

## The 21st century health challenge of slums and cities

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“Breathing the air in Bombay (Mumbai) now is the equivalent of smoking two and a half packs of cigarettes a day.”<sup>1</sup>

One of the key 21st century challenges in population health is the challenge of improving the global urban condition.<sup>2</sup> Starting in 2007, and for the first time in human history, the majority of the world’s population will live in urban areas. According to the latest UN projections,<sup>3</sup> by 2030, the world’s urban population will increase by more than two billion, while the rural population will decline by about 20 million. This shift is largely the culmination of a rapid global urbanisation process that has been underway for more than 250 years. Rapid urbanisation first became manifest in the countries undergoing industrialisation in the developed world, and then in Latin America. Today its prime locus is the poorer parts of Asia and Africa. More than 90% of the world’s urban population growth by 2030 will be in less developed regions. Any effort to measurably improve global health outcomes, especially in these regions, will need to address urban reform.

According to estimates prepared by the UN Human Settlements Programme (UN-HABITAT), about a third of the world’s estimated 3 billion current urban residents dwell in slums, or places characterised by one or more of these shortcomings: insecurity of tenure, poor structural housing conditions, deficient access to safe drinking water and sanitation, and severe overcrowding.<sup>4</sup> All these factors have direct consequences for the physical and psychological well-being of the urban population.

Barring determined policies to improve housing conditions and income earning opportunities for the poorest urban residents, the health situation accompanying contemporary urban life will exhibit worsening morbidity and mortality for several communicable and non-communicable health problems and diseases. Poorer families consistently have higher birth rates, and most rural-urban migrants in low-income and middle-income countries are poor.<sup>5</sup> Even under the assumption that the proportion of slum dwellers within the total urban population does not increase but instead remains constant, we can still project that by 2030, close to 1.7 billion of the expected 3.93 billion urban dwellers in low-income and middle-income countries will be living in slums.<sup>5</sup> According to this bleak no-action scenario, a conservative estimate is that the slum population in low-income and middle-income countries is likely to double in less than 30 years.<sup>6</sup>

Communicable diseases are a major problem in urban populations in general and slum populations in

particular. Close to half the urban population in Africa, Asia, and Latin America have one or more of the main communicable diseases associated with inadequate water and sanitation provision—including diarrhoeal diseases and worm infections.<sup>7</sup> High levels of overcrowding also make poor urban residents vulnerable to contracting communicable diseases such as tuberculosis, acute respiratory infections, and meningitis. Transmission of these illnesses is often aided by low resistance among the population owing to malnutrition. Vaccine-preventable diseases such as measles, diphtheria, and whooping cough also spread more rapidly in overcrowded urban areas among non-immunised populations. Inadequate provision for drainage can increase risk of malaria as its mosquito vector breeds in flooded areas and ditches; inadequate provision for sanitation often raises the risk of urban dengue and yellow fever because the vector breeds in latrines, soakaway pits, and septic tanks.<sup>8</sup>

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View of Dona Mara slums, Rio de Janeiro, Brazil

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Still Pictures

Slum with highrise buildings in the background, Mumbai, India

The harsh physical and social conditions of urban slum life lead to chronic stress in slum dwellers. Community-based studies of mental health in developing countries show that depression affects many urban adults, with poor urban residents suffering most.<sup>9</sup>

High rates of HIV/AIDS are becoming an increasingly distressing fact of urban life in developing countries. Studies of pregnant urban women in sub-Saharan African capitals have shown particularly high HIV/AIDS rates: nearly 12% in Rwanda, 18% in Malawi, 22% in Zambia, and 24% in South Africa, nearly 33% in Botswana, and 39% in Swaziland.<sup>10</sup> However, recent data also offer some encouragement with falling HIV prevalence in Nairobi and Addis Ababa.<sup>10</sup> In most of Asia, HIV rates continue to increase in urban settings, although some exceptions exist. In Phnom Penh, for example, HIV prevalence among brothel-based sex workers increased from 10% to 42% between 1992 and 1996, although because of concerted multi-stakeholder prevention efforts, prevalence showed a promising decline to 29% by 2002.<sup>10</sup> HIV transmission rates are also increasing in Latin American cities.<sup>9</sup> There is also a growing population of urban adolescents, many of whom are also considered poor and vulnerable—namely, street children, orphans, and sex workers. However, these groups have not received sufficient research attention on how to best address their health needs. On the other hand, urban dwellers tend to be better informed about HIV/AIDS than are people living in rural areas. For example, in a survey done in the Indian state of Bihar, nearly twice as many urban men as rural men knew that HIV/AIDS is sexually transmitted.<sup>10</sup> A consensus is now emerging among experts that the HIV/AIDS challenge is less a pandemic and more similar to a series of overlapping epidemics. There is no predefined approach for dealing with this situation.

Instead, the unique social, historic, and urban context in which the disease manifests itself must lead to the creation of solutions that suit local conditions. As a general rule, and as Brazil's successes amply demonstrate, only when prevention programmes are integrated into comprehensive urban health programmes that include treatment and mitigation do we observe a marked decrease in the rates of incidence and prevalence.<sup>11</sup>

Although in aggregate, women in cities have lower fertility rates and better sexual and reproductive health outcomes than in rural areas, findings of a disaggregated review show that poor urban women have worse outcomes than other urban women, in some cases rivalling those of rural residents. Poor urban women also have much higher fertility rates than do other urban women; again, in many regions, fertility rates for poor urban women are similar to those of rural women. Poor urban women are less likely to use contraception than other urban women, and again in some regions (eg, southeast Asia) their usage rates resemble those of rural women. When poor urban women give birth, they are less likely than other urban women to have these births attended by a physician, nurse, or midwife. Moreover, they are at high risk of contracting sexually transmitted infections, including HIV/AIDS.<sup>9</sup>

In terms of non-communicable health concerns, injuries (both intentional and unintentional) are a major problem. In 1990 injuries in men aged 15–44 years accounted for 55 million disability-adjusted life years (DALYs) lost—a third of the total DALYs lost for this sex and age group.<sup>9</sup> Accidental injury in the home is one of the greatest health burdens.<sup>12</sup> Violent crime is also a substantial problem in many poor urban areas of the developing world; Latin America has the world's highest burden of homicides—more than double the world's average of 3.5 per 1000 people. In Sao Paulo, Brazil, for example, between 1991 and 1993, men aged 15–24 years in low-income urban areas were five times more likely than their high-income counterparts to be a victim of homicide.<sup>9</sup> Women living in poor urban areas are subject to an additional risk of violence, often in the form of rape or physical and mental abuse.<sup>13</sup>

Steep barriers to accessing quality health services and emergency services, especially for slum dwellers, often make it difficult for poor urban residents to prevent and treat these debilitating health problems. Indeed, urban health services can be characterised as a patchwork of various types of providers—such as public hospitals and clinics, private physicians and nurses in private hospitals and clinics, as well as non-profit or faith-based non-governmental organisation clinics. User fees, which are frequently charged by public and private health providers, are often unaffordable to slum dwellers.

This is the urban context of the global health challenge—daunting, but not insurmountable. In many ways this 21st century challenge is reminiscent of that

faced in the 19th century, when the first wave of urban industrialisation imposed uncomfortably similar health threats upon the growing cities of Europe and the USA. Strategically effective solutions will inevitably dissolve the present professional demarcations between medical services, public health, and urban planning.<sup>14</sup> While antiretroviral drugs and antimalarial treatments are necessary to address the rapid spread of HIV/AIDS and urban malaria, they are only effective if they are provided in the context of robust health systems with strong and highly accessible public health infrastructures and healthy housing environments, including well-ventilated and sufficiently spacious dwellings provided with safe drinking water and hygienic sanitation. This situation will not be achieved unless we clearly understand that investing in strengthening the civic and public institutions of the cities where the world's poor are now congregating is more than an investment in democracy; it is also an investment in global health.

How help arrives is at least as important as the desired outcome. It is a mistake to treat the urban poor as passive objects in need of rescue. That approach did not work in the past and it will not work in the future. In our investigations, we have witnessed some of the most effective approaches to reduction of urban health problems carried forward by some of the poorest people in the world's poorest cities. Across the leading success stories, the underlying modus operandi is similar: the poor are meaningfully involved in the process of improving the slum conditions under which they live. The challenge we face is helping to bring these participatory approaches to a scale where they can measurably improve the urban environment and population health. After two decades of privatisation and disparagement of government by policymakers within international financial institutions, it is time to change direction and re-engage in the process of supporting democratic governments at the local level to work as partners with the urban poor to absorb and use sorely needed outside aid wisely.

Specifically, governments must be actively involved in designing health-service outreach and public-health infrastructure with the explicit intention of reaching a greater share of the urban poor. Health education programmes must target issues particularly relevant to the urban poor, including injuries, violence, mental health issues, sexually transmitted diseases, HIV/AIDS, tuberculosis, and sexual and reproductive health issues. Intraurban data on morbidity and mortality should be systematically collected, as they are generally unavailable at present. More research is also needed to learn more

about treatment-seeking behaviour of the urban poor, quality of various urban health services, as well as perceptions of such care by its users.

If we neglect the environmental and urban causes of the growing health burden on the urban poor, national governments and global society in general will simply accumulate a massive "health debt". This will be far more expensive to pay off, if possible at all, three decades from now through conventional curative methods than it would be to prevent the problems now through housing, water, sanitation, and public health interventions that we know will permit us to avoid them.

#### Conflict of interest statement

We declare that we have no conflict of interest.

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