Innovating research in China

As the most populated country in the world, China carries an immense disease burden. Thanks to the rising life expectancy of its citizens, urbanization, and lifestyle changes that have accompanied rapid economic growth, the disease spectrum in China has expanded. Noncommunicable chronic conditions such as cardiovascular diseases, diabetes, and cancer are now major contributors to ill health. Fortunately, an overhaul of the national health care system has been under way, with universal health care coverage now available for more than 95% of the population. Such a sea change is also needed in China’s biomedical research environment. This requires transforming a system that has existed for decades. The good news is that China is not shying away from this challenge.

Two national megaprojects were recently launched to address major bottlenecks: the development of innovative drugs and the control of major infectious diseases. The Major New Drug Innovation Program was funded with an ambitious goal of discovering 100 new drugs by 2020. Although China has seen a reduction in the incidence of infectious diseases over the past 10 years, hepatitis B and drug-resistant tuberculosis remain serious public health threats. The 2003 outbreak of SARS in China spurred the government to bolster early detection, disease research, and response systems. These improvements enabled the nation’s rapid response and management of the avian influenza virus H7N9 in 2013. The current Ebola crisis is a reminder that newly emerging diseases are a major global threat. Indeed, China’s Control and Prevention of Major Infectious Diseases Program was launched with the goal of establishing a support system for potential emerging diseases, in addition to controlling the incidence of major infectious diseases such as hepatitis B, tuberculosis, and HIV.

Whereas these initiatives will affect China’s public health management, ensuring the implementation and success of other future initiatives will demand an innovative system of medical research as a new driving force. For many years, the Chinese Academy of Medical Sciences (CAMS) has played a pivotal role in spearheading biomedical research in China. As the country’s most comprehensive and only national biomedical research organization, CAMS is prepared to lead the national effort by introducing a new medical research system. With strong support from the National Health and Family Planning Commission of China (formerly the Ministry of Health), CAMS has established the National Cancer Center, the National Center for Cardiovascular Diseases (NCCD), and integrated innovation research centers focusing on System Medicine, Neuroscience, Regenerative Medicine, and Pharmaceutical Sciences. The goal of these new institutions is to integrate basic and clinical research and to provide new funding mechanisms to support China’s best scientists and physicians. For example, the NCCD has a state-of-the-art infrastructure with the largest tissue banking system in the world. It has recruited top talent from different countries as well as in China and has forged collaborations with the world’s leading universities and institutions. And there is more on the way: Research centers focusing on metabolic disorders, aging, inflammation, and infectious diseases are in the planning stages. In addition to strengthening an emphasis on frontier medical sciences, these centers will be encouraged to coordinate national efforts for large-scale, long-term translational and clinical research that focus on major diseases, something that cannot be accomplished by individual scientists or research groups.

CAMS is also planning to explore new ways to evaluate, support, and lead the next generation of medical researchers in China. Based on the experiences of successful biomedical research organizations in Europe and the United States, CAMS will emphasize an investigator’s scientific merits and the strategic priority, novelty, and long-term objectives of research projects. Building this innovative research system will bring China into a new era of research and development. The hope is that this will fuel health science advances to benefit China and the world.

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