

## *Infant and Child Care*

### *\* Prenatal Care of the infant:*

Good Nurseries prevent prenatal mortality

25% of the infant mortality rate is in the Prenatal time

( Prematurely, Congenital abnormalities, Birth injuries, and neonatal infections. Good Nurseries).

A-W.B.C.

1- Physical Examination (Scheduled Visits) .

2-Growth and Development

Growth: in Relation to the characteristics of physical weight and height. □ Development: in Relation to skills.

Regularly visit

3- Vaccination

4- Nutrition

5- Health Education.

Healthy child clinics Provide care until the age of five years and provide : Physical Examination (Scheduled Visits)-

Growth and Development - Vaccination – Nutrition - Health Education \_ assessment for Hearing and vision

B- Day Care of Children out-side the home Good child care services are a primary need.

C- Health of the school age child (School health)

Provides vaccinations and health and medical care from the age of six years to the eighteenth year of age... and screening for Students

D- Care of adolescents: Youth Clinics (Psychological problems, Contraception, Smoking, Drug addiction etc.)

E- Handicapped Children (Physically and Mentally).

### *\* Needs of the Newborn*

- Improving newborn survival will dramatically reduce infant mortality worldwide.

-Of the 7.1 million infants who die each year, approximately two-thirds die in the first 28 days after birth the neonatal period.

- 75% of 1 year old infants who die are 1 month old, 75% of those are only 1 week old.

- 20% of the total deaths of children are infants in the prenatal state *نقص من اجمالي وفيات الاطفال وليس الرضع فقط*

- Of these deaths, two-thirds take place in the first week after birth.

-Ninety-eight percent of all neonatal deaths occur in developing countries.

There are basic needs of a newborn that can help ensure a healthy start in life.

### *\* Basic needs of a newborn that can help ensure a healthy start in life:*

- During labour and delivery, mothers and newborns need:

1) *Skilled attendance* – provide safe management of normal delivery and timely referral for complications.

2) Support and care – promote family support and a baby and woman-friendly environment for birth and maternal and newborn care .

3) *Infection control* – ensure clean delivery, including clean surface, hands, blade, and cord tie Because of the weakness of the child's immunity.

4) *Management of complications* – identify and manage complications, including bleeding, high blood pressure, prolonged labour, and foetal distress fetal) distress.. infants most susceptible to it are Premature infants.

**\* Following birth, newborns need:**

- 1) Air - stimulate and resuscitate infants who are not breathing at birth.
- 2) Warmth – dry the baby at birth. Maintain warmth through skin-to-skin contact, warm ambient temperature, and head and body covering. Promote kangaroo care for low-birth weight infants.
- 3) Breastfeeding – breastfeed within the first hour after birth. Continue exclusive breastfeeding on demand day and night for six months.
- 4) Care – keep the newborn close to the mother, father, or other caregiver. Keep the mother healthy.
- 5) Infection control – maintain cleanliness when handling the infant. Keep the cord clean. Provide prophylactic eye care. Promote early and exclusive breastfeeding. Immunize according to schedule. Treat infections promptly.
- 6) Management of complications – recognize and respond urgently to serious and life-threatening conditions.

**\* Perinatal Mortality (PM):**

- General Consideration .
- Of the 13 million deaths each year in children under 5 years old in the developing world, 3 million occur in the first week after delivery.
- In addition, there are some 4 million stillbirths or late fetal deaths each year.
- Perinatal mortality is the number of late foetal deaths (also called still births) and early neonatal deaths (before day 7 (168 hours) per 1000 births.
- Among the estimated 25 million low-birth-weight babies born each year worldwide, 24 million are in developing countries where 80% of global births occur, The perinatal mortality rate ranges from 40 to 60 per 1,000 live births in most developing countries, but it is between 6 and 10 in industrial countries.

**\* Causes of Perinatal Mortality:**

- |  |                  |
|--|------------------|
| 1) Low birth weight  | 2) Cord prolapse |
| 3) Asphyxia  | 4) Birth injury  |
| 5) Congenital anomalies  | 6) Sepsis        |
| 7) Neonatal tetanus  |                  |
| 8) Complicated labours (prolonged, obstructed, breech, transverse) |                  |
| 9) Mismanagement of labour.  |                  |

***Low Birth Weight:***

- Low birth weight is an extremely important factor predisposing for PNM.
- Because the perinatal mortality rate for low-birth weight babies is five to thirty times higher than for fetuses or infants of normal weight. Low-birth weight infants who survive may have serious neurological

problems and hearing and visual defects and may be subject to slow development throughout life.

- Inadequate weight gain during pregnancy, low pre-pregnancy weight (the mother weights less than 40 kg –as an example-), anemia , Reproductive tract infection , other infections during Pregnancy, Malaria, TB, African states , Antepartum hemorrhage (APH) , نزيف ما قبل الولادة Eclampsia تسم الحمل

- *Causes of low birth weight include:*

- Short stature
- Inadequate weight gain during pregnancy
- Reproductive tract infections.
- Antepartum haemorrhage
- Low pre-pregnancy weight
- Anemia
- Eclampsia

- Other infections during pregnancy. For example, women suffering from malaria in sub-Saharan Africa give birth to an estimated 3 million severely underweight babies. A woman with HIV has a 25 to 40 percent chance of passing the infection on to her fetus in the womb or at birth. According to WHO, 25 percent of the children born with HIV will be diagnosed with AIDS in the first year and 80 percent by the fourth year.

**\* *Few indicators for health status of children:***

- MCH coverage (*maternal child health*)
- % of Fully Immunized
- Under five mortality rate
- Vaccination Coverage
- Infant mortality rate
- ORT use rate (oral dehydration therapy) for severe cases

**\* *Global Scenario-Neonatal Health:***

- Nearly 4 million newborns die {40% of under 5 deaths} within 28 days of birth
- 40% of under-5 death occurs in under 28 days of age
- Three quarters of neonatal deaths occur during first 7 days
- For every newborn death ,20 others suffer birth injury, complications of preterm birth or other neonatal conditions
- A child born in a least developed country is 14 times more likely to die within first 28 days of life as compared to industrialized country.

**\* *Well Baby Clinic :***

- Very imp. Preventive child health clinic.

- From 6 weeks of age to 5 years.

- Main goals:

A-Health education

B- Growth and development.

C- Vaccination

D- Nutritional and Psychological counseling.

- Baby should be seen by a health care provider at the following ages:

Two months , Four months ,Six months ,Nine months ,Fifteen months ,Eighteen months ,Two years ,Three years

**\* *Assessing the baby's capabilities :***

- Monitoring Growth and Development.
- Growth : Head circ. Length and weight.(Growth chart.)
- Infant Feeding.
- Skills and Behavior. (The first skill for baby is smiling)

**\* *Infant Morbidity (for first year of birth) :***

Morbidity is a measure of disease, illness or injury within a population. Like infant mortality, conditions resulting from prematurity and low birth weight are strongly associated with infant morbidity.<sup>1,2</sup> Infant morbidity can be measured by the presence of diagnosed conditions, such as respiratory distress and hyperbilirubinemia (or jaundice), as well as by service utilization indicators, including admission to a neonatal intensive care unit (NICU) and length of hospital stay.

**\* *Causes of Infant Morbidit:***

- 1- Respiratory distress syndrome
  - 2- Birth Trauma
  - 3- Hemorrhages.
  - 4-Feeding problems
  - 5-Infections
  - 6-Failure to thrive
  - 7- Prematurely and low birth (differentiate) Higher Morbidity and Mortality rates (**most common cause**).
- < Double in weight after six months for babies  
Premature Slow to multiply weight, are late in skills. Being more prone to infection diseases>

**\* *CHILDHOOD DISEASES***

**- *Prevalence of childhood illnesses, 2012 :***

**(Percentage of children under five with illness in the 2 weeks before the survey):**

. Important

- 1) fever is the highest because it doesn't reflect a single disease ( it's associated with many diseases). It's associate with any infectious disease .
- 2) Diarrhea is an oral-fecal infection.
- 3) ARI: Acute Respiratory Infection.

We have to know that these are the most common child disease in Jordan in 2012. And we have to know them in sequence.

**- *Trends in prevalence of anemia, 2002, 2009 and 2012***

In 2012, 32% of children were anemic.

To solve this problem they started to give iron supplements in public schools. They also provided better milk for infants.

It's important to know that anemia is still high in children and child-bearing women.

### ***- Infant and Child Mortality/The five measures of infant and child mortality***

- . **Neonatal mortality**, the probability of dying in the first month of life
- . **Postneonatal mortality**, the probability of dying after the first month of life but before the first birthday (the difference between infant and neonatal mortality rates)
- . **Infant mortality** (1q0), the probability of dying before the first birthday
- . **Child mortality** (4q1), the probability of dying between the first and fifth birthday
- . **Under-five mortality** (5q0), the probability of dying before the fifth birthday.

- Perinatal mortality: death in the week before birth or the week after. It is the highest (20% of deaths).
- Statistically, our indicator is infant mortality.
- In developed countries where infant mortality is very low (5%, 7%, 12%) they go for other indicators.
- Infant mortality is 5 times more than child mortality.
- Child=1-5 year but infant =0-1 year ... under 5= child and infant
- Perinatal: week before birth and a week after.
- Early neonatal: the first week after birth.
- Late neonatal: first week to the age of one month.
- Post natal: first month to the first birthday)

<All of these rates are calculated per 1,000 live births, except for child mortality which is calculated per 1,000 children surviving to age one.>

### ***\* Proportional Mortality among <5 yrs. WHO Report 2002/World Wide :***

World wide – reflecting mainly the developing world.  
Infectious causes accounts for more than 50%.

### ***\* Causes of Infant and Child Mortality in Jordan :***

The 3 leading causes of infant death were :

- 1-Conditions originating in the perinatal period.
- 2-Congenital malformations.
- 3- Diseases of the respiratory system like RDS and ARI.

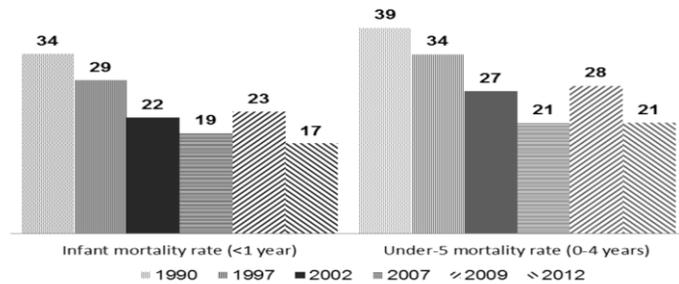
- The leading cause of death in the neonatal period was conditions originating in the perinatal period, while in the post-neonatal period, it was congenital malformations.
- Prematurity was the leading contributory cause of infant death.

### ***\* Conclusion :***

- This study showed that causes of infant mortality in Jordan tend to be similar to those prevailing in developed countries.

### ***\* Trends in childhood mortality rates, 1990-2012 /DHS Jordan :***

Child mortality = under-five mortality rate – infant mortality rate = 21 - 17 = 4  
We should know this figure because it reflects Jordan in the childhood period.



### *\* Prevention and control of Communicable Diseases :*

Communicable diseases are diseases that can be transmitted from a person to another through different means ( direct contact, droplet infection, sexual contact, or mother fetus infection.)

### *\* Steps followed to accomplish control of communicable diseases:*

1- Reporting

2- Observing of the coming foreigners and tourist who are going to stay in the country for more than one month and testing them for certain disease e.g AIDS, Malaria etc..

3-Sending teams in cases of outbreaks and epidemics.

4-Coordination with other ministries (Ministry of agriculture and Brucellosis)

5-Vaccination

Some diseases have to be reported directly ( like an HIV case). Some diseases like measles and chicken pox are reported monthly.

Some are reported weekly depending on the severity of the diseases and the infection period.

### *\* How Some Childhood Infectious Diseases Are Spread?*

1) Direct Contact with infected person's skin or body fluid .

( Chickenpox , Cold Sores , Conjunctivitis , Head Lice, Impetigo ,Ringworm , Scabies )

2) Respiratory Transmission (passing from the lungs, throat, or nose of one person to another person through the air) .

( Chickenpox ,Common Cold , Diphtheria , Fifth Disease , Bacterial meningitis , Hand-Foot-Mouth Disease, Impetigo ,Influenza , Measles , Mumps , Pertussis ,Pneumonia ,Rubella )

3) Fecal-Oral Transmission (touching feces or objects contaminated with feces then touching your mouth) Campylobacter .

Any disease causing diarrhea or GIT infection is transferred fecal-orally. The most important virus causing diarrhea in infants is Rotavirus. Poliomyelitis is mainly a water-borne disease. The #1 prevention to all these diseases is vaccination.

( E. Coli , Enterovirus , Giardia ,Hand- Foot- Mouth Disease , Hepatitis A ,Infectious Diarrhea , Pinworms , Polio , Salmonella , Shigella ).

### \* *Vaccination :*

Vaccination against childhood communicable diseases through the Expanded Program on Immunization (EPI) is one of the most cost-effective public health interventions available ([UNICEF 2002](#); [World Bank 1993](#)). By reducing mortality and morbidity, vaccination can contribute substantially to achieving the Millennium Development Goal of reducing the mortality rate among children under five by two-thirds between 1990 and 2015

- Protecting Your Newborn From Disease
- How do vaccines work?
- Are vaccines safe?
- Keeping an immunization record.

It's very important to keep a vaccination record in order to know what vaccines the child had. The policy that insures that the parents keep a vaccination record for their child is school entry. (They can't get their child into school if they don't have a vaccination card). And that helped in increasing the vaccination coverage.

### \* *Immunity :*

- It is the defense mechanism of the body against the invasion of pathological microorganisms.

#### - *General immunity*

General defensive mechanisms available from birth . eg skin, mucosal barriers, tears, blood substances that inhibit motility or multiplication of organisms ...etc

#### - *Specific Immunity*

This type develops against specific microorganisms. It can be acquired in 2 ways:

#### - *Active immunity:*

acquired by coming in contact with the pathogen either by contracting the disease itself or by vaccination.

#### - *Passive immunity*

. Acquired by receiving antibodies from an actively immunized person or animal.

. It is quickly acquired

. Short lived in comparison to actively acquired immunity.

. Some disease don't need vaccination in the first six months of life because infants have acquired immunity from their mothers against them.

.Can be acquired in two ways:

1) Natural : Antibodies passing from mother to newborn via placenta start falling during the first weeks and disappear within the first 6 months.

2) Artificial: acquired by injection of specific or standard ( non-specific gamma globulins).e.g. Specific immunoglobulins are available for hepatitis B, tetanus, mumps..etc

### \* *Importance of vaccination :*

- 1) Diseases that are common, can kill or cause disability.
- 2) Can be prevented.

**\* The main diseases in the National Jordanian Vaccination program are:**

( TB, Pertusis , Diphtheria , Poliomyelitis, Tetanus ,Measles , Hepatitis B , Influenza)

**\* Types of vaccines:**

*It's important to know the types of vaccines, which vaccines are live and which are killed/inactivated. Tetanus vaccine is an antitoxin.*

- Live/ attenuated
- Killed/ Inactivated

*1) Live attenuated viruses :*

< Highly effective ,They induce slight infection ,long lasting protection even with a small dose. >  
BCG, measles , mumps ,rubella ,varicella , MMR, and polio come lived or killed ( trivalent oral polio vaccine – TOPV) are live vaccines . the body reacts with it and makes antibodies. Sometimes if we have immunocompromised person we can't give them attenuated vaccines because they will get the disease, so we can only give them the killed type. The live/ attenuated type is more effective.

*2) Inactivated viruses*

(injectable polio (Sabin), hepatitis B, influenza).

*3) Inactivated bacteria*

(pertussis, diphtheria, tetanus, H. influenzae type b, pneumococcus)

*Inactivated Vaccines*

- Produce a lower immune response to a single dose in comparison to live vaccines
- Multiple doses are usually required to give long –term protection
- Pertussis , polio ( injectable, inactivated polio vaccines IPV), typhoid, tetanus, are inactivated vaccines

<The vaccines for diphtheria and tetanus are prepared from the bacterial exotoxin rather than the bacteria organism itself. These are referred to as toxoid vaccines>.

Live Vaccine	Inactivated Vaccines
<ul style="list-style-type: none"><li>•Long lasting</li><li>•Sometimes given by intra-nasal spray</li><li>•Highly effective</li><li>•Ex :BCG, measles, MMR, and polio</li></ul>	<ul style="list-style-type: none"><li>•Multiple doses are required</li><li>•Given by injection</li><li>•Ex : Pertussis , polio</li></ul>

***\* How serious is the situation?***

- Diphtheria kills 1 of 10 people infected with it and can cause serious complications such as suffocation, paralysis, heart failure, coma and death within 6-10 days.
- Tetanus kills most babies who get it, according to a study made in 2002 : 6.7 thousand deaths in Afghanistan only due to tetanus.
- In about 1% of cases of polio, the virus enters the CNS, preferentially infecting and destroying motor neurons, leading to muscle weakness and acute flaccid paralysis
- According to the World Health Organization (WHO), children are considered fully vaccinated when they have received a vaccination against:  
( TB ,Three doses of DTP ,Three doses of Polio vaccine ,One dose of measles vaccination ) by age 12 months .
- Why are vaccinations so important in the developing world? Because more than 50% of mortality in the developing are infectious disease. So if we have a proper vaccination program, we are dropping the mortality rates by 50%. Sled 62 just know the vaccines that are under this program.

***\* Rationale for Immunization :***

- Every year, out of 100 children in the world:
  - 3 die from measles
  - 2 from pertusis
  - 1 from tetanus
- For every 200 children who are infected with polio virus, one will be crippled for life.

***\* Expanded Program on Immunization :***

- WHO set Target: 90% of all children below one year be fully immunized by the year 2000.
- Immunization is an essential part of PHC
- It is a program that was started worldwide by WHO / UNICEF, called ( EPI).