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Building policy capacity for managing rapid, complex change in China's health system

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ABSTRACT

The concept of policy capacity is often used to explain the success or failure of governments or countries in conceiving of, developing, and implementing policies, but is often poorly systematised. Wu et al provide a framework for understanding types of policy capacity, arguing that three kinds of capacity, distributed across policy systems, are needed for effective implementation. This paper applies that framework to a discussion of China, a country that has been managing a fundamental transformation since at least the late 1970s, which has underpinned the country's growth and development. The paper focuses on a subset of China's reforms – reforms to the healthcare system since the 1990s. Discussion of policy capacity shows (1) that policy capacity is dynamic and adaptive, in response to changing challenges due to rapid transformation in the country; (2) that the development and distribution of capacities has, overall, been government-directed, with strong research and analytical support from public think tanks and universities; (3) that understanding of policy capacity is evolving, with government paying increasing attention to the need to develop a learning state and society in response to increasingly complex problems of development. Examination of the Chinese case has relevance for how other countries develop and adapt policy capacities over time to manage rapid transformation, uncertainty and shocks.

KEYWORDS

Health systems strengthening; managing complex change; managing rapid transformations; China; dynamic policy capacity

Introduction

The term 'policy capacity' is frequently used in discussions of public policy and governments' ability (or inability) to decide on appropriate policies and successfully implement them. There is widespread recognition of the importance of such capacity both in the academic literature and in analyses by practitioners, including evaluations of programme or policy implementation. However, the concept is often poorly operationalised (Wu, Ramesh, & Howlett, 2015). Levels of capacity differ between countries, and specific capacities are differently distributed in different policy systems (Mukherjee & Howlett, 2016; Saguin, Ramesh, & Howlett, 2016). Policy capacity is a concern in countries at all

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levels of development (Howlett, 2009, 2011; Page & Jenkins, 2005). Low- and middle-income countries frequently – though not always – have lower levels of policy capacity and may lack specialised agencies that can support government in identifying needs, assessing possible policy options, and designing, monitoring and evaluating implementation of policies (Grindle, 2004; Paul, Steedman, & Sutton, 1989). Strengthening the capacity of governments and other policy-related agencies is frequently an important component of development programmes and country support packages (Dolowitz & Marsh, 2000).

There is an increasingly important literature that examines the challenges of effectively managing large-scale transformations in health systems (Halfon et al., 2014; World Health Organization Regional Office for Europe, 2015, 2017). A parallel literature, drawing more on studies in international development and environmental governance, examines the challenges of transforming complex systems to deal with environmental and other developmental challenges (Scoones, Leach, & Newell, 2015). The challenges of health systems and broader developmental and environmental transformations are intimately linked. There is ample evidence that both developed and developing countries face challenges deriving from rapid change and potential instability related to disruptions in environmental, biological and social systems. The most obvious, but by no means only, driver is climate change and its associated strains of economic disruption, population displacement, and changing distribution of risk factors, including ecosystem stresses and human-animal interfaces. Economic crisis and major technology transitions are also creating new challenges, while rapid developments in medical knowledge/technologies and digital health services are creating enormous opportunities for health system transformation. As we look forward to a period likely to be characterised by substantial instability and rapid change, there is a need to consider how policy capacities can be developed dynamically to support effective decision-making and implementation to mitigate these strains and support health system transformations.

How should we think about policy capacity in contexts of rapid change and system transformation? We make several observations:

- First, that policies required by any given policy system or unit within that system are highly context dependent and related to the problems the system faces. While some capacities may be generic, specific capacities are required to deal with specific problems and must be actively developed.
- Second, over recent decades, many countries have faced challenges of dealing with major rapid transformations brought about by economic development, industrialisation, urbanisation, and social and demographic change. This creates both *contemporaneous* and *dynamic* challenges. It creates *contemporaneous* pressures for governments to develop and implement policies under conditions of imperfect information and high levels of complexity. It also creates *dynamic* challenges for the development, over time, of policy capacity and stable institutional arrangements able to clearly define the roles and responsibilities of policy actors, and optimal (or adequate) distribution of capacities across the policy system.
- Third, this leads to the question of how policy systems can rapidly and *adaptively* develop capacities to address policy problems to support complex transformations,

acknowledging that under conditions of rapid change the problems to be addressed can change rapidly.

This paper discusses health system transformation in China through the lens of policy capacity. The Chinese case is significant as the country has managed ongoing fundamental transformation since at least the beginnings of transition to a market economy and opening to the outside world in the late 1970s. China's capacity to manage rapid transformation has underpinned the country's growth and development, from a poor, isolated country to a major global power. While China's political system is distinctive, the following analysis – through the lens of policy capacity – highlights the importance of factors that are not specific to China and therefore have relevance for broader debates. The following analysis helps link an analytical framework for prospectively developing policy capacity with debates regarding the challenges of managing major system transformations and responses to shocks and challenges.

The paper focuses on a subset of China's reforms – reforms in the healthcare system since the 1990s. Discussion of policy capacity shows that in China (1) policy capacity is dynamic and adaptive, in response to changing challenges due to rapid transformation in the country; (2) the development and distribution of capacities has, overall, been government-directed, with strong research and analytical support from public think tanks and universities; (3) understanding of policy capacity is evolving, with government paying increasing attention to the need to develop a learning state and society in response to increasingly complex problems of development. Examination of the Chinese case has relevance for how other countries develop and adapt policy capacities over time to manage rapid transformation, uncertainty and shocks.

Policy capacity and building health systems in rapidly developing countries

Policy capacity is a useful lens through which to view China's policy-making approach and health system reforms since the late 1990s. The period covered in this paper is one of very rapid transformation, not just in the health system, but in China's economy and society. This section situates the policy capacity framework from Wu et al. in the context of debates regarding the reform of health systems in countries undergoing rapid, complex development. It then discusses aspects of policy learning and capacity building visible in the Chinese policy repertoire that complement the Wu et al. framework in understanding China's management of change.

Policy capacity and policy success

As Wu et al. (2015) have shown, policy capacity as an analytical concept is not new; however, it is frequently under-specified, leading to challenges in applying it and in operationalising the concept to provide concrete guidance to governments on how to develop capacity to manage specific policy domains or issues. Based on a review of theories of policy capacity and their applications, the authors provide a framework for decomposing this, identifying three specific kinds of competencies required in policy systems, and three levels at which capabilities are necessary. This classification provides a matrix, the

function of which is to allow assessment of policy capacity and identify capacities needing strengthening for effective policy design and implementation to take place.

Wu et al. highlight several features of this framework. First, it is not related to a specific policy domain, function or stage in the policy process, but is intended to be widely applicable as a diagnostic and operational guide. Second, policy capacity is not just a property of government – capacity may also be located elsewhere in the policy system, for example in political parties or NGOs, and may still contribute to policy design or implementation. Third, with a nod to complexity thinking Plsek & Greenhalgh, 2001), policy capacity, overall, results from what the authors call the *combinations* of skills and resources at each level – i.e. that strengthening capacity in one or another area may not be enough to achieve effectiveness, which is a result of strengthened capacities across the system. While much application of this framework has been in OECD countries, initial explorations indicate that there is scope for applying it more widely in other country contexts (Saguin et al., 2016).

Policy capacity in complex and rapidly changing systems

As discussed later in the paper, China's health system reforms since the late 1990s have required that government navigate complex, segmented and stepwise reforms across a range of developmental contexts, from comparatively wealthy coastal cities to poor and remote rural regions, involving a vast array of different stakeholders and under conditions of considerable, though only partially codified, decentralization. Our analysis draws on the Wu et al. framework but situates it in debates regarding the challenges of managing complex reforms in societies and economies undergoing rapid change (Peters, El-Saharty, Siadat, Janovsky, & Vujicic, 2009). We discuss this through a number of (interconnected) points.

First, much research shows that building health systems (especially in developing countries) involves developing relatively stable, rules-based systems and institutions for providing services (Balabanova et al., 2013; Leonard, Bloom, Hanson, O'Farrell, & Spicer, 2013). This draws on research showing such processes in other areas, including economic development (North, 2005). Such analyses recognise that health systems form part of a country's broader institutional configuration, and that changes in one area (such as economic and social development) necessarily lead to changes in areas such as health. Rapid transitions of the kind undergone by China since the 1970s, therefore, require the development of new rules, institutional arrangements and capacities (Meessen & Bloom, 2007).

Second, health systems are characterised by the interaction of thousands of agencies and individuals which must perform certain roles in order for key functions of the health system to be performed effectively (Paina & Peters, 2012; Peters, 2014; Xiao, Zhao, Bishai, & Peters, 2013). As countries develop their health sectors, the process of arriving at new, stable rules-based systems requires that a range of actors explore and become accustomed to new roles, new ways of doing things, and develop new capacities (Bloom & Wolcott, 2013; Fang, 2008).

Third, developing new institutions and systems under conditions of uncertainty makes planning hard and involves experimentation and ongoing, dynamic adaptation. Recent research in development studies and, increasingly, health systems points to the

importance of experimentation in developing institutions under the kinds of complex conditions sketched above (Husain, 2017). Experimentation at limited scale allows the trialling of new institutional arrangements and probing of the capacities, policies and regulations needed to ensure reforms can be applied at scale. Such approaches also have the benefit of probing where there are likely to be barriers to reform, for example from vested interests such as bureaucratic actors.

Fourth, while many developing countries undergo rapid change associated with economic and social development, change is rarely linear and many development or reform processes show characteristics of punctuated change and/or dynamic adaptation. Periods of 'secular' change (which may be rapid) are frequently punctuated by crises which show the need for, or precipitate, step changes characterised by major reallocations of capacity and redrawing of institutional boundaries (Keeler, 1993; Kingdon, 1984). Examples include the outbreak of severe acute respiratory syndrome (SARS) in China in 2002/2003, but also events such as the Asian Financial Crisis and the 2008 Global Financial Crisis. Such events have the potential to catalyse rapid changes, as governments and societies respond. The COVID-19 pandemic and the associated economic crisis and technology transition may present another potential policy turning point.

Understanding policy capacity in the Chinese context

As discussed in the following section, China's development of policy capacities reflects an incremental and piecemeal – but also adaptive and dynamic – approach. This section provides background to elements of a relatively distinct Chinese approach to managing major system transformations.

For several decades, China has managed rapid changes resulting from high-speed economic growth, industrialisation, urbanisation, changing population structure and burden of disease, and changing social structure, attitudes and behaviours. This has occurred as the country has transitioned away from institutions built to oversee a command economy and in the presence of often unclear institutional boundaries. It has also taken place in a country of continental scale, in which localities have widely varying starting points, conditions, and levels of resources and capacity. As well as ongoing rapid and fundamental reforms, the country has faced challenges of responding to intermittent economic, natural/environmental, social and disease-related shocks.

During China's post-1970s reforms, government has experimented broadly before launching major new reforms. Experimentation has been ubiquitous and has played a role in essentially all areas of China's reforms, including agriculture, state-owned industry, education and governance – as well as health (Florini, Lai, & Tan, 2012; Heilmann & Perry, 2011; Husain, 2017). This has included use of pilot studies to trial new approaches and rapid feedback of findings to government to enable ongoing learning as well as more organic, spontaneous innovation (Liu & Bloom, 2010). This has led China to be characterised as a 'learning authoritarian' state, with the potential to combine adaptive learning and strong implementation capacity (Heilmann, 2008). Long-term reviews of China's policy process point to a capability for ongoing, endogenous evolution (Yan, Wang, & Hu, 2013).

Alongside this capacity for experimentation and learning, government plays a preeminent role in setting the direction of national developmental strategy and policy, while managing change through ongoing, adaptive adjustment. While national five-year plans set the major directions for the country, these are underpinned by planning processes in ministries and at all levels of government in which many details are worked out. Planning frequently retains flexibility, however, through annual adjustments and revisions, providing a basis for ongoing, dynamic adaptation (Christiansen, 2014).

Research and analytical capacity have been important components of China's policy toolbox. Major national research agencies and academies of science have played a role throughout the history of the People's Republic of China (1949-). Recent years have seen a greater emphasis from government on the involvement of important national research institutes in the policy process. These are often referred to as think tanks, though they may employ thousands of staff and dispose of very substantial research capacity, including in basic research. From 2013, the central government has emphasised the building of new kinds of think tank and consultation mechanisms through which they can support the policy process and there have been substantial increases in the funding of key think tanks.

Chinese government thinking on the importance of learning and its relationship with policy capacity is evolving in response to the increasing complexity of the country's reforms. The need to strengthen China's policy capacity was stressed as a goal of reform for the first time in 2004 and has been stressed repeatedly since then, including by President Xi Jinping, who has stressed the importance of building capacity of the Communist Party and the importance of learning as a support to good decision making, including through research and field investigation (Xi, 2013; Zhuang, 2019). Analysts stress the importance of reflexivity and creating a virtuous circle of increasing learning by doing (Wang, 2016).

Summary

The discussion in this section is not unique to China, but common to many rapidly developing or transitional economies. The factors discussed here have implications for how the framework from Wu et al. can be applied to countries undergoing rapid transformation. As countries' starting points, existing institutions and societies differ, the paths they pursue are rarely identical, and often make use of a range of idiosyncratic, locally-specific policies and innovations, rather than simply adopting global 'best practice' solutions (Rodrik, 2008). This difference in starting points and in the specific challenges faced by countries has relevance for the specific kinds of capacities they require, and where such capacities should be located, militating against a one-size-fits-all view of policy capacity. Equally, as reforms progress and become more complex, countries' capacity needs will evolve, requiring adaptive approaches to the development and distribution of different kinds of capacity and dynamic responses to shocks. The next section shows this in the case of China's ongoing healthcare reforms.

Operationalizing policy capacity for a context of rapid change

The Wu et al. framework provides a general approach to the identification and analysis of capacities across policy systems and requires operationalization when applied to actual cases. Following from the discussion above, this article operationalizes the framework as follows:

- First, the article presents a discussion of transformations in the Chinese health system over a period of approximately twenty years. This diachronic, system-level view shows how different types of policy capacity have been developed and adjusted over time, and responds to the focus of the article on change and system transformation.
- Second, the article identifies a number of key drivers of, and constraints to, health system change for important phases in the transformation of the Chinese health system, showing links to broader changes in the political economy.
- Third, the article discusses key dynamics in the development of the three kinds of policy capacity identified by Wu et al for each period. While this discussion is not exhaustive, it has the advantage of capturing system-wide changes that would not be visible through a focus on smaller-scale, or discrete episodes.

Based on this approach to understanding system-wide transformation over time and the key periods identified, discussion between the authors identified contextual changes and key examples of changes in different kinds of capacities for each period considered. This was done iteratively, through discussion and literature searches, in order to build a composite narrative of change over time, largely focusing on the rural health system. Any attempt to draw out patterns from long-range transformations in China's health system inevitably faces choices regarding the examples selected to illustrate change. The periods identified correspond to major changes in Chinese government policies towards the health sector and the contextual dynamics identified are well-recognised in the existing literature. The examples showing changes in capacities were identified based on literature review, the authors' long-term engagement in China's health reforms, and many hundreds of interviews carried out over a period of more than twenty years.

Policy capacity as a lens on China's health reforms

Since China began its transition to a market economy in the early 1980s the health sector has had to adapt to a number of rapid and interconnected changes with an impact on both the demand for health services and the organisation of the health sector. The government's approach to the management of this transformation has been to define broad political objectives and manage an iterative process of change, whilst avoiding errors that could lead to economic and social collapse (Yan et al., 2013). This approach has been described metaphorically as 'crossing the river by feeling for the stones'. The focus of the analysis is on the rural areas, where the majority of the very poor live and where the burden of ill-health has been higher.

We follow Zhang et al. (2014) in identifying three phases associated with changes in political direction and/or with crises that have influenced health system reform: (i)

adaptation of the health sector to the transition to a market economy (1978–2002); (ii) increasing inclusion (2002–2009) and (iii) building rules-based institutional arrangements (2009-present). This periodisation responds to substantial changes in central government policies: 1978 marks the start of China's market-oriented reforms; 2002 marks the issuing of a set of major policies intended to guide rebuilding of the rural health system; and 2009 marks the launch of a major health system transformation programme. Using such a periodisation to frame changes in health system challenges – often linked to epidemiological transitions – has a long tradition in health policy studies (Breslow, 2006; Terris, 1983).

Profiling these three periods shows how challenges changed across time and how policy capacities were developed in response to those changes in a stepwise, dynamic process. During the early stages of this process, the focus was largely on solving immediate problems as they emerged. Later on, the challenges became more complex and the needs for strong analytical capacity grew. At the beginning of the transition, the government depended on a network of universities and national academies of research in technology, science and social science for analysis and advice. This long view of the reform process shows the gradual development of multiple kinds of capacity needed to support health sector reform and a dynamic process through which the distribution of that capacity has been adjusted over time in response to changing needs and the increasing complexity of reforms.

1. Adaptation of the health sector to the transition to a market economy

Context

During the early years of the transition from a market economy, the government's objectives were to foster economic growth, whilst avoiding major social disruption (Bloom, 2011). By the 1990s, China's transition to a socialist market economy was well underway. In the rural areas, agriculture had made the transition from collective to household-based production. This was associated with rapid increases in output and in household incomes. As rural incomes rose, the employees of government health facilities pushed to keep pace. Meanwhile, local governments had lost their major sources of revenue from collective agriculture and state-owned enterprises and struggled to meet their obligations. Many health facilities experienced serious financial problems. This challenge was compounded by the make-up of the health workforce. During the Cultural Revolution of the 1960s and 1970s, many experienced health workers were sent from urban to rural areas. Medical schools were closed for several years and health facilities recruited untrained personnel. As part of the transition towards a market economy, the experienced health workers were permitted to return to the cities. Rural health facilities were required to retain the less-experienced employees in post to comply with a government objective of avoiding major lay-offs, compromising the quality of care.

The core Ministry of Health priorities for the rural areas were to meet the income expectations of its health workers and ensure the financial viability of health facilities. It negotiated the right of health facilities to generate revenue from selling drugs and providing diagnostic tests, while ensuring access to basic services by keeping charges for consultations and inpatient care low. Health facilities paid a share of their revenue

as bonuses to health workers. These measures gradually led to increasing problems with a rising cost of care. Individuals needed to pay for care themselves, because of the collapse of the collective medical system, which had used resources from collective production to reimburse some of the cost of medical care. In response, the Ministry of Health sought additional funding from public finance or some form of insurance. It had to compete with other sectors, which also wanted to introduce fees and charges to supplement their government budgets. The multiplication of these charges had led to local protests against what were perceived to be unjustified financial burdens and to a perception at the highest level of government that action was needed to control these charges. The challenge for the Ministry of Health was to demonstrate that rural health insurance would provide benefits to rural residents and would win their support. In 1997 the Government issued a policy statement outlining a package of health system reforms that included strengthening the performance of rural facilities, improving drug distribution and supply, strengthening of public health services and establishment of rural health insurance (Central Committee of the Communist Party of China and State Council, 1997).

Analytical capacity

During this early stage of China's economic transition, the government supported efforts to learn analytical skills from international organizations such as the World Health Organization, UNICEF and the World Bank. An important element of its work with the World Bank focused on building analytical skills to support financial management. This was a priority, because the government had lost its major source of revenue from the income of state-owned enterprises. This became a focus of analytical capacity within the health sector.

In 1994, the Ministry of Health established the China Health Economics Institute (CHEI), to provide analysis and advice on health finance and expenditure. It organised a flagship course on health economics, in collaboration with the World Bank Institute, and established a health economics network of twenty-eight universities (World Bank, n. d.). Several of the leading health economists provided policy advice to the Ministry of Health as members of expert committees. During the 1990s, an increasing number of research publications by members of this network documented the rising cost of health care in rural areas, the growing problem of catastrophic health expenditure and the potential role of social health insurance (Carrin et al., 1999).

During the lead-up to the 1997 announcement of its new rural health policy, the Ministry of Health designed a big World Bank project aimed at testing key elements of this policy. It established a group of experts based in different institutions with expertise in different aspects of the reform to work closely with a few provinces to test interconnected reforms to systems of finance, management and MCH programmes. These experts became members of committees that provided advice to government.

Operational capacity

The emphasis during this period was on the creation of basic management systems for rural health services. One example was the decision to establish a competitive system for the appointment of health facility managers to replace a system based on seniority. Another example was the system of regular monitoring of MCH services against defined

performance indicators. The government expanded the number of medical schools and by the turn of the century, many unskilled employees in rural health facilities were reaching retirement age and were replaced by newly trained health workers. By 2000, the capacity of the rural health services to deliver competent services had increased substantially. At the same time, the government established a number of mechanisms to strengthen audit for corruption and inappropriate use of government resources. These developments bolstered the case for increases in government finance and/or the introduction of social health insurance.

Political capacity

The government priority was to foster economic growth and avoid serious social disorder and discontent. A major role of the sectoral ministries was to represent the perspectives and interests of their employees and organisations during a period of rapid change. The Ministry of Health had to balance its role as stakeholder and its responsibility to ensure the availability of health services (Zhang et al., 2014). This dual role influenced the trajectory of health system change.

Throughout the 1990s there was a debate between the Ministries of Health and Agriculture about the desirability of some form of compulsory contribution for rural health insurance. Their positions reflected their roles as representatives of the interests of health workers and peasants, respectively. From the point of view of the former, this would provide a means to meet the rising financial needs of the health facilities and enable them to deliver services (Bloom, 2011). The latter perceived this to be an additional financial burden on peasants to increase the income of poorly trained health workers. These major reforms were delayed until measures had been taken to improve the performance of the rural health services. Meanwhile, the government supported pilot testing of alternative models for organising rural health insurance. As a result of these experiments, a rural health insurance scheme was available as a 'shovel-ready' intervention when a shift in policy objectives led government to seek ways to increase benefits for rural residents.

2. Increasing inclusion

Context

In the early 2000s a change in government leadership signalled a shift to a more inclusive model of development. The government made substantial investments in the poorer provinces, largely located in the western parts of the country. It also sought measures to ensure that rural residents, including the poor, experienced benefits.

With economic growth, government revenues had increased substantially. In the late 1990s the use of public funds transferred to poor areas was largely limited to financing physical infrastructure that was expected to yield future income. This changed in the early 2000s, when the government made fiscal transfers to help finance local government social and health services. These transfers mostly took the form of matched funding by different levels of government. Another factor that accelerated the implementation of health sector reforms was the outbreak of SARS in 2002 (Bloom, 2010). The initial delays in response were widely seen to be a failure of the health system. The Minister of Health

was replaced by the Deputy Prime Minister, providing a window of opportunity for a policy shift.

In 2002 the government launched a strategy for strengthening rural health services and establishing a form of rural health insurance, the NCMS (Central Committee of the Communist Party of China and State Council, 2002). This began with the establishment of 300 pilot county schemes. The initial priorities were to ensure that local governments use earmarked fiscal transfers for their intended purpose, maintain the financial viability of insurance funds and convince the population that the funds would be used fairly. Following an evaluation of the performance of these pilots, the government increased the number of counties with schemes so that by 2008, eighty percent of the rural population was covered.

During this period, the government explicitly acknowledged the need to strengthen its capacity to manage the process of change and institutional development. A document issued by the 4th Plenary Session of the 16th CPC meeting of the Chinese Communist Party called for the creation of a task force of policy-makers with high proficiency, on developing rule-based systems, on strengthening policy accountability, on promoting innovations, on deepening institutional reforms, etc (Central Committee of the Communist Party of China and State Council, 2004). This understanding was reflected in strategies for building policy capacity within the health sector.

Analytical

Much of the analytical work focused on strategies for ensuring that the rural health insurance schemes succeeded. A number of university departments were mobilised to support the pilot counties and develop research on the topic. The number of academic publications rose substantially (Liang, Guo, Jin, Peng, & Zhang, 2012). The government established a centre to monitor the performance of the NCMS at CHEI. It commissioned reviews of the performance of the pilot schemes before taking them to scale. The emphasis was on the use of resources, the impact on access to services and the burden of catastrophic health expenditure. The practical experience of the group of experts who collaborated with provincial health departments in testing elements of a health sector reform in the project supported by the World Bank that was described in the previous section, provided important evidence to decision-makers.

Operational

There was a substantial effort to build capacity at national and local levels to manage health insurance schemes. As the management capacity increased and the fears of major problems receded, government allocations to these schemes increased. One major focus of work on health care programmes was on maternal health care. The government set a target of substantially reducing maternal mortality and it removed the right of maternity assistants to deliver babies in homes. This led to a major increase in hospital deliveries and to a substantial fall in mortality.

Political

Although the change in overall government strategy set the stage for health policy reforms, the SARS outbreak in 2002 created a window of opportunity, which enabled the Ministry of Health to convince the government to test a big change to the financing of

rural health services. The publication of policy guidelines by the highest level of government strongly influenced the behaviour of local governments (Liu & Rao, 2006). This was accompanied by a change in the incentives for the leadership of local governments. For many years they had been required to undergo an annual review of their performance in meeting priority targets, whose outcome had a significant influence on their career. One sign of the change in development priorities was the addition of indicators related to performance of the NCMS to their annual targets.

A second major political intervention came in 2005, when the Development Research Centre of the State Council, the top decision-making body, produced a report on the performance of the health system (Ge & Gong, 2007). It concluded that the iterative reforms, which had made health facilities too reliant on revenues from selling drugs and charging for diagnostic tests, had led to rapid cost increases. It called for a big increase in government finance and a change in the pattern of incentives. This set the tone for a major reform in 2009 and big increases in government health budgets in subsequent years.

3. Building rules-based arrangements

Context

In 2009 the government launched a major health reform, which included: (i) increases in the levels of government contributions to rural health insurance and the gradual integration of rural and urban insurance schemes; (ii). the establishment of a package of basic public health and primary health care services to be financed from government budgets; (iii) rationalisation of the pharmaceutical management system, (iv) measures to strengthen hospital management and (v) measures to strengthen integration between primary and other levels of care (Central Committee of the Communist Party of China and State Council, 2009).

During the years following the reform, there was a substantial increase in public health finance. Total health expenditure rose as a percentage of GDP from 4.7% in 2000 to 6.36% in 2017, while the contribution of out-of-pocket expenditure fell from 50% to 28% (Meng, Mills, Wang, & Han, 2019). This was due to big increases in both government health budgets and total contributions to social health insurance (Fang, Eggleston, Hanson, & Wu, 2019). Although inequalities persist in levels of health expenditure between urban and rural areas and between the more and less developed regions, there was a substantial increase in fiscal transfers to poor rural counties. This made possible substantial increases in government contributions to rural health insurance and government allocations to primary health care services in these localities. This, in turn, led to measures to make local health services accountable for their use of these additional funds. For example, local governments experimented with a variety of mechanisms for contracting health facilities to provide a basic package of primary-level services. There is some evidence that this has reduced inequalities in access to basic services, such as the management of diabetes and routine child health services (Yuan, Balabanova, Gao, Tang, & Guo, 2019).

As government allocations to the health sector have risen rapidly, the Ministry of Finance and the National Health Commission, the successor agency to the MOH, have paid increasing attention to problems with cost-effectiveness and cost control. This has

been reflected in the priority given to strengthening of hospital management, measures to control health expenditure and health insurance costs, and action to slow the rise in drug expenditure. The government has initiated a process of anticipating future health system development with the 2016 publication of a document entitled Healthy China 2030, which focuses on the changing needs in a context of rising incomes, population ageing, urbanisation and technological innovation (Central Committee of the Communist Party of China and State Council, 2016). This has put the needs of a next phase of health system change on the table. One area of considerable concern is the likely impact of population ageing on demand for health services and on overall levels of expenditure.

During this period, the government has paid increasing attention to the need to build capacity to manage change in an increasingly complex society (Zhuang, 2019). This has led to efforts to strengthen the role of so-called 'think tanks'. Two government documents advocated creating new types of think tank to contribute to policy making and governance and a number of national think tanks have received substantial increases in their budgets (Central Committee of the Communist Party of China and State Council, 2013, 2015). This trend has been replicated in the health sector.

Analytical

The mix of analytical skills available has broadened beyond the previous focus on health finance. One sign of this development was the 2010 decision by the CHEI to change its name to the China National Health Development Research Centre (CNHDRC), with an expanded remit to include health technology assessment, hospital management, community health services and so forth. Several other government-affiliated research institutions have been set up including the Technical Centre for Clinical Care Management and the Development Centre for Medical Science and Technology. University research departments have expanded their areas of technical expertise. A recently published issue of the *British Medical Journal* on China's health reform illustrates the breadth of areas of research (Meng et al., 2019), which include the performance of social health insurance (Fang et al., 2019; Yuan, Jian, He, Wang, & Balabanova, 2017), the performance of public health and primary health care (Yuan et al., 2019), hospital finance (Xu, Jian, Zhu, Kwon, & Fang, 2019), and drug use (He, Sun, Shi, & Meng, 2019; Xiao et al., 2013).

The rising expectations of the health system, exemplified by the ambitious vision for transformed health services presented in Healthy China 2030 are creating a need for new kinds of analytical capacity that focus on improvements in quality, the need to extend access to all population groups, the need for new kinds of health services to support an ageing population with a high burden of chronic non-communicable diseases (Central Committee of the Communist Party of China and State Council, 2016; Xiao, Husain, & Bloom, 2018). The fragmentation of the health system has led to calls for an integrated, person-centred service. In addition, the rapid growth of China's capacity for technological research and development and the global success of its internet companies have stimulated an interest in the potential contribution of these technologies to health system strengthening and reform. The analytical capacity has not kept up with the many new issues to be addressed.

Operational

The major focus on institution-building since the beginning of the 2009 reforms has been on the management of major insurance schemes, the gradual integration of rural and urban basic health insurance and the creation of mechanisms to provide access to basic primary health care/public health (Fang et al., 2019).

In addition, there have been a number of experiments with models for strengthening hospital management and the modification of perverse incentives that insurance reimbursement systems have created for a costly model of inpatient care. There have also been a number of experiments with forms of integrated inpatient and outpatient care as a means of reducing duplication and strengthening primary care services. So far, these have remained experiments and pilots, anticipating another wave of reform.

Despite these changes, there has been a persistence of facility-level survival strategies and the preservation of multiple vertical silos within the health sector. This has led to statements about the need for integrated, population-based planning and management of health services. During the 13th Five Year Plan period (2016–2020), the government invested heavily in building more centralised information and data systems.

Political

One sign of the importance the government gave to the health reforms was the establishment by the State Council of a State Council Health System Reform Office to coordinate the relevant ministries, with the Ministry of Health given the leadership of the reform process (Meng et al., 2019). The Office was required to prepare an annual evaluation of the performance of each ministry at central and provincial levels and successful reform was made a criterion for the evaluation of local government officials. This pattern was replicated at lower levels of government to ensure cross-ministry participation in the reforms. The publication of the Healthy China 2030 policy was another indication of the high-level leadership of the reform process.

Although there is evidence of major reform efforts in some provinces and counties, the pattern has not been uniform. Also, as new government priorities have emerged, the leadership has tended to revert back to the National Health Commission. This reversion to stakeholder influence can also be seen within the health sector. Xu et al. document the way that hospitals have strongly influenced policy formulation and implementation (Jin, Gorsky, & Mills, 2020). They argue that hospitals have been very successful in defending their interests, pointing to the fact that since the introduction of the reform, expenditure on hospital services has risen more rapidly than on primary health care.

There is a growing recognition of the need to establish population-based and integrated health services, but this will involve negotiations with powerful stakeholders including the suppliers of drugs and diagnostic devices, as well as hospitals and their patients. If government decides to engage with the large digital health companies, this will introduce new stakeholders. The emergence of an increasingly complex health system and the rise in popular expectations of care (and the availability of channels to highlight problems) has coincided with the consolidation of major stakeholder interests. This is complicating the politics of the management of adaptation to rapid change.

Discussion and conclusions

The paper has discussed China's management of health system transformation since the 1990s using the lens of policy capacity and placing this within the context of rapid and complex change in the economy, society and health system, plus a number of system-level shocks and turning points. Using policy capacity to examine the case of a system undergoing rapid transformation shows a number of points of relevance not just for China, but more broadly.

First, rapid, complex changes create challenges for adaptation of all systems, including health systems. Rapid changes in resource levels, system goals, incentives of multiple actors within the system and relations between them all have the potential to be destabilising and to undermine system effectiveness. In the case of health systems, the consequences are likely to be foregone care, inadequate attention to public health, and reduced population welfare.

Second, we have argued that many countries – both developing and developed – face the challenge of building adequate capacity to effectively manage complex transformations, especially as we look forward to a period likely to be characterised by instability and rapid change. The Chinese case shows that ongoing, adaptive development of such capacity is possible.

Third, our analysis of China highlights the importance of analytical capacity (including think tanks) in supporting reforms, and of political capacity in setting and adjusting the direction of development of the system and enforcing action (albeit imperfectly) in line with system goals. The distribution of capacities in other countries is likely to differ from the Chinese case, as is the exercise of political capacity. This leads to two reflections:

- The Chinese case illustrates how government has invested in building analytical capacity to address a changing mix of issues, underlining the importance of specific – rather than generic – policy capacities, such as health economics and financing, to support reforms at different points in the transformation process. The increasing importance of think tanks raises important questions about their changing role in policy formulation and implementation which may need more careful examination in future studies.
- While we recognise that China's political system is distinctive, many of the mechanisms underpinning the management of the health reforms discussed here – such as contracting and setting of performance targets – are not unique to China. The findings from this case are therefore likely to have reference value for other countries, though more in depth analysis would be useful to compare the operation of nominally similar mechanisms in different contexts (Peters et al., 2009).

Fourth, while our analysis shows continued adaptation, and the ability to maintain system functioning and adaptation over a fairly long time, this does not imply that capacity or its distribution has been optimal. There remain many, and increasingly complex, challenges to providing effective and equitable services, including persistent problems with regard to the quality, appropriateness and cost of health care (World Bank Group, World Health Organization, 2016). There is also a growing need for systematic thinking that can take into account a wide range of influences on outcomes in complex

contexts; developing analytical and operational capacity that crosses ministry systems remains challenging.

Fifth, our analysis points to the importance of strategies (whether explicit or implicit) for change management – here, in the development and distribution of key capacities – in rapidly developing, complex systems.

- In hindsight, China's experience shows stepwise development and distribution of capacities; however, as in other polities there are challenges to accurate forecasting and planning. Viewed from a contemporaneous perspective, long-term adaptation has been underpinned by a mixture of reactive problem solving, a degree of anticipatory action where it was possible to foresee future capacity needs, ongoing short-term adjustment (Christiansen, 2014) and 'foresighted tinkering' that has allowed relatively unstructured exploration of reform challenges (Heilmann & Perry, 2011). Increasingly, the Chinese government is stressing policy learning capacity and more rapid feedback systems.
- This corresponds to the distinction introduced earlier in the paper between *contemporaneous* and *dynamic* challenges in developing and applying policy capacity. Many strengths of China's adaptive management relate to the *contemporaneous* management of change through ongoing adjustment. The Chinese case also points to the challenges of forecasting capacities and needs, rather than ongoing, dynamic management. As countries increasingly understand the importance of policy capacity in managing rapid change, researchers are asking how to better anticipate future challenges and prepare for changes in complex systems and efforts are underway to summarise useful approaches (Paina & Peters, 2012).
- This points to meta-level lessons regarding not policy capacities per se, but the strategies used to guide their development and adjustment. Equally, while this article has examined one reform process in China, it seems reasonable to assume that other developing countries undergoing rapid, complex transitions in recent years are also likely to provide useful lessons.

Sixth, the analysis has implications for how we operationalise policy capacity, the importance of which in Wu et al. is to provide a framework for countries to better understand their existing capacities so as to strengthen them to effectively plan and implement changes (Wu et al., 2015). That framework does not explicitly take into account change. We have highlighted the challenges of managing transformations of complex systems in rapidly changing contexts and have argued that these are common challenges going forward.

Our analysis has limitations which are important as other countries assess the usefulness of China's developmental experience in meeting their own challenges.

- First, the analysis does not substantially take account of political power or how governments dispose and redistribute capacities across the policy system, institute sufficiently robust feedback mechanisms to underpin that process, or create and enforce system-wide incentives. The Chinese government started the reform period with an extraordinary level of influence over the country's institutions through command and control structures inherited from the planned economy. As reforms

have progressed, while the central state retains a high degree of influence, this has been diluted by market reforms and increasing pluralisation.
- Second, while the analysis discusses how certain issues were framed in policy, it does not address counterfactual questions around whether other policy frames could have been more effective. For example, overemphasis on curative services and high-level medical facilities at the expense of primary care and public health has likely detracted from health outcomes achievable for a given level of inputs.
- Third, there has been much debate regarding the feedback mechanisms the central state uses to capture the dynamics of implementation across a vast policy system and to stimulate exploration of effective policy solutions.[1] There is a need to expand the use of multiple information channels, including field inspections by policy makers, commissioned research, and both traditional and social media.
- Fourth, we anticipate that the susceptibility of the state to the influence of powerful or aggressive stakeholders and interests, whether at national or local levels, will affect its ability to effectively create and allocate the kinds of capacity discussed here, and create appropriate incentive arrangements to overcome vested interests and align capacity behind agreed goals.

The increasing recognition of the challenges of transformation – both in health systems and more broadly – point to the importance of building strong responsive, learning systems. As we have argued, this is a challenge for developed and developing countries alike. Some countries, such as China, are thinking increasingly systematically about this. The Chinese case described here shows how policy capacities have been dynamically developed to underpin rapid growth and reforms in a complex, changing and decentralized environment. With ample evidence that many countries will face challenges deriving from rapid change and instability in the coming years, it is increasingly clear that the capacities to reflexively manage such challenges will need to be an important part of the policy toolbox of both developed and developing countries.

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[1]This is the subject of a substantial literature. See Heilmann (2008) for a consideration of the simultaneous importance of allowing flexibility in exploration of policy solutions and strong enforcement capacity.

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Data availability statement

There are no data sets associated with this paper.

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