



Policy Brief № 26

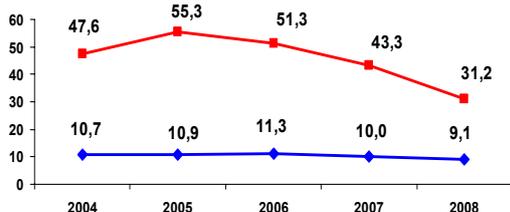
Socio-medical causes of mortality of children under 2 years old who died at home and during the first 24 hours after hospitalization

I. Introduction

More than three thousands children die in the country at their first year, or there are 29-30 died children under 1 year per 1000 of newborns. Before 2004, the national life birth criteria and therefore, infant mortality criteria were different from those recommended by the World Health Organization, which used to understate this indicator significantly. Kyrgyzstan adopted international live birth and maternal mortality criteria in 2000. After that, the Registries of Births, Marriages and Deaths started to register newborns with low body weight (from 500 up to 1000 g). According to the new official data, after introduction of new live birth criteria, the infant mortality rate was increased from 25,7 in 2004 to 29,7 in 2005 and stopped at the level of 27,1 per 1000 of live born during 2005 - 2008.

Despite of the visible reduction of the share of children mortality at home, this indicator still remains high.

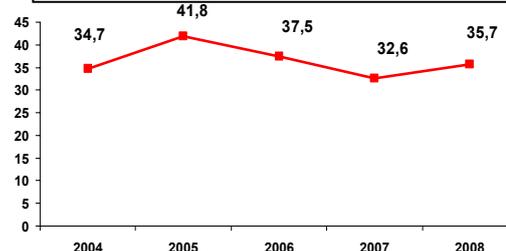
Home mortality of children, Kyrgyz Republic, 2004 – 2008 (%)



— Умершие дети до 1 года — Умершие дети от 1 до 2 лет

Besides, more than 30% of children under 1 die after hospital admission.

Mortality within 24 hours of children under 1 year, Kyrgyz Republic, 2004 – 2008 (%)



The main share in the structure of the infant mortality courses falls on diseases and conditions in perinatal (post-natal) period (2008 – 63,5%), including: respiratory illnesses, - 14,0%, congenital anomaly - 11,1%, infections and parasitic diseases - 5,8% (including – three quarters of them – enteric infections). Children mortality rate was - 31,5 per 1000 of born living.

This study was conducted in order to detect the causes of the above mentioned factors.

II. The Goal and Methodology of the Study

Investigation of the social, medical and biological causes of mortality of children under 2 at home and within 24 hours after hospital admission.

The study investigated all cases death of children under 1 year and children at age 1-2 year that died at home and first 24 hours after hospitalization since January 2007 to December 2008.

III. Findings

Characteristics of communities, where died children used to live

- 95.2% of roads to hospitals are covered with asphalt, which reduces for mothers with children the time to reach the hospital;



- For the major part of mothers (78.8%) it takes less than 30 minutes to get to the nearest FGP/FAP or a hospital;
- Most of the families had an access to health care and pharmacies.

Characteristics of families of the died children

- 45,2% of all home mortality cases of children under 1 fall on families of three people, and more often the first or the second child had died, which was related to lack of mothers' knowledge on how to take care properly of their children;
- Mortality of children under 1 within the first 24 hours after hospitalization and of children at age 1-2 that died at home in most cases fall on families of 4 and more people, which can be explained by the fact that they had other small children, and lack of mothers time and attention;
- Almost a half of families had to take water from irrigation ditches, which increases the risk of enteric infections development.

Characteristics of parents

- Most of the mothers were unemployed at the time of the survey. 1/4 of fathers were involved in small businesses (sales of rice, vegetables and berries) and 1/3 – in farming. The remaining part did not have a job;
- The major part of mothers and fathers had completed secondary education, 14,3% - of parents have university education;
- About half of all mothers were in the age under 20, when they had first pregnancy. About 5% of mothers were at the age 30-34, at the time of the first pregnancy, which is a risk factor both for mothers and for a child;
- Only 49% of mothers involved into the survey were healthy. 22% of mothers had pulmonary diseases. Mothers with renal diseases and different kinds of anemia were at the second position. Various types of hepatitis and psychoneurological diseases were reported as well;
- Most of the fathers were smokers and alcohol users.

Antenatal visits of health care facilities

- 91,5% of mothers were registered in fieldshers by a family doctor/fieldsher during their pregnancy. The main part of them got registered before 12 weeks of gestation. About one thirds of the mothers got registered with gestation 12-20 weeks. At the same time 3,6% of the pregnant women were registered after 28 weeks of pregnancy;

- 20% of newborns were premature, which could become a risk factor and influence the course of the disease;
- Only 26,7% of mothers during pregnancy were taking folic acid, which reduces the risk of development of congenital malformations in children.

Risk factors of children

- 60% of children under one year had died at the age of 3 - 9 months. And 15% of children died at the neonatal period;
- Newborns die twice more often at home than in a hospital. This is probably related to misjudgment of severity of a newborn condition before discharging him/her from a hospital, and also to poor continuity of care between maternal hospitals and FMC, and within FGP and FAP;
- 16,7% of died children had low weight at birth;
- At the time of discharge from maternity hospital, 10,9% of died newborns had congenital malformations and other diseases, as well as birth complications, like asphyxia.

Follow up of a child in FMC/FAP

- A number of mothers' visits to FGP/FAP during the last 6 month of a child's life was 4 times;
- Health professionals have assessed 38.1% of all died children on presence of dangerous signs according IMCI recommendations. But correct classification of a child condition was made only in one quarters of died children;
- Misjudgment concerning severity of the condition was made in 10% of died children, which resulted in poor timing in referring a child to hospital treatment;
- Interview of mothers indicated that in 85,7% of cases mother didn't call an ambulance because they didn't have it in their village.
- Interviews with family members of the target group showed that relatives used to put a baby into a cradle in 71,6% of cases. And about 15% of all children were in their cradle at the time of death;
- Majority of mothers visited health care facility late with sick child, which indicates at low awareness of mothers about dangerous signs of a disease. Children were admitted to hospital in terminal stages of a disease with developed complications.

Circumstances surrounded the death of children

- 33,3% of mothers of died children under 1 reported the sudden death of their children, during sleep;



- 90% of sudden death cases were caused by asphyxia. 10% had sudden death syndrome;
- Most of cases of children death under 1 year with a diagnosis sudden death and mechanical asphyxia happened during sleep of a child in a cradle;
- In home death cases of children under 1 year, health professionals put a diagnosis mechanical asphyxia or sudden death without specifying the cause of the death. However, the detailed interview showed that mother indicated at some symptoms, which probably caused the death;
- In 10% of cases, health professionals misjudged the severity of a child condition, and, as a result, the children were not referred to a hospital;
- 11,5% of mothers didn't go to doctors at all, instead they were seeking care from traditional healers.

Health services, provided at hospital level

- 10,6% of died children were examined by health professionals of an admission unit within 6 hours after hospital admission;
- 1/3 of children with acute enteric infection with severe dehydration and 40% of children with acute enteric infection and pneumonia stayed in infection and children departments initially more than 6 hours and did not received adequate therapy and were transferred to the Intensive Care Unit in extremely severe conditions;
- The died children stayed in the intensive care unit about 8 hours in average;
- Conclusion can be made on the basis of these data that children die from acute infections, tragic consequences of which can be avoided, although 1/3 of died children had comorbidities (congenital heart defect).

Lab tests of the died children within the first 24 hours of hospitalization

- 85,7% of died children had their general blood tests done, when biochemical tests were prescribed only in 75,6% of cases;
- Blood group and Rh rhesus were identified in only 22,2% of died children.
- Medical records of the major part of died children do not have interpretation of lab tests.

Treatment of children died within the first 24 hours after hospitalization

- Management of diseases did not comply to clinical protocols;
- Almost all children were admitted to hospital in very severe conditions at terminal stages of disease with developed complications (neurotoxicemia, DIC syndrome, severe dehydration, etc.);

- In 60% of cases, there were no proper calculation of injected infusion fluids and proper monitoring over injected fluid, Ringer's solution was substituted by colloid solutions without any indications, which contributed to development of vascular hypervolemia with cardiovascular collapse;
- In 40% of cases of children with pneumonia, only 1 antibiotic was prescribed despite of their severe condition;
- In 100% of cases non-justified prescription of diuretics and cardiac glycoside was reported, which could deteriorate already existing haemodynamic compromise, electrolyte imbalance, and provide toxic impact on myocardium at acid base disturbance;
- In 37% of cases children were administered up to 5-6 drugs simultaneously and in 20% - more than 7-8 drugs (diuretics, cardiac glycosides, colloid solutions, vitamins, calcium, magnesium, etc.);
- Only in 56% of children in terminal stage were transferred into artificial lung ventilation;

Postmortem examination of children

- Almost all pathologicoanatomic diagnosis were the same as clinical diagnosis;
- Postmortem examination was performed only in 23,8% of all cases;
- Postmortem summaries in medical records of the died children were not complete; they contain little information to understand death circumstances and causes;
- In 30% of cases, child development records (the Form 112/y) do not have death summaries, which suggest that investigation of death data was poorly performed at the local level.

IV. Recommendations

At the community level

- To improve efforts on identification of dangerous signs of diseases and providing care to a sick child at the community level;
- Familiarization of people at the local level with State Guaranteed Benefit Package, with legislation and decrees and MOH orders related to health of people;
- Conduct education work: school of parents, school of young mothers, healthy lifestyle, etc.

At the primary care level

- To continue training of health care professionals in evidence based programs, including nurses;
- Improvement of efforts on keeping medical records;



At hospital level, including emergency care

- Development of clinical protocols on all nosologies, including emergency care to children;
- To improve referral system of severe patients both within a hospital, and also to another level of health care.

At the policy and management level in the health sector

- Improvement of registration system of died children;
- To improve continuity of health care from primary care organizations to territorial hospitals and maternity hospitals;
- Development of clinical protocols on all nosologies, including emergency care to children;
- Improvement of access to population to pharmacies and ambulance;
- To provide children hospitals and emergency care units with necessary equipment.

At the Government level

- To ensure people's access to clean water
- To improve condition of roads.