



Global Maternal Health

Objectives:

1. Understand the maternal health issues globally.
2. Understand the causes of maternal deaths and mortality.
3. Understand the interventions done globally to decrease maternal deaths and morbidity
4. Antenatal care
5. Promotion of breastfeeding practices.....BFHI
6. Discuss and understand what preventive services for maternal health are delivered in KSA.

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Maternal Health

Definition

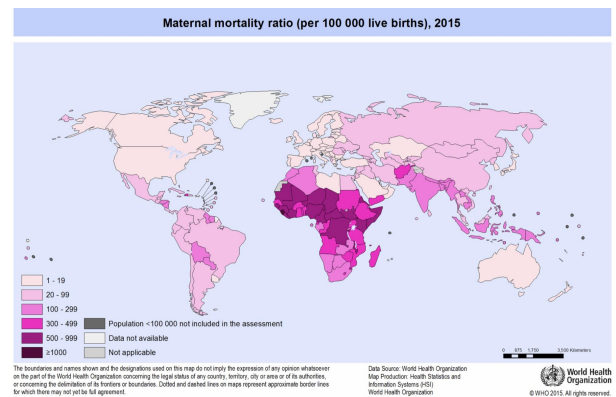
Maternal health refers to the health of women **during pregnancy, childbirth and the postpartum period**. While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death.

Fast Facts about Maternal Health...WHO Fact sheet sept, 2019

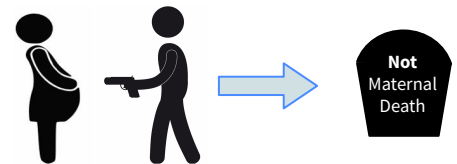
- Every day in 2017, approximately 810 women died from preventable causes related to pregnancy and childbirth.
- Between 2000 and 2017, the maternal mortality ratio (MMR, number of maternal deaths per 100,000 live births) dropped by about 38% worldwide.
- 94% of all maternal deaths occur in low and lower middle-income countries.
- Young adolescents (ages 10-14)¹ face a higher risk of complications and death as a result of pregnancy than other women.
- Skilled care before, during and after childbirth can save the lives of women and new-borns.

Maternal death:

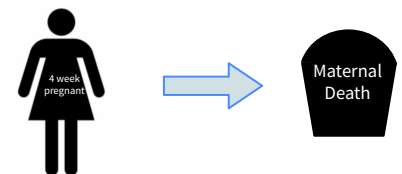
The death of a women **while pregnant**, (or within **42 days** of termination of pregnancy).



Accidental or incidental causes of death⁴ are **not** classified as maternal deaths.



Irrespective of the duration and site of the pregnancy



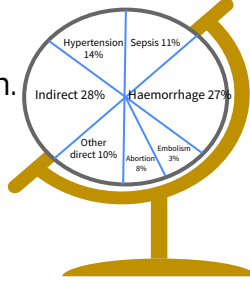
1: Vulnerable age group, physically and mentally immature.

2: Directly related to pregnancy or within 42 days of termination.

3: Factors that were aggravated by pregnancy.

4: Gun shots, violence, suicide, homicide.

Global Causes of Maternal Mortality



Why women are dying?

- ❖ Women die as a result of complications during and following pregnancy and childbirth.
- ❖ The major complications that account for nearly 75% of all maternal deaths are:

severe bleeding (mostly after childbirth).¹

infections² (usually after childbirth).

high blood pressure during pregnancy (pre-eclampsia and eclampsia).

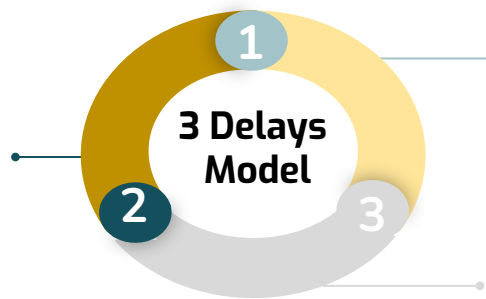
complications from delivery³. And unsafe abortion.

associated with diseases such as malaria, and AIDS during pregnancy.

Why do women not get the care they need? (Why do these women die?)

Delay in decision to seek care

- Lack of understanding of complications
- Acceptance of maternal death
- Low status of women
- Socio-cultural barriers to seeking care



Delay in reaching care

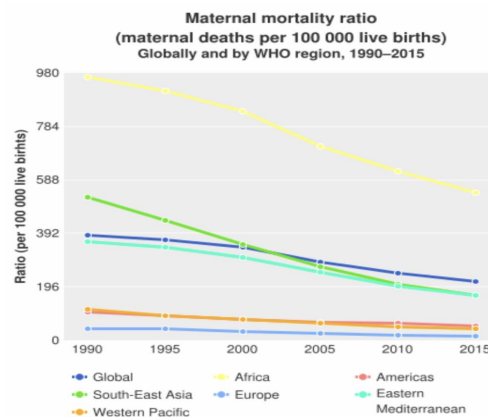
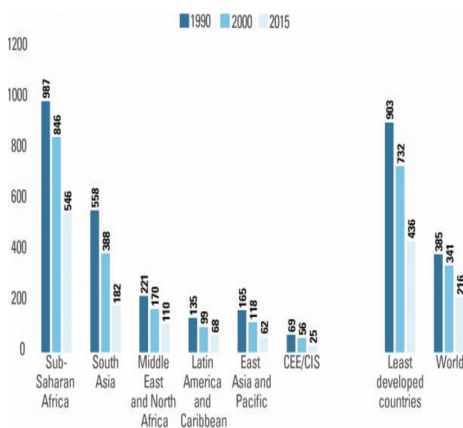
Mountains, islands, rivers – poor organization

Delay in receiving care

- Supplies, personnel
- Poorly trained personnel with punitive attitude
- Finances

Trends in maternal mortality 1990 - 2015

- ❖ Maternal mortality fell by almost half between 1990 and 2015
- ❖ Maternal mortality ratio (maternal deaths per 100,000 live births in women aged 15 to 49), by region, 1990, 2010 and 2015



1: postpartum hemorrhage

2: Tetanus so a vaccination is recommended for pregnant women (Death from tetanus is often caused by a blockade airway during spasms or damage to the nerves that regulate breathing heart rate or other organ functions).

3: Malsuturing, instrumental or forceps delivery.

Where do Maternal Mortality data come from?

- 1** Vital registration data - MM Rate and MM Ratio
- 2** Special studies:
 - Hospital studies – tracing deaths, interviews
 - Research, longitudinal studies, verbal autopsy¹
- 3** Health service data - maternity registers -MM Ratio
- 4** Surveys & censuses:
 - Direct estimation - Rate and Ratio
 - Sisterhood method² (indirect) – Rate and Ratio

Maternal Mortality Indicators³

Maternal Mortality Ratio

The number of maternal deaths per live births =

Numerator: **Maternal deaths**

Denominator: **Live births**

Life-time risk of maternal mortality

= (N of maternal deaths over the reproductive life span) / (women entering the reproductive period)

Proportion maternal

proportion of all female deaths due to maternal causes = (N of maternal deaths in a period / Number of all female deaths in Same period) *100

Maternal mortality rate:

The number of maternal deaths in a given period per population of women who are of reproductive age =

Numerator: **Maternal deaths**

Denominator: **Women of Reproductive age**

Why has the maternal mortality declined?

Global response
 Sustainable Development Goal 3
 -3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births.



Successful Interventions for Maternal Care

Antenatal care:

- Nutrition support (anemia, adequate caloric intake).
- Personal hygiene, dental care, rest (2 hrs) and sleep. (8 hrs), regular bowel habits..enough fiber and fruit intake...avoid constipation.
- Immunization (mother and the newborn).
- Drugs; thalidomide (deformed hands), corticosteroids (impair fetal growth), streptomycin (8th nerve damage).
- Education on delivery and care of the newborn.
- Identifying high risk pregnancies, smoking and exposure to passive smoking.
- Emphasizing on ANC visits and maintenance of AN card.
- Importance and management of lactation (importance/benefits of breastfeeding, exclusive breast feeding, problems arising from breastfeeding).
- Advise on birth spacing.

1: Interviewing individuals who are familiar with the deceased (family, medical workers) to determine the cause of death.
 2: Interviewing the sisters of the deceased.
 3: **Remember to multiply by 100 or 1000 to avoid small numbers with decimals.** This is a common mistake students tend to make in the exam

Antenatal care

2016 WHO ANC model

WHO FANC model	2016 WHO ANC model
<i>First trimester</i>	
Visit 1: 8-12 weeks	Contact 1: up to 12 weeks
<i>Second trimester</i>	
Visit 2: 24-26 weeks	Contact 2: 20 weeks Contact 3: 26 weeks
<i>Third trimester</i>	
Visit 3: 32 weeks	Contact 4: 30 weeks Contact 5: 34 weeks
Visit 4: 36-38 weeks	Contact 6: 36 weeks Contact 7: 38 weeks Contact 8: 40 weeks
Return for delivery at 41 weeks if not given birth.	

Why is ANC critical?

Through timely and appropriate evidence-based actions related to health promotion, disease prevention, screening, and treatment.

1

Reduces complications from pregnancy and childbirth

2

Reduces stillbirths and perinatal deaths

3

Integrated care delivery throughout pregnancy

1 | History taking (1st visit)

- Confirm the pregnancy.
- Any previous complications (abortions, stillbirths).
- Calculate LMP (add 9 months and 7 days to the first day of menstruation). (To find out the expected date of delivery(EDD) (LMP=Last Menstrual Period)
- Record symptoms; fever, vomiting, (**abnormal vaginal bleeding, palpitation, easy fatigability, breathlessness, generalized swelling**),¹ burning micturition, decreased or absent fetal movements.
- Any concurrent illness; asthma, heart disease, jaundice, HTN, DM, TB², HIV², STIs, thalassemia, bleeding disorders.
- Family history of twins, congenital malformations.
- History of drug allergies, or drugs.

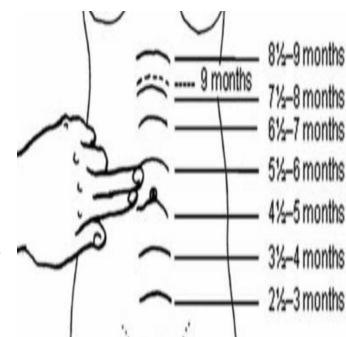
2 | Physical exam

- **General physical**; pallor, pulse (N 60 – 90 mins), respiratory rate (N 18-20 breaths/min), edema (slight edema is normal, if co-existent with any diseases eg: HTN, referral).
- **BP** (every visit)
High BP; >= 2 readings 140/90 Urine +2 albumin **High BP + albuminuria = preeclampsia ---refer**
- **Weight** ; 9-11 kg during pregnancy. Approx. 2 kg /month.
- **Breast exam**³.

3 | Abdominal exam

Funds Height⁴:

- At about three months (13-14 weeks), the top of the uterus is usually just above the mother's pubic bone (where her pubic hair begins).
- At about five months (20-22 weeks), the top of the uterus is usually right at the mother's bellybutton (umbilicus or navel).
- At about eight to nine months (36-40 weeks), the top of the uterus is almost up to the bottom of the mother's ribs.
- Babies may drop lower in the weeks just before birth. You can look back at Figure 7.1 in Study Session 7 to see a diagram of fundal height at various weeks of gestation.



1: All are signs of anemia

2: If the pregnant woman is HIV or TB +ve, be prepared to provide drug therapy for the newborn.

3: Checking for any abnormalities, lumps, retracted nipples.

4: Fundal height is the distance from the pubic bone to the top of the uterus measured in centimeters. After 24 weeks of pregnancy, fundal the height often matches the number of weeks you have been pregnant

4 | Assessment of gestational age

- Routine US + LMP (history).
- Lab investigations:
 - Pregnancy test, Hb estimation, Urine for albumin and sugar, blood grouping, Rh factor, VDRL, HIV testing, Blood sugar, HBsAg for Hep B.

5 | Ultrasound

- Fetal assessment
 - One ultrasound scan before 24 weeks of gestation (early ultrasound) is recommended for pregnant women to estimate gestational age.
 - Advantages; improve detection of fetal anomalies and multiple pregnancies, reduce induction of labour for post-term pregnancy, and improve a woman's pregnancy experience.

6 | Antenatal care counseling

- **Nutritional recommendations:**
 - Counselling about healthy eating and keeping physically active during pregnancy is recommended for pregnant women to stay healthy and to prevent excessive weight gain during pregnancy
 - **Daily oral iron and folic acid supplementation with 30 mg to 60 mg of elemental iron and 400 µg (0.4 mg) of folic acid** is recommended for pregnant women to prevent **maternal anaemia**, puerperal sepsis, low birth weight, and pregnant women with preterm birth.
 - Foods rich in iron; dates, green leafy vegetables, red beans, guavas, red meats
 - **A pregnant women should avoid smoked meat to protect herself against toxoplasmosis**

7 | Antenatal care

- **Maternal assessment**
 - Hyperglycaemia first detected at any time during pregnancy should be classified as either gestational diabetes mellitus (GDM) or diabetes mellitus in pregnancy.
 - Health-care providers should ask all pregnant women about their tobacco use (past and present) and exposure to second-hand smoke as early as possible in the pregnancy and at every antenatal care visit.
 - At every visit, history of TB, HIV, and alcohol intake should also be accessed....in high prevalence areas.

Preventive services

A seven-day antibiotic regimen is recommended for all pregnant women with **asymptomatic bacteriuria (ASB)** to prevent persistent bacteriuria, preterm birth and low birth weight

Tetanus toxoid vaccination is recommended for all pregnant women, depending on previous tetanus vaccination exposure, to prevent neonatal mortality from tetanus.

Tetanus vaccination



Table 2 Guidelines for tetanus toxoid immunization of women who were immunized during infancy, childhood or adolescence^b

Age at last vaccination	Previous immunizations (based on written records)	Recommended Immunizations	
		At present contact/pregnancy	Later (at intervals of at least one year)
Infancy	3 DTP	2 doses of TT/Td (min.4 weeks interval between doses)	1 dose of TT/Td
Childhood	4 DTP	1 dose of TT/Td	1 dose of TT/Td
School age	3 DTP + 1 DT/Td	1 dose of TT/Td	1 dose of TT/Td
School age	4 DTP + 1 DT/Td	1 dose of TT/Td	None
Adolescence	4 DTP + 1 DT at 4-6 yrs + 1 TT/Td at 14-16 yrs	None	None

^b Adapted from: Galazka AM. *The immunological basis for immunization series. Module 3: tetanus.* Geneva, World Health Organization, 1993 (WHO/EPI/GEN/93.13), page 17.

Table 1 Tetanus toxoid immunization schedule for women of childbearing age and pregnant women without previous exposure to TT, Td or DTP^a

Dose of TT or Td (according to card or history)	When to give	Expected duration of protection
1	At first contact or as early as possible in pregnancy	None
2	At least 4 weeks after TT1	1-3 years
3	At least 6 months after TT2 or during subsequent pregnancy	At least 5 years
4	At least one year after TT3 or during subsequent pregnancy	At least 10 years
5	At least one year after TT4 or during subsequent pregnancy	For all childbearing age years and possibly longer

^a Source: *Core information for the development of immunization policy, 2002 update.* Geneva, World Health Organization, 2002 (document WHO/V&B/02.28), page 130.



Ginger, chamomile, vitamin B6 and/or acupuncture are recommended for the **relief of nausea** in early pregnancy, based on a woman's preferences and available options.

Advice on diet and lifestyle is recommended to prevent and relieve **heartburn** in pregnancy. Antacid preparations can be offered to women with troublesome symptoms that are not relieved by lifestyle modification.



Non-pharmacological options, such as **compression stockings, leg elevation and water immersion**, can be used for the management of **varicose veins and oedema** in pregnancy, based on a woman's preferences and available options.

Common physiological symptoms

Magnesium, calcium or non-pharmacological treatment options can be used for the relief of **leg cramps** in pregnancy, based on a woman's preferences and available options.



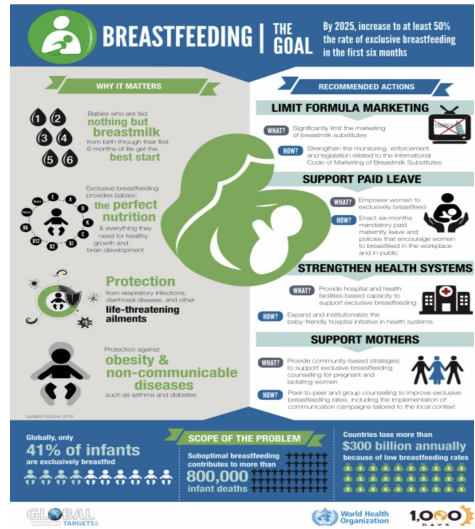
Wheat bran or other fibre supplements can be used to relieve **constipation** in pregnancy if the condition fails to respond to dietary modification, based on a woman's preferences and available options.

Regular exercise throughout pregnancy is recommended to prevent **low back and pelvic pain**. There are a number of different treatment options that can be used, such as physiotherapy, support belts and acupuncture, based on a woman's preferences and available options.



Baby friendly hospital initiative (BFHI)

- ❖ The Baby-friendly Hospital Initiative (BFHI) was launched by WHO and UNICEF in 1991.
- ❖ The initiative is a global effort to implement practices that protect, promote and support breastfeeding.



Maternal mortality in KSA

MCH Indicators in KSA	
Under-5 mortality rank	141
Under-5 mortality rate (2012)	9
Infant Mortality rate per 1000 live births (under 1), (2012)	16.2
Annual rate of reduction (%) under-5 mortality rate, (1990-2012)	7.7
Maternal mortality ratio (2010, adjusted)	24
Antenatal care coverage (%) at least 1 visit, 2008	97

Maternal mortality in 1990-2015
WHO, UNICEF, UNFPA, World Bank Group, and United Nations Population Division
Maternal Mortality Estimation Inter-Agency Group

SAUDI ARABIA

Year	Maternal mortality ratio (MMR) ^a Per 100 000 live births (lb)	Maternal deaths Numbers	AIDS-related indirect maternal deaths Numbers	Live births ^b Thousands	Proportion of maternal deaths among deaths of female reproductive age (PM %)
1990	46 [32-67]	270	0	579	5.6
1995	33 [23-46]	190	0	581	4.2
2000	23 [16-34]	130	0	566	2.9
2005	18 [12-27]	100	0	578	2.3
2010	14 [8-23]	84	0	613	1.9
2015	12 [7-20]	72	0	619	1.6

^a MMR and PM are calculated for women 15-49 years.
^b Live birth data are from World Population Prospects: the 2015 Revision. New York, Population Division, Department of Economic and Social Affairs, United Nations Secretariat, 2015.

Annual Rate of Reduction (%)
1990-2015: 5.5 [3.7 - 7.5]
1990-2000: 6.8 [4.2 - 9.6]
2000-2015: 4.7 [2.3 - 7.1]
2005-2015: 4.2 [1.4 - 7.1]

MOH- Mother and Child Health Passport Project

- ❖ **Launched : 14 March 2011**
- ❖ Provide necessary follow-up care for both mother and child by monitoring the mother's health condition during pregnancy and the child's subsequent health progress until the age of six.
- ❖ Reduce both maternal and infant mortality rates.

Women's Health (Ministry of Health) Important to know



Nutrition during Pregnancy

Maintaining good nutrition and a healthy diet during pregnancy is critical for the health of the mother and fetus. It is also good to remember that the quality of the food is more important than the quantity, so it is recommended to choose healthy foods with high nutritional value.

Foods to avoid

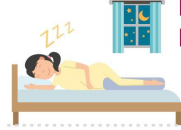
- Uncooked meat and eggs**
May contain the Listeria bacteria that can be transmitted to the fetus through the placenta causing miscarriage, or stillbirth.
- Raw fish and shellfish**
May contain genes.
- High mercury fish**
Can damage the nervous system of the fetus (like swordfish, and marlin)
- Some types of oily fish**
May contain harmful chemicals that accumulate in the body over time, such as: Mackerel, sardines, salmon and fresh tuna.
- Caffeine**
Too much caffeine increases the risk of miscarriage and low birth weight.
- Unpasteurized milk and all its products**
May carry harmful bacteria that can cause diseases in the mother and fetus.



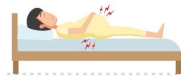
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How to Sleep During Pregnancy



Sleep on one of the 2 sides while supporting the belly with pillows



Sleeping on the back leads to a lack of blood and oxygen flow to the fetus.

- Make sure to relax before sleeping
- Reduce your intake of tea, coffee and soft drinks before sleep
- Make sure to nap
- Place a pillow between your knees

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Pregnant Woman and Exercise



It prepares the body for giving birth



You can exercise after consulting your doctor



Contributes to prevention of back pain and constipation



Helps adapt to physical and mental changes

Best Kinds of Exercise



Swimming



Walking

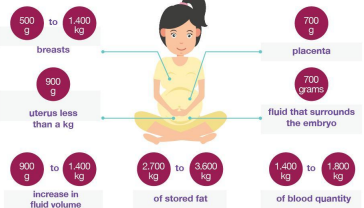


Yoga

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What is the Normal Weight Gain during Pregnancy? If the fetus weighs between 3 kg to 3.5 kg



the total weight gain in terms of the natural increase of weight during pregnancy is **10 Kg to 12.5 kg**

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The Necessary Vaccines for a Woman Before, During and After Pregnancy

Be sure to take the necessary vaccines before pregnancy in a timely manner to help maintain the health of the mother and the fetus, after consulting with the doctor

The Recommended Safe Vaccines

- Tetrapneumococcal (Pneumovax)**
Adult vaccine can be given in the last trimester of pregnancy
- Human papillomavirus**
Avoid taking it during pregnancy
- Mumps, Measles, Rubella, Mumps (MMR)**
Pregnancy should be delayed for at least one month after taking the vaccine
- Hepatitis B**
Pregnant women can take this vaccine when necessary
- Chickenpox**
Pregnant women should be delayed for at least 3 months after taking the vaccine
- The Influenza**
It is a safe vaccine for pregnant women at all stages of pregnancy

After Taking the Vaccine

- Move the arm or leg regularly and place cold compresses on the injection site to reduce swelling and redness
- You might feel some side effects, such as loss of appetite and difficulty sleeping but it will wear off after 2 days
- In case of fever, drink lots of fluids and wear light clothes
- In case of fever during pregnancy, avoid taking analgesics except with a medical prescription

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Ready for pregnancy?

- Iron**
Add iron-rich foods to your diet to prevent anemia
- Vaccinations**
Make sure to get the necessary vaccines before getting pregnant
- Folic acid Supplements**
Take folic acid supplements when planning to get pregnant until week 12 of pregnancy
- Vitamin D Supplements**
Take vitamin D supplements for healthy teeth and bones

Consult your doctor before taking any medications or supplements

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The Signs of True Labor

- Pain starts in the lower back and spreads to the sides then the abdomen
- Water Breaking, and leaking amniotic fluid through the vagina
- The pain is similar to strong menstrual cramps or diarrhea cramps
- Cervix dilation accompanied by contractions that push the baby down the birth canal
- Contractions become more intense when walking
- Losing the mucus plug

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The Myth of the Narrow Pelvis

The female pelvis is not made up of one solid bone; it consists of many bones and ligaments that loosen and move during childbirth

Having a small pelvis does not prevent women from giving birth naturally

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Caesarean sections should only be performed when medically necessary

- Infections
- Possible Reasons for a Cesarean Surgery
- Uterine abnormality
- Low-Lying Placenta
- Fetal Asphyxia
- Carrying multiples (twins or more)
- Abnormal fetal positioning and size
- Some cases of gestational hypertension
- Some cases of premature birth

If your doctor determines that a natural birth is no longer possible even with some medical intervention, then you will need an emergency caesarean section.

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Postpartum Depression

Has no specific cause, it may result from several physical or psychological factors involving changes in

- Lack of sleep and stress
- Changes in thyroid hormones
- Changes in female hormones

Risk Factors for Postpartum Depression

- Personal history of mental illness
- Family history of mental illness
- Lack of moral support from family and friends
- Having faced problems with previous pregnancy
- Anxiety and stress

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Why are Postpartum Checkups Important?

- To discuss required vaccines
- To monitor the mother's blood pressure especially if she faced any issues during or after delivery
- To monitor the mother's health and recovery
- To discuss the general emotional state
- To examine the incision position and the stitches in case of caesarean section or any surgical intervention
- To discuss how to regulate the menstrual cycle
- To discuss vaginal discharge, especially if it is persistent
- To discuss possible contraception methods

It is recommended to schedule a postpartum checkup 6 weeks after delivery

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[Click here to go to the MOH's Website](#)

Practice Questions

Q1: all of the following statements are true regarding to maternal health except:

A. Skilled care before, during and after childbirth can save the lives of women and new-borns.

B. the majority of all maternal deaths occur in low and lower middle-income countries.

C. Young adolescents face a lower risk of complications and death as a result of pregnancy than other women.

D. Maternal mortality fell by almost half between 1990 and 2015

Q2: which of the following is not considered as a maternal death

A. unsafe abortion

B. Gun shots

C. Bleeding after childbirth

D. high blood pressure during pregnancy

Q3: which of the following is the definition of maternal mortality rate?

A. number of maternal death in a given period per population of women in reproductive age

B. Number of maternal deaths per population of women at reproductive age

C. Number of maternal deaths per number of females entering their reproductive age

D. Number of maternal deaths per live births

Q4: what is the major cause of maternal death worldwide?

A. infection

B. hemorrhage

C. unsafe abortion

D. obstructed labor

Q5: what is the recommended vaccine for pregnant women?

A. syphilis

B. malaria

C. rubbela

D. tetanus

Q6: Why is antenatal care critical?

A. Reduces complications from pregnancy and childbirth

B. Reduces stillbirths and perinatal deaths

C. Integrated care delivery throughout pregnancy

D. All of the above.

Answer key:

1 (C) , 2 (B) , 3 (A) , 4 (B) , 5 (D) , 6 (D)

Team leaders

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- Osama Alharbi
- Yara Alzahrani



لا تترك الحلم قيد اللهو واللعب
فالحلم يُجنى بدأب الجدّ و الكبد
ثق بالله وجاهد وأمض متكلأً
وقاتل اليأس بالإقدام والجد
واملاً فؤادك بالآمال إن لها
رباً يقول لها: كوني إلى الأبد