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## Infectious diseases in Pakistan: a clear and present danger

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Many diseases are common in Pakistan, including endemic and epidemic infectious diseases, emerging infections, and an increasing burden of non-communicable diseases. An estimated 8–9 million people in Pakistan are infected with the hepatitis C virus (HCV), increasing the risk of chronic liver disease and cancer.<sup>1</sup> Another 620 000 people have tuberculosis, and every year 410 000 are newly infected and 59 000 die from the disease.<sup>2</sup> 500 000 cases of malaria arise every year, mostly in rural districts near the river Indus delta and in Baluchistan.<sup>3</sup> Although HIV/AIDS prevalence remains below 1% in the general population, epidemics spread in the country's estimated 135 000 injecting drug users (>40% of the injecting drug users in Faisalabad and Karachi are HIV infected) and transgender (hijra) sex workers (>10% infected in Karachi and Larkana).<sup>4,5</sup> Poliomyelitis remains endemic despite an intense global focus to rid the virus from its last bastions

in Sindh, Baluchistan, and the districts bordering Afghanistan.<sup>6</sup> Rabies still results in an estimated 5000 deaths every year.<sup>7</sup> Dengue outbreaks in Lahore and Karachi have tested an already stretched health system, and perhaps diverted resources from other priorities after media attention.<sup>8</sup>

Weak health systems and ineffective regulation have exacerbated some epidemics. 15 years after the original reports about HCV transmission in Hafizabad, reuse of therapeutic needles and syringes in public and private facilities continues to drive the HCV epidemic, and contributes to the spread of HIV, as noted in Gujrat.<sup>9</sup> National prevalence data for HCV (4.9%) and chronic hepatitis B virus (HBV; 2.5%) infection in the general population mask epidemics in small towns in the Punjab (>12% for HCV in Vehari and Hafizabad) and Baluchistan (>14% for HBV in Musakhel). Incomplete implementation of existing legislation for blood product safety is contributing to the spread of HCV and HBV.<sup>10,11</sup>

The 2015 Millennium Development Goals for tuberculosis, malaria, and HIV/AIDS in Pakistan remain elusive. Few patients are receiving treatment for drug-resistant tuberculosis, malaria, and HIV/AIDS, and increasing drug resistance is undermining future prospects for disease control. Today, fewer than 1000 of the estimated 9000 individuals infected with drug-resistant tuberculosis every year have been diagnosed and are undergoing treatment.<sup>2</sup> Of 5256 registered people living with HIV/AIDS in 2011, fewer than half were receiving antiretroviral therapy.<sup>4</sup> Low rates of bednet adoption in rural areas and poor vector control in urban centres contribute to continued transmission of malaria.<sup>3</sup>



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Things should have been very different. Dramatic improvements in malaria control indicators occurred in the 1960s and the country was one of the first to eradicate dracunculiasis in 1993. Directly observed therapy short-course for tuberculosis and HIV/AIDS surveillance in sentinel populations were rapidly scaled up in the past decade. However, donor and geopolitical priorities have left little scope to build on past successes. Chronic government underfunding underpins dependence on external grants and technical assistance to maintain many programmes. Recent urban outbreaks of dengue have exposed systemic weaknesses in surveillance, analysis, and response capabilities to emerging health threats. Surveillance and related issues are discussed elsewhere in the *Lancet* Pakistan Series.<sup>12</sup> Devolution of health to the provinces and media scrutiny might allow Pakistan to address weaknesses in governance and accountability, and improve intersectoral collaboration and service delivery. Improved management will need to be backed up by enhanced resource allocation. Introduction of formal training in infectious diseases by the College of Physicians and Surgeons of Pakistan and the increasing number of well trained public health professionals in the Fulbright Scholarship programme (35 trainees during 2008–11) will add to human resources. Similar investments need to be made in training community health workers and nurses to support diagnosis and management of infectious diseases. However, use of expertise where it is needed most will require a strong emphasis on rural and public health care, for which professional and financial incentives do not exist.

Private health care serves more than 60% of all sick visits and has great potential, provided appropriate incentives and alignment of objectives are present.<sup>13</sup> Innovative approaches have successfully leveraged its infrastructure and motives through use of mobile telephone technology.<sup>14</sup> New opportunities such as UNITAID's TBxpert initiative to scale up rapid tuberculosis diagnosis through the private sector might produce sustainable business models linked to public services.<sup>13</sup> Wide-scale and systematic adoption of rapid screening tests for tuberculosis, malaria, HCV, and HIV/AIDS in both public and private health facilities will be essential to improve case detection. But these must be closely linked with programmatic delivery to ensure

rapid treatment initiation and minimise default in patients affected by these diseases. Innovation—whether in rapid diagnostic techniques, novel treatments, new prevention strategies, or sustainable health delivery models—by itself is insufficient for reducing disease transmission and mortality in the absence of strong public management of disease control programmes.

The control of infectious threats requires effective surveillance and analysis, and the means to respond. Leveraging efficient new technology platforms can help fill information gaps, including developing local capabilities in the provinces to respond more effectively. The need still remains for a federal repository of public health, laboratory, and regulatory expertise to support the provinces in the provision of effective management, diagnostic services, medications, and vaccines. The Ministry of Inter-Provincial Coordination could be a suitable repository. Successfully tackling these challenges will require a coherent national health policy, greater focus on strengthening public health capacity in the provinces, improved governance and resource allocation, and the active engagement of all public and private partners.

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## Family planning: a missing priority in Pakistan's health sector?

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According to Alex Ezech and colleagues, “Pakistan's failure to promote family planning in the 1970s and 1980s” has already had, and will lead to, great repercussions: a population that is anticipated to be “41% larger than Bangladesh's” by 2050.<sup>1</sup> Currently, Pakistan's population is estimated to be more than 180 million, increasing at a rate of 1.9% per year. It is projected to be between 266 million and 342 million by 2050 (figure), largely to be determined by the uptake of family planning and consequent fertility decline.<sup>2</sup>

Pakistan has a poor record of reducing fertility: although the fertility rate has fallen from about six births per woman in 1990 to 3.6 in 2012, it is higher than that in the rest of south Asia.<sup>3</sup> Family planning is perhaps the most overlooked and neglected component of women's health in Pakistan. Contraceptive use rose sharply, from 12% to 28%, during 1991–98 (corresponding to a 2% increase per year), but the rate of increase has slowed and reached a plateau at about 30% since then. There is, however, a renewed possibility after the 18th Constitutional Amendment<sup>4</sup> to focus on family planning as a means

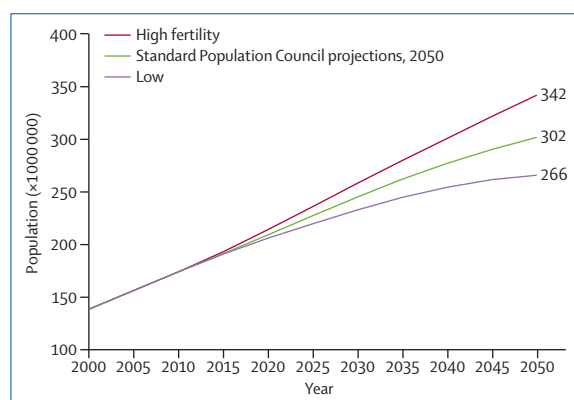
to improve maternal and child health with each newly evolving provincial health strategy.

More recently, in research leading up to the London Summit on Family Planning in July, 2012, the association between the fall in fertility and a period of favourable age structures resulting from falling dependency ratios has been linked strongly to the economic wellbeing of families and macroeconomic growth.<sup>5–7</sup> The opportunity to capture the demographic dividend in the next few decades has led to a growing realisation in Pakistan that investments in a strong family planning programme and in human development are imperative.<sup>2</sup> It is now a question of matching the realisation with a strong policy and programmatic response, especially in Pakistan's provinces.

Many economists and academics still doubt that Pakistan will achieve a substantial increase in the use of family planning because of religion, social conservatism, or preferences for larger families. Yet these apprehensions are not borne out by the evidence—there are at least three strong arguments that go against this premise.

First, a quarter of women in the reproductive age group (15–49 years) in Pakistan have an unmet need for family planning.<sup>8</sup> In Khyber Pakhtunkhwa and Baluchistan, the unmet need for family planning is greater than 30%. Nearly 1 million women in Pakistan seek unsafe abortions every year, a decision determined by the high level of unwanted pregnancies. Improved access to quality services will reduce the number of abortions and maternal and child deaths.

Second, it is clear from inequities in unmet need for family planning and contraceptive use by income levels, and across urban and rural populations, why women who are poor have as many as two unwanted pregnancies compared with a quarter of this number for women who are not poor. The health system, unable to



**Figure:** Pakistan's population projections for high, standard, and low fertility  
Data from Bongaarts and colleagues.<sup>2</sup>