Indian health: the path from crisis to progress

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India rightly brands itself incredible. The country's remarkable political, economic, and cultural transformation over the past half century has made it a geopolitical force almost equal to that of China. The west has welcomed the growth of India: witness US President Barack Obama's recent support for Indian membership of the UN Security Council. But India's strengthened global presence masks urgent predicaments at home. A series of papers on India's path to universal health coverage, published in *The Lancet*, reveals that a failing health system is perhaps India's greatest predicament of all.

Domestically, India displays many features indicative of national success. The country is the largest democracy in the world. At its last election in 2009, 700 million people voted over 28 stormy days. The potential for public debate to put health high on the political agenda is great. But health is rarely a decisive political issue in national or state elections. This fact is paradoxical. India is planning a manned space mission by 2015, making it the fourth member of an elite club that includes only the USA, Russia, and China. In other words, India has access to highly skilled technical communities that can translate ambitious political promises into practical reality. India is seeing unprecedented growth in health industries, such as drugs. And India's science sector is seeing sharp growth in its paper output and citations, demonstrating the ability of the research community to give reliable answers to pressing societal questions. Yet these vast organisational and technological successes are taking place in a country that, according to a new Multidimensional Poverty Index (MPI) released earlier this year, has more poverty (421 million people in just eight states) than all of sub-Saharan Africa.[1]

If one studies these latest data on poverty carefully,[1] some of the paradoxes that India faces become more visible. The official government national poverty line takes in 29% of India's population. The World Bank definition of poverty (an income of less than US$1·25 a day) is more sensitive, embracing 42% of India's people. But the newer MPI identifies over 55% of India's citizens as poor. If this figure is correct—and most observers agree that it is likely to be a more reliable measure of poverty than past indices—then it represents a daunting toll of deprivation. India is less impoverished than many countries in sub-Saharan Africa. But India fares worse than Pakistan and, more worryingly still, China and Brazil. Among India's 28 states, there are dramatic differences too. Kerala fares best, with only 10% of its population living in poverty. Bihar fares much worse: over 81% of Bihar's people are poor, according to this measure of multidimensional poverty. Given India's broad and deep development challenge, the country is far less well placed than its chief competitors to take advantage of what progress it has achieved.

The Lancet has covered India's evolving health fortunes in both encouraging[2,3] and more disturbing domains.[4,5] The Series of papers we publish today[6–12] reveals the full extent of the opportunities and difficulties facing India. The burden of infectious disease remains inadequately controlled.[6] Children and women bear a particularly shocking and intolerable burden of death and disability.[7] While these longstanding health challenges continue to prevail, the emerging epidemic of chronic disease has barely been addressed.[8] Beyond these causes of

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ill-health, India suffers deep inequities, mainly because of insufficient government funding for health.[9,11] One example of this chronic deprivation is the perilously low density of educated health workers across the country.[10] Put simply, too many politicians in India do not take the health of those they claim to represent seriously enough. This Series brings together a rapidly growing body of evidence to show that Indian health is in crisis.[13–15] It concludes with a call to action for universal health care in India—a call for increased public spending on health, the creation of an Indian national health service, better health information, stronger regulation of the private sector, and the improvement of preventive and curative health services.[12]

India recognises the appalling conditions faced by its people. It has been innovative in devising solutions to its predicaments. Three innovations deserve particular mention. First, Janani Suraksha Yojana is a conditional cash transfer mechanism (introduced in 2005) to encourage women to give birth in a health facility. Second, the National Rural Health Mission was introduced in 2006 to expand public spending on health and to decentralise health-care delivery to where it is needed most—in rural areas. And third, the Rashtriya Swasthya Bima Yojna is a health benefits programme that covers hospitalisation for those living below the poverty line. But these innovations are overlaid on a system of investments in health that are deeply irrational, inimical to the needs of most Indians, and adversely influenced by the fashions of international health organisations.[16]

Perhaps one has to look much deeper than the conventional indicators of health to understand what is happening in India today. The historian Ramachandra Guha has written that "when the clock struck midnight on August, 14/15 1947, India was freed (and also divided), history ended, and political science and sociology began".[17] India continues to discover itself, finding fresh reasons for confidence and new causes of anxiety. Guha goes on, "while India is the most interesting country in the world, we know very little about its modern history". Unlike its European counterparts, India is undergoing simultaneous revolutions—urban, industrial, democratic—that deserve attention for the impact they are having on the conditions for health. Caste, elections, provincial political leaders, economic policy, and institutions: these zones of neglected inquiry do not only reside in post-1947 India. They go back to the very foundations of the Indian population, the origins of which are only now beginning to be reconstructed.[18]

A study of modern India raises many questions about possible futures for its health. What is the nature of the Indian state today? Should the country's historical ambivalence about a strong federal state and its consequently compromised ability to deliver a functioning national public health system dilute our hopes for better health across the country? Can India's vibrant political process and civil society create the public demand for health reform? Do Indian health institutions—the Ministry of Health and Family Welfare and the health professions, for example—have the capacity to lead reform? In India, community identity rivals individual identity in importance. How do community identities shape attitudes and policies towards health? How credible are political parties in India in their stated commitments to health sector reform? Can those parties deliver on their promises? What are today's effects of 250 years of colonialism on Indian health? What are the health expectations of a largely new and expanded middle class? Is India's historical scepticism about technocratic solutions for its predicaments an impediment to health reform? Where is power located in India to make a difference for health?

These questions need answers. And they add pressure to a system that is already strained. Higher education in India is vital for expanding the human resource capacity in health and medical (and health system) research. Yet India's universities demonstrate a diverse quality that may not fully match the hopes for progress.[19] Indian society is enduring social instabilities that express themselves as political violence (the Maoist Naxal rebellion) and religious disharmony. Several Comments we publish with this Series invite an even more ambitious approach to the one set out here. The demand for change is great. A recent WHO report on health financing proposed a levy on foreign exchange transactions that would yield an additional US$370 million for India's health system.[20] So what is achievable? What is feasible?

As we survey the work we publish, and as we reflect on the intensive research conducted by our India team over several years, the question about health is perhaps an existential one for the country. What priority do its citizens and policy makers wish to put on the health of their people?

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Male circumcision and HPV transmission to female partners

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Male circumcision has been done for many years as a religious tradition, and since the 19th century has been thought to confer protection against sexually transmitted infections and diseases such as cervical cancer. In 1901, Braithwaite[1] commented on the low incidence of cervical cancer in Jewish women—women who were married to circumcised men. Boyd and Doll later noted that cervical cancer is rare in communities in which men are circumcised.[2] With the recognition that human papillomavirus (HPV) is causative in the development of cervical cancer, and with advances in methodology for the detection of HPV, further studies have supported these early observations that circumcision protects against HPV infection and cervical cancer in female partners.[3–5]

Bosch and colleagues noted that most published studies found an inverse association between male circumcision and penile HPV infection.[6] Although many observational studies found a protective role for circumcision, definitive evidence was not obtained until randomised trials of adult male circumcision were completed. Data from these trials showed that adult male circumcision reduces the prevalence and incidence, and increases clearance, of most genital high-risk HPV infections in men.[4,5,7] Furthermore, in a case-control study of cervical cancer in which the male partner was also interviewed, Castellsagué and colleagues found that male circumcision was associated with a reduced risk of both cervical HPV infection and cervical cancer in women whose partners were circumcised.[3]

In *The Lancet*, Maria Wawer and colleagues' randomised trial[8] now shows that circumcision reduces incidence and prevalence of high-risk HPV in female partners of circumcised men. In more than 1200 heterosexual couples, adult male circumcision significantly reduced the prevalence and incidence of HPV in women and increased clearance of infection. For example, prevalence of high-risk HPV in women was 27·8% in the intervention group and 38·7% in the control group (prevalence risk ratio=0·72, 95% CI 0·60–0·85, p=0·001). These data, from the most rigorous of study designs, support original observations for a preventive role of male circumcision in cervical cancer. In view of the complexity of such trials, this study will probably be the only one to provide direct evidence for male circumcision in the prevention of female HPV infections and, thus, in cervical cancer.