EDITORIALS

MEDICAL RESEARCH IN CHINA

China's medical research revolution

A special BMJ collection analyses China's rapid progress in medical research

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After several decades focusing on economic development, China recently broadened its national development agenda and included health as a major priority. China's president, Xi Jinping, confirmed the importance of health for the country's political leadership by saying that health is "a prerequisite for people's all round development and a precondition for economic and social development."¹ In 2016, China published its first health plan, Healthy China 2030, to guide and coordinate a national strategy to improve population health and the national health system.

Although prioritising health is welcome, the solutions to China's challenges are dependent on high quality medical research. China's vast geography and population create complexities for researchers but also offer unprecedented opportunities to study disease management and health system design. Unrivalled demographics that allow even rare diseases to be studied in quick time combined with economic growth and investment in science put China on the threshold of a revolution in medical research.

China boasts 32 national centres of clinical research, focusing on 11 disease areas, and this will grow to 100 centres by 2021.² Globally, China ranks ninth for clinical research capability according to an evaluation based on number and phase of interventional clinical trials and number of papers published in leading clinical research journals between 2014 and 2016.³ To further our understanding of China's progress in medical research, *The BMJ* commissioned a themed collection of four articles on topics that will resonate more widely.

First, Wei Fu and colleagues examine whether research helps inform health policy making in China. Taking the example of user payments, the authors explain how economic modelling using national data from China supported a target to reduce out-of-pocket expenditure. If the modelling is accurate, China's out-of-pocket expenditure, expressed as a percentage of total health expenditure, will fall to 28% by 2020 and then to 25% by 2030 (doi:10.1136/bmj.k234).⁴ As a consequence of this

process of target setting, China is beginning to develop health policies that are informed by evidence.

Following in the footsteps of other countries, China is a prolific producer of clinical guidelines, with the number of guidelines increasing year on year. Yaolong Chen and colleagues argue that the quality of guidelines produced by professional bodies and government organisations is generally poor (doi:10.1136/bmj.j5158).⁵ In particular, the approach to guideline development can be informal, evidence is not used systematically, and competing interests are poorly managed. China also produces a large number of expert consensus statements, and these tend not to acknowledge competing interests. Despite this glut of clinical guidelines and expert consensus statements, only a small number are relevant to primary care in rural China. The authors outline what China must do to produce better guidelines, whether those guidelines are adopted, adapted, or developed de novo.

One limitation of randomised controlled trials is that their findings may be hard to replicate in everyday practice. Real world evidence is attracting greater attention in China, as elsewhere, to help understand its role in policy making and practice. Xin Sun and colleagues describe China's experience with real world evidence and highlight several common misunderstandings with this form of research (doi:10.1136/bmj.j5262).⁶ China's engagement with real world evidence is at an early stage, but the enthusiasm of medical researchers, industry, and the government is driving the popularity of this genre in China.

Finally, Luxia Zhang and colleagues explore the health applications of big data in China (doi:10.1136/bmj.j5910).⁷ Over 90% of Chinese hospitals use electronic medical records, but their hospital based systems make data sharing difficult since they were developed by over 300 vendors using differing data standards. Nonetheless, the Chinese government is boosting development of big data and its application in the fields of health and medicine. China's state council has announced that it will build an integrated national and provincial population health information platform to promote data sharing, clinical research,

and public health. The new platform includes legal and regulatory frameworks and considers protections for users.⁸

The four articles in this collection analyse progress in the evolution of Chinese medical research in four important areas. Evidence informed policy, guidelines development, real world evidence, and big data are issues that demonstrate the vast challenge facing China but also provide an opportunity for transformative change. Political will is required to accelerate that progress, and it does exist. The next step for China is a structural revolution to promote medical research. By nurturing health innovation, ensuring its rigorous evaluation, and supporting its translation into clinical policy and practice, China will create a research environment for a healthier population. In medical research, as in other areas, China has the potential to lead the world.

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Competing interests: We have read and understood BMJ policy on competing and declare the following interests: YW has advised Nestlé on the cost effectiveness of potassium supplements in the Chinese population.

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