

# Maternal and child health

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Prof. Najlaa Fawzi  
Family & Community Medicine Dept.

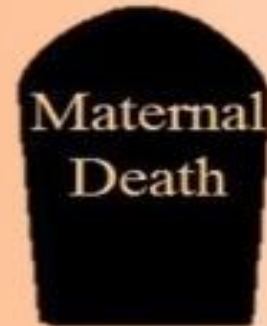


# Statistical measures of maternal mortality

**The number of maternal deaths in a population is essentially the product of two factors: the risk of mortality associated with a single pregnancy or a single live birth, and the number of pregnancies or births that are experienced by woman of reproductive age.**

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

**Numerator:** Maternal deaths



**Denominator:** Live births



## **The Maternal Mortality Ratio (MMR)**

**is defined as the number of maternal deaths in a population divided by the number of live births [per 100000]**

**It is representing the risk associated with each pregnancy, it is the obstetric risk.**

## **Why it's Important**

- **Risk Indicator:** It quantifies the risk of a woman dying from a pregnancy-related complication.
- **Health System Performance:** It serves as a key indicator for the performance of maternal and reproductive health services.
- **Global Goals:** The Sustainable Development Goals use the MMR as a target to reduce global maternal deaths.

**It is a critical measure for evaluating the quality of a country's healthcare system and the overall health of its women.**

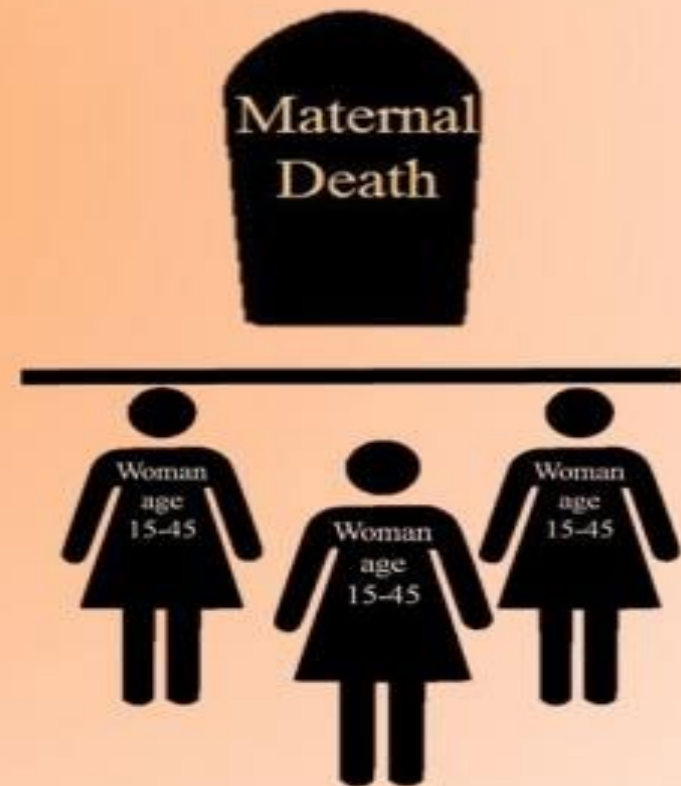
**The maternal mortality ratio in Iraq has improved from 152 in 2000 to 66 in 2023. Maternal mortality in Iraq is higher than its regional average.**

# 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



## **The Maternal Mortality Rate**

**Is defined as the number of maternal deaths in a population divided by the number of women of reproductive age( usually 15-49years)[ per 100000]**

**Measured both the (obstetric risk) and the (frequency with which women are exposed to this risk) as well as the (level of fertility in the population).**

**The global MMR was 197 per 100,000 live births in 2023, this varies widely by country and region, with some regions like Africa having much higher rates than others.**

# Lifetime risk of maternal death:

The cumulative probability over your whole life of becoming pregnant *and* of dying from the pregnancy.

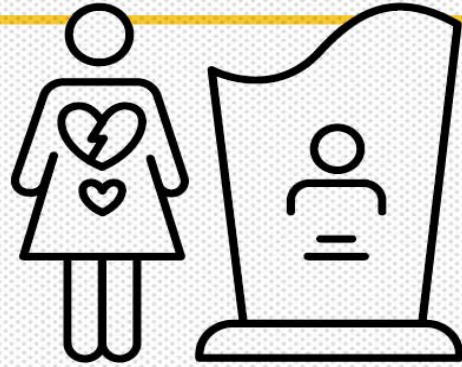
$$= \text{Summation over all ages of } \left( \begin{array}{c} \text{Age-} \\ \text{specific} \\ \text{chance of:} \end{array} \right) \times \left( \begin{array}{c} \text{Age-} \\ \text{specific} \\ \text{chance of:} \end{array} \right) \text{ Maternal Death}$$


## **Adult lifetime risk of maternal death**

**The lifetime risk of maternal death is the probability that a 15-year-old girl will die from complications of pregnancy or childbirth over her lifetime; it takes into account both the maternal mortality ratio and the total fertility rate (average number of births per woman during her reproductive years under current age-specific fertility rates).**

**Women in developing countries have on average many more pregnancies than women in developed countries, and their lifetime risk of death due to pregnancy is higher.**

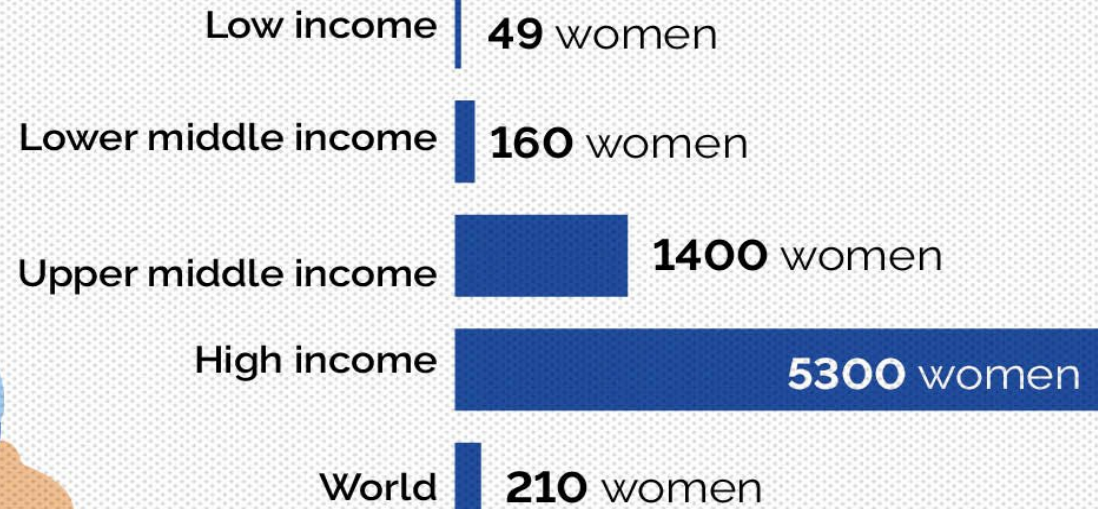
**The lifetime risk of maternal death varies largely across countries. In 2020, the lifetime risk of maternal death in low-income countries as a whole was 1 in 49, compared to 1 in 5,300 in high-income countries.**



# RISK OF MATERNAL DEATH

Lifetime risk, by World Bank income group

1 in



Source: UN report 'Trends in maternal mortality 2000 to 2020'

**The proportion of deaths among women of reproductive age that are due to maternal causes (PM) :The number of maternal deaths in a given time period divided by the total deaths among women aged 15–49 years.**

**it was around 260,000 deaths in 2023.**

# **Maternal Mortality Reduction: Targets**

- **Primary prevention**
  - **Reduce unwanted pregnancies**
- **Secondary prevention**
  - **Reduce obstetric complications**
- **Tertiary prevention**
  - **Reduce death after complications occur**
  - **“3 delays” – decide to seek care, access to care, quality / timeliness of care**

**Maternal mortality can greatly be reduced by ensuring prompt and quality obstetric care services supported with an equally effective family planning services.**

How obstetric care services and family planning services can reduce maternal mortality?

- ❑ **Family planning services reduces mortality through reduction in proportion in high risk , unwanted , untimed , too early and to many pregnancies.**
- ❑ **Good obstetric care : reduces mortality and morbidity arising from complications during pregnancy and child birth.**
- ❑ **As many of these complications are unpredictable , may occur at any time during pregnancy , child birth and post partum period----- **Obstetric emergencies****

# Obstetric emergencies DEFINES AS:

- > are life threatening medical conditions that occur in **pregnancy** or **during or after labor and delivery**.



**☐ Therefore every woman , irrespective of her risk status , may require emergency obstetric care (EmOC)**

- ❑ **Emergency obstetric care (EmOC)** refers to the care of women and newborns during pregnancy, delivery and the time after delivery.

**Women in emergency situations must have access to EmOC, as it is essential to saving lives everywhere in the world.**

### **Components of basic EmOC include:**

- ❖ **Treatment for sepsis**
- ❖ **Treatment for eclampsia**
- ❖ **Treatment for prolonged or obstructed labour**
- ❖ **Post-abortion care (PAC)**
- ❖ **Treatment for incomplete miscarriage**
- ❖ **Removal of the placenta**
- ❖ **Assisted delivery using forceps or suction**
- ❖ **New born care**

**Comprehensive EmOC services include** the services listed above, in addition to:

- ❖ **Surgery (specifically, Caesarean section)**
- ❖ **Anesthesia**
- ❖ **Safe blood transfusion observing universal HIV precautions**
- ❖ **Care to the sick and LBW new born**

## Emergency Obstetric and Neonatal Care

### BASIC

- **Antibiotics IV**
- **Oxytocics IV**
- **Anticonvulsivant**
- **Manual removal of placenta**
- **Post abortion care (MVA)**
- **Assisted vaginal delivery (vacuum extraction)**
- **Newborn care**

### COMPREHENSIVE

*all Basics plus:*

- **Surgery (caesarean - section)**
- **Blood transfusion**
- **Care to the sick and LBW newborns**



# Opposites



**BIRTH**



**DEATH**

**Preventing maternal mortality requires comprehensive care throughout pregnancy, childbirth, and the postpartum period, with 90% of deaths being preventable through timely, high-quality care.**

**Key interventions include early prenatal visits, access to skilled birth attendants, emergency obstetric care, postpartum check-ups, and family planning.**

# Strategies for Preventing Maternal Mortality

## 1- Essential Care Milestones

- **Prenatal Care:** Early, regular, and high-quality prenatal visits help monitor for conditions like hypertension, pre-eclampsia, and anemia.
- **Skilled Birth Attendance:** Ensuring all deliveries are attended by trained professionals who can manage complications is the most successful intervention.
- **Emergency Care Access:** Access to emergency obstetric care within two hours is critical for managing emergencies like hemorrhages.

**•Postpartum Care:** Access to care within one day of delivery, as this is a high-risk period.

**•Family Planning & Reproductive Services:**

**Preventing unintended and high-risk pregnancies (e.g., those too early, too late, or too closely spaced) through access to contraception significantly reduces maternal deaths.**

## **2-Management of major causes of mortality**

**Focusing on the main medical complications that cause maternal death can significantly lower mortality rates.**

- **Severe bleeding (postpartum hemorrhage):** Administering oxytocics immediately after childbirth can effectively reduce the risk of severe bleeding, a leading cause of maternal death.
- **Infections (puerperal sepsis):** Good hygiene practices during and after childbirth are vital. Prompt recognition and treatment of infections are also essential.
- **High blood pressure (pre-eclampsia and eclampsia):** Hypertensive disorders can lead to life-threatening complications. Early detection and treatment with drugs like magnesium sulfate can prevent eclampsia.
- **Safe abortion care:** To prevent deaths from unsafe abortion, women need access to safe abortion services (where legally allowed) and high-quality post-abortion care.

### 3- Health system and social interventions

- **Empowering Women:**

**Women's empowerment—including their ability to make decisions, access resources, and participate in the workforce—is linked to better utilization of antenatal care and improved health outcomes.**

- **Reducing delays in care:** Strategies must focus on the "three delays" that can lead to maternal death: delay in deciding to seek care, delay in reaching a health facility, and delay in receiving quality care once there.

- **Maternal Mortality Review Committees (MMRCs):** These interdisciplinary teams audit every death to identify gaps in the local health system and prevent future occurrences.

- **Strengthening health systems:** This includes reinforcing health facilities, training and deploying skilled professionals, and improving data collection to respond effectively to women's needs.
  
- **Tackling social determinants of health:** Factors like poverty, poor education, and gender inequality put women at greater risk. Addressing these underlying issues through public policy is a core strategy for improving maternal health outcomes.

## Maternal deaths

### Potentiating factors

- Poor antenatal care
- Poor infrastructure
- Lack of skilled personnel
- Poor transport facilities
- Delayed referrals

Near miss

General pregnant population

### Correctable measures

- ✓ Good antenatal care
- ✓ Early identification of risk factors
- ✓ Timely delivery
- ✓ Magnesium sulphate for prophylaxis of eclampsia
- ✓ Good blood bank facilities

## References

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2. World Health Organization Trends in Maternal Mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. 2023. <https://www.who.int/publications/i/item/9789240068759>



ANY QUESTION ?

## **References :**

**1-Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.**

**2-Levels and trends in child mortality report 2023**

**Estimates developed by the UN Inter-agency Group for Child Mortality Estimation**

**Authors:**

**UNICEF, WHO, World Bank, UN-DESA Population Division**