Maternal health

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Objectives

- Understand the maternal health issues globally
- Understand the causes of maternal deaths and mortality
- Understand the interventions done globally to decrease maternal deaths and morbidly
  - Antenatal care
  - Promotion of breast feeding practices…..BFHI

- Discuss and understand what preventive services for maternal health are delivered in KSA

MATERNAL HEALTH

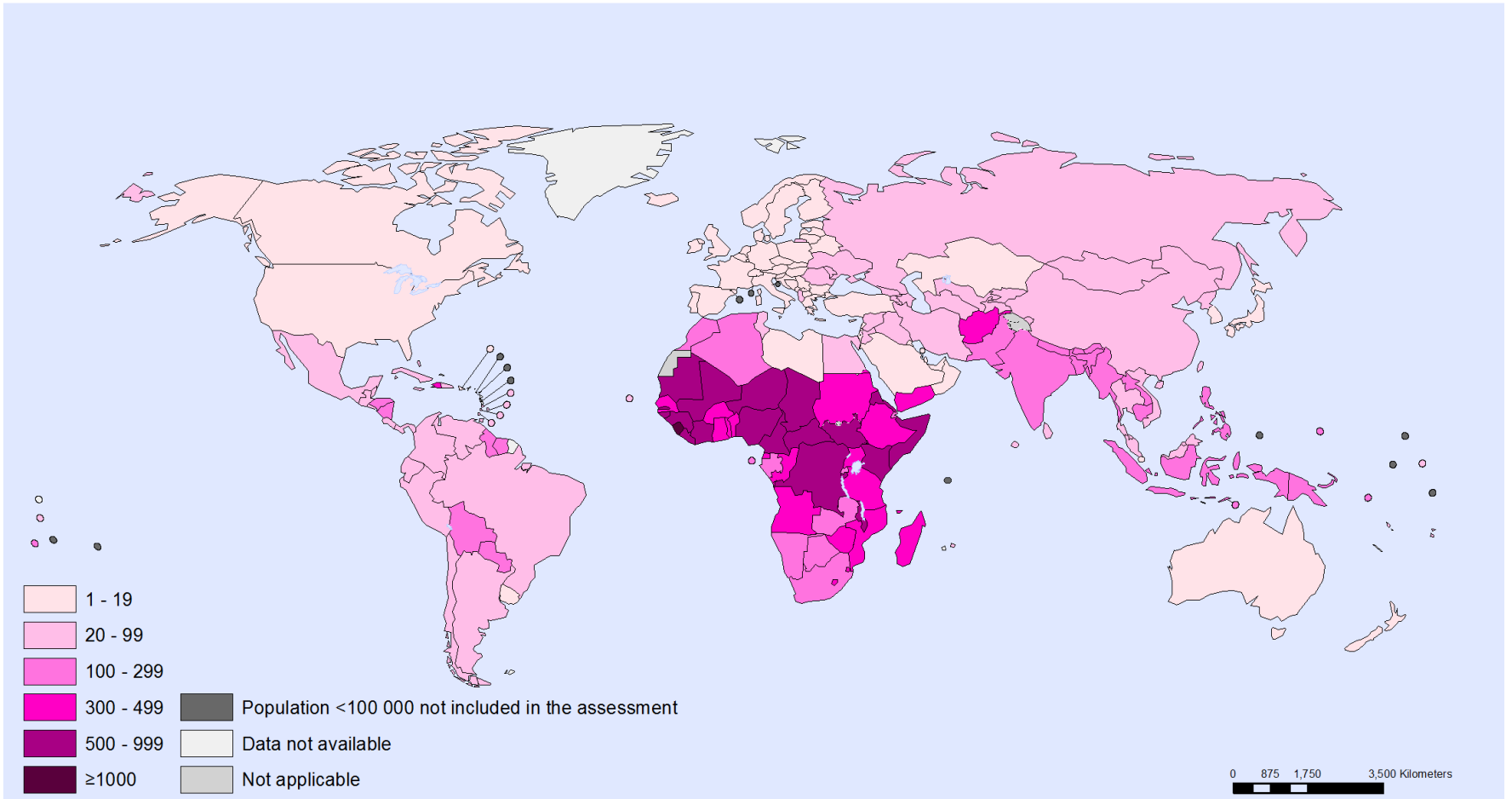
Defination

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) 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 mortality ratio (per 100 000 live births), 2015



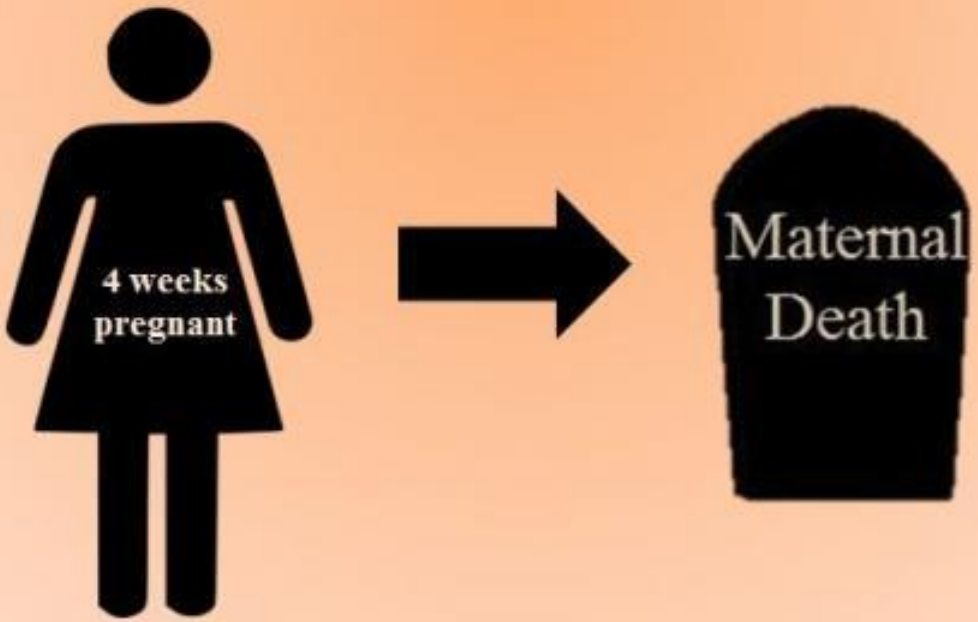
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization

World Health Organization

Maternal death: the death of a woman while pregnant, (or within 42 days of termination of pregnancy).

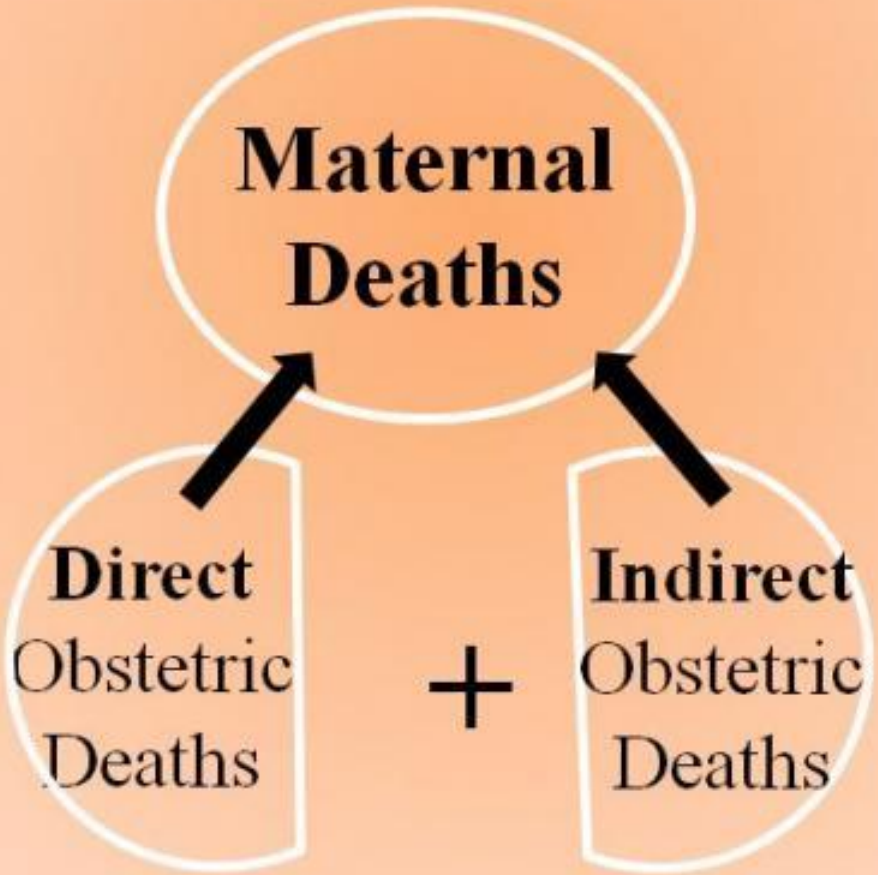
- irrespective of the duration and the site of the pregnancy



Population Research Institute: pop.org

Maternal death: the death of a woman while pregnant, (or within 42 days of termination of pregnancy).

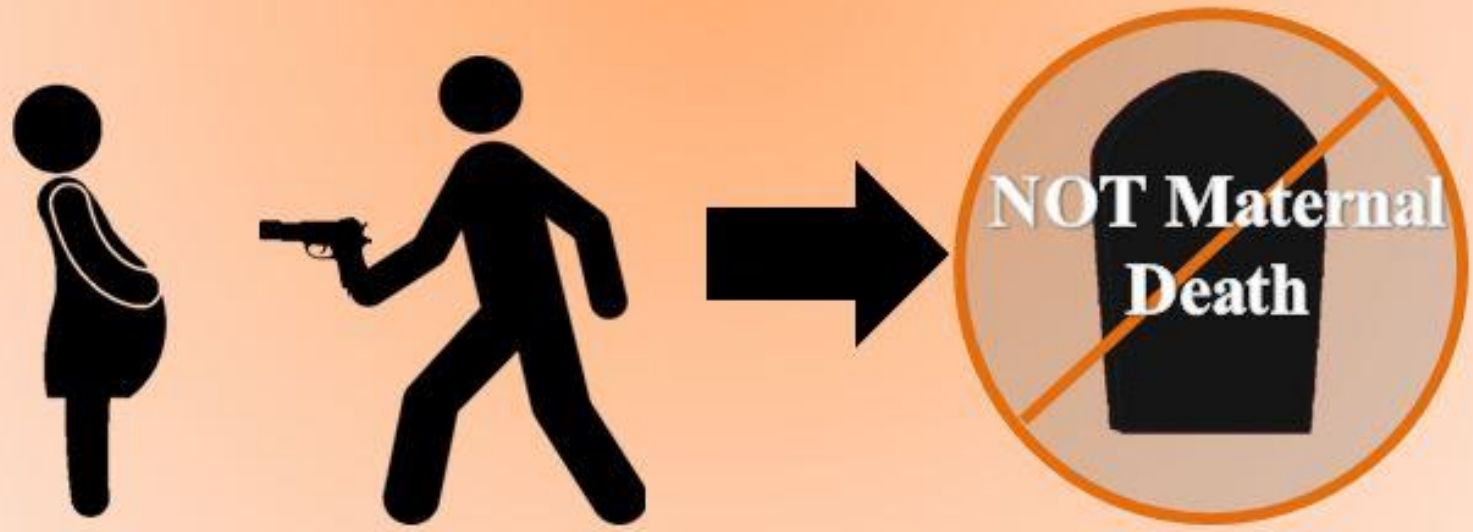
- All maternal deaths are either direct obstetric deaths or indirect obstetric deaths



Population Research Institute: pop.org

Maternal death: the death of a woman while pregnant, (or within 42 days of termination of pregnancy).

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



Population Research Institute: pop.org

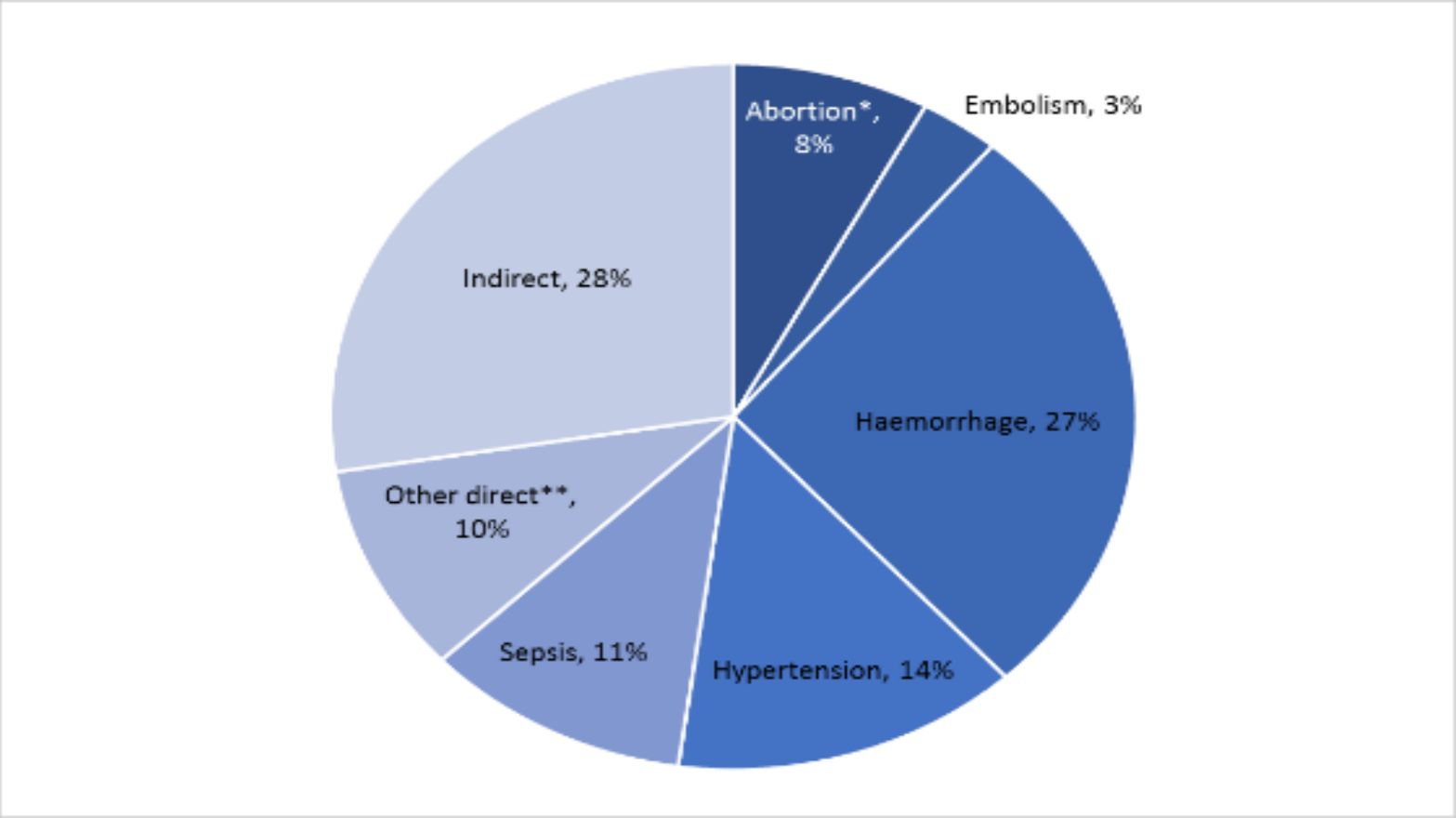
Why women are dying?

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 bleeding after childbirth)
  - infections (usually after childbirth)
  - high blood pressure during pregnancy (pre-eclampsia and eclampsia)
  - complications from delivery
  - unsafe abortion

  - The remainder are caused by or associated with diseases such as malaria, and AIDS during pregnancy.

Global Causes of Maternal Mortality



Ref: Say L et al., 'Global causes of maternal death: a WHO systematic analysis' Lancet Global Health. http://dx.doi.org/10.1016/S2214-109X(14)70227-X, May 6, 2014.

Why do women not get the care they need?

Why do these women die?

Three Delays Model

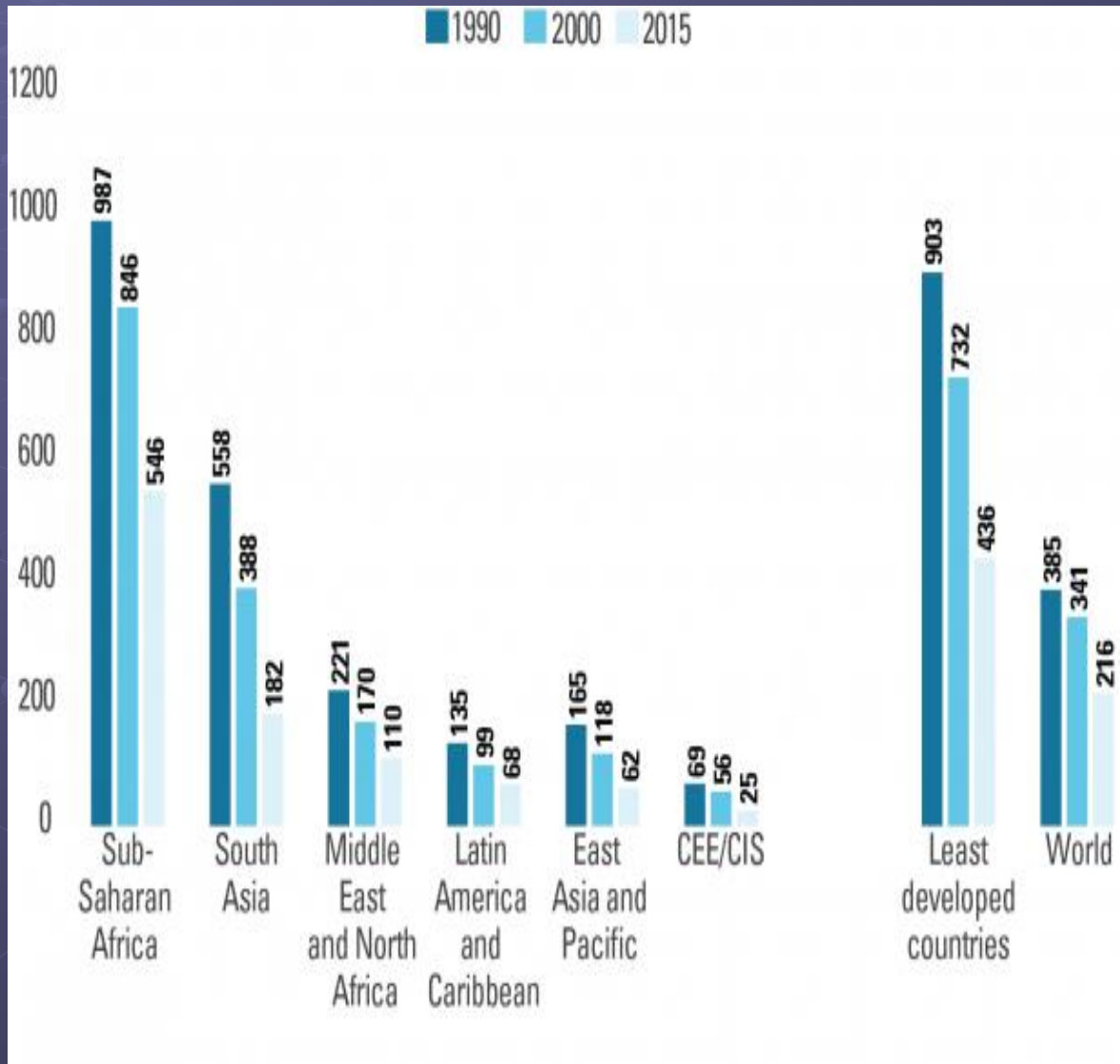
- Delay in decision to seek care
  - Lack of understanding of complications
  - Acceptance of maternal death
  - Low status of women
  - Socio-cultural barriers to seeking care
- Delay in reaching care
  - Mountains, islands, rivers — poor organization
- Delay in receiving care
  - Supplies, personnel
  - Poorly trained personnel with punitive attitude
  - Finances

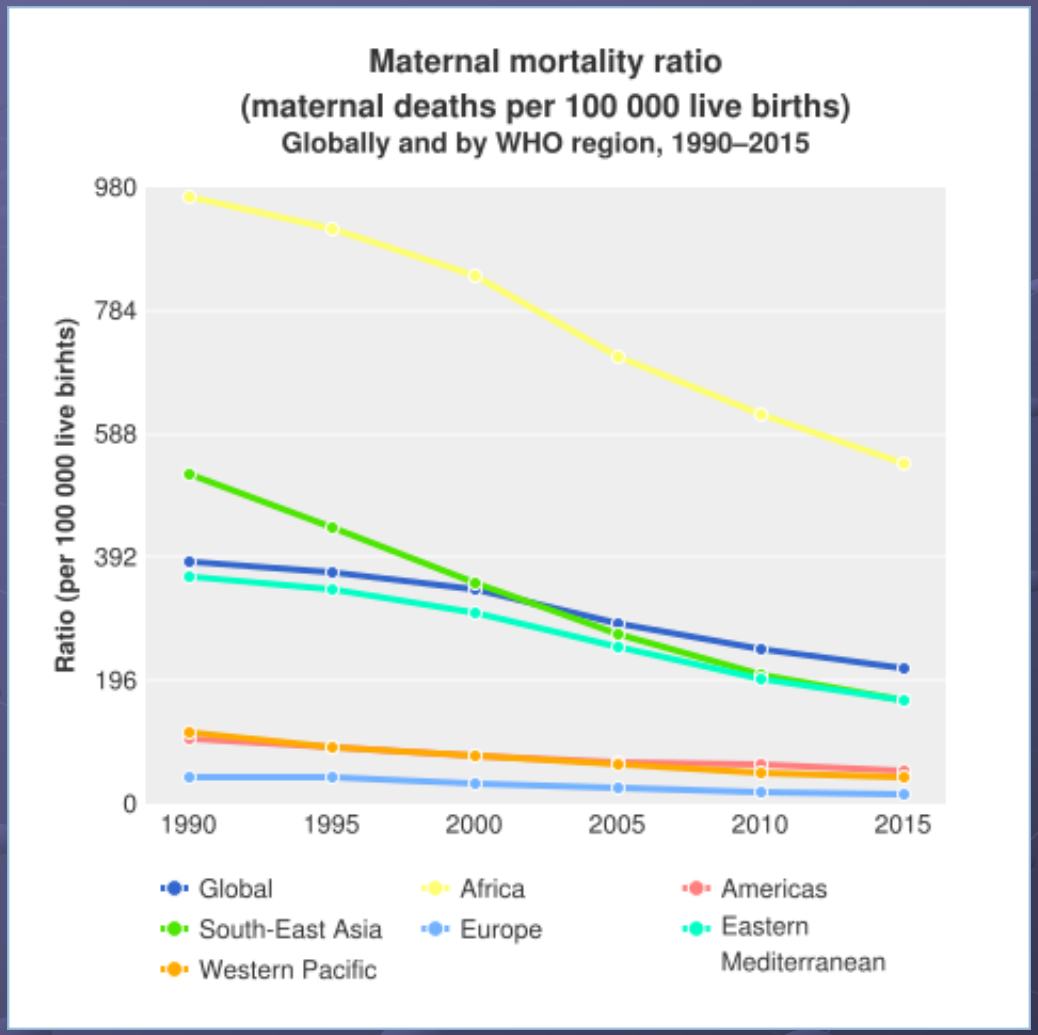
Trends in maternal mortality 1990 - 2015

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

Ref: http://data.unicef.org/maternal-health/maternal-mortality.html#sthash.Eu3mJpN1.dpuf




Maternal mortality ratio
(maternal deaths per 100 000 live births)
Globally and by WHO region, 1990–2015
Ratio (per 100 000 live birhts)
980
784
588
392
196
0
1990
1995
2000
2005
2010
2015
Global
Africa
Americas
South-East Asia
Europe
Eastern Mediterranean
Western Pacific

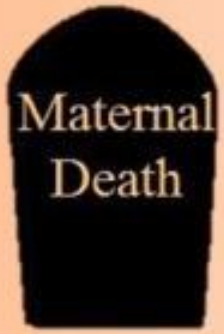
Where do Maternal Mortality data come from?

- Vital registration data - **MM Rate and MM Ratio**
- Health service data – maternity registers - **MM Ratio**
- Special studies
  - Hospital studies – tracing deaths, interviews
  - Research, longitudinal studies, verbal autopsy
- Surveys & censuses
  - Direct estimation - **Rate and Ratio**
  - Sisterhood method (indirect) – **Rate and Ratio**

Maternal Mortality Indicators

- Maternal mortality ratio
- Maternal mortality rate
- Life-time risk of maternal morality
- Proportion maternal

Maternal mortality ratio: the number of maternal deaths per ***live births***



Numerator: Maternal deaths

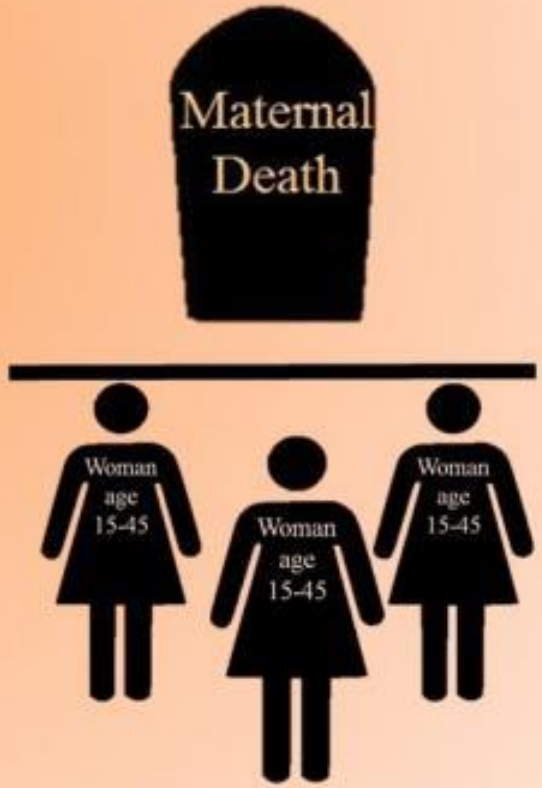
Denominator: Live births

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



Population Research Institute: pop.org

Other Maternal Mortality Indicators

- **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

Why has the maternal mortality declined?

Global response ???


1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
THE GLOBAL GOALS
For Sustainable Development
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE AND JUSTICE STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS

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 new born)
- Drugs; thalidomide (deformed hands), corticosteroids (impair fetal growth), streptomycin (8^{th} nerve damage)
- Education on delivery and care of the new born
- Identifying high risk pregnancies, smoking and exposure to passive smoking

Antenatal care….cont

- Emphasizing on ANC visits and maintenance of AN card
- Importance and management of lactation (importance/benefits of breast feeding, exclusive breast feeding, problems arising from breast feeding)
- Advise on birth spacing

Ref: WHO recommendations on maternal helath, guidelines to improve maternal health. 2017.

Available at:http://apps.who.int/iris/bitstream/10665/259268/1/WHO-MCA-17.10-eng.pdf?ua=1

Why is ANC critical?

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

- Reduces complications from pregnancy and childbirth
- Reduces stillbirths and perinatal deaths
- Integrated care delivery throughout pregnancy

2016 WHO ANC model

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

Antenatal care

History taking (1st visit)

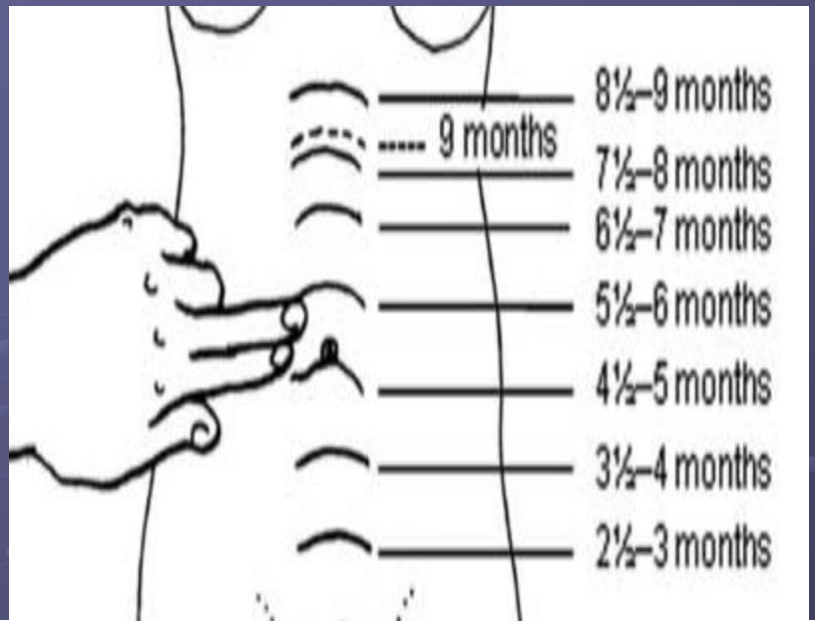
- Confirm the pregnancy
- Any previous complications (abortions, still births)
- Calculate LMP (add 9 months and 7 days to the first day of menstruation)
- Record symptoms; fever, vomiting, abnormal vaginal bleeding, palpitation, easy fatigability, breathlessness, generalized swelling, burning micturition, decreased or absent fetal movements
- Any concurrent illness; asthma, heart disease, jaundice, HTN, DM, TB, HIV, STIs, thalassemia, bleeding disorders
- Family history of twins, congenital malformations
- History of drug allergies, or drugs

Physical exam

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

Abdominal exam

- Fundal height



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.

Assessment of gestational age

- Routine US + LMP (history)

- **Lab investigations:**
  - Pregnac test, Hb estimation, Urine for albumin and sugar, blood grouping, Rh factor, VDRL, HIV testing, Blood sugar, HBsAg for Hep B

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.

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 preterm birth
  - Foods rich in iron; dates, green leafy vegetables, red beans, gauvas, red meats

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.

Common physiological symptoms

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.
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.
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.
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.
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.

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.

The TEN STEPS to Successful Breastfeeding

World Health Organization

unicef

BREASTFEEDING | THE GOAL

By 2025, increase to at least 50% the rate of exclusive breastfeeding in the first six months

WHY IT MATTERS

Babies who are fed **nothing but breastmilk** from birth through their first 6 months of life get the **best start**

Exclusive breastfeeding provides babies: **the perfect nutrition** & everything they need for healthy growth and brain development

Protection from respiratory infections, diarrhoeal disease, and other **life-threatening ailments**

Protection against **obesity & non-communicable diseases** such as asthma and diabetes

Updated October 2018

RECOMMENDED ACTIONS

LIMIT FORMULA MARKETING

WHAT? Significantly limit the marketing of breastmilk substitutes

HOW? Strengthen the monitoring, enforcement and legislation related to the International Code of Marketing of Breastmilk Substitutes

SUPPORT PAID LEAVE

WHAT? Empower women to exclusively breastfeed

HOW? Enact six-months mandatory paid maternity leave and policies that encourage women to breastfeed in the workplace and in public

STRENGTHEN HEALTH SYSTEMS

WHAT? Provide hospital and health facilities-based capacity to support exclusive breastfeeding

HOW? Expand and institutionalize the baby-friendly hospital initiative in health systems

SUPPORT MOTHERS

WHAT? Provide community-based strategies to support exclusive breastfeeding counselling for pregnant and lactating women

HOW? Peer-to-peer and group counselling to improve exclusive breastfeeding rates, including the implementation of communication campaigns tailored to the local context

SCOPE OF THE PROBLEM

Globally, only **41% of infants** are exclusively breastfed

Suboptimal breastfeeding contributes to more than **800,000** infant deaths

Countries lose more than **$300 billion annually** because of low breastfeeding rates

GLOBAL TARGETS

World Health Organization

1,000 DAYS


Breastfeeding
and work
let's make
it work!
#Breastfeeding
unicef

MCH in KSA

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]	Maternal deaths	AIDS-related indirect maternal deaths	Live births[b]	Proportion of maternal deaths among deaths of female reproductive age (PM %)
	Per 100 000 live births (lb)	Numbers	Numbers	Thousands	
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]

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

- http://www.unicef.org/infobycountry/saudiarabia_statistics.html, 2013
- Ministry of health KSA, 2012

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.

References

- *Lale Say etal. Global causes of maternal death: a WHO systematic analysis*. *The Lancet Global Health* .Volume 2, Issue 6, Pages e323-e333 (June 2014) . DOI: 10.1016/S2214-109X(14)70227-X
- Levels & Trends in Child Mortality Report 2015 Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. United Nations Available at: http://www.childmortality.org/
- Mohammad Afzal Mahmood, Hafsa Raheel, et al., “Root-Cause Analysis of Persistently High Maternal Mortality in a Rural District of Indonesia: Role of Clinical Care Quality and Health Services Organizational Factors,” BioMed Research International, vol. 2018, Article ID 3673265, 11 pages, 2018. doi:10.1155/2018/3673265
- **Success factors for reducing maternal and child mortality. Policy and practice, WHO. Available at: http://www.who.int/bulletin/volumes/92/7/14-138131/en/**