

# Maternal and Child Health

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Pre-seminar MCQs:



# Pre-seminar MCQs:

Q1 : Which one of the following nutrient deficiency in a pregnant woman can lead to neural defect in her child?

- A) Iron
- B) Folate
- C) Calcium
- D) Omega 3



# Pre-seminar MCQs:

Q2 : Which of the following side effects are associated with maternal smoking during pregnancy?

- A) Cleft lip
- B) cleft palate
- C) Sudden infant death syndrome
- D) All of them



# Pre-seminar MCQs:

Q3 : which on of transmission infection cause jaundice?

- A) Hepatitis
- B) Gonorrhoea
- C) Syphilis
- D) Chlamydia



# Pre-seminar MCQs:

Q4: Which one of the following is the major cause of maternal mortality in Saudi Arabia?

- a) Infection
- b) Hemorrhage
- c) High blood pressure
- d) Unsafe abortion



# Pre-seminar MCQs:

Q5: Which one of the following is considered as a long-term complication of prematurity?


- A) Breathing difficulties
- B) Infections
- C) Jaundice
- D) Retinopathy of prematurity




# Objectives:

- Health behaviors and health systems indicators that affect the health, wellness, and quality of life of women, children, and families.
- Factors affecting pregnancy and childbirth, including preconception health status, Age, access to appropriate preconception and interconnection health care, and poverty
- Health risks that include hypertension and heart disease, diabetes, depression, genetic conditions, sexually transmitted diseases (STDs), inadequate nutrition, unhealthy weight, tobacco use and alcohol abuse.
- Social and physical determinants of maternal health.
- Social and physical determinants of infant and child health.
- How to improve the health and well-being of women, infants, children, and families.





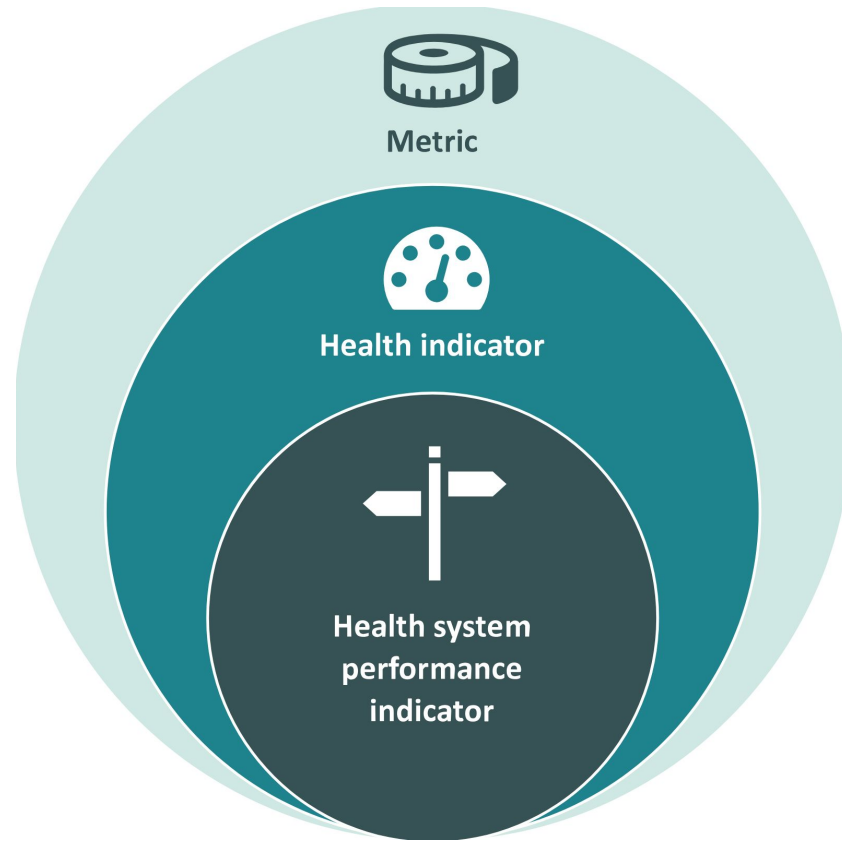
Health behaviors and health systems indicators that affect the health, wellness, and quality of life of women, children, and families.



# What are health indicators?

- A **health indicator** is a measure designed to summarize information about a given priority topic in population health or health system performance.
- They provide **comparable** and actionable information across different geographic, organizational or administrative boundaries and/or can track progress over time.

# Health measures





How many Maternal, Newborn, and Child health indicators are there?



11

Health Indicators

# What are they?

1. Maternal mortality ratio
2. Under-five child mortality, with the proportion of newborn deaths
3. Children under five who are stunted
4. Proportion of demand for family planning satisfied (met need for contraception)
5. Antenatal care coverage (at least four times during pregnancy)
6. Antiretroviral (ARV) prophylaxis among HIVpositive pregnant women to prevent HIV transmission and antiretroviral therapy for [pregnant] women who are treatment-eligible
7. Skilled attendant at birth
8. Postnatal care for mothers and babies within two days of birth
9. Exclusive breastfeeding for six months (0-5 months)
10. Three doses of combined diphtheria-tetanus-pertussis (DTP3) immunization coverage (12-23 months)
11. Antibiotic treatment for suspected pneumonia

# Maternal Mortality Ratio (MMR)

**Definition:** The ratio of the number of recorded (or estimated) maternal deaths during a given time period per 100 000 live births during the same time period.

**Use:** Maternal mortality is a sensitive measure of health system strength, access to quality care and coverage of effective interventions to prevent maternal deaths. The MMR represents the risk associated with each pregnancy.



# Under-five mortality rate (with the proportion of newborn deaths)

**Definition:** The probability that a child born in a specific year or time period will die before reaching the age of five (expressed as a rate per 1000 live births)

The proportion of newborn deaths is the proportion of all child deaths that occur among infants up to four weeks (28 days) of age.

**Use:** The under-five mortality rate is a key indicator for measuring child well-being, including health and nutritional status. It is also a key indicator of the coverage of child survival interventions and, more broadly, of social and economic development.

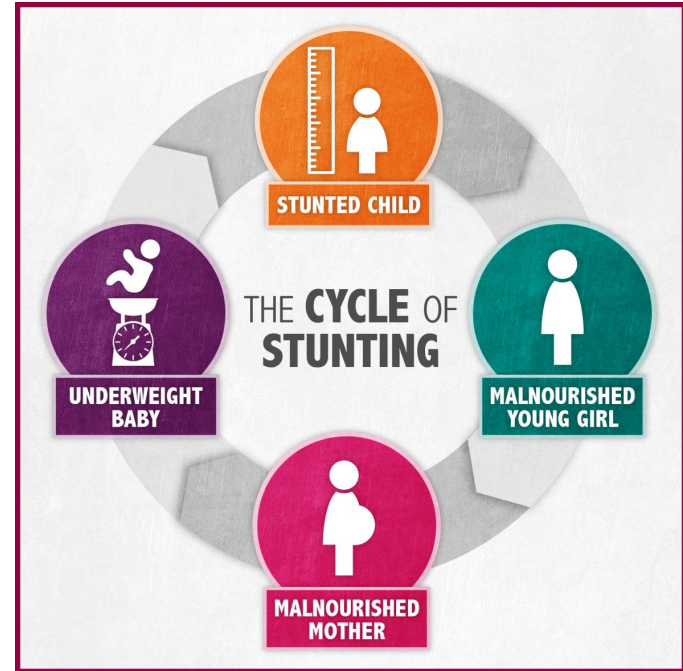




# Stunting prevalence

**Definition:** Percentage of children under five who are stunted

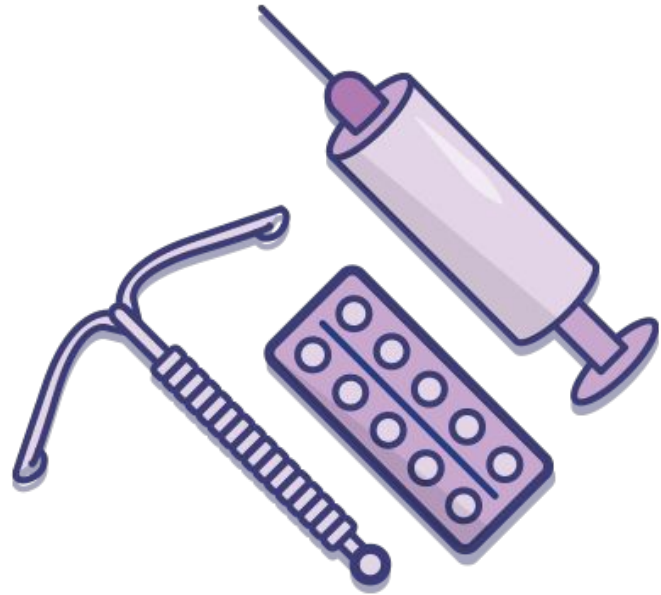
**Use:** Stunting is widely recognized as the most important anthropometric indicator for young children, because adequate linear growth depends on optimal nutrition, disease prevention and child care practices. Stunting reflects continued, long term exposure to poor health and nutrition, particularly during the first two years of life.



# Demand for family planning satisfied

**Definition:** Percentage of women of reproductive age (15-49 years or age), either married or in a union, who have their need for family planning satisfied.

**Use:** This indicator enables assessment of family planning programmes and progress in providing contraceptive services to women and their partners who wish to make decisions about family size and timing of pregnancies. This contributes to maternal and child health by preventing unintended pregnancies and pregnancies that are too closely spaced, which are at higher risk for poor obstetrical outcomes.



# Antenatal care, four or more visits

**Definition:** Number of women attended at least four times during pregnancy by any provider (skilled or unskilled) for reasons related to the pregnancy.

**Use:** The antenatal period represents an important opportunity for providing pregnant women with interventions that may be vital to their health and well-being and that of their infants. Measurement of whether pregnant women received antenatal care, however, is not sufficient for capturing information on the specific services delivered.



# Antiretrovirals for HIV-positive pregnant women

**Definition:** 1. Percentage of HIV-infected pregnant women provided with antiretroviral drugs to reduce the risk of mother-to-child transmission during pregnancy and delivery

2. Percentage of HIV-infected (pregnant) women who are treatment eligible provided with antiretroviral therapy

**Use:** These two indicators allow countries to monitor coverage with antiretroviral medicines of HIV-infected pregnant women to reduce the risk for transmission of HIV to infants, and for their own health.



# Skilled attendant at birth

**Definition:** Percentage of live births attended by skilled health personnel.

**Use:** This is a measure of a health system's ability to provide adequate care for pregnant women during labour and delivery. The indicator may not sufficiently capture women's access to high quality care, particularly when complications arise. It also does not provide information on availability of any supplies and equipment a skilled attendant may need.



# Postnatal care for mothers and babies within two days of birth

**Definition:** Percentage of mothers and babies who received postnatal care within two days of childbirth

**Use:** The majority of maternal and newborn deaths occur within a few hours after birth, mostly within the first 48 hours. Deaths in the newborn period (first 28 days) are a growing proportion of all child deaths. Postnatal care contacts, especially within the first few days following birth, are a critical opportunity for improving maternal and newborn health and survival.





# Exclusive breastfeeding (up to six months)

**Definition:** Percentage of infants ages zero to five months who are exclusively breastfed

**Use:** Exclusive breastfeeding (up to six months) confers many benefits to the infant. Chief among these is the protective effect against gastrointestinal infections, which is observed not only in developing but also in industrialized countries. The risk of mortality due to diarrhoea and other infections can increase many-fold in infants who are either partially breastfed or not breastfed at all.



# Three doses of combined diphtheria-tetanus-pertussis (DTP3) vaccine immunization coverage

**Definition:** Percentage of infants who received three doses of diphtheria-tetanus-pertussis vaccine.

**Use:** Although vaccine-preventable, these diseases cause a substantial global disease burden, particularly in low and middle-income countries and among children under five years of age. Immunization coverage with three doses of DTP is often used as an indicator of a health system's performance.

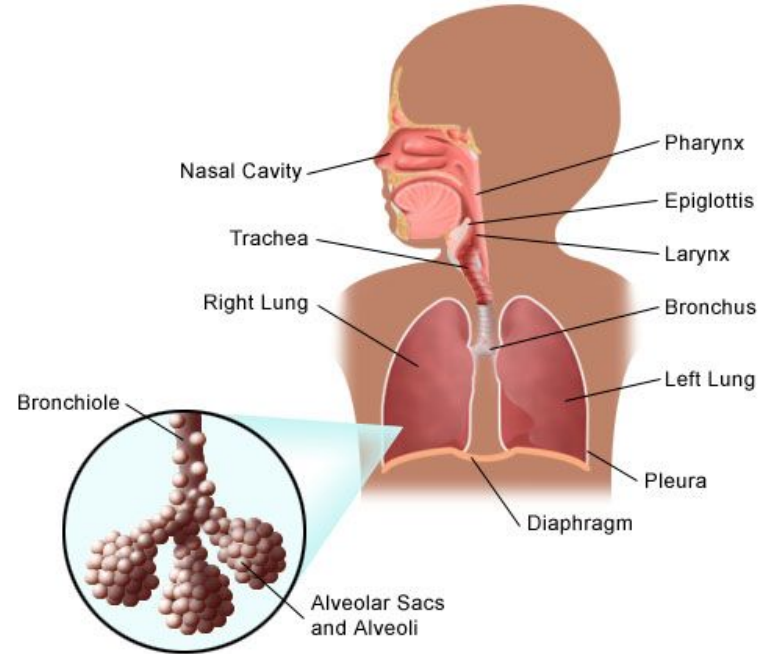




# Antibiotic treatment for childhood pneumonia

**Definition:** Percentage of children ages 0-59 months with suspected pneumonia receiving antibiotics.

**Use:** Pneumonia is closely associated with undernutrition and poor home environments that leave children more exposed to disease-causing pathogens. A key intervention for controlling pneumonia in children is prompt treatment with a full course of appropriate antibiotics. Effective case management at the community and health facility levels is needed to ensure that sick children receive appropriate treatment.





# Factors Affecting Pregnancy and Childbirth



# Factors Affecting Pregnancy and Childbirth

## Maternal health and fetal development

Maternal nutrition.  
Smoking.  
Drinking.  
Diseases ( GDM, thyroid diseases , infections  
...etc.).  
Drugs.  
Maternal age.  
Prenatal care.

## Pregnancy and childbirth

Preconception.  
health status.  
Age.  
Access to appropriate preconception.  
Interconception health care.  
Poverty.

# Preconception:

What does preconception  
health mean?



# Preconception:

- **Preconception health:**  
refers to the health of women and men during their reproductive years, which are the years they can have a child. It focuses on taking steps now to protect the health of a baby they might have sometime in the future.
- Preconception health care is different for every women, depending on her unique needs. Based on her health.

# Preconception:

- **Lifestyle and Behaviors:**
  - Drinking Alcohol, Smoking, and Using Street Drugs.
- **Medical Conditions:**
  - Sexually transmitted diseases (STDs), diabetes, thyroid disease, seizure disorders, high blood pressure, arthritis, eating disorders, and chronic diseases.
- **Medications:**
  - Taking certain medicines during pregnancy can cause serious birth defects. These include some prescription and over-the-counter medications and dietary or herbal Supplements.
- **Other conditions like:**
  - Unintended pregnancy , experiencing physical abuse , experiencing high levels of stress.

# Interconception

- Interconception health involves helping a woman understand the importance of being healthy between pregnancies and the need to wait at least 18 months before becoming pregnant again to help optimize birth outcome.
- Talking to a health-care provider before becoming pregnant at least 6 months.
- Accessing services such as the Special Supplemental Nutrition Program for Women, Infants, and Children.

# Antenatal care:

Is the care that a mother receive from healthcare professionals during pregnancy.

- Folic acid and vitamin D supplements.
- Nutrition, diet and food hygiene.
- Lifestyle factors : smoking, recreational drug use and drinking alcohol.
- Antenatal screening tests.
- Any complications or infections in a previous pregnancy.
- Treatment for a chronic disease.





# Age:

The chances of surviving the first year of life were better for infants born to mothers aged 20-34 years than for those born to mothers of other ages.

The most favorable survival rates were among first births to mothers aged 20-24 and among first and second births to mothers aged 25-29.



# Age:

## Age under 20

Women under the age of 20 have a significantly higher risk of serious medical complications related to pregnancy than those over 20.

### **Teenage mothers are more likely to:**

Deliver prematurely.

Have a baby with low birth weight.

Experience pregnancy-induced hypertension.

Nutritional deficiencies.

AT THIS AGE .....



DON'T GET TO

# Age:

## Age over 35

The chances of conceiving begin to decline. An older woman who becomes pregnant is also less likely to have a problem-free pregnancy.

### Common issues include the following:

- Both miscarriage and ectopic pregnancy are more common in older women.
- By the age of 45, women have about a one-in-two risk of miscarrying.
- The risk of Down's syndrome, according to age, is:
  - age 20: one in 1,500
  - age 30: one in 900
  - age 40: one in 100
  - age 45: one in 50 or greater
- More likely to give birth by caesarean.



# Poverty and pregnancy:

- Overall excess mortality risk was approximately 60% compared with infants born to women living above the poverty level.
- Mothers living in poverty are likely to face multiple stressful life events, including lone-mother and teenage pregnancies, unemployment, more crowded or polluted physical environments, and far fewer resources to deal with these exposures.
- And for their fetuses there are increased risks for preterm birth, intrauterine growth restriction, and neonatal or infant death.
- Poverty has consistently been found to be a powerful determinant of delayed cognitive development and poor school performance.
- Behavior problems among young children and adolescents are strongly associated with maternal poverty.



# Health risks



# Health Risk Factors

1



HTN

2



HEART  
DISEASE

3



GDM

4



DEPRESSION

5



TOBACCO  
&  
ALCOHOL  
USE

6



STD

7



GENETIC  
FACTOR

8



NUTRITION

9



UNHEALTHY  
WEIGHT

# HTN

1



- Most common medical problem encountered during pregnancy, complicating 2-3% of pregnancies

MATERNAL COMPLICATION	CHILD COMPLICATION
1- Preeclampsia	1- Preterm delivery
2- Placental abruption	2- Failure to thrive
3- Gestational diabetes	3- Infant death
4- Future cardiovascular disease	
5- Decreased blood flow to the placenta	

- Preeclampsia : high BP and signs of damage to another organ system (proteinuria) , usually after 20 weeks of pregnancy , **Eclampsia** is a very serious condition in which the woman experiences seizures due to hypertension.

# Heart Disease

2



- Cardiovascular disease (CVD) complicates 1% to 4% of pregnancies
  - Successful pregnancies can be achieved when cardiac complications are managed during pregnancy.
  - Leading Cause of maternal death worldwide.
- 
- Myocardial infarction
  - Cardiomyopathy
  - Rheumatic heart disease
  - Congenital heart diseases.



# Gestational Diabetes Mellitus (GDM)

3



- Is when a woman **without** diabetes, develops high blood sugar levels **during** pregnancy , usually blood sugar returns to normal soon after delivery. But still at risk for type 2 diabetes.
- Approximately 7% of all pregnancies are complicated by GDM more than 200,000 annually.

- **RISK FACTORS :**

- Age greater than 25
- Family history
- Excess weight (30 or higher BMI)

- **Complication :**

MATERNAL COMPLICATION	CHILD COMPLICATION
1- Future DM	1- Low blood sugar
2- Preeclampsia	2- Preterm birth with respiratory distress syndrome
3- Cesarean birth	3- High birth weight

# Depression

4



- **Depression** - Extreme sadness during pregnancy or after birth (postpartum).
- **Postpartum depression** It can start any time during baby's first year, but it's most common to start to feel its effects during the first 3 weeks after birth.
- **Symptoms:**
  1. Intense sadness
  2. Helplessness and irritability
  3. Appetite changes
  4. Thoughts of harming self or baby



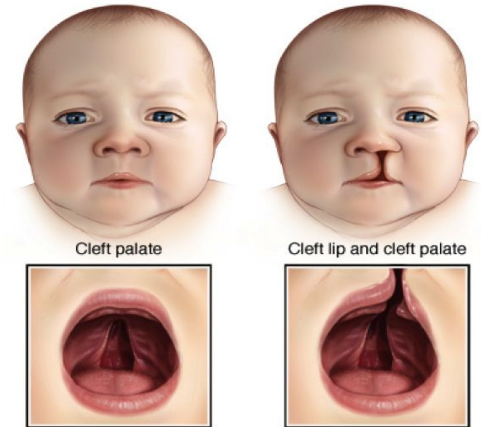
# Tobacco & Alcohol Use

## 5.1



### First: Smoking

- **Why is it so dangerous to smoke during pregnancy?**
  - Cigarette smoke contains more than 4,000 chemicals, including truly nasty things like cyanide, lead, and at least 60 cancer-causing compounds. When mom smokes during pregnancy, that toxic brew gets into her bloodstream, her baby's only source of oxygen and nutrients.
- **Smoking effect:**
  - Harder for a woman to get pregnant.
  - Placenta can separate
  - Pre-term birth
  - Cleft lip or cleft palate
- **Second smoke effect:**
  - Low birth weight .
  - Ear infections AND asthma attacks
  - Sudden Infant Death Syndrome



# Tobacco & Alcohol Use

## 5.2



### Second: Alcohol Use

- Can pregnant women drink small amount of alcohol or beer? Why?
  - There is **No** known safe amount of alcohol use during pregnancy.
  - Alcohol in the mother's blood passes to the baby through the umbilical cord

- **Complication of drinking alcohol during:**

1. Miscarriage, stillbirth
  2. Growth and central nervous system problems
  3. Fetal alcohol spectrum disorders :
- **Physical issues :**  
Low birth weight  
Problem with heart , kidney and other organ  
Damage part of brain
  - **Behavioral and intellectual disabilities :**  
Learning disabilities and low IQ  
Difficulty with attention  
Poor communication



# Tobacco & Alcohol Use

5.2



## FETAL ALCOHOL SYNDROME

© Lineage

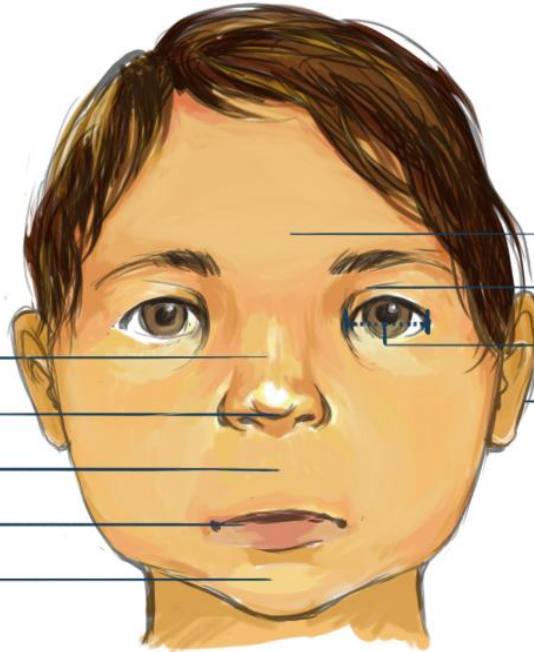
Low nasal bridge

Short nose and flat midface

Smooth philtrum

Thin upper lip

Micrognathia (small jaw)



Microcephaly (small forehead)

Epicanthal folds

Short palpebral fissures

Minor ear abnormalities

# Sexual Transmitted Disease (STD)

## 6.1



### 1- Perinatal HIV/AIDS

- It recommends that all women who are pregnant or planning to get pregnant should get tested for HIV as early as possible.
- If a woman is treated for HIV early in her pregnancy, the risk of transmitting HIV to her baby can be 1% or less.
- **How to lower the risk of transmitting HIV from the mothers to their babies?**
  1. HIV medication
  2. Cesarean delivery
  3. No breastfeeding
  4. No pre-chewing her baby's food.

# Sexually Transmitted Disease (STD)

## 6.2



### 2-Chlamydia:

Most women have NO symptoms and it is Easy to cure

Chlamydia lesions on genitals are highly contagious and infect the baby during **labor**

**Complications during Pregnancy** : early delivery, eye infection or ectopic pregnancy.

### 3-Gonorrhea :

**complications during Pregnancy** : miscarriage, preterm birth

The complications **before** and **after** pregnancy if untreated : cause pelvic inflammatory disease

Gonorrhea in newborns most commonly affects the eyes

### 4-Syphilis:

Typically occurs during **second half** of pregnancy

May be transmitted to baby by infected mother.

**Complications during Pregnancy** : premature birth, stillbirth , death in some cases

# Sexually Transmitted Disease (STD)

6.3



## 5- Herpes simplex virus:

Herpes is safe in pregnant women until she gets ready to deliver.

Herpes lesions on genitals are highly contagious and infect the baby during labor

## 6- Hepatitis

Acute viral hepatitis is the most common cause of jaundice in pregnancy.

Breast feeding is safe in type B and C hepatitis, unless the nipples are cracked or bleeding since the virus spreads through blood



# Genetic Factor

7



- More than 50 percent of miscarriages in the early stages of pregnancy are due to **abnormalities** of the chromosomes

# Nutrition

8



1. **Malnutrition:** fail to gain weight in pregnancy Mother die while pregnant
2. Important nutrients for the mother and child

- Mother :

**Iron:** preterm birth , Neurological dysfunction ,  
risk of death from bleeding during childbirth

**VitA:** night blindness

- Child

**Folate:** neural tube defect

**Calcium:** poor skeletal development

**Iron:** low birth weight

# Unhealthy Weight

9



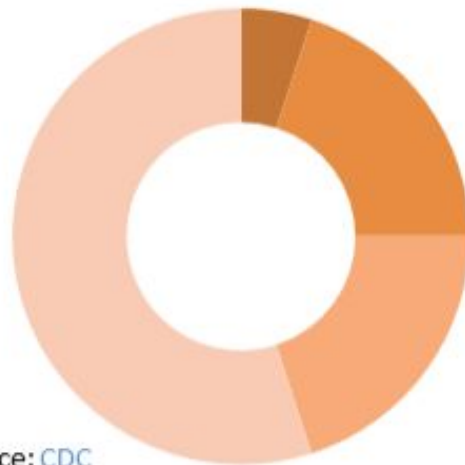
1. A women weight before and during pregnancy are important indicators of health for both mother and child.
2. Recent studies showed overweight or obese before pregnancy associated with a higher pregnancy **complication like :**
  - Preeclampsia.
  - GDM.
  - Stillbirth.
  - cesarean delivery



Social and physical determinants of maternal,  
infants and child health.



## Determinants of Population Health



■ Genes and Biology

■ Medical care

■ Health behaviors

■ Total ecology - social and societal characteristics

source: [CDC](#)

Social and physical determinants of health reflect the conditions of the environment in which people are born, live, learn, play, work, and age.

Why should we care about the  
determinants?

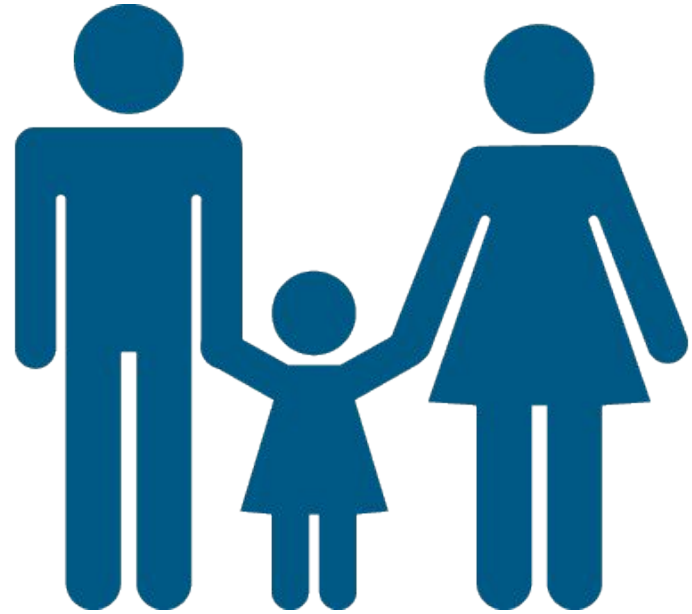
Social and physical  
determinants of maternal  
and child health





# Biological determinants

1. Birth weight
2. Age of mother
3. Multigravidity
4. Birth spacing
5. Multiple births



# Social determinants

## Structural determinants of health inequities

### Governance and policies

- Education
- Health finance and infrastructure
- Social protection
- Laws (gender equality, anti-violence, etc.)
- Reproductive health and rights

### Culture and social values

- Women's status
- Gender norms
- Religion
- Health beliefs
- Social cohesion

## Intermediary determinants of health

### Health services

- Availability of relevant services (antenatal care, skilled delivery, referrals for emergency obstetric care)
- Staff skills and technical competence
- Acceptability to the community
- Fees and related costs

### Community context

- Rural/urban residence
- Social position (class, wealth, ethnicity)
- Awareness of care
- Perceptions of quality
- Distance to facilities
- Social capital

### Family and peer influences

- Family structure and decision-making
- Marital relationship
- Spousal communication
- Income
- Access to resources
- Support networks

### Individual attributes

- Age
- Number of children
- Knowledge
- Self-efficacy

MATERNAL  
HEALTH  
OUTCOMES

## **Shanta's Story**

In her third pregnancy with two previous girl children, Shanta was under tremendous pressure to produce a son. The ANM however insisted that her husband should undergo sterilization as they already had two children. In this scenario, no antenatal care was provided to Shanta this time, nor did she seek care. She later delivered a boy who however died of prematurity. Shanta went into depression and died four months later of a worsening infected ulcer on her leg.



How to improve the health and well-being of  
women, infants, children, and families.



- How to improve the health and well-being of women, infants, children, and families.

• Approximately **830 women** die **every day** from causes related to pregnancy and childbirth.

• **5.9 M** children under age five died in 2015, **16K every day**.

## WHAT ARE PREGNANT WOMEN DYING FROM?

**28%**

Pre-existing medical conditions exacerbated by pregnancy (such as diabetes, malaria, HIV, obesity)

**3%**

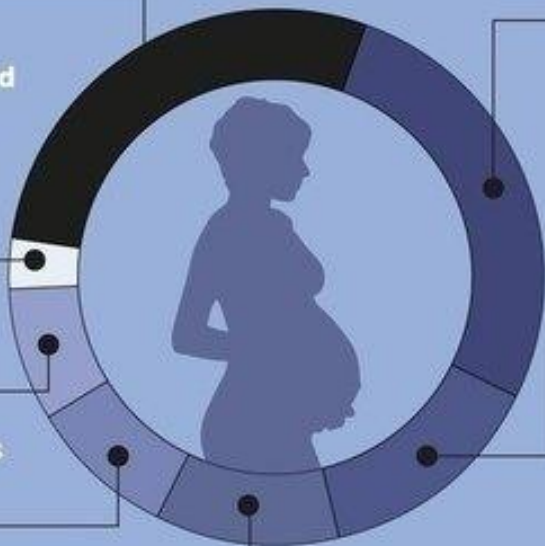
Blood clots

**8%**

Abortion complications

**9%**

Obstructed labour and other direct causes



**27%**

Severe bleeding

**14%**

Pregnancy-induced high blood pressure

**11%**

Infections (mostly after childbirth)



World Health Organization

## Pregnancy

- Antenatal Care (mentioned previously)

## Delivery

- Prevent complications
- Assess for Vaginal bleeding, Uterine contractions, Temp and HR in the 1st 24hrs.

## Post Delivery

- Assess breastfeeding
- Ask about the emotional well-being. *Why?*
- Ask about sexual intercourse and dyspareunia as part of overall well being.
- Supplements and vaccination

# What are the symptoms of Postpartum Depression?





- Depressed mood & mood swings
- Crying and reduced interests and pleasure
- Difficulty bonding with the baby
- Feeling you're not a good mother
- ... ..
- .... .
- .. . . .
- .. . . . . .
- ... . . . . etc



# Infant and child health



# Causes of child mortality in 2013 and annual rate of reduction since 2000

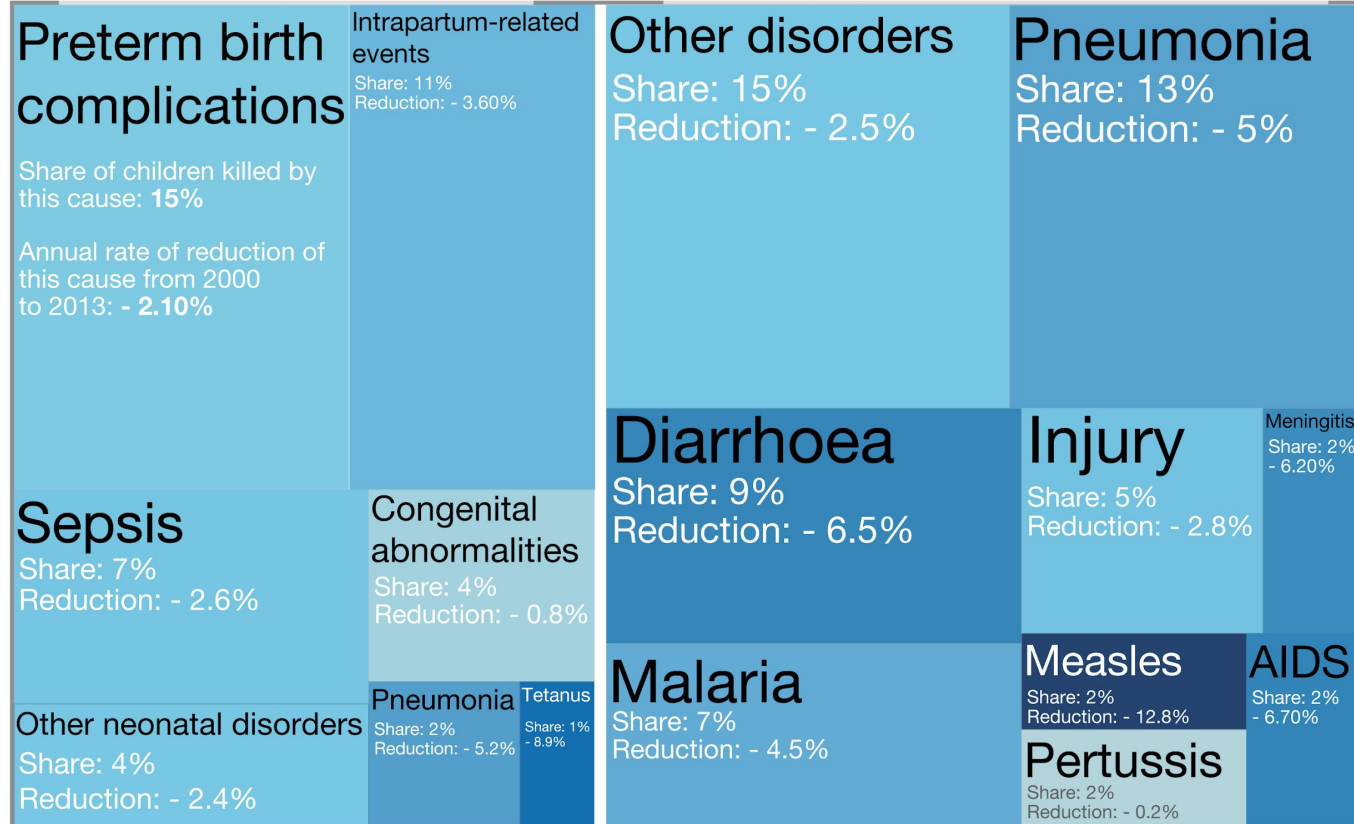
6.3 million children died before the age 5 years in 2013 (44% of which died in the first month of their life). In 2000 9.9 million children died.

– The size of the rectangle shows the share of children killed by each cause

– The color indicates the annual reduction of that cause since 2000 (child mortality from all causes declined). -0.2%  -12.8%

## Newborns dying in their 1<sup>st</sup> month

## Children dying after 1<sup>st</sup> month and before 5 years



**Pregnancy related:**

Birth defects

Preterm birth

Birth Injuries (suffocation)

**Non-pregnancy related:**

Malnutrition

Infections

Diarrhea

Sudden Infant Death Syndrome  
(SIDS)

› **promote early and exclusive breastfeeding (EBF).**

- Evidence shows EBF reduces the risks of mortality and morbidity and improves post-neonatal outcomes.

› **Preterm and low-birth-weight babies** should be identified as soon as possible and should be provided special care.

› A full clinical examination should be done 1 hour after birth. This includes giving **vitamin K prophylaxis and hepatitis B vaccination** (within 24 hours).



**Vaccinations** (for mom and baby)  
??????



## For Mom:

- Rubella
- Measles

## For baby:

- Hepatitis B
- TB

<b>Timing</b>	<b>Vaccine name</b>
Birth	BCG, HBV1
2 months	Hexa1 (HBV, DTaP, HiB, IPV), Rota1, PCV1
4 months	Hexa2 (HBV, DTaP, HiB, IPV), Rota2, PCV2
6 months	Hexa3 (HBV, DTaP, HiB, IPV), OPV1, PCV3
9 months	Measles, MCV1
12 months	OPV2, MMR1, PCV4, MCV2
18 months	OPV3, DTaP, Hib, MMR2, varicella, HAV1
24 months	HAV2

BCG - bacille calmette guerin,

HBV - hepatitis B vaccine, DTaP - diphtheria-tetanus-acellular pertussis,

Hib - haemophilus influenzae type B vaccine, Rota - rotavirus vaccine,

PCV - pneumococcal conjugate vaccine, IPV - injectable polio vaccine,

OPV - oral polio vaccine, MMR - measles-mumps-rubella vaccine,

HAV - hepatitis A vaccine, MCV - meningococcal vaccine



# MCQs answers:

Q1 : Which one of the following nutrient deficiency in a pregnant woman can lead to neural defect in her child?

- A) Iron
- B) Folate
- C) Calcium
- D) Omega 3



# MCQs answers:

Q2 : Which of the following side effects are associated with maternal smoking during pregnancy?

- A) Cleft lip
- B) cleft palate
- C) Sudden infant death syndrome
- D) All of them



# MCQs answers:

Q3 : which on of transmission infection cause jaundice?

- A) Hepatitis
- B) Gonorrhoea
- C) Syphilis
- D) Chlamydia



# MCQs answers:

Q4: Which one of the following is the major cause of maternal mortality in Saudi Arabia?

- a) Infection
- b) Hemorrhage
- c) High blood pressure
- d) Unsafe abortion



# MCQs answers:

Q5: Which one of the following is considered as a long-term complication of prematurity?

- A) Breathing difficulties
- B) Infections
- C) Jaundice
- D) Retinopathy of prematurity



# ROLE PLAY



# References

- Cihica. 2019. Cihica. [Online]. [4 February 2019]. Available from: <https://www.cihi.ca/en/health-indicators>
- Whoint. 2019. Whoint. [Online]. [4 February 2019]. Available from: [https://www.who.int/woman\\_child\\_accountability/progress\\_information/recommendation2/en/](https://www.who.int/woman_child_accountability/progress_information/recommendation2/en/)
- Whoint. 2019. Whoint. [Online]. [4 February 2019]. Available from: [https://apps.who.int/iris/bitstream/handle/10665/44770/9789241502818\\_eng.pdf;jsessionid=68A16224D625D4F018A51EABFE98D2C8?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/44770/9789241502818_eng.pdf;jsessionid=68A16224D625D4F018A51EABFE98D2C8?sequence=1)
- CDC <https://www.cdc.gov/preconception/planning.html>
- Poverty during pregnancy <https://www.ncbi.nlm.nih.gov/pubmed/19030445>
- WHO [https://www.who.int/maternal\\_child\\_adolescent/epidemiology/maternal-death-surveillance/case-studies/india-social-determinants/en/](https://www.who.int/maternal_child_adolescent/epidemiology/maternal-death-surveillance/case-studies/india-social-determinants/en/)



THANK YOU FOR YOUR ATTENTION!

**Any questions?**

