Editorial

Cardiovascular Health and Disease Report in China: Two Decades of Progress

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Due to population aging, urbanization, and increasing prevalence of unhealthy lifestyles, cardiovascular disease (CVD) remains the leading cause of death in China, with mortality projected to rise in the following two decades[1,2]. Since 2005, the National Center for Cardiovascular Diseases (NCCD) has compiled comprehensive reports on CVD to guide prevention and treatment efforts, support government decision-making, and promote international exchange and collaboration.

Over the years, the report has maintained alignment with national health strategies. In 2019, to implement the policy of "focusing on the primary health institute and emphasizing prevention" in the Healthy China 2030 Initiative, the report was renamed from *the Report on Cardiovascular Diseases in China* to *the Report on Cardiovascular Health and Diseases in China*, marking a shift from a treatment-centered to a health-centered approach and advocating for life-course management. Related summaries and interpretations of the report, published in both Chinese and English journals such as Chinese Circulation Journal, Biomedical and Environmental Sciences, and Journal of Geriatric Cardiology, have been cited more than 25,000 times.

Distinct from conventional statistical yearbooks, the report synthesizes high-quality evidence from cross-sectional studies, prospective cohort studies, randomized controlled trials, national registry studies, and community-based prevention programs, and so on. It covers a wide range of topics, including epidemiological trends of CVD and its risk factors, progresses in diagnosis and treatment, overviews of scientific research advances, and health economics. Since 2019, greater emphasis has been placed on cardiovascular health behaviors, rehabilitation, technological innovation and translation, as well as practical experiences from community-based prevention projects.

To gain a more comprehensive understanding of CVD burden in China, the report has continually expanded data sources. Since 2023, it has incorporated data from national surveillance projects led by the NCCD, including the "Surveillance of Cardiovascular and Cerebrovascular Events among Chinese Residents" project and the "China Cardiovascular Disease and Risk Factors Surveillance" project. By collecting long-term and nationally representative data on CVD and its risk factors, these projects provide more robust local evidence for guiding policy decisions. Annual reports revealed that prevalence and crude mortality of CVD remain on an upward trend, with no inflection point observed[3,4]. In parallel with the rising disease burden, the economic burden of CVD has also become increasingly prominent. In recent years, driven by the need to assess the practical value of interventions, the report not only focus mainly on hospitalization and treatment costs, but also incorporate health economics studies, which provide guidance for optimizing resource allocation, selecting effective interventions, and informing rational health insurance policies.

In addition to traditional risk factors for CVD, such as smoking, diet, physical activity, obesity, hypertension, dyslipidemia, diabetes, chronic kidney disease and air pollution, recent reports have gradually included temperature, mental health, and sleep quality. Prevention and control of CVD need to shift from a biomedical model to a comprehensive framework that encompasses multiple health determinants such as society and psychology, which is in line with the focus of international research[5]. In addition, several risk factors are shifting toward younger populations, including earlier initiation of smoking, rising prevalence of obesity, and increasing rates of insufficient physical activity, underscoring the importance of health education, early

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identification and intervention to promote health management across the life course.

According to the Hospital Quality Monitoring System, the report also summarizes progress and challenges in the diagnosis and treatment of 13 CVD subtypes and related conditions, including hypertension, coronary heart disease, stroke, valvular heart disease, heart failure, cardiac rehabilitation, among others. By summarizing hospitalization data, therapeutic strategies, and recent research advances, the report highlights substantial improvements in clinical practice in China, particularly in interventional therapies, precision medication, and cardiac rehabilitation. Nevertheless, disparities in healthcare remain a critical issue. The quality of care varies considerably across regions and health care and medicine institutions, and the application of innovative technologies in community-level institutions remains limited. Strengthening the hierarchical diagnose and treatment, promoting standardized management, and expanding telemedicine are therefore priorities to reduce inequity.

In addition to epidemiological trends and clinical practices, the report also documents annual outputs in basic and clinical research, as well as the approval of cardiovascular devices, offering a clear overview of scientific progress in China. In 2023–2024, China achieved remarkable advances, ranking second globally in publications, just behind the United States, and showing a higher growth rate. Meanwhile, there is an urgent need to generate more high-quality and local evidence based on Chinese populations. Translation of research into practice is also accelerating, reflected by the rising proportion of cardiovascular products in the special review procedure for innovative medical devices. Besides, the report 2024, for the first time, introduced a dedicated section entitled "Artificial Intelligence and Cardiovascular Research", summarizing progress in mechanistic research, disease screening, diagnosis, and prognostic evaluation. While artificial intelligence holds great promise, clinical utility still requires validation through large-scale, multi-center studies[6]. And legal issues, data security, and digital inclusion and equity must be addressed to ensure that society can fully benefit from strategies driven by artificial intelligence[7,8].

As the 19th report since its first publication in 2005, *the China Cardiovascular Health and Disease Report 2024* marks a milestone, having spanned two decades and witnessed the development of CVD prevention and treatment in China, with profound influence on health policy and clinical practice. At present, China faces critical challenges, including the inadequate control of CVD risk factors, increasing disease and economic burden, and the inequities in clinical diagnosis and treatment. Moving forward, the report should continue to refine its content and format in line with the current status of CVD prevention and treatment, providing clinicians, researchers, and policymakers with timely, high-quality evidence to promote cardiovascular health, thereby achieving the goal of a "Healthy China".

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