Maternal and child health services (MCH)

* MCH are the health services provided to:
1- **All women in their reproductive age.** (between the age of **15-49** "reproductive age woman" = "maternal age" = "child bearing age woman") in order to have a better pregnancy time and better prognosis.
2- **Children**: neonates, school population and adolescence (until the age of 19).

* Throughout the world, especially the developing countries, there is an increasing concern and interest in maternal and child health care; *Why?*
One of the most important causes is that it's still a cause of death during pregnancy, and delivery and also the high infant mortality rate.

* So in the **developing** countries we need to improve these services (we don't want to reach 100% like those in developed world but at least to start decreasing the gap).

* Maternal and child health services include the infectious diseases services because these diseases are more dangerous in children as their immunity is still weak.
Infections are still considered as a cause of death in children.

* With the improvement of these basic services in the developed world => malaria, measles, delivery, postnatal and pregnancy aren't causes of deaths anymore

** Learning objectives of MCH :*

1- Understand the importance and role of **M**aternal and **C**hild **H**ealth **C**are.(MCHC**)**
2- Outline objectives of **MCHC programs .**
3- Outline **major health problems** in mothers and children, (not only causes of death but also we will mention causes of morbidity(diseases))
4- Identify **factors** that affect the health of mothers and children
5- Risk factors as pregnant woman. She is at a higher risk to have complications more than another woman.

**Examples on risk factors are:
a) Past medical history of hypertension, diabetes, cardiovascular, renal, psychiatric diseases, depression, schizophrenia and postpartum depression. **b)** Age any pregnancy when above 35 years age and less than 20 we usually start to worry about complications of pregnancy. One of them is gestational diabetes and preeclampsia (pregnancy poisoning).
**the best age physiologically for pregnancy:25 is the apex, Before 25 more death ,35-40 more and more complications

6- Major causes of maternal and child mortality and prevention
7- Recognize the available MCHC services.
8- Know the role of these services in prevention of maternal and child morbidity and mortality.

** Main objectives of these services:*

1- Decrease maternal and child morbidity (disease) and mortality (death). Morbidity is 16 or 18 times that of mortality through health promotion activities rather than curative interventions.

2- Improve the health of women, children and fertility regulation methods by family planning adequate antenatal coverage, and care during and after delivery.

**when a woman gets married at the age of 24-25 ,she has until 40 age (15 years) in order to have 5 babies with 2-3 years difference between them.
Any pregnancy above 5 (the 5th pregnancy and above), there will be physiological complications in addition to social and economic complications.
** Keep in mind that pregnant woman is NOT a patient but the first pregnancy puts the woman at high risk because it is the first time for her body to be under this physiologic stress and there might be an unexpected (abnormal) reaction of the body toward pregnancy such as **Preeclampsia** which is a pregnancy disorder (an autoimmune disease with unknown causes, but usually increases in the first pregnancy) in which she gains more than 20 kilos, gets hypertension, problems in the kidneys and proteinuria .
Abnormal reaction to a normal physiologic process and women who have it in the first pregnancy are more prone to have it in the second pregnancy.

3- To improve the quality of life during this fertility and reproductive age and childhood (every 1 or 2 years spacing, favorably, 3years).
- Age of marriage in Jordan is increasing. This makes the family planning (the reproductive age to work on) shorter (25-40) instead of (18-40). So if we start from 18, we will spend more than 20 years in planning.
- This family planning service is an advantage for babies.
- Multigravida: pregnancy above 5 times (high parity) , in which side effects and complications will not only affect the mother, it will also affect children.
- Healthy pregnancy so healthy embryo, infant , baby.
- Complicated pregnancy so poor outcome.

4- Reduce unwanted MCHC (family planning services are one of the basic services that are provided naturally in MCHC services).

5- Reduce perinatal and neonatal morbidity and mortality.

Perinatal period: one week before birth and one week after.
Neonatal period: one month after birth.
Infant age: one year after birth.
The younger the baby dies then it is more related to pregnancy.
Perinatal period this period is very sensitive to the pregnancy. So if the baby died during this perinatal period it means that it is not a direct problem related to the baby, instead, it is a pregnancy problem.

6- Reduce the incidence and prevalence of sexually transmitted infections and to reduce the transmission of **HIV.** Notice that the **maternal and child health care services and reproductive health services** are services provided in relation to reproductive health services.

7- Reduce the incidence and prevalence of cervical cancer (related to marriage and sex).

8- Reduce the female genital mutilation (الختان) and provide appropriate care for females.
It is still practiced in many of developing countries. In Jordan it is not present anymore. We have to prevent it because on the long term, it makes a lot of complications to the reproductive health.
** Part of the reproductive health services is to have a healthy sexual life. That's why we have to stop doing such things (malpractice).

9- Reduce domestic and sexual violence and ensure appropriate management of the victims. It was included in the demographic survey and they questioned them about violence and causes of it.

10- Increase the political awareness on the need to develop comprehensive intersector policies using all available resources. (Visibility on how much do we need these services and how much do we have).

** Justifications for the provision of MCH Care (why) ?*

1- In the developing world, reproductive age women and children make up more than 50% of the population.
. Children under 15 years old 37.3% . Mothers (reproductive age 15-49) 20%
This means it is important to give them priorities when it comes to providing services.

2- Maternal mortality is an adverse outcome of many pregnancies.
****** When we talk about maternal mortality and morbidity then it means we are talking about the period of pregnancy, delivery and 6 weeks after delivery**.** So any death or disease case in this period is termed maternal mortality and morbidity**. (Postpartum period = 6 weeks after delivery).**

3- Miscarriage and **induced abortion** and other factors are causes for over 40 percent of the pregnancies in developing countries to result in complications, illnesses, or permanent disability for the mother or child.
Miscarriage is normal and not induced; some might end up with bleeding and shock if not treated very properly, while **Induced abortion** more risks; associated with abnormal reaction of the body accompanied with more bleeding and infections. (Abortion: happens before 28 weeks).
** In some parts of the world, induced abortion is one of the contraceptive methods.
** In Jordan we don't have it because it is illegal medically unless there is a risk on the mother life, not the baby life. So after 4 months whatever the state of the baby is you should accept it, but in some countries induced abortion is a legal procedure.

4-About 80 percent of maternal deaths in are directed obstetric deaths. They result "from obstetric complications of the pregnant state (pregnancy, labor, and puerperium), from intervention, omissions, incorrect treatment, or from a chain of events resulting from any of the above.
a- Direct: directly related to pregnancy like: bleeding, Preeclampsia (hypertension then epileptic shock and death).
b- Indirect: cardiac patient, she dies indirectly because of cardiac arrest, severe anemia, cancer during pregnancy.
So when we prevent the complications of directly related causes => maternal death will decrease by 80% and life expectancy will be higher.
** Prevention in maternal health has services provided through PHC.
** Poor pregnancy usually leads to poor outcome (high risk of death, bleeding, infections).
****Prematurity** is a big problem in neonates. Percentage of neonates that die as premature is much higher than when they are mature. Why? Because all systems are mature when the mother finishes 36 weeks of pregnancy but before that, there are many immature systems so the baby will be more prone to RDS, bleeding and others.

5) Most pregnant women in the developing world receive insufficient or no prenatal care without help from appropriately trained health care providers. More than 7 million newborn deaths are believed to result from maternal health problems and their mismanagement. If provided, this can prevent many complications with early detection and treatment. (in developing world)
- **Preeclampsia** if diagnosed in its early stages, pregnant woman will not die from it. The risk will be there only if she is not diagnosed and left without treatment of hypertension and renal failure. Thus ending up with cardiac arrest and death.
- Most important causes to die during delivery are obstructed labor or postpartum bleeding and shock. In Jordan it is not present because 99% of deliveries happen in hospitals and the remaining 1% happens at

home because of accidental causes. But in the developing world hospitals can't afford this (limited resources) so there are still home deliveries, and if there is obstructed labor the woman will be dead by the time she reaches the hospital.

6) Poorly timed unwanted pregnancies; and this is associated with higher risk of morbidity and mortality., as well as social and economic costs, particularly to the adolescent and many unwanted pregnancies end in unsafe abortion. - Family planning services are very important to prevent this.

7) Poor maternal health hurts women's productivity, their families' welfare, and socio-economic development.

8) Large number of women suffers severe chronic illnesses that can be exacerbated by pregnancy and the mother's weakened immune system and levels of these illnesses are extremely high.

9) Many women suffer pregnancy-related disabilities like uterine prolapse long after delivery due to early marriage and childbearing and high fertility.

10) Nutritional problems are severe among pregnant mothers and 60 to70 percent of pregnant women in developing countries are estimated to be anemic. Women with poor nutritional status are more likely to deliver a low-birth -weight infant.

11) Majority of perinatal deaths are associated with maternal complications, poor management techniques during labour and delivery, and maternal health and nutritional status before and during pregnancy .

12) The large majority of pregnancies that end in a maternal death also result in fetal or perinatal death. Among infants who survive the death of the mother, fewer than 10 percent live beyond their first birthday.

13) Ante partum hemorrhage, eclampsia, and other complications are associated with large number of perinatal deaths each year in developing countries plus considerable suffering and poor growth and development for those infants who survive.

14) Physiological changes that the mother and her child pass through.

15) More sensitive to the environmental factors changes.

16) Adolescence pregnancy (teenage pregnancy) we don't have it in Jordan as the age of marriage is high and there is no premarital sexual life.

**In the developing world, marriages happen at the age of 14-15, while in the developed world marriages don't happen until the age of 27-29 but they start their sexual lives early so teenage pregnancy happens in both; developing and developed worlds.
**In Jordan, we are not like the developed or the developing world because of the high age of marriage and there's no premarital sexual life.

**** Content of MCH Care Services and Priorities:***

1) Maternal.
2) Infant and Child.

**** Maternal Health Learning Objectives :***

1) Understand the magnitude of maternal health problems / Maternal Morbidity
2) Describe the factors that affect the health of mothers
3) Describe maternal mortality
4) Outline the major causes of maternal mortality
5) Understand effects of maternal health on children, family and community

**** Reproductive Health :***

- defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being through preventing and solving reproductive health problems.
- It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counseling and care related to reproduction and sexually transmitted diseases.

**** Reproductive health as PHC Service :***

- Reproductive health care in the context of primary health care should include:
family-planning counseling, information, education, communication and services.
- education and services for prenatal care, safe delivery, and post-natal care, especially breast-feeding, infant and women's health care; prevention and appropriate treatment of infertility.
- prevention of abortion and the management of the consequences of abortion; treatment of reproductive tract infections; sexually transmitted diseases and other reproductive health conditions;and information, education and counseling, as appropriate, on human sexuality, reproductive health and responsible parenthood.
- Referral for family-planning services and further diagnosis and treatment for complications of pregnancy, delivery and abortion, infertility, reproductive tract infections, breast cancer and cancers of the reproductive system, sexually transmitted diseases and HIV/AIDS should always be available, as required.

**** Some indicators of health status of women :***

1-Maternal Mortality Rate /100,000 (15-49 years death due to Pregnancy , Labor and post partum period)The most sensitive indicator for maternal health.
2- Malnutrition among women in reproductive age group.
3-Teen-age pregnancy
4- Low birth weight deliveries (<2.5kg.)
5-Weight gains during pregnancy …. Normal (8-11 Kg.)
6-% of women visited ANC clinics.
7-% of Labor attended by Medical Staff.
8-% of women receiving family Planning Services.

**** General Consideration :***

- More than **150 million** women become pregnant in developing countries each year and an estimated **500,000** of them die from pregnancy-related causes. Maternal health problems are also the causes for

more than **seven million** pregnancies to result in stillbirths or infant deaths within the first week of life.
- Maternal death, of a woman in reproductive age, has a further impact by causing grave economic and social hardship for her family and community.
- Other than their health problems most women in the developing countries lack access to modern health care services and increases the magnitude of death from preventable problems.

** Safe motherhood :*

Pregnant woman should be support **emotionally and psychologically at home** because she is under physiological stress due to pregnancy & after.
2) Equity : antenatal care should reach to all community member
3) Basic health services :
- family planning services
- post labor services
- antenatal care
- safe/ clean delivery
- postpartum care
- essential obstetric care(care take during delivery

** Maternal health services :*

1-Premarital.
2-Preconceptional.
3-Conceptional: Care during pregnancies and labor: A.N.C. (Risky Pregnancy)
4-Delivery Care(Centers, Staff and Equipment's)
5-Postnatal and Family Planning Services.

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1) Premarital :

- Genetic counseling , before marriage we have to asked partners to go and to do thalassemia test to give them information that later on may have 1 of 4 chance child with thalassemia .

- do reproductive health before marriage to know if partners fertile or they have problem in fertility by simple test for female & male (taking history or hormonal assay). reproductive health services provided before marriage , before pregnancy , during pregnancy and after pregnancy to reproductive age women (best age for marriage is 25 years old (ages less than 20 or older than 35 have higher risk factors)).

- nutrition and weight monitoring is important premarital so that the woman will be ready later for family planning or for pregnancy .The most important complication that happen because of high weight is Eclampsia.
Anemia is one of common morbidity causes in Jordan and the most common cause of anemia in pregnant women is nutritional deficiency(in Jordan 26% of pregnant women are anemic that's why pregnant women should take iron and folic acid routinely to cover this problem. we found a teen age pregnancy in a developing & developed countries but in Jordan we don't have it(limited) as problem because the early age marriage does not exist and we don't have sexual activity before marriage .
-there is complication in pregnancy that affect **to out come:**
1. **Premature baby** (normal pregnancy last for 40 weeks if baby come before 36 week its premature baby).

2.**Low birth weight** (because of deficiency in nutrition during pregnancy)the normal baby weight (2.5-3.5 kg)

- Family health education to know if they ready socially to go marriage

- Sexuality and puberty
- Marriage and parenthood
- Avoiding hazards (smoking, Alcohol,drugs.)
- Medical history , past medical history.
- STD
- Past Menstrual history.
- Fertility investigation or counseling : to check the fertility problem for partners by hormonal test for female and semen fluid for male.
- Hormonal for females.
- Semen analyses for males.
- Physical examination.
- Immunization :

*one of the most dangerous infection that effect infants is rubella(viral infection) it's very simple and easily treated if it get to non pregnant women or any adult or even a child but not a pregnant woman. That why we should give women that don't have immunity to it a vaccine in the premarital stage or in the preconception (it should be giving at least 3 months BEFORE pregnancy) to protect her from gestational rubella.
* It was found that 80% of Jordanian women are immune to rubella (get infection before that)
* in the developing countries their biggest concern is tetanus because they lack most services , and also they have a high percentage of women that give birth in home not in hospitals .Tetanus is very dangerous and affect embryo more than mother
* Tetanus vaccine is safe to be giving during pregnancy because it is toxoid (antitoxin) not bacterial unlike the vaccine for rubella which should be giving BEFORE pregnancy.
- In the developed countries all women get these premarital services , in Jordan the only thing they do premarital is thalassemia test which is not enough
- The more developed surfaces we have, the more coverage of these premarital surfaces we do.

2) Pre conception :

woman must be follow to prevent complication of pregnancy.

1)psychological support (good communication and psychological support should provide in **all stage** ,premarital ,preconception ,conception, post conception , and post labor)
2)the woman should consult the doctor before pregnancy to control disease like (diabetes , hypertension) all of these disease must be controlled during pregnancy with certain drugs ; overweight woman should lose weight before pregnancy because obese woman will get into complication during pregnancy and delivery, age of women is important.
3) social counseling :are they ready for pregnancy
- conception services :care of pregnant woman during pregnancy
- delivery care : when ? where ? who ?
-postnatal care : the most important services in postnatal is family planning services
-Past and recent medical history: renal problem, cardiac problem, congenital problem, psychiatric problem, epilepsy.. all of these problems have to be control and get the right drugs before she decides to get pregnant
-social history: age and economical state
- Controlling risk factors..

3) Conceptional: Objectives of ANC:

*90% of women in Jordan reach the hospital in the conceptional stage.
* In developing countries they might reach hospital in the antenatal stage, some of them don't reach any because they deliver at home.
*examples of complications during pregnancy: gestational diabetes, gestational hypertension, anemia (caused mainly by iron deficiency or folic deficiency).

1-Promote and maintain the physical, mental and social health of mother and baby by providing education on nutrition, personal hygiene and 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 plane .
5-Help prepare mother to breastfeed successfully, experience normal puerperium, and take good care of the child physically, psychologically and socially.

*** What is antenatal care?**

- systemic supervision of a women during pregnancy to monitor the progress of fetal growth and to ascertain the well being of the mother and the fetus .A proper antenatal check up provides necessary care to the mother and to help identify any complications of pregnancy.

* **Why antenatal care is important?**

- to ensure a normal pregnancy with delivery of healthy baby from healthy mother .
- Prevent development of complications
- Decrease maternal and infant mortality and morbidity
- 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

* The most important test we do to detect the baby growth or abnormality during pregnancy is the ultrasound.

* **Antenatal checks and tests :**

1) **height checks** we measure the height in the antenatal stage to know the pelvic size , sometimes if a woman is shorter than 150 cm, she might have an obstructed labor or cesarean section so she will be at higher risks that why she should give birth in hospitals. (to calculate body mass index)
2) weight gain check (normal weight gain is from 8-11so 15) if the woman was obese she will have a lot of complications and will be at high risk, for example gestational diabetes ,preeclampsia ,hypertension, edema, water retention, obstructed labor, poor contraction or premature labor. (to calculate body mass index).
In first trimester there is no weight gain in last 6 months the average of weight gain is 2 kg per month
3) Blood test is important to check for hemoglobin and to make sure she is not anemic because there are special over needs for iron during pregnancy
4) rubella test (if the woman hasn't done one in the premarital or preconceptional stage).
What can we do if we found out during this stage that she doesn’t have immunity for rubella?

Nothing! We can't give vaccine for rubella when she is already pregnant; all we can do is to ask her to avoid contacting with people with influenza or runny nose.

5) urine tests ,urine is checked for several things including protein or albumin.

6) Blood pressure test

7) ultrasound scan

* What can an ultrasound scan be used for ?

Ultrasound is the principle test we do in the antenatal stage

1) To check the baby size. 2) To detect abnormalities.

3) To show the position of the baby and the placenta. ex, when the placenta is low down in late pregnancy, a caesarean section may be advised.

4)To check that the baby is growing normally

< Ante natal care can also play a role in identifying danger signs or predicting complications around delivery by screening for risk factors and arranging for appropriate delivery care when indicated. normal number of visits is 6-8 times during pregnancy>

* Pregnancy risk factors that should be considered in ANC :

1-Age under 18 or above 35

2-Hight(less 150 cm) And under or over weight.

3-Residency

4-Education

5-Income

6-Parity (Primigravida , More than 6 pregnancies) number of pregnancy.

7-Twins, Hydrominos –too many fluids around baby- ,Pre eclampsia

8-Past Medical history: Diabetes, cardiac problem, renal disease etc.

9-Past obstetric history:

premature labor, obstructed labor, hemorrhage, premature baby

• Previous caesarean section, vacuum, or forceps delivery

*Caesar Section should only be done when there are high risk factors but in our country we do it selectively which is illegal

*Anesthesia is the third cause of death in Jordan and developing countries during cesarean section

• Previous perinatal death, stillbirth

• Previous Post partum – after labour- haemorrhage

• Previous ante partum – during pregnancy- haemorrhage

10-General condition of the woman pre-conceptional (Hb level, nutritional, blood pressure and general condition.)

11- Social history : Smoking, Alcohol or any drug therapy , work load, birth attendant, economic status.

* antenatal care according to mothers age 2012 *JPFHS* :

the higher percentage of mothers that come for antenatal care are (20-34 years old) which is the normal age of pregnancy.

* Antenatal care in Jordan(according to number of visits) in 2012 *JPFHS:*

78.60% or around 80% of women come for more than 7 visits which mean proper antenatal care.

* Antenatal care in Jordan in 2012 JPFHS:

people with high income and high education reach more for antenatal care.

Antenatal care centers should provide programs to seek out women unable or unwilling to attend a clinic

and take the services to them, and so attaining a coverage of 100% as we are not far from reaching this number .

* when we said the maternal mortality and morbidities is ~98%,this is in the developing world not in the developed world **.**

***Antenatal classes in Europe :**

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 .

* **Antenatal care and pregnancy complications :**

These are common maternal morbidities and may end up with mortality if we don't treat them early.

1) Anemia, because the pregnant woman has special needs for iron, if she doesn't have sufficient amount (Hb is less than 10 milligram) of iron or supplement she will end up with pregnancy anemia. Anemia should be detect earlier by using blood test.
symptoms: Feel tired or weak ,Look pale ,Feel faint ,Shortness of breath.

2) Gestational diabetes happen **only** during pregnancy (the woman didn't have diabetes during the premarital or preconceptional stage) that why it is a direct cause of morbidity and mortality (if the woman had diabetes before she become pregnant then it will be indirect cause) We diagnose diabetes by doing **urine test**, if we found out there is high level of sugar in the urine then we go for blood test, or if she already had diabetes before, then we do blood test. Screening test shows high blood sugar levels Usually, there are no symptoms. Sometimes, extreme thirst, hunger, or fatigue

3) Hypertension (high blood pressure): there are two types , if it happened because of pregnancy starts after 20 weeks of pregnancy and goes away after birth then we call it **preeclampsia**, if she already had high blood pressure before pregnancy then we call it
essential hypertension. High blood pressure without other signs and symptoms of preeclampsia

4) 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.
symptoms : High blood pressure, Swelling of hands and face, Too much protein in urine, Stomach pain Blurred vision, Dizziness, Headaches.

5) Miscarriage or abortion :Pregnancy loss from natural causes before 28 weeks. As many as 20 percent of pregnancies end in miscarriage. Often, miscarriage occurs before a woman even knows she is pregnant.

symptoms : 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.

6) Preterm labour – Going into labour before 37 weeks of pregnancy (28-36)weeks .
*36-40 weeks it is term baby *more than 40 it is post term.
symptoms: Increased vaginal discharge ,Pelvic pressure and cramping ,Back pain radiating to the abdomen ,Contractions.

*** 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) .

*** Arrangement of morbidity from the most to the least common in developing :**
<the doctor might ask which is most common?, which is least?>
- this list reflect the morbidities mainly in the developing world .
- in the top of the list there is hypertensive disorders which include both essential and preeclampsia.

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

* **Causes of maternal morbidities from most to least in Jordan :**

1.Urinary tract infections 2.Vaginal infections

3.Anemia 4.Early bleeding

5.Hypertension 6. Gestational diabetes

7.Pre-eclampsia 8.Late bleeding

9.Multiple pregnancy 10.Kidney diseases

11.Thyroid disorders 12. Disseminated intravascular coagulopathy

13.Heart Disease

- Most common cause in Jordan is urinary tract infection
- heart disease and thyroid disorders are indirect causes because it happened before pregnancy (so the woman had those diseases before she got pregnant).
- difference between the two lists, preeclampsia come in first place in the developing world while in Jordan it is in the seventh place that because of well care (proper antenatal care) and early detection of it in Jordan , also notice that anemia come in sixth place in the developing world while in Jordan it is in the third place so it is still a problem in Jordan.

* **Trends in prevalence of anemia, 2002, 2009 and 2012** :
- we can say that anemia is one of the most common causes of morbidity in children.
- Children:
in 2002 and 2009 34% which is high while in 2012 it is 32%.
- Women :
in 2002 it is 26% ,in 2009 it is 25% , in 2012 it is 34%.

4) Delivery

The healthy labor is achieved by three things :
1. Where? Place of delivery (in developing country there is problem of maternal mortality because pregnant women delivered in home but in Jordan 99% delivered in hospital)
2. When?(anything that less than 36 weeks is considered premature and more than 42 is post mature
3. Who? Doctor , midwifes
-the most important family service is **family planning services** (contraceptive prevalence rate)
- More CS (caesarian) delivery rate is bad especially in Jordan or developing countries because many women died because of anesthesia during it and CS should only be done in certain situations (if there is a risk on the baby or the woman). But in the developed world, the CS (caesarian) delivery is done in a selective section and anesthesia is very safe .
3W : When, Where and Who
3 c's :Clean hands ,Clean delivery service ,Clean cutting of the cord
How :Normal or CS

* **Maternal Mortality ,General Consideration :**

- It is the end stage of morbidity (which is death).
- Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the site and duration of pregnancy from any acutely related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.
- Maternal mortality is the leading cause of death among women of reproductive age in most of the developing world. Globally(developing world), an estimated **500,000** women die as a result of pregnancy each year. It is the statistical indicator, which shows the greatest disparity between developed, and developing countries.

- 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.

- Most of the deaths, 99%, are in developing countries the magnitude of maternal death is very high in Sub-Saharan Africa and South Asia, where material mortality ratios (material deaths per 100,000 live births) may be as much as 200 times higher than those in industrial countries.

- **This is widest disparity in human development indicators yet reported.**
- This difference is further expressed when comparing lifetime risk of women**:** one in every 21 women in Africa dies of complications of pregnancy, delivery, or abortion, while with only one in every 10,000 in Northern Europe.
- The maternal mortality rate in Western Europe, a century ago, was less than most developing countries.
- Poverty, though not a disease in biological sense, it affects maternal health adversely and is reflected by maternal death. The difference in maternal mortality between developed and developing countries strengthen the above fact.

- The risk of maternal mortality is also related to the mother's previous health and nutritional status, issues of gender discrimination, 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. *adolescent pregnancy is a risk factor in the developing countries because of the young age of marriage (15 , 16 years old) and it is a high risk factor in the developed world because they start their sexual life before marriage , while in Jordan it is very limited .

*** 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.

* **Global scenario-Maternal health:** numbers are important

- Each year, more than half million women die from causes related to pregnancy & childbirth.
- For every such death there are 20 others who suffer pregnancy related illnesses or other adverse outcome (obstetric fistula, uterine prolapse)
- Around 10 million women annually suffer from complications of pregnancy
- On average, each day~1500 women die from causes related to pregnancy & child birth
- 80% of maternal deaths could be avoided by access to essential maternity & basic health services

* **Causes of Maternal Mortality :**

< Don't memorize the numbers but memorize where each cause stands >

- This is WHO report of the most important cause
- Severe bleeding is number one cause then indirect causes infection, unsafe abortion, eclampsia, obstructed labor.
we ignore the indirect causes because it includes many disorders.
- Nearly three-quarters of maternal deaths are due to direct complications of pregnancy and childbirth, such as severe bleeding, infection, unsafe abortion, hypertensive disorders (eclampsia), and obstructed labor.

- women also die of indirect causes aggravated by pregnancy, such as malaria, diabetes, hepatitis, and anemia.

* **Maternal Mortality, by Region:**

- maternal mortality is highest in Sub-Saharan Africa and south Asia and it is low in developed countries.
- Over 99 percent of maternal deaths occur in less developed countries, particularly in Asia and Africa.
-While high-quality, accessible health care has made maternal death a rare event in more developed countries, the lack of such health care has fatal consequences for pregnant women in less developed countries.

Maternal Mortality in Jordan

*** Improve maternal health Targets and Indicators :**

Target 5a: Reduce by three quarters the maternal mortality ratio
5.1 Maternal mortality ratio
5.2 Proportion of births attended by skilled health personnel

Target 5b: Achieve, by 2015, universal access to reproductive health
5.3 Contraceptive prevalence rate
5.4 Adolescent birth rate
5.5 Antenatal care coverage (at least one visit and at least four visits)
5.6 Unmet need for family planning

***Millennium development goal 5 (MDG5) Target 5A:**
Calls for the reduction of maternal mortality rate (MMR) by three quarters between 2000 and 2015 .

*** What does that mean for Jordan?**
- Reduction of MMR from 41 maternal death per 100,000 live births in 2000 To 12/100,000 by the year 2015.
- our target in Jordan is Reduction of MMR from 41 maternal death per 100,000 live births in 2000 to 12/100,000 by the year 2015.

*** Trends in Maternal Mortality 1990-2008 WHO, UNICEF, UNFPA, WB (SEP, 2010):**
Maternal death per 100000 live birth. (اتجاهات معدل وفيات الأمهات عالميا)
- in 1990: all world 400 ,developed 16 ,developing 450 .
- in 2008 : all world 216 ,developed 14 ,developing 290.

*** Maternal Mortality Study – Jordan 2007-2008- Higher Population Council, 2009 :**
- The target was to drop three quarters, it dropped from 41 to 19 (it is supposed to drop to 12) but we were close to our target.
- Maternal death per 100000 live birth (معدل وفيات الامهات بالاردن)
in 1995 to 1996 it is 41.4 in 2007 to 2008 it is 19.1

*** Maternal mortality in Jordan compared with other arab contries :**
- most important where Jordan stand (it is in fourth place from least to highest in mortality rates).
< Sudan – Yaman –Egypt – Syria –Tunisia –Jordan –Saudi Arabia –Kuwait – United arab emirates >

*** Causes of maternal mortality in Jordan (2007-2008) indirect causes :**

- Heart diseases is number one .
- heart disease ,CNS system disease ,communicable diseases ,chronic anemia ,kidney failure .

5) Delivery (Post Natal)

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

6) family planning

*** What is family planning?**

- educational, comprehensive medical or social activities which enable individuals, including minors, to determine freely the number and spacing of their children and to select the means by which this may be achieved. [1] WHO website.
- So family planning is service that help in health promotion, and it is one of the services of the postpartum stage of the motherhood (after six weeks of child birth).

* **In this stage:**

- We observe postnatal after 6 weeks of delivery.
- We observe her physical condition as she come back to her normal.
- We observe her uterus and her menstrual if back to normal or not.
- Promotion of breast feeding and supporting it.
- Health education.
- Provide an emotional and psychological support.

* **Goals of Family Planning services :**

1- Enable women and men to limit family size
2- It safeguards individual health and rights
3- Preserves our planet's resources.
4- Improves the quality of life for individual women, their partners, and their children as if she is pregnant for the 7th time is different from the 2nd time , because her reservoir of iron and other needs is almost few.
5- Prevent unwanted or risky pregnancies
6- Decreases incidence of congenital abnormalities
7- Decreases Maternal and infant mortality rates
8- Control the world population size
9- Improves all aspects of life standers economical , educational, and health psychological.
10- Control the resources and to control the population to prevent poverty.

* **For every woman there is a convenient way of family planning, the medical staff decides the proper way and the method she need for her family planning depends on :**

- Her health status, medical history, age
- If there is a special personal considerations should be know about it.
- And how effected the method is, as we consider the most effected method.
- Safety of the method and the effect and sequence (post) of the method .

*** Counseling in family planning must be :**

- GREAT

a) Great
b) Reassure
c) Explain
d) Answer
e) Therapy/Rx.

- Choosing a birth control method is an important decision . Some of the things you might want to consider when choosing a method are :

1- Personal consideration
2- Effectiveness
3- Safety
4- Cost

- We need :

1) A detailed history 2) Information on all available methods
3) All practical points related to the use of the selected method must be discussed in detail.

* **Contraceptive efficiency:**

It is the measurement of unplanned pregnancies even after the use of contraceptive measures.
(How much is the failure rate of this method).

* There are three main ways:

A. Traditional or natural : without using medicines or doctors.

ex:

- **breast feeding** LAM (Lactation Amenorrhea Method):

Risk of pregnancy is 1.8% at the end of 6 months after delivery in women who exclusively breast-feed & who have not yet started to menstruate.

- Cheap method - No side effects

1) No menses - amenorrhea meaning that there is no ovulation and the lactation is doing the job by producing prolactin that stops ovulation.
2) Supplements of breast feeding regular.
3) Baby older than six months, after the six months even if there is sufficient feeding we have to find another method or the pregnancy have an opportunity to happen.

If one if this conditions is not exist we have to shift to another method.

- **Counting the safe period**, the regularity of the period is a most important condition, also the woman should be a bit educated about calculating the period and need some cooperation between the woman and her partner.
- We calculate it measuring the whole menstrual cycle (30 or 28 days) and then subtract 14 and this is the expected ovulation.

- Sometimes we combine methods to increase the efficiency.
- Calculating the safe period in menstrual cycle is simple. Here are the steps to follow:
1) Know your last period first date.
2) Determine the shortest and longest menstrual cycles through observing your menstrual cycle for last six months.
3)Days 1 to 7 of menstrual period lasting from days 26 to 32 are known to be safe or infertile.
4) The post-ovulatory stage is determinable on the basis that ovulation occurs on 19th day, there are chances for fertilization till day 20 of the menstrual cycle. The calculation depends on the life span of the egg.

< World Health Organization (WHO) statistics shows that nearly 80% of menstrual cycles last from 26 to 32 days. You can estimate your safe period days by comparing it against the data available>

- Abstinence(safe period) : not having sexual intercourse

Drawbacks:

Irregular cycle so difficult to predict
Programmed Sex
Only for educated and responsible couples
High Failure rate

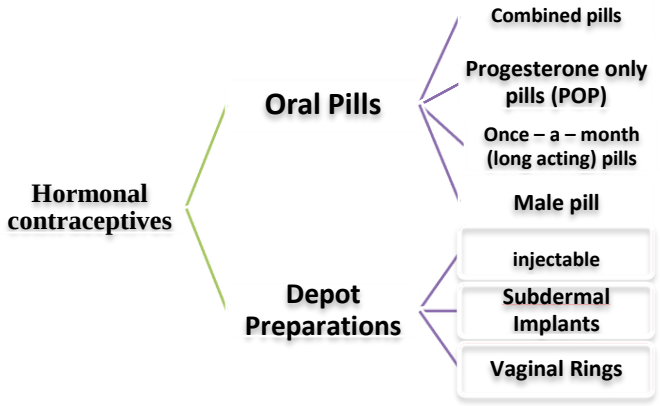
Complication:

Embryonic Abnormalities, Ectopic Pregnancy

- Withdrawal (Coitus interrupts): pulling out

- Fertility Awareness Method (FAM) : basal body temperature (BBT)

B. Hormonal methods:



1) **Contraceptive pills** (very high efficiency)
- Mini pill or Progesterone only pill للمرضعات
- Combined pill: estrogen and progesterone pill

2) Injectable hormonal

either combined (**NET-EN Norethandrone Enanthate**) or progesterone only (**DMPA depot- medroxy progesterone acetate)** (usually progesterone only) ,it lasts for 3 months.

3) Norplant

these are slow releasing progesterone tubes subcutaneously and last for 5 years but it's very expensive and wasn't accepted by the women so it did not work in Jordan. Most women in Jordan don't follow this way because of amenorrhea resulting of progesterone

Combined pills :

usually the progesterone is more than estrogen.

In early 1960s

Oestrogen 100-200µg and **Progesterone** 10mg so **Greater side effects**

Nowadays

Oestrogen - 30-35µg and **Progesterone** 0.05-0.15mg.

- It used from the 5th day of period to 25 days by a break of 7 days (**withdrawal bleeding**)., 21 pills.
- They regulate the ovulation and the period for married and unmarried women for almost 3 months.

Mechanism of action:

- Combined pills: prevent ovulation; there will be no embryo, no fertilization and no implantation ,make cervical secretion thick .

-Progesterone only pills do not prevent ovulation but thickening the mucosa of the uterus so the implantation is difficult.

- **Effectiveness (**Failure rate: 0.1) 100% effective if taken correctly
- **Advantages**: it is an easy method, 100% efficient, help regulating the period and sometimes they reduce the risk of breast, ovarian and cervical cancer.

Beneficial effects on menorrhagia (anemia), dysmenorrhea, ovulatory pain, acne and hirsutism

Lower the risk of endometrial, ovarian- (30-50%) and possibly colon cancer

Preserves bone mineral density

May reduce the risk of ovarian cysts, rheumatoid arthritis, benign breast disease & Ectopic pregnancy.

May have protective effect against atherosclerosis

*** unwanted effect of Combination Oral Contraceptives** :

- Cardiovascular effects mainly because of eostrogen .

hypertension in 5% user myocardial infarction

- Stroke ; ischemic or haemorrhagic
- DVT's especially smokers >35, overweight and sedentary
- Cancers (increase risk of) breast, hepatocellular ,cervical
- Endocrine and metabolic effect, impaires glucose tolerance and responses to glucose challenge
- Breast tenderness, Weight gain, Headache and migraine

* Absolute Contraindications

- Cancer of breast and Genitals
- H/O venous thromboembolism
- -Vascular disease- CAD or CVD
- -Liver disease (i.e. Viral hepatitis, cirrhosis)
- Pregnancy
- Congenital hyperlipidaemia

* Relative Contraindications

- Age above 40 yrs.
- Smoking and age above 35 yrs
- HTN with SBP>160, DBP>99
- Chronic renal diseases
- Epilepsy , Migraine
- Hyperlipidemia LDL>160
- DM with secondary complications
- Infrequent bleeding, Amenorrhoea.

Progesterone only pills:

<mini pill or micro pill >

- **Mechanism of action:** don't prevent the ovulation, but they increase the thickness of the mucosa of the uterus which prevent implantation or decrease the motility of the fallopian tubes**.**

Prevent pregnancy without preventing ovulation, as ovulation occurs in 20-30% women.

action starts in 2-4 hrs last for 24hrs.

- **Composition:** Low dosage of progesterone, mainly Norgestrel 0.075mg
- **Disadvantages:**

1. higher risk of neoplasm in women taken contraceptive pills (in progesterone only pills more than combined pills)**.**
2. Can cause amenorrhea (poor control of cycle).

Dosage:

One tab daily throughout the menstrual cycle

It is mainly given in older women in whom combined pills are C/I as in CVDs

Efficacy 96-98%

Failure rate:0.5/HWY

*** Suitable for**

Lactating women

Smokers above 35 yrs old

Estrogen sensitive women

* injectable contraceptive :

Side effects:

Disruption of normal menses Amenorrhoea

Contraindications:

Breast cancer Genital cancer

Undiagnosed uterine bleeding Suspected malignancy

Lactating women

Failure rate: 0.3/HWY

* subdermal implants :

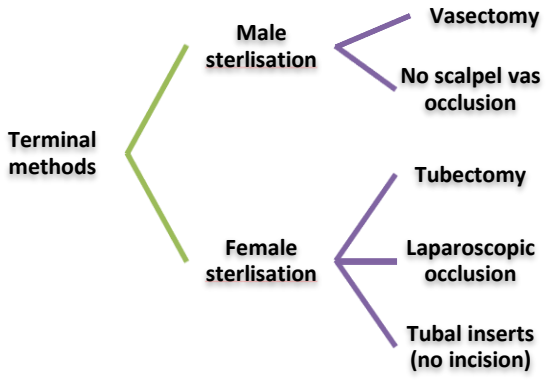
Norplant

For long term contraception. Has 6 capsules containing 35mg each of norgestrel.

Norplant R2 – contains rods of norgestrel. Contraception is achieved in 24hrs & lasts for 5-6 yrs

Disadvantage:

Surgical procedure Failure Rate: 0.1/HWY



Failure Rate: 0.15/HWY (due to mistaken identification of vas)

COMPLICATIONS:Operative

Sperm granules

Spontaneous recanalisation

Autoimmune response Psychological response

* **Mechanical methods:**

a. Loop (the most important one).
Intrauterine Device:
Plastic T – shaped piece, covered with copper, inserted in the uterus
Efficacy rate: 1/100 women/year
ADVANTAGES OF IUDs:
Safe, Effective, Reversible ,Inexpensive ,High continuation rate
DISADVANTAGES OF IUDs:
Heavy bleeding and pain ,Pelvic Inflammatory diseases ,Ectopic pregnancy
May come out accidently if not properly inserted
IDEAL IUD CANDIDATE:
Who has borne at least 1 child
Has no history of PID
Has normal menstrual periods
Is willing to check IUD tail
Has an access to follow up and treatment of potential problems
Is in monogamous relationship

b. Condoms.
- Rubber pouches which prevent the ejaculation from reaching the vagina.
- No side effects whatsoever
- Effective in prevention of STD transmission
- Does not affect lactation
- Contraindicated in cases of sensitivity to latex

DISADVANTAGE:
Chances of slip off and tear off
Failure rate: 2-3%

c. Surgical terminal:
its terminal (disadvantage) no return and it is illegal (with some exceptions if the mother is in danger and the medical staff will decide that).
Female (by tubal ligation) and **male** (by vasectomy; in Jordan no one do the vasectomy but in India is one of the most used way, and it is not acceptable).

*** Birth Control and Current Use of Contraceptives :**
- The level of current use of contraception is one of the indicators most frequently used to assess the success of family planning activities.
- Overall, use of any method among currently married women has increased substantially in the last two decades—
Contraception Prevalence Rate:
40% of women in the 1990 JPFHS survey
53% in the 1997 JPFHS, 56% in the 2002 JPFHS, 57%in the 2007 JPFHS , 59% in the 2009 JPFHS and 61% in the 2012 JPFHS
<JPFHS : Jordan Population and Family Health Survey>
- Results from the 2012 JPFHS indicate that 61% of currently married women are using a contraceptive method; 42% are using modern methods , 19% are using traditional methods.
- The IUD is the most widely adopted modern method (21 %), followed by the pill and male condom (8% each), female sterilization (2%), and LAM and injectables (1% each).

- Less than 1 % of women rely on other modern methods.
- Withdrawal (14%) and rhythm (4%) are the most common traditional methods.

Why Family planning is needed In Jordan ?

1) Before the start of family planning services in the late of 1970 ‘s , Jordan was considered one of the world’s fastest growing young population.in addition , Jordan suffers from a severely limited financial, energy, water, and other natural resources, the Government of Jordan (GOJ) recognizes that population increase hinders further socioeconomic progress.
2) Therefore the GOJ has set the goal of reducing the 2009 fertility rate of 3.8 children per woman to less than 3 children per woman in 2020 by promoting Family planning in Jordan .

** Family Planning in Jordan :*

- At current fertility levels JPFHS (Jordan Population and Family Health Survey) 2012, a woman in Jordan will have an average of 3.5 children – a total fertility rate that is 50 percent lower than the rate recorded in 1976 (7.4 children per woman) .
- Effective family planning is increasingly seen as an important part of Jordan's overall development strategy.
- In contrast to several years ago, such programs are openly discussed and rarely encounter public opposition.
- decrease ***overall fertility rates in Jordan from 1990(5.6)-2012(3.5) so*** less is the infant and child mortality. *Its obvious how the rapid the fertility rate decreased from 5.6 in 1990 to 3.7 in 2002. and then the fertility rate is fluctuating between 3.5 and 3.8 between 2002 and 2012.*
- Decrease of infant and child mortality/1000 live birth with decrease of fertility rate.
- Family Planning had a great role in controlling and decreasing fertility rates during this period. Jordan is one of the most modern countries of the Middle East with a population that has grown from 2.1 million to reach 6.3 million in 2012.
- Fertility declines in Jordan have contributed to a slowing down in the population growth rate from 3.2 % in the second half of 1990, to 2.3 % 2007, to 2.2 in 2012.

- Population growth averaged
4.8 % during the period 1961-1979, 4.4 % between 1979 and 1994, 2.6 % between 1994 and 2004, and 2.2 % between 2004 and 2012.

- The high rates of growth have been due to the influx of immigrants to the east bank from the west bank, the inflow of large numbers of foreign workers, and the return of about 300,000 Jordanians from the gulf area as a result of the 1990 gulf war.

- The rapid increase in the population has created several problems for the country such as food shortage , water, housing and employment.

- Comparison between Jordan and the other Regional Countries in fertility :
Jordan , Egypt , Lebanon ,Saudi Arabia ,india

<40% of death in Jordan because of chronic diseases so it's very important to talk about them as they need a special treatment.>