Doctor Baktygul is the only obstetrician-gynecologist in the Chong-Alai region of Kyrgyz Republic. Within this region in the south of the country is the Daroot-Korgon village. The village is located high in the mountains, 350 kilometers from the nearest city of Osh. This is the only hospital in the mountainous areas that serves a population of 25,000 people. Doctor Baktygul explains that hospital staff and family members of pregnant women often come to her at home asking for her help, especially during complicated birth cases. She says that less than a decade ago the situation in the hospital was completely different from what we see now. The winters in the village are harsh, and the temperatures can drop to -40 degrees Celsius. Reflecting on the conditions they had to face, Dr Baktygul says:

"If you came here seven years ago, you would see a depressing picture. Many newborns were dying of hypothermia. The old hospital doors would let the cold air in. When the newborns were dying, my heart was breaking. I cried with the mothers."

Today, the conditions in the hospital are much better thanks to the supply of new equipment, the renovation of the hospital and the training courses for midwives and the medical personnel. In 2011, UNICEF rehabilitated the water and sewage system at the ward, providing it with clean water supply, inside toilets, and a shower room for mothers and children. “We must always be prepared, regardless of the circumstances. This work is a big responsibility. I am responsible for the lives of both mother and child” says Dr. Baktygul.
In 2018, The Ministry of Health with the support of UNICEF commissioned a study to identify the **Progress and Determinants of Newborn Mortality in Kyrgyz Republic**. The study was conducted by a group of national experts from the Ministry of Health and researchers from the SickKids Centre for Global Child Health and the Mother and Child Care and Research Centre in Canada. Finance for this study was through a grant from the Government of Japan.

This culminated in a comprehensive assessment of the trends and determinants of newborn and maternal health in the country and to identify the main reasons for newborn mortality and how to prevent these deaths.

The study considered global UN databases, articles and other analytical data. One of the important resources used in the study was the “Newborn Register”. This is a unique electronic database, developed by the Ministry of Health that contains information on newborns and their mothers.

The study covered the period from 1990 to 2018 and examined the progress in the 1990-2015 Millennium Development Goals era and 2015-2018 Sustainable Development Goals period.

Several priority measures were identified to improve the survival rate of newborns and detailed recommendations are made for their implementation to reduce newborn mortality and towards achieving SDG No.3 in Kyrgyz Republic by 2030.

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**SIGNIFICANT REDUCTION OF NEWBORN MORTALITY RATE ON GLOBAL AND REGIONAL LEVELS FROM 1990 TO 2017**

**GLOBAL**

- Child mortality has decreased 2.4 times (from 93 to 39 deaths of children under 5 years old per 1000 live births).
- Neonatal mortality has decreased 2.1 times (from 37 in 1990s to 18 cases of death of children aged 0-27 days after birth per 1000 live births in 2017).
- Stillbirth rate has decreased 1.8 times (from 23 in 2000 to 13 deaths per 1000 born alive and dead in 2016).

**KYRGYZ REPUBLIC**

- Child mortality has decreased 3.3 times (from 65 to 20 deaths of children under 5 years old per 1000 live births).
- Neonatal mortality has decreased 2.2 times (from 24 in 1990s to 11 cases of death of children aged 0-27 days after birth per 1000 live births in 2017).
- Stillbirth rate has decreased 1.6 times (from 14 in 2000 to 9 deaths per 1000 born alive and dead in 2016).

**FIGURE 1. Dynamics of NMR in Central Asia, 1990-2017**

Kyrgyz Republic has achieved Millennium Development Goal #4 on reduction of child mortality and has one of the lowest neonatal mortality rates in the Central Asian Region.

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Source: UN-IGME, Level & Trends in Child Mortality

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WHERE, WHEN AND FROM WHAT DO NEWBORNS DIE IN KYRGYZ REPUBLIC?

- 70% of deaths occur among premature infants who died within the first month after birth (these are children born during the first 37 weeks of pregnancy).
- Premature and low birth weight infants are 100 times more likely to die than full-term and normal weight babies. (Figure 2).

**FIGURE 2.** Neonatal mortality rate among full-term and premature newborns 2013-2017

![Graph showing neonatal mortality rate among full-term and premature newborns 2013-2017](source: "Newborn registry" database)

- Premature and low birth weight infants are 100 times more likely to die than full-term and normal weight babies. (Figure 2).

**FIGURE 3.** Cause of death by timing of death 2013-2017

![Graph showing cause of death by timing of death 2013-2017](source: "Newborn registry" database)

From those who died:

- More than 65% of premature and 60% of full-term infants die in the first 1-2 days of life.
- On the first day of life about 22% of newborns die of asphyxiation (Figure 3).
- At the age of 8-28 days of life most of the newborns die from infections (Figure 3).
Main diseases/conditions of mothers whose newborns died during the first months of life:

- Premature birth
- Preeclampsia (pregnancy-induced increase of blood pressure with loss of urine protein)
- Anemia

The highest levels of mortality rate in newborns in the first months of life are at the perinatal referral centers (Osh city and Bishkek city, Figure 4)

IN 2017 THE MAIN REASONS FOR:

- Stillbirths
  Before birth: fetal hypoxia in 91% of cases
  During the labor: fetal hypoxia in 87% of cases

- Deaths of newborns with low birth weight were respiratory distress-syndrome (immaturity of the respiratory tract).

- Deaths of infants with normal birth weight and full-term babies: asphyxiation.

- Deaths of newborns in the first month of life were:
  - Prematurity.
  - Asphyxia during childbirth.
  - Sepsis of the newborn.

The largest overall reductions in neonatal mortality rate from 2013 to 2017 were observed in Osh city, Chui and Batken oblasts. (Figure 5)

The level of neonatal mortality rate in rural areas is higher than in urban areas and the existing difference remains the same as the mortality rate decreases.[1]

Only 25% of newborns in 2014 and 29% of newborns in 2018 were visited by medical staff during the first three days after the discharge from the maternity hospital.[1]
PROGRESS AND DETERMINANTS OF NEWBORN MORTALITY IN THE KYRGYZ REPUBLIC

Neonatal deaths have been decreasing due to reduced inequalities in access to services:

- **100% of women visit a doctor** at least once in the antenatal period and 95% visit a doctor 4 or more times.
- **with the introduction of the referral system** for cases of complicated pregnancy or complications in newborns to a higher level of medical care, mothers began to receive the care required.
- **education of the mother** - the highest decrease in child mortality is observed among mothers with secondary and primary vocational education[1].
- **welfare** - in 2014 the largest number of newborns died among the poorest of the population while in 2018 this population group had the lowest rate[2].

In 2018 more than 90% of newborns:
- were in medical facilities.
- were born in medical facilities with the help of qualified medical personnel.
- had their mothers received postpartum care.

Almost half (43%) of the reasons for the decrease in neonatal mortality rate are associated with an increasing number of mothers who breastfeed their newborns during the first hour after the birth.

The proportion of children who received:
- antibiotics in cases of suspected pneumonia (from 40% in 2006 to 61% in 2018).
- Oral rehydration salt for treatment of diarrhea (from 22% in 2006 to 98% in 2018)[3].

[2] Same
[3] Based on MICS 2006, MICS 2014 and MIS 2018
NECESSARY MEASURES NEEDED FOR PROGRESS OF SURVIVAL AND IMPROVEMENT OF NEWBORN HEALTH

1. IMPROVE QUALITY OF CARE FOR MOTHERS AT ALL LEVELS

High rates of neonatal mortality among premature babies and those that are small for gestation indicate the need of improvement of the quality of mother’s nutrition, family planning services, preconception care, antenatal care and postpartum care for the mother. It is necessary to develop a set of care measures before conception and antenatal care together with improved identification of intrauterine risks.

2. STRENGTHEN MICROBIOLOGICAL LABORATORIES AND INFECTION CONTROL

There are several groups of perinatal morbidity/mortality of newborns (infections in newborns and intrauterine stillbirths) in Kyrgyzstan, the levels of which are disproportionately low. Most likely this happens due to the underestimation of their share in the structure of causes of death and also reflects the relatively low potential of microbiological laboratory diagnostics. It is necessary to improve the system for the detection, control/monitoring and prevention of infectious diseases by strengthening microbiological laboratories.

3. ENHANCE HUMAN POTENTIAL AND DEVELOP SKILLS

The quality of care for every newborn (including the sick, premature born and with low weight) must be assured through the provision of up-to-date, functional equipment, increasing the capacity, knowledge and skills of medical specialists in using modern technologies at the regional and tertiary level hospitals. Collaboration with the leading academic centers is required in the field of newborn care both regionally and globally in order to develop the accredited programmes, internships in neonatal pediatrics and training programs on newborn care.

4. INVEST IN CRITICALLY IMPORTANT LIFE SAVING INTERVENTIONS:

Quality care for preterm births and related interventions for prevention and care of preterm labor (tocolytics, antibiotics for preterm prolonged rupture of membranes, use of antenatal steroids, newborn care and stabilization at birth, kangaroo mother care).

Modernization of intensive care and therapy units for newborns, provision of emergency neonatal care to patients, prematurely born and small babies and creation of high-risk neonatal units with facilities for preterm care including nasal CPAP/ventilator, availability and use of surfactants and other modern technologies.

Introduce a fully equipped transport system at the regional level with an adequate number of trained medical personnel, which will ensure the identification and transportation of women with complicated pregnancy and high-risk during childbirth cases to hospitals at the regional and national levels.

Improvement of postpartum care, expansion and widespread introduction of perinatal audits. Inclusion of these initiatives in the “Newborn registry” and other reporting forms are necessary.

5. DEVELOP DATA THAT ARE USED FOR ANALYSIS AND PLANNING

Kyrgyzstan has the “Newborn register” electronic database which contains data on newborns and their mothers. It is necessary to further develop the Register by adding the indicators on the quality of service for mothers and newborns including data on monitoring women in antenatal and postpartum period, maternal health, nutrition and quality of care, as well as the health of infants and children under 5 years of age.

INVEST WHEN IMPLEMENTING THE ABOVE MEASURES BY 2030:

- 40% of neonatal deaths, 11% of stillbirths and 19% of maternal mortality rates could be prevented.
- The largest proportion of deaths among newborns could be prevented, if the quality of care after low birth weight and sick newborns (including treatment of neonatal sepsis/pneumonia) would be improved.
- Most maternal lives could be saved by improving the health of women before conception, family planning and better maternal nutrition.