Urban risk to health

The rapid rise in the number of people living in urban centres and cities around the globe brings with it new forms of urban risk in the health sector. It is a tragic irony, but millions of people continue to be exposed daily to diseases that medical science has long known how to prevent and/or to cure. Acute respiratory infections, dysentery and diarrhoea, largely under control in cities in high-income countries, continue to exact a significant toll on the health and well-being of a disproportionate number of those who live in the sprawling slums of the developing world. Tuberculosis (TB) is rampant in many cities worldwide regardless of their overall economic status. At the same time, more recent non-infectious conditions such as diabetes, heart disease and depression, which are linked to urban lifestyles, threaten both rich and poor in all countries. On World Health Day in April 2010, Jacob Kumaresan, director of the World Health Organization’s Centre for Health Development based in Kobe, Japan, said: “While urban living continues to offer many opportunities, including potential access to better healthcare, today’s urban environments can concentrate health risks and introduce new hazards.”

The World Health Organization (WHO) cites a multitude of health challenges in modern cities, relating to “water, environment, violence and injury, non-communicable diseases (cardiovascular diseases, cancers, diabetes and chronic respiratory diseases), unhealthy diets and physical inactivity, harmful use of alcohol as well as the risks associated with disease outbreaks. City living and its increased pressures of mass marketing, availability of unhealthy food choices and accessibility to automation and transport all have an effect on lifestyle that directly affect health.”

The conundrum of urban living is that, on the one hand, in well-governed cities where health and social services are available alongside safe and well-functioning infrastructure, people can aspire to live to a ripe old age. People living in the progressive city environment of Porto Alegre in Brazil have a life expectancy of 76 years. But even in the United Kingdom, a member of the G8, variations in urban wealth and employment seem to be key determinants of good health and life expectancy. Research by the Chartered Society of Physiotherapy has found that men live an average of 69.3 years in the city of Glasgow compared to 80.8 years in the more affluent environs of London’s Chelsea and Kensington. WHO has cited “the extremely poor health, more characteristic of a poor developing country” of the inner city poor as a factor in reducing overall life expectancy for the United States.

Nonetheless, city life can bring significant health benefits. Cities where environmental health hazards are reduced through provision of a safe water supply, sanitation, waste management and adequate shelter, and in which pollution is monitored and controlled, have lower mortality and morbidity rates. People in well-organized urban
environments can generally expect to live longer as they will also be well informed about the health benefits of not smoking, hygiene, good diet and exercise.

The other end of the urban health spectrum can be found in low- and middle-income countries where most of the world’s impoverished urban dwellers live. In households lacking basic shelter services – water supply and sanitation in particular – the prevalence rate of diarrhoea among urban children soars, averaging 38 per cent in Pakistan, 33.3 per cent in Cameroon, 23.9 per cent in the Democratic Republic of the Congo and 32.3 per cent in Jordan. Diarrhoeal diseases account for nearly 2 million deaths out of a total of almost 10 million among children under the age of 5. There are parallels here with what we see unfolding in relation to the impact of natural disasters on urban centres and the dramatic differences in fatalities between low- and high-income nations (as highlighted in Chapter 1). Over the period from 1990 to 2006, industrialized countries saw under-5 child mortality rates drop from 10 to 6 per 1,000 live births, while in developing countries overall the reduction was only 103 to 79, a staggering gap which captures the urban risk divide in health.

In 2008, the average urban centre in Australia would not have experienced an infant mortality rate (IMR) of more than 5 per 1,000 live births, whereas, in the same year, the Nairobi Urban Health and Demographic Surveillance System, which covers a demographic surveillance area that straddles the two slums of Korogocho and Viwandani with a combined population of 73,661, found an IMR of 87 per 1,000 live births, above the national average of 81. It is not the fact of urban life as such that poses the problem for health; rather, it is the way in which these cities are governed and the application, or not, of appropriate public health and housing policies which determine the health consequences for the inhabitants.

Hunger and malnutrition in urban settings result not only from food insecurity (see Box 5.1) but are also a consequence of environmental hazards and shelter deprivation. Unhealthy living conditions in urban slums create a vicious circle whereby the likelihood of a child contracting diarrhoea, an acute respiratory tract infection and/or malaria are greatly increased by poor waste management and non-existent water treatment systems. According to current research almost half of all nutritional problems are linked to slum living conditions. Malnutrition is particularly lethal in combination with infectious diseases such as pneumonia, malaria, measles and diarrhoeal diseases – the major killer diseases affecting children. It is an underlying factor in over half of all child deaths.

Data cited by the United Nations Human Settlements Programme (UN-Habitat) show that the prevalence of child malnutrition can often be higher in urban areas than in rural areas in countries such as Benin and the Democratic Republic of the Congo. In the case of the latter, “46 per cent of children living in non-durable urban housing
are malnourished, compared with 16 per cent in rural areas […] in India, 45 per cent of children from households without adequate sanitation are malnourished according to recent Demographic and Health Survey data”.

Today, over 25 per cent of the world’s urban population live in informal settlements or slums. A slum household is defined by UN-Habitat as lacking one or more of the following: durable housing; sufficient living area; access to water and sanitation; and secure tenure. There are no reliable statistics available for this last indicator. Boosted by immigration from rural areas and continuing high birth rates, today’s UN-Habitat estimate of 827.6 million slum dwellers is expected to hit a total of 889 million by 2020 assuming government efforts to tackle the issue are maintained and stepped up.

In many cases and especially in the developing world, urbanization has taken place so quickly that governments have struggled to keep up when it comes to providing needed infrastructure. When people are crowded together in unsanitary conditions, disease thrives. A 2005 report in *The Lancet* estimated that nearly half the urban population in Africa, Asia and Latin America has one or more of the main communicable diseases associated with inadequate water and sanitation – including diarrhoea and worm infections. Even in the developed world, cities can attract infectious disease. TB incidence, for example, is much higher in big cities, even in developed countries. New York has four times the national average TB infection rate. In some parts of London, TB is more common than in China.

But infectious diseases are only a part – and an increasingly small part on a global scale – of the health challenge facing urban dwellers. Non-communicable diseases and medical conditions, such as heart disease and diabetes, kill 35 million people a year. According to a 2009 WHO survey, the leading global risks for mortality in the world are high blood pressure (responsible for 13 per cent of deaths globally), tobacco use (9 per cent), high blood glucose (6 per cent), physical inactivity (6 per cent) and overweight and obesity (5 per cent). These risks are responsible for exposure to chronic diseases such as heart disease, diabetes and cancers.

Countries in South-East Asia and sub-Saharan Africa are particularly affected by the burden of disease as measured by WHO in disability adjusted life years (DALYs). These are underweight (6 per cent of global DALYs) and unsafe sex (5 per cent), followed by alcohol use (5 per cent) and unsafe water (4 per cent). While the other three particularly affect South-East Asia and sub-Saharan Africa, alcohol use shows a unique geographic and sex pattern, with its burden highest for men in Africa, in middle-income countries in the Americas and in some high-income countries.

On current trends, non-communicable diseases – those that are not infectious and do not spread from person to person – will be responsible for 75 per cent of all deaths
within a decade, according to the *Global Risks 2010* report by the World Economic Forum. In developing countries, chronic ‘lifestyle’ diseases are increasingly the cause of premature death in urban centres. In Kenya, 17 per cent of people living in urban slums suffer from diabetes or hypertension and cannot get screening services or drugs. Many of the factors spurring this growth in non-communicable disease can be linked directly to city living. In particular, obesity, which is a major risk factor in heart disease and diabetes, is becoming increasingly common, fuelled by more sedentary lifestyles and the ready availability of cheap, fattening, but not particularly nutritious, fast foods.

Research shows that the more urbanized a developing country becomes, the higher the consumption of sweeteners and fats. In *World Development*, B.M. Popkin noted that “a shift from 25 per cent to 75 per cent urban population in very low-income countries is associated with an increase of approximately four percentage points of total energy from fat and an additional 12 percentage points of energy from sweeteners”. In both urban Brazil and South Africa, those with a higher education are less likely to be overweight.

In short, cities may often offer the best of what life has to offer, but they come with a heavy health warning.

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**Box 5.1 Hunger is back with a vengeance**

In March 2007, a day’s labour in Bangladesh could fund the purchase of 5 to 7 kilograms of rice but 12 months later a survey found that a day’s wage could purchase only 3.7 to 5kg of rice.

In Kenya, 4.1 million urban poor were classified as ‘highly food insecure’ in March last year as rising prices combined with floods, drought and conflict to force slum dwellers to reduce food consumption and live with chronic hunger. The price of maize rose by 130 per cent in Nairobi.

The economic slowdown on top of stubbornly high food prices, despite a plentiful global food supply, added 100 million people to the ranks of the hungry last year. In May 2010, the Food and Agriculture Organization of the United Nations (FAO) launched an online petition for people to express their anger about hunger (www.1billionhungry.org), as for the first time in human history over 1 billion people are estimated to go hungry around the world.

The breakdown of 1,017 million hungry is: 642 million in Asia and the Pacific; 265 million in sub-Saharan Africa; 53 million in Latin America and the Caribbean; 42 million in the Near East and North Africa; and 15 million people in developed countries. FAO estimates that global agricultural production needs to grow by 70 per cent if the estimated 9 billion people that will inhabit the planet in 2050 are to be fed.

Surveys by the World Food Programme (WFP), the United Nations Children’s Fund (UNICEF) and other agencies underpin International Monetary Fund statistics which
show that prices of imported rice and local cereals have risen by 230 to 350 per cent since early 2008 as the worldwide economic crisis kicked in with disastrous consequences for both the urban and the rural poor.

The perception of hunger as a largely rural phenomenon is being challenged increasingly by statistics which show how malnutrition is taking root in urban centres especially among children.

A recent review by UN-Habitat of demographic and health survey data collected between 1990 and 2007 in various countries in Africa, Asia and Latin America and the Caribbean found that there has been serious malnutrition in these regions’ urban and rural areas since 1990. In several African countries more than four out of ten children suffered from stunted development.

WFP cites one major lesson learned from its urban interventions during the high food price crisis: “Food insecurity due to the high food prices in urban populations was caused by restricted food access rather than insufficient availability.” WFP considers that targeted food assistance and non-food-based interventions (cash and vouchers) are more appropriate in urban settings.

However, to date no systematic approach has been universally adopted to tackle endemic hunger among the urban poor to ensure that available food becomes affordable for those in need. In recent times there have been food protests in Burkina Faso, Cameroon, Côte d’Ivoire, Egypt, Haiti, Indonesia, Mauritania, the Philippines and Senegal. Some of these protests have turned violent. Some food-exporting nations have significantly reduced food exports to preserve their domestic supply.

Frank Orzechowski of Catholic Relief Services, a major food distributor to the urban poor, told the 10th International Food Aid Conference two years ago: “In the 34 years that I have been involved in the grain trade I’ve never seen conditions such as these. There is a danger that the situation will spin out of control in large parts of the developing world. Particularly vulnerable are fledgling democracies that have recently adopted free market economies.”

He gave his audience a sober reminder of what happened in Liberia “where in 1979 riots in response to rising rice prices were eventually followed by a coup that submerged the country under a period of dictatorship and bloodshed that lasted over 20 years”.

Returning to the 19th century

Crowding people together without proper water supplies, sewage and sanitation increases the risk of transmission of communicable diseases, but it was only in the 19th century that doctors and medical researchers made the necessary connection between living conditions and disease. Over the course of the 1800s, London was repeatedly swept by epidemics. In 1839, for every person who died of old age or violence in Britain, eight died of disease. At the time, nearly one infant in three in England failed to reach the age of 5 and mortality rates in large British cities were much higher than the national average. The misery of 19th century city life for the majority was captured in novels such as Oliver Twist and Hard Times by author Charles Dickens.

Fast-forward to the 21st century and much of the burden of ill health is shouldered by those who live in the slums of some of the developing world’s largest cities. In the
slums of the Indian capital, New Delhi, many health indices, such as infant mortality, are worse than in rural areas, which were long considered to suffer the worst ravages of poverty and deprivation. Like other big developing country metropolises, New Delhi attracts migrants from rural areas in search of work and what they hope will be a better life. For instance, many were attracted to the city by the prospect of jobs in construction as the city set about putting in place the necessary infrastructure for the Asian Games in 1982. Ironically, many of those workers who settled with their families in the Pashta slums on the banks of the Yamuna River have now found themselves among the 150,000 people who have been made homeless as the courts ordered a 40-hectare (100-acre) strip along the Yamuna to be cleared for a riverside promenade close to a key site for 2010’s Commonwealth Games.

In New Delhi, slum dwellers make up over 40 per cent of the population. People defecate outside in the fields or the drains, according to Asha, a non-governmental organization (NGO) that works with slum dwellers to improve their living conditions. Residents are exposed to stagnant water, open drains, floods, rubbish, and noise and air pollution. It is little wonder that people get sick. Open sewers are just one of the unsanitary aspects of slum conditions. In addition to helping the spread of dysentery, cholera and other preventable diseases, the water contains parasites such as hookworm, whipworm and roundworm that infect the slum dwellers and children in particular.

In a country with a fast-growing economy and a middle class larger than that of the United States, New Delhi is also a glaring example of the health inequalities to be found in big cities. “There is a stark dichotomy here. On the one hand, Delhi has a good health infrastructure with excellent health facilities, which are, in fact, better than other parts of the country. For instance, it is possible to have a heart transplant here, at a cost. Yet, the urban poor cannot access even the most basic of healthcare facilities,” said Thomas Chandy of Save the Children India.

Sometimes, people living in slums and informal settlements do not even show up on official population statistics, so it is little surprise if health and other services are also not provided. The population of the Haitian capital Port-au-Prince was 700,000, according to the last official census taken in 2003. But the real number is more than three times higher. “You see people moving for economic need into unplanned peri-urban environments, with a great deal of overcrowding, re-creating the conditions of the 19th century. It is as if none of the lessons of the 19th century health movement had been learned,” said Michael J. Ryan, director of WHO’s Global Alert and Response department.

**Children bear the brunt**

Children are most at risk from the precarious sanitary and health conditions reigning in slum areas. UN-Habitat’s *State of the World’s Cities 2006/7* report states that
Pneumonia, diarrhoea, malaria, measles and HIV/AIDS account for more than half of the deaths of slum children under 5 and that the prevalence of these diseases is largely due to bad living conditions. Children from the highest income groups in slums still have higher rates of diarrhoea than children of the poorest rural families, because they are exposed to contaminated water and food. Pneumonia and diarrhoea each kill more than 2 million children in developing countries annually.

According to Asha, New Delhi’s children suffer from vitamin-A deficiencies that can lead to blindness, and tuberculosis, diarrhoea and respiratory tract infections are very common. The mortality rates for the under-5s are among the highest in the world at 142 per 1,000 live births. Maternal health is poor and women frequently die in pregnancy or childbirth due to lack of access to suitable facilities or trained midwives.

Nobody knows with any precision how many street children there are around the globe. They hustle to get by in difficult conditions and are largely cut off from family support structures. A generally quoted UNICEF figure of 100 million dates back to 1989 with an estimated 10 million of those actually sleeping on the street. They live a precarious existence on the margins of urban life, constantly exposed to violence, disease, pollution and the threat of exploitation. Many of them indulge in substance abuse. Respiratory disease and skin conditions are rife among this population and they generally lack access to healthcare. Though research is thin on the subject, their condition is thought to be the result of many factors such as increasing urbanisation and migration, poverty, food insecurity, HIV/AIDS and other factors which contribute to the disruption of normal family life.

Disease goes global – the pandemic threat

Eleven years ago, WHO observed that: “In the Middle Ages deadly plagues were shipped from one continent to another – carried by flea-infested rats on board ships. Today they travel by plane – carried by airline passengers from one corner of the earth to another. And all in a matter of hours.” The number of international airline passengers commuting between urban centres has jumped since then from 1.4 billion to 2.2 billion. The rapidity and frequency of inter-city commuting has profound implications for public health.

Deadly airborne diseases such as pneumonic plague, influenza and TB can easily spread in crowded airport lounges, on a packed plane or by passengers after their return home. The poliovirus was imported into Canada in 1978 and 1992 by travellers from western Europe. Disease has gone global and cities are an important link in the chain. Large urban areas act as incubators for new diseases, creating the ideal conditions first for them to develop and then to travel. They offer a springboard for new international epidemics or even global pandemics.
New research suggests that HIV may have been around in central Africa for far longer than was initially suspected. It was possibly only with the growth of urban centres, such as Kinshasa, the capital of the Democratic Republic of the Congo, that the disease took root and then picked up the momentum to spread quickly around the world. In most parts of the world, HIV/AIDS is a predominantly urban phenomenon. UNAIDS, the UN’s Joint Programme on HIV/AIDS, estimates that, on average, HIV is 1.7 times more prevalent in urban than in rural areas. This is largely explained by the fact that many of the risk factors, such as injecting drug use, are also more common in cities. Sex workers or men who have sex with other men, two other high-risk groups, are also more numerous in cities, if only because of the higher population density. But even in sub-Saharan Africa, where HIV is transmitted principally through unprotected heterosexual sex, research shows that urban women are more likely to be infected than rural women.

New diseases can emerge by jumping the species barrier from animals to humans. This was certainly the case in one of the two diseases that have most alarmed international health officials in recent years – the H5N1 flu virus, more commonly known as ‘bird flu’ or ‘avian flu’, which is believed to have originated in wild fowl. It was also probably true of the other, SARS (severe acute respiratory syndrome). Both diseases demonstrated how dense, urban living conditions provide the ideal breeding ground for new viruses.
SARS caused near global panic for a while after it erupted in mainland China and then Hong Kong in late 2002 and early 2003. It has been called the first disease of the internet age because global communications helped fan fears about its potentially deadly impact. In the end only some 8,000 people caught the respiratory disease, mainly in South-East Asia and Canada, but it was fatal in nearly 900 cases. The newness of the disease, the fact that it was initially little understood and its high fatality rate, compared with the one in 1,000 of normal seasonal influenza, all stoked the worldwide anxiety. International flights were cancelled and schools, shops and offices shut in heavily affected cities such as Hong Kong and Singapore.

People in Hong Kong stopped going out and donned face masks. Sales of bottled vinegar soared because it was believed to act as an effective disinfectant. Tourism in the most affected areas slumped. Switzerland even barred jewellers from Hong Kong from taking part in the annual international jewellery fair at Basle, and the women’s soccer World Cup was moved from China to the United States. Hong Kong’s economy shrank 2.6 per cent and Singapore’s by 2 per cent in the first half of 2003. Overall, the Asian Development Bank estimated losses in tourism revenue at nearly US$ 15 billion, or 0.5 per cent of gross domestic product.

Fortunately, the H5N1 virus, with a fatality rate of some 60 per cent – far higher than SARS – is not easily transmitted between humans. Since first appearing in China and Viet Nam in 2003, it has infected some 500 people, mainly in South-East Asia and Egypt. Nearly 300 deaths have been confirmed. The disease is now endemic in poultry in certain parts of the world. Worryingly, cities of South-East Asia – where the keeping of live poultry and live poultry markets are common – offer a pool of possible future infection and raise the spectre that the virus could yet mutate and pose a new threat.

If the H5N1 virus were as contagious as the latest new influenza bug – H1N1 – then the impact in terms of loss of life could be catastrophic. H1N1, which was first detected in Mexico in April 2009, has been among the fastest-spreading viruses ever recorded. By the time WHO declared a global pandemic a mere two months later, 74 countries and territories had reported infections. As of April 2010, cases had been reported in 214 countries, including 17,798 deaths. Again, cities speeded contagion locally, with international travel doing the rest.

“In terms of risk management human populations are now forced to live in a way that provides a wonderful point of amplification for disease and then travel and trade and the whole connection between these urban centres is creating a pathway to globalization for these diseases,” noted WHO’s Ryan.

Perhaps one of the best examples of how urban living can stoke epidemics is the tropical disease dengue fever. The incidence of dengue, whose effects can range from mild fever to fatal haemorrhaging, has grown dramatically worldwide to the point that some 2.5 billion
people – two-fifths of the world’s population – are now at risk, according to WHO. The organization estimates that there may be as many as 50 million infections every year, with most going unreported. In the Americas there were more than 890,000 reported cases of dengue in 2007, of which 26,000 were of the often-fatal haemorrhagic fever type.

Yet 50 years ago, the disease was virtually unknown. It first appeared in Manila in the Philippines in 1953 and had jumped to Bangkok, Thailand by the end of the decade. Before 1970, only nine countries had experienced epidemics of the severe haemorrhagic fever, which kills in almost 25 per cent of cases. By 1995, this number had risen to around 40. The disease is now endemic in more than 100 countries in Africa, the Americas, the eastern Mediterranean, South-East Asia and the western Pacific. Not only is the number of cases increasing, as the disease reaches new areas, but so too is the number of serious outbreaks. In 2007, Venezuela reported over 80,000 cases, including more than 6,000 cases of haemorrhagic fever.

The disease is spread by the *Aedes aegypti* mosquito, which has come to thrive in tropical urban environments. It breeds in and around city homes, in roof gutters, beneath refrigerators, under flowerpots and anywhere there is stagnant water, including in waste packaging and discarded food tins. Used tyres are a favourite breeding ground. With globalization, the mosquito also gets to travel easily. Dengue is thought to have arrived in Brazil, now one of the most affected countries, in the rims of tyres exported from Asia.

**Cities change us**

With 70 per cent of the global population forecast to be living in urban areas by 2050, the predominant lifestyle around the world will become increasingly an urban one. But what are the implications of an urban lifestyle for health? It is a mixed picture whereby many improvements in basic health indicators, such as infant and child mortality rates and life expectancy, have to be balanced against health threats which stem directly from urban living.

The major risk factors for non-communicable disease are an unhealthy diet, lack of exercise, smoking and excessive use of alcohol: all of them fostered one way or another by urban living.

Perhaps the most visible and most health-threatening manifestation of the risk factors is obesity. Being significantly overweight greatly increases the chances of developing type 2 diabetes, heart and respiratory problems and even some forms of cancer. According to WHO, over 1.6 billion adults are overweight and nearly one in four is obese. By 2015, the figure for those overweight will have risen to 2.3 billion. As an example of the likely impact on health, WHO forecasts that the number of people with obesity-related diabetes will double to 300 million between 1998 and 2025 – with three-quarters of that growth projected in the developing world.
Urban life affects the way people work, move around and relax. Office jobs require less physical exertion than farm work, while getting around in a city is more likely to involve some form of transport – often door to door, if it is a car or motorcycle – rather than walking. Pressure to build within urban areas can leave less and less space for parks and areas of recreation. “What urbanization does is to change behaviour patterns,” noted WHO’s Kumaresan. “People have different eating habits, different levels of physical activity. If there are no fields or parks, kids have nowhere to run around and play. These are some examples of what urbanization does to our changing patterns of lifestyle.”

Although there is no firm statistical correlation between rising urbanization and the growth of non-communicable diseases, there is no doubt that both have been advancing almost hand in hand. At the beginning of the last century, only some 10 per cent of the world’s population was urban, and infectious diseases, such as malaria and tuberculosis, were still by far the biggest causes of premature death among adults. But by the final decades of the 20th century, nearly half of the world already lived in urban centres, some too small to be considered cities, and the burden of early death had also changed radically.

In the developed countries of North America and Europe, non-communicable diseases had long been fatal, which is why they used to be known as the ‘diseases of the rich’. But by the beginning of the 21st century, 60 per cent of premature deaths around the world were being caused by non-communicable disease. In Latin America and the Caribbean, they account for two out of every three deaths, according to the Pan American Health Organization (PAHO).

New ways, new diet

The Gulf region is a case in point. Over the last 30 years it has experienced remarkable economic growth, modernization and urbanization. As the population has become richer and increasingly urban, diets have changed and now include a greater intake of processed and fast foods, rich in fats, saturated fats, salt and sugars, all of which fuel obesity. The percentage of people who are overweight in Kuwait, the United Arab Emirates and Egypt ranges from 68 per cent to 74 per cent.

In the Americas, the story is similar. The Latin American and Caribbean region is one of the most urbanized in the world, with more than three-quarters of its 433 million people living in towns and cities. Eating habits are changing, with people consuming less fruit, fewer vegetables and more processed food. According to PAHO, 50 to 60 per cent of adults in Latin America and the Caribbean are overweight or obese. Even more worrying for the future, the same goes for 7 to 12 per cent of children under 5.

At the same time, 30 to 60 per cent of the population do not take the minimum level of exercise – 30 minutes a day – recommended by WHO. Predictably, in the past few years, the region has witnessed an explosion in chronic non-communicable disease – cancers, hypertension and heart problems. According to WHO figures, more than
75 per cent of the 6.2 million deaths estimated to have occurred in the region in 2005 were related to chronic diseases. In urban settings, poorer people have access to cheaper foods, which will often be less nutritious than more expensive varieties. It often costs less to eat badly.

But the health problems of urban dwellers, particularly the poor, extend well beyond eating badly and doing little exercise when it comes to exposure to non-communicable disease. In 2004, some 1.2 million people died from respiratory illnesses caused by outdoor urban air pollution. According to WHO, some 1.5 billion urban dwellers – mostly in developing countries – face levels of air pollution that are above the maximum recommended limits. Emissions from motor vehicles and factories are estimated to cause about 8 per cent of lung cancer deaths, 5 per cent of cardiopulmonary deaths and about 3 per cent of respiratory infection deaths. This is likely to get worse as World Bank projections indicate that motorized vehicles in cities will quadruple by 2050. Traffic kills and maims in large numbers. Around 90 per cent of the 1.3 million deaths a year attributable to road accidents occur in low- to middle-income countries.

Indoor pollution can be even more lethal. About 25 per cent of city dwellers in developing countries and 70 per cent of city dwellers in least developed countries use solid fuels for household heating and cooking. In 2004, exposure to indoor pollution was estimated to cause about 2 million deaths worldwide, mostly from pneumonia, chronic lung disease and cancer.

**Box 5.2 Hi-tech rescue in a mega-city**

Imagine you are in charge of delivering much of the emergency health services to a megacity of over 20 million people and 4 million vehicles. It is a city so choked with traffic that drivers are only allowed take to the road on alternate days. There are 500,000 traffic accidents a year, countless heart attacks and fires.

How then do you meet the challenge of providing a 24/7 service, 365 days of the year, with 1,100 staff and a fleet of just 153 ambulances, each of which will normally respond to an average of five calls a day?

The Beijing branch of the Red Cross Society of China, led by Executive Vice President Lu Han, has come up with a series of innovations designed to maximize the use of limited resources by applying technology to the provision of ambulance services to a degree not seen in any other urban environment of its size. Speaking to the World Disasters Report during a Red Cross forum on urban risk at the Shanghai Expo, she said: “Urban response has become a priority in a crowded city. The Beijing Red Cross 999 line responds to over 50 per cent of the emergencies in the city. In comparison with the government’s 120 line, our 999 emergency services line offers more choices. We are more focused on meeting the needs of our patients. For instance, we have 32 first-aid stations located in the traffic bureau’s branch offices to ensure timely response to traffic accidents and there is also close coordination with the fire brigade.”
The Red Cross has 90 first-aid stations throughout the city and all its ambulances are equipped with GPS and closed circuit television. The command centre at headquarters always knows where its ambulances are and they can be diverted at a moment’s notice to the scene of a major accident. Doctors can assist remotely with the early treatment of seriously injured patients and ensure patients are brought to the appropriate hospital department.

In 2009, in pursuit of their goal of saving both time and lives, they augmented their vehicle fleet with 50 motor bikes for first aiders who are equipped with Personal Digital Assistants (or palmtops) and GPS. “Motorcycles can reach the patients very fast when there are traffic jams. So we can make good use of the first four to six minutes after the call comes in, for this is the most precious period of time especially if the ambulance is going to be delayed by traffic,” said Han.

In addition, she explained: “999 has a special programme for more than 200,000 households in Beijing. If they press a certain button on their phone panel, 999 will be aware of the basic medical background of the family, medical records, address and phone number. These are usually families looking after an elderly person.”

The Chinese Red Cross has developed a unique mobile phone platform with many features not found on standard models. The GPS-equipped phones have proved useful to many families caring for a senile senior citizen lost in the city. The phones have an alarm button which will alert the Red Cross emergency centre when activated without even making a phone call. The phones can vocalize text messages for those who have poor sight and act as a torch and they also have an in-built radio.

A third generation of this mobile phone, which costs less than US$ 100, is now under development. It can dial 999 when activated by an immobilized patient wearing a watch-like device on the wrist.

The Beijing Red Cross provides many other services including helping victims of traffic accidents compile insurance claims through the 999 forensic centre’s reports and providing medical care to anyone being held in police custody.

“Hi-tech equipment is only one aspect of our work. In addition to the technology we have also been focusing on increasing people’s knowledge, skills and general awareness about disaster risk reduction. The Beijing Red Cross issued 6 million copies of its family first-aid manual in Beijing last year. More than 3 million people had received basic first-aid training by the end of 2009. We will continue to enhance our smart power – strategic planning and management in order to build a safer and secure mega-city,” concluded Han.

Visitors to one of the city’s most popular tourist attractions, Tiananmen Square, will be happy to hear that there is a first-aid post and ambulance stationed there 24/7. You are also in a city where more than 3 million people have received basic first-aid training – so help may never be too far away.

Mean streets

Violence is a serious risk to health in many large cities (see Chapter 4), whether it is Rio de Janeiro, Los Angeles or the banlieues of Paris. Much of this violence is related to the illicit drugs business which largely depends on end users living in cities. But there are other urban factors such as social exclusion, xenophobia and marginalization, unemployment and alcohol abuse that also fuel violence.
Illicit drugs are not just a source of violent crime, their use also poses a huge health challenge in itself and it is a problem that is heavily concentrated in cities. The same goes for alcohol abuse. Use of illicit drugs is fuelled by social and economic pressures and facilitated by easy availability in urban areas. According to WHO, urbanization is associated with twice the rate of hospital admission for drug or alcohol disorders.

Given the pressures of city life, it is no surprise that urban living fuels mental disturbance and distress. Levels of fear, anxiety and mental illness have been shown to be higher in urban environments. In a study carried out in Sweden in 2004, adult Swedes living in densely populated areas had nearly twice the rate of serious mental illness as those living in thinly populated parts of the country. A sense of lack of control, fear of unemployment, the breakdown of traditional social ties and bonds – a particular problem for immigrants – and urban overcrowding are all factors that can trigger high levels of stress.

One private clinic quoted in Britain’s *Guardian* newspaper reported a 33 per cent rise in the number of people from the financial sector seeking advice for anxiety, depression and stress after the global financial crash of late 2007 and 2008. Unemployment, or the threat of it, undermined their sense of personal worth. Another group particularly exposed to stress in urban settings is the elderly. Older city dwellers, particularly in richer countries, often face loneliness and depression unless they are rich enough to be able to pay for private care.

WHO forecasts that within the next ten years unipolar depression will account for the greater burden of disease in developing countries. Community-based studies of mental health in developing countries support the view that 12 per cent to 51 per cent of urban adults suffer from depression in some form or other. Risk factors include marital breakdown, poverty, exposure to stressful events, long-term stress and lack of social support. Symptoms of depression are more common among urban women than men and among poor urban neighbourhoods rather than in non-poor urban areas. Inadequate shelter, unemployment and the relentless struggle to cope with adversity are all drivers of mental ill health for the urban poor.

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**Box 5.3 Safety on the urban road**

Road transportation has become a key element of urbanization. By speeding up communications and the transport of goods and people, it has generated a revolution in contemporary economic and social relations.

However, this has not come about without cost: environmental pollution and urban stress are directly linked to growing road transportation. Above all, it is increasingly associated with the rapid escalation of road crashes and premature deaths, as well as with physical handicaps and psychological trauma.

Losses are not limited to reduced worker productivity and trauma affecting a victim’s
private life. Equally significant are the rising costs in health services and the added economic burden (estimated between 1 and 3 per cent of gross national product). In developing countries, the costs often exceed the international development assistance received each year. Consequently, there is a direct link between road safety improvement and poverty reduction.

The situation is made worse in developing countries by rapid and unplanned urbanization. The absence of adequate infrastructure in cities, together with the lack of a legal regulatory framework, makes the exponential rise in the number of road crashes all the more worrying.

Road crash fatality numbers are comparable to the number of global deaths caused by TB or malaria. Worldwide, road traffic injuries are the leading cause of death among young people aged 15 to 29 and the second most common cause of death for those aged 5 to 14. An estimated 1.3 million people are killed in road crashes worldwide each year and as many as 50 million are injured. For every death, 20 to 30 people are disabled, many permanently.

“If significant preventive actions are not taken, we estimate that by 2020 road trauma will rank as the sixth biggest cause of death.”

Cost-effective solutions do exist and have already achieved very positive results in many countries. Together with its hosted project, the Global Road Safety Partnership (GRSP), the International Federation of Red Cross and Red Crescent Societies (IFRC) has prioritized the reduction of disastrous road safety crashes affecting young people. IFRC and GRSP are advocating for the adoption of straightforward solutions to avoid or significantly decrease the tragic human, social and economic consequences of urban road crashes. These include: implementation of national road safety action policy; better road systems; first-aid training; and closer partnerships with governments, the private sector and civil society.

Viet Nam offers a good example of success. In 2006, the Vietnamese National Traffic Safety Committee, the Asia Injury Prevention Foundation, the Red Cross of Viet Nam and the French Red Cross contributed to efforts to create a national action helmet plan supported by GRSP. That led to enactment and enforcement of a new helmet law. In 2008, Viet Nam saw the first results: 1,500 fewer lives lost compared with 2007 when 12,500 people died on the road.

Campaign posters produced by the Red Cross of Viet Nam and the French Red Cross in Hanoi and Ho Chi Minh City.
Conclusion

Modern city life takes a heavy toll on health, partly through the unsanitary and often dangerous conditions in which millions of people are forced to live, partly through the lifestyle choices that it encourages and partly from the strains and stresses that it imposes. Lack of policy and poor planning by municipal and central government play a significant role in these outcomes.

While it is true that the number of slum dwellers continues to rise, some of the most significant strides in health improvements are being taken in countries where good urban governance is actively encouraged and supported and where lifting people out of slum conditions is a public policy goal. China and India have made progress in recent years in reducing their slum populations, showing what economic growth and political will can do. Some specific examples of how this can be done, particularly through community-based initiatives, are cited in Chapter 3 of this report, including the Thai government’s support to community-driven upgrading whereby scale is achieved through the very large number of local initiatives that it supports. At a local level, NGOs such as Asha show what can be achieved by working with slum dwellers to improve living conditions and fight disease. In the 49 New Delhi slums in which Asha is active, child mortality is now 36 for 1,000 live births, which is less than half the rate of India as a whole.

When it comes to non-communicable disease, there are signs that political leaders are waking up to the threat. Whether it be Bogotá’s ciclovia (specially constructed routes for cyclists in the Colombian capital) or Singapore’s green labelling of dishes on school menus to help students identify healthy foods, examples are multiplying of countries and cities taking initiatives to tackle the problems of inadequate diet and lack of exercise. Community networks are being forged to overcome the challenges of social breakdown and violence in poor and underprivileged city zones of both developing and developed countries.

Underpinning all such initiatives is the growing awareness that tackling city health problems is not just a question of doctors and nurses. Nor is it solely a matter of alleviating poverty, although that is a crucial and necessary condition. It requires that cities be well planned, well managed and also well governed. Only then will they pose less of a threat to the health of those who live in them.

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Sources and further information


