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## CARDIOLOGY SERVICE OF KAZAKHSTAN TODAY: ACUTE CORONARY SYNDROME, CHRONIC HEART FAILURE, ATHEROSCLEROSIS

The article focuses on the prevalence of circulatory diseases, organization and implementation of new programs in the system of cardiological care services in the Republic of Kazakhstan. Currently, three key programs are functioning at the republican level: «Acute coronary syndrome», «Chronic heart failure», and «Atherosclerosis and dyslipoproteinemia». The National Scientific Cardiac Surgery Center (Astana) is the coordinator of all these programs.

**Keywords** Republic of Kazakhstan; cardiological care service; acute coronary syndrome; chronic heart failure; atherosclerosis; dyslipoproteinemia

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### Introduction

Cardiovascular diseases represent one of the main causes of death and disability of the adult working-age population. Worldwide, a mean of 19 million people dies annually, and 52 thousand people die daily due to circulatory diseases [1, 2]. CVD of atherosclerotic origin are also the leading cause of sudden death (6.2 million sudden deaths among 30–70-year-old people worldwide) [3]. More people die each year of CVDs than of other non-communicable diseases. According to experts, 550 million people with CVDs and more than 135 million patients with atherosclerosis live in the world [4].

The prevalence of circulatory diseases in Kazakhstan in 2022 was 2759.6 cases per 100 thousand people. These diseases affect 5.7% of the country's population [4, 5] (Central figure, Figure A).

Improving control of circulatory diseases is one of the major global health goals.

In 2011, the National Scientific Cardiac Surgery Center (hereinafter «the Center») was opened in Astana. It became the leading facility for the provision of cardiological, cardiac surgical, and interventional cardiac care to the Kazakh population. Today, 44 facilities provide cardiac surgical and interventional cardiac care in Kazakhstan.

Three national programs on the management of circulatory diseases system are currently implemented in Kazakhstan:

- Acute coronary syndrome
- Chronic heart failure
- Atherosclerosis and dyslipoproteinemia

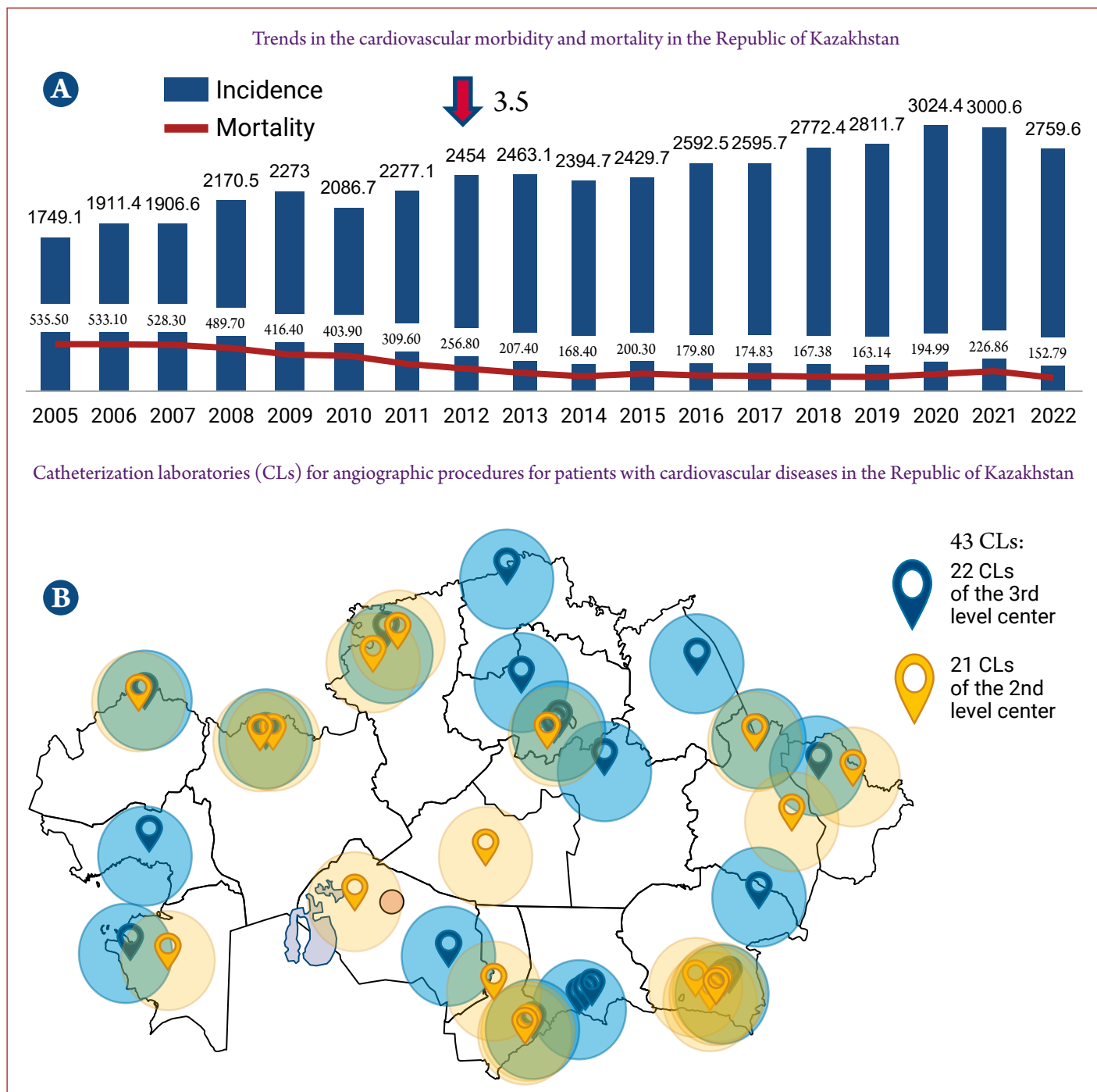
Over 10 years, the Acute Coronary Syndrome program allowed providing the international standard care to patients

with acute coronary syndrome. Within the Acute Coronary Syndrome program, 90 angiographs are installed and used in 44 catheterization laboratories located in all 20 regions of Kazakhstan (Central Illustration, Figure B). This program allowed reducing acute coronary syndrome mortality from 25% in 2004 to 7% in 2019 [6].

The Chronic Heart Failure program was launched in 2019 – within its framework, 20 regional coordinators were determined in all regions of Kazakhstan and a network of consulting rooms offices for chronic heart failure patients was organized. A total of 225 offices were opened. Moreover, the School of Heart Failure had been launched at the National Scientific Cardiac Surgery Center, where 150 experts were trained. Clinical protocols and guidelines based on international recommendations were developed. The Chronic Heart Failure Register is currently being developed to standardize approaches to the diagnosis and treatment of chronic heart failure following best international practices – it will provide reliable information on patients with chronic heart failure. In 2023, the Kazakhstan Heart Failure Society was launched, the purpose of which is to consolidate the efforts of the medical community to timely detect the disease at the early stages and treat it.

Kazakhstan bears a significant burden of CVDs of atherosclerotic origin. According to the Bureau of National Statistics of the Kazakhstan Agency for Strategic Planning, circulatory disease mortality accounted for 22.6% of all deaths (6.8% per 1000 population) in 2022 [7].

The current world situation is still such that the plasma atherogenic lipid control is inadequate, which is probably indicative of some difficulties in the health care system [8].



The development of atherosclerosis in the Kazakhstan population may be associated with the prevailing culture of eating food rich in trans fats and a predominantly sedentary lifestyle. This leads to hyperlipidemia in a significant part of the adult population [6]. According to the Ministry of Health of the Republic of Kazakhstan, elevated low-density lipoprotein cholesterol is responsible for 41.1% of deaths of coronary artery disease (CAD) and 11.3% of deaths of stroke [9].

In this regard, it was necessary to improve the dyslipidemia management system for all risk groups of the population and establish the Expert Council on Atherosclerosis at the

National Scientific Cardiac Surgery Center in Astana in 2022. The main goals of the Expert Council were to develop and establish structured standards for the diagnosis, management, and treatment of patients with lipid disorders uniform for all regions of Kazakhstan. The attention to optimizing integrated primary care is increased in order to minimize the lack of resources and increase the accessibility of medical care. To this end, a network of «lipid counseling rooms» was established in Kazakhstan. This network will also hold educational activities and training, including web-based and online training. The Expert Council has identified 20 lipidologist coordinators, developed a clinical protocol, and held the

first European School on Atherosclerosis in Kazakhstan. The Expert Council organized screening programs for the promotion and early detection of atherosclerosis.

## Conclusion

Cardiovascular diseases play a leading role in the morbidity and mortality structure in the Republic of Kazakhstan. The development of such national programs on circulatory diseases as the Acute Coronary Syndrome, Chronic Heart Failure, and Atherosclerosis and Dyslipoproteinemia programs will make it possible to successfully implement uniform standards of diagnosis and treatment based on modern international recommendations in the entire country. The national programs and guidelines can eliminate the gaps in knowledge and/or competencies, will facilitate the exchange, training, and popularization of clinical practice of lipidologists and physicians working in

the chronic heart failure counseling rooms, which will allow them to exchange clinical experience in patient management, knowledge on diagnosis, information on outcomes and approaches to eliminating barriers to the best possible patient management. Thus, the exchange of the best practices and successful outcomes can be used to assist other regions and countries.

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