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Science-Based Health Care

THE PROVISION OF ADEQUATE HEALTH CARE IS ONE OF THE MAJOR CHALLENGES FOR MODERN societies. It is an especially tough task in developing countries with limited resources and insufficient capacity. Obstacles are even encountered at the conceptual level: For example, a traditional misconception is that spending on health is a social burden, instead of being a strategic investment essential for each nation's socioeconomic development. According to economic analyses, health system innovations will not only improve livelihoods but also boost internal consumption and job opportunities. But these innovations cannot succeed without the strong support of science.

Both the biomedical and social sciences will be critical for developing sound policies that reshape health care systems. In China, with its fast-aging populace and a disease burden increase associated with urbanization and industrialization, science must drive an evidence-based analysis of the cost-effectiveness of drugs and medical technologies to enable effective and affordable prevention, diagnoses, and treatments. Science also facilitates the evaluation of the performance of health care institutions to ensure quality services. And science can drive a national innovation strategy. Thus, the education of medical professionals, training of regulatory teams, and fostering of biotechnology talents can be leveraged through Internet-based platforms that reach remote areas. Moreover, science education raises public awareness of issues such as food and environmental safety, and healthy lifestyles and behaviors. Finally, through worldwide collaborations, science can meet critical global challenges such as HIV/AIDS and pandemic influenza, with many opportunities for South-North and South-South cooperation.

To fulfill these missions, visionary policies are needed to support capacity-building in science and encourage translational research in multidisciplinary clinical studies, health system innovation, and health industry growth. It was in this context that China launched its campaign for "Deepening the Health Care Reform" in April 2009, with an additional budget of \$124 billion for 3 years (2009–2011) despite the international financial crisis.* This reform is aimed at enhancing equity and accessibility through five targets: create a universal medical insurance system; establish a national essential drug system (NEDS) that meets everyone's primary need for medicines; improve grassroots medical and health care; make public health service available to all; and promote pilot reform projects in management and financing as experiments, to be scientifically analyzed in public hospitals.

Major progress has already been achieved. Today, life expectancy in China is 73 years (as compared to 35 years in 1949), and over 90% of Chinese people are covered by medical insurance, although still at only a basic level for farmers and urban children and some elderly residents. A NEDS has been implemented in 30% of urban and rural areas, thus ensuring people's inexpensive access to quality drugs. More than half of the county and township hospitals in rural areas have been renovated, and pilot reform programs in public hospitals have been initiated in 16 cities. More than 1 million grassroots-level health professionals are now in training, and services for vaccination and the prevention of some chronic diseases are available for most people. In addition, a successful control and mitigation of pandemic H1N1 influenza has given impetus to China's health care reforms.†

Coincidentally, U.S. President Barack Obama and his congressional allies are attempting to undertake health care reform. Because all countries seek innovative ways to improve health care, nations should share their experiences in using science to drive policies that increase life expectancy and health literacy, thereby providing benefit to all peoples.

– Chen Zhu

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*See http://news.xinhuanet.com/video/2009-04/07/content_11145362.htm and www.gov.cn/english/2009-04/07/content_1279122.htm. †R. Stone, *Science* **325**, 1482 (2009).

