

[MUSIC PLAYING]

SAHAR NEJAT: Hi, my name is Sahar Nejat, and I'm a pediatrician and pediatric public health consultant. And now it's time to talk newborn health. In public health contexts, the newborn or neonatal period relates to children during the first 28 days of life. This session will explore how really simple and low cost interventions at high coverage could save the life of a large proportion of newborn children.

During the past two decades, we have seen a dramatic improvement in child survival. Now look at the green bars that represent child mortality in children under the age of five. In 1990, almost 13 million children died every year. Today, this number has reduced by more than half to below six million.

This is the result of an increasing number of people gaining access to clean water, vaccination, education, nutrition, and health care. Now look at what the statistics reveal from this progress. And this is where newborn health comes into the picture. In the figure, they are represented by the gray bars.

While there's a decrease in children dying from pneumonia, diarrhea, and vaccine preventable disease, we can see that newborn deaths increasingly account for a larger proportion of under five mortality. Today, the risk of dying is almost equally high during the first month of life as during the rest of the first five years together.

Let us now take a closer look at the causes of newborn death. For the newborn, its first days will remain the most critical for survival. A newborn child is 500 times more likely to die during its first day than at one month's age.

According to WHO the main causes of neonatal deaths are preterm birth, asphyxia, and infections. We will now look at each of these three causes separately.

Let's start with the most significant contributor to neonatal mortality, namely prematurity or conditions associated with preterm birth, which means being born too early or before the 37th gestational week. Every year, around 15 million children are born prematurely, of which more than one million die.

When we look at prematurity from a global perspective, we can see that a substantial number

of preterm births occur in Southeast Asia and sub-Saharan Africa as shown by the bars in the graph divided by region. What we also see is that a major part of premature births, about 80% , occur between 32 and 36 gestational weeks as represented by the light blue portion of the bars shown in this graph.

This means that these newborns are only slightly premature, which is good news since usually these children can survive with basic interventions and normally do not need high tech intensive care. It's estimated that the mortality due to premature birth could be reduced by 75% only by basic neonatal interventions.

Now let's deal with one of the most basic causes of child death. Children born prematurely are sometimes just too weak to breastfeed. Here lives could be saved by simple assisted feeding where breast milk is given with spoon, by cup, or through a nasogastric tube,

Prematurity is also associated with difficulties regulating body temperature. One way to stabilize the body temperature and to prevent hypothermia in the first minutes of life is by putting the naked newborn directly on the mother's chest after birth. For babies below the weight of two kilos, the concept of Kangaroo Mother Care can be used.

Kangaroo Mother Care involves exclusive breastfeeding as well as continued skin to skin contact. The premature baby is carried on the chest with complete skin contact, enabling the child to use the body temperature of its parent to regulate its own body temperature. Kangaroo Mother Care has shown, not only to reduce hypothermia, but also to reduce neonatal infections by half and neonatal mortality from any cause by 40%.

It's important to know that children born prematurely are also particularly vulnerable to infections where prompt recognition and antibiotic treatment is key to survival. That's a topic we will come back to soon.

But first, we will talk about it more important cause of death of the newborn, namely, asphyxia. The word might be unfamiliar to some, and means the lack of oxygen to the brain and other organs. Asphyxia can occur before, during, or immediately after birth, and could damage many different organs. About 700,000 newborns die every year due to asphyxia.

The moment of birth is one of the most gripping and grand moments of life. It's amazing to see how the baby immediately after having made it through the birth canal, catches its breath and gives out its first cry. It's a moment of relief and utter joy that leaves few persons unaffected,

not the least, its own parents.

But a few babies don't immediately breathe by themselves. In fact, one out of every 10 newborn requires some kind of assistance. Some children only need to be rubbed on the chest or dried in warm towels while others need more advanced assistance such as resuscitation with a bag valve mask, and sometimes a few basic drugs.

Today we know that neonatal resuscitation during the first minute of life could reduce neonatal mortality by one third. Asphyxia could also be prevented through indirect and less technical interventions such as adequate nutrition and health care to adolescent girls before and during pregnancy, which reduces low birth rate and prematurity, both conditions associated with asphyxia.

The following days and weeks of life will continue to pose a challenge for the newborn. It's now that the threat of neonatal infections appears. Almost half a million neonates die every year due to neonatal infections. The immune system of the neonate, and in particular, the preterm baby, is immature compared to the adults.

Some neonatal infections could be prevented already through antenatal screening of maternal infections such as syphilis, HIV, and hepatitis B, or maternal tetanus vaccination. In the absence of antenatal care, a large amount of infection could still be avoided by reducing exposure of the newborn to infectious agents through hygienic delivery care such as hand washing, clean surfaces, and the use of clean instruments.

It's, for example, important to put the newborn child immediately on the chest of the mother instead of on the ground, and then to cut the umbilical cord with clean scissors. After birth, the cleaning of the umbilical cord with antiseptic chlorhexidine has shown alone to decrease neonatal mortality by around 10%. It's also important that parents are informed about early signs of infection so that the infected child receives timely attention for appropriate antibiotic treatment.

Exclusive breastfeeding within the first hour from birth is another important intervention that significantly decreases morbidity and increases survival of the newborn. Breast milk contains just the right mix of nutrients and energy needed for optimal growth. In addition, it contains components, including cytokines and maternal antibodies protecting the child from infections.

Until now, we've almost exclusively spoken about the neonate. But the health and well-being of

the neonate is more than ever tied to the health of the future mother already at conception. Therefore, preventive interventions as early as during adolescence have shown impact on neonatal mortality. Interventions such as family planning, antenatal care, adequate nutrition, and treatment or prevention of transmission of maternal infections also reduces the number of preterm births, asphyxia, and neonatal infections.

As we just have seen, a few aspects of newborn survival depend on access to health facilities, and skilled and trained staff before, during, and after delivery. But today, we know the basic newborn interventions such as hygienic practices during and after delivery, prevention of hypothermia, hygienic cord care, nutrition, and breastfeeding are examples of simple and low cost interventions that by themselves could reduce neonatal mortality by more than 2/3. And there's no reason to why newborn survival should lag behind survival in children under five.

The sustainable development goals that were endorsed by the UN General Assembly in September, 2015 have set new milestones for newborn survival for the next 15 years. One such milestone is to reduce newborn mortality rates from 19 to 12 deaths per 1,000 live births by 2030. This session has shown that it's indeed possible to reach these goals through simple and cost effective interventions, and that wealth is not always a precondition to health when it comes to saving newborn lives.