

# Infant and Child Care



Infant-Toddler Dev 7 D.Richardson



# Learning objectives

## **After this lecture, you will be able to:**

1. Be familiar with the Well Baby Clinic concept.
2. Identify age specific mortality rates.
3. Identify the causes of perinatal mortality.
4. Describe the needs of the newborn.
5. Identify interventions utilised to reduce infant mortality.



# Infant and Child Care:

- ▶ 1- Prenatal Care of the infant: ( Prematurely, Congenital abnormalities, Birth injuries, and neonatal infections. Good Nurseries).
- ▶ Immaturity related conditions and congenital anomalies are the two main causes of infant deaths in high-income countries (Callaghan, MacDorman, Rasmussen, Qin, & Lackritz, 2006).

## A-W.B.C (Well Baby Clinic).

- 1- Physical Examination (Scheduled Visits)
- 2- Growth and Development
- 3- Vaccination
- 4- Nutrition
- 5- Health Education.

See slide 16 for the rest.



# Infant mortality

- ▶ Infant deaths are divided into two groups: those occurring at less than 28 days after birth, referred to as **neonatal deaths**; and those occurring at ages 28 days and over but under one year, referred to as **post neonatal deaths**.

(Kurinczuk, Hollowell, Brocklehurst, & Gray, 2009)



# Infant mortality

- ▶ Infant mortality has long been regarded as an important indicator of population health.
- ▶ Of the 7.1 million infants who die each year, approximately **two-thirds** die in the first 28 days after birth – **the neonatal period**.
- ▶ **Ninety-eight percent** of all neonatal deaths occur in developing countries.



# Age specific mortality rates (Definitions)

- ▶ The neonatal mortality rate, defined as the number of deaths of children aged less than 28 days in a given year per 1000 live births.
- ▶ The infant mortality rate, defined as the number of deaths of children aged less than one in a given year per 1000 live births.
- ▶ The post-neonatal mortality rate, defined as the number of deaths of children aged between 28 days and one year in a given year per 1000 live births
- ▶ Child mortality: the probability of dying between the first and fifth birthdays
- ▶ Under-five mortality: the probability of dying before the fifth birthday.



# Definitions

- ▶ Neonatal mortality (death < 28 days)
- ▶ Infant mortality (deaths between 0 and 12 months)
- ▶ Under-five mortality (deaths between 0 and 59 months)
- ▶ Low birth weight (<2500 g)
- ▶ Preterm birth (<37 weeks gestation).

(Lassi et al., 2020)



# Continued

- ▶ Neonatal mortality rates are especially sensitive to events during pregnancy, delivery and the neonatal period, and to the care given to mothers and their babies.
- ▶ Post neonatal mortality is thought to be influenced to a greater extent by parental circumstances, including their socioeconomic position, and the care they provide for their infant.

(Kurinczuk, Hollowell, Brocklehurst, & Gray, 2009)



# Child and infant mortality

- ▶ The earlier a baby is born, in terms of completed weeks of pregnancy, the higher the risk of infant death.
- ▶ One factor affecting the neonatal mortality rate is the number of babies born before 24 weeks gestation.



# Perinatal mortality (PNM)

- ▶ Perinatal mortality is the number of late foetal deaths (also called still births) and early neonatal deaths (day 7) per 1000 births.
- ▶ Pregnancy losses occurring after seven completed months of gestation (stillbirths) plus deaths to live births within the first seven days of life (early neonatal deaths).



# Perinatal mortality (PNM)

This rate is a useful overall measure of •  
perinatal health and the quality of  
health care provided to pregnant  
women and newborns.



# Causes of perinatal mortality

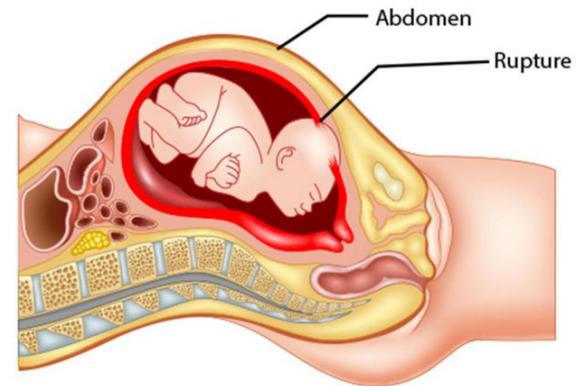
- ▶ Low birth weight
- ▶ Umbilical Cord prolapse
- ▶ Asphyxia
- ▶ Birth injury
- ▶ Neonatal tetanus
- ▶ Sepsis
- ▶ Congenital anomalies
- ▶ Complicated labours  
(prolonged, obstructed,  
breech, transverse)



## Causes of Perinatal Mortality (Continued)

- ▶ Maternal age
- ▶ Maternal anaemia
- ▶ Maternal health problems like, renal problem, diabetes, hypertensive disorders
- ▶ Maternal infections
- ▶ Placental insufficiency
- ▶ Ruptured uterus

### Uterine Rupture



# Low Birth Weight (LBW)

- 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.



## Causes of low birth weight include:

- Short stature (height)
- Low pre-pregnancy weight
- Inadequate weight gain during pregnancy
- Anemia
- Reproductive tract infections



## **Causes of low birth weight include:**

- Other infections during pregnancy. For example, women suffering from malaria in sub-Saharan Africa give birth to an estimated 3 million severely underweight babies.
- Antepartum hemorrhage.
- Eclampsia.



# Infant and child care

- ▶ B- **Day Care of Children** out-side the home Good childcare services are a primary need.
- ▶ C- **Health of the school age child** (**School health**)
- ▶ D- **Care of adolescents**: Youth Clinics (Psychological problems, Contraception, Smoking, Drug addiction etc.)
- ▶ E- **Handicapped Children** (Physically and Mentally).



# Basic needs of a newborn that can help ensure a healthy start in life.

- ▶ **During labour and delivery, mothers and newborns need:**
- ▶ **Skilled attendance** – provide safe management of normal delivery and timely referral for complications.
- ▶ **Support and care** – promote family support and a baby and woman-friendly environment for birth and maternal and new-born care.



# Continued

- ▶ **Infection control** – 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



## Assessing the baby's capabilities



# Jordanian Data

- ▶ **The 2017-18 JPFHS results showed that:**
  - Neonatal mortality was 11 deaths per 1,000 live births.
  - Infant mortality was 17 deaths per 1,000 live births.
  - under-5 mortality was 19 deaths per 1,000 live births in the 5-year period preceding the survey.
  - Most (90%) of the deaths occur in the first year of life.
  - 58% take place in the first month of life.



# Interventions to Reduce Stillbirths and Newborn Mortality and Morbidity

- ▶ Addressing stillbirths and neonatal mortality requires interventions across the continuum of care (**preconception, antenatal, intrapartum, immediate postnatal period, and after**) (Black, Laxminarayan, Temmerman, & Walker, 2016).
- ▶ The **continuum of care** has recently been highlighted as a core principle of programmes for maternal, newborn, and child health, and as a means to reduce the burden of half a million maternal deaths, 4 million neonatal deaths, and 6 million children who die between the ages of 1 month and 5 years (Kerber et al., 2007).



# Antenatal Interventions

- ▶ **Routine Antenatal Care (ANC) Visits**

Reduced antenatal visits may be associated with an increase in perinatal mortality, compared with standard care (Gaxiola, Dowswell, & Peña-Rosas, 2010).



# **Evidence-Based *Antenatal* Interventions that Reduce Perinatal Morbidity and Mortality**



# Nutritional Interventions

## ▶ *Folic acid*

- Supplementation of diets with folic acid reduces the risk of neural tube defects that account for a small proportion of stillbirths or neonatal deaths (Gaxiola, Dowswell, & Peña-Rosas, 2010).

## ▶ *Dietary advice and balanced energy supplementation*

- Balanced energy and protein supplementation (BES), defined as a diet that provides up to 25 percent of total energy in the form of protein, is an important intervention for the prevention of adverse perinatal outcomes in populations with high rates of food insecurity and maternal undernutrition (Imdad & Bhutta, 2012).

## ▶ *Maternal calcium supplementation*

- The WHO recommends maternal calcium supplementation from 20 weeks' gestation in populations in which calcium intake is low to reduce the risk of hypertensive disorders in pregnancy (Khan, Wojdyla, Say, Gülmezoglu, & Van Look, 2006).
- Calcium supplementation during pregnancy was also associated with a significant reduction in neonatal mortality and risk of pre-term birth.



# Nutritional Interventions (continued)

- ▶ *Maternal zinc supplementation*
  - A Cochrane review of the intervention includes 20 RCTs involving more than 15,000 women and infants.
  - Zinc supplementation resulted in a small but significant reduction in preterm birth (Ota et al., 2015).



# Antenatal Treatment of Maternal Infections

- ▶ Maternal infections frequently have adverse effects on perinatal outcomes, and striking mortality reductions can be obtained by antenatal interventions related to malaria, HIV, syphilis, and tetanus.



# Tetanus

- ▶ Immunizing pregnant women or women of childbearing age with at **least two doses** of tetanus toxoid was estimated to reduce mortality from neonatal tetanus by 94 percent.



# Syphilis

- ▶ Pregnant women with untreated syphilis have a 21 percent increased risk of stillbirths (Gomez et al., 2013).
- ▶ Evidence of the effect of antenatal syphilis detection combined with treatment with penicillin suggests a significant reduction in stillbirths, pre-term births, congenital syphilis, and neonatal mortality (Blencowe, Cousens, Kamb, Berman, & Lawn, 2011).



# Malaria

- ▶ Effective prevention strategies for malaria include prophylactic antimalarial drugs through **intermittent preventive treatment (IPT)** and **insecticide-treated bednets (ITNs)**.
- ▶ Intermittent preventive treatment (IPT) against malaria is a malaria control strategy aimed at reducing the burden of malaria in certain high-risk groups, namely pregnant women and children (Gosling, Cairns, Chico, & Chandramohan, 2010).
- ▶ IPT has been shown to improve mean birthweight and reduce the incidence of low birthweight and neonatal mortality (Radeva-Petrova, Kayentao, ter Kuile, Sinclair, & Garner, 2014).
- ▶ ITNs have been shown to reduce fetal loss by 33 percent (Gamble, Ekwaru, & ter Kuile, 2006).



# HIV

- ▶ Most children with HIV acquire it from their mothers, and Antiretroviral Therapy (ART) is vital in preventing vertical (mother-to-child) transmission.
- ▶ Short ART courses commencing before labor, with treatment extended to newborns during the first week of life, have been shown to significantly reduce mother-to-child HIV transmission

(Siegfried, van der Merwe, Brocklehurst, & Sint, 2011)



# Treatment of Diabetes Mellitus and Gestational Diabetes Mellitus (GDM)

- ▶ Optimal blood glucose control in pregnancy compared with suboptimal control was associated with a 60 percent reduction in the risk of perinatal mortality (Syed, Javed, Yakoob, & Bhutta, 2011).
- ▶ Lifestyle change is an essential component of management of gestational diabetes mellitus and may suffice for the treatment of many women. Medications should be added if needed to achieve glycemic targets (American Diabetes Association, 2019)



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