

Primary Health Care Initiatives (PHCI) Project  
Contract No. 278-C-00-99-00059-00  
Abt. Associates Inc.

## **NEONATAL AND INFANT SCREENING**

### **LEARNING OBJECTIVES:**

- Describe importance of screening
- Identify problems which can be screened at the primary care level
- Describe criteria for successful screening
- Integration of screening into existing primary health care services
- Recommendation on screening of the newborn, infants & children

### **TEACHING STRATEGIES:**

- Use lecture or informal presentation to give the knowledge needed, small group discussion for parents education
- Brainstorming and group work and discussion
- Demonstrate the skills needed for clinical screening
- Involve trainees in practical work
- Problem solving and role playing in fieldwork

### **MATERIALS AND EQUIPMENT NEEDED:**

- Audiovisual aids
- Growth charts, Snellen charts
- Health education pamphlets
- White board or flip chart and markers

### **LEARNING POINTS:**

- Significance of early detection in diagnosing asymptomatic health or developmental problems
  - Timely intervention is more possible
  - Makes best use of limited resources
  - Can begin process of education and support of families
  - Discussion of parent's suspicions and fears of "something wrong"
  - Beginning discussion of long-term strategies of the family
  - Early detection of symptomatic conditions
  - Early referral of child for confirmation and development of management strategy
- Criteria for deciding whether or not to use health screening
  - Is the condition of public health importance?
  - Are there preventive or curative measures?
  - Is early detection sufficient to permit timely intervention?
  - Are the screening procedure, diagnosis and interventions acceptable to the population?

- Are resources adequate for screening?
  - Will the screening program strengthen society development?
  - Is the cost warranted, given all previous items?
- Significance to family and society of disabled child
  - Strain on family relationships (divorce more common)
  - Strain on family economy (mother not able to work, increased costs)
  - Lost income and productivity of disabled child
  - Increased costs to society (medical care, special schooling and equipment)
- Integration in the well-child care and immunization programs
  - Screening can easily be performed at routine well-child and immunization visits
  - Provides an opportunity to educate and counsel parents about preventive measures
  - Health workers should be trained how to tell parents about a concerning or suspicious result of screening
    1. Development screening is preliminary investigation, not definitive
    2. Emphasize that this is only a screening; referral and further testing is necessary to confirm the result
    3. If a problem is confirmed, in most cases a treatment plan can be developed to help with the problem
    4. Avoid discussing long-term prognosis or management until developmental diagnosis confirmed
  - Diagnosis and management of childhood disabilities is a continual team effort of PHC team and specialists
  - All suspicions of abnormalities need to be confirmed by qualified pediatrician or developmental specialist
- All suspected abnormal screening results must be referred for confirmation and evaluation
  - Most can be referred to MOH Center of Developmental Disabilities - Amman
  - Emphasize courtesy and confidentiality in order to increase public acceptability of the screening services
- **Conditions of the newborn which may be screened**
  - Low birth weight/ pre-maturity
  - Developmental abnormalities
  - Maternal/ household psychosocial & socioeconomic risks
  - Undescended testis
  - Congenital hypothyroidism
  - Congenital dislocation of the hip
  - Abnormal head circumference
  - Asymptomatic heart abnormalities
  - Eye abnormalities
- **Conditions of infants and children which may be screened**
  - Immunization status
  - Monitoring of physical growth
  - Developmental abnormalities

- Mental, neurological & psychosocial development
- Congenital dislocation of the hip
- Asymptomatic heart abnormalities
- Visual problems
- Hearing problems
- Undescended testis
- Anemia
- High blood pressure
- Oral health problems

## **CLINICAL PROTOCOL**

(see attachments)

## **CASE STUDIES**

Nader is a 4-month old boy who was brought to the health center for vaccination. He was not feeding properly and a quick screening showed an infant who could not support his head, with weak muscle tone and poor sucking reflex.

1. What additional information would you request regarding:
  - a. Prenatal history
  - b. History to the present
  - c. Family history
  - d. Physical examination
  
2. How would you proceed with a referral? (where would you refer?, to whom?, when?)

## **PREVENTION ISSUES AND HEALTH EDUCATION MESSAGES**

- The value of screening and early detection through the media and community organizations
- Very limited use of medications in early pregnancy, except those absolutely essential for health of mother or fetus
- Limited use of X-rays during pregnancy
- Treat maternal diseases which can increase risk of malformations and disabilities (folate deficiency, anemia, Rh disease, alcoholism, diabetes mellitus, hypothyroidism or hyperthyroidism)
- Avoid smoking and alcohol use during pregnancy
- Advise maternal immunization (Tetanus, Rubella)
- Counsel about consanguineous marriages
- Advise antenatal care and counseling beginning early in pregnancy

## **HEALTH EDUCATION AND COUNSELING**

- Lifestyle modification
- School and education
- Iron rich diet and supplementation
- Social and psychological factors

### **CRITICAL ELEMENTS OF REFERRAL**

- Confirmation of suspicious or positive results
- To develop a treatment plan to prevent further progression of the problem
- Test other family members for the same disease.

### Screening of Newborn (0 – 2 months of age)

Condition to be screened	Frequency of Screening	Method of Screening
Low Birth Weight/Prematurity	1 <sup>st</sup> well child visit (0-2 weeks)	Weight and height
Developmental abnormalities	1 <sup>st</sup> well child and each immunization visit	Developmental screen
Household psychosocial and economic risks	1 <sup>st</sup> well child and each immunization visit	History and observation
Undescended testicle	1 <sup>st</sup> well child and each immunization visit	Palpation of testicles in males
Congenital dislocation of hip (CDH)	1 <sup>st</sup> well child and each immunization visit	Barlow's and Ortolani's maneuver
Asymptomatic heart problems	1 <sup>st</sup> well child and each immunization visit	Auscultation of heart and lungs (murmer or pulmonary edema) Poor feeding and growth
Abnormal head circumference	1 <sup>st</sup> well child and each immunization visit	Head circumference measurement and graphing on growth chart
Eye abnormalities	1 <sup>st</sup> well child and each immunization visit	Presence or absence of red reflex

### Screening of Infants and Children (2 months – 5 years of age)

Condition to be screened	Frequency of Screening	Method of Screening
Immunization status	Each immunization visit	Review immunization sheet
Developmental abnormalities	Each immunization visit	Developmental screen appropriate for age
Household psychosocial and economic risks	Each immunization visit	History and observation
Undescended testicle	Each immunization visit until 18 months	Palpation of testicles in males
Congenital dislocation of hip (CDH)	Each immunization visit until 18 months	Assessment of hip abduction
Asymptomatic heart problems	Each immunization visit	Auscultation of heart and lungs (murmer or pulmonary edema) Poor feeding and growth
Abnormal head circumference	1 <sup>st</sup> well child and each immunization visit until 18 months	Head circumference measurement and graphing on growth chart

Eye abnormalities	Each immunization visit to 18 months	Normal eye fixation and following of object
Visual problems	Yearly after age 3	Simple eye chart appropriate for age
Hearing problems	Before 6 months and yearly	Response to noise Speech development
Anemia	Age 6 – 12 months	Hemoglobin level
High blood pressure	Age 5 years	Blood pressure measurement with child cuff
Oral health problems	Each visit after age 2	Inspection of teeth

**Table 1. Developmental Screening Chart for the use of MCH**

<b>Id. Number:</b>	<b>Date of Birth:</b>
<b>1-2 weeks Screening</b>	
<b>A. Muscle Tone:</b>	<b>B. Reflexes (Moro, Sucking, Grasp)</b>
1. Normal	1. Normal
2. Hypertonic	2. Abnormal
3. Hypotonic	3. Notes
<b>C. Red Light Reflex:</b>	
Present	Absent
<b>D. Malformation, Handicap, Acute or chronic important disease:</b>	
<b>2 Month-Screening</b>	
<b>A. Muscle Tone:</b>	<b>B. Reflexes (Moro, Sucking, (ATNR))</b>
1. Normal	1. Normal
2. Hypertonic	2. Abnormal
3. Hypotonic	3. Notes
<b>C. Eye Movements/Fixation</b>	<b>D. Smiles at mother</b>
1. Normal	1. Yes
2. Abnormal	2. No
<b>E. Makes sounds</b>	1. Yes
	2. No
<b>F. Malformation, Handicap, Acute or chronic important disease:</b>	
<b>5 Month-Screening</b>	
<b>A. Moro/Grasp reflexes gone</b>	<b>B. Traction test</b>
1. Yes	1. Bends arms and legs slightly. No head lag
2. No	2. Straight arms but no head lag
	3. Straight arms and head lag
<b>C. Turns the head towards sound</b>	<b>D. Catches things consciously</b>
1. Yes	1. Yes
2. No	2. No
<b>E. Laughs loudly</b>	1. Yes
	2. No

F. Malformation, Handicap, Acute or chronic important disease:

**9 month-Screening**

**Date:**

A. Can sit without support

1. Yes

2. No

B. Pincer grasp

1. Yes

2. No

C. Double-cooing like Baba, Mama

1. Yes

2. No

D. Presence of defense reflexes (Parachute reflex)

1. Yes

2. Partial

3. No

E. Malformation, Handicap, Acute or chronic important disease:

**18 Month Screening**

**Date:**

A. Can stand and walk without help

1. Yes

2. No

B. Can build a tower with 2-3 bricks

1. Yes

2. No

C. Can drop a pearl or small stone in a bottle

1. Yes

2. No

D. Can, on request, go away and bring well known objects

1. Yes

2. No

E. Can speak simple words

1. More than 8 words

2. Less than 8 words

3. No words at all

F. Can point at nose, eye and mouth

1. Yes

2. Unsure

3. Definitely not

G. Can feed himself

1. Yes

2. No

H. Malformation, Handicap, Acute or chronic important disease: