Health and Health Care in BRIC Nations

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There are at least four reasons why the subject of population health and health care in so-called BRIC nations (Brazil, the Russian Federation, India and China) has attracted attention around the world. First, it is evident that global health in the sense of the health status of the world's population, depends very much on the health of the 40 percent of the world's population living in BRICS (including South Africa). Second, although their rate of economic growth has slowed in recent years, their rapid growth over the past two decades has resulted in their combined GDP coming close to a quarter of world GDP (almost the size of GDP in the U.S.) [1] and they have established a new development bank.[2] Third, BRIC nations play an increasingly important role in funding cooperative health projects in developing countries.[3,4,5] There is even discussion about how the role of BRIC nations may represent a "paradigm shift in global health."[6] Finally, and most important for the field of health policy and management, are the claims by BRIC nations that they are committed to achieve what the World Health Report 2010 calls universal health coverage (UHC).[7] This claim is significant because in contrast to poorer countries of the developing world, BRIC nations are in a position to make substantial investments in their own public health and health care systems if they choose to do so.

In this paper, I address two questions. First, what insights might be drawn from the contrasting experience of Brazil, the Russian Federation, India and China in responding to the challenge of achieving UHC. Second, how might one design

comparative research to make mutual learning across these nations more realistic? In answering the first question, I begin with a brief overview of these four health care systems followed by a discussion of their possible relationships with population health. My thesis is that we have inadequate comparable indicators to evaluate the performance of health care systems among OECD nations; for many BRIC nations, there are also issues of data availability and reliability, which leads to the second question – how to make mutual learning across these nations more realistic – and the case for a comparative research program on the megacities of BRIC nations.

An Overview of BRIC Health Care Systems

Brazil: Two systems keeping neo-liberalism at bay. The most significant characteristic of Brazil's health care system is that it combines a kind of national health service (NHS) model of health care organization, akin to the U.K., with a far more significant private sector role than in the UK, both in the provision of health insurance and in the share of private hospitals. There appear to be two important consequences that flow from this public-private mix. First, the public system is sufficiently well rooted and popular to keep neo-liberal forces at bay and thereby contain the dominance of private hospitals and doctors, as in India's health care system.[8] Second, the chronic under-funding of the public system has nevertheless allowed for the creation of a segmented two-tier system.[9]

Public health care expenditures represent almost half of all health care financing, in Brazil (47%), leaving 53% from private sources. Of the public share of funding, the federal government makes up 45% followed by state (28%) and local (27%) governments. These funds support the public health care system which dates back to 1988, when Brazil's constitution established a right to health care and two years later

adopted the Unified Health System (Sistema Unico de Saude-SUS). The SUS offers comprehensive health coverage to all, free of charge at the point of consumption. This public network includes health facilities run by the federal government, state and municipal governments, as well as those contracted to private and nonprofit institutions. It is available to all but is used mostly by the roughly 20% of Brazilians who are considered poor.

Following the creation of the SUS, a Family Health Strategy (FHS) was also implemented, in 1994, to expand primary care to the poorest areas of the country, particularly the rural northeast areas. Composed of physicians, nurses, medical assistant, and community health agents, each FHS team serves about 3,500 people in a given territory. By 2008, several interventions for maternal and child health reached universal coverage, at a primary level. The FHS is available in most of municipalities, covering nearly 93 million people.[10] Together with the SUS, the FHS resulted in enormous growth of ambulatory care facilities and massive strengthening of the primary care system in over 90 percent of Brazil's 5,565 municipalities.[10] Since there are no user fees for the services and most medications are free of charge, the program is popular and has significantly increased health care coverage with striking effects on reducing infant mortality[11] as well as "avoidable hospitalizations," an important measure of access to effective primary care.[12]

In addition to the SUS, roughly 25 percent of Brazilians have some type of supplementary private health insurance, and the number has increased during the past decade. Private health insurance plans do not cover treating costly diseases, and patients who are not covered by them can still rely on the SUS, which undermines funding of the

SUS. This is related to the major concern of the SUS that it is always underfunded while private insurance expenditure and out-of-pocket payments continue to increase. Furthermore, for-profit hospitals treat both the SUS and private insurance enrollees but have dual standards of care depending on the reimbursement rate. As a result, the weaknesses of a two-tier system become evident as SUS enrollees face long waiting times while private insurance enrollees enjoy comfortable accommodations and often better quality of care, as well.[9]

Russian Federation: A "mixed legacy of universalism and inequality." The most striking aspect of the Russian health care system today is the extent to which it has returned to many of its inherited legacies, namely its principle of universal coverage at least for a so-called "guaranteed minimum" while at the same time allowing for parallel systems for the most privileged, and massive inequalities across regions, urban/rural areas, and by income.[13] In principle, as in Brazil, Russians have a constitutional right to free health care and every citizen is assigned to a polyclinic based on their place of residence. However, in practice pharmaceuticals prescribed to outpatients, are excluded for most of the population and the pattern of chronic underfinancing leads to informal payments that have the effect of limiting and sometimes excluding citizens from access to health care.[14] The paradoxical result is that in spite of the fact that the Soviet Union was the word's first constitution to guarantee the right to UHC, geographic residence, occupational status and income continue to account for flagrant inequalities in access to health care in Russia.

In 1993, following the collapse of the Soviet Union in 1991, the Russian economy was thrown into a massive crisis with unprecedented levels of unemployment,

hyperinflation, vagrancy, alcoholism. Health indicators dropped to their lowest levels since the 1960s at the end of the 1990s with male life expectancy falling to 58. The health care financing system was replaced by mandatory health insurance (MHI) financed by payroll taxes for the employed population and regional and local government revenues to cover the rest of the population. These reforms were based on neoliberal prescriptions on the importance of competition, choice, decentralized control and individual responsibility to promote appropriate incentives for efficiency and responsiveness. As Cook and many others have argued, these reforms may have done "more harm than good" as they did not work as anticipated and much of the old system remained in place. During this period, and even today, the health insurance coverage for all Russian citizens, was highly inadequate, and public expenditures were insufficient to support the existing infrastructure which led health care professionals to rely on informal strategies often know as "spontaneous privatization" to generate income.[14]

Today, the MHI funds are collected from payroll taxes paid by employers and cover mainly outpatient and inpatient care with the exception of tertiary and specialized health services. They also cover patients with tuberculosis, sexually transmitted diseases, cancer, and are used to help finance emergency care. As a share of total health care expenditures, the MHI funds account for approximately 25 percent, general tax revenues finance another 40 percent of health care expenditures and out-of-pocket payments cover roughly 30 percent. Compared with the European Union, the Russian Federation spends far less, as a share of its GDP, and its population health status is far worse. In the 1990s, the Russian Federation had some of the worst indicators of Europe. This is still the case today.

Since 2000, there have been significant improvements, particularly with respect to treatment of TB, Syphilis, Gonorrhea and Hepatitis (A and B).[15] New cases of Diabetes and Cancer, however have been rising. Until 2008, as Russia's economy entered a period of strong growth, Putin relied on budgetary surpluses to reinforce a more centralized statist tradition. The administration focused on addressing population decline by improving care for pregnant women and newborns, developing programs for TB and cancer, and heart disease that were responsible for high mortality rates and generally trying to raise access and quality of care. These policies have had an effect on population health indicators, but the public share of health care expenditures remains low, the quality of health care infrastructure outside of the main cities is still low in comparison to Europe, and the flagrant inequalities in access to health care continue to conflict with the lofty goals of universal coverage.

India: Dreams of private sector solutions and neglect of social determinants of health. A new book edited by Lawton Burns of the Wharton and Indian School of Business, emphasizes India's accomplishments in promoting innovation in the delivery, financing and manufacturing of health care services and products.[16] Indeed, while the Indian government has promoted such images, more than any of the other BRIC nations, India has failed to assure minimal standards of sanitation and public health across all the states. *The Lancet* reported, in 2009, that more than half of Indian households have no toilets, over 200 million people have no access to safe drinking water and WHO estimates that 900,000 people die from contaminated water and polluted air.[17] More recently (2013), the Planning Commission reports that progress in meeting millennium development goals has been slow.[18]

In contrast to other BRIC nations, public expenditure on health care as a percent of GDP (1%), is the lowest. Total expenditure (public and private) is just 4 percent of GDP (Table 2), which places India as the lowest spender. Moreover, out-of-pocket expenditure as a share of total health care spending (58%) places India as the BRIC nation that relies most heavily on patient payment at the point of consumption (Table 2). Since health care delivery is a responsibility of state and local governments, each state, in India, has its own health care system and achieves widely different results, related partly, but not only to levels of spending. Drèze and Senn argue that it is the low share of public spending in relation to the total that largely accounts for India's poor outcomes.[19] Indeed, India's public share of total health care expenditure is less than 30 percent in contrast to a world average of 63% sub-Saharan Africa (45%) and the 'least developed countries' (46%).[19] The consequence of this pattern of expenditure is that India's private sector maintains a dominant position in the delivery of outpatient as well as inpatient health care services, including medical technology, diagnostic procedures, pharmaceuticals and hospital construction.[20] Public health facilities are typically in poor shape leaving enormous responsibility to the private sector which ranges from world class institutions such as the Narayan Hrudayalaya Hospital and the Aravind Eye Care System, to virtually unregulated private institutions that leave patients "at the mercy often enough, of unscrupulous practitioners."[19]

Beyond these glaring inadequacies of India's public health infrastructure, health insurance coverage is far more limited in India than in Russia, Brazil and China. A World Bank report on health insurance coverage in India estimates that 25 percent of the population have some form of coverage through such schemes as the Employees' State

Insurance Scheme (ESIS), the Central Government Health Scheme (CGHS), other smaller government schemes and most importantly the Rashtriya Swasthya Bima Yojana (RSBY), but the more important fact is that the "depth of benefits varies widely with a large majority receiving very limited coverage and a small minority enjoying comprehensive benefits."[21] Also it should be noted that the largest scheme (RSBY) that covers 17 percent of the population and targets below poverty line (BPL) families, is designed largely to cover inpatient hospital expenses and fails to protect the majority of the population that lives in or is vulnerable to poverty, for prescription drugs and primary care.[18,22] As a result, the poor are inadequately protected against impoverishment due to health care expenses.[18] This is exceedingly poor coverage and will remain so even if World Bank projections are correct that half of the Indian population will eventually have some form of health insurance.[21]

It seems that in spite of the important private-sector innovations in the manufacturing of pharmaceuticals and state-of-the art delivery of health services for a rising middle class and medical tourism industry, the foundation on which UHC might someday rest is sorely lacking in India. In this context, it is not surprising that critics have emphasized that government failure in public health services has led to "weak voice" and "low accountability,"[23] and that the insurance-based model based on private sector delivery is unlikely to lead to UHC.[24] Some critics have even characterized India's path to UHC as the "Trojan horse" of neoliberalism as the concept of comprehensive primary care has been severely weakened by global market forces that appear, for the moment, to have a dominant influence over the direction of health care reform.[25]

China: System-wide reform and policy fluctuations around privatization. Following the founding of the People's Republic in 1949, by the early 1980s China had succeeded in providing its population with a minimum standard of public health and primary care. Many of these accomplishments dissipated, however, when Deng Xiaoping encouraged market reforms through the massive reduction of state subsidies to hospitals and rural cooperative medical schemes.[26] As the central government reduced support for health care and local health care organizations focused on profitable services and often ignored public health and primary care, the base on which China's health care system had made such progress eroded and culminated in the SARS crisis of 2002. SARS exposed the weaknesses of the existing public health and health care system.[27] This crisis combined with unfettered privatization of hospital payments by angry consumers led to lengthy public debate about the need for massive health reform.[28]

In 2009, the Chinese government enacted an ambitious health reform plan aimed at increasing public health financing, providing essential drugs, expanding primary health facilities, and achieving UHC by 2020.[29] The plan has resulted in the creation of four insurance schemes: the Urban Employee Insurance (UEI), Urban Residents Insurance (URI), and New Rural Medical Cooperative Scheme (NCMS), and Medical Assistance Program (CSIS, 2011). The UEI is jointly funded by employers and employees, and the URI is financed by the central and local governments in addition to premiums. Although the majority of the URI and NCMS benefit packages only cover inpatient care, and the benefits and consumer satisfaction are limited,[30] with these insurance schemes, China has succeeded in providing a basic safety net to more than 95 percent of its population.[31] What is more China's experience with health reform, to date, demonstrates a new

approach to policymaking for China – one in which major stakeholders as well as ordinary citizens were consulted as part of the decision-making process.[32] Finally, China's recent investments in the health care sector illustrate the important link between health care reform and social development.[32] Fabre has argued that these investments are part of a shift from export-led growth strategies to inclusive development strategies within the domestic market.[33]

The 2009 reform plan was important not only because it marked a radical shift from the market-oriented strategy of 1978 by reaffirming the government's role in health care financing and the provision of public goods. It also strengthened primary health care facilities and the public health system. Since 1994, when China reformed its tax system after government revenues had dropped from 34% (in 1978) to 11% of its GDP, the share of these revenues has grown more than 20% a year, on average.[31] It is within this fiscal space that China has succeeded in funding a safety net since the announced reform. Most of the new health care funds have subsidized urban and rural residents not already covered by the principal health insurance funds. In addition, in contrast to the Indian example, the government paid primary health care providers to deliver a minimum defined package of public health services and established the Essential Medicine Program to improve primary health care services.[34]

Even with this expansion of central government financing, however, China continues to rely heavily on provincial and local governments to finance and delivery public health and health care services.[35] Between 2006-2011, the share of government financing as a percent of total health care expenditure (18%) increased to 30% leaving another third for social health expenditure (insurer payments) and 34% for out-of-pocket

consumer payments.[31] The out-of-pocket payments continue to be a problem for patients who contribute average cost sharing equal to approximately half of hospital costs.[31] Indeed, this points to one of the most challenging issues for the Chinese health care reform: how to turn a publicly capitalized hospital sector that has been profit-driven since the 1978 reforms, into a more publicly spirited and professionally responsible system of hospitals with improved links to the primary care system. At the present time, there are projects to allow hospitals to raise 20% of their capital from private equity markets while the government has initiated pilot projects to delink prescription drug sales from staff remuneration, to test different corporate governance structures, and to improve utilization and quality of drugs. But the reform of hospitals is still at the center of Chinese efforts to improve access and quality of health care services.

In addition to the problem of public hospitals, one of the greatest challenges facing China's efforts to achieve UHC is the problem of insuring its migrant population in its exploding cities. Although there appears to be evidence of significant improvements in access and affordability to health care between 2013-11,[36] since most of China's roughly 250 million migrants do not qualify for social benefits at a level on par to those of permanent residents, the majority of these employees still face severe problems of access to health care services, thereby creating enormous inequalities and obstacles to the implementation of UHC. The future challenge, as argued, by Hsiao and colleagues, is whether the market forces unleashed in the 1980s can be sufficiently well "harnessed" to contain excessive privatization[32] and whether a sense of medical professionalism can be nurtured so that physicians do not become "profit seekers at the expense of patients."[31]

Population Health and Health Care Systems in BRIC Nations

The important policy question in thinking about population health and health systems is to assess the extent to which a nation's poor health performance results from lack of resources due to low and inequitable per capita income, and other social determinants of health (levels of literacy, housing and sanitation conditions); or to dimensions of health system performance, including the broader public health system. Progress toward providing UHC varies enormously among BRIC nations yet few studies have compared the health systems of these nations and their relative success in investing their relative wealth to promote their citizens' health. Those that do compare BRIC health nations fail to identify comparable metrics that might be used evaluate the performance of these health care systems in relation to each other.[37] Yet it is possible to advance a number of propositions based on comparison of the most readily available indicators.

Population health: On the basis of life expectancy at birth (LEB), infant mortality (IM), maternal mortality (MM), or years of life lost, in comparison to wealthy nations belonging to the Organization for Economic Cooperation and Development (OECD), all health care systems in BRIC nations perform worse. However, comparison among BRIC nations along these indicators yields less consistent results. Based on IM and MM, the Russian Federation is the best performer, followed by China and/or Brazil and then India (Table 1). Based on LEB, however, the population in China and Brazil live longer (by 3 years, on average) than their Russian counterparts. The Indian population has the shortest LEB.

Another useful indicator in comparing population health across nations is to examine income-specific avoidable years of life lost (IAYLL). Across BRIC nations,

comparison of IAYLL indicates that the Russian Federation has the worst "relative health performance" and without "substantial gains" over the past two decades.[38] China, by contrast, exceeds the Russian Federation in relative health performance, and Brazil is the "second-best performer" except for the fact that China's elderly population appear relatively disadvantaged, which is not a good sign in an economy characterized by increasing population aging and income inequality.[41]

Expenditure on health care and out-of-pocket spending: In comparison to wealthy nations belonging to the Organization for Economic Cooperation and Development (OECD), all health care systems in BRIC nations are characterized by low health expenditures and high reliance on out-of-pocket payments, as a share of GDP (Table 2). Total, as well as just public expenditure on health care, as a share of GDP, is highest in Brazil (9.3%; 4.3%), followed by the Russian Federation (6.3%; 3.8%), China (5.4%, 3.0%) and India (4.0%; 1.3%). These figures, particularly the public expenditure, reflect the extent to which Brazil has taken the lead in extending health care coverage to its population. The Russian Federation spends a small share of its GDP on health care considering that it is the wealthiest of BRIC nations and India's public sector commitment to health care is strikingly low even though it is the poorest BRIC nation.

One consequence of India's exceedingly low public spending is to place extraordinary reliance on private out-of-pocket private spending in a private sector that is criticized for being virtually unregulated and of exceedingly uneven quality.[19] Brazil, the Russian Federation and China are also characterized by a large share of out-of-pocket payments as a share of total health care expenditures, but in Brazil, these expenditures are

made by a quarter of the population that purchases private insurance.[9] Those who are poorest are covered -- at least for primary care -- through the SUS.

Wealth does not necessarily translate into health: In terms of GDP per capita (Table 2), or the United Nations Human Development Index (HDI), the Russian Federation ranks #1. In the Russian Federation, only 2% of the population had incomes below the fiftieth percentile of the global income distribution. This is a striking contrast to Brazil (25%), China (47%) and India (88%), yet its life expectancy at birth (LEB) is shorter than in Brazil and China. Likewise, between 1990 and 2011, the probability of dying between ages 30 and 70 years was significantly higher in Russia than in Brazil, China or even India.[39] In contrast, with respect to infant mortality, child mortality, and maternal mortality, the Russian Federation does achieve better results, which suggests that wealth may matter (Table 1).

Narrowing socio-economic and health inequalities can reduce mortality: Mujica and colleagues note that despite their increasing economic prosperity between 1990-2010, with the exception of Brazil, other BRIC nations experienced a widening gap between rich and poor.[39] Moreover, their analysis indicates a weak income gradient in income-related inequalities for infant mortality among regions of the Russian Federation and the achievement of substantial reductions in such inequalities in Brazil and China, in contrast to India.

Health Care System Performance

Beyond the propositions noted above, it would be misleading to make comparative claims about the relative performance of systems among these BRIC nations based on such indicators as LEB, IM, MM since the role of health care in improving

population health is small compared to interventions aimed at social and environmental determinants. But health care still matters. Indeed, a vast literature measures inequities in access to health services. Between those who emphasize the decisive impact of social determinants of health and those who focus on access to health care, there is a middle ground – attention not only to the consequences of poor social conditions, but also to barriers in accessing health care that is known to prevent disease, reduce avoidable hospitalizations, and decrease premature mortality.

Thus, an alternative approach for assessing the performance of health care systems is to compare selected causes of mortality that have been linked more directly to health care system performance.[40] For example, infant mortality – deaths in the first year of life -- is an important indicator of social well-being, which reflects multiple social determinants of health, including public health interventions designed to improve the health of pregnant women. In addition, there is clinical evidence that the causes of premature death among adults are amenable to public health and health care interventions. For example, maternal death can be prevented with antibiotics, safe blood transfusions, and emergency surgical care and premature death due to breast cancer can be reduced through screening and early detection. Maternal mortality is an important element of what is known as amenable mortality. Nolte and McKee's analysis of mortality amenable to health care captures the consequences of poor access to disease prevention, primary care, as well as specialty services[41] and provides convincing evidence, among a range of OECD nations, that there are important differences, among these nations, in this measure of health care performance. Unfortunately, there are, as yet, no comparative studies using this indicator among BRIC nations.

An exclusive focus on amenable mortality, however, does not allow one to disentangle the consequences of poor access to disease prevention versus primary or specialty health care services. Thus, together with Gusmano and Weisz, I have examined two other indicators that capture the consequences of variations in access to primary and specialty care:[40] 1) hospital discharge rates for ambulatory care sensitive conditions (ASC); and 2) access to specialty services with widely recognized medical benefits, using the example of coronary revascularizations.

***Ambulatory care sensitive conditions (ASC)*:** The hospital discharge rate for ASC is considered a valid measure of access to timely and effective primary care.[42] Access to primary care reduces the probability of hospitalization for medical conditions treated effectively outside the hospital setting -- before flare-ups leading to hospital admission. Such conditions include bacterial pneumonia, congestive heart failure, and complications of diabetes and asthma. Some studies question whether ASC can reliably distinguish health system characteristics from the socio-economic status of their populations,[43] yet there is agreement that differences in rates of ASC, reflect disparities in access to effective primary care services, not only disparities in population health status. [44]

***Revascularizations adjusted for the burden of disease*:** Hospital discharges for coronary revascularization, adjusted for rates of coronary artery disease (CAD), reflect the extent to which patients are referred, and actually receive revascularization procedures -- percutaneous transluminal coronary angioplasty (PTCA) and coronary artery bypass graft surgery (CABG). International comparisons of revascularization typically indicate that aggregate rates of these procedures are much higher in the U.S. than in other OECD nations, but these estimates do not account for cross-national

differences in the burden of heart disease. Together with Gusmano and Weisz, we developed an index to compare the use of revascularization across geographic areas while accounting for differences in disease burden.[45] Although the true prevalence of coronary artery disease (CAD), in any population, will never be known since the illness may be asymptomatic, we examine mortality rates for acute myocardial infarction (AMI) as a proxy for the prevalence of CAD. Our index for assessing the use of these procedures divides the age-adjusted procedure rates for the population residing in each nation by the age-adjusted AMI mortality rates.

As with amenable mortality, there are also no comparative studies across BRIC nations on the consequences of poor access to disease prevention versus primary or specialty health care services. Thus, the challenge of assessing health system performance across BRIC nations easily turns to comparisons of the extent to which these nations have addressed the most important social determinants of population health status. In this respect, it is clear that India is well behind China, Brazil and the Russian Federation. However, disentangling the relative importance of the health care system in improving population health and making primary care and specialty care available to the population of these three nations is complicated. I therefore conclude with a proposal to begin a comparative research program in selected megacities of BRIC nations.

Research on Megacities of BRIC Nations

The megacities of BRIC nations – San Paulo, Rio de Janeiro, Moscow, Mumbai, New Delhi, Shanghai and those in Pearl River Delta region – are among the fastest growing in the world with respect to population, as well as economic activity. Their population size exceeds that of the largest cities among the wealthiest nations of the

world – New York, London, Tokyo and Paris. Like these world cities, they contribute disproportionately to their nations' economies. Yet growth of air travel, migration and refugees have magnified their vulnerability, as well as their impact on global health. BRIC megacities serve as examples to megacities in developing nations of both promising practices, as well as interesting failures. As urbanization, emerging health risks and population aging increase, policymakers in megacities will need models for how to organize public health infrastructure and respond to their aging populations with an increasing burden of chronic illness.

The case for comparing population health and the health systems among megacities of BRIC nations rests on four grounds. First, they share a set of common challenges. They have all experienced a massive influx of migrants and face demands from their wealthy populations to deliver state-of-the art medical care while at the same time confronting the impacts of population aging, inadequate basic public health infrastructure, and glaring social inequalities. Second, since BRIC nations play an increasingly important role in funding global health initiatives in developing countries, the experience of their megacities in meeting the challenges faced by their health systems can exercise a strong influence on developing nations where the population is increasingly concentrated in cities. Third, comparative analyses of how BRIC cities respond to these challenges can yield important insights because their national governments have proclaimed commitments to providing UHC. Finally, there is a good deal of evidence to suggest that policy change occurs more easily within megacities than among nation states.[46]

Studying population health and health care systems among BRIC megacities would surely reflect important differences among BRIC health care systems and could serve as important laboratories for investigating the extent to which differences in LEB, and other population health indicators inform us about the health care system as opposed to the social determinants of health. In addition, one could study how a range of population health and health care system indicators compare across neighborhoods of megacities. Finally, based on previous research on the wealthy world cities, one could explore the extent to which megacities share the same health challenges or whether, in fact they are even greater. Since the populations of megacities are growing and aging more rapidly than their world cities counterparts they must address the need to develop basic health infrastructure, and address infectious diseases, and simultaneously they must confront the growth of chronic illness rather than develop policies and systems to deal with these challenges sequentially.

Whether BRIC megacities are part of Brazil, the Russian Federation, India, or China may matter a great deal and reflect important lessons about the importance of the national context. An alternative hypothesis, however, is that whatever opportunities and constraints come from the national context, the most important decisions and resources are related to issues of urban governance and local resources. This suggests that some of the most important challenges for population health and health care systems of BRIC nations may depend on the capacity of their megacities to add substance to the dream of UHC.

Table 1. Health Status of BRICS Nations (2013*)				
	Life Expectancy at Birth[1]	**Infant Mortality per 1,000 Live Births**[2]	**Child Mortality under 5 per 1,000 Live Births**[3]	**Maternal mortality ratio (per 100 000 live births)**[4]
Russia Federation	71	9	10	24
Brazil	74	12	14	69
South Africa	59	33	44	140
China	75	11	13	32
India	66	41	53	190

Source & Note:

* Life expectancy at birth data is of 2012; maternal mortality ratio is of 2010; all the others are of 2013.

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Table 2. Health Expenditure in BRICS Nations (2012*)

	GDP per capita in PPP[1]	GNI Per Capita [2]	Human Development Index[3]	Gini Index [4]	Public Expenditure on Health (% of GDP)[5]	Private Expenditure on Health (% of GDP)[6]	Total Expenditure on Health (% of GDP)[7]	Out-of-pocket Health Expenditure (% of Private Health Expenditure)[8]	Out-of-pocket Health Expenditure (% of Total Health Care Expenditure)[9]
Russian Federation	24,805	22,710	0.778	0.40	3.8	2.4	6.3	88.0	33.52
Brazil	16,096	14,350	0.744	0.53	4.3	5.0	9.3	57.8	31.08
South Africa	13,046	11,970	0.658	0.65	4.2	4.6	8.8	13.8	7.21
China	12,880	10,920	0.719	0.37	3.0	2.4	5.4	78.0	34.67
India	5,855	5,080	0.586	0.34	1.3	2.7	4.0	86.0	58.05

Note & Sources:

* GPD per capita in PPP is of 2014; Human Development Index is of 2013; Gini index for China and South Africa is of 2011. All the rest of the data is of 2012.

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8. Out-of-pocket health expenditure (% of private expenditure on health). The World Bank. 2012. http://data.worldbank.org/indicator/SH.XPD.OOPC.ZS
9. Calculated based on private expenditure on health (% of GDP), total expenditure on health (% of GDP), out-of-pocket health expenditure (% of private health care expenditure)

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