• WHAT IS MATERNAL MORBIDITY??

- Any departure, subjective or objective, 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.

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(taken from WHO's systematic review of maternal mortality and morbidity (2003) that covered all published and unpublished reports on maternal mortality and morbidities from 1997 to 2002)

- l.Hypertensive disorders
- 2.Stillbirth
- 3.Abortion
- 4.Hemorrhage
- 5.Preterm delivery
- 6.Anemia in pregnancy
- 7.Diabetes in pregnancy
- 8.Ectopic pregnancy
- 9. Perineal tears
  10. Uterine rupture
- 11. Depression
- 12.Obstructed labour
- 13. Postpartum sepsis

HYPERTENSIVE DISORDERS OF PREGNANCY

- • Chronic hypertension is defined 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.

- In contrast, new onset of elevated blood pressure readings after 20 weeks' gestation mandates the consideration and exclusion of preeclampsia. 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 mortality.

- Although the exact path physiologic mechanism is not clearly understood, preeclampsia can be thought of as a disorder of endothelial function with vasospasm. (Fetal ischemia)
- Evidence also indicates that an altered maternal immune response to fetal/placental tissue may contribute to the development of preeclampsia.

RISK FACTORS

- **Maternal risk factors:**
- First pregnancy
- New partner/paternity
- 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
- Secondary causes of chronic hypertension such as hypercortisolism, hyperaldosteronism, pheochromocytoma, or renal artery stenosis
- Preexisting diabetes (type 1 or type 2), especially with microvascular disease
- Renal disease
- Systemic lupus erythematosus
- Obesity -

Anemia of pregnancy

- • Anaemia is defined during pregnancy as a haemoglobin (Hb) level below 11 Ogr/L (WHO, 1992). During pregnancy, the Hb level is lower than normal, and it varies according to gestational age. Most women with Hb levels below this limit have normal pregnancies. Using the above definition, 20 to 50% of women, and even more in some areas, are considered as anemic.

PATHOPHYSIOLOGIC CAUSES

- ~ HEMODILUTION: Anemia during pregnancy can be thought of as a physiologic process of hemodilution; i.e. this anemia is relative and is not associated with a total decrease in oxygen carrying capacity.
- ~ IRON DEFICIENCY is responsible for 95% of anemia of pregnancy.
- ~ FOLATE DEFICIENC1 due to Increased turnover or requirements of folate can occur during pregnancy - because of the transfer of folate to the fetus- and during lactation; giving rise to Megaloblastic anemia.

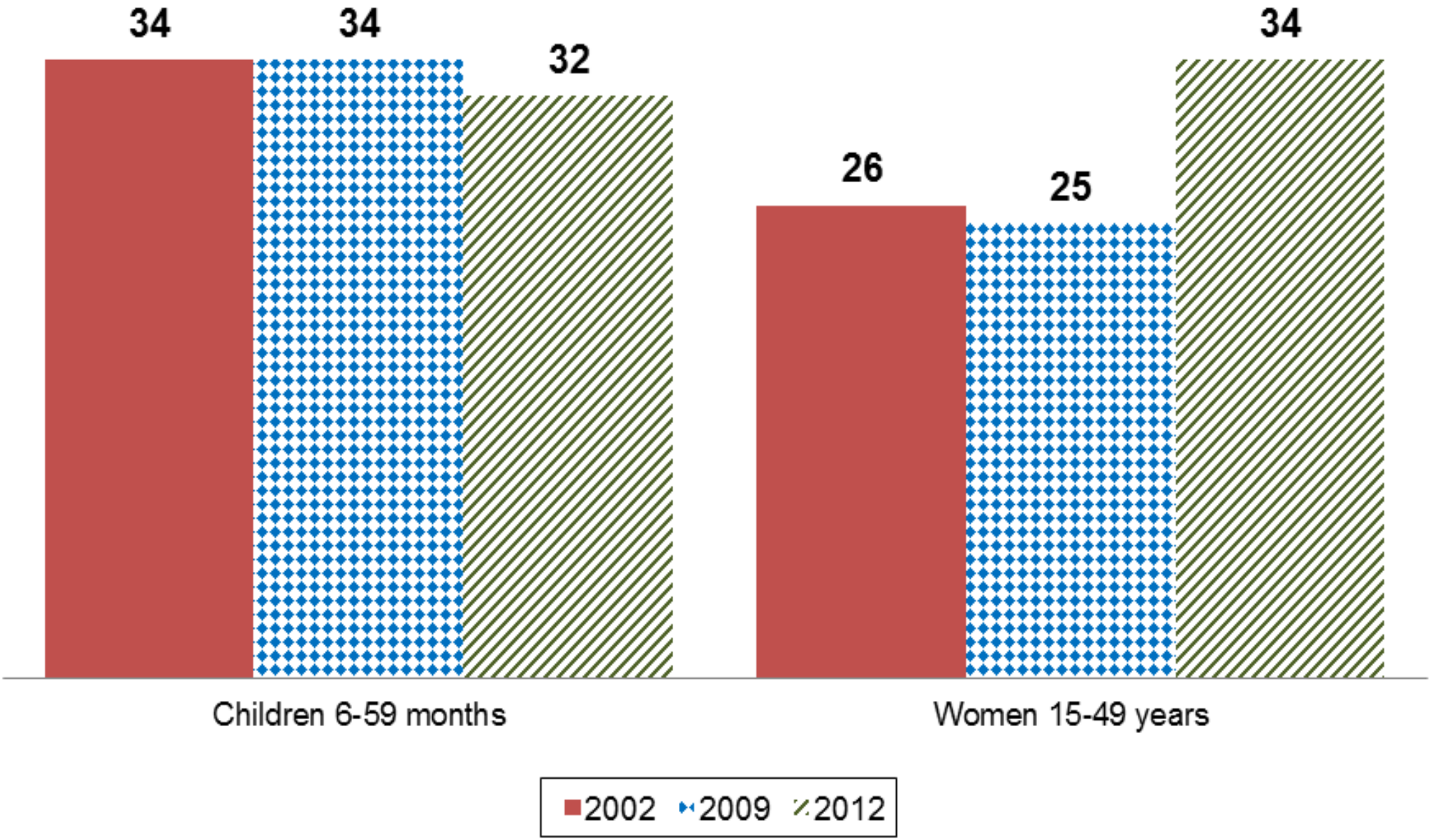
RISK FACTORS

- Twin or multiple pregnancy
- Poor nutrition, especially multiple vitamin deficiencies Smoking, which reduces
- absorption of important nutrients Excess alcohol consumption, leading to poor
- nutrition Any disorder that reduces absorption of nutrients Use of anticonvulsant medications

EPIDEMOLOGY

- **Region % of women Hb <11**
- World 51
- Developing 56
- Developed 18
- Africa 52
- Asia (except Japan ..) 60
- Latin America 39
- North America 17
- Europe 17

Trends in prevalence of anemia, 2002, 2009 and 2012



HEMORRHAGE DURING PREGNANCY

- .:. Vaginal bleeding can be somewhat common in the first trimester. This can present as anything from light spotting to sever bleeding with clots. First trimester bleeding complicates between 20 and 30 percent of all pregnancies. Up to half of those who experience this may go on to have a miscarriage .
- • :. Early bleeding may be a sign o! an ectopic pregnancy. An ectopic pregnancy is one in which the fetus is not inside the uterus.

- Abortion:
- Bleeding before 28 weeks of gestation .
- Prematurity Labor
- Labor before 36 weeks of gestation.

- • :. Any vaginal bleeding during the last 6 months of a 9-month pregnancy is considered abnormal, and is most often associated with a problem with the PLACENTA. (2nd and 3rd trimesters)
- 1-.:. Placentia previa is a pathological condition in which the placenta completely or partially covers the opening of the womb (the cervix, i.e. the internal os) and some of the blood vessels of the placenta stretch and rupture. Placenta previa is seen in about 5'10 of pregnancies in the 2nd trimester and is rarely seen at term because most of cases resolve by reaching the term .

- • 2-:. Placental abruption occurs when a normal placenta separates from the uterine wall prematurely and blood pools between the placenta and the uterus .
- • 3-:. Uterine rupture is a splitting open of the uterus and may also cause late-pregnancy bleeding .

POST PARTUM HEMORRHAGE

- • Any bleeding that results in signs and symptoms of hemodynamic instability, or bleeding that could result in hemodynamic instability if untreated, is considered PPH. Blood loss·of greater than 1,000 mL with a vaginal delivery or a decrease in postpartum hematocrit level greater than 10% of the prenatal value also can be considered PPH.

Imp. CAUSES of PPH

- Uterine atony, a condition in which the uterine corpus does not constrict properly, allowing continued blood loss from the placental site.
- Lacerations of the cervix and/or vagina.
- Retention of part or all of the placenta.
- Disorders of coagulation and thrombocytopenia.
- Trauma during delivery.
- Uterine inversion

RISK FACTORS

- Prolonged third stage of labor
- Preeclampsia
- Multiple gestation
- Arrest of descent
- Maternal hypotension
- Coagulation abnormalities

- Lacerations of the cervix, vagina, or perineum
- Asian or Hispanic ethnicity
- Delivery with forceps or vacuum
- Nulliparity, multiparity (20-fold increase in risk), and polyhydramnios

Gestational diabetes

- • Gestational diabetes mellitus (GDM) is defined as glucose intolerance that begins or is first detected during pregnancy.

RISK FACTORS

- Maternal age (more than 40 years old are under higher risk)
- Parity
- Previous Neonatal Death

EPIDEMIOLOGY

Gestational diabetes is more common in older pregnant females; it is 1.5-3 times more in pregnant females older than 40 years (compared to younger pregnant females).

- Gestational diabetes is most common in ASIA (especially Northheast and southern Asia), and is least common in North America.
- Gestational Diabetes is less common in rural areas than in metropolitan areas; maybe because of differences in dietary trends.

PSYCHOLOGIAL MATERNAL MORBIDITY

Postpartum emotional distress is fairly common after pregnancy and ranges from mild postpartum blues (affecting about 80~o of women), to postpartum depression or psychosis. Postpartum psychosis can pose a threat to the life of the mother or baby.

Postpartum depression

Postpartum depression affects up to 34 ~o of women and typically occurs in the early postpartum weeks or months and may persist for a year or more. Depression is not necessarily one of the leading symptoms although it is usually evident.

- Other symptoms include exhaustion, irritability, weepiness, low energy and motivational levels, feelings of helplessness and hopelessness, loss of libido and appetite and sleep disturbances.Headache, asthma, backache, vaginal discharge and abdominal pain may be reported.

- Symptoms may include obsessional thinking, fear of harming the baby or self, suicidal thoughts and depersonalization.

- The prognosis for postpartum depression is good with early diagnosis and treatment. More than two-thirds of women recover within a year. Providing a companion during labour may prevent postpartum depression. Once established, postpartum depression requires psychological counselling and practical assistance.

Management

- Provide psychological support and practical help (with the baby and with home care).
- Listen to the woman and provide encouragement and support. Assure the woman that the experience is fairly common and that many other women experience the same thing.

- Assist The mother to rethink the image of motherhood and assist the couple to think through their respective roles as new parents. They may need to adjust their expectations and activities.

- If depression is severe, consider antidepressant drugs, if available. Be aware that medication can be passed through breastmilk and that breastfeeding should be reassessed.
- Care can be home-based or can be offered through day-care clinics. Local support groups of women who have had similar experiences are most valuable

Postpartum psychosis

Postpartum psychosis typically occurs around the time of delivery and affects less than 1% of women. The cause is unknown, although about half of the women experiencing psychosis also have a history of mental illness. Postpartum psychosis is characterized by abrupt onset of delusions or hallucinations, insomnia, a preoccupation with the baby, severe depression, anxiety, despair and suicidal impulses.

- Care of the baby can sometimes continue as usual. Prognosis for recovery is excellent but about 50% of women will suffer a relapse with subsequent deliveries.

Management

- Provide psychological support and practical help (with the baby as well as with home care).
- Listen to the woman and provide support and encouragement. This is important for avoiding tragic outcomes.
- Lessen stress.

- Avoid dealing with emotional issues when the mother is unstable. If antipsychotic drugs are used, be aware that medication can be passed through breast milk and that breastfeeding should be reassessed.
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Reproductive Tract Infections:

- Vulvovaginitis
- Endometritis (infection of the uterus)
- Pelvic Inflammatory disease (PID) an infection of the upper genital tract

Urinary Tract Infection :

- The short urethra & its intimate relationship with the vagina considerably increase the risk of a woman developing UTI.

- Symptoms are dysuria, frequency & urgency of micturition It has been estimated that about 20% of women may complain of an episode of dysuria each year.
- In over 80% of cases, E. coli is the infecting organism treatment is by antibiotics .

Sexually transmitted diseases:

These are diseases that are transmitted through sexual contact. Can cause pain, infertility & death if not treated .

- Each year, there are about 330 million new cases of STD & 1 million case of AIDS in the world .

Examples of STDs:

- 1) Gonorrhea
- 2) syphilis
- 3) chlamydia.
- 4) genital herpes
- 5) trichomonas vaginatis

Maternal Morbidity In Jordan

Maternal Morbidity is a challenging social and health issue worldwide. All countries have been

- trying to identify and resolve maternal morbidities to promote better maternal health and prevent maternal mortality. The fact that each case of maternal death carries with it at least 16 cases of maternal morbidity makes it an important public health problem..

- Mother and child were given increased attention starting from ALMAATA Conference in 1978, whereby primary health care was the beginning of the journey, through Healthy People by 2000, to The Safe Motherhood Conference in Nairobi in 1987, the International Conference on Population and Development in Cairo 1994, and the 1995 Fourth World Conference on Women in Bejing.

- The focus on women's health was further reinforced in the 2000 Millennium Development Goals (MDG) in particular MDG5 which spells out an international commitment to reduce maternal mortality by two thirds between 1990 and 2015.

- In developing countries, it is estimated that maternal morbidities are five times greater than that of developed ones. Jordan, which is one of the developing countries has been facing many challenges related to maternal morbidities. Studies on the contributing factors related to maternal morbidities
- are very rare

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- Realizing the importance of such a study, the Higher Population Council, with technical and financial support from UNFPA, initiated an explorative study on maternal morbidities in 2005, and followed up on its recommendation to conduct a more in-depth national
- Maternal Morbidity Study covering all governorates and health sectors.

Causes of maternal morbidities in Jordan

- Urinary tract infections
- Vaginal infections
- Anemia
- Early bleeding
- Hypertension
- Gestational diabetes
- Pre-eclampsia
- Late bleeding
- Multiple pregnancy
- Kidney diseases
- Thyroid disorders
- Disseminated intravascular coagulopathy
- Heart Disease

Results:

- The study main findings indicated that the overall morbidity rate during all current pregnancy,labor, delivery, and post partum, was 60.8%. Morbidities ranged from mild conditions to severe
- life threatening complications.
- potential confounders using

- - The total morbidity rate during current pregnancy was 41.3%.
- - A total of 34.5% of women suffered from at least one morbidity during current labor and delivery.
- - During current post partum, 18.7% of women suffered from one or more morbidities.

- - The rate of cesarean sections was higher in this study (27.7%) compared to previous reports, and also the 2007 Jordan Population and Family Health Survey (18.5%).
- - Prevalence rates of anemia (Hb <11 gm/dl) at enrollment and delivery were 20.1% and 26.3%, respectively.

- Although still high, these rates are well below previously reported national figures (about 35% in 2002, MOH) and suggest that progress has been achieved in this regard. The national flour fortification with iron and folic acid and the supplementation of pregnant women
- with iron and folic acid could among of contributing factors to this decline in anemia.

- It should be noted that most cases of anemia were mild anemia which means Hb between 10-12mg/dl with only 5.9% of women having hemoglobin levels less than 10 gm/dl.

- - Urinary tract infections (20.2%) and genital infections (19.4%) were the commonest morbidities during current pregnancy.