. In some situations, the subject matter expert will draft a set of questions for review by the instructional designer. The designer may also develop an initial set of questions and the expert will review them. In either situation, content validity is a vital concern. Content validation is primarily a process of logical analysis. The designer examines each item by asking the following questions:

- Does the test content reflect the training objectives? In other words, can each test item be traced back to a training objective?
- Are the test and course materials in proper balance? If considerable time is devoted to an objective during training, then more items measuring that objective should appear on the test than for an objective which receives less emphasis during training.

Reliability

A knowledge-based assessment instrument is considered reliable when it measures consistently that which it is designed to measure. While there

are mathematical approaches that can be used to calculate a reliability value, this is not typically done with tests developed by trainers. Studies have shown that valid tests are usually reliable, so the focus should be on ensuring that the assessment instrument is valid.

Objectivity

Written test items can be classified into two main types:

- **Objective**, in which the participant chooses a response from two or more alternatives that are provided with the question; there is only one correct response, so that different evaluators would score the item the same way. Objective test items are preferred and include multiple-choice, true-false and matching (see **Table 7-1**).

- **Subjective**, in which the participant provides a response to an item and the evaluator's personal opinion may affect the scoring of the item. Essay and short-answer test items are classified as subjective.

Discrimination

In mastery learning, the goal is for all of the participants to demonstrate mastery of the knowledge-based objectives (e.g., score 85% or better on an end-of-training knowledge assessment). For each item on an assessment instrument, however, only those who know the correct answer should be able to select it. When participants are able to answer an item by guessing or recognizing the correct answer because the test was poorly developed, the item is not discriminating. Following the guidelines presented in this chapter will help to ensure that knowledge-based assessment items effectively discriminate between those who do and do not know the information.

Comprehensiveness

A test is considered to be comprehensive when it contains an appropriate number of items based on each objective. When an objective is considered to be more important than other objectives or involves more information than others, there may be more items written to test this objective. Objectives involving less content may have fewer items. For a knowledge-based assessment to be comprehensive, however, there will be items based on each objective.

Ease of Scoring

The final characteristic of a knowledge-based assessment instrument is that it should be easy to score. The types of items presented in this chapter (true-false, multiple-choice, matching) are objective and easy to score. Trainers using essay and short answer items will find that the scoring process is subjective and time-consuming. In order to give participants immediate feedback, the instrument must be easy to score.

DEVELOPMENT GUIDELINES

The following are general guidelines for the designer to use when developing knowledge-based test items.

- Keep the language **simple and clear**. The test item should measure the participant's mastery of the objective, not measure reading ability or the ability to take tests.

- Ensure that there is **at least one item per objective**. Often there may be a number of test items per objective. Tests with very few items (fewer than 15 to 20) may not be valid. Tests with more than 60 to 70 items may cause participants to become tired, lose their concentration and not do as well on the test.

- **Use correct grammar** in both the question and the possible answers.

- **State the problem clearly** and completely. The participant should know exactly what is expected before the choices are read.

- Ensure that **questions reflect conditions stated in the objective**. For example, if an enabling objective states that the participant will "identify" something, then the corresponding item should require the participants to *identify* as opposed to list or write.

- Is the question in any way **controversial**? If it is, the question should be discarded.

- Is there **double meaning, wordiness or vagueness**? Delete all unneeded words or phrases.

- Are the **distractors (incorrect answers)** reasonable, as well as related in type and content to the correct answers?

- What is the **difficulty** of the questions? Questions of moderate difficulty are best.

- Make **each test item separate** from every other item. If they are not, when a participant misses the first item, s/he usually misses the next item also. In other words, do not build one test item from a previous test item.

- Provide **clear directions** for each type of item (e.g., true-false, multiple-choice).

Choosing Item Type

The three most widely used test formats are true-false, multiple-choice and matching.

- **True-False.** The participant is asked to indicate whether a statement is true or false.
- **Multiple-Choice.** The participant is asked to select the best answer from several responses to a question.
- **Matching.** The participant is given two lists and asked to match the items in each.

As noted earlier, these formats are objective and easy to score. The advantages and disadvantages of each are presented in **Table 7-1**.

Table 7-1. Advantages and Disadvantages of Common Test Formats

QUESTION TYPE	ADVANTAGES	DISADVANTAGES
True-False	Sampling of a large amount of information Speed of answering (3 to 5 per minute) Easy to score	Very easy to answer 50 percent chance of guessing the correct answer Difficult to construct items that are absolutely true or false Low reliability
Multiple-Choice	Versatile—measures knowledge High validity and reliability Guessing is reduced compared to the true-false format Broad range of content can be tested within a confined period of testing Easy to score	Difficult to construct, especially for plausible alternative responses
Matching	Maximum coverage of knowledge level Good item to test ability to recognize or identify Easy to score	Time-consuming for the participant to answer Not suitable for higher-level learning Good items difficult to construct

DEVELOPING TRUE-FALSE TEST ITEMS

A **true-false** statement is a type of alternative-choice item. Such items can readily assess knowledge of facts and can test thinking and understanding; however, this type of question suffers from low reliability. The format encourages guessing, since each choice has a 50 percent chance of being correct. It is also difficult to construct statements that are absolutely true or absolutely false. Brighter participants are most likely to find ambiguity when none was intended and are thus most likely to be

misled by this sort of question. Nevertheless, true-false items often are useful for precourse questionnaires because they quickly provide the trainer with an idea of what knowledge the participants bring to the course.

Writing True-False Test Items

The language of true-false test items should be clear and understandable. The designer should avoid words such as *more, few, large* and *good*, as these are relative and may confuse the participants. Consider the item "Several different methods can be used to insert Norplant implants." If "several" means two or three, then the statement is true. If "several" means five or six, then the statement probably is false.

Avoid words or expressions that frequently identify a statement as true or false. Words often found in false statements are *only, never, all, every, always, none* and *no*. Those often found in true statements are *usually, generally, sometimes, customarily, often, may, could* and *frequently*.

The statement should be either true or false. The designer should avoid a statement that is partially true and partially false. Also, true-false items should focus on one idea and should challenge, but not trick, the participants. This next example presents a test item that may confuse participants and should **not** be used.

***Example**:*

The Copper T 380A IUD effectively prevents pregnancy for 8 years.

True—but in fact the Copper T 380A is effective for as long as 10 years, so is the item true or false? From the trainer's point of view the answer "true" would be incorrect since the technical information the participant should know is the 10-year effective life.

True-false test items should be kept short and concise. Include nearly equal numbers of true and false questions in no obvious pattern.

Long and wordy statements should be avoided. Negatively stated items (e.g., It is **not** recommended that. . . .) should not be used. Care should be used when lifting statements directly from a reference manual because these may be confusing when taken out of context. See examples of true-false items in **Sample 7-1**.

One type of true-false item requires the participant to correct false statements to make the statements true. This can be accomplished by underlining one or two key terms and asking the participants to change

the underlined term(s) if they decide the statement is false. This does require the trainer to determine if the revised terms are correct, which adds some subjectivity to the scoring process.

Example:

Read the following statement. Circle "T" if the statement is true. Circle "F" if the statement is false and write in the blank space the word(s) that would replace the underlined word(s) to make the statement true.

T F A knowledge-based assessment instrument is considered to be <u>reliable</u> when it measures what it is intended to measure.

Writing the **directions** for answering true-false questions may be as important as writing the test items. The directions must be clear and must indicate how and where the participant is to respond. Is the correct response to be indicated on the test or on a separate form? What is the point value of each item?

Example:

***Directions**: For each of the following statements print a capital T in the block to the left of the number if the statement is true or a capital F if the statement is false. You will receive one point for each correct answer.*

DEVELOPING MULTIPLE-CHOICE TEST ITEMS

Multiple-choice items represent the most widely used type of objective test item. The **stem** of the multiple-choice item poses a question or a problem situation which is followed by alternative answers. One of these **responses** is correct while the others, which are not, are referred to as **distractors**. The stem may be an **incomplete statement** or a **question.**

Examples:

The morbidity rate for pill users is highest among:

A. adolescents
B. women over 35 years of age who smoke
C. women 20–35 who smoke
D. diabetics
E. women over 35 with cervical dysplasia

Which of the following is most frequently cited by women as a reason for requesting the removal of Norplant implants?

A. a desire to become pregnant
B. infection at the implant site
C. visibility of the implants
D. dizziness
E. menstrual irregularity

Writing Multiple-Choice Test Items

When writing multiple-choice test items, the stem should present a clearly stated central problem and the responses should be brief. The choices should be similar in length.

The following is too general and is a **poor** example of a stem:

"The first step in needle disposal is. . . ."

An **improved** stem might be:

"When disposing of needles that have been used for the administration of injectable contraceptives, which of the following is the first step?"

Repetition of phrases or terms within the responses should be avoided (these should be in the stem). Note the improvement in the item in this example.

Example:

*The following is a **poor** example of a stem:*

A solution for high-level disinfection of instruments and other items:

A. can be prepared each day by adding chlorine to boiled water to make a 0.01% solution
B. can be prepared each day by adding chlorine to boiled water to make a 0.1% solution
C. can be prepared each day by adding chlorine to boiled water to make a 1.0% solution
D. can be prepared each day by adding chlorine to boiled water to make a 10.0% solution

*An **improved** stem would be:*

A solution for high-level disinfection of instruments and other items can be prepared each day by adding chlorine to boiled water to make a:

A. 0.01% solution
B. 0.1% solution
C. 1.0% solution
D. 10.0% solution

Negative terms (such as no, never, none and not) should be used sparingly; if used, the term should be **bold-faced** and/or underlined to draw attention to it.

***Example**:*

*"Which of the following is **not** the. . . ."*

The responses should be in chronological or numerical order if applicable. The distractors should be reasonable alternatives unless the designer is attempting to introduce a bit of humor into the test—if so, use it sparingly. Make all choices plausible.

Another form of the multiple-choice question is the scenario item. The scenario item typically presents a situation and then asks the participant a series of questions related to the situation.

***Example**:*

Traffic flow and activity patterns are critical considerations in controlling the number of microorganisms in a designated area. A reproductive health professional arrives at a rural family planning clinic. The floor plan for instrument and equipment disinfecting, cleaning and sterilizing is shown in the diagram on the next page of this test. Use this diagram to answer questions 23 through 30.

Each response letter should be capitalized to avoid confusion between b and d, c and e. In addition, each response letter (e.g., *A*, *B*, *C*, *D*) should be the correct response an equal number of times. Also, avoid a specific pattern in correct responses, and vary the position of the correct choices. This will prevent the participant from answering an item correctly because of a response pattern.

The list of responses should be grammatically parallel. Many writers of multiple-choice test items use an "a/an" at the end of an incomplete statement to ensure that each of the responses will complete the statement correctly regardless of whether or not the first word of each response begins with a vowel.

Limit the use of "All" and "None of the above." When used, these choices should be the correct responses approximately 25 percent of the time when four responses are given.

Multiple-choice questions are very versatile, since they can test a wide range of knowledge, ranging from simple identification through analysis of more complex questions (**Table 7-2**). They are easily scored and can be used to construct tests with high validity and reliability. A disadvantage is that good items can be difficult to write.

As with true-false questions, writing the directions for answering multiple-choice questions may be as important as writing the test items. The directions must be clear and must indicate how and where the participant is to respond. Is the correct response to be indicated on the test or on a separate form? What is the point value of each item?

Example:

> ***Directions***: *Each of the items on this midcourse questionnaire is followed by five possible responses. For each item, select the* ***best*** *response. Indicate your answer by circling the appropriate letter next to your answer. Each correct response is worth one point.*

Table 7-2. Examples of Multiple-Choice Items (in order of difficulty)

Knowledge
Norplant implants provide contraceptive protection for:

A. 3 months
B. 1 year
C. 3 years
D. 5 years
E. 10 years

Comprehension
FSH pretreatment increases LH-stimulated testosterone secretion; therefore, FSH has a direct effect on:

A. Leydig cells
B. the epididymis
C. androgen-binding protein
D. Sertoli cells
E. the epithelium of the vas deferens

Application
Infection prevention guidelines for IUD insertion or removal require high-level disinfection (HLD) or sterilization of instruments. When HLD by boiling is **not** possible, which of the following is an acceptable alternative?

A. Soak for 10 minutes in 2% glutaraldehyde solution
B. Soak for 20 minutes in 8% glutaraldehyde solution
C. Soak for 20 minutes in 2% formaldehyde solution
D. Soak for 20 minutes in 8% formaldehyde solution

Analysis
A woman is interested in using Norplant implants. During an examination it is discovered that she is diabetic. Which of the following is the **most** appropriate response to this woman?

A. She will not be able to use Norplant implants
B. She will need to visit the clinic on a regular basis to be sure her diabetes is controlled
C. She will need to monitor herself carefully because of the additional risk of thromboses
D. This situation requires no special precautions

Synthesis
Mrs. "K" comes in 2 months after having her IUD inserted and is complaining of heavier than normal menstrual bleeding and cramping. Your management of Mrs. "K" will be to:

A. give her a cycle of COCs to control her bleeding and cramping
B. remove the IUD and offer her a new method
C. put her on antibiotics because she probably has pelvic inflammatory disease
D. reassure her that this is normal and will usually go away after the first 3 or 4 cycles

Evaluation
An advanced trainer is observing a clinical trainer conduct a training course. The clinical trainer has just given a classroom presentation and is sitting down with the advanced trainer to discuss the session. Which of the following is the appropriate step for the advanced trainer to use to begin the meeting?

A. Ask the clinical trainer to identify those presentation skills that could be improved
B. Ask the clinical trainer what s/he felt were the positive aspects of the presentation
C. Provide positive feedback by identifying the positive aspects of the presentation
D. Describe those presentation skills that could be improved

DEVELOPING MATCHING TEST ITEMS

The matching test item in its simplest form consists of two lists of words and phrases which are to be matched. The first list is known as a list of **premises**; the second, as a list of **responses**. The instructions explain how the participant is to match each premise with one of the responses. Matching items are often presented as a list of words to be matched with a list of definitions. Premises and responses may be statements, names of people or places, titles, dates, formulas, symbols or even parts of a picture or drawing. Items within each list should be similar (e.g., types of IUDs, infection prevention terms).

In **perfect matching** exercises, the number of premises and the number of responses are the same and each response can be used only once. An **imperfect matching** exercise can be constructed by:

- making the list of responses longer than the list of premises (i.e., adding a few distractors); or
- including some responses that may be used more than once if the lists are of equal length.

Imperfect matching test items (ones with a few distractors) should be constructed instead of perfect matching exercises. The perfect matching test item allows the participant to determine the last response by a process of elimination because there are as many responses as premises, and each response can be used only once.

As with true-false and multiple choice questions, writing the directions for answering matching test items may be as important as writing the test items. The directions must be clear and must indicate the basis on which the lists are to be matched and how the participant is to respond. Can answers be used more than once? Are the answers to be indicated on the test or on another sheet? Are there distractors? What is the point value of each item?

Example:

> ***Directions:*** *The two columns below are a list of contraceptive methods and their effective life. Read the contraceptive method in the left column and select its effective life from the right column. Write the corresponding letter of the response in the blank provided in the left column. Note that each answer may be used*

only once and that there is one extra response. Two points will be earned for each correct response.

Contraceptive Method	*Effective Life*
__1. Copper T 380A	*A. 3 months*
__2. Norplant implants	*B. 3 years*
__3. DMPA	*C. 5 years*
__4. Vasectomy	*D. 10 years*
	E. Permanent

Writing Matching Test Items

The designer should confine premises and responses to one type of subject. The list of statements within the item should be kept brief (no more than 10 to 15 statements). If the list is long, participants may spend considerable time on one matching item even if they have a rather clear idea of what the response should be.

The designer should always indicate as clearly as possible the basis on which the matching of premise and response is to be made. In the previous example, the basis for matching is to match a contraceptive method with its effective life. Every effort should be made to clarify the task the participants are to perform by improving the directions and titles of the lists. It is not the purpose of a matching test item to find out whether participants understand the basis of matching, but rather to determine whether they can accurately match each premise with a response after they understand the basis of matching.

The premises and responses should be arranged in a logical order. If the premises or responses are names or titles, they may be arranged alphabetically. If they are numbers, they may be arranged sequentially. Any logical order can be followed.

The designer should avoid having the list run on to the next page. This can prove very distracting to the participants, as they must continually turn back and forth to complete the item. It is also desirable to place the column with the longer terms on the left side of the page.

ASSEMBLING A KNOWLEDGE-BASED ASSESSMENT

After a group of test items has been reviewed and edited, selected items are organized to form the knowledge test or questionnaire. For this to be done properly, the designer must decide the number of items to be included and the order in which the items are to be presented to the participants. Directions for the participants and a scoring key must be

developed. Each of these steps must be taken carefully if the test items are to realize their maximum value.

Arranging Test Items

Test items should be organized on the basis of one or more of three characteristics: the **subject matter**, **type of item** and **level of difficulty**.

Arranging test items according to **subject matter** means that the test items are grouped according to a set of subject matter topics. This arrangement appeals to participants since they see the test as a miniature of the materials to which they have been exposed. This is the most common arrangement and is recommended in most situations.

When the items are grouped according to **type**, all similar test items are placed together, including true-false, multiple-choice and matching items. This grouping simplifies the directions given to the participants. It is advisable for the designer to restrict the number of different types to as few as conveniently possible. When participants are confronted with a number of types of test items, they have a tendency to lose concentration and may not do well as a result.

Test items can be grouped according to their **levels of difficulty** if they happen to vary appreciably; that is, the easy ones first, the more difficult next and the most difficult last. Such an arrangement has advantages for average and below-average participants. With this kind of test they use the time allowed more efficiently, and morale is improved. When later they encounter the more difficult test items, they will have time to deal with them. Even if they fail to answer some, as will very likely happen, the resulting disappointment will be moderated by the knowledge that they already have answered others correctly.

The designer cannot expect to use all three ways of arranging test items simultaneously. In reality, all that designers can hope to do is find the best possible compromise among the three possibilities.

Giving Directions to Participants

To perform to the best of their abilities, participants must know the purpose of the test and must be thoroughly familiar with its mechanics. The designer formulates directions that the participants read or that are read to them before they respond to any of the test items.

In giving directions, the trainer should emphasize the mechanics, rather than the purposes, of the test. The participants need a complete understanding of the ground rules under which they will take the test. This means that they must be aware of the **time allowed**, the manner in

which they are to **select and record answers**, and the **scoring system** to be used.

Directions for selecting answers must be written carefully. Notice that the sample instructions presented earlier assume that the participant knows nothing about the test items. This of course is an extreme assumption and, for the most part, an unnecessary one. Even so, stating directions with too much detail is better than stating them with too little.

For assurance that these directions are understood, **practice test items** may be included. These may consist of typical items that are answered by the participants before they begin the test itself. The participants are told the correct answers to practice test items so that they can verify their understanding of the directions.

Reviewing the Assembled Test

After the test is assembled and the directions are written, it is a good policy to review each part critically. The designer should consider each item from the participants' point of view. The grammar should be checked and the following questions asked:

- Are there question items for all the objectives covered by this test? Does the number of test items adequately reflect the amount of time spent per objective?
- Is the number of items included in the test in direct proportion to their importance in training?
- Does each item really measure the participants' attainment of the objective? If not, how could it be revised to do so?
- Is each set of directions clear? Do the directions apply to every item in the group, or do some items require specific directions?
- Is there plenty of space to write the response?
- Are tricky, obvious or irrelevant questions avoided?
- Is each item separate and independent from the rest of the items?
- Are similar items grouped together?
- Is the test designed so that it is easy to score?

- Will participants be provided with meaningful feedback about their answers?

When possible, the test should be field-tested (pilot-tested) before it is used in regular training programs. After the test has been administered to one or two groups of participants, the designer needs to analyze and improve it. The weaknesses that are revealed should be corrected and the test continually revised.

ADMINISTERING A KNOWLEDGE-BASED ASSESSMENT

It is important for the trainer to maximize the test-taking performance of each participant being tested. If the administrative procedures for one group are changed slightly from those used with another group, neither group may obtain its maximum performance. Standard procedures become very important when comparisons are to be made among training groups.

Trainers should prepare themselves before testing by following these suggestions:

- Review the test procedures.
- Make certain that the testing room is ready.
- Make sure that supplies for the test are adequate.
- Make arrangements so those participants being tested will not be interrupted.
- Refrain from any special coaching on the subject matter of the test in an attempt to reduce anxiety and frustration.
- Rehearse by reading the directions.
- Try to anticipate the questions that might be asked before the test begins.

Several factors that affect test administration have been identified. These include setting time limits, establishing adequate testing conditions, orienting participants and providing for practice.

Setting Time Limits

Timing often has been cited as the greatest cause of error in the administration of tests. Designers and trainers should establish time limits in accordance with the purpose of the test. Time limits should be based on a trial run of the instrument. As a general guide, trainers should allow

participants about twice the time it takes a trainer to read through and complete the test. Untimed tests are recommended; however, when time limits are imposed the participants should be notified of them orally and in writing.

Establishing Adequate Testing Conditions

The most neglected of all test administration issues has been the physical condition of the testing area. General factors such as light, temperature, ventilation and noise have been proven to affect adversely the test performances of many participants. Noise should be minimized in the testing situation to ensure that participants can hear the oral instructions. Also, noise control during the test is important to minimize distracting the participants.

The room should have adequate lighting and ventilation and comfortable temperature. These factors often affect participant motivation, and can be distracting if not properly maintained. Participants should be seated at desks or tables that provide adequate space for writing or otherwise responding to the assessment instrument.

Orienting Participants

Orienting participants to the assessment activity is important in building the proper motivation, reducing anxiety and ensuring correct interpretation of the test items.

Trainers should encourage participants to be interested in achieving accurate test results. Trainers can decrease participant anxiety by making clear before they give the test the purpose of the assessment and how they will use the results.

The trainer must project a positive and humane attitude regarding the testing situation. The trainer should provide consistent and complete oral directions and give participants an opportunity to ask questions about the test's purposes, directions, scoring and time limits.

Providing for Practice

Trainer-developed tests should include practice items similar to those used with standardized instruments. The first item on the test or the first item of each test section should be completed at the time oral directions are given.

A practice item should be included if the item types used are not familiar to all participants or if special answer sheets are being used. The practice items should be discussed after the participants have completed them.

When identification tests are used, the trainer should provide an item or segment of the test for practice.

MASTERY LEARNING APPROACH TO KNOWLEDGE ASSESSMENT

As described in **Chapter 1**, the concept of mastery learning assumes that all participants can learn the required knowledge, skills and attitudes provided sufficient time is allowed and appropriate training methods are used. This approach to training enables the participant to have a self-directed learning experience. This is achieved by changing the concept of testing and how test results are used. In courses that use traditional testing, pre- and postcourse tests are used to document an increase in knowledge, often without regard to its impact on job performance. With the mastery learning approach, however, assessment is competency-based, dynamic and less stressful. Participants are continually informed of their progress in meeting training objectives.

Samples 7-1, **7-2** and **7-3** present examples of knowledge-based assessment instruments used in courses based on the mastery learning approach.

The purpose of the precourse questionnaire (**Sample 7-1**) is to allow the trainer to assess what the participants, individually and as a group, know about the course topic. After the assessment has been completed, the trainer and participants use the individual and group assessment matrix (**Sample 7-2**) to jointly determine the group's level of knowledge. The trainer uses this information to identify topics that need additional emphasis or require less classroom time. The participants use the results to focus on their individual learning needs.

A second or midcourse questionnaire (**Sample 7-3**) is administered to participants during the course to help participants and trainers assess the participants' progress toward meeting course objectives. After scoring the midcourse questionnaire, the trainer reviews the results individually with each participant and guides her/him in using the course materials to learn the required information. By the end of the course, all participants are expected to score at least 85% on this questionnaire.

SUMMARY

Evaluation of the effectiveness of training by means of knowledge-based assessments is a critical component in the evaluation process. The trainer must consider all aspects of designing and administering knowledge-based assessments to determine whether participants have reached the training objectives.

The first step in the development of effective knowledge-based tests is to consider the **validity** of the test. In general, valid tests are those based on the training objectives and those that contain items written at the appropriate levels of difficulty. Using the training objectives as a foundation, the trainer prepares test items, including true-false, multiple-choice and matching items.

The next step for the designer is to assemble the test by providing clear directions, arranging the items in a logical order and ensuring that the test is the appropriate length. The trainer then ensures that the test environment is conducive to testing and administers the test.

Traditional testing approaches involve administering a test at the end of a course and then recording grades. A preferred approach is that used in mastery learning—continual assessment of participant progress in achieving the training objectives (**see Chapter 1**).

SAMPLE 7-1

PRECOURSE QUESTIONNAIRE—NORPLANT IMPLANTS TRAINING COURSE

The main objective of the **Precourse Questionnaire** is to assist both the **clinical trainer** and the **participant** as they begin their work together in the course by assessing what the participants, individually and as a group, know about the course topic. Providing the results of the precourse assessment to the participants enables them to focus on their individual learning needs. In addition, the questions alert participants to the content that will be presented in the course.

The questions are presented in the **TRUE/FALSE** format. A special form, the **Individual and Group Assessment Matrix (Sample 7-2)**, is provided to record the scores of all course participants. Using this form, the trainer and participants can quickly chart the number of correct answers for each of the 20 questions. By examining the data in the matrix, the group can easily determine their collective strengths and weaknesses and jointly plan how best to use the course time to achieve the desired learning objectives.

For the clinical trainer, the questionnaire results will identify particular topics which may need additional emphasis during the learning sessions. Conversely, for those categories where 85% or more of the participants answer the questions correctly, the trainer may elect to use some of the allotted time for other purposes. For example, if the participants as a group did well (85% or more correct) in answering the questions in the category "Indications, Precautions and Client Assessment" (questions 5 through 8), the trainer may elect to assign Chapters 3 and 4, "Indications and Precautions" and "Client Assessment," of the Norplant implants reference manual as homework rather than discussing these topics in class.

For the participants, the learning objective(s) related to each question and the corresponding chapter(s) in the reference manual are noted beside the answer column. To make the best use of the limited course time, participants are encouraged to address their individual learning needs by studying the designated chapter(s).

Instructions: In the space provided, print a capital **T** if the statement is **true** or a capital **F** if the statement is **false**.

COUNSELING

1.	The physician is the person best qualified to choose a contraceptive method for a woman in good health.	_____	Participant Objective 1 (Chapter 2)
2.	Counseling should be integrated into each interaction with the client.	_____	Participant Objective 1 (Chapter 2)
3.	Knowing that Norplant implants have few side effects may help a woman feel more confident about choosing Norplant implants as her contraceptive method.	_____	Participant Objective 1 (Chapter 2)
4.	If inserted within the first 7 days of the menses, Norplant implants become effective in preventing pregnancy within 24 hours.	_____	Participant Objectives 1 and 7 (Chapters 1 and 6)

NORPLANT IMPLANTS TRAINING COURSE: INDIVIDUAL AND GROUP ASSESSMENT MATRIX

COURSE: **DATES:** **TRAINER(S):**

Question Number	CORRECT ANSWERS (PARTICIPANTS)												CATEGORIES
	1	2	3	4	5	6	7	8	9	10	11	12	
1													COUNSELING
2													
3													
4													
5													INDICATIONS, PRECAUTIONS AND CLIENT ASSESSMENT
6													
7													
8													
9													INFECTION PREVENTION
10													
11													
12													METHOD PROVISION (INSERTION AND REMOVAL)
13													
14													
15													
16													FOLLOWUP, SIDE EFFECTS AND OTHER PROBLEMS
17													
18													
19													
20													

SAMPLE 7-3

MIDCOURSE QUESTIONNAIRE—NORPLANT IMPLANTS TRAINING COURSE

This knowledge assessment is designed to help the participants monitor their progress during the course. It can be taken at any time during the training. By the end of the course, **all** participants are expected to achieve a score of 85% or better.

The questionnaire should be given at the time in the course when all subject areas have been presented. A score of 85% or more correct indicates knowledge-based mastery of the material presented in the reference manual. For those scoring less than 85% on their first attempt, the clinical trainer should review the results with the participant individually and guide her/him on using the reference manual to learn the required new information. Participants scoring less than 85% can retake the questionnaire at any time during the remainder of the course.

Repeat testing should only be done after the participant has had sufficient time to study the reference manual.

Instructions: Write the letter of the single **best** answer to each question in the blank next to the corresponding number on the attached answer sheet.

COUNSELING

1. For a woman in good health, a contraceptive method is best selected by the:

   A) woman herself
   B) physician providing health services to the woman
   C) counselor who sees the woman
   D) woman's husband

2. The most important part of counseling is:

   A) providing brochures about contraceptive methods to the woman for review with her partner
   B) identifying the woman's concerns about using contraceptives and answering her questions
   C) obtaining formal consent for the procedure from the client
   D) describing adverse side effects

3. Which of the following may help a woman feel more confident about using Norplant implants?

   A) touching the Norplant implants
   B) comparing Norplant implants' side effects to those of other methods
   C) comparing the effectiveness of Norplant implants to other methods
   D) all of the above

4. If inserted within the first 7 days of the menses, Norplant implants are effective in preventing pregnancy:

   A) after 24 hours
   B) in 7 days
   C) in 14 days
   D) after the next menstrual period

EIGHT

DEVELOPING TRAINER AND PARTICIPANT MATERIALS

INTRODUCTION

The final step in the development phase of the instructional design process is creating training materials for the trainer and participants. These materials generally fall into two categories. The first category is documents used by the trainer to guide the delivery of content (e.g., trainer's notes and presentation plans). The second is learning activities for participants (e.g., case studies and role plays).

Clinical training often relies on the use of training packages which provide all the materials needed by the trainer to conduct a skills training course. Even when training packages are used, it may be necessary for the designer or the trainer to create specific learning activities appropriate for the audience or local situation.

The trainer or instructor who uses well-developed training materials is more likely to create a positive learning climate and be able to help participants achieve the course objectives.

Chapter Objective

After completing this chapter, the participant will be able to develop effective training materials for trainers and participants.

Enabling Objectives

To attain the chapter objective, the participant will:

- Develop trainer's notes
- Develop a presentation plan
- Develop an assignment sheet
- Develop a case study
- Develop a role play

DEVELOPING TRAINER'S NOTES

Given a reference manual or textbook, the instructional designer, working with a subject matter expert, may develop a set of **trainer's notes** to help guide presentations. These notes should be in an outline format and consist of "key points" or training cues, along with questions, reminders,

directions for activities, etc. If there is no standard text available, trainer's notes (or presentation plans as discussed in the next section) become a critical component of the supporting training materials.

Preparation of trainer's notes is usually the responsibility of the trainer. The designer may wish to remind the trainer of the need for notes and provide guidance and examples to follow in preparing them.

Following are points for the development and use of trainer's notes:

- The notes should be in an **outline format** and contain **key points** only. The notes should be viewed as a framework.

- The notes **prevent the trainer from reading** the material to the participants.

- The notes help keep the trainer **on track and following the objectives**.

- Even with such a set of notes, the trainer will still need to review them before a specific presentation and **personalize the notes** by adding any additional key points, questions, references to audiovisuals, reminder to present a case study, etc. This personalization is most important when the notes have been developed by an instructional designer to be used by a trainer.

- Some or all of these notes also could be written on the pages of a **flipchart** or put on **overhead transparencies**. This allows the trainer to glance at the flipchart or transparency as opposed to a sheet of notes and allows participants actually to see the main points being made.

Sample 8-1 shows trainer's notes from a Norplant implants workshop. These are only the key points; the trainer will fill in the body, drawing from professional knowledge and experience. The trainer also will follow the training cues (questions, references to audiovisuals, etc.) as they appear in the notes. The notes may be personalized by adding additional cues.

DEVELOPING A PRESENTATION PLAN

A course is being designed around an existing textbook for use by a large number of faculty. The text contains all of the essential information the

participants will need. A course outline has been developed to encourage faculty to use a variety of methods during the delivery of the course. The instructional designer considers the following options for ensuring that faculty present and discuss the key points:

- Personalize the textbook
- Develop notes (see **Sample 8-1**)
- Develop presentation plans

Considering that there is limited space in the text for adding notes, the print is too small to glance at easily and there are concerns about different faculty highlighting different points, personalizing the text will not work. Because a large number of faculty are using these materials, a decision is made to develop a set of presentation plans for faculty.

A presentation plan (also called a lesson plan) combines the content from trainer's notes and the teaching/learning methods from the course outline into a formal set of plans the trainer or faculty member will use during presentations. Presentation plans help to assure consistency in information presented when there are several faculty or trainers involved in a course. A trainer may prefer to use a presentation plan rather than preparing trainer's notes.

Plans may differ in format but should contain certain basic sections which are described below and illustrated in **Sample 8-2**.

Course title. This is the title of the training course.

Session title. This is the title of the specific session or topic.

Session number. A number is assigned to each session to assist with organizing content.

Session objective. This outlines the overall behavioral outcome of the session. The session objective indicates what participants will be able to do and how well they must do it. This is a primary objective.

Time. The length of time required for the session is taken from the course outline.

Enabling objectives. The enabling or training-related objectives outline what the participants are to do in order to reach the session (primary)

objective. These objectives form the major sections of the content outline found in the body of the plan and also appear in the course outline.

Preparation. This section of the plan consists of references, training materials, and equipment and materials needed by the trainer. Assignments and activities that the participants will complete also are included.

- **References.** These are the references used in developing the plan. The trainer using the plan may wish to refer to the references to review specific content, or participants may wish to examine a reference for additional information. These references are especially critical when the plans have been developed in advance by an instructional designer.

- **Training materials.** These are the materials to be used during the session.

- **Equipment.** Special equipment to be used, demonstrated or referred to during the session is listed. Equipment might include audiovisual equipment, anatomic models or instruments specific to the topic.

- **Materials.** This refers to the materials to be used, demonstrated or referred to during the session (e.g., instruments, gloves, models).

- **Assignments.** These are activities or exercises participants need to complete before, during or after the session.

Presentation. This section of the plan consists of the introduction, body and summary of the content to be delivered.

- **Introduction.** The introduction consists of one or more suggestions for creating interest in the topic.

- **Body.** The body of the plan contains the presentation information or content in an outline format. When the instructional designer has completed an instructional content analysis as described in **Chapter 4**, an expanded content outline may be available for use in developing trainer's notes. In addition to the content outline, some plans also contain a "key points" column. These key points include questions, activity reminders, references to materials and notes to emphasize specific points in the content. Many of the items listed in the "key points" column are taken from the course outline. Typically, the body of a presentation plan consists of content from the knowledge and

attitude learning areas. Skill content is more likely to be found within a clinical learning guide but may be included in the body of the plan. Finally, training methods to be used to deliver the content (e.g., illustrated lecture, demonstration, coaching and discussion) are noted. Suggested training methods for each objective are found in the course outline.

- **Summary.** The summary consists of one or more suggestions for providing a feeling of closure and stressing the major points of a presentation.

Application. This section outlines specific activities to enable participants to **apply** the information or skills presented during the session. These activities relate directly to the objectives. They are designed to provide immediate feedback and prepare the participants for the evaluation process. The application process often occurs as part of the presentation—case studies, role plays or guided practice using learning guides. This is likely to happen when the content is complex, when presentations are lengthy or when it is necessary that participants demonstrate an understanding of one concept before moving to the next. Suggestions for application and practice activities can be found in the course outline.

Evaluation. The evaluation section outlines specific procedures the trainer will follow in determining whether participants have achieved the training objectives. The evaluation step is based on the primary and enabling objectives and includes knowledge- and skill-based assessments.

Before using a presentation plan developed by an instructional designer, the trainer should review the objectives and content, undertake additional study of the content if necessary and add personal notes, comments, questions and examples to the introduction, content outline, summary and other sections of the plan as appropriate.

Once the instructional designer has developed the presentation plan, any **assignment sheets, case studies, role plays, learning guides and checklists** must be located or developed. **Knowledge-based tests** addressing the enabling objectives and **competency-based assessments** focusing on skills outlined in the learning guides or checklists also must be developed.

DEVELOPING AN ASSIGNMENT SHEET

Assignment sheets play an extremely important role in the delivery of training. An assignment sheet (or self-check, as it is sometimes called) is typically a paper-and-pencil activity that gives the participant an opportunity to apply the principles and concepts that have been presented in one or a series of training sessions. The activity may take the form of a series of questions, problems or other exercises. It provides opportunities for trainer-participant interaction and feedback. Content for assignment sheets must relate to the training objectives and may originate from a number of sources, including a presentation, textbook, reference manual or magazine article.

There are a number of factors to consider when developing an assignment sheet, the first of which is the topic being presented. The content will determine the types of assignments selected. For example, when teaching problem-solving skills, an assignment sheet presenting a problem situation would be appropriate. If participants are learning to calculate mixtures to prepare solutions, then a series of percentage problems would be a useful assignment. Following are some additional examples of assignment sheet activities:

- Participants are given a series of problems to solve.
- Participants are asked to write answers to questions based on reference manuals, case studies or clinical procedures.
- Participants are asked to label items on a drawing, chart or graph.

The length of an assignment sheet should be reasonable so as to challenge but not frustrate participants. Assignment sheets can be used either in class or assigned as an activity to be completed outside of class. If the sheets are to be collected or filed, each one should have a place where the participant's name can be written.

Sample 8-3 is an assignment sheet that directs participants to use information from a reference manual to answer a series of questions. The answers developed in this assignment sheet will be used as the basis for a discussion or review session.

When participants are asked to complete an assignment sheet, they must receive **immediate feedback** regarding how well they did.

- One option is to **review answers** with the entire group by asking for answers and then to discuss them with the group.

- Another option is to **attach answers** to the assignment sheet. While this saves time that would be spent in checking each sheet, there is a temptation for participants to look at the answers.

- A third option is to ask **participants to turn in their assignment sheets** to the trainer. When relatively few participants or assignments are involved, this is a viable option. In a training course with many participants, however, the amount of paperwork can be overwhelming. This option also will delay feedback to the participants.

- Another option is to **place the answer key in a notebook or file cabinet** and have participants check their own responses. This option is used extensively when training is carried out through self-paced learning.

Another item to consider when developing an assignment sheet is the **performance level a participant should attain** in order to demonstrate mastery of information. For example, should the participant be expected to answer 100 percent of the items correctly? If the topic relates to client safety, then 100 percent is appropriate. For a participant answering another series of questions, correct answers on only 85 or 90 percent of the items may be acceptable. The trainer must consider the **objectives, content, level of the participants, time, availability of additional resources** and similar factors when establishing this level.

Once a minimum level of acceptable performance for the assignment sheet is established, the trainer must **determine what the participant is to do if the minimum level has not been reached**. Following are five options:

- Have the participant **move on with the rest of the group**. This becomes a major concern, however, when content is of such a nature that the participant must know and understand it before progressing.

- Ask the participant to **repeat the assignment until the minimum level has been reached**. If the participant is experiencing problems, however, repeating the same exercise may not increase understanding of the material.

- **Provide additional reading or self-study** and then ask the participant to complete the same assignment sheet or another version of the same assignment.

- Ask the participant to use the original assignment sheet and **return to the course materials to work on the items that were incorrect.**

- Have the participant **meet with the trainer** to discuss items missed and receive additional information and instructions.

Typically, a combination of these options is used.

DEVELOPING A CASE STUDY

A case study is a learning activity that uses scenarios focusing on a specific topic or problem. Participants typically read, study and react to the case study in writing or during a group discussion. The primary advantage of the case study is that it focuses participants' attention on a real situation. Participants may work independently or in small groups to solve or complete a case study.

The following steps are involved in developing a case study.

- Identify the topic, issue or problem on which the participants will focus.

- Ensure that the case study presents a real situation. It should relate directly to the background and experiences of the participants. It is difficult for participants to react to a case study when they have little or no understanding of the situation.

- Determine whether the case study will be completed by individuals or whether participants will work on it in small groups.

- Provide the participants with questions or activities that will enable them to focus on the main concept(s) being presented in the case study.

- Decide whether participants will report the results of their work on the case study in writing or orally to the entire group.

Sample 8-4 is a case study developed from actual observations in the field. Note that after the situation is presented, four questions are asked of the participants.

DEVELOPING A ROLE PLAY

Role play is a learning activity in which participants play out roles in a simulated situation. Role plays provide a highly motivational climate because participants are actively involved in a realistic situation. To be effective, the trainer must make sure that the participants are prepared for their parts.

To develop a role play, the instructional designer must:

- Select an appropriate situation. It may be drawn from participant or trainer experiences or clinical records. The situation should be relevant and similar to situations that participants will encounter.

- Ensure that there is a problem or point of conflict in the role play. This conflict is the focus of the role play and the resolution of the conflict is what the participants should gain from participating in or observing the role play.

- Identify the roles that will be acted out during the role play. In most clinical training courses, there will be a clinician and a client.

- Determine if the role play will be informal, formal or a clinical demonstration. These are defined as:

  Informal. The role players are given a general situation and asked to "act it out" with little or no preparation time. For example, if a question regarding a client counseling session comes up in class, the trainer may ask two of the participants to take a few minutes to plan and present a brief role play which addresses the situation. This type of role play is not prepared in advance and therefore is not developed by the instructional designer.

  Formal. The role players are given a set of instructions which outline the scope and sequence of the role play. Using the counseling example, the participants would be given a situation with specific roles they are to act out.

  Clinical Demonstration. The clinical demonstration role play, which is similar to the formal role play, typically uses an anatomic model and is often done as part of a coaching session. For example, the trainer demonstrates the steps in inserting an IUD using a pelvic model. Following the trainer's demonstration, two of the participants are asked to role play the procedure as if the model were a client. One

participant assumes the client role by standing by the model and speaking as a client would, asking questions and responding to the clinician. The participant playing the clinician will not only perform the IUD insertion but also will verbally interact with "the client."

Following are hints for successful role plays:

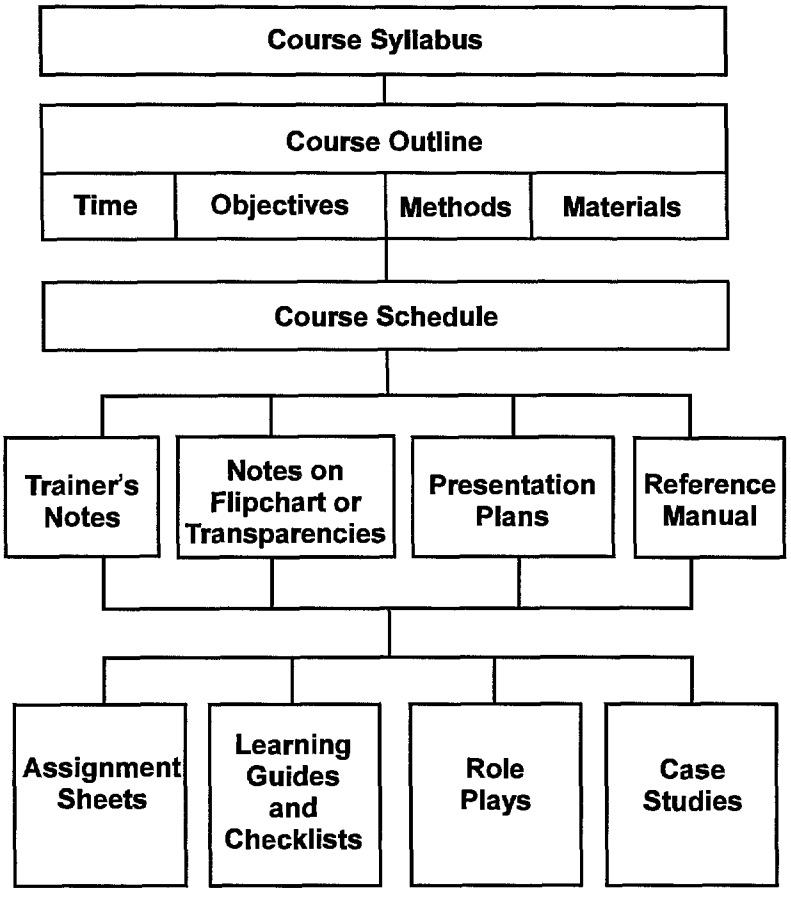
- Keep the role play brief. Make the point and then move on.
- Since the same role play may be used with a number of participants in various training settings, keep the role play as general as possible.
- Provide the participants with questions or activities that will help them to focus on the main concept(s) being presented.
- Determine whether participants will report the results of their discussion of the role play in writing or orally to the entire group.

Sample 8-5 is a role play developed using actual observations from the field. Note that the first portion of the role play presents the situation. This is followed by instructions to the participants.

SUMMARY

Development of training materials is the final step in the development phase of the instructional design process. The instructional designer must make every effort to ensure that training materials are identified (e.g., a reference manual) or developed (e.g., notes, plans, case studies) following a logical, organized sequence as summarized in **Figure 8-1**. The resulting materials must meet the needs of both the trainer and the participants. The developmental phase is founded on a solid needs assessment, instructional content analysis and an appropriate selection of practice activities, training methods and materials. When the course design process is complete, the trainer should have thorough and complete training materials to use in conducting the training. When the course design process is followed, the trainer or faculty member is able to enter the classroom and clinic prepared to deliver an effective, successful preservice education or inservice training event.

Figure 8-1. Developing Materials



SAMPLE 8-1

PORTION OF TRAINER'S NOTES FROM A NORPLANT IMPLANTS WORKSHOP

Objective: By the end of this session, the participant will be able to describe an overview of the Norplant implants procedure.

(Note: Use the Subdermal Implant Training Model to demonstrate the procedure.)

A. Capsules should be placed at the inner aspect of upper arm. Select the arm the woman uses less.

Ask: Why select the arm used less?
List answers on writing board or flipchart.

B. Wash skin with soap, then prep with antiseptic and inject local anesthetic.

C. A single incision (2 mm long) is made 6 to 8 cm above the elbow fold.

Demonstrate this step using the Norplant implants training arm.

D. Capsules introduced through incision by 10-gauge trocar.

Show trocar and Norplant implants.

E. Capsules fed through trocar and placed just beneath the skin one at a time in a fan-shaped pattern (with the fan opening away from the elbow).

Demonstrate this step using the Norplant implants training arm.

F. Sutures are not required; a single butterfly bandage suffices.

Ask: Why are sutures not required?

SAMPLE 8-2

PRESENTATION PLAN

COURSE TITLE: Infection Prevention for Family Planning Service Programs

SESSION TITLE: Decontamination **SESSION NUMBER:** 5

SESSION OBJECTIVE: After completing this session, the participant will be able to perform decontamination procedures. Competency will be measured by the participant correctly completing the assignment sheet, performing the steps outlined in the clinical learning guides in the clinical practice area and scoring at least 85% on the session test.

TIME: 1 Hour

ENABLING OBJECTIVES: After completing this session, the participant will be able to:

- Explain the need for and purpose of decontamination
- Demonstrate the steps in decontamination
- Decontaminate instruments
- Decontaminate surgical gloves
- Decontaminate needles and syringes
- Decontaminate Laprocators™

PREPARATION

TRAINER

References:
Infection Prevention Guidelines,
JHPIEGO (1992)

Training Materials:
Assignment Sheet #1
Transparencies TR#1–TR#9
Infection Prevention Learning Guides and Checklists

Equipment:
Overhead projector
Flipchart and pens

Materials:
Gloves
Chlorine
Buckets (2)
IUD and Minilaparotomy Kits
Syringes (2)
Needles (2)
Laprocator (1)

PARTICIPANT

Assignment:
Read Chapter 5

SAMPLE 8-2 *(continued)*

PRESENTATION

INTRODUCTION:

Review the session and enabling objectives (TR#1 and TR#2).

BODY

Information	Key Points/Training Methods
Enabling Objective: Explain the need for and purpose of decontamination	In small groups, participants identify the problems related to decontamination practices in their clinics, and list approaches to making improvements.
1. Healthcare workers responsible for: • performing/assisting with surgical procedures • processing instruments and equipment • housekeeping and waste disposal	Show TR#3
are increasingly at risk of contracting AIDS (HIV) and Hepatitis B (HBV). Both are blood-borne viruses.	Stress that risk for HBV is greater than HIV/AIDS but modes of transmission are similar.
2. Blood is the single most important source of HIV and HBV. • Protective measures prevent nonintact skin contact with blood or blood-contaminated fluids.	Ask: What are the implications for healthcare workers?
3. Staff responsible for processing instruments who have open sores or cuts on their hands or forearms should be assigned other duties until the lesions are healed!	Show TR#4 Ask: Why?

SAMPLE 8-2 *(continued)*

Information	Key Points/Training Methods
Enabling Objective: Demonstrate the steps in decontamination.	Role play steps of decontamination in a simulated clinic setting.

1. The objective is to . . . .

SUMMARY:

Ask for questions.

What is the objective of decontamination?

What are the advantages of decontamination?

Describe some of the methods of decontamination.

Describe four general guidelines for decontaminating items.

APPLICATION:

Using the infection prevention learning guides, participants practice decontamination procedures.

EVALUATION:

The participant will be able to perform recommended decontamination procedures. Competency will be measured by the participant correctly completing the assignment sheet, performing the steps outlined in the clinical learning guide in the clinical practice setting and scoring at least 85% on the session test.

SAMPLE 8-3

DECONTAMINATION ASSIGNMENT SHEET—GENERAL GUIDELINES FOR DECONTAMINATING ITEMS

Directions: Using the information from the presentation and the *Infection Prevention for Family Planning Service Programs* manual, answer the following questions. Once you have completed this sheet, compare your answers with those found in the reference manual (Chapter 5) and make any necessary corrections. When all participants have completed this assignment, we will discuss each area.

1. Explain why gloves should be worn while decontaminating instruments:

2. Describe the steps to decontaminate instruments:

3. Describe the steps to decontaminate needles and syringes:

4. Describe the steps to decontaminate Laprocators:

SAMPLE 8-4

SAMPLE CASE STUDY—CASE OF THE FULL BLADDER

Directions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the four questions. When all groups have finished, we will discuss the case study and the answers each group developed.

Case Study

The following event took place during a minilaparotomy training course. The participants receiving training included a physician and his nurse assistant who normally work in a distant hospital. Also present were the trainer and a scrub nurse who work in the operating room at the training center.

The client was a 35-year-old woman with seven living children whose last delivery had been 13 months ago. Consent for the minilaparotomy was given by both the husband and wife who stated they wanted the operation because they neither wanted nor could afford more children. The woman also consented to having the operation conducted by a physician-nurse team who was being trained by the experienced trainer-nurse team.

The client came to the clinic around 8:00 A.M. and was asked to pass urine, which she did. Because she was scheduled as the last case for the morning, she was taken to the operating room at about midday (noon) of the same day.

The operating physician carried out a vaginal examination, and after prepping the cervix and vagina with antiseptic solution, the uterine elevator was inserted. Although the opening of the abdomen was successful and uneventful, the uterine fundus could not be visualized or identified because of a full bladder.

Questions

1. What was the problem?
2. Who failed in her/his duty? The runner nurse, the assisting nurse, the operating physician or the client?
3. What should be done to manage the client when this problem arises?
4. How can this problem be prevented in the future?

SAMPLE 8-5

SAMPLE ROLE PLAY—CASE OF THE MISINFORMED CLIENT

Directions

Two participants in your group will assume (or be assigned) roles. One will be a clinician, the other a client. Participants taking part in the role play should spend a few minutes reading the background information and preparing for the exercise. The observers in the group also should read the background information so they can participate in the small group discussion following the role play.

Participant Roles

Clinician: The clinician is very experienced and has performed many IUD insertions.

Client: The client is a 28-year-old woman with three children who were born normally with no complications. The youngest child is 9 months old and is breastfeeding. The woman and her husband have a mutually faithful relationship and there is no history of sexually transmitted diseases or pelvic inflammatory disease.

Situation

The client has come to the clinic wanting to use an IUD. She has heard that the IUD can migrate throughout the body (i.e., outside the uterus) and is a bit anxious and concerned.

Focus of the Role Play

The focus of the role play is on the interaction between the clinician and client. The clinician needs to assess the appropriateness of the IUD for the client as well as to counsel and reassure the client. The client should continue to be nervous until the clinician chooses the appropriate words and expressions that will inform and calm the client.

Observer Discussion Questions

1. Did the clinician approach the client in a positive, reassuring manner?

2. Did the clinician's approach have the planned effect on the client? What other approaches would have been effective?

3. Were the client's fears realistic?

4. Is the client an appropriate candidate for an IUD?

SAMPLE 8-6

PRESENTATION PLAN

COURSE TITLE: _____

SESSION TITLE: _____ **SESSION NUMBER:** _____

SESSION OBJECTIVE: _____

_____

_____

TIME: _____

ENABLING OBJECTIVES: After completing this session, the participant will be able to:

- _____
- _____
- _____
- _____
- _____
- _____
- _____

PREPARATION

TRAINER	**PARTICIPANT**
References:	**Assignments:**
Training Materials:	
Equipment:	
Materials:	

SAMPLE 8-6 *(continued)*

PRESENTATION

Introduction:

BODY

Information:

Key Points/Training Methods:

SAMPLE 8-6 *(continued)*

SUMMARY:

APPLICATION:

EVALUATION:

NINE

EVALUATING TRAINING

INTRODUCTION

Evaluation can be defined as the systematic collection, processing, analysis and interpretation of data. An evaluation can determine whether training has met its objectives (e.g., whether training has improved an individual's knowledge, skills and attitudes related to job performance) and identify aspects of the training that should be strengthened. Evaluation always should be an integral part of the training process. This chapter assumes that a primary purpose for evaluating training is to aid decision-making about the future of the training (in terms of design, content and instructional methodology). To make such decisions, evaluators need to know how training activities are implemented by the trainers and received by the participants, whether the training is making any differences in participants' on-the-job performance and how any change in performance affects program activities.

To assist the instructional designer who is concerned with the implementation, followup and possible modification of short courses, this chapter presents sample evaluation/data collection instruments which instructional designers can use as models and which trainers can adapt for their own local situations.

Chapter Objective

After completing this chapter, the participant will be able to evaluate a training course.

Enabling Objectives

To attain the chapter objective, the participant will:

- Identify different levels of training evaluation
- Evaluate participant reaction to training
- Evaluate participant learning
- Review how to evaluate post-training performance
- Understand the importance of evaluating the effect of training on the delivery of reproductive health services

LEVELS OF TRAINING EVALUATION

Evaluation is an ongoing process that begins with identifying the need for training. Ideally, training should be evaluated at the beginning of, during

and at the end of the training event, and again after participants have returned to their jobs. Evaluating training from beginning to end enhances training effectiveness and efficiency.

In this chapter, four distinct levels of evaluation will be discussed[1]:

- Level 1—**Participant Reaction** (during and at the end of the course)
- Level 2—**Participant Learning** (during and at the end of the course)
- Level 3—**On-the-Job Performance** (after the course)
- Level 4—**Outcome of Training** (after the course)

Table 9-1 summarizes some of the evaluation methods that can be used at each of these four levels. The table also lists suggested data collection forms that can be found either at the end of this chapter or in other chapters within this manual.

[1] *Adapted from*: Kirkpatrick 1994.

Table 9-1. Methods for Evaluating Training Courses

TYPES OF EVALUATION	SUGGESTED METHODS	SUGGESTED REFERENCES
DURING AND AT THE END OF THE COURSE:		
Level 1: Participant Reaction How participants like the course and how they perceive its value	• Daily participant feedback (oral or written) • Daily trainers' meetings • Session/trainer evaluations • End-of-course surveys • End-of-course informal discussions	**Samples 9-1, 9-2** **Samples 9-3, 9-4**
Level 2: Participant Learning Understanding of principles and facts; demonstration of skills and techniques and the ability to apply them	• Knowledge-based assessments (e.g., pre- and midcourse questionnaires) • Competency-based skill assessments (e.g., checklist)	**Samples 3-2, 7-1, 7-3** **Samples 3-1, 6-1, 6-2, 9-5**
POST-TRAINING:		
Level 3: On-the-Job Performance Application of acquired knowledge and skills as measured through change in on-the-job performance	• Site visit evaluations • Interviews with individuals who completed training • Interviews with supervisors	**Samples 9-6, 9-7**
Level 4: Effect of Training Change in quantity and/or quality of reproductive health services	• Service delivery statistics • Client exit interviews • Client record reviews • Observations at the facility	

Adapted from: Kirkpatrick 1994.

LEVEL 1—PARTICIPANT REACTION

Reaction evaluation, conducted during and at the end of a course, provides a measure of participant satisfaction. Reaction evaluation answers the question: How satisfied are/were the participants with the course? It reveals feelings and perceptions from the individual's point of view. The instructional designer must ensure that participant reaction techniques and approaches are built into the course design.

Information gleaned from reaction evaluation is extremely important and can be used to:

- Determine whether or not training is considered worthwhile. If considered worthwhile, training is more likely to be applied. On the

other hand, if participants are not satisfied with their learning experience, they may be less likely to apply what they have learned and may even advise others not to attend similar courses.

- Identify potentially serious problems in training design. For example, if a high percentage of participants complain that a particular topic is unclear, the topic content and presentation method should be reassessed.

In addition, reaction evaluation:

- Provides the participant with an opportunity to express her/his reactions to the course organizers (i.e., to comment on administrative and technical aspects of the training).

Reaction evaluations may take the form of:

- Daily participant feedback sessions (oral or written)
- Daily trainer meetings
- Session/trainer evaluations
- End-of-course surveys (written questionnaires)
- End-of-course informal discussions

Daily Participant Feedback Sessions

It is beneficial for trainers to evaluate the training process continually throughout the course. When conducted as a participant-led exercise at the end of each training day, daily reactions to training encourage participants to think and talk about what was learned during the day and to make suggestions for improvements to the entire group. One useful technique is to:

- Have participants (individually or in small groups) write on a piece of paper the two or three most important ideas or concepts they learned during the day, as well as suggestions for course improvement.
- Then, have each participant share with the group one or two items from those they identified.

Daily Trainer Meetings

If two or more trainers are conducting the course, it is important that they meet briefly each day to discuss the participants' evaluations of the day's training activities, as well as each trainer's personal assessment of the training. By doing this, trainers may identify elements of the training that need to be modified.

Session/Trainer Evaluations

Throughout the training, participants should be given the opportunity to evaluate the content for its overall relevance to their work and evaluate the trainers for their training ability. At the beginning of each course day, participants may be given copies of a session (**Sample 9-1**) or trainer (**Sample 9-2**) evaluation form. Participants should be encouraged to complete these forms after each training session and return them to the course organizer. The results of session and trainer evaluations can provide a basis for determining whether sessions need to be modified or whether a trainer's clinical or training skills need improvement.

End-of-Course Surveys

Such surveys allow trainers to identify:

- The extent to which the course met participants' expectations
- Aspects of the course that were the most or least helpful
- The relevance of the course content to the participants' work
- The appropriateness of the training methods
- The extent to which administrative aspects of the course were satisfactory (e.g., the training environment, accommodations, travel arrangements, etc.)

Three important suggestions regarding the design and administration of these survey questionnaires are:

- Include close-ended questions so that trainers can easily tabulate the data and identify response patterns.
- Use a rating scale for questionnaire items. If the majority of participants rate an item very high or very low, this indicates that the reaction is shared, and suggests that the trainers should pay particular attention to addressing this item.
- Schedule sufficient time at the end of the course for participants to complete the questionnaire. Questionnaires should not be distributed late on the last day of training when participants are tired and may be preparing to depart.

Based on the survey results, a number of decisions can be made regarding course content, learning objectives, trainer effectiveness, course length and administrative arrangements. **Sample 9-3** can be used to evaluate participant reaction to reproductive health training courses. **Sample 9-4** is designed to be used by participants at the end of an IUD course. **Sample 9-5** can be used by trainers and participants to assess classroom presentation skills.

End-of-Course Informal Discussions

Informal participant and trainer discussions should accompany the more formal questionnaire-based survey so that the trainer can better understand the survey responses. For example, participants can be asked, individually or in small groups, to respond orally to the following questions:

> *"What were your expectations for the course? To what degree were they met?"*
>
> *"Based on the stated course objectives, did you learn what you expected to learn?"*

Alternatively, the trainer can select several categories that relate to the course (e.g., course content, training methods and administrative matters), and ask participants to write their reactions **anonymously**. These comments can be posted by the trainer under their respective category headings on newsprint or on a writing board. The trainer (or a participant) can then lead a general discussion about the comments posted.

LEVEL 2—PARTICIPANT LEARNING

Learning evaluation, conducted at the end of the course, will measure how much the participant has learned and to what extent s/he has achieved the learning objectives.

It is the responsibility of the trainer to determine whether each participant has acquired the knowledge and skills defined in the learning objectives. This is accomplished through the use of knowledge questionnaires and skill checklists. Based on the mastery learning approach to training (see **Chapter 1**), learning throughout the course is measured by:

- Initial assessment of each participant's and the group's general knowledge of and skills in the course topic. Such preliminary assessments guide the clinical trainer and participants in their work together in the course.

- Continual assessment of each participant's mastery of the knowledge and skills defined in the course objectives.

This assessment process is more fully described in **Chapters 3, 6** and **7** of this manual.

Learning evaluation is the final step in this process, when judgments are made about the qualification of participants to provide the services for

which they received training. It is at this point that the trainer determines whether the participants have mastered the knowledge and skills required to deliver a quality service. Participants who are judged not to be qualified should be identified for followup skills reinforcement or retraining.

LEVEL 3—ON-THE-JOB PERFORMANCE

Since reproductive health training courses usually focus on developing or improving clinical skills, the trainer will want to be assured that, after the course, the participant is using the skills acquired. Followup evaluation reveals whether or not changes in the individual's behavior and performance on the job have occurred subsequent to training. While the instructional designer may not be involved in preparing for or conducting a Level 3 evaluation, the designer should be familiar with this type of evaluation.

If **change** in provider practices following training is to be documented, comparable information at the facility and/or the individual provider level should be collected as a baseline before the course begins. One way of accomplishing this would be to collect performance data during a needs assessment visit before the course begins.

The purpose and content of followup evaluations should always be discussed with participants before the course ends. Knowing that a followup evaluation is planned may motivate participants to use the skills they have learned.

Participants' performance after training can be evaluated by observing them on the job, by interviewing them and by interviewing their supervisors. Followup evaluations typically occur after the individuals have had sufficient opportunity to apply their new knowledge and skills on the job (e.g., 6 to 12 months after training). Following are some basic questions which should be asked when evaluating how effective training has been in improving an individual's job performance.

- Is the individual able to perform competently the skills s/he was trained to perform?
- Has the individual been given an opportunity to practice the new skills?
- Do supervisors, managers or those who received training feel that the course made a difference in the quality of their work?

- Did training solve any problems or fill service provision needs identified during the needs assessment process?

By answering these and similar questions, the trainer and the organization sponsoring the training can:

- Determine to what extent the desired training outcome has been achieved
- Identify discrepancies that still exist in job performance
- Plan for additional training if needed

Site Visit Observations

Observing individuals through site visits to their facilities is an important way to determine whether or not they are using the skills learned during the course. The individual and supervisor should be notified that a site visit will be conducted and told the purpose of the visit, when the visit will occur, who the observers will be and what preparation is needed (e.g., scheduling clients for skills demonstration).

The data collection tool for the site visit needs to target the skills the individual was taught during training (i.e., those listed on the competency-based checklists used in the course as described in **Chapter 6**). **Sample 9-6** is an example of a followup site visit form that can be used to assess the family planning skills of service providers. When assessing clinical skills, the trainer should take an anatomic model in case no clients are available.

By reviewing data collected through observations, the trainer can identify factors that influence the effectiveness of training. Recommendations for modifying the training course or participant selection will then become evident. If specific job deficiencies are identified post-training, they should be compared with data collected from initial assessments to determine the possible reason(s) for the current deficiencies.

Interviews with Those Who Completed Training

Health workers who completed training can provide data on the usefulness of the course to their current job functions as well as their ability to apply acquired skills after training.

The trainer may elect to conduct a structured or an informal interview or both to collect these data. Both data collection methods should focus on the skills emphasized during training and any constraints the individual has faced in applying these skills post-training. **Sample 9-7** is a short questionnaire that can be used to document information about a facility's family planning activities in general, as well as information about the individual's family planning activities within that facility. General

information regarding activities conducted within the facility is useful because it provides a context in which to assess the individual's activities. Data from this type of form provide some indication of:

- Whether or not the individual is applying the skills acquired during the course
- Constraints on the extent to which skills acquired during the course can be applied post-training, and their possible solutions
- The potential for training to have a positive effect on reproductive health services delivered at individual institutions

Interviews with the Supervisor

In most instances, the supervisor plays an important role in identifying the need for training and arranging for an individual to attend a training course. The supervisor is thus usually in an excellent position to provide feedback regarding the effectiveness of the course.

The trainer can conduct informal or structured interviews with supervisors during post-training followup site visits. The following are some interview questions the trainer might ask the supervisor:

- Is the individual able to perform competently the skills learned during training?
- How has training affected the individual's attitude towards her/his work?
- From your perspective, what were the individual's feelings about the training course?
- Were the changes in the individual's performance worth the time spent away for training?
- What suggestions, if any, has the individual made to you about modifying future courses of this type?
- Did training correct the problem or meet the need for which the course was designed?

A review of the site visit responses of those who attended the course and their supervisors will identify ways of modifying and improving future courses. If most of the feedback is positive, it can be assumed that from the participants' and supervisors' points of view, the training has been effective. If specific concerns are expressed, compare these concerns with

data collected from other evaluation sources and try to address them before additional courses are offered.

LEVEL 4—OUTCOME OF TRAINING

The most important question after any training activity is **"Did training make a difference?"** In the case of many reproductive health courses, this means: Did the training result in improved quality and increased availability of services?

Although it is beyond the scope of this chapter to review all the possible indicators of reproductive health outcomes, some indicators that would suggest a positive effect of training on services are:

- Increased number of service sites where there is a trained family planning service provider
- Increased number of service sites (with a trained provider) offering an expanded range of family planning methods
- Increased number of family planning users at service sites where one or more trained providers work
- Higher family planning continuation rates at such sites
- Increased client satisfaction with family planning services at such sites

Data to measure some outcome indicators (e.g., number of family planning users) are available through routine service statistics or program information systems. Data on the other outcomes (e.g., the quality of family planning services provided) may need to be obtained through a review of client records, client exit interviews or observations of services at the facility.

To assess whether there have been **changes** in reproductive health services subsequent to training, comparable baseline data on the selected indicators also should be gathered before training.

SUMMARY

Evaluation should be an integral part of the training process to determine whether training meets its objectives and to identify aspects of training

that should be strengthened. Ideally, training should be evaluated at the beginning of, during and at the end of the event, and again after individuals have returned to their jobs. A comprehensive reproductive health training evaluation should begin with one or more needs assessments and include an assessment of the participants' reaction to training, their levels of learning, their post-training job performance and the effect of training on services at their institutions.

SAMPLE 9-1

SESSION EVALUATION

(To be completed by **Participants**)

Session Title: _____ **Trainer:** _____

Instructions: Please circle the number that reflects your opinion about the session presentation, using the following rating scale:

5-Strongly Agree **4-Agree** **3-Uncertain** **2-Disagree** **1-Strongly Disagree**

1. The trainer clearly stated instructional objectives.	5	4	3	2	1
2. The trainer communicated effectively.	5	4	3	2	1
3. The information presented was new to me.	5	4	3	2	1
4. The trainer used a variety of audiovisuals.	5	4	3	2	1
5. The trainer was enthusiastic about the subject.	5	4	3	2	1
6. The session content was practical and not too theoretical.	5	4	3	2	1
7. The session was well organized.	5	4	3	2	1
8. The trainer asked questions and involved me in the session.	5	4	3	2	1
9. The content was relevant to my work.	5	4	3	2	1
10. The session made me feel more competent in my work.	5	4	3	2	1

Which aspects of the session were **not** clear?

Comments:

SAMPLE 9-2

TRAINER EVALUATION

(To be completed by **Participants**)

Name of Trainer: _____ **Course:** _____

Instructions: Please circle the rating that reflects your opinion about the trainer's performance of each task/activity, using the following rating scale:

1-Agree **2-Disagree** **N/O-Not Observed** **N/A-Not Applicable**

THE TRAINER:	**RATING**			
1. Made me feel welcome.	1	2	N/O	N/A
2. Was sensitive to any feelings of fear or anxiety I may have exhibited when learning new skills.	1	2	N/O	N/A
3. Clearly stated learning objectives.	1	2	N/O	N/A
4. Outlined clearly the standard of performance expected of me by the end of the course.	1	2	N/O	N/A
5. Gave reasons why each step of the skill is important.	1	2	N/O	N/A
6. Demonstrated the skill through role play or by using models before demonstrating with client(s).	1	2	N/O	N/A
7. Used a skills checklist to give me feedback on my performance.	1	2	N/O	N/A
8. Gave constructive feedback on my performance, offering suggestions for improvement.	1	2	N/O	N/A
9. Provided me with adequate opportunity to practice and achieve competence in the new skills.	1	2	N/O	N/A
10. Assessed my skills before initiating the skills training component.	1	2	N/O	N/A
11. Encouraged interaction among participants.	1	2	N/O	N/A
12. Made it easy for me to ask questions/express my concerns.	1	2	N/O	N/A
13. Met with me to discuss my performance following each practice session with a client.	1	2	N/O	N/A

Comments:

SAMPLE 9-3

TRAINING COURSE EVALUATION

(To be completed by **Participants**)

Course Name: _____ **Course Dates: From**_____ **To** _____

Instructional and Administrative Aspects

1. Please circle the answer you feel is most appropriate for each of the following aspects of the training course, using the following rating scale:

5-Strongly Agree	**4-Agree**	**3-No Opinion**	**2-Disagree**	**1-Strongly Disagree**

Achievement of course objectives	5	4	3	2	1
Achievement of personal expectations	5	4	3	2	1
Relevance of course to your work	5	4	3	2	1
Usefulness of training materials	5	4	3	2	1
Organization of the course	5	4	3	2	1
Training facilities	5	4	3	2	1
Administrative support	5	4	3	2	1
Travel arrangements	5	4	3	2	1
Financial arrangements	5	4	3	2	1
Hotel accommodations	5	4	3	2	1

2. Course length: _____ Too Long _____ Too Short _____ Just Right

3. What topics covered in this course do you think will be most useful to you in your work?

4. On which topics would you have liked more information or preferred to spend more time?

5. On which topics would you have liked less information or preferred to spend less time?

Additional Comments:

SAMPLE 9-4

IUD COURSE EVALUATION

(To be completed by **Participants**)

Instructions: Please indicate your opinion of the course components using the following rating scale.

5-Strongly Agree **4-Agree** **3-No Opinion** **2-Disagree** **1-Strongly Disagree**

	COURSE COMPONENT	RATING				
1.	The Precourse Questionnaire helped me to study more effectively.	5	4	3	2	1
2.	The role play sessions on counseling skills were helpful.	5	4	3	2	1
3.	There was sufficient time scheduled for practicing counseling through role play with clients and volunteers.	5	4	3	2	1
4.	The training slide set and video helped me get a better understanding of how to insert and remove IUDs prior to practicing with the pelvic model.	5	4	3	2	1
5.	The practice sessions with the pelvic model made it easier for me to perform a Copper T 380A IUD insertion when working with actual clients.	5	4	3	2	1
6.	There was sufficient time scheduled for practicing IUD insertion and removal with clients.	5	4	3	2	1
7.	The interactive training approach used in this course made it easier for me to learn how to provide IUD services.	5	4	3	2	1
8.	Ten days were adequate for learning how to provide IUD services.	5	4	3	2	1
9.	I feel confident in Copper T 380A IUD insertion and removal.	5	4	3	2	1
10.	I feel confident in using the infection prevention practices recommended for IUDs.	5	4	3	2	1
11.	I feel confident in screening clients for GTIs.	5	4	3	2	1

Additional Comments: (Use reverse side if needed.)

1. What topics (if any) should be **added** (and why) to improve the course?

2. What topics (if any) should be **deleted** (and why) to improve the course?

SAMPLE 9-5

ASSESSING CLASSROOM PRESENTATION SKILLS

(To be completed by **Trainer and Participants**)

Instructions: Please rate the presenter's performance of each skill observed using the following rating scale:

1-Needs Improvement **2- Satisfactory** **N/O-Not Observed**

Course Dates:_____

TASK/ACTIVITY	RATING		
1. Presented an effective introduction.	1	2	N/O
2. Stated the objective(s) as part of the introduction.	1	2	N/O
3. Asked questions of the entire group.	1	2	N/O
4. Targeted questions to individuals.	1	2	N/O
5. Used participant names.	1	2	N/O
6. Provided positive feedback.	1	2	N/O
7. Followed a presentation plan and/or personalized reference manual.	1	2	N/O
8. Maintained eye contact.	1	2	N/O
9. Projected voice so all participants could hear.	1	2	N/O
10. Effectively used audiovisuals.	1	2	N/O
11. Effectively summarized.	1	2	N/O
Overall assessment of classroom presentation skills	**1**	**2**	**N/O**

Comments:

SAMPLE 9-6

FOLLOWUP SITE VISIT FORM: FAMILY PLANNING SERVICE PROVIDERS

Instructions for Using the Followup Site Visit Form for Providers

The purpose of this form is to document:

- the number of participants who apply their new skills on the job,
- the number of participants who retain their skill competency post-training,
- the existence of factors limiting the use of participant skills on the job, and
- the extent to which skills acquired during training are passed on to other staff through on-the-job training.

At least one followup site visit should be conducted, ideally within 6 months of training, to as many newly trained providers as possible. All course graduates who were rated qualified at the end of their training should be considered candidates for a followup site visit. Notification of a visit should be given well in advance so that the provider (or her/his supervisor) can schedule one or more cases for observation. If at all possible, trainers conducting followup site visits should travel with an anatomic model so that an assessment of the provider's skills can be carried out in the absence of appropriate cases. The evaluator should use the same clinical skills checklist used during training when assessing the provider's skills post-training.

A. General Information

1. Provider's name: _____ 2. Course Dates: From _____ to _____

3. Date of visit: _____ 4. Facility name: _____

5. The provider: ☐ is in the same facility as s/he was when trained.
   ☐ is in a different facility from when s/he was trained.

6. Clinical procedure being assessed: (Check only one per form.)
   ☐ IUD ☐ Laparoscopy ☐ Other (specify) _____
   ☐ Minilaparotomy ☐ Norplant® implants insertion

7. Was this procedure offered in this clinic before the provider was trained? ☐ Yes ☐ No

8. Approximately how many of these procedures has the provider performed **since** training? (Write "0" if none.) _____

9. Is the provider currently providing these procedures? ☐ Yes ☐ No

10. If no, why not? If yes, check if there are any difficulties that the provider is experiencing. (Check **all** that apply.)
    ☐ FP services not provided in this facility ☐ Lack of supplies/equipment/instruments
    ☐ Not in a job position to provide these procedures ☐ Lack of confidence in skills
    ☐ Lack of demand/clients ☐ Other (Specify) _____

11. Has the provider trained any other providers in the facility in the procedure since training?
    ☐ Yes ☐ No

12. If yes, how many others? _____

SAMPLE 9-6 *(continued)*

B. Assessment of Clinical Skills

Please rate the service provider's performance in the clinical procedure noted in #6 above by putting a check in the appropriate box for each skill/activity listed. Use the clinical skills checklist from the training course as the basis for making your assessment. If no procedure or skill/activity was observed, please check "Not Observed."

DEFINITIONS

Satisfactory: Performs the skill or activity according to the procedure or guidelines
Unsatisfactory: Unable to perform the skill or activity according to the standard procedure or guidelines
Not Observed: Skill or activity not performed by participant during evaluation by trainer

Skill/Activity	Satisfactory	Not Satisfactory	Not Observed
Preprocedure Counseling	☐	☐	☐
Client Assessment	☐	☐	☐
Procedure	☐	☐	☐
Postprocedure Counseling	☐	☐	☐
Overall Performance	☐	☐	☐

Procedure done with: ☐ client ☐ anatomic model

If performance was not satisfactory in any area, please list in the comments section below those steps/tasks needing improvement and indicate the action required to correct deficiencies.

Comments:_____

_____

Recommended Action:_____

_____

Site Visit Evaluator: _____ Date:_____ Project Director:_____ Date:_____

SAMPLE 9-7

FAMILY PLANNING ACTIVITY FORM

(To be completed by **Participants**)

Participant Name: _____ | _____
(Family/Surname/Last) (First)

What category of health professional are you? (Check only one.)

☐ Physician ☐ Midwife ☐ Health Professional Student/Intern (or equivalent)
☐ Nurse ☐ Nurse/Midwife ☐ Other (Specify) _____

Address of Primary Work Place: _____ | _____
Name of Institution (if applicable) Dept/Section/Unit (if applicable)

_____
P.O. Box/Street Number

_____ | _____ | _____
District/State/Province City Country

What type of facility is this? (Check only one.)

☐ Hospital (any level)
☐ Health center/Clinic (or equivalent)
☐ Dispensary/Health post (or equivalent)
☐ Other (Specify) _____

Is this facility operated by: (Check only one.)

☐ Government agency
☐ Non-government/Not-for-profit agency
☐ For-profit agency/Practice
☐ Other (Specify)_____

Are family planning (FP) services currently offered at this facility? ☐ Yes ☐ No

Check the FP methods currently and routinely provided by this facility. (Check all that apply.)

☐ Pills ☐ Injectables ☐ Other (specify)_____
☐ IUD ☐ Norplant implants
☐ Vasectomy ☐ Minilaparotomy
☐ Laparoscopic sterilization ☐ Barrier methods

Do you personally provide family planning services at this facility? ☐ Yes ☐ No

Comments:

_____

_____

_____

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JHPIEGO EDUCATIONAL AND TRAINING MATERIALS

TRAINING PACKAGES

Each of the JHPIEGO training packages described below contains all the materials needed to deliver a given course. The central element of each training package is the **reference manual**, which contains the need-to-know information for the course and is modular in design. It is complemented by a handbook for participants, a notebook for trainers and selected audiovisual materials and training aids. The **handbook for participants** outlines a model competency-based training course and contains the course objectives, learning guides and a precourse questionnaire, all linked to the reference manual. Information on how the course is taught and supplemental training materials also are included. The **notebook for trainers** contains the precourse questionnaire answer key, midcourse questionnaire and answer key, competency-based qualification checklists and a section on tips for conducting a training course, in addition to all participant material. Handbooks and notebooks usually are provided in a ratio of one notebook for trainers for every five handbooks for participants. The handbooks and notebooks describe the use of course-specific **audiovisual materials** and **training aids** such as anatomic models that are used for classroom demonstrations and practice in learning skills.

IUDs

IUD Guidelines for Family Planning Service Programs provides clinicians (physicians, nurses and midwives) with essential information on how to provide IUD services (specifically the Copper T 380A IUD) safely. The material is arranged sequentially, according to the usual way in which clients are cared for—beginning with counseling and ending with management of side effects and other health problems. (2nd edition, 1993) Available in **English, Portuguese, Russian and Spanish.**

IUD Training Slide Set—*Copper T 380A IUD Insertion and Removal.* This annotated slide set is designed to supplement JHPIEGO's *IUD Guidelines* during the training course. Using the ZOE® and hand-held uterine models, the slides provide step-by-step instructions for performing the screening pelvic exam, loading the Copper T 380A IUD in the sterile package, inserting and removing the Copper T 380A IUD and managing problems. (1993) Available in **English, Portuguese and Spanish.**

IUD Training Video—*Insertion and Removal of the Copper T 380A IUD.* This training video demonstrates a safe and gentle technique for IUD insertion and removal, including performing the screening pelvic examination, loading the Copper T 380A IUD in the sterile package, uterine sounding, use of the withdrawal technique for insertion, IUD removal and management of side effects and other health problems. (1990) Available in **English, French and Spanish**. (New video to be available 1997.)

Norplant® Implants

Norplant® Implants Guidelines for Family Planning Service Programs provides clinicians (physicians, nurses and midwives) with essential information on how to safely insert and remove Norplant implants. The material is arranged sequentially, according to the usual way in which clients are cared for—beginning with counseling and ending with management of side effects and other health problems. (2nd edition, 1995) Available in **English, French and Russian.**

Postabortion Care

Postabortion Care: A Reference Manual for Improving the Quality of Care, produced by the Postabortion Care Consortium, provides clinicians with essential information on the safe and effective management of incomplete abortion and the life-threatening complications of unsafe abortion. The manual outlines the full range of activities needed to provide appropriate, high-quality postabortion care, including family planning and referral to health care services needed after emergency treatment. The material in this manual is arranged sequentially according to the usual way in which patients are cared for—starting with the initial assessment of their condition and ending with the provision of followup care, including family planning and other reproductive health services. (1995) Available in **English, French and Portuguese**.

Postabortion Care Video—*Postabortion Care: A Global Health Issue*. Produced by the Postabortion Care Consortium, the video provides an overview of the problem of unsafe abortion and the need for postabortion care. It also describes the three elements of postabortion care: emergency treatment of incomplete abortion and potentially life-threatening complications; postabortion family planning counseling and services; and links between postabortion emergency services and the reproductive health care system. It is designed to introduce the concept of postabortion care to policymakers as well as to clinicians. (1994) Available in **English, French, Portuguese, Russian and Spanish**.

Postabortion Care Photoset—*Use of Manual Vacuum Aspiration and Recommended Practices for Processing MVA Instruments*. This photoset, a series of still photos captured on a 30-minute video, has been developed as a clinical training tool. It is designed to assist health care professionals in learning how to treat women with complications following incomplete abortion. It is divided into two main sections: treatment of incomplete abortion using MVA and how to process MVA instruments. (1996) Available in **English, French and Nepali**.

Postabortion Care Educational Kit is intended for use in educating health administrators, clinic managers and all health professionals about postabortion care issues and practical solutions. It contains a complete set of materials that enables a user to present the concept of postabortion care and the rationale for treatment by manual vacuum aspiration. In addition, these materials can be used to begin a general discussion of the issue, introduce the key elements of postabortion care or as the initial session in a training course. The kit includes a videotape, ***Postabortion Care: A Global Health Issue***, annotated slide and transparency master sets, a handout, "Postabortion Care Services," and "Postabortion Care: A Women's Initiative to Combat Unsafe Abortion," a report published in *Advances in Abortion Care*, IPAS (1994). The materials are packaged together in a binder and can be used individually or in concert depending on the audience. (1994) Available in **English and French**.

Infection Prevention (IP)

Infection Prevention for Family Planning Service Programs is designed to enable clinic administrators, managers and health care professionals to develop uniform infection prevention standards for use in any type or size of family planning service program. The goal of IP is twofold: preventing infection in the client and providing protection to both clients and health care workers. The three sections of the manual cover basic IP principles, practical and easy-to-do IP practices for each surgical contraceptive method, and "how to" instructions for using the recommended procedures. (1992) Available in **English, French, Portuguese, Russian and Spanish**.

Infection Prevention Training Video—*Infection Prevention for Family Planning Service Programs.* Produced in collaboration with AVSC International, this video emphasizes the dual role of infection prevention in minimizing postoperative infections in clients and preventing serious disease transmission (hepatitis B and HIV/AIDS) to both clients and health care staff. It also documents practical, easy-to-do infection prevention practices that minimize costs and the need for expensive technology and/or fragile equipment. The **trainer's notes**, included with the video, are designed to help trainers use the material effectively. (1994) Available in **English, French, Portuguese, Russian and Spanish.**

Training Skills

Clinical Training Skills for Reproductive Health Professionals is designed for the expert service provider who wishes to become a clinical trainer. It focuses on the essential areas of clinical skills training including creating a positive training climate, coaching in the clinical setting, conducting classroom and clinical demonstrations, training with models, using competency-based knowledge and skills assessments, presenting illustrated lectures and conducting a clinical training course. (1995) Available in **English, French and Portuguese.**

Instructional Design Skills for Reproductive Health Professionals is written for those trainers and preservice faculty members who will function as instructional designers to design, deliver and evaluate reproductive health courses, workshops, seminars and other learning events. It is designed to be used for both inservice and preservice training. (mid-1997) Available in **English.**

SERVICE PROVISION GUIDELINES

PocketGuide for Family Planning Service Providers is designed to provide clinicians with easily accessible, clinically-oriented information about contraceptive methods and family planning clients. It is intended to be used by clinicians when they need immediate answers to questions about a client's condition or a contraceptive method. The easy-to-find information is organized into sections on providing services (e.g., client assessment, infection prevention), specific contraceptive methods (e.g., natural family planning, oral contraceptives, voluntary sterilization) and contraception for clients with special needs (e.g., adolescents, clients with chronic medical problems). (2nd edition, 1996) Available in **English, French and Russian.**

WORKSHOP PROCEEDINGS (Available in **English.**)

Issues in Cervical Cancer: Seeking Alternatives to Cytology summarizes a workshop held in Baltimore to review the status of cervical cancer screening worldwide and discuss alternative methods of detecting cervical cancer. (1994)

Learning Without Walls: A Pre-Congress Seminar contains presentations and discussion on the information revolution from a seminar held in Bali, Indonesia, in conjunction with the XVth Asian Oceanic Congress of Obstetrics and Gynecology. (1995)

Issues in Management of STDs in Family Planning Settings summarizes a workshop held in Baltimore to explore options for introducing management of STDs into family planning programs. (1996)

Issues in Training for Essential Maternal Health Care summarizes a workshop cosponsored by JHPIEGO and MotherCare II which focused on the development of strategies for maternal health care training; improvement of training materials; and identification of practical training approaches. (1997)

STRATEGY PAPERS (Available in **English**.)

JHPIEGO strategy papers are designed to summarize JHPIEGO's experience in reproductive health capacity building, with a focus on education and training. The papers are intended for use by program staff of JHPIEGO, USAID and its cooperating agencies and other organizations providing or receiving technical assistance in the area of reproductive health training.

The Competency-Based Approach to Training (1995) Also available in **French**.

Why Do We Lecture? (1996) Also available in **French**.

On-the-Job Training for Family Planning Service Providers (1996)

Infection Prevention: A History of Change (1996)

Delivering Effective Lectures (1996) Also available in **French**.

Accelerating the Reduction of Maternal Mortality in Developing Countries (1997)

Order Form

JHPIEGO Educational and Training Materials

Please indicate language and quantity desired for each publication. Please complete the shipping information on pages 6 and 7. **See page 8 to order videotapes and photosets.**

Pricing Information	Language Abbreviations
All reference manuals and *PocketGuide* = $15 each.	En=English
Course handbooks for participants = $5 each.	Fr=French
Trainers notebooks = $8 each.	Po=Portuguese
Slide sets = $28.50 each.	Ru=Russian
Postabortion Care Educational Kit = $100 each.	Sp=Spanish
Workshop proceedings = $5 each.	
Strategy papers are free in limited quantities.	
Availability and prices subject to change.	

TOPIC AND PUBLICATION

	PLEASE SPECIFY LANGUAGE AND QUANTITY
IUD	
IUD Reference Manual	En _____ Po _____ Ru _____ Sp _____
IUD Participant's Handbook	En _____ Ru _____ Sp _____
IUD Trainer's Notebook	En _____ Ru _____ Sp _____
IUD Slide Set	En _____ Po _____ Sp _____
IUD Video	See video order form.
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