Child's Healthcare

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Definitions:

- A child is a person 18 years or younger unless national law defines a person to be an adult at an earlier age.

- **<u>Within the life course, the period of life before reaching adulthood is divided into three age subgroups based on epidemiology and healthcare needs:</u>**

✓ **The first 5 years (under-5 children)**

✓**The next 5 years (older children)**

✓ **The second decade of life (adolescents).**

✓**The first 5 years of life are further subdivided into the**

✓ **Neonatal period (the first 28 days of life) early + late**

✓ **Infancy (the first year of life)**

✓ **Pre-school years (from 1 to less than 6 years).**

Why focus on child's health?

1. Major proportion of the populations, (Jordan: 34% <14 years)

2. One of the most vulnerable segments of the population.

3. A child is dependant on adults for optimal development and survival.

4. Critical years of life: biologic immaturity (immunity)—increased risk of infectious diseases and rapid growth and development (e.g. brain).

5. Childhood illness contribute substantially to the global burden of disease.

6. Majority of child deaths are <u>preventable</u> and <u>treatable</u>.

7. A good measure of societal development.

Child Mortality indicators

- **Under-five mortality rate U5MR** - Probability of dying between birth and exactly five years of age expressed per 1,000 live births.

- **Infant mortality rate IMR** - Probability of dying between birth and exactly one year of age expressed per 1,000 live births

- **Neonatal mortality rate NMR**: Probability of dying during the first 28 days of life, expressed per 1,000 live births. (early and late)

- **Post Neonatal mortality rate PNMR:** Probability of dying between 28 days and exactly one year of age expressed per 1,000 live births

Infants and children

$$\text{Neonatal mortality rate} = \frac{\text{Annual no. of deaths in the first 28 days}}{\text{No. of live births in a year}} \times 1,000$$

$$\text{Postneonatal mortality rate} = \frac{\text{Annual no. of deaths between 28 days and 1 year}}{\text{No. of live births in a year}} \times 1,000$$

$$\text{Infant mortality rate} = \frac{\text{Annual no. of deaths in the first year}}{\text{No. of live births in a year}} \times 1,000$$

$$\text{Child death rate} = \frac{\text{Annual no. of deaths between 1 and 4 years}}{\text{No. of live births in a year}} \times 1,000$$

$$\text{Under five mortality rate} = \frac{\text{Annual no. of deaths under 5 years}}{\text{No. of live births in a year}} \times 1,000$$

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28 weeks          Births       1 week      4 weeks      1 year       5 years

    [----------------------]                                                        Stillbirth


    [--------------------------------------------]                                  Perinatal


                  [------Early------|-----Late-----]                                Neonatal


                                        [--------------]                            Post neonatal


                  [---------------------------------------------]                   Infant


                  [------------------------------------------------------------]    Under five (child)
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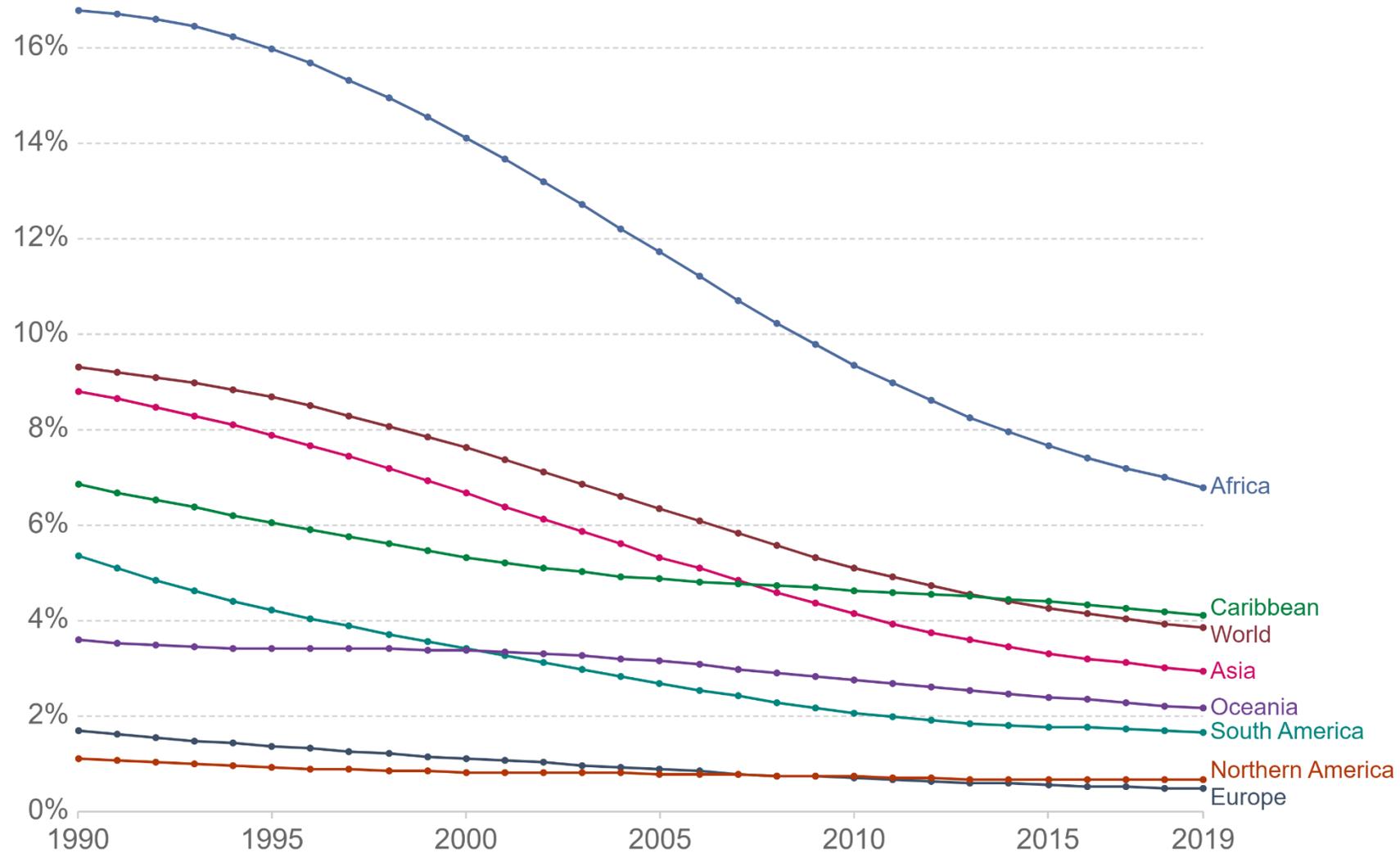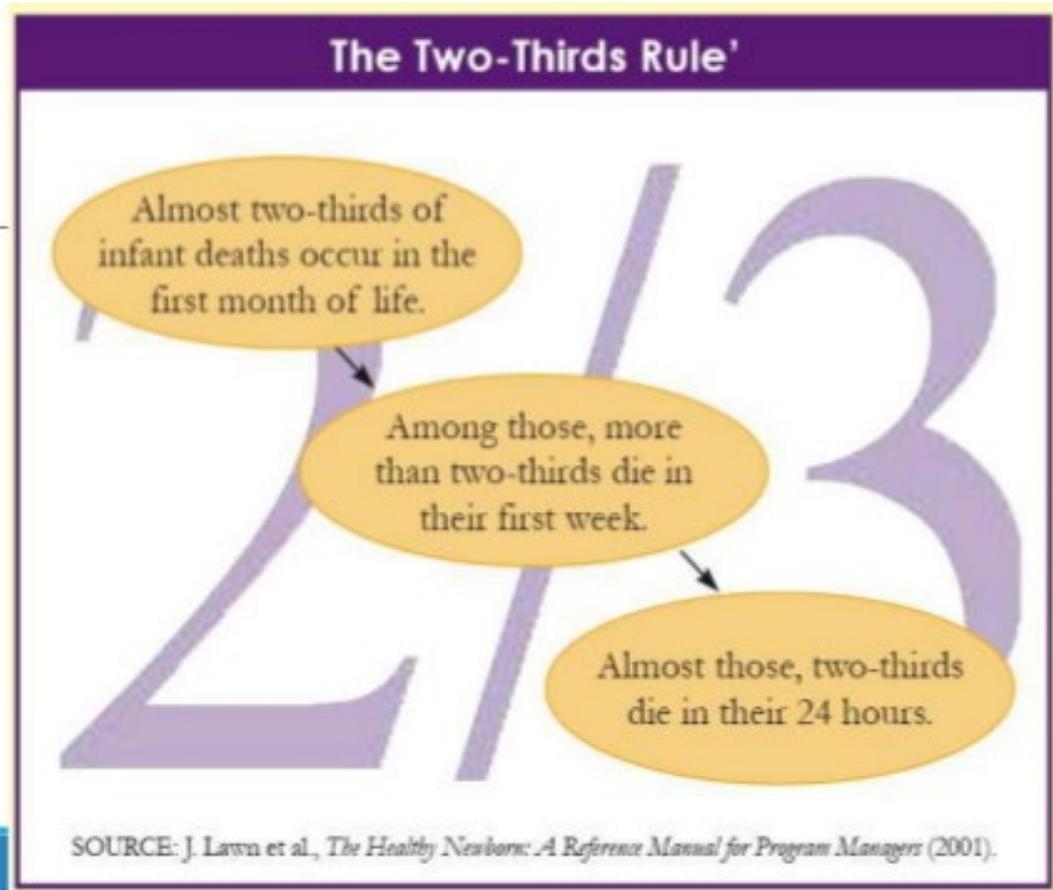
Child mortality

Share of children, born alive, dying before they are five years old.

Source: United Nations – Population Division (2019 Revision)

OurWorldInData.org/child-mortality/ • CC BY

Scope of the Problem

The Two-Thirds Rule'

Almost two-thirds of infant deaths occur in the first month of life.

Among those, more than two-thirds die in their first week.

Almost those, two-thirds die in their 24 hours.

SOURCE: J. Lawn et al., *The Healthy Newborn: A Reference Manual for Program Managers* (2001).

- The world made remarkable progress in child survival in the past 30 years (1 in 27 children died before reaching age five in 2019, compared to 1 in 11 in 1990).

- 5.2 million children under age five died in 2019—50% of those deaths occurred in sub-Saharan Africa.

- The global under-five mortality rate ⬇ from (93 deaths per 1,000 live births in 1990 to 38 in 2019).

- In 2019 alone14,000 under-five deaths occurred every day → preventable causes.

    UN report

Hope---SDGs

1 ERADICATE EXTREME POVERTY AND HUNGER

2 ACHIEVE UNIVERSAL PRIMARY EDUCATION

3 PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

4 REDUCE CHILD MORTALITY

5 IMPROVE MATERNAL HEALTH

6 COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

7 ENSURE ENVIRONMENTAL SUSTAINABILITY

8 GLOBAL PARTNERSHIP FOR DEVELOPMENT

GOAL 03 ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

Target 3.2

By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

Target 3.8

Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

Causes of deaths among children under 5 years, 2016
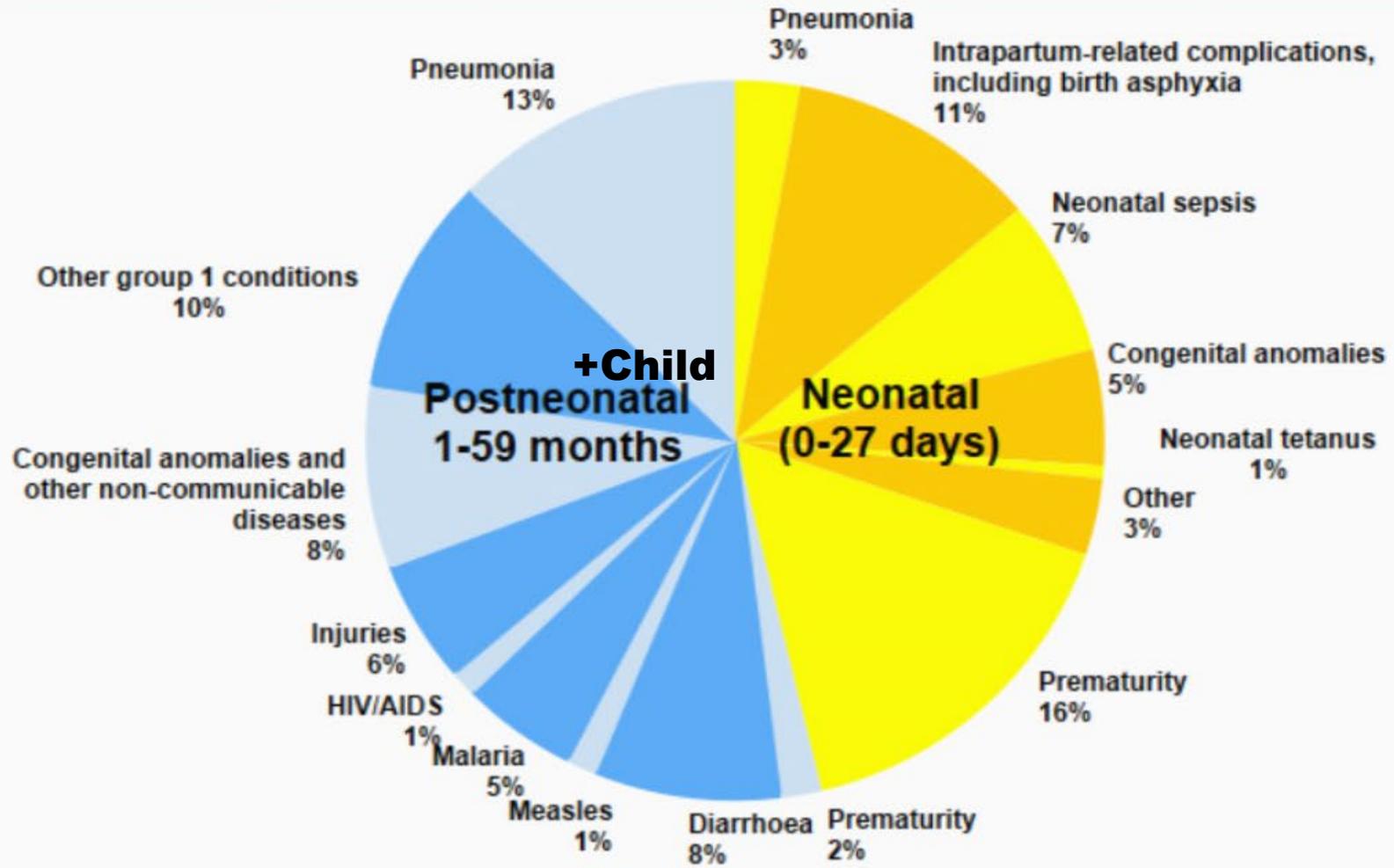
World Health Organization

Pneumonia
3%

Intrapartum-related complications, including birth asphyxia
11%

Neonatal sepsis
7%

Congenital anomalies
5%

Neonatal tetanus
1%

Other
3%

Prematurity
16%

Pneumonia
13%

Other group 1 conditions
10%

Congenital anomalies and other non-communicable diseases
8%

Injuries
6%

HIV/AIDS
1%

Malaria
5%

Measles
1%

Diarrhoea
8%

Prematurity
2%

+Child
Postneonatal
1-59 months

Neonatal
(0-27 days)

Leading causes of death in children under-5 years

1. Preterm birth complications (being born before the 37th week of gestation). ⬆risk of: birth asphyxia, birth injuries, LBW, underdeveloped organ failures, and infectious diseases.

2. Acute respiratory infections (Pneumonia),

3. Congenital anomalies: physical or genetic abnormalities present at birth and include neural tube defects, heart defects, Down syndrome, microcephaly and others.

4. Diarrhoea

5. Infectious diseases: measles, malaria.

6. Injuries: more prominent in the deaths of older children.

(WHO, 2018)

Malnutrition is estimated to contribute indirectly to more than one third of all child deaths.

Therefore,

- Causes of death differ by child's age group

- Common problems that occur beyond the postneonatal period tend to be more easily addressed by public health strategies while neonatal problems may require more clinical based interventions.

- Most interventions aimed at decreasing neonatal mortality are linked to *prenatal and maternal care interventions.*

Factors that Affect the Health of Children

- 1. Biological
- 2. Socio-economic
- 3. Cultural

1. **Biological:**

✓Birth Weight: low birth weight (< 2.5 kg) & high birth weight (> 4 kg)

✓Age of The Mother : <19 years) or >over 40 years

✓High Fertility

✓Birth Order: Mortality risk increased after the third birth.

✓Repeated pregnancies

✓Birth Spacing: < 1 year = 2-4 times risk

✓Mutiple Births: more risk due to low birth weight

✓Family Size: 3 or more children, more frequent/prolonged illness

2. Socio-economic Factors

- ✓ Low income countries (poverty)
- ✓ Rural areas
- ✓ Poor education (maternal)
- ✓ Poor and inadequate nutrition
- ✓ Breast vs formula milk use
- ✓ Health care services quality
- ✓ Environmental conditions (Conflict/War/Disaster)
- ✓ Violence (wife beating, infanticide)

3. Cultural Factors

- Religion
- Motherhood and child care traditions (restrictive swaddling, rubbing a newborn's body with salt, and encouraging the ingestion of herbs in newborns, Treating newborn jaundice)
- Early marriages
- Sex of child

Morbidity

- **Common diseases with low fatality but cause significant disability.**
- Not evident if we only consider U5MR, IMR,NMR!

Examples:

- Vit. A deficiency: leading cause of preventable blindness worldwide.

- Iodine deficiency: preventable cause of developmental delay.

- Iron deficiency: affects >50% of children—anemia, decreased performance at school

- Helminthic infections: anemia, poor growth, decreased learning.

In Jordan ,

 Under five mortality and infant mortality decreased between 1997 and 2012, but not enough to meet the targets of the MDGs.

- Infant mortality rate: 17/1000 live births.

- Under-5 child mortality rate: 21 per 1,000 live births.

- Neonatal deaths are underreported in Jordan (families are responsible for registering births and deaths rather than health facilities and institutions).

- Mortality of children under 5 is nearly three times higher among children in the poorest households (29 deaths per 1,000 live births) than the wealthiest households (11 deaths per 1,000 live births).

- By governorate, NMR range from 26 deaths per 1,000 live births (Ajloun) and 7.4 per 1,000 (Ma'an) (UNICEF and John Snow Inc., 2013).

Health check up

➢A newborn has to be examined at least twice; once within the first 24 hours after birth and just before discharge.

➢Monthly health check-ups should be done during infancy as well as in all visits to the clinic including routine immunization sessions.

➢The health check- up ➔ helpful in identifying at risk children, who can be followed more closely by appropriate screening or diagnostic tests and / or paid home visits if needed.

At risk children include:

- Birth weight < 2500 grams.
- Twins.
- Artificial feeding.
- Weight below 60% of the expected weight for age.
- Failure to gain weight for three successive months.
- Children having protein energy malnutrition (PEM).
- Children having diarrhea or ARI.

Newborn Screening Program in Jordan

- A Newborn Screen test is a simple test carried out during the first 14 days of a baby's life.

(1) Blood specimens from infant's heel is analyzed by the laboratory

(2) If a result is abnormal, laboratory staff notifies case management .

(3) The clinic provides follow-up to assist linking families with appropriate providers to confirm the test results.

The Newborn Screening covers a number of conditions. These include inborn errors of metabolism, hemoglobinopathies (including Sickle Cell disease), endocrine disorders (HT), hearing loss disease and other metabolic disorders.

These disorders may cause severe mental retardation, illness, or death if not treated in the early stages. If treated, infants may live relatively normal resulting in savings in medical costs over time.

Hypothyroidism before & after treatment

Neonatally Diagnosed PKU and PKU at Late Diagnosis

International efforts to accelerate progress in child survival

- **Relatively simple** and **inexpensive** methods
- **Child survival strategies that were abbreviated as (GOBI-FFF)**

Child Survival Strategy

The child survival strategy is defined as a **_set_** of effective **_interventions_** placed together to **_promote_** child growth and development and **_reduce_** the under five child mortality.

•FEMALE EDUCATION

❖ <u>Education of females:</u>

In all countries worldwide, females education is related to infant mortality decline.

Women with more education tend to:

- Delay in the age of marriage, prevention of early pregnancy increases women's awareness regarding better utilization of health services.

- Have smaller families, because of increased employment opportunities and better knowledge about contraception (fewer children).

- More education also helps women make better decisions about many health and disease factors such as prenatal care, basic hygiene, nutrition and immunization—which are vital to reducing the leading causes of death in children under five

Immunization

Seven preventable diseases are responsible for most childhood morbidity and mortality.

These are TB, diphtheria, pertussis, neonatal tetanus, poliomyelitis, measles and viral hepatitis B.

Children can be protected by a fairly cheap and simple program on immunization before they are one year old.

Breast-feeding

- **Breast milk** fully meets the nutritional requirements of the infant in the first few months of life.

- Average mother secrete 450- 600ml of milk daily – 1.1gm protein/100ml – 70 kcals/100ml

- PROMOTES bonding between mother and infant, prevents malnutrition and reduces infant mortality**, could prevent deaths of at least one million children a year.**

- **Naturally encourages birth spacing**

- SUCKING helps in the development of jaws and teeth, PROTECTS babies from the tendency to obesity.

Yet breast feeding practice is not uniformly common in many developing countries for several reasons:

o Hospitals and maternity clinics promote bottle-feeding, because of the aggressive marketing by infant formula manufacturers, who provide free or low-cost supplies.

o Other practices, such as separating babies from mothers at birth, which inhibit breast feeding.

Initiation and Maintenance of Breast feeding

❑ The decision of breast- feeding should be made during antenatal period by the help of the obstetrician and pediatrician.

Breast Feeding Guidelines:

1. Begin breast feeding as soon as possible, preferably within the first half-hour after delivery.

2. Breast feeding should be on demand, whenever the infant is hungry, both day and night.

3. Exclusive breast feeding through the first 6 months of life.

4. Appropriate complementary semi-solid food should be started after 6 months of age, but the breast milk should be offered first.

5. Breast-feeding should be continued throughout the second year of life.

6. Position the infant so that its mouth covers both the nipple and areola, and latches on properly.

7. Avoid the use of bottles or pacifiers.

8. The mother's food and fluids should meet her needs during lactation.

BREASTFEEDING BASICS
How to Get a Proper Latch

Milk glands

Tongue   Areola
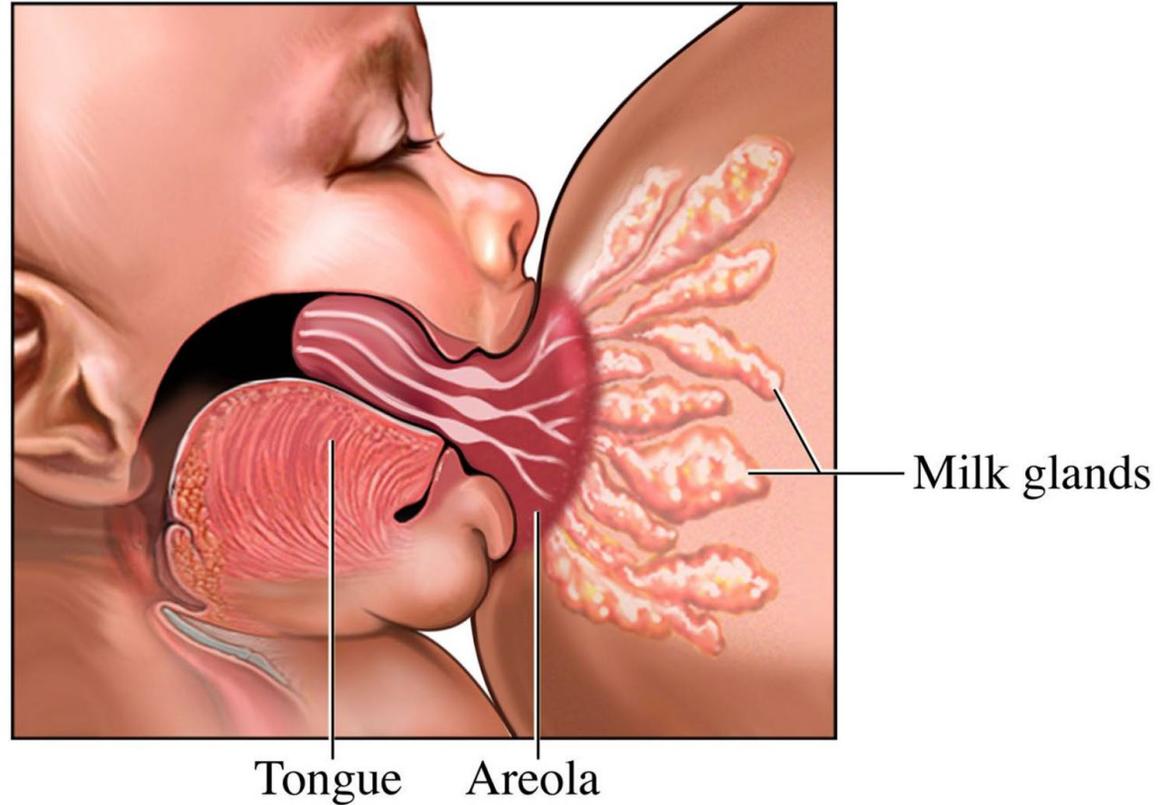
BREASTFEEDING FOR BABIES

Optimal Nutrition

Human milk contains the right nutrients in the right amounts for baby. The nutrient composition even changes to meet the baby's needs over the course of the feeding, the day, and the infant's lifespan.

Human milk contains maternal antibodies that are passed from mother to baby, substances that weaken or destroy harmful bacteria, compounds that help generate antibodies, and factors that promote the growth of friendly bacteria in the infant's gut.

Stronger Immune System

Lower Risk for Obesity

Helps Brain Development

Reduced Risk for Allergies

Decreased Risk of SIDS

FYI

- The brain develops more rapidly when the child first enters school than at any other age!

False

- The brain develops most rapidly before birth and in the first two years of life. The efforts to help the child learn at this age will benefit the child for their whole life.

- THANK YOU