

Policy Brief № 15

Quality of Preventive and Treatment Services for Acute Myocardial Infarction (AMI) in the Kyrgyz Republic

1. Introduction

Cardiovascular diseases (CVD) are one of the leading causes of death in Kyrgyzstan. In 2006, CVD contributed 47.5% of all deaths. *Acute Myocardial Infarction (AMI) and Cerebrovascular Accidents (CVA)* are leading causes of death within CVD. AMI and CVA figures in 2003 were 389 and 261 deaths per 100 thousand people, respectively (WHO, 2004). The high burden of disease from CVD motivated this study assessing the quality of prevention, curative services and rehabilitation related to AMI and stroke at primary health care, inpatient services and specialized care at the tertiary level. The study was conducted by the Center for Health Systems Development in the Kyrgyz Republic. This Policy Brief № 15 presents summary results of the research on AMI. Summary results for stroke are presented in Policy Brief № 16. The full paper can be obtained from the Center for Health System Development.

2. The purpose of the study

The purpose of this study was to provide a comprehensive assessment of the quality of CVD treatment and prevention in Kyrgyzstan in order to determine future directions and recommendations for the Manas Taalimi National Health Care Reform Program (2006-2010).

3. Methods

The study used the following methods: comparative analysis of local and international clinical guidelines and protocols for the treatment of AMI; retrospective analysis of 272 inpatient records and 65 outpatient charts. 13 focus group discussions (4-7 people in each group) with AMI patients and 11 focus groups discussions with doctors of territorial, province and tertiary hospitals were carried out. The study took place in 3 oblasts -- Chuy, Naryn and Jalalabad -- as well as in the city of Bishkek.

4. Results and conclusions

Four phases of AMI prevention and treatment were assessed: primary prevention (4.1), pre-

hospitalization phase (4.2), hospital phase (4.3), and secondary prevention and rehabilitation (4.4).

4.1. Primary prevention

The study assessed the effectiveness of risk factor control at the primary health care level using two indicators:

- **Indicator №1. Identification of modifiable risk factors for AMI, including routine measurements of blood pressure in adults during visits to family group practitioners.**

Prevention at the primary healthcare level mainly focuses on detection and control of hypertensive disease as the major risk factor.

Blood pressure measurement is performed at the primary level for 72% of adults who visit the clinic, regardless of the nature of the visit (Kyrgyz Integrated Household Survey, 2007). Hypertension is the most frequently noted risk-factor on outpatient cards and other risk-factors (food, weight control, exercise, smoking and alcohol consumption) are not routinely noted on ambulatory cards. The focus on hypertension is justified since over 30% of the adult population has hypertension but life-style related risk-factors are important determinants of hypertension and thus deserve more attention.

- **Indicator №2. Effective medical treatment of high blood pressure with medication and counseling about life-style changes**

Results of the Kyrgyz Integrated Household Survey in 2007 showed that only 17% of patients with elevated blood pressure had taken medication for hypertension within the last 24 hours. The main cited reason was that "the doctor recommended to take it at the time of crisis" and not on a regular basis. However, clinical guidelines specify regular and continuous medication for hypertension. In addition, patients themselves "thought this was not necessary". This suggests that patients are not aware of the importance of taking medicines on a

regular basis and/or do not have a confidence in the prescribed drugs.

4.2. Providing medical care for AMI patients at the pre-hospital stage

Appropriate pre-hospital care in accordance with clinical guidelines improves recovery from AMI. Good quality pre-hospital care is characterized by three markers: timely hospitalization, diagnostics performed by ambulance services, and emergency treatment by the ambulance team.

- **Indicator № 1. Timely hospitalization. To improve outcomes, a patient should be admitted to the hospital within the shortest time possible after symptom onset, preferably within the first 2-12 hours.**

In two of the four surveyed areas, in Jalalabad and Chui provinces, 61% of patients were hospitalized within the first 12 hours of the onset of symptoms. At the same time, in Naryn province and in Bishkek, most patients were hospitalized later than 12 hours (70% and 54% respectively). The referral pattern varies from oblast to oblast. The share of patients admitted to hospital through the ambulance service is 63.8% in Bishkek, 34.6% in Naryn, 13.9% in Jalalabad, and 11.1% in Chui. Doctors explained that delayed hospitalization occur most frequently when patients do not realize the need for an immediate medical treatment, as well as when AMI presents with atypical symptoms.

- **Indicator №2. Performing pre-hospital diagnostics of AMI (electrocardiography - ECG) by the ambulance services.**

In Bishkek, pre-hospital diagnostics of the AMI (ECG) is carried out for 87% of patients admitted to hospitals through ambulance services. In the regions, the situation is different. In Jalalabad, ECG was performed in 40% of cases, in Chui only in 25% of the reviewed cases. The figures are low for the oblasts because their ambulance services lack specialized “cardiac brigades”, are short of equipment, and/or the equipment can not be used due to a lack of qualified personnel.

- **Indicator № 3. Initiation of treatment by ambulance providers (thrombolytic therapy, aspirin, beta-blockers, and narcotic analgesics)**

Pre-hospital initiation of therapy meeting international standards is provided mainly in the city of Bishkek.

In Jalalabad and Naryn oblasts, ambulance services provide drugs mainly from the nitrates group, 60% and 22% respectively. It should be noted that nowadays, nitrates are not as widely used in international practice because other, more effective drugs have been developed. However, in the regions, at the pre-hospital stage, these new drugs are not prescribed sufficiently (range and amount).

4.3. Providing medical care to AMI patients at the inpatient level

During the hospital stage, there are two main markers of appropriate care: appropriateness of diagnostics procedures and appropriateness of treatment with medication.

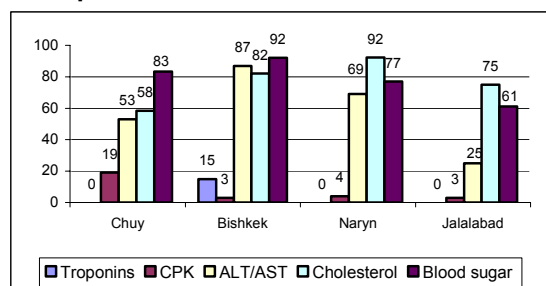
- **Indicator №1. Conducting diagnostics at the hospital stage. ECG and laboratory tests are widely used diagnostic methods. The latter include identifying levels of «cardiac» blood serum enzymes, such as troponins, creatine phosphokinase (CPK) and aminotransferase (ALT/AST²). To identify further risk factors blood sugar and cholesterol levels need to be checked.**

ECG is carried out in almost 100% of the cases studied in all regions.

The main additional diagnostic test in all regions is the aminotransferase ALT/AST level. The rate of conducting the test varies from 25% (Jalalabad region) to 87% (Bishkek). CPK test is used in 3-4% of cases, with the exception of Chuy region where the figure is 19% (Figure 1). Conducting the most sensitive test -- troponins level in blood serum which is available only in Bishkek in National Institute of Cardiology and Therapy (NICT) is conducted in 15% of hospitalized patients.

² ALT/AST – Alanine/Aspartate aminotransferase

Figure 1. Diagnostic laboratory tests performed in hospitals



- **Indicator № 2. Treatment of AMI built on the principles of evidence based medicine. The following groups of medicines are used: thrombolytics (must be prescribed in the first 2-6 hours), anti-aggregants, anticoagulants, beta-blockers, ACE³ inhibitors and narcotic analgesics for pain relief. In addition, a modern method of AMI treatment is a balloon angioplasty⁴.**

Approaches to the AMI treatment reflected in the Kyrgyz clinical guidelines are, in general, consistent with international standards. However, these standards have not yet become widespread in a routine practice.

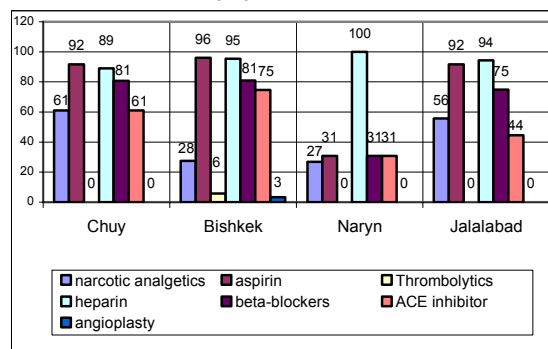
- Thrombolytic therapy is prescribed only in Bishkek in 6% of cases. Such low percentage is explained by late referral of patients, when thrombolytic therapy no longer has indication (thrombolytics are recommended to be administered in the first 2-6 hours). Another limiting factor is the relatively high cost of drugs in this group.
- Narcotic analgesics for pain relief are prescribed in all oblasts, but there is a big difference between the regions. Thus, 61% of patients in Chuy received an analgesic, 56% in Jalalabad, 28% in Bishkek, and 27% in Naryn.
- Anti-aggregative therapy (Aspirin) is widely used in all the regions studied, and exceeds 90%, except for Naryn, where it is only 31%.
- Anticoagulant therapy (Heparin) in Naryn was conducted in all cases. Heparin has proven effectiveness, but there are now more effective drugs (thrombolytics, Aspirin, beta-blockers). But

³ ACE - angiotensin converting enzyme

⁴ Procedure when a balloon is put into a narrow part of a blood vessel, and is further inflated and then moved out. This leads to a widened vessel and re-established blood stream.

these are being used in a limited number of cases in Naryn.

Figure 2. Use of medicines in in-patient treatment of AMI (%)



The rate of performing a balloon angioplasty was recently introduced at the tertiary level in the National Center of Cardiology and Therapy in Bishkek and was administered in 3% of cases.

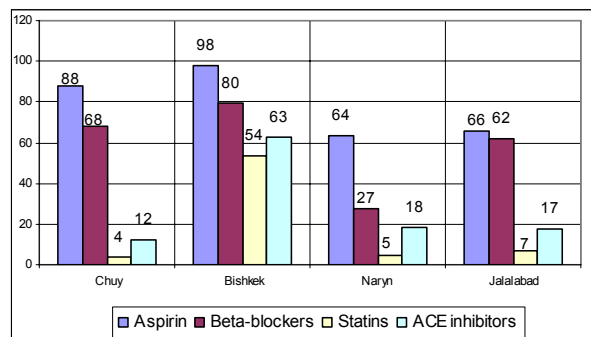
4.4. Secondary prevention and rehabilitation

The concluding stage in treating AMI patients is secondary prevention and rehabilitation. Secondary prevention aims to reduce the occurrence of complications and repeated AMI by prescribing appropriate medication upon discharge and counseling about life-style changes. Rehabilitation aims to support AMI survivors to return to active work and family life at the soonest.

- **Indicator №1. Treatment recommendations for patients discharged from hospital after an AMI include the following groups of drugs: anti-aggregants (Aspirin), beta-blockers, statins and ACE inhibitors.**

The principles of home-based treatment are similar to those of inpatient treatment. It was noted that Aspirin and beta-blockers were prescribed to the majority of patients in all provinces. Nevertheless, there is a considerable difference between the regions. Thus, in Bishkek 98% of patients were receiving prescription for Aspirin and 80% were receiving beta-blockers upon discharge. In Naryn, these figures were 64% and 27%, respectively. ACE inhibitors were prescribed in a small number of cases (Figure 3). A relatively new group of drugs to control hypercholesterolemia -- statins -- is not widespread in the regions with the exception of Bishkek.

Figure 3. Prescriptions upon discharge (% of patients)



- **Indicator №2. Counseling on lifestyle changes after AMI, including healthy nutrition, physical exercise, and cessation of unhealthy habits such as smoking and excessive alcohol consumption.**

Key recommendations about lifestyle changes made to AMI patients at the time of discharge include following a healthy diet (in 78.5 % of cases) and an adequate physical exercise (59.7%). Other recommendations are mentioned rarely, only 2% of the patients received recommendations on cessation of unhealthy habits such as smoking and excessive drinking. It is important to note, though, that many of the participants in our patient focus groups suggested that they were ready to make lifestyle changes and willingness to follow their physician's advice.

- **Indicator №3. Rehabilitation with the purpose of returning an AMI patient to a fulfilling life. Rehabilitation includes a range of different methods, such as kinesiotherapy, psychotherapy, physiotherapy etc.**

Currently, rehabilitation of AMI patients is supposed to be carried out at the primary care level. After being discharged from hospital, the patient refers to a Family Medicine Center (FMC) in his/her residence area, where he/she receives rehabilitation service from a cardiologist. However, such rehabilitation is not widely available. In Bishkek, for instance, rehabilitation is available only at two FMCs. In the oblasts, rehabilitation performed by medical staff is virtually non-existent. Patients carry out rehabilitation activities on their own, drawing on the experiences of their relatives, friends and others.

5. Conclusion

The quality of the preventive and curative care for the patients with CVD, and especially with AMI, varies significantly across regions and has both strengths and weaknesses. The **strengths** of the health system in prevention and treatment include:

- Prevention activities at the primary care level focus on hypertension. Such a focus is justified because of the high prevalence of high blood pressure in the Kyrgyz Republic.
- The clinical content of AMI treatment protocols in Kyrgyzstan is largely in line with international clinical guidelines.
- ECG is the main method of AMI diagnosis and is performed everywhere and in all cases.

Weaknesses in the prevention and treatment include:

- Neglecting life-style related risk-factor counseling in primary health care.
- Late hospitalization of patients from the onset of the first symptoms in half of the surveyed areas;
- Excluding Bishkek, ambulance services have low coverage and provide inadequate services for patients with AMI;
- There are significant differences between regions in approaches to treatment and discharge recommendations;
- Rehabilitation of post-AMI patients is performed at an inadequate level and is represented by fragmented services.

6. Recommendations

- Strengthen primary prevention of CVD including the development of strategies to address risk factors including a "population-based" strategy and a "high-risk strategy" (WHO). *The population-based strategy* should include activities where the target audience is the entire adult population of the KR. Due to the high prevalence of hypertension, the population-based strategy should focus on providing general information about hypertension and its treatment. *The "high-risk" strategy* should

identify individuals with high risk of AMI and perform activities to reduce their risk factors. With regards to this latter, improving control of hypertension in the primary care setting is a key challenge for the future.

- Continue strengthening the ambulance services in order to increase the coverage of the population and scope of services for the diagnostics and treatment of AMI at the pre-hospital stage.
- Continue revising and strengthening guidelines and protocols to keep them up to date with international practice.
- Ensure country-wide use of the existing clinical guidelines in order to reduce the gap between the protocols and existing practice particularly in oblasts further from Bishkek. Specialized training programs need to be conducted in order to strengthen doctors' adherence to clinical guidelines.
- Regularly monitor the quality of care and doctors' adherence to clinical guidelines.
- Develop a system of rehabilitation for the AMI patients including physical, psychological, and social rehabilitation for their soonest return to a fulfilling life.

In order to obtain detailed information and a full text of the report please refer to Health Policy Analysis Unit of the Center for Health System Development:

Nurdin Akunov:

nurdin@manas.elcat.kg

Baktygul Akkazieva:

baktygul@manas.elcat.kg

Melitta Jakob, Health Policy Advisor, WHO/DFID:

mjakab@elcat.kg