Lecture (5+6+7)

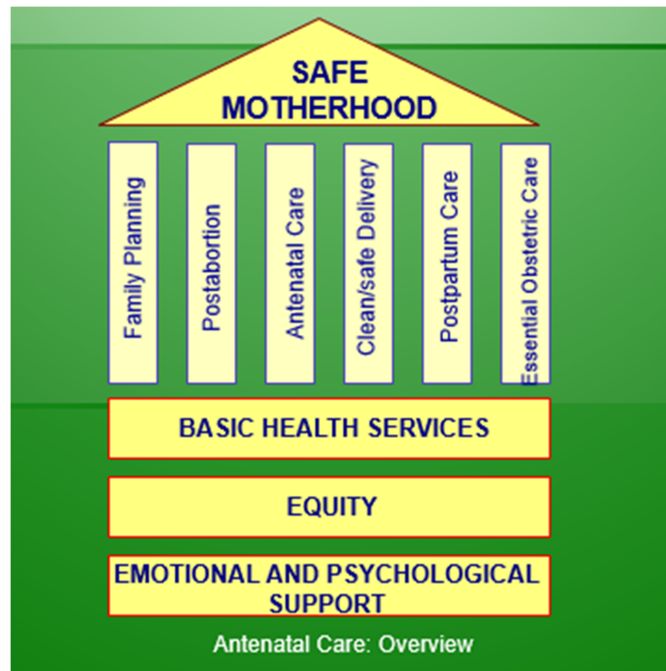
- **Content of MCH Care Services and Priorities :**
  - M.C.H. Care at various stages of development: (**Services**):

a) Maternal

b) Infant and child

➔ **A) Maternal services**

Essential Health Sector Interventions for Safe Motherhood



- **Maternal health services :**

1) Premarital [pre marriage] services

➔ Target population

- Couples about to marry.
- The newly weds.
- Any individual seeking advise.

➔ Main function:

- Sexuality and puberty
- Marriage and parenthood
- Family health education
- Avoiding hazards (smoking, Alcohol, drugs)
- Nutrition and weight monitoring
  - **BMI (body mass index)** → preferred **indicator** of **nutritional status**
  - Preconceptional intake of folic acid
  - **Anemia** during pregnancy is commonly associated with poor pregnancy outcome and can result in complications that threaten the life of both mother and fetus.

complications of severe maternal anemia :

1. spontaneous abortions
2. fetal deaths
3. low birth weight
4. Prematurity : Birth is considered premature, or preterm, when it occurs before the 37th week of pregnancy. **A normal pregnancy lasts about 40 weeks.**

*__Premature infants__ may also be born with **life-threatening conditions**. These can include:

a) brain hemorrhage
b) pulmonary hemorrhage
c) Neonatal sepsis : a bacterial **blood** infection
d) anemia: a lack of red blood cells for transporting oxygen throughout the body
e) patent ductus arteriosus: an unclosed hole in the main blood vessel of the **heart**
f) Hypoglycemia
g) Pneumonia: an infection and inflammation of the **lungs**
h) neonatal respiratory distress syndrome: a breathing disorder caused by underdeveloped lungs

Now, lets go back to continue the functions of premarital services

- Immunization :

✓ Rubella (commonly known **as 'German Measles'**) : is a common childhood viral disease that may affect adults as well.

✓ Vaccine against Rubella : **MMR vaccine**

✓ primary rubella infection in pregnancy, especially in the first trimester, can have serious **consequences** : 1. miscarriage اجهاض 2. intrauterine fetal demise موت الجنين داخل الرحم 3. congenital rubella syndrome (**CRS**).

✓ **Vaccination against rubella** was fitted into Jordanian Expanded Program on Immunisation in the year 2000 **for children at 18 months of age** .

✓ However, this program did not offer rubella vaccination for adolescent girls and adult females → which theoretically made the childbearing women as the most susceptible cluster to rubella.

✓ Pregnant women and their unborn babies are especially vulnerable.

✓ Because **MMR vaccine** is an **attenuated (weakened) live virus vaccine**, pregnant women should not get MMR vaccine.

✓ Women who are planning to become pregnant should check with their healthcare professional to make sure they are vaccinated before they get pregnant.

✓ Adult women of childbearing age should avoid getting pregnant for **at least four weeks after** receiving MMR vaccine.

back another time to continue the functions of premarital services

- Medical history , past medical history.
- Past Menstrual history.
- Physical examination.
- Sexually Transmitted diseases (**STDs**).
- Genetic Counseling **:**

Premarital screening and genetic counselling (PMSGC)

- ✓ (PMSGC) popular in the Middle East as it is religiously and socially unacceptable to bear children outside of marriage
- ✓ **aims to :**
  identify β-thalassaemia carriers among couples planning to marry.
- ✓ Genetic counselling is **provided to** → at-risk couples to ensure they understand the reproductive risks and available options.
- ✓ PMSGC programmes aim to reduce β-thalassaemia births **through**:
  i) prevention of at-risk marriages by **discouragement** during counselling.
  (ii) where legal, termination of affected foetuses through prenatal diagnosis (**PND**) and therapeutic abortion.

- Fertility investigation.
- Hormonal for females.
- Semen analyses for males.

← back to continue functions of premarital services

➔ **Pre-marital medical exams JPFHS 2017**

- About half of ever-married women and their husbands had a pre-marital medical exam.
- Premarital exams are much more common among those with higher education (over 65%) than those with no education (below 25%)

Lets continue the points related to maternal services [all info mentioned previously are related to point 1 of the maternal services which was premarital services

2) Preconceptional.

➔ Definition : Preconception health is a woman's health **before** she becomes pregnant.

➔ **Preconception services :**

- Past Medical history
- Controlling risk factors
- Social history
- Psychological and social counseling.

3) Conceptional

→ Definition : Care **during** pregnancies and labor:

Eg; A.N.C. [ANC Antenatal care]

- ✓ **What is antenatal care ?**
  the services offered to mother and unborn child during pregnancy
  it is an essential part of basic primary healthcare during pregnancy,
  and offers a mosaic of services that can prevent, detect and treat risk factors early on in the pregnancy.
- ✓ Antenatal care is a **systemic supervision** of a women during pregnancy to monitor the progress of foetal growth and to ascertain the well being of the mother and the foetus
- ✓ ANC is an "**umbrella term** used to describe the medical procedures and care that are carried out during pregnancy".
- ✓ it is planned examination, observation and guidance given to the pregnant woman from conception till the time of labor.

- A proper antenatal check ups provides necessary care to the mother and to help identify any complications of pregnancy
- The first visit or initial visit should be made as early is pregnancy as possible.
- [note: Risky Pregnancy → more ANC]
- **The antenatal period is also an ideal opportunity to supply information on future birth spacing, which is recognized as an important factor in improving infant survival.**

→ **Objectives of ANC :**

1-Promote and maintain the physical, mental and social health of mother and baby **by providing education on** a) nutrition b) personal hygiene c) birthing process
2-Detect and manage complications during pregnancy, whether medical, surgical or obstetrical
3-Assess the risk of complications in later pregnancy, labour or delivery and arrange for a suitable level of care.
4-Develop birth preparedness and complication readiness plan
5-Help prepare mother to *breastfeed* successfully, *experience normal puerperium, and take good care of the child physically, psychologically and socially*

→ **Why is antenatal care important ?**

- To ensure a normal pregnancy with delivery of healthy baby from healthy mother
- Prevent development of complications
- Decrease maternal and infant mortality (death) and morbidity (disease) **by** affording increased chances of the timely identification of high-risk pregnancies
- Remove the stress and worries of the mother regarding the delivery process
- Teach the mother about child care, nutrition, sanitation and hygiene

- Advice about family planning

➔ **Antenatal checks and tests :**

a) Weight and height checks → to calculate BMI (body mass index)
b) Urine tests → urine is checked for several things , including protein or albumin.
c) Blood pressure test
d) Blood tests
e) Ultrasound scan

✓ **What can an ultrasound scan be used for?**

-To check the baby size.
-To detect abnormalities.
-To show the position of the baby and the placenta.
For example, when the **placenta is low down in late pregnancy**, a **caesarean section may be advised.**
-To check that the baby is growing normally

➔ **Pregnancy risk factors that should be considered in ANC:**

1. **Age** under 18 or above 35 in Jordan mean age of females at first marriage 2017 is 26.3 years
2. **Height** (less 150 cm) And Wt. under or over wt.
3. **Education**
4. **Income**
5. **Past Medical history**: Diabetes, cardiac problem, renal disease etc.
6. **Past obstetric history:** Previous caesarean section, vacuum, or forceps delivery
7. **Previous perinatal death, stillbirth**
8. Previous Post partum haemorrhage (**PPH**)
9. Previous ante partum haemorrhage (**APH**)
10. **General condition** of the woman **pre-conceptional** (Hb level, nutritional, blood pressure and general condition.)
11. **Social history :** Smoking, Alcohol, economic status.

➔ Some notes :

- According to JPFHS 2017-2018 , Almost all of the women who received ANC for their most recent birth had had key ANC services performed, including having their blood pressure measured (97%), a urine sample taken (96%), a blood sample taken (97%), and their weight measured (97%)
- In low- and middle-income countries (**LMICs**), ANC utilization has increased since the introduction of **the 2002 WHO ANC model**, known as
→ **'focused' ANC (FANC).**

- ✓ This model **aims** at delivering 'reduced but goal-orientated' clinic visits, at which essential interventions should be provided to pregnant women at specified intervals.
- ✓ With the FANC model, healthy women with no underlying pregnancy complications should be scheduled a minimum of **four** ANC visits, and **more than four** in the case of danger signs or pregnancy-related illnesses.
- ✓ For many of the essential interventions in FANC → it is crucial to **initiate** the care during **the first trimester** of pregnancy (up to 12 weeks of gestation), and schedule the **second visit** at 24 to 28 weeks of gestation and the **third visit** at 32 weeks and **fourth** visit between 36 and 38 weeks of gestation.

➔ **Access to ANC services**

As outlined by the WHO, access to ANC services consists of several **elements including** :

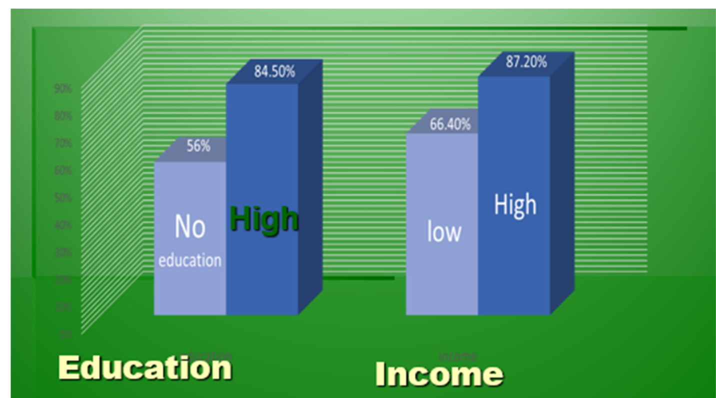
- distance and/or time to a facility
- the physical availability of services
- cultural and social factors that may impede access
- economic and other costs associated with use of services
- the quality of the services offered

- **Antenatal care in Jordan in 2012 *JPFHS***

as we can see there is higher utilization of ANC services when having

1.high education

2.high income



- **Antenatal Care / Jordan JPFHS 2017**

  Almost all ever-married women (98%) age 15-49 received at least one antenatal care (ANC) visit from a skilled provider (doctor or nurse/midwife).

  The timing and quantity of antenatal care visits are important. About 9 in 10 (92%) women age 15-49 made 4+ ANC visits, and 79% had the recommended 7+ visits.

[as the doctor once said not to memorize the numbers included in researches]

- **Antenatal classes in Europe : [this point** is for reading , as mentioned in one of the posts posted in Facebook]

  Topics covered by antenatal classes are:

  - health in pregnancy, including a healthy diet
  - exercises to keep fit and active during pregnancy
  - what happens during labour and birth
  - coping with labour and information about different types of pain relief
  - relaxation techniques during labour and birth
  - information about different kinds of birth and interventions
  - caring for the baby, including feeding
  - health after birth
  - "refresher classes" for those who've already had a baby

These 2 points below follow maternal services mentioned before

4) Delivery Care (Centers, Staff and Equipment's)
5) Postnatal and Family Planning Services.

So as a recap : we have mentioned 5 points regarding maternal health services

1) **Premarital**
2) **Preconceptional**
3) **Conceptional**
4) **Delivery care**
5) **Postnatal and Family Planning Services.**

- **TEENAGE PREGNANCY (adolescent pregnancy) :**
  - The issue of adolescent fertility is important for both health and social reasons.
  - Children born to very young mothers are at increased risk of sickness and death.
  - Teenage mothers are more likely to experience adverse pregnancy outcomes and are more constrained in their ability to pursue educational opportunities than young women who delay childbearing.

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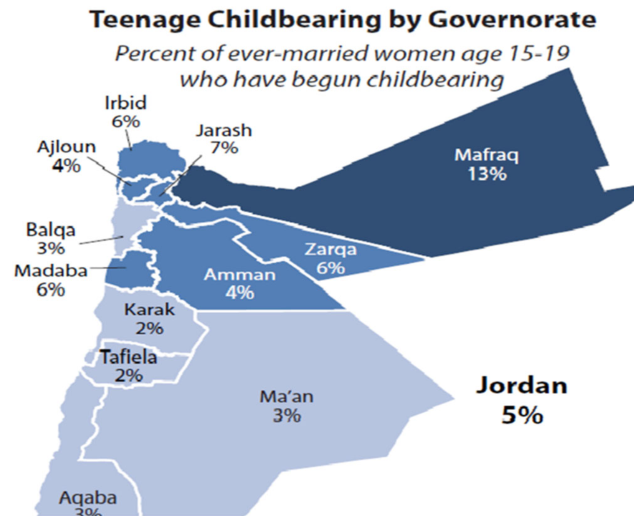


- **Pregnancy complications**

Problem	Symptoms
Anemia (Hb.< 10)	▪ Feel tired or weak ▪ Look pale ▪ Feel faint تشعر بالاغماء ▪ Shortness of breath
Gestational diabetes : Too high blood sugar levels during pregnancy	▪ Usually, there are no symptoms. Sometimes, extreme thirst, hunger, or fatigue ▪ Screening test shows high blood sugar levels

High blood pressure (pregnancy related) **High blood pressure that starts after 20 weeks of pregnancy and goes away after birth**	▪ **High blood pressure without other signs and symptoms of preeclampsia**
Miscarriage **Pregnancy loss from *natural causes* before 20 weeks. As many as 20 percent of pregnancies end in miscarriage. Often, miscarriage occurs before a woman even knows she is pregnant**	**Signs of a miscarriage can include:** ▪ **Vaginal spotting or bleeding*** ▪ **Cramping or abdominal pain** ▪ **Fluid or tissue passing from the vagina** **Spotting early in pregnancy doesn't mean miscarriage is certain. Still, contact your doctor right away if you have any bleeding.** *From google harmless light bleeding, called "spotting".
Preeclampsia **A condition starting after 20 weeks of pregnancy that causes high blood pressure and problems with the kidneys and other organs. Also called toxemia.**	▪ **High blood pressure** ▪ **Headaches** ▪ **Dizziness** ▪ **Blurred vision** ▪ **Swelling of hands and face** ▪ **Too much protein in urine** ▪ **Stomach pain**

Preterm labour : Going into labour before 37 weeks of pregnancy	▪ **Increased vaginal discharge** ▪ **Pelvic pressure and cramping** ▪ **Back pain radiating to the abdomen** ▪ **Contractions**

- **WHAT IS MATERNAL MORBIDITY?'**

➔ **Definition :**

- Any departure, from a state of physiological or psychological maternal well-being; during pregnancy, childbirth and the postpartum period up to 42 days of delivery, related to changes taking place in these periods.
- The WHO Maternal Morbidity Working Group defines maternal morbidity as "any health condition attributed to and/or aggravated تفاقم by pregnancy and childbirth that has a negative impact on the woman's wellbeing"

- **Most frequently reported maternal morbidities "from the most to the least common**" (taken from WHO's systematic review of maternal mortality and morbidity (2003) that covered all published and unpublished reports on maternal mortality and morbidities from 1997 to 2002)

➔ **Causes of Morbidities :**

- **Hypertensive disorders**
- **Stillbirth**
- **Abortion**
- **Hemorrhage**
- **Preterm delivery**
- **Anemia in pregnancy**
- **Diabetes in pregnancy**
- **Ectopic pregnancy**
- **Perineal tears**
- **Uterine rupture**
- **Depression**
- **obstructed labour**
- **Postpartum sepsis**

- **HYPERTENSIVE DISORDERS OF PREGNANCY:**

  - **Chronic hypertension**

  → **Definition :**

  as blood pressure exceeding **140/90** mm Hg before pregnancy or before 20 weeks' gestation.

  - When hypertension first is identified during a woman's pregnancy and she is at less than 20 weeks' gestation, blood pressure elevations usually **represent chronic hypertension.**

  - **Preeclampsia (PE):**

→ **Definition :**

is a multisystem, pregnancy-specific disorder that is characterised by the development of hypertension and **proteinuria** (elevated levels of protein in the urine) after 20 weeks of gestation.

- PE is a leading cause of maternal, perinatal (from the 20th week of gestation to the 4th week after birth), and neonatal mortality and morbidity worldwide.
- Clinically, PE presents as

✓ new-onset hypertension in a previously normotensive woman
✓ with systolic and diastolic blood pressure readings of ≥140 and ≥90 mmHg, respectively
✓ on 2 separate occasions that are at least 6 hours apart
✓ together with proteinuria that develops **after 20 weeks of gestation**

- Preeclampsia occurs in approximately 5% of all pregnancies, 10% of first pregnancies, and 20-25% of women with a history of chronic hypertension.
- Hypertensive disorders in pregnancy may cause maternal and fetal morbidity and remain a leading source of maternal morbidity.
- Although the exact path physiologic mechanism is not clearly understood, preeclampsia can be thought of as a **disorder** of **endothelial** function with **vasospasm**.
- PE can evolve into **eclampsia**

  What is eclampsia ? → it is a severe complication that is **characterised by** new-onset of epileptic seizures, **due to** *angiospasms in the brain* and *brain oedema*.

→ **RISK FACTORS FOR PE :**

❖ **Maternal risk factors:**

- First pregnancy
- Age younger than 18 years or older than 35 years
- History of preeclampsia
- Family history of preeclampsia in a first-degree relative
- Black race

- ❖ **Medical risk factors**
- ▪ Chronic hypertension
- ▪ Preexisting diabetes (type 1 or type 2).
- ▪ Obesity
- ▪ Renal disease
- ▪ Systemic lupus erythematosus

- **Plasma Volume Expansion (PVE) during pregnancy**
  - Plasma volume expansion is a well-documented aspect of pregnancy physiology that is essential to *supporting successful pregnancy outcomes*.
  - Normally during pregnancy
    1) Plasma volume expansion

    Why / physiologic causes ? During pregnancy, maternal plasma volume increases to meet the greater circulatory needs of the placenta and maternal organs (e.g., uterus, breasts, skin), with an average increase of 45%. (The physiologic process of plasma volume expansion achieves a **30–50%** increase from pre-pregnancy concentrations near full term.)

    2) with increases in red blood cell (RBC) volume

    Why ? progesterone → increase in erythropoietin → Increased RBC volume

➔ (1+2) results in an expansion of the total blood volume in pregnancy.

Note that :

- Increased RBC volume is driven by progesterone-mediated increases in erythropoietin, although to a **lesser extent** than plasma volume.

  This effect results in a **dilutional decrease in hematocrit**, which is known as the **physiologic anemia of pregnancy.**

  (**Hematocrit (HCT**) : Hematocrit level is the percentage of red cells in the blood)

- **HEMODILUTION:**

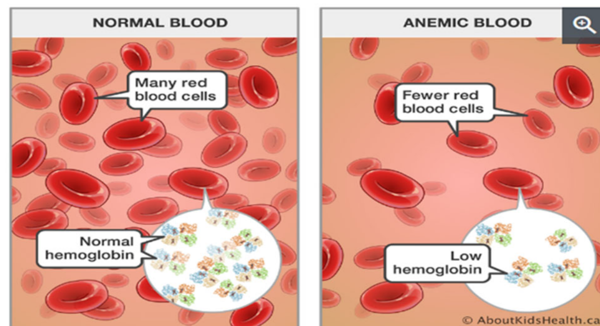
➔ Definition :

Haemodilution occurs **physiologically** in pregnancy. This may result in lower haemoglobin concentrations than in the non-pregnant state. However, many women function well and do not require iron supplementation.

- In adults, normal levels of **HCT**

  for **men** range from **41%-50%.**

  For women, the **normal range** is slightly lower: **36%-44%.**



In normal blood, there are lots of red blood cells. These cells contain a normal type and amount of hemoglobin molecules which work to deliver oxygen to the body. In a person with anemia there are fewer red blood cells or there is less or abnormal hemoglobin in the red blood cells. This can result in less oxygen being delivered to various body tissues.

- **Anemia during pregnancy :**

➔ **Definition :** is a medical condition in which there are not enough healthy red blood cells to carry oxygen to the tissues in the body. When the tissues do not receive an adequate amount of oxygen, many organs and functions are affected.

➔ **Anemia is defined during pregnancy** as a **hemoglobin (Hb) level below 11 gr/ dL** (WHO, 1992).

➔ **IRON DEFICIENCY is responsible for 95% of anemia of pregnancy**
This is called iron deficiency anemia

➔ **FOLATE DEFICIENCY** due to increased requirements of folate can occur during pregnancy - because of the transfer of folate to the fetus- and during lactation;
giving rise to **Megaloblastic anemia.**
[note : folate is vitamin B9]

■ Notes :
Research has shown **iron deficiency anaemia** can affect **immune system** making women more susceptible to infection and less able to withstand infection or the effects of hemorrhage.

- Anemia during pregnancy is especially a concern because it is associated with
  1 low birth weight,
  2 premature birth
  3 maternal mortality.

- Women who are pregnant are at a higher risk for developing anemia **[why ?]**due to the excess amount of blood the body produces to help provide nutrients for the baby.
- Anemia during pregnancy can be a **mild** condition and **easily** treated if caught early on. However, it can become **dangerous**, to both the mother and the baby, if it goes untreated.
- During pregnancy, the Hb level is lower than normal, and **it varies according to gestational age.**

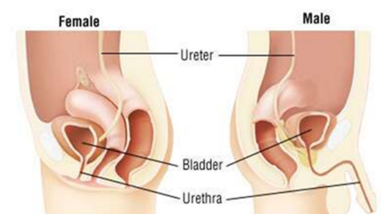
- The critical role of Hb to carry oxygen to the tissues explains the most common clinical **symptoms of anemia**, which include
  1) Fatigue
  2) shortness of breath
  3) palpitations
- Using the above definition, 20 to 50% of women, and even more in some areas, are considered as anemic.
- Anaemia in pregnancy is a major public health issue throughout the world, particularly in the developing countries where it is an important contributor to maternal morbidity and mortality.
- In 2011,38% of pregnant women aged 15–49 years were anaemic worldwide .
- The **World Health Organization** aims to **reduce the rate of anaemia** in women of reproductive age by 50% by 2025, because of the adverse effect anaemia has on women's and children's health.

➔ **RISK FACTORS FOR ANEMIA:**
- Twin or multiple pregnancy
- Poor nutrition, especially multiple vitamin deficiencies
- Smoking, which reduces absorption of important nutrients
- Excess alcohol consumption, leading to poor nutrition
- Use of anti-seizure medications (**ASMs**)

➔ **Anemia management :**
- Dietary changes alone are insufficient to correct **iron deficiency anaemia** and **iron supplements** are necessary.
- **Ferrous iron salts** are the preparation of choice. The oral dose for **iron deficiency anaemia** should be **100-200mg** of elemental iron **daily**.
- Women should be counselled as to how to take oral iron supplements correctly.
- This should be on an empty stomach, 1 hour before meals, with a source of vitamin C (ascorbic acid) such as orange juice **to maximise absorption.**

- **Urinary Tract Infections (UTIs):**
  - The short urethra &its intimate relationship with the vagina considerably increase the risk of a woman developing UTIs.

➔ **Urethra** :The tube from the bladder to where the urine comes out of the body)



Male-Vs-Female-Urethra

- Pregnancy is a state of relative **immunocompromise** → This immunocompromise may be cause for the increased frequency of UTIs seen in pregnancy

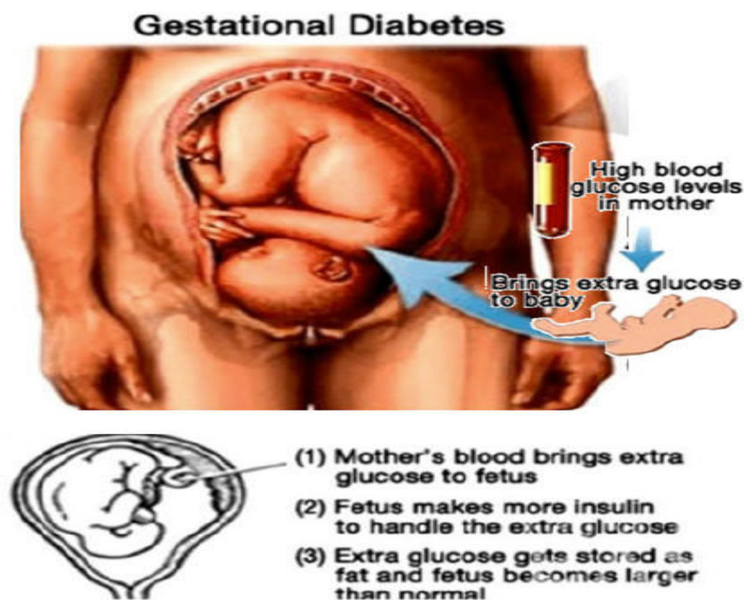
- **Gestational Diabetes mellitus (GDM)**

➔ **Definition** :

Gestational diabetes is high blood sugar that develops during pregnancy and usually disappears after giving birth.

- It can occur at any stage of pregnancy but is more common **in the second half.**
- It occurs if your body **cannot produce enough insulin** – a hormone that helps control blood sugar levels – **to meet the extra needs in pregnancy.**
- In women with gestational diabetes, blood sugar usually returns to normal soon after delivery.
- But women had gestational diabetes, **has a higher risk of getting type 2 diabetes.**
- Gestational diabetes can cause **problems** to the *mother* as well as her *baby* during and after birth.

- The **most frequently** reported **perinatal consequence of GDM** is macrosomia (usually defined as a **neonate weighing over 4 kg**) which can increase the risk of **caesarean section**
- But the risk of these problems happening can be reduced if it's *detected* and *well-managed.*
- Most women who have gestational diabetes deliver healthy babies. However, gestational diabetes that's not carefully managed can lead to uncontrolled blood sugar levels and cause problems for the mother and her baby, including an increased likelihood of needing a C-section to deliver.



➔ PREVELANCE OF GDM

It was estimated that about 15.1% of pregnancies worldwide were affected by GDM , along with 11.5% in Asia , 5.4% in Europe

In many countries the prevalence of GDM is rising .

- Some of this is due to:

1. the increasing age at which women are becoming pregnant
2. an increase in obesity amongst women
3. More testing during pregnancy.

➔ Risk factors for GDM

1) Age
2) Family or personal history
3) Excess weight

➔ Complications that may affect the mother from GDM

1) Caesarean section
2) Polyhydramnios كثرة السوائل : the excessive accumulation of amniotic fluid — the fluid that surrounds the baby in the uterus during pregnancy.
3) Pre-eclampsia (mother)
4) Type 2 diabetes : 50% mothers develop type 2 diabetes (T2DM) within five to ten years of delivery.

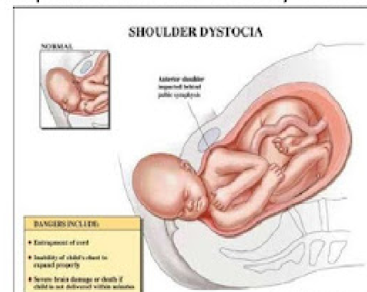
➔ Complications that may affect the baby from GDM

1) An increased risk of macrosomia
2) Shoulder dystocia →
3) T2DM
4) autism spectrum disorders in childhood and early adulthood

[from google for further understanding Definition of shoulder dystocia : **a birth injury (also called birth trauma) that happens when one or both of a baby's shoulders get stuck inside the mother's pelvis during labor and birth]**

Shoulder Dystocia

A shoulder dystocia is defined as the impaction of the anterior fetal shoulder against the maternal pubic bone after delivery of the fetal head.



- **Maternal mortality**

➔ **Definition :**

The death of a woman whilst pregnant or within **42** days of delivery or termination of pregnancy, from any cause related to, or aggravated by pregnancy or its management, but excluding deaths from incidental or accidental causes"(WHO, 1992).

➔ **General considerations :**

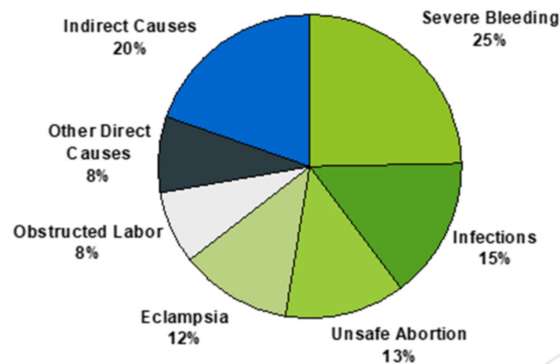
- Maternal mortality is the leading cause of death among women of reproductive age in most of the developing world.
- Globally, an estimated 500,000 women die as a result of pregnancy each year.
- Maternal mortality in developing countries is given **least** attention, despite the, fact that almost all of the suffering and death is preventable with proper management.
- **Maternal mortality** constitutes a small part of the larger **maternal morbidity and suffering**, because for every maternal death there are a lot of women suffering from acute and chronic illnesses during pregnancy, delivery and 6 weeks after.
- Maternal mortality is much higher in developing countries compared to developed nations **owing to**
  *lack of adequate medical care
  *higher total fertility rate
  *due to health care system difference.

- The risk of maternal mortality **is also related** to the mother's previous health and nutritional status, and access to health services.
- **Adolescent pregnancy carries** a higher risk due to the danger of incomplete development of the pelvis, and there is a higher prevalence of hypertensive disorders among young mothers.
- **Frequent pregnancies** also carry a higher risk of maternal and infant death.

- Concern for maternal mortality is not only for the mother's life. **It is related to:**
  • The health and deaths of the seven million newborns who die annually as a result of maternal health problems and
  • The health and socio-economic impact on children, families, and communities.

➔ **Causes of maternal mortality :**

- Nearly three-quarters of maternal deaths are due to **direct complications of pregnancy and childbirth**, such as severe bleeding, unsafe abortion, and obstructed labor.
- Women also die **of indirect causes** aggravated by pregnancy, such as diabetes and anemia



➔ Key facts [WHO 2016]

- Every day, approximately 830 women die from preventable causes related to pregnancy and childbirth.
- 99% of all maternal deaths occur in developing countries.
- Maternal mortality is higher in women living in rural قروي areas and among poorer communities.

- **Post Natal :**
  - **Postnatal care helps prevent complications after childbirth.**
  - Eighty-three 83% percent of women age 15-49 received a postnatal checkup within two days of delivery; 12% received no postnatal check.
  - Eighty-six percent 86% of newborns received a postnatal checkup within two days of birth; 13% received no postnatal check.

➔ **Include :**

- Observe physical status
- Provide emotional and psychological support.
- Advise, and support on breast-feeding
- Health education on weaning and food preparation.
- Advise on Family Planning

Lecture (8) :

- **Infant and Child Care**
  - The period of **early** childhood development is the **most important period of life.**
  - In order to reach their full potential, children need appropriate support from families, education and healthcare professionals during this period.
  - Research has consistently shown that good early childhood development will have a **direct positive impact** on a child's long-term health outcomes and will improve future opportunities and school attainment.
  - Particularly important is the impact of this period on a child's emotional and social development, which is vital for their future confidence, communication, relationships, and mental health.
  - **A child's brain develops** in response to both **genes** and the **environment**. It is the interaction between the genes and environment that really shape the developing brain :

    While **genes** provide the **initial map for development** , it is the experiences and relationships babies and children have every day that **literally shape their brains**.
  - Families have an extremely important ongoing influence on children's development. The community and service environments in which children and families interact also play a key role in supporting optimal development.

- **Infant and Child Care:**

  a) W.B.C (Well Baby Clinic)

  A Well Baby Clinic deals with the **total well-being of every child**.
  - Well-baby exams are an important way to monitor baby's growth and development and check for serious problems.
  - These regular check-ups also provide an opportunity to develop a relationship with baby's doctor.
  - Baby's doctor will likely recommend the **first well-baby exam within three to five days after birth.**
  - **Additional well-baby exams** will be needed **every few weeks** and, **later**, **every few months for the first year.**
  -

Well Baby Clinic

- child's doctor will recommend a schedule for well-child visits. One example is for visits at ages:
  - 3 to 5 days old.
  - By 1 month.
  - 2 months.
  - 4 months.
  - 6 months.
  - 9 months.
  - 1 year.
  - 15 months.
  - 18 months.
  - 2 years.
  - 30 months.
  - 3 years.
- After age 3, well-child visits are usually scheduled yearly through the teen years.

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➔ **WBC includes:**

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

- **Infant mortality :** deaths between 0 and 12 months
  - Infant deaths are divided **into two groups**:
    1) those occurring at less than 28 days **after** birth, referred to **as neonatal deaths; [<28 days]**
    2) and those occurring at ages 28 days and over but under one year, referred to as **post neonatal deaths**. **[from 28 days → 1 year]**

  - 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.
  - 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.
  - The earlier a baby is born, in terms of completed weeks of pregnancy, the higher the risk of infant death.

➔ **Definitions [recap] :**

- **Neonatal mortality** (death < 28 days).
- **Postneonatal mortality (**deaths between 28 days and one year).
- **Infant mortality (**deaths between 0 and 12 months).
- **Under-five mortality (**the mortality of children under the age of five)
- **Low birth weight** (<2500 g).
- **Preterm birth** (<37 weeks gestation).

- **Perinatal mortality (PNM) :**

➔ **Definition :**

Perinatal mortality is the number of late foetal deaths (also called **stillbirths**) and early neonatal deaths (day 7) **per 1000 births.**

= number of late foetal deaths + early neonatal deaths (day 7) / 1000 births

➔ **Causes** :

Low birth weight [LWB]

- Low birth weight is an extremely important factor predisposing for PNM.
- Perinatal mortality rate for low-birth weight babies is five to thirty times higher than for fetuses or infants of normal weight.
- **most common causes** of low birthweight:
  1) Premature birth (before 37 weeks of pregnancy)
  2) fetal growth restriction

  → **Fetal growth restriction (FGR)** is a term that describes an unborn baby who isn't growing at the normal rate inside the uterus. These babies usually have a low weight at birth. **Causes include : 1)** hypertension **2**) syphilis.

- **Causes of low birth weight include:**
  1) Short stature (height).
  2) Low pre-pregnancy weight.
  3) Inadequate weight gain during pregnancy.
  4) Anemia.
  5) preeclampsia.
  6) Gestational diabetes.
  7) Other infections during pregnancy. For example, women suffering from malaria in sub-Saharan Africa give birth to an estimated 3 million severely underweight babies.

- Low-birth weight infants who survive may have
  →serious neurological problems and hearing and visual defects
  →may be subject to slow development throughout life.

Now back to continue the points related to infant and child care [all points mentioned before follows points a) which was well baby clinic

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:)

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 new-born care.
3) **Infection control** – ensure clean delivery, including clean surface, hands, blade, and cord tie.

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

- **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.
- 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 الرعاية المستمرة (ما قبل الحمل ، وما قبل الولادة ، وأثناء الولادة ، وفترة ما بعد الولادة مباشرة ، وبعدها)
  - 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

➔ **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 **tetanus, syphilis, and HIV.**

1) **Tetanus**

- Neonatal tetanus infection **results from** umbilical cord contamination during unsanitary delivery, coupled with a lack of maternal immunization.
- 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.

2) **Syphilis**

- Pregnant women with untreated syphilis have a 21 percent increased risk of stillbirths (Gomez et al., 2013).
- **Congenital syphilis (CS)** is a disease that occurs when a mother with syphilis passes the infection on to her baby during pregnancy.
- Up to half of all babies infected with syphilis while they are in the womb die shortly before or after birth.
- Treatment of syphilis with **penicillin** suggests a significant reduction in stillbirths, pre-term births, congenital syphilis, and neonatal mortality

3) **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

➔ **Treatment of 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)

Lecture (9) :

- **Adolescence :**

➔ **Definitions :**

- The term adolescence is derived from the **Greek** word "**adolescere**" meaning **"to grow" or "to grow to maturity".**
- It is considered as a **period of transition from childhood to adulthood.**
- Adolescence is generally regarded as the period of life **from puberty to maturity.**
- Maturing involves not only **physical** but also **mental** growth.
- It is a period, **which fills the gap between childhood and adulthood**. Generally, this period is termed as "**youth**
- They are no longer children yet not adults **(Transitional Period).**
- **Period of changes:** It is characterized by
  * rapid physical growth,
  * significant physical , emotional, psychological and spiritual changes
- **Stormy phase [as viewed by G.S.Hall's]**

➔ **A Stormy phase?**

- **G. S. Hall's** (1904) view that adolescence is a period of heightened "**storm and stress".**
- The author provides a brief history of the storm-and-stress view and examines **3 key aspects of this view:**
  1) conflict with parents

     Adolescents tend to rebel against authority figures as they seek greater independence and autonomy
  2) mood disruptions

     Hormonal changes and the psychological stress of adolescence can **cause uncontrollable shifts in emotions.**
  3) risk behaviour.

     The combination of a neurological need for stimulation and emotional immaturity lead to increased risk taking behaviour during adolescence.

- Hall used this term because he viewed adolescence as → a period **of inevitable turmoil** اضطراب that takes place during the transition from childhood to adulthood.
- **NB: not all adolescents go through stormy phase**.

➔ **Notes :**

- It is **not an age**, but a **stage.**
- The length of time for this period of development varies.
- Adolescence can start at nine and end at eighteen **[9→ 18]**
- It can start at fourteen and end at twenty five **[14 → 25]**

➔ **Definition of adolescents by WHO :**
adolescents as individuals between the ages 10-19 years.

- **Adolescence : 10 – 19 years**
- **Early Adolescence : 10 – 13 years**
- **Middle adolescence : 14 – 16 years**
- **Late adolescence : 17 – 19 years**

- **Early Adolescence:**
  - Early adolescence is from 10 to 13 years.
  - The rate of growth increases, starting first in the hands and feet and later in the limbs.
  - They start initiating independence from the family, and desire for privacy.
  - There may be a clash تعارض /خلاف between the wish for their autonomy and parental authority.

- **Middle Adolescence :**
  - Is from 14 to 16 years.
  - The **peak** of the **height velocity curve** is seen
  - auxiliary hair and sweat glands develop.
  - The timing for this is influenced by
    1) genetic factors
    2) nutritional status.
  - Any chronic illness can delay puberty.

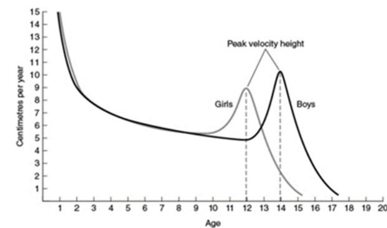

Figure 8.1 Peak velocity height curve for girls and boys showing the increase in stretch stature (height) expressed in units of centimetres per year.
From http://www.brianmac.co.uk/ltad.htm

- **Late Adolescence :**
  - Is from 17 to19 years.
  - The **body approximates** the **young adult** and development of secondary sex characteristics **is completed.**
  - In late Adolescence, career decisions are finally traced.
  - The child gradually returns to the family.

➔ **Characteristics of Adolescence :**

1) **Biological Growth and Development**
   - ✓ Onset of adolescence marked by :beginning of puberty.
   - ✓ Specific hormones are released.
   - ✓ Growth spurts, voice changes, development of sexual characteristics.
   - ✓ Complexion (skin) problems

2) **Undefined Status**
   - ✓ Unclear social expectations: Some treated as children, some as adults

3) The Search for Self

- ✓ The ability to establish personal norms and priorities is important.
- ✓ Preparing for future roles is one aspect of finding oneself.
- ✓ Anticipatory socialization is learning the rights, obligations, and expectations of a role to prepare for assuming that role in the future.

4) Increased Decision Making

- ✓ More decisions must be made by oneself.

5) Increased Pressure

- ✓ Parents, friends, and teachers all pressure adolescents to behave in particular ways.
- ✓ Peer pressure is the **strongest**

→ Adolescents are particularly susceptible to peer influence for several **reasons:**

1) adolescents look to their peers to understand social norms الاعراف الاجتماعية. They align their behaviour over time with the norms of their group or the group they want to belong to – a process known as **peer socialisation**
2) adolescents may find it particularly rewarding to gain **social status**, **a potential outcome of aligning with peers.**
3) adolescents tend to be hypersensitive to the negative effects of social exclusion. They may conform to a group norm (which sometimes means taking a risk) to avoid this unpleasant social outcome. The desire to avoid the social risk of being left behind might outweigh the potential negative consequences associated with health risk or illegal behaviours

➔ **Why is it important to study Adolescence ?**

- The Jordanian population is young with 52 percent of the population below the age of 20, and the generation aged 10-19 constitutes around 25 percent of the total population .
- Still almost half of Jordan's population was below 19 years of age, of which 26.9 per cent were in the age group 0-9, and 24.8 per cent between 10 and 19 years.

Age structure in Jordan (2018)

- **0-14 years: 34.14%**
- **15-24 years: 19.98%**
- **25-54 years: 37.72%**
- **55-64 years: 4.64%**
- **65 years and over: 3.51%**

- They are not only in large numbers but are the citizens and workers of tomorrow.
- The **problems** of adolescents are **multi- dimensional** in nature and **require holistic approach** نهج شمولي

- A large number of adolescents in the developing world are out of school, malnourished, get married early, working in vulnerable situations, and are sexually active.

➔ **Why to invest in the health and development of adolescents ?**

1) Demographic rationale

- One in five individuals in the world is an adolescent, aged 10-19 years.
- Most adolescents live in developing countries.
- In these countries, they represent up to a fourth of the population.

2) Public health rationale

a) (Mortality)

- Every year about1.4 million deaths occur in adolescents.
- Most of these deaths occur in low & middle income countries
- Death rates vary by **region & sex**
- Leading causes of death vary by **sex** and by **region**.
- Death rates **rise sharply** from early adolescence (10-14) to young adulthood (20-24).

b) (Morbidity)

- Tens of millions of adolescent s **face health problems :**
  →In 11 countries (out of 64 with available data), a quarter of the adolescent girls are **underweight**.
  →In 21 countries (out of 41 countries with available data), a third of adolescent girls are **anaemic**
  →Globally, about 2.2 million adolescents are living with **HIV**
- Between 40-70% ever-married girls aged 15- 19 reported that they experienced emotional, physical or sexual violence by their current or most recent husband or partner.

c) (Behaviours)

- Hundreds of millions of adolescents adopt **unhealthy habits** that will lead to **disease** and **death** in later life:
  →Unprotected sex
  →Physical inactivity
  →Use of tobacco, alcohol & illicit drugs
- Adolescence is a critical period in the human life. It affects people future habits and practice.
- Poor diet and physical inactivity cause at least 300,000 deaths among U.S. adult each year.

3) Economic rationale

- Socio-economic deprivation: a cause & consequence of adolescent pregnancy

4) Human rights rationale

1 – The right to the highest level of **health** possible & to access the required health services.
2- Greater access to **education** and Greater ability to make **personal & professional choices.**
3- The right to access appropriate information from the **media** & to be protected from harmful information.
4-The right to seek, receive **information and ideas** of all kinds

Choices: A guide for young people Gill Gordon, 1999.

➔ **The following changes are taking place during adolescent period:**

1) **Biological changes –** onset of puberty
2) **Cognitive changes –** emergence of more advanced cognitive abilities
3) **Emotional changes –** self image, intimacy, relation with adults and peers' group
4) **Social changes –** transition into new roles in the society