Community Medicine

35th lecture:

MATERNAL & CHILD HEALTH

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Objectives:

- **General reflections**
- **Maternal health: concepts and definitions**
- **Child health: concepts and definitions**
- **Prevention and control**

Dimensions of maternal and child health: Mother, child, family, and society

Maternal (reproductive) health: is to take care of women in the reproductive age even if she is well or ill.

Reproductive age: from 15 to 49 year

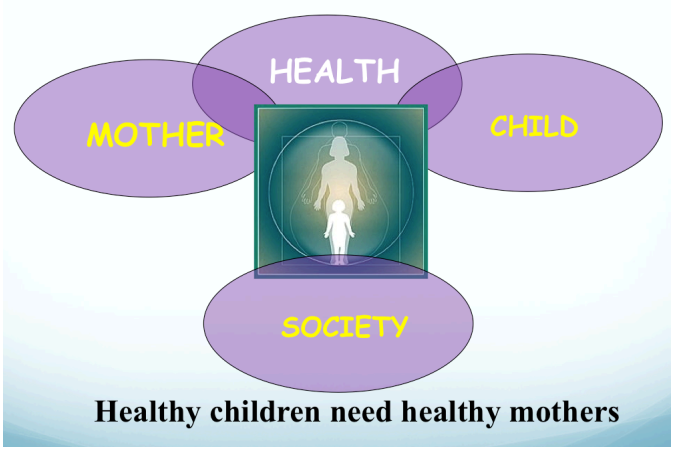
Best age for pregnancy: from 20 to 30 year

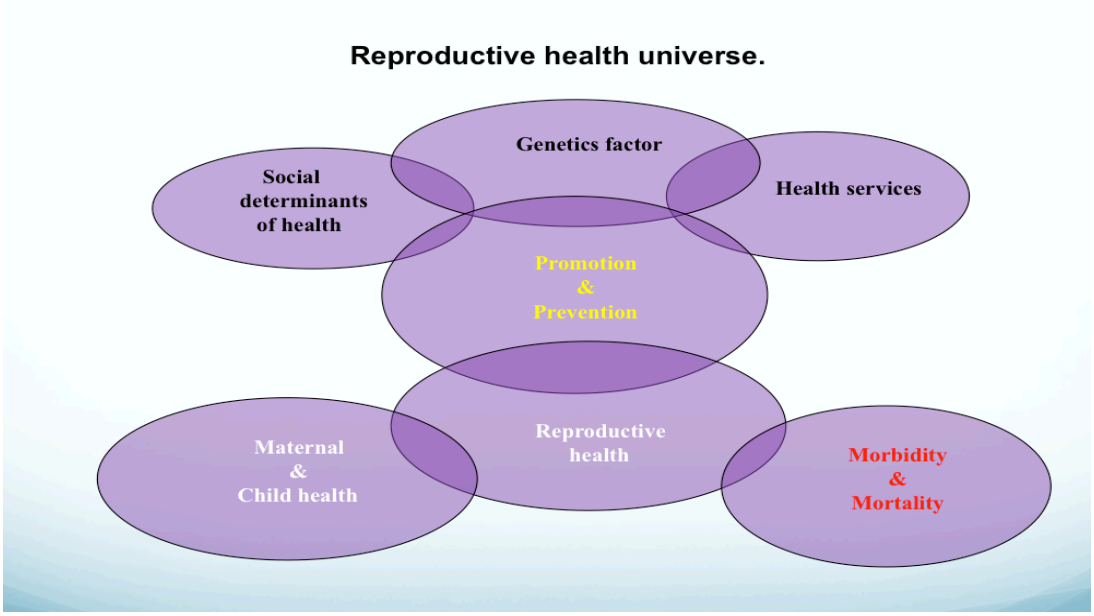
High-risk pregnancy: women older than 35 years old

What do we need to be healthy?

- Good mental health
- Good physical health
- Good moral health*
- Good social health

*As Muslims, our habits in eating and the five prayers.





Promotion and prevention is the aim of reproductive health.

Factors affect promotion and prevention:

- ✓ Genetic factors.
- ✓ Health services: e.g. primary care (Maternal and Child Health care).
- ✓ Social determinants of health: habits and life style.

The output:

- ✓ Morbidity & Mortality.
- ✓ Maternal and child health.

Concepts:

Antenatal: during pregnancy (9 months)
Antepartum: before parturition/delivery
Intrapartum: during labor and delivery
Postpartum: after childbirth
Preconception care: take care of married women before being pregnant.
Neonate: first 28 days after childbirth
Infant: until first year

➢ MATERNAL HEALTH:

- Health of women during pregnancy, childbirth and the postpartum period.
- Motherhood, for too many women it is associated with suffering, ill-health and death.
- Haemorrhage, infection, HBP, unsafe abortion and obstructed labour still are major direct causes of maternal morbidity and mortality. (More in poor countries)

Maternal Health care:

- Is a concept that encompasses family planning, preconception, prenatal, and posnatal care.
- Goals of preconception care can include providing education, health promotion, screening and interventions for women of reproductive age to reduce risk factors that might affect future pregnancies.

- Best time to take folic acid is during the preconception period.
- Never give live attenuated immunization (like rubella vaccine) for pregnant women.
- If pregnant lady was infected with rubella (especially in 1st trimester) may lead to congenital anomalies.
- The best way to prevent rubella is to let your child go to rubella party in her early childhood.
- Rubella party is basically a gathering of infected and non-infected children with rubella (commonly females) to get exposed to the disease and catch it in childhood in order not to get it in their childbearing years to avoid teratogenicity.

Maternal Prenatal Care:

- Prenatal care is the comprehensive care that women receive and provide for themselves throughout their pregnancy.
- Women who begin prenatal care early in their pregnancies have better birth outcomes than women who receive little or no care during their pregnancies.
- Women should visit their doctor every 15 to 30 days during pregnancy.

Maternal Postnatal Care:

- Postnatal care issues include recovery from childbirth, concerns about newborn care (more concern in the primipara* lady), nutrition (for mother and child), breastfeeding (especially in the first 24 hours because colostrum) and family planning.
- Time just after delivery is especially critical for newborns and mothers, especially during the first 24 hours. Two-thirds of all maternal deaths occur in this postnatal period. (Most during 40 days after childbirth. Specially, Puerperal fever** caused by streptococcus)

* Primipara: A woman who is giving birth for the first time.

** Puerperal Fever: Fever caused by uterine infection following childbirth.

Maternal & Child Health Facts:

- There are birth-related disabilities that affect many more women and go untreated like injuries to pelvic muscles, organs or the spinal cord.
- At least 20% of the burden of disease in children below the age of 5 is related to poor maternal health and nutrition, as well as quality of care at delivery and during the newborn period.
- Yearly 8 million babies die before or during delivery or in the first week of life.
- Further, many children are tragically left motherless each year.
- These children are 10 times more likely to die within two years of their mothers' death.
- Maternal and child health and disease has multi-factor origin and can exist of sequential and continuous form.
- Bad maternal conditions account for the fourth leading cause of death for women after HIV/AIDS, malaria, and tuberculosis.

Burden of Morbidity and Mortality during the Maternal Period:

- Global burden of disease in pregnant woman (GBDPW) analysis provides a comprehensive and comparable assessment of mortality and loss of health due to pregnancy and its risk factors in all regions
- GBDPW is assessed using the disability-adjusted life year (DALY), that combines years of life lost due to premature mortality
- Burden of maternal mortality is an important input to health decision-making.

Maternal Death:

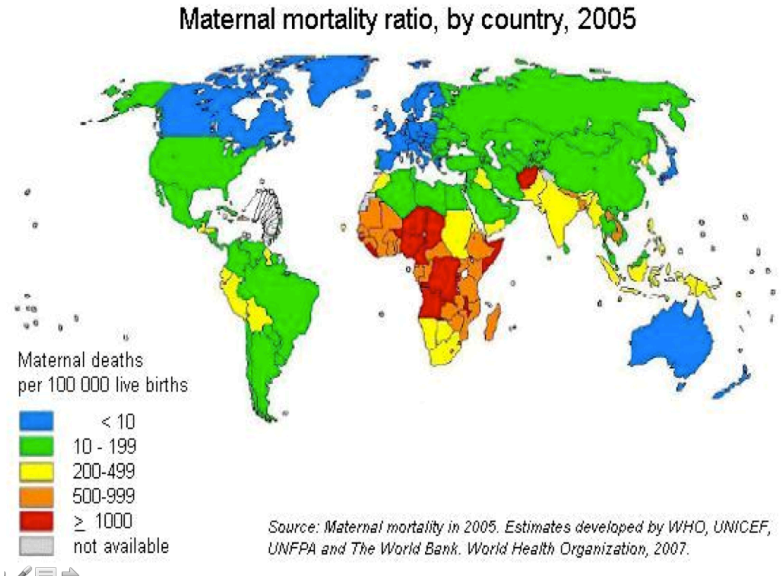
- Death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (if the cause of death was accident, it is called maternal injury)
- Maternal deaths are clustered around the intrapartum period (labour, delivery and the immediate postpartum); the most common direct cause globally is obstetric haemorrhage. Other major causes are: anaemia; sepsis/infection obstructed labour; hypertensive disorders and unsafe abortions.

- The best inter-pregnancy period is: 2 years (period between two pregnancies).
- Most complications occur with normal vaginal delivery, while Cesarean section is safer.

Maternal Mortality Ratio:

- Maternal mortality ratio (MMR) = (maternal deaths due to pregnancy, delivery or immediate post-partum period / live births) multiplied by 100,000 in a specific population during a specified period of time.
- Critical indicator of population health reflecting the overall state of maternal health as well as quality and accessibility of PHC available to pregnant women and infants.
- Measuring maternal mortality accurately is difficult except where comprehensive registration of deaths and of causes of death exist.

- The lowest MMR in:
  - ✓ North America
  - ✓ Western Europe
  - ✓ Australia
  - ✓ Nuozelanda
  - ✓ Japan
- Saudi Arabia and other Arab countries are the next best.



Risk of Maternal Death:

Risk of maternal death is affected by many factors including:

- Frequency and spacing of births. (Spacing of births means inter-pregnancy period)
- Nutrition level (maternal under-nutrition)
- Stature and maternal age
- Appropriate medical and midwifery support
- Access to emergency and intensive treatment, when necessary
- Lack of management capacity in the health system.
- No political will and lack of management capacity in the health system
- Another risk to expectant (pregnant) women is "malaria" infection. This may lead to anemia, which increases the risk for maternal and infant mortality and developmental problems for babies
- HIV infection is an increasing threat. Mother-to-child transmission of HIV continues to be a major problem, with up to 45 per cent of HIV-infected mothers transmitting infection to their children. Further, HIV is becoming a major cause of maternal mortality in highly affected countries in Southern Africa, especially with the TB re-emergence
- A majority of these deaths and disabilities are preventable, being mainly due to insufficient care during pregnancy and delivery.

- Not all HIV-infected mothers transmit infections to their babies, only 45% of them.

- Scenario: A breastfeeding woman has HIV in a poor country and there are limited resources of food to the baby. Do we advice the mother to breastfeed her child or not?

  We do advice her, because the probability of the baby to be HIV-free is 55%. Whereas, the probability of the child to die from malnutrition if was not breastfed is 100%.

There was no time for the doctor to explain the rest of the lecture. So, he just read the points in red

➢ CHILD HEALTH

Child Health Facts :

- Child's health includes physical, mental and social well-being
- Each year, more than 10 million children under the age of five die due to different causes, on a global scale.
- At least 6.6 million child deaths could be prevented, each year, if affordable health interventions are made available to the mothers and children who need them
- Poverty: More than 200 million children under five live in absolute poverty, on less than $1 per day.
- Moreover, under-nutrition and malnutrition affect at least 200 million children under five, on a global scale
- High fertility and short birth intervals could be responsible for most such cases

Infant Mortality Rate:

- Critical indicator of population health reflecting the overall state of child health as well as quality and accessibility of PHC available to infants
- Infant Mortality Rate (IMR): number of infant deaths (during the first 365 days of life) per 1,000 live births in a specific population during a specified period of time
- The IMR is made up of two components: neonatal mortality (death during the first 28 days of life) & post-neonatal mortality (death from the infants' 29th through the 364th day of life)

Neonatal Mortality:

- **Neonatal Death Rate:** Number of deaths of infants less than 28 days after birth per 1,000 live births in a specificied population during a specified period of time
- The leading causes of neonatal deaths include birth defects, disorders related to short gestation and LBW, and pregnancy complications
- The most preventable causes are those related to preterm birth and LBW (birth weight less than 2500 grams), which represent approximately 20 % of neonatal deaths

- Most neonatal deaths usually occur in the first 24 hours of life, and three-quarters of neonatal deaths occur in the first week after birth
- Most newborn deaths are preventable through affordable interventions. To address the high burden of newborn deaths care must be available during pregnancy, labour and postpartum

Perinatal and fetal mortality:

- Health of infants depends in large part on their health in utero. A fetus with severe defects or growth problems may not be delivered alive.
- Because only live births are counted in infant mortality rates, perinatal and fetal mortality rates provide a more complete picture of perinatal health than does the IMR alone.

Perinatal Mortality:

- The perinatal mortality rate includes both deaths of live-born infants through the first 7 days of life and fetal deaths after 28 weeks of gestation.
- This rate is a useful overall measure of perinatal health and the quality of health care provided to pregnant women and newborns.

Fetal Mortality:

- Fetal death often is associated with maternal complications of pregnancy, such as problems with amniotic fluid levels and blood disorders.
- Also when birth defects, such as anencephalus, renal agenesis, and hydrocephalus, are present.
- Rates of fetal mortality are **35 percent greater than average in women who use tobacco during pregnancy and 77 percent higher in women who use alcohol.**
- Targeting prenatal risk screening and intervention to high-risk groups is critical to reducing this gap.

Still-births:

- Information about 4 million neonatal deaths worldwide is limited, even less information is available for stillbirths (babies born dead in the last 12 weeks of pregnancy) and there are no systematic global estimates
- The numbers of stillbirths are high and regions in which most stillbirths occur, with under-reporting being a major challenge.

Under-five mortality rate (U5MR) :

- Indicates the probability of dying between birth and exactly five years of age, expressed per 1,000 live births, if subject to current mortality rates.
- It has several advantages as a barometer of child well-being in general and child health in particular. It measures an 'outcome' of the development process.

❖ **U5M is known to be the result of a wide variety of factors, including:**
- ✓ Nutritional status and the health knowledge of mothers
- ✓ Level of immunization and oral rehydration
- ✓ Availability of MCH services (including prenatal care)
- ✓ Income and food availability in the family
- ✓ Availability of basic sanitation, including safe drinking water supply
- ✓ Safety of the child's environment, among other factors

❖ **A 2008 reported that 80 % of all child deaths to children under five, globally, are due to only a handful of causes, including:**
- Pneumonia (19 %)
- Diarrhea (18 %)
- Malaria (8 %)
- Neonatal pneumonia or sepsis (10 %)
- Pre-term delivery (10 %)
- Asphyxia at birth (8 %)
- Measles (4 %)
- HIV/AIDS (3 %)

UN Millennium Development Goals & MCH :

- Millennium Development Goal 4 aims to reduce child deaths by two-thirds between 1990 and 2015
- Millennium Development Goal 5 has the target of reducing maternal deaths by three-quarters over the same period
- Unfortunately, on present trends, most countries are unlikely to achieve either of these goals
- A recent review of MDG progress, shows that the world is only 32% of the way to achieving the child health goal and less than 10% of the way to achieving the goal for maternal health

Some Emerging and Re-emerging Problems to MCH:

- Conflicts, wars and infra-structure destruction
- Bad governance and ineffective policies
- Avian and swine influenza
- HIV/AIDS and TB plus Multirresistant TB
- Dengue and other viral haemorragic fevers
- Cholera outbreaks in Africa and Asia
- Old neglected diseases with new burden

➢ Prevention & Control:

Core Interventions to Prevent Maternal Deaths:

- Vaccination, including Tetanus toxoid
- Folic acid supplementation
- Syphilis screening and treatment
- Pre-eclampsia and eclampsia prevention (calcium supplementation)
- Intermittent presumptive treatment for malaria in pregnancy
- Antibiotics for premature rupture of membranes
- Detection and management of breech (caesarian section)
- Labor surveillance
- Clean delivery practices

Core Interventions to Prevent Child Deaths:

1- Prevention:

- Breast-feeding and complementary feeding, as needed (benefits of breastfeeding are for both the mother and the baby and the minimum period for breastfeeding is 6 months)
- Prevention and management of hypothermia
- Kangaroo mother care (skin-to-skin contact) for low birth-weight newborns
- Newborn temperature management
- Child immunization
- Water, sanitation, hygiene
- Vitamin & mineral supplementation, especially vitamin A, D, zinc and iron
- Nevirapine and replacement feeding to prevent HIV transmission

2- Control :

- Detection and treatment of asymptomatic bacteriuria.
- Corticosteroids for preterm labor.
- Newborn resuscitation
- Community-based pneumonia case management, including antibiotics
- Oral rehydration therapy for diarrhea
- Antibiotics for dysentery, sepsis, emerging and reemeging diseases.
- Antimalarials

Conclusions :

- Maternal, neonatal and child mortality has been very persistent in a global context
- Currently, about 38 % of all child deaths (4 million) occur during the first month of life.
- More than 10 million children under 5 years die each year. Most result from preventable and treatable causes (about 30,000 children a day)
- Most of these children live in developing countries
- Most MCH morbities and mortalities are preventable

Thank you ☺