# Policy Brief
# Comparative analysis of hospitalizations of cardiovascular disease patients across regions

## Background

According to the Ministry of Health, the growth of cardiovascular diseases (CVD) amongst Kyrgyz citizens is the main cause of deaths, accounting for almost half (50.4% as of 2014) of all deaths. CVDs kill over 18,000 people annually and 50 people daily in the country. Worldwide, the annual mortality from these diseases accounts to 17.5 million lives.

The most common diseases in Kyrgyzstan are hypertension, acute myocardial infarction, cerebrovascular diseases and stroke. This picture is exacerbated by risk factors on top of high blood pressure, such as smoking, poor physical activity, overweight, diabetes, high levels of cholesterol in blood, as well as unbalanced diets, excessive alcohol consumption and stress.

In 2013, the WHO member-states reached an agreement on mechanisms to reduce the global burden of avoidable non-communicable diseases (NCDs), including 'The Global Action Plan for Prevention and Control of Non-communicable Diseases for 2013-2020'. The plan aims to reduce premature deaths from NCDs by 25% by 2025, through addressing nine voluntary global targets. The sixth objective of the Global Plan of Action on NCDs provides for reducing the incidence of cases of high blood pressure in the world by 25%. The eighth objective provides for at least 50% of people in need are ensured with medical treatment and counseling (including glycemic control), for the prevention of myocardial infarction and stroke.

## Study objectives

This study aims to conduct a comparative analysis of hospitalizations of patients with cardiovascular diseases, identify and explore reasons behind significant variations in the level and structure of hospital admissions by regions.

## Methodology

To conduct this analysis, the Working group was established from representatives of the Ministry of Health, MHIF and specialists of national centers. The Working group selected indicators for cardiovascular diseases and diabetes, which were then used for collection of information from various databases, and analyzed.

## Key findings

Within year of 2014, 931,519 patients were treated in inpatient wards of healthcare organizations. Without healthy newborns, there were 802,075 patients, 58% of which were admitted to hospitals for emergency reasons. By 2014, there is a decrease in overall number of hospitalizations across all oblasts, except for Naryn oblast.

In 2014, hospitalizations for cardiovascular diseases accounted for 9.5% of total hospitalizations. Without hospitalizations of healthy newborns, hospitalizations for cardiovascular diseases accounted to be 3d in order, and 11% in total hospitalizations. Most patients with cardiovascular diseases received inpatient care at the tertiary level (29.3%), 7.7% in oblast hospitals, 11% in territorial hospitals, and 9.2% - the General Practice Centers.

The analysis of the dynamics of hospitalizations of patients with CVDs since 2010 has demonstrated a sharp increase in hospital admissions in all regions, except for Chui oblast and Bishkek. The most dramatic increase in hospitalizations was observed in Batken oblast hospitals, mainly explained by the increase of hospitalized patients from Osh oblast.

Comparison of number of hospital admissions and number of PHC visits demonstrated a strong association - the less population seeking primary healthcare the higher is the number of hospitalizations.

**Figure 1.Ratio of PHC visits and hospitalizations for CVDs**
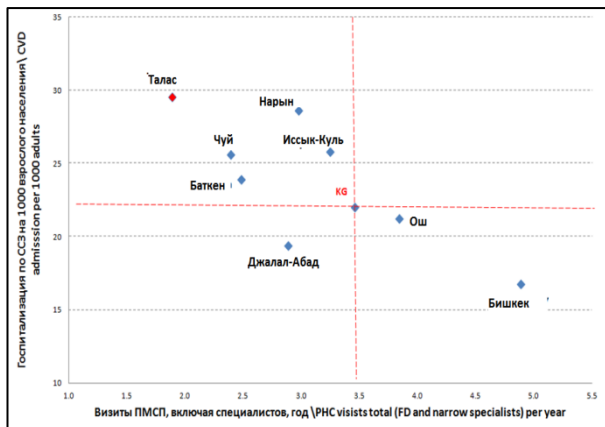


The average hospitalization rate for recurrent myocardial infarction was 2.21 per 100,000 adults. The highest rate of recurrent myocardial infarction was observed in Osh oblast that is 3.71, which is 1.7 times higher than the national average. The lowest rates were in Talas and Naryn oblasts, 0.41 and 0.73 accordingly.

Hypertension makes 52.3% of total number of registered CVD cases. The highest number of registered patients with hypertension was in Naryn and Talas oblasts, which is related to geographical location of these oblasts. However, in all oblasts there was a rather high incidence of patients with hypertension, over 50%, except for city of Bishkek.

The incidence of hypertension in the country for 10 years has grown from 2,984.5 per 100,000 population to 3,822.2 per 100,000 population; hypertension case detection tended to decrease, suggesting there is a lack of doctors in primary healthcare.

Hyperlipidemia and diabetes are among the most important cardiovascular risk factors. The average number of registered diabetes mellitus patients was 1,157; highest numbers are in Bishkek and Osh, 1,573.1 and 1,891.7 accordingly. The lowest rates were found in Batken and Osh oblasts, with 820 and 900 registered patients respectively.

In 2014, average 389 hospitalizations were found per 1,000 registered diabetic patients. In Bishkek, there were 170 hospital admissions per 1,000 registered

patients. Most hospitalized diabetic patients per 1,000 registered patients were observed in southern regions.

**Figure 2.Hospitalizations of diabetic patients per 1,000 registered patients**
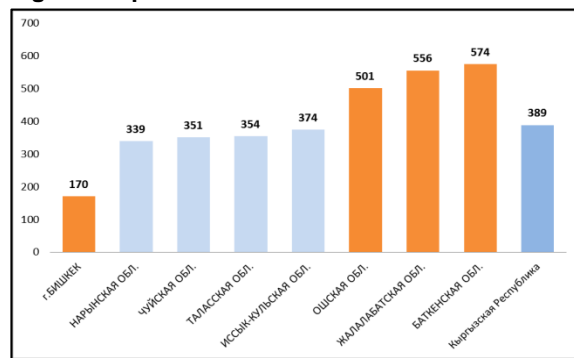


Of 18,064 hospitalized diabetic patients, 17% of hospitalized cases were patients in diabetic or hypoglycemic coma. Comparison across regions found a wide variation. Only 6% of hospitalized diabetic patients from Naryn oblast arrived to hospitals in diabetic or hypoglycemic coma, while in Batken oblast the proportion of such patients was 43%.

The growing mortality from cardiovascular disease among the young and able-bodied persons is of particular concern. Over the past 20 years, mortality from CVDs increased by 40.5% in young people aged 30-39 y.o., and on average by 18.1% in people of working age 40-59 y.o. In the country, over 18,000 people die each year from heart diseases.

The most common causes of mortality in Kyrgyzstan are hypertension, acute myocardial infarction, cerebrovascular disease and cerebral stroke. The highest mortality occurs in hemorrhagic stroke (23.3%) and acute myocardial infarction (12.9%).

## Conclusions

The analysis identified the following barriers:

- The quality of primary healthcare services does not satisfy the patients with cardiovascular disease; as a result they prefer using ambulance services.
- In turn, the PHC health care professionals have low motivation to improve the quality of medical care.
- Prevention of CVD is ineffective due to lack of commitment by doctors and patients, poor awareness of specialists in regions.

- Detection of hypertension in primary healthcare organizations has remained at low levels.
- Lack of clinical protocols for CVDs guided by evidence-based medicine.
- Lack of medical personnel staffing in healthcare organizations, in particular in PHC organizations. The lowest staffing was recorded in Talas and Osh oblasts comprising 92% and 93% respectively.

## Recommendations

- Development and implementation of the national public awareness program on prevention of CVDs.
- Develop motivation mechanisms for medical personnel, to improve the quality of care (prevention, case detection, treatment of CVDs).
- Improving professional competences of medical workers on continuous basis.
- Enhancing the role of nurses in provision of healthcare services to patients.
- Revision of the list of medicines prescribed for CVDs under the Additional Package of Mandatory Health Insurance.
- Strengthening prevention and detection of patients with hypertension and diabetes at primary healthcare. IN particular, in Batken, Jalal-Abad and Osh oblasts.

- Development of the service package provided to patients with CVDs at every level of healthcare (FAPs, FGPs, FMCs, TBs, GPCs, national centers), with description of required equipment, supply of medicines, skills of staff, referrals of patients to higher level medical services.
- Attestation (certification) of healthcare professionals on prevention and follow-up of patients with cardiovascular disease.
- Carry out preventive examinations of patients, following established schedules.
- Development of plans for oblasts, to improve the registration and management of patients with hypertension and diabetes.
- Adjustment of training plans, with account for epidemiologic situation in southern regions, with primary focus on oblasts with worst indicators.
- To explore in details the reasons behind significant variations in the level and structure of hospital admissions in regions, it is essential to conduct a study specifically in the regions and oblasts.

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