

Child and infant health

Needs of the Newborn

From the first minute of birth, newborns have needs...

As we said before .. Always the risk of mortality and morbidity is more dangerous if it was earlier (first hour is more dangerous than the first day .. and the first day is more dangerous than the first week etc ..)

After one year (the first year) the morbidity and the complications of mortality will decrease. That mean that the immunity of the child started to develop –although it will not reach a full development before 5 years old -

That's why when we compare between infant and child mortality we find that the infant mortality = 5 times the child mortality

Remember

Child mortality from 1 year to 5 year

Infant mortality from 0 year (newly born) till 1 year old

- 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 – in what we called “**the neonatal period.**” Will be explained later .
- Of these deaths, two-thirds take place in the first week after birth.

Approximately 75% of the death occurs in the first month of birth ,and 75% of these 75% occurs in the first week

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

Neonatal death and maternal death are normal physiological conditions (they are not ill people and they are not diseased)they are under physiological stress in where **if we have** a proper prevented service, a good antenatal services , a good well prepared clinic and good delivery services ; it is supposed to decrease the number of these death to minimum.

That's why these death are mainly exist in the developing world in where these prevented services are not advanced

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

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*** During labour and delivery, mothers and newborns need:**

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

When there is a premature labor or there is risky pregnancy in where not just the obstetricians must be there but also neonatologist (the one who is responsible for children in the first year of their life especially the premature babies – أطفال الخداج)

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

Always they care about supporting of the mother during labor , and during the first hours of the labor in which the mother needs support and counselling

- **Infection control** – As the immune system in the baby has not matured yet , any infection can cause mortality so we must ensure clean delivery, including clean surface, hands, blade, and cord tie.

- **Management of complications** – identify and manage complications, including bleeding, high blood pressure, prolonged labour, and foetal distress

Because when the mother has any complications during pregnancy it will affect the baby in the first place

*** Following birth, newborns need:**

- **Air** - stimulate and resuscitate (انعاش) infants who are not breathing at birth.
- **Warmth** – dry the baby at birth. **Maintain warmth through** skin-to-skin contact, warm ambient temperature -around 27- , and head and body covering. Promote kangaroo care for low-birth weight infants.
- **Breastfeeding** – breastfeed within the first hour after birth. Continue exclusive breastfeeding on demand day and night for six months.
- **Care** – keep the newborn close to the mother, father, or other caregiver. Keep the mother healthy.
- **Infection control** – maintain cleanliness when handling the infant. Keep the cord clean. Provide prophylactic eye care (there is always secretion in the eye especially through labor where there is blood and discharge .. so we have to keep the eye clean) . Promote early and exclusive breastfeeding. Immunize according to schedule. Treat infections immediately whether the baby has these infection intrauterine or during labor .
- **Management of complications** – recognize and respond urgently to serious and life-threatening conditions (if the baby was premature ,has respiratory distress , has intrauterine infection

asphyxia [-additional information- **Birth asphyxia** happens when a baby's brain and other organs do not get enough oxygen before, during or right after birth.])

The five measures of infant and child mortality

- **Neonatal mortality**, the probability of dying in the first month of life –the most sensitive -
- **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 –from the first day of life to the first year - (both neonatal and postneonatal)

In developed countries they use neonatal mortality as indicator , but in developing –including Jordan – we use infant mortality

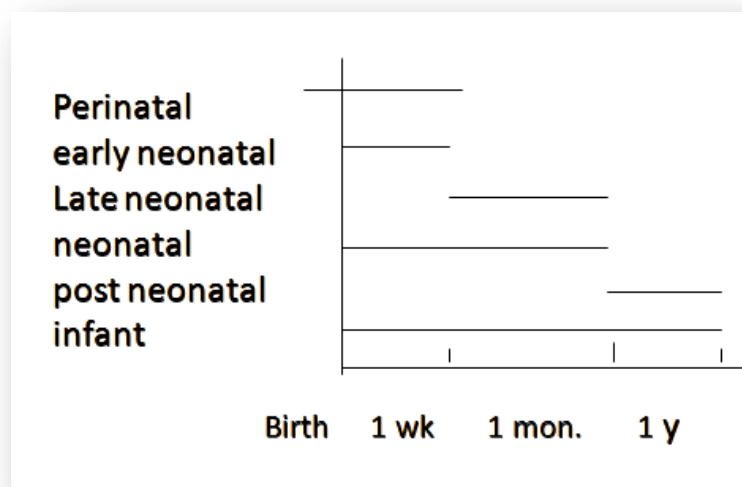
- **Child mortality (4q1)**, the probability of dying between the first and fifth birthday.

Child mortality = $1/5$ or $1/6$ of the infant mortality

- **Under-five mortality (5q0)**, the probability of dying before the fifth birthday. (the infant mortality + child mortality)

- **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**.

Notice that: the first one for live births .. but the second one for children surviving to age one



This figure shows that:

Parinatal (ما حول الولادة) extends from one week before birth and one week after birth

Early neonatal is the first week

Late neonatal from the first week to first month

And **neonatal** is the first month

Post neonatal is extends from first month to first year

And **infant** includes all of them : from birth to first year

Generally , **early neonatal is the most sensitive** . But in Jordan , we go back to infant mortality .

Risk factors and Causes of infant child deaths in Developing

Countries :

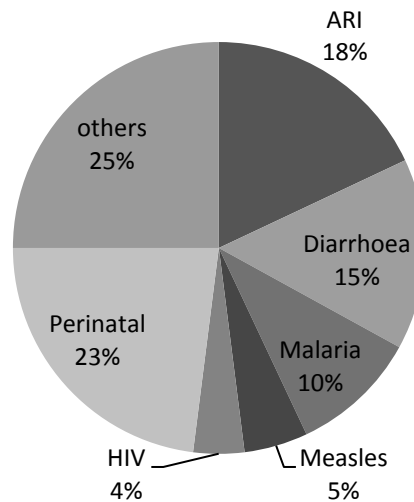
1. Prematurely/ low birth weight (they are at higher risk mortality . because of many things : premature respiratory system is one of these causes and the infant will die from respiratory despriss syndrome) . Birth injuries and neonatal infections

Remember _____

Premature baby is when the pregnancy period is less than 36 weeks.

The baby with low birth weight had completed the 36 week but with a weight less than 2.5 kg

2. Multipregnances with no spacing (repeated pregnancy)
 3. Early or late pregnancy
 4. Respiratory Infections : very serious in neonatal period and in first year of age .
 5. GIT diseases : after the 3rd or the 4th month , when the mother start to feed her baby something else than breastfeeding .
 6. Infectious disease especially Malaria.. it has high risk on the infant life .
 7. Poor income and large families leading to poor nutrition education and living standards (not just affecting pregnant lady but also it affects newborn babies)
 8. Environmental factors live poor water supply , poor housing and air pollution.
 9. Accidents weither accident of car , truma , burn ,etc... (being first cause –in late child death-between Age 5-15 years).
 10. Congenital abnormalities
-



Proportional Mortality among less than 5 years old .
WHO Report 2002/World Wide

In this diagram we are reflecting mainly “developing world “

As you see .. the most common is the Acute Respiratory Infection (ARI)

The percentage of the **infectious** diseases that responsible for the child death = 52 %

ARI + Diarrhoea + malaria + Measles + HIV = 52 %

** other reasons could be trauma , bleeding , etc ...

** 23 % of death in perinatal period (week before delivery and week after delivery) in where the week before delivery is responsible for the mortality due to the high risk pregnancy and the most important risk : pregnancy induce hypertension preeclampsia

[You should know these rates .. at least you must know that the infectious diseases cover more than 50 % and 23% of mortality happen in perinatal period]

Causes of Infant and Child Mortality

** In Jordan ... What are the 3 leading causes of Infant and Child Mortality ? [study done in 2007]

1. Conditions originating in the perinatal period. –as the developing countries - .
2. Congenital malformations.
3. Diseases of the respiratory system.

[About infant mortality .. **we consider Jordan with developed countries** ; Infectious diseases are not one of the main cause of death [the 3 main causes are not infectious disease]

** 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.this is very important , you will see that pre-mature and small for-date babies they are at higher risk of infection , bleeding ,etc..

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

This study was done by Dr. [Khoury SA](#), Dr. [Mas'ad DF](#).

Prematurely and low birth :

Higher Morbidity and Mortality rates (because they have higher risk factors)

Premature infant may have :

- 1- Respiratory distress syndrome
- 2- Birth Trauma
- 3- Hemorrhages.
- 4-Feeding problems
- 5-Infections
- 6-Failure to thrive : when children don't meet expected standards of growth

(ex. we expect that the weight of the child will be doubled after 6 months from birth – will reach approximately 6-7 kg - , but the premature infant who started with 2kg will be 4 kg instead of 6 kg . Many of them, definitely, catch up after the 3rd or the 4th year of age.)

**** Infant Mortality in Jordan**

The infant mortality rate also declined from 82 per thousand in 1976 to 22 in 2002, and reached 19 per thousand in 2007

**It is very good that the infant mortality rate dropped from 82 to reach 19

** It dropped to 17 per thousand in 2012

**The percentage that the infant mortality rate dropped from 2002 to 2007 = 14 %

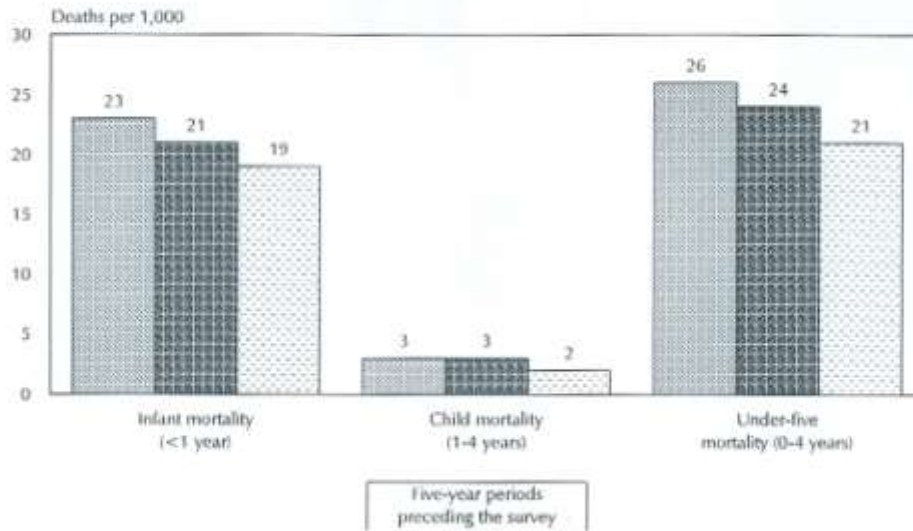
Remember

We calculate infant mortality per 1000

Drops in mortality, particularly infant mortality, have translated into an increased life expectancy for the population: in 2002, life expectancy in Jordan was 68 years for males and 71 years for females, increasing to 72 years for males and 74 years for females in 2007.

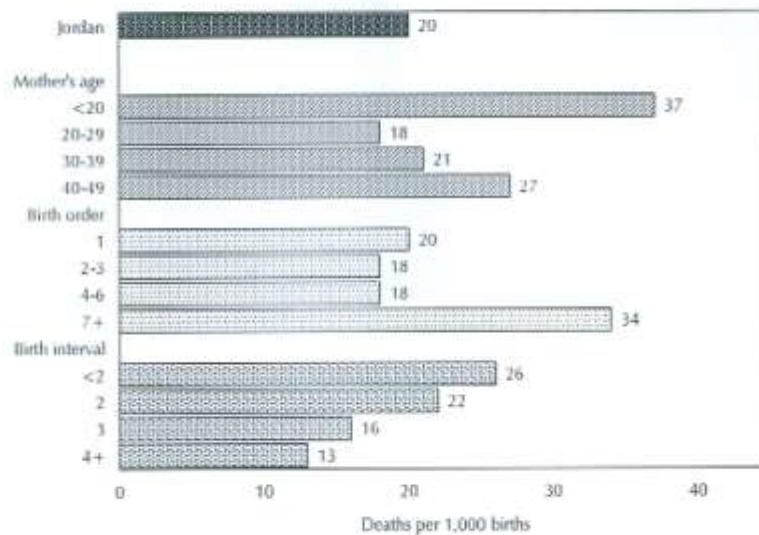
↓mortality - particularly infant mortality - , ↑ life expectancy

Trends in Infant and Child Mortality by Five-year Periods



This diagram is showing the trends in infant and child mortality
 As you can see .. **the infant mortality** dropped from 23 to 21 to 19 to 17 in 2012
Child mortality = 1/7 of infant mortality
Under-five mortality is the summation of the infant and child mortality

Figure 8.3 Infant Mortality by Selected Demographic Characteristics



This figure show some demographic characteristics ..

[these numbers not to be memorized .. but you have to know what are the variables which affect infant mortality and how it reflects infant mortality]

Mother's age <20 has the highest infant mortality =37

But mothers with the ages 20-29 have the least infant mortality

So .. mothers age affects the outcome "infant mortality"

Birth order : the highest is +7

Birth interval : less than 2 has high infant mortality .. then it decreases as the birth interval increase

↑birth interval ↓infant mortality

Well Baby Clinic

Infant and Child care

The service which is giving for the child up to five years of age is called well baby clinic

****Main Objectives**

- ✓ Regular physical examinations
- ✓ B- Growth and Development (Growth charts)
Growth :you are measuring the height , circumflex and weight
Development : you are measuring the skills
- ✓ C- Nutritional assessment
- ✓ D- Vaccination
- ✓ E- Health Education

Baby examined at birth and followed through WBC at six weeks of age then at.:

(this is how the frequent the baby has to be seen)

He will be examined in the first day of life ... after 2 months he will come another time . the next time will be at four month etc

Two months → Four months →Six months →Nine months →Fifteen months →Eighteen months
→ Two years →Three years→ Four years →Five years

So ... he will visit "well baby clinic" **10 times** –if he was normal- .

“ skip the slides about Brazelton Institute “ the
doctor said . They are from (26-31)

Indicators to describe a (child's well being):

- ❖ Nutritional Causes
- ❖ Environmental causes
- ❖ Socio-Economical causes

1- Number of low birth weight babies :

↑number of low birth ↑mortality

2-Infant mortality rate:

(in developing world .. because they use neonatal mortality rate as an indicator)

3-Children's death rate:

_ (children in the age group (5-14 years) calculated **per 100,000** children.

[in the slides it is written 1-14 but the doctor said that it is wrong and the correct one is 5-14]

4-Rate of teen death (between 15-19 years) as a result of accidents and suicide

5-Teen birth rate

It is not very common in Jordan ..not more than 3% and usually high risk at the child (measured per 1000 females in the age of (15-17) teenagers pregnancy is a very important issue in the developed countries. Dealing with those girls indicates dealing with a group of infant born to very young mothers who didn't reach the optimum nutritional and physical maturity.

**Therefore teen pregnancy is at a high risk of obstructed Labour, maternal death low birth weight baby, and long term disabilities affecting the baby.

6-Percentage of teenager's school dropout. Maternal education is a very important factor contributing to the health of children .So high percentages of school dropout indicate poorly educated future parents. (risk factor)

7-Percent of teens not attending school nor working

8-Percentage of children whose parents don't have a full year employment. If you don't have a job you won't provide money needed to insure all the medical, nutritional , educational needs of a child.(another risk factor)

9-Percentage of children in poverty.

10- Number of families with children headed by a single parent.

When the family has single parent , the children will be under higher risk factor of morbidity and mortality .