Growth generates health care challenges in booming India

At first blush, the basic numbers paint a grim picture. While there's a double-digit annual increase in health outlays, as many as 3.1 million people are infected with HIV and roughly 800 000 contract an infectious form of tuberculosis each year.

The country graduates 27 000 doctors each year but most want to work in major cities. Millions must walk miles to see a physician.

A fee-levying private health care sector comprises 82% of overall health expenditures, while less than 1% of the population is covered by health insurance.

Still, experts say that India's health care sector is both booming and moving quickly to resolve many of the endemic structural problems that the country has faced in recent decades.

That the health sector is booming is evident from outlays alone. In the 1990s, Indian health care grew at a compound annual rate of 16%. Total health outlays now top US$34 billion, which translates into roughly 6% of the gross domestic product. Moreover, the government's Department of Commerce projects spending will top US$40 billion by 2012.

Yet, the challenges are enormous.

Foremost among those is one familiar to Canadians: a shortage of physicians, particularly ones who are willing to hang up a shingle in rural and remote areas of the country.

"Every year, about 27 000 graduate doctors [graduate] from Indian medical colleges. But, more than 75% of Indian doctors are based in cities, whereas about 70% of patients in this country are village-based," says Dr. Swapan Jana, secretary of the Society for Social Pharmacology, an Indian nongovernmental organization.

According to the government of India, the doctor-population ratio was a sparse 1:1722 in 2005 (Box 1).

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Lunch on the streets of Kolkata.

The shortage of human resources extends to all health professions. Former president of the Federation of Indian Chambers of Commerce and Industry Onkar S. Kanwar noted at the Global Healthcare Conference January 2007 that while the projected physician shortfall would top 45 000 in 2012, the shortfall for nurses would be even greater — roughly 350 000 nurses are required for primary and secondary care by 2015.

As well, "our current bed to thousand population, at 1:11, compares poorly even with our neighboring countries," Kanwar added. "For example, China, Korea and Thailand have about 4.3 beds per 1000 populations. To reach

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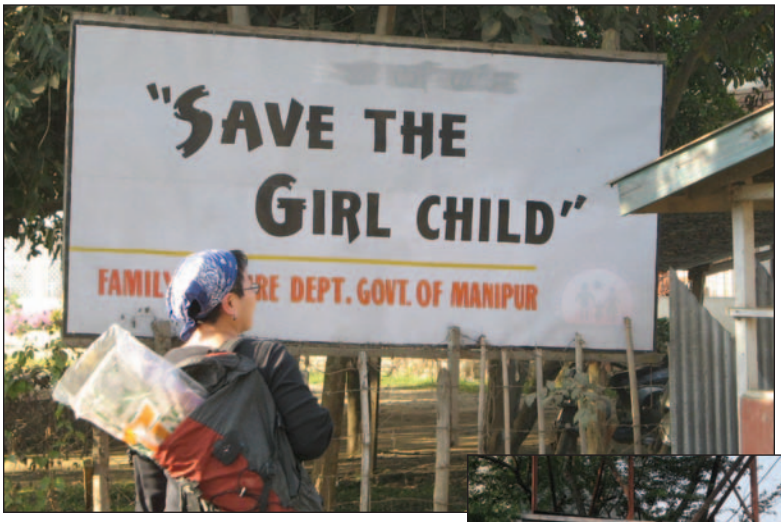
A course of antibiotics can cost less than a dollar and requires no prescription at pharmacies, such as this one in Murshidabad, Bengal.



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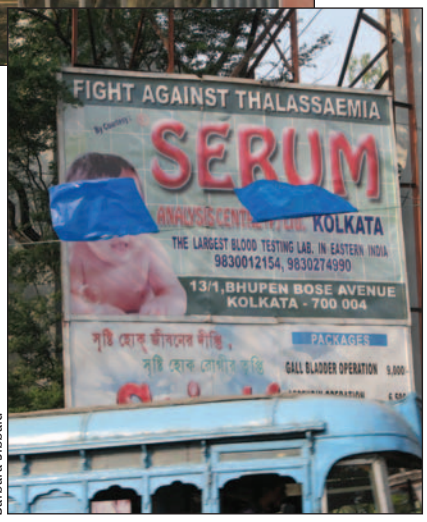
India had a dramatic birth sex-ratio difference of 110.4 boys to 100 girls, according to its 2001 Census. The discrepancy was even greater among certain religious groups. Among Sikhs, for example, it was 129.8, while among Jains, it was 118. More recent estimates indicate that in some states, the discrepancy is becoming even more pronounced. For example, the ratio in Kolhapur, a city in the state of Maharashtra, is now projected at 839 girls per 1000 males.



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Enormous billboards, the norm in urban areas, often advertise private health services or disseminate public health messages. Here, a sign seen on the main highway to the airport in Kolkata.

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The storefront of an x-ray lab in the state of Manipur.

that level, we will need over 3 million beds with a requirement to invest US$240 billion."

Moreover, Kanwar said that a federation analysis indicated that there's also been a "worrisome" deterioration in the quality of health care providers. "This needs to [be] arrested immediately by strengthening of supervision, establishing quality standards in teaching, designing new courses to cope with the rapidly changing disease profile and fostering an environment for quality in health care and patient safety."

Concerns over the deterioration in the quality of physician training have been front and center of late as a result of a proliferation of private medical colleges, not all of which produce the high-quality physicians for which India is known. Allegations have continually surfaced over the past decade that some private medical colleges have been taking bribes to admit less qualified students, while delivering substandard education. For example, in the state of Maharashtra, considered India's most progressive, a recent inspection report indicated that 9 of 17 private medical colleges were severely understaffed and often lacked essential infrastructure, including teaching beds and clinical materials.

Equally as problematic as the concerns about training, are the particularly acute shortfalls in the number of physicians available in rural and isolated areas of the country. "In remote Indian villages, people sometimes go miles just to meet a qualified doctor. If the number of doctors, both general practitioners and specialists, can be increased in rural areas, definitive improvement would occur in India's health care system," says Dr. Basudeb Bhar, a consultant surgeon at the Calcutta Medical Research Institute.

Health care in India is delivered on 3 levels: primary, secondary and tertiary, but underlying those are village-based health sub-centres, which the World Health Organization (WHO) describes as "the most peripheral health institutional facility." A sub-centre provides service to about 5000 people, or about 3000 in hilly, tribal and underdeveloped areas. They are typically staffed by 1 male and 1 female multi-purpose health worker, offering services such as immunization and family planning.

The primary level of care is typically provided at rural primary health centres, each of which serves about 30 000 people (20 000 in hilly, desert and difficult terrains) and is staffed by a medical officer and 2 health assistants, along with health workers and support staff. A primary centre's functions are typically basic medical care, maternal and child health and family planning, prevention and control of locally endemic diseases, implementation of national health programs, basic laboratory services, health education and referrals.

The next service level, secondary health care, tackles more complex health related problems at district hos-

pitals and community health centres, while the final, or tertiary, level involves the provision of higher and more specialized services, typically at specialized hospitals, medical college hospitals, regional institutes and so on.

Many believe that the quality of care is directly proportional to distance from India's major cities.

Beyond the public system lies a burgeoning private health sector, which Jana notes is useful only to those who can afford it. Others argue that it provides speedier service than in the Western world and that because of a competitive market, isn't as far out of the reach of the middle classes as might be believed. The World Bank noted in 2005 that roughly 64% of all available hospital beds in India were private, which was defined as "all nongovernmental health care, including nongovernmental organizations, forprofit and not-for-profit institutions, private clinics and nursing homes, informal rural medical practitioners (whether registered or not), and donorfunded project facilities."

It's not clear how many of these beds are filled by medical tourists, foreign patients seeking urgent or elective medical procedures at a fraction of the price back home. India's top-notch private facilities are attracting patients worldwide. Government and private sector studies estimate the sector is growing by 30% annually and could net up to US$2 billion by 2012.

But that doesn't really help Indian residents without means. According to the Indian American Council, a United States-based association of people of Indian ancestry, just 18% of overall health spending (roughly 0.9% of gross domestic product) is provided without cost to the recipient. "A fee-levying private sector that plays a dominant role in the provision of individual curative care through ambulatory services coexists with public health care. It accounts for about 82% of the overall health expenditure and 4.2% of the GDP [gross domestic product]," the council states.

The upshot is that the system is predominately financed out-of-pocket and for most people, that's an enormous barrier. And for most, the solution is not health insurance. Kanwar noted that only 0.9% of the population is now covered by health insurance, an area "that needs to be given urgent priority." Others claim that the insurance system is rift with problems, with claims often being challenged or unpaid. Still, current projections indicate that health insurance sector will expand to US$3.8 billion by 2012 from a 2006 level of US$711 million in 2006.

Barr argues that such spending trends are indicators of the system's ability to eventually overcome the nation's health challenges. "Despite vari-

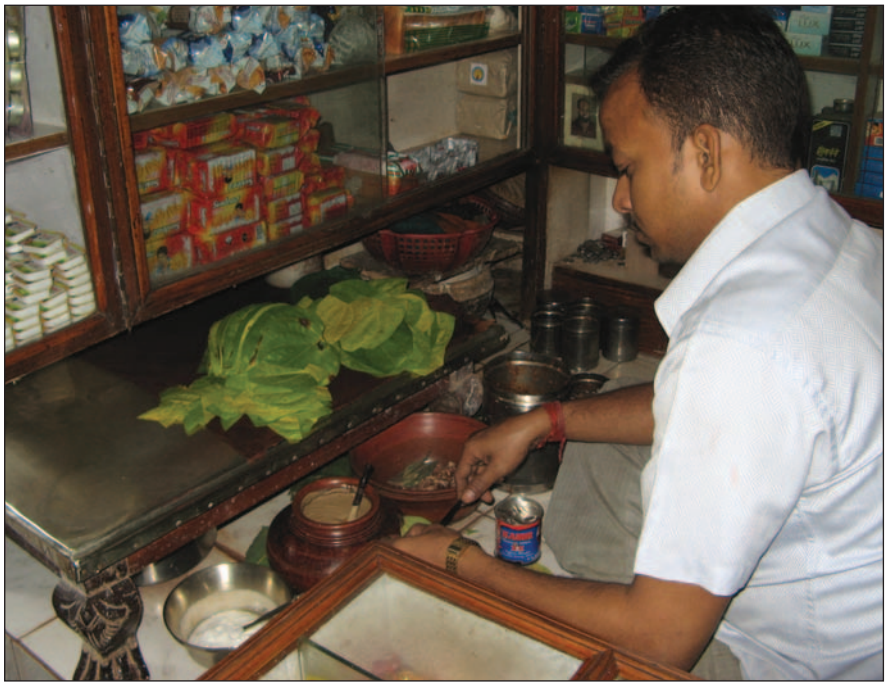
Box 1: Facts on India

Demographics
- Area: 3 287 590 km^2
- Population: 1 129 866 154
  - Median age: 24.8 yr (24.5 male, 25.2 female)
  - Age structure: 31.8% under 15, 63.1% 15-64 yr, 5.1% over 64
  - Birth rate: 22.69 births/1000 population
  - Death rate: 6.58 deaths/1000 population
  - Infant mortality rate: 34.61 deaths/1000 live births (39.42 male, 29.23 female)
  - Life expectancy: 68.59 yr (66.28 male, 71.17 female)

Economy
- Gross domestic product per capita: US$2700 (2007 estimate)
- Unemployment rate: 7.2% (2007 estimate)
- Population below poverty line: 25% (2007 estimate)
- Government revenues: US$145.2 billion (2007 estimate)
- Government expenditures: US$182.4 billion (2007 estimate)
- Public debt: 58.8% of gross domestic product (2007 estimate)

Health
- Total health expenditures as a percentage of gross domestic product: 5.0%
- Government share of total health expenditure: 17.3%
- Per capita total expenditure on health: US$31.40
- Number of physicians: 645 825 (2004); density per 1000 population: 0.60
- Number of nurses: 865 135; density: 0.80

Sources: Central Intelligence Agency World Factbook, World Health Organization.



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A *paanwala* in Varanasi prepares paan, a popular Indian treat consisting of fillings such as nuts, anise, tobacco and betel nut wrapped in a betel pepper leaf. The chewing of betel and paan are a strong risk factor for developing oral cancer.

ous problems, with the concept like medical tourism that attracts people from other countries to India, or telemedicine that helps provide health services to the people living in the remote areas of the country, India's health sector is carrying on its boom and it's expected that the country would present various new developments in the coming years," he says.

There's no question, though, that many of those challenges are daunting, particularly with regard to specific diseases, including HIV/AIDS, tuberculosis, polio and kala-azar (visceral leishmaniasis), or chronic conditions, like diabetes.

The National AIDS Control Organization in July 2007 released a revised AIDS estimate indicating that in 2006, India's national adult HIV prevalence was about 0.36%, which corresponds to an estimated 2 to 3.1 million people living with HIV. Beyond the difficulties of merely coping with the medical treatment of HIV/AIDS lie a raft of social problems. Jana says many HIV-positive patients are ostracized, to the point where they commit suicide. Midnapore Medical College Hospital Assistant Professor of Medicine Dr. Bikram Saha adds that "social stigma associated with HIV/AIDS is basically due to lack awareness and to solve this problem various awareness campaigns are on throughout the country."

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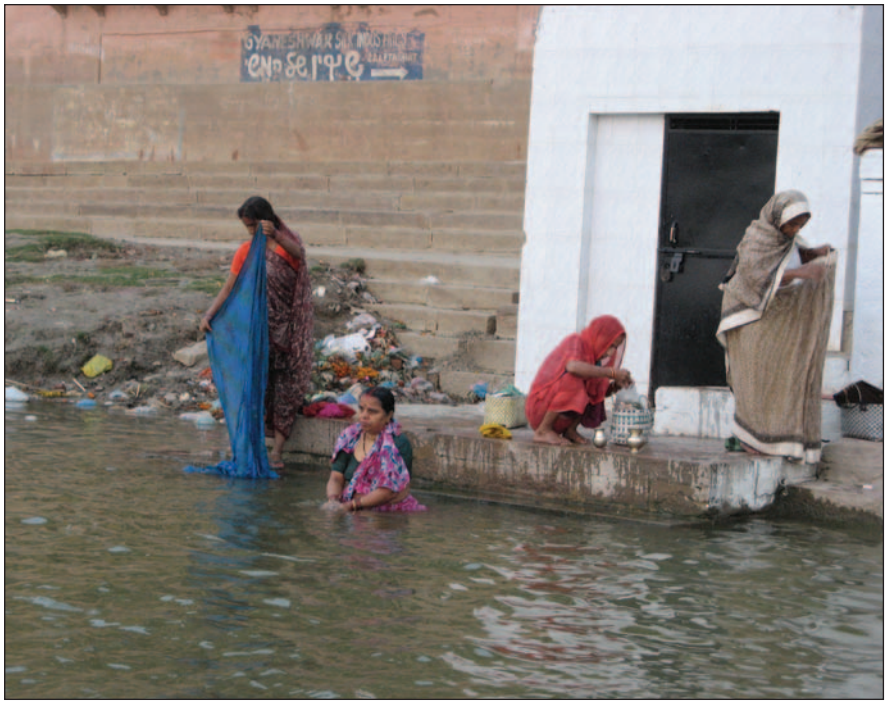
A mother oversees her child's ablutions in Murshidabad, West Bengal.



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Pilgrims and Varanasi residents alike immerse themselves in the Ganges river for their morning purification before going to temple. The most holy river is also used for bathing, brushing of teeth and washing clothes, often amidst floating garbage bags.

Similarly, WHO figures indicate that nearly 1.8 million people develop tuberculosis each year in India, and of those, 800 000 contract an infectious form of the disease. About 330 000 die annually. The government's response has been a Revised National Tuberculosis Control Program, under which intensive treatment of patients with multidrug resistant tuberculosis was initiated at 2 main sites: one in the state of Gujarat and another in Maharashtra. The program has also developed a response plan to tackle extensive drug resistant tuberculosis.

The national polio surveillance project identified 756 cases in 2007. But as of Jan. 19, 2008, there were no new confirmed cases this year. "Although India is yet to eradicate polio, the country is progressing steadily towards its goal," Saha says.

Malaria also appears to be declining. In 1996, there were 3.04 million cases. That had declined to 0.32 million by July 25, 2003. The government also hopes its new National Vector Borne Disease Control program will curb mortality caused by kala-azar, one of the world's deadliest parasitic diseases, which infects as many as 300 000 people and claims as many as 20 000 lives in India annually, (*CMAJ* 2007;177 [12]:1486).

Other health challenges include the rising incidence of both diabetes and childhood obesity. *The Journal of the Association of Physicians of India* dubbed the country "the diabetes capital of the world," after noting that 41 million Indians have the disease and "every fifth diabetic in the world is an Indian." The journal also noted in an editorial that 20 million Indians are "either obese or abdominally obese with children being the prime targets."

The infant mortality rate, meanwhile, is around 60/1000 live births per year, or close to the world average of 56/1000 (*Indian J Pediatr* 2007;74:454). Saha says that among other challenges are oropharyngeal, cervical or breast cancer, as well as problems like "cataract, iodine deficiency disorder, arsenic contamination in water, anemia, malnutrition and other noncommunicable conditions." — Sanjit Bagchi MBBS, Kolkata, India

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