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BY **MARK R. MONTGOMERY**

URBAN POVERTY AND HEALTH IN DEVELOPING COUNTRIES

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ABOUT THE AUTHOR

MARK R. MONTGOMERY is a professor in the economics department at Stony Brook University and a senior associate with the Population Council's Poverty, Gender, and Youth Program. His current research interests include the links between poverty and demographic behavior in the cities of developing countries; measurement of poverty and poverty dynamics using proxy variables; and the implications of climate change for the urban areas of developing countries.

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URBAN POVERTY AND HEALTH
IN DEVELOPING COUNTRIES

Small cities and towns house the vast majority of developing-country urban residents. Rates of poverty in these smaller settlements often exceed the rates in large cities, with shortages of health services similar to rural areas.

BY 2050,

two-thirds of the developing world's population is likely to live in urban areas.

80%

The share of poor urban households living in nonslum neighborhoods in India.

For large groups of the urban poor, the health environment differs little from that of rural villages, and payment for health care in urban areas does not guarantee adequate quality.

The era in which developing countries could be depicted mainly in terms of rural villages is now in the past. A panoramic view of today's demographic landscape reveals a myriad of cities and towns.

By 2030, according to the projections of the United Nations Population Division, more people in the developing world will live in urban than rural areas; by 2050, two-thirds of its population is likely to be urban.[1] The world's population as a whole is expected to grow by 2.5 billion from 2007 to 2050, with the cities and towns of developing countries absorbing almost all of these additional people.

This demographic transformation will have profound implications for health. To understand these consequences, it is important to set aside the misconceptions that have prevented the health needs of urban populations from being fully appreciated. The most urgent need is to acknowledge the social and economic diversity of urban populations, which include large groups of the poor whose health environments differ little from those of rural villagers. On average, urbanites enjoy an advantage in health relative to rural villagers, but health policies for an urbanizing world cannot be based on averages alone. Disaggregation is essential if policies are to be properly formed and health programs targeted to those most in need.

The supply side of the urban health system is just as diverse as the urban population. The private sector is a far more important presence in cities than in rural areas, and urban health care is consequently more monetized. Even in medium-sized cities, one can find a full array of providers who serve various niches of the health care market, ranging from traditional healers and sellers of drugs in street markets to well-trained surgeons. In addition to the socioeconomic and supply-side differences within any given city, there are important differences across cities that warrant attention. Much of the demographic and health literature has concentrated on the largest cities of developing countries, leaving the impression that most urban residents are found in these huge agglomerations. In fact, small cities and towns house the vast majority of developing-country urban dwellers.[2] A number of studies suggest that rates of poverty in these smaller settlements often exceed the rates in large cities, and in many countries small-city residents go without adequate supplies of drinking water and minimally acceptable sanitation.[3] Rural shortages of health personnel and services are receiving attention in the recent literature, but similar shortages also plague smaller cities and towns.[4] As developing countries engage in health-sector reforms and continue to decentralize their political and health systems, allowances will need to be made for the thinner resources and weaker capabilities of these urban areas.

This *Population Bulletin* provides a sketch of urban health in developing countries, documenting the intraurban differences in health for a number of countries and showing how the risks facing the urban poor compare with those facing rural villagers. It begins with an overview of the multiple dimensions of urban poverty and a summary of internationally comparable evidence on the urban health differentials associated with poverty.

TABLE 1

The Multiple Dimensions of Urban Well-Being

	CONSUMPTION OF:						
HEALTH	PRIVATE GOODS AND SERVICES	LEISURE TIME	SHELTER	HEALTH-RELATED PUBLIC SERVICES	FREEDOM FROM VIOLENCE AND CRIME	PERSONAL EFFICACY	COLLECTIVE EFFICACY AND POLITICAL VOICE
• Crowding, contagion, and social epidemiology • Costs and quality of private and public health services • Municipal interventions in traffic control, emergency transport, pollution control, and other environmental risks	• Food and nonfood consumption • Variability (over areas and over time) in prices, wages, and demand • Provision of electricity • Holdings of consumer and producer durables • Access to savings and credit • Access to land	• Time costs of commuting	• Security of tenure • Use of housing for informal enterprises, rental income • Exposure to environmental risks • Nondirt flooring • Ventilation of cooking space	• Adequate supply of safe drinking water • Sanitary disposal of human waste • Drainage • Solid waste disposal	• Access to the police and judicial system • Lighting of walkways, streets, and bus stops • Safe spaces for girls and women • Counseling and intervention services for intimate-partner violence	• Personal social networks • Perceptions and interpretations of urban inequality	• Local social and political organizations (including associations of slum dwellers) • Political and institutional accountability • Participatory planning • Social exclusion

Source: Mark R. Montgomery.

Urban Poverty: Concepts and Measures

Since the early 1980s, poverty has been viewed as having multiple dimensions or manifestations, each of which warrants consideration. The theory underlying this approach is generally credited to Amartya Sen, who put forward the core ideas in his framework of capabilities and well-being.[5] Sen's framework unifies elements of the familiar basic-needs approach to poverty (see Box 1, page 4), extending that approach to incorporate the concepts of relative deprivation, inequality, and social exclusion. Our discussion of poverty will be guided by the framework set out in Table 1, which is designed to highlight dimensions of well-being that are of particular salience to urban health and to indicate where conceptual and programmatic linkages might be made across dimensions.

What insights or interventions are suggested by the multiple-dimensions approach that might otherwise have been overlooked? Consider the first two columns of Table 1, which have to do with health and the consumption of private goods and services, the latter providing the basis for conventional, monetized measures of living standards and poverty. A household whose consumption expenditures put it above the consumption poverty line (Box 1, page 4) is classified as "not poor" according to such conventional definitions. If one knows where a household stands in terms of its consumption, what more can be learned by considering health as an additional dimension of well-being?

Levels of health and consumption expenditures are positively correlated, but so many other factors are involved in their relationship that a household classified as nonpoor in terms of its consumption might not enjoy even minimally adequate levels of health. Nonpoor households in urban neighborhoods lacking drinking water and sanitation face a daily assault of health threats that household income alone cannot always fend off. Even those who can pay for health care may receive services of such low quality that they do little to restore health. When poverty is defined in narrow monetized terms, policymakers may tend to think of poverty alleviation mainly in terms of labor markets, not realizing that there are government agencies with no role in employment as such but whose actions may nevertheless make a significant difference to household income. For example, some health interventions can expand a household's capacity to generate income: The provision of treated bed nets reduces the number of days of adult work that would otherwise be lost to malaria, and programs that rid children of parasitic infections allow them to better concentrate in school and grow to become more productive adults. Likewise, policymakers may underestimate the payoffs from successful employment interventions by failing to appreciate how extra cash income can produce health returns. By setting side-by-side the different dimensions of household well-being, the multiple-dimensions perspective thus underscores the potential benefits from linking sectors, encouraging an approach that has been termed "joined-up" governance.[6]

The fact that a household is nonpoor in terms of consumption provides no guarantee of adequacy in other important aspects of well-being, as outlined in the next set of columns in Table 1. For example, among slum-dwelling households with consumption levels that are twice the official poverty line in India, more than one in six

BOX 1

Measuring Consumption Poverty

Although the multiple-dimensions approach is gaining prominence, in most developing countries the official measures of poverty continue to be based on income or consumption. A few sample surveys gather both income/consumption data and data on health but, in general, health-oriented surveys collect only proxies for consumption.

CONSUMPTION

In developing countries, consumption poverty lines are still mainly defined with reference to nutritional requirements, with nonfood needs treated in an unsystematic or ad hoc manner. Typically a "basket" of basic food needs satisfying minimum nutritional requirements is specified and the money income required to purchase this basket at prevailing prices is estimated. These procedures set the food poverty line. A further allowance for all nonfood items (shelter, medical care, clothing) is then added, usually without reference to nonfood basic needs as such. This yields the overall poverty line.

The federal poverty line in the United States exemplifies this approach. Since the early 1960s, U.S. poverty lines have been set by tripling the costs of a minimally sufficient basket of food, with additional adjustments for differences in family size and composition. In developing countries, however, the overall poverty line is set at much less than three times the costs of food—in the sample of countries analyzed by David Satterthwaite, the ratio of the overall to the food poverty line was only 1.3 for the median country—raising doubts about whether the relatively small allowances for nonfoods are sufficient to cover nonfood basic needs. In high-income countries such as the United States, education, water, sanitation, and security are provided to households by the state. In developing countries, by contrast, the state does not usually provide these essential services to significant percentages of the population, who must either do without such basic nonfood needs or find a way to purchase them. With other things equal, then, one would expect nonfood allowances in poor countries to be more rather than less generous; that is, greater than three times the cost of food as used to set the poverty line in the United States.

Market imperfections and the higher relative costs of transportation and communication in developing countries cause prices to differ across cities and neighborhoods within cities. In the case of food, the urban poor can face unit prices for staples that are well above those prevailing in middle-class urban neighborhoods. City residents also need cash to pay for rent, transportation, and many other nonfood items. Although it is becoming common practice to adjust poverty lines for variation in food prices across broad geographic regions, relatively few developing countries have accounted for nonfood price variation or made adjustments for differences across city neighborhoods. The poverty estimates are also quite sensitive to assumptions about equivalence scales, such as whether children should be treated as adult-equivalents in calculating the household's per member consumption. For these reasons, caution should be exercised before drawing strong conclusions about urban poverty from official poverty lines.

PROXIES FOR CONSUMPTION

Much of what is known of health conditions and poverty in developing countries comes from surveys that do not collect income and consumption data as such. In these surveys, measures of poverty and living standards must be fashioned from what is, typically, a very small set of proxy variables. The living standards indicators common to most surveys in the Demographic and Health Surveys program include ownership of a car, television, refrigerator, radio, bicycle, and motorcycle; most surveys also record the number of rooms the household uses for sleeping and whether finished materials are used for flooring. Some surveys supplement these measures with questions on other consumer durables and, on occasion, with queries about land or producer durables. Statistical tools such as principal components analysis or factor analysis are applied to convert these indicators into an index.

A number of fundamental concerns about such proxy-based measures have yet to be addressed. What concept of living standards are these proxies meant to measure? Do they measure the standard of living of the household as a whole, per capita consumption, or consumption per adult? Many of the usual consumer goods used in the proxy-variables index require the household to have electricity, leaving it unclear whether the remaining items provide an adequate picture of living standards in areas without reliable electrical service. In slum communities that lack protection from theft or face risks from floods and other environmental hazards, the absence of consumer durables from the household may not be so much an indicator of consumption poverty as of crime-related or environmental risks. Circular and short-terms migrants may choose not to buy consumer durables in order to save or send remittances to family members. In addition, durables may be purchased but then transferred for safekeeping to family members living elsewhere. Finally, little is known about the behavior of proxy "asset" variables over time. Consumption expenditures in urban households are known to vary considerably over periods as short as two to three years. Do these asset proxies capture such variations in household well-being?

Sources:

David Satterthwaite, *The Under-Estimation of Urban Poverty in Low and Middle-Income Nations* (London: International Institute for Environment and Development, 2004).

National Research Council, *Measuring Poverty: A New Approach* (Washington, DC: National Academy Press, 1995).

John Iceland, *Experimental Poverty Measures: Summary of a Workshop* (Washington, DC: The National Academies Press, 2005).

Mark Montgomery et al.,"Measuring Living Standards With Proxy Variables," *Demography* 37, no. 2 (2000): 155-74.

households live in housing so precarious it requires major repairs to be safely habitable.[7] In conventional poverty measures, no attempt is made to attach a monetary value to consumption of health-related public services (such as drinking water and sanitation). Conventional poverty measures also ignore the important dimension of crime and violence, risks that threaten many city dwellers.

The last two columns of Table 1 (page 3) address the core issues of *efficacy* and *agency* that most clearly separate Sen's capabilities framework from the basic-needs approach to poverty.[8] Where health is concerned, a sense of personal efficacy is fundamental since it energizes health-seeking behavior. The mother of a sick child who lacks faith in her own effectiveness may give up after a dispirited search for care, whereas one with more confidence in her abilities might persevere until help is located. Whether a woman perceives her choices to be effective can depend on the information and contacts that she has acquired through her personal social networks. Personal efficacy can differ depending on the specific domain in which choice is exercised, but there are summary measures of the lack of efficacy—anxiety, depression, and related aspects of mental health—that may be relevant across the board.

The last column of Table 1 (page 3) addresses collective efficacy—the ability of individuals to act through groups to achieve the ends they collectively desire. The groups in question can be local, informal associations—such as associations of slum dwellers—local political groups, or other groups with links to resources outside the local community (such as those with bridging social capital). In both the personal and collective arenas, there is the possibility of social exclusion to consider. Some poor people may feel that avenues to upward mobility are effectively blocked; a slum association may interpret the absence of public services in the local community as evidence of indifference at more powerful levels of government. Sen's emphasis on the collective and community dimensions of well-being thus provides a natural bridge from the absolute poverty focus of the basic needs perspective to considerations of distribution, relative deprivation, and inequity.

Much of this discussion applies to rural as well as urban environments, but there are features of city life that give urban poverty a distinctive character. The monetization of urban living; the spatial concentration of the population in environments that are sometimes but not always well-supplied with protective public services; the inescapable economic and social diversity that confronts the urban-dweller in daily life; and the geographic proximity of modern health care institutions that may nevertheless lie beyond the reach of the poor—these and similar factors are far more prominent in urban than in rural settings.

Popular accounts of urban poverty, and too much of the academic literature, tend to leave the reader with the impression that "slum dwellers" and the "urban poor" are one and the same. But this is not the case. One study of urban India found that of all urban households officially classified as poor in 2005, over 80 percent lived in nonslum neighborhoods.[9] Also, slums may contain significant percentages of households whose expenditures would put them above the official poverty line. Much more needs to be done to determine the percentage of the urban poor living in slums. Without this information, it is not clear whether poverty alleviation programs should target poor places (slums) or poor people (who may live in a variety of neighborhoods).

Health Averages and Inequalities

An overview of urban causes of death and disability provides insight into urban-rural health differentials. Mexico is one of the few middle-income countries that can provide reliable cause-specific information. Table 2 (page 6) shows the 15 leading causes of disability-adjusted life years (DALYs) lost in Mexico's rural and urban areas. This table provides several lessons. First, urban areas do not necessarily present health profiles that are wholly distinct from those of rural areas. In Mexico, the causes of DALYs lost are broadly similar in urban and rural areas. Of the top five causes in Mexico's cities and towns, three (deaths related to motor vehicles, homicide and violence, and cirrhosis) are also among the top five in rural areas. Second, violence and traffic-related deaths and injuries are two of the most important causes of death and disability in urban Mexico, but in many countries measures to combat these health risks would be considered outside the scope of the public health system. Third, the table shows that even in a middle-income country such as Mexico, diarrheal disease and pneumonia continue to be major causes of urban death and disability.

The common belief that rural levels of health are generally worse than in urban areas is supported by good scientific evidence. One analysis of 90 surveys from the Demographic and Health Surveys (DHS) program found that, on average, the urban populations of poor countries exhibit lower levels of child mortality than rural populations, and similar urban–rural differences were evident across a range of health indicators.[10] Apart from the large exception of HIV/AIDS, in most low- and middle-income countries, the urban advantage in terms of average health levels is too well documented to dispute.

However, averages can be a misleading basis on which to set health priorities. Urban health averages mask wide socioeconomic differentials; when these are disaggregated, it is clear that the urban poor often face health risks that are nearly as severe as those of rural villagers and are sometimes worse. As will be discussed below, in some studies of slum neighborhoods, the health risks confronting the urban poor have been found to exceed rural risks, despite the proximity of modern health services. Although less is known on a systematic basis about health differences across cities, disaggregation is important in this dimension as well. Cities can differ significantly in health institutions and personnel, and in the strength of oversight and management exercised by local governments.

Few developing countries can supply the detailed data needed to explore these important distinctions. Many countries have fielded nationally representative health surveys, which allow a country's urban poor to be studied as a group but rarely provide reliable estimates of health among the poor in any given city. The major international survey programs focusing on health—the DHS and the Multiple Indicator Cluster Surveys (MICS)—have not provided enough spatial information to identify small- and medium-sized cities, making the city-size dimension of health surprisingly difficult to document. Moreover, the surveys in these programs do not gather information on income or consumption expenditures, and measures of living standards must therefore be constructed from proxy variables.

To generate the figures in this section, a factor-analytic statistical method has been applied to DHS data on such proxies to develop two rankings of relative standards of living. An urban household is classified as *very poor* if it is in the bottom 10 percent of the urban distribution in the survey; *poor* if it is in the 11th to 25th percentiles; *near-poor* if in the 26th to 50th percentile range; and *other* if in the top half of urban households. Rural households are similarly ranked relative to other rural households. The ranking is based on proxies for consumption (ownership of various consumer durables), together with producer durables and the age and education of the household head.[11]

Figures 1 through 4 (page 7), for India and Egypt, convey the essence of the results that can be found across a broad range of countries. In these figures, the urban and rural populations are compared side-by-side for a given health condition or service.[12] Figure 1 depicts a basic measure of reproductive health—whether a pregnant woman made at least one visit for prenatal care, as recorded in the 1998-2000 DHS for India. The percentages receiving care are notably higher for urban women than for rural, but within each sector, large differences are evident by relative standards of living. Only 69.7 percent of very poor urban women in India receive any prenatal care—similar to the percentage for rural women in the top half of the rural living standards distribution.

There are enormous differences between the likelihood of a poor urban woman in India having her delivery overseen by a physician or trained nurse-midwife in comparison with better-off urban women (see Figure 2). Obviously, differences within urban areas cannot be wholly attributed to shortages of health personnel, although that may be part of the reason why the urban-rural differences in birth attendance are as large as they are.

Large socioeconomic differences are also apparent among children, as can be seen in the percentages of Indian children who are stunted (Figure 3) and in the levels of anemia among Egyptian children in rural and urban areas (Figure 4). For both measures and countries, the storyline is similar: There is clear evidence of an urban health advantage in general, but equally clear evidence that poor urban children suffer from health disadvantages similar to those affecting rural children.

It is not surprising that the health situations of poor urban and rural populations are so similar. When poor city dwellers live in close proximity without the protections of safe drinking water and adequate sanitation, they face elevated risks from water, air, and food-borne diseases. As Table 3 (page 8) shows, such vital public health infrastructure is far from being equitably distributed; the urban poor are significantly ill-served in comparison with other urban households. Rural households have even less access to water and sanitation services than poor urban households, but they benefit to an extent from lower population densities, which confer a form of natural protection against some communicable diseases.

Investments in urban public health infrastructure require substantial financial sums, and although public health authorities can help publicize needs and exert pressure, key decisionmakers generally reside in other sectors of government. There are, however, complementary initiatives that lie within the purview of public health. The recent literature on water and sanitation has drawn attention to unsafe hygiene and water storage practices that cause water to be contaminated after it has been drawn from the pipes. Domestic hygiene interventions, including an emphasis on handwashing (especially after defecation), control of flies, and encouragement of safer practices in food preparation and water storage can achieve substantial reductions in diarrheal diseases.[13]

TABLE 2

Disability-Adjusted Years of Life Lost in Mexico by Cause and Residence per 1,000 Population, 1991 Estimates

CAUSE	RURAL	RURAL RANK	URBAN	URBAN RANK	RURAL/ URBAN
Diarrhea	12.0	1	2.8	9	4.28
Pneumonia	9.3	2	3.9	7	2.39
Homicide and violence	9.2	3	7.4	2	1.23
Motor vehicle-related deaths	7.9	4	8.3	1	0.95
Cirrhosis	7.5	5	6.3	4	1.19
Anemia and malnutrition	6.8	6	2.4	11	2.86
Road traffic accidents	5.5	7	6.8	3	0.81
Ischemic heart disease	5.1	8	5.3	6	0.96
Diseases of the digestive system	4.7	9	1.7	15	2.74
Diabetes mellitus	4.1	10	5.7	5	0.72
Brain vascular disease	3.0	11	3.0	8	1.02
Alcoholic dependence	3.0	11	1.9	13	1.56
Accidents (falls)	2.8	13	2.6	10	1.09
Chronic lung disease	2.6	14	1.9	13	1.39
Nephritis	2.2	15	2.2	12	1.01

Source: R. Lozano, C. Murray, and J. Frenk, El peso de las Enfermedades en Mexico, *Las Consecuencias de las Transiciones Demografica y Epidemiological en América Latina*, ed. Kenneth Hill, Jose B. Morelos, and Rebecca Wong (Mexico City: El Colegio de México, 1999): 130.

Improvements in housing quality can also make a difference to health. In Mexico, a program that replaced dirt with cement floors significantly improved the health of young children, leading to reductions in rates of parasitic infection, diarrhea, and anemia.[14] As in the case of hygiene interventions, such narrowly focused programs may be affordable in poor countries even if large-scale housing and infrastructure upgrades are not.

THE HEALTH OF SLUM DWELLERS

It is difficult to divide the overall health risks that slum dwellers face into the risks attributable to household poverty and the additional risks produced by the spatial concentration of poverty in slum neighborhoods. Although not definitive, Figure 5 (page 8) is at least suggestive of the impact of concentrated poverty on child mortality in Nairobi, Kenya. In the slums of Nairobi, child mortality rates, at 151 per thousand births, are substantially above the rates seen elsewhere in Nairobi; slum mortality rates are high enough to exceed rural Kenyan mortality. The additional risk in Nairobi's slums may be due to multiple factors: the poor quality and quantity of water and sanitation in these communities; inadequate hygienic practices; poor ventilation and dependence on hazardous cooking fuels; the transmission of disease among densely settled slum dwellers; and the city's highly monetized health system, which delays or prevents access to Nairobi's modern health services for the poor.

FIGURE 1

Any Prenatal Care: Urban and Rural India, 1998-2000

Percent Visited

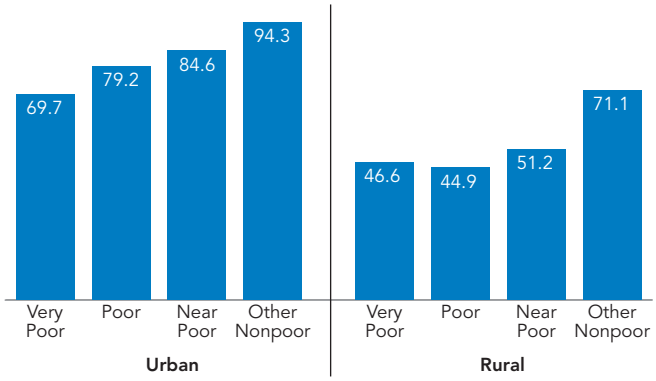


FIGURE 2

Attendance of a Physician or Trained Nurse-Midwife at Delivery: Urban and Rural India, 1998-2000

Percent Attended

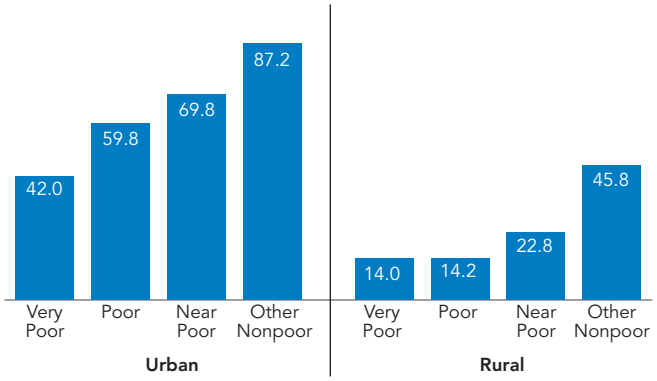


FIGURE 3

Child Malnutrition: Stunting in Urban and Rural India, 1998-2000

Percent Stunted

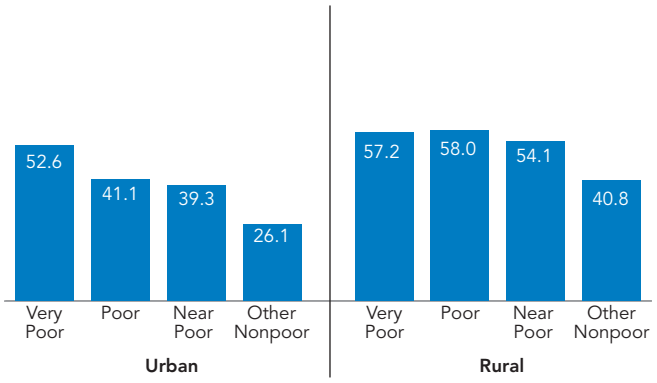
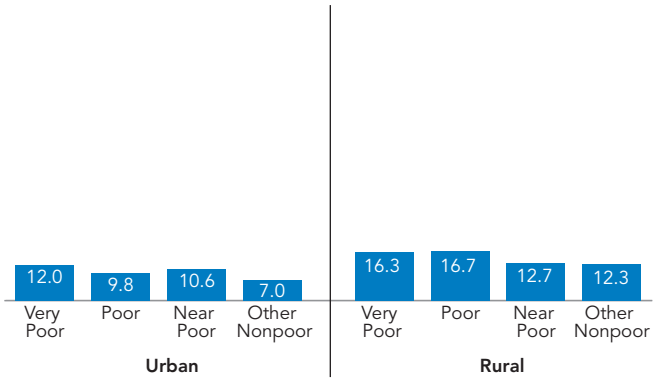


FIGURE 4

Anemia Among Children: Urban and Rural Egypt, 2005

Percent Moderate/Severe Anemia



Note: Poverty level based on analysis of consumption proxies used to determine household standard of living. Very poor = in bottom 10 percent of distribution; Poor = in 11th to 25th percentile; Near Poor = 26th to 50th percentile; Other = 51st to 100th percentile. Urban ranking is relative to other urban households and rural ranking is relative to rural households.
Sources for Figures 1-3: Demographic and Health Survey, India, 1998-2000. **Source for Figure 4:** DHS, Egypt, 2005.

There are social-epidemiological factors that are also worth considering. Facing health threats from their unprotected physical environments, with the lack of services being a constant reminder of social exclusion, and lacking the incomes needed to counteract these daily threats, the urban poor may feel unable to take effective action to safeguard their health. Poor individuals and families may thus lack the sense of self-efficacy needed to energize health-seeking behavior in such difficult environments. Poor communities may be reminded by the absence of basic services that the community as a whole is socially excluded and lacks the political voice needed to bring attention to its plight. At the individual and family level, as will be discussed, social exclusion combined with the daily stresses of poverty may bring on paralyzing fatigue, anxiety, low-level depression, and other expressions of mental ill-health. At the community level, the symptoms may be expressed in the weaknesses and fragilities of local community organizations; that is, in deficiencies in what has been termed *bonding* social capital.

TABLE 3

Percent of Poor Households With Access to Services

DHS COUNTRIES IN REGION	PIPED WATER ON PREMISES	WATER IN NEIGHBOR-HOOD	FLUSH TOILET	PIT TOILET
NORTH AFRICA				
Rural	41.6	37.3	41.3	17.5
Urban poor	67.3	27.8	83.7	8.5
Urban nonpoor	90.8	7.8	96.3	2.6
SUB-SAHARAN AFRICA				
Rural	7.8	55.7	1.1	47.6
Urban poor	26.9	61.6	13.0	65.9
Urban nonpoor	47.6	45.8	27.4	67.2
SOUTHEAST ASIA				
Rural	18.6	53.7	55.5	24.3
Urban poor	34.0	53.7	61.8	22.9
Urban nonpoor	55.8	40.1	89.0	9.4
SOUTH, CENTRAL, WEST ASIA				
Rural	28.1	53.6	4.3	55.4
Urban poor	58.0	36.3	39.8	34.1
Urban nonpoor	80.2	17.7	64.0	23.2
LATIN AMERICA				
Rural	31.4	36.4	12.6	44.0
Urban poor	58.7	35.2	33.6	47.0
Urban nonpoor	72.7	24.9	63.7	31.6
TOTAL				
Rural	18.5	50.7	7.5	46.6
Urban poor	41.5	49.4	28.3	51.7
Urban nonpoor	61.5	34.0	48.4	46.5

Source: Panel on Urban Population Dynamics, *Cities Transformed: Demographic Change and its Implications in the Developing World*, ed. Mark R. Montgomery et al. (Washington, DC: National Academies Press, 2003).

The Urban Health System

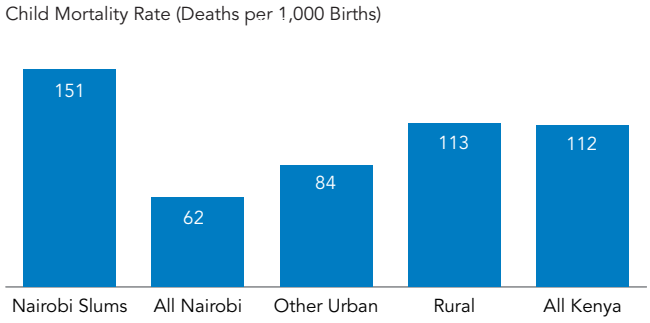
A distinguishing feature of urban health systems is the prominence of the private sector. Given the higher average levels of income in urban populations and the income diversity that establishes market niches, private services tend to be more developed in cities than in rural areas, especially in the larger cities.[15] Fee-for-service arrangements are generally characteristic of urban health care, whereas rural services are often ostensibly provided free (or made available for nominal fees) at public health-posts and clinics. In the more monetized urban economy, the urban poor without cash on hand can find themselves unable to gain entry to the modern system of hospitals, clinics, and well-trained providers.

Urban health providers are well aware of the effects of monetization on the health-seeking behavior of the poor.[16] They see poor clients who present themselves in a more debilitated condition than they would otherwise have been, having endured their illnesses until care could not be put off any longer. Health providers realize that the poor are likely to abandon prescribed medication to save on the costs of purchasing medicines, or economize by buying less than what was prescribed. They are not all that surprised when the poor fail to return as requested for follow-up visits.

On paper, at least, many countries offer subsidies that allow the poor to purchase certain medicines or types of care. But these subsidies often require poor patients and their families to spend time searching for and negotiating with a bewildering variety of providers and suppliers. The poor can be discouraged by the difficulties of finding affordable transport, inconvenient hours of operation at clinics or

FIGURE 5

Comparison of Child Mortality Rates, Kenya



Source: African Population and Health Research Center, *Population and Health Dynamics in Nairobi's Informal Settlements: Report of the Nairobi Cross-Sectional Slums Survey* (Nairobi: African Population and Health Research Center, 2002).

health centers, the frequent absence of key staff, and long waits to receive care.[17] A subsidy for the poor that exists in theory may prove to be no subsidy at all.

When the poor succeed in receiving formal health care, is that care likely to be of sufficient quality to make a difference to their health? A recent quality-of-care study in Delhi, India, raises serious doubts.[18] The study was set in both slum and nonslum neighborhoods, covering a range of household income levels. A full inventory of the health providers who serve these neighborhoods revealed that a short walk would bring a typical neighborhood resident within reach of 70 health providers of some sort. Even for the poor, access in the sense of geographic distance was not the problem in this case. The study assessed the quality of health care provision via a series of vignettes measuring provider knowledge of the steps to take in making a diagnosis and prescribing treatment or referral (rating the provider responses in relation to examination protocols), and by a follow-up in which many of the same providers were observed as they interacted with patients.

The quality of care available in the poor neighborhoods proved to be so low that the authors could fairly describe it as "money for nothing." Both public-sector and private providers serving the poor neighborhoods of Delhi know less about appropriate care than the providers who practice in better-off neighborhoods. Levels of provider knowledge were low across all neighborhoods in the study, but were especially low in the poor neighborhoods. These findings suggest that even strenuous health-seeking efforts on the part of Delhi's poor would bring them no assurance of reasonable quality health care.

Recognizing that private-sector health care will likely be an enduring feature of the urban health system, a number of program interventions have sought to foster constructive engagement between the private and public sectors, often with the participation of NGOs in key intermediary roles.[19] An analytic review identified eight general types of public-private interventions: social marketing, whereby commercial marketing methods are used to increase demand for health services; voucher systems that provide subsidies for the poor or other groups; the prepackaging of medicine kits to encourage proper dosages and lengths of treatment; contracting out for purchasing; franchising of health services to private providers, usually with an NGO or government agency in a monitoring role; accreditation to spread awareness and standardize diagnoses and clinical practice; targeted training; and systemwide regulatory interventions.[20] Very few of the interventions in these areas have had their health outcomes evaluated in quantitative terms, and little is known yet about the effects on the urban poor.

Although much remains to be learned about such public-private partnerships, they will likely be increasingly important as developing-country health systems undergo decentralization (see Box 2, page 10). Decentralization is placing more responsibilities for the delivery and funding of health services with local governments, meaning that municipal city governments in particular must take on unfamiliar roles in health for which they are seldom well prepared. Lacking the capacity to deliver services directly, municipal governments will no doubt turn to multiple types of partnerships with the private for-profit and not-for-profit sectors.

Health insurance systems are also being reconsidered with the poor in mind. Numerous countries have insurance systems in place, but they typically cover only civil servants and other formal-sector employees. In Latin America, initiatives have been mounted to extend coverage to the fraction of poor who are able to pay at least some premiums, or whose care can be covered by cross-subsidies using funds raised from those who are less poor. In Colombia and Mexico, simplified forms of proxy means testing (based in large part on the consumer durable "assets" discussed earlier in Box 1, page 4) are used to identify poor households. Mexico has initiated an ambitious set of reforms known as *Seguro Popular* that aims to enroll the majority of the poor by the middle of the next decade.[21] Health insurance is not the only way to improve the access of the poor to the cash they need for health care.[22] Alternatives include improving the ability of the poor to deposit their savings in banks and other formal-sector financial institutions, and expanding access to short-term credit. Financial institutions are not generally regarded as outposts of the health sector, but they can have an important role to play in improving the health of the poor.

Underappreciated Health Risks

This section will focus on specific urban risks and causes of mortality and morbidity. The data presented here underscore the importance of disaggregation of urban health conditions and risk factors by poverty and place. The discussion draws upon urban social epidemiology, placing emphasis on the concepts of individual and collective efficacy. It also focuses on health conditions or risks that have often been overlooked, such as mental health, or which have not been well integrated into urban public health policies. One example, closely associated with poverty, has to do with threats to women from intimate-partner violence and alcohol abuse. Other examples include the injuries, illnesses, and deaths stemming from road traffic accidents and outdoor air pollution. In many countries, HIV/AIDS already occupies a prominent place on the urban health agenda, whereas tuberculosis (and in some countries, malaria) receives less attention. In most developing countries, the health threats that will arise from climate change are not yet prominent on the health agenda.

MENTAL HEALTH

Mental health made no appearance in the quantification of DALYs that was set out in Table 2 (page 6), but it is arguably a central factor in the health of the urban poor, and one whose contribution to the urban burden of disease has not been sufficiently appreciated. Over the past decade, the World Health Organization (WHO) has issued a series of reports emphasizing the importance of mental health in developing as well as developed countries. Community-based studies of mental health in poor countries suggest that 12 percent to 51 percent of urban adults suffer from some form of depression.[23] Anxiety and depression are typically more prevalent among urban women than men and are believed more prevalent in poor than in nonpoor urban neighborhoods.[24] Although less is known about mental health among adolescents, recent studies indicate that this age group also merits attention. In a study of mental health among adolescents in Cali, Colombia, girls were found to be three times more likely than boys to exhibit signs of mental illness;

BOX 2

Decentralization: Implications for Public Health

Unlike the health sector reforms of the 1980s, the wave of governmental decentralization in developing countries that began in the early 1990s has not specifically focused on health, but instead has been propelled by a new conception of political economy in which a number of services are moved out of the budgets and the direct control of national government ministries, and moved into the responsibilities of lower governmental tiers. In principle, this reorganization could induce greater responsiveness to local needs on the part of service providers as well as a closer identification of citizens with the quantity and quality of their local service delivery. A detailed analysis of decentralization in the Philippines, Vietnam, and Indonesia shows that decentralization can stimulate local innovations in health care and encourage greater engagement with the performance of public health services. In these countries and others, however, abrupt transitions to decentralized systems of health services have spawned problems. The core of the difficulty is that national health ministries cannot simply cede control to local authorities and withdraw; instead, they must reorganize and relocate themselves in a health system that is far more complex than a vertically organized system.

Decentralization requires a well-designed mechanism for intergovernmental transfers of funds, one that is keyed to local health needs, local poverty, and local abilities to raise revenues. A good deal of sophistication is needed for local authorities to gather and exchange such information with higher-level authorities; and if funds are to be matched to local health needs, national health ministries must have some role in the disbursement of national revenues to lower-level governments. Furthermore, because communicable diseases do not respect administrative boundaries, decentralized systems need established lines of responsibility and authority that permit national and provincial authorities to intervene at the local level when necessary. Decentralization also risks the loss of the economies of scale that come from the concentration of some technical services and training in national ministries and high-level hospitals.

As the transition to a decentralized system is set in motion, it typically provokes opposition and fans anxieties among the health ministry staff who are scheduled to be redeployed to more remote or less prestigious local posts. In the critical units of the national health ministry that are created to monitor and troubleshoot transition problems, it is not unusual for shortages of staff, lack of clout vis-à-vis other ministerial units, and conflicts with civil service regulations to undermine effectiveness. At the local level, severe shortages of health personnel with technical training are to be expected in the early stages of transition; previously established systems of hospital referral can be disrupted; local funds for service delivery are likely to be in short supply; and local systems for procuring drugs are apt to be weak and prone to corruption, leaving the quality of the drugs in doubt and driving the local populations to seek care in the private sector. In general, large cities are likely to have some advantages relative to smaller cities in managing the transition to decentralized services and revenue raising, but these advantages should not be overstated.

Sources

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Samuel S. Lieberman, Joseph J. Capuno, and Hoang Van Minh, "Decentralizing Health: Lessons From Indonesia, the Philippines, and Vietnam," in *East Asia Decentralizes: Making Local Government Work* (Washington, DC: World Bank, 2005): 155-78.

Emanuela di Gropello, "Decentralized Systems of Health Care Delivery and the Role of Large Cities: A Comparative Analysis," *Health, Nutrition and Population Discussion Paper* (Washington, DC: World Bank, 2002).

further analysis showed that low levels of schooling, within-family violence, and perceptions that violence afflicts the community were all significantly associated with mental illness for these adolescents.[25]

Mental ill-health can affect other dimensions of health in two principal ways. First, it has been hypothesized that socioeconomic stress undermines the physiological systems that sustain health. A second hypothesis is that a woman's mental health affects the energy she can deploy in seeking health care on behalf of her children and other family members. To date, surprisingly little has been written on how mental ill-health affects a woman's health-seeking behavior or undermines her sense of self-efficacy. This research gap is all the more curious considering the well-documented role that women play in protecting the health of their families and the common finding that mental ill-health is more common among women than men.

Mental health interventions are only beginning to be studied in developing countries. Highly promising results have been obtained from several randomized control trials involving individual or group counseling sessions led by community health workers or nurses, either as the principal intervention or in combination with inexpensive drug therapies.[26]

INTIMATE-PARTNER VIOLENCE AND ALCOHOL ABUSE

Violence in urban areas takes a variety of forms, ranging from political and extrajudicial violence to gang violence, local violent crime, and domestic abuse. Our discussion will mainly be concerned with intimate-partner violence and its links to alcohol abuse and women's mental health. Analysis of community-based data for eight urban areas in the developing world indicates that mental and physical abuse of women by their partners is distressingly common, with

damaging consequences for women's physical and psychological well-being.[27] Data collected from several Demographic and Health Surveys reveal that a high percentage of women have been beaten by a spouse or partner: Cambodia (18 percent), Colombia (44 percent), Dominican Republic (22 percent), Egypt (34 percent), Haiti (29 percent), India (19 percent), Nicaragua (30 percent), Peru (42 percent), and Zambia (48 percent).[28] According to these surveys, women who were the victims of violence failed to seek help for a variety of reasons: embarrassment and shame; the belief that it would be futile to seek care; and the view that violence dealt out by one's partner is inescapable, a burden simply to be endured. In some countries, poor women were more likely than other women to have experienced violence at the hands of their spouses or partners. Where the connection can be explored, strong links have emerged between spousal alcohol abuse and intimate-partner violence. In one study, men in a slum community north of Mumbai, deeply frustrated by the lack of work, were reported to have a high incidence of alcoholism and often beat and verbally abused their wives.[29]

These findings were echoed in the WHO study summarized in Figure 6 (page 12), which covered both urban and rural study sites.[30] The WHO analysis also documented a close association between the experience of violence and women's mental health. Among the women in this study, in all but one site, both urban and rural women who had been abused by their partner were significantly more likely to have had thoughts of suicide (Figure 7, page 12). In the Bangladeshi urban site, some 21 percent of those who had been abused by their partner had thoughts of suicide, as opposed to only 7 percent of women who had not been abused.

REPRODUCTIVE HEALTH

According to the Panel on Urban Population Dynamics, poorer urban women are significantly less likely to use modern contraception to control their family size and the timing of births (see Table 4). They are generally more likely to use contraception than rural women, but in some regions of the developing world there is little to separate the two groups. The unmet need for modern contraception—as measured by the proportion of women in a reproductive union who believe they are capable of conceiving and who say that they want to prevent or delay their next birth, yet do not use modern contraception to achieve their stated aims—is markedly higher among poor urban women than among other urban women.

It is not clear that urban women are able to use modern contraception effectively even when they choose to use it. Although quantitative estimates are limited to selected case studies, unintended pregnancy and induced abortion are not uncommon for urban women. Women in three squatter settlements in Karachi, Pakistan, were estimated to have a lifetime rate of 3.6 abortions per woman.[31] A study in Abidjan, Côte d'Ivoire, where abortion is illegal, found that nearly one-third of the women surveyed who had ever been pregnant had had an abortion.[32] A recent study in Ouagadougou, Burkina Faso, estimated an annual abortion rate of 4 percent among women ages 15 to 49, suggesting that over a reproductive lifetime, a woman would have 1.4 abortions on average.[33] Among young women studied in Yaoundé, Cameroon, 21 percent reported having had an abortion; just over 8 percent had had more than one.[34] As these case studies suggest, the fact that modern contraceptives are widely available in urban areas simply does not imply that poor urban women will be able to use them effectively.

HIV/AIDS

An enormous literature is now available on the epidemiology of HIV/AIDS in both developing and developed countries, yet much remains to be learned about its social components. Although HIV/AIDS is commonly thought to be more prevalent in urban than rural areas, the scientific basis for this belief had been thin until recently.[35] Community-based studies of prevalence are now available for a number of developing countries.[36] Figure 8 (page 13) presents findings from three nationally representative community-based studies that estimate prevalence from blood samples. In these three cases—Kenya, Mali, and Zambia—urban prevalence rates are much higher than rural rates. When it comes to HIV/AIDS, there is little evidence of the "urban advantage" that is seen for other health conditions.

Because community-based studies are relatively recent, the role played by urban poverty in the risks of HIV/AIDS is only beginning to be understood. Analysis of community surveys conducted under the DHS program show that contrary to expectation, HIV prevalence appears to be higher among the better-off families.[37] Even with other factors controlled, a positive association between living standards and HIV prevalence persisted in this study. In studies of urban adolescents and other socioeconomic groups, however, poverty has been linked to higher HIV prevalence. A number of contributing risk factors appear to place poor women at higher risk, such as earlier sexual initiation and more reported forced or traded sex.[38] In short, the association of HIV/AIDS with living standards remains a matter of dispute.

TABLE 4

Contraceptive Use for Women Ages 25-29 by Residence and Poverty Status of Urban Areas

DHS SURVEYS IN REGION	ALL RURAL	URBAN POOR	URBAN NONPOOR
North Africa	0.26	0.37	0.48
Sub-Saharan Africa	0.08	0.13	0.22
Southeast Asia	0.44	0.40	0.47
South, Central, West Asia	0.33	0.35	0.44
Latin America	0.32	0.37	0.47
Total	0.22	0.26	0.35

Source: Panel on Urban Population Dynamics, *Cities Transformed: Demographic Change and its Implications in the Developing World*, ed. Mark R. Montgomery et al. (Washington, DC: National Academies Press, 2003).

FIGURE 6

Experience of Physical or Sexual Violence by an Intimate Partner Among Ever-Partnered Urban Women

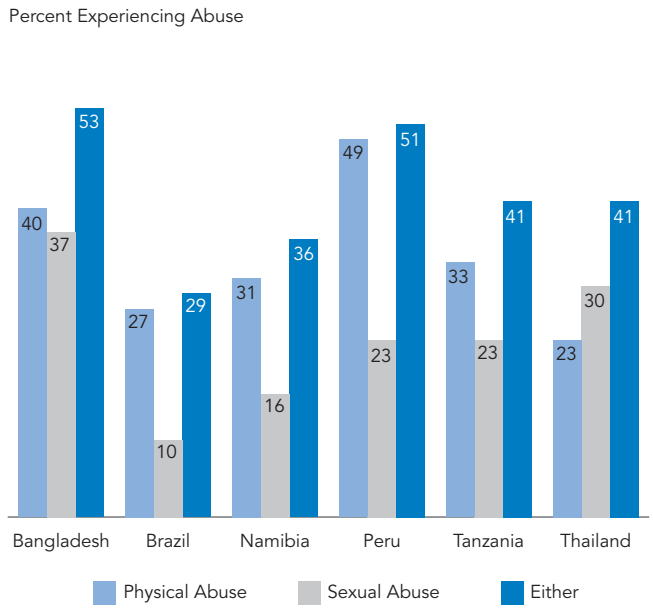
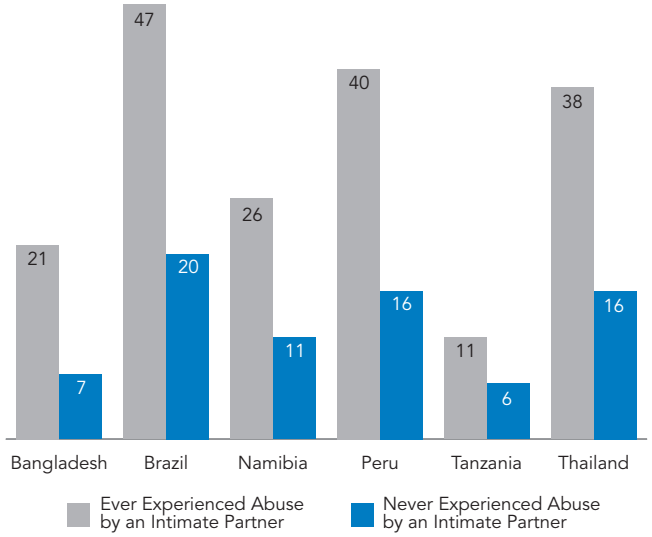


FIGURE 7

Percentage of Ever-Partnered Urban Women Reporting Suicidal Thoughts, According to Their Experience of Abuse



Sources for Figures 6 and 7: WHO, *Multi-Country Study on Women's Health and Domestic Violence Against Women: Summary Report of Initial Results on Prevalence, Health Outcomes and Women's Responses* (Geneva: World Health Organization, 2005).

URBAN MALARIA

Although malaria has often been regarded as a problem afflicting rural populations, and rural rates of transmission are higher than urban rates, there is evidence that malaria vectors have adapted to urban conditions in sub-Saharan Africa and there are indications of urban risks in parts of Asia as well.[39] In urban sub-Saharan Africa, some 200 million city dwellers face appreciable risks of malaria, and an estimated 25 million to 100 million clinical episodes of the disease occur annually in this region's cities and towns.[40] Urban population growth in Southeast Asia, as well as sub-Saharan Africa, may be contributing substantially to the global burden of malaria morbidity.[41] Indirect estimates suggest wide variations in prevalence by site, even within small geographic areas, with higher prevalence in the suburbs and city peripheries (especially when these are adjacent to wetlands) than in city centers.[42]

A recent intervention program mounted in Ouagadougou, Burkina Faso, aimed to use the social resources of urban neighborhoods to provide care in uncomplicated cases of child malaria.[43] Inspired by a rural program that yielded good results, this urban program enlisted local community residents ("health agents"), gave them training in the recognition of malarial symptoms in young children, and supplied the agents with packets of chloroquine and paracetamol in age-appropriate doses. In Ouagadougou, a high fraction of malaria cases still respond to chloroquine, although the parasite's resistance is evidently growing. Although it has been common practice for residents of the Ouagadougou slums to use chloroquine tablets (or drugs that have a similar appearance) to medicate their ill children, preliminary research showed that the residents had little knowledge of the dosages or lengths of treatment appropriate for children. Hence, when judged against the medication practices that were already prevalent in these communities, the program intervention was expected to improve the standard of malaria care.

When pilot tested in two communities in Ouagadougou, the malaria intervention showed the expected positive results in the lower-income community, located on the fringes of the city and somewhat isolated from sources of modern health care. Of the two study communities, this was the more homogeneous in social and economic terms, having greater "neighborliness" and more opportunity for social interactions through which information about the intervention might have circulated. In the other pilot community, however, easier access was already available to modern health clinics and reputable pharmacies, and more residents could afford to pay for their own care. In this middle-income site it proved difficult to sustain community interest in the malaria intervention. As this Ouagadougou example shows, urban health interventions can be designed to tap the social energies and social organization of local neighborhoods and communities, but the design may need to be tailored to fit the specific circumstances of each community.

TUBERCULOSIS

Even today, tuberculosis (TB) is among the leading causes of death for adults in low- and middle-income countries, killing an estimated 1.6 million people worldwide in 2005.[44] As in the 19th century, urban crowding increases the risk of contracting tuberculosis, and high-density, low-income urban communities may face elevated levels of

risk.[45] The interactions between HIV/AIDS and TB, and the spread of multidrug-resistant strains of the disease, have generated fears of a global resurgence.

The country profiles presented by WHO show that a number of countries have yet to reach the WHO target rate (set at 85 percent) for successful treatment of identified patients. In addition, although data are scarce, it is likely that detection rates of TB among the urban poor are well below rates for other urban residents. Recent studies suggest, however, that urban collective efficacy may be harnessed to successfully identify and treat TB. A program in urban Ethiopia showed how the local social resources of urban communities (organized in "TB clubs") can be marshaled to reduce the stigma associated with the disease and to encourage patients to adhere to the demands of the short-course regimen of treatment.[46] Similar interventions have been fielded in urban India, using community health volunteers to identify local residents with symptoms of TB and refer them to hospitals for diagnosis; local health workers attached to the hospitals then provide follow-up care and lend support during treatment.[47]

INDOOR AIR POLLUTION

Recent estimates suggest that more than 2 billion people worldwide rely on solid fuels, traditional stoves, and open fires for their cooking, lighting, and heating needs.[48] These fuels generate hazardous pollutants, including suspended particulate matter, carbon monoxide, nitrogen dioxide, and other harmful gases that are believed to substantially raise the risks of acute respiratory infections and chronic obstructive pulmonary disorders. Such fuels are often used by the urban poor, who must cook in enclosed or inadequately ventilated spaces. The health burdens associated with indoor air pollution are likely to fall heavily on women, who spend much of their time cooking and tending fires, and the children who accompany them.

A recent study in Bangladesh found that young children and women in poor households face pollution exposures far above those of higher-income households.[49] Exposure is determined by the choice of cooking fuel and where cooking takes place and is affected by common ventilation practices. For children in a typical household, it seems that pollution exposure could be cut in half by adopting two simple measures: increasing their outdoor time from three hours to five to six hours per day, and concentrating that outdoor time during peak cooking periods. Simple changes in ventilation practices, such as keeping doors and windows open during and after cooking, could also have a large beneficial effect.

OUTDOOR AIR POLLUTION

Traffic and vehicular regulation are key factors in outdoor air pollution. The Latin American literature is especially rich in scientific analyses of outdoor urban air pollution and its effects on respiratory illness via the intake of airborne particulates and other pollutants emitted by industry and vehicles.[50] There is increasing interest in the problem in India, China, and other rapidly developing countries of Asia, where the effects of economic growth are readily apparent in levels and severity of outdoor air pollution. In Delhi, India, a crucial public health intervention was recently made by the Supreme Court in a decision that mandated conversion to compressed natural gas for bus, taxi, and other fleets of vehicles. There is reason to think that on a per-vehicle basis, this intervention has been effective; however, because the total volume of traffic has increased in Delhi, it is not yet obvious that the total volume of particulates and other pollutants has decreased.[51]

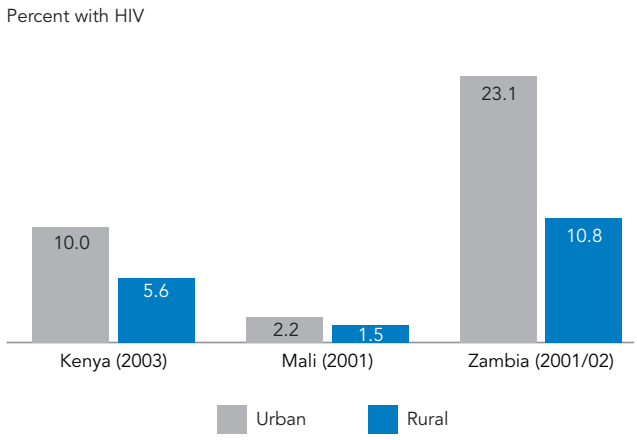
TRAFFIC-RELATED INJURIES AND DEATHS

In addition to its effect on air pollution, the transport sector figures prominently in urban health through traffic-related injuries and deaths. The scale of this public health problem is enormous: WHO estimates that road traffic injuries lead to 1.2 million deaths annually and an additional 20 million to 50 million nonfatal injuries, the majority of which occur in poor countries.[52] Table 2 (page 6) for Mexico documented the importance of such injuries and deaths among all urban causes. Yet it seems that the great range of factors involved—spanning engineering concerns, urban planning, land-use policies, and individual behavior—has generally inhibited the public health sector from taking decisive action.

An analysis of pedestrian injuries in Mexico City underscores the importance of mutually reinforcing risk factors: a lack of understanding of how drivers react to pedestrians; inattention by drivers and pedestrians alike to risky conditions; insufficient public investment in traffic lights and road lighting; and dangerous mixes of industrial, commercial, and private traffic.[53] Sheridan Bartlett draws on hospital and community-based studies to show how poverty and gender affect these risks, and how the time pressures on urban parents limit the effort they can devote to closely supervising their children.[54]

FIGURE 8

Estimates of Urban and Rural Prevalence of HIV: Kenya, Mali, and Zambia



Sources: Mali Ministère de la Santé, Enquête Démographique et de Santé Mali 2001 (Ministère de la Santé Mali and ORC Macro, 2002); Kenya Central Bureau of Statistics, Kenya Demographic and Health Survey 2003: Preliminary report; and Zambia Central Statistical Office and ORC Macro, Zambia Demographic and Health Survey 2001–2002.

WHO has given particular emphasis to the risks faced by adolescents and young adults, noting that road traffic injuries rank in the top three causes of death worldwide for those ages 5 to 25.[55] In the WHO Africa region, pedestrians face the greatest risks, whereas in Southeast Asia, deaths occur disproportionately among 15-to-24-year-old riders of bicycles and motorized two-wheelers. Male children, adolescents, and young adults, face greater risks than females.

The full package of effective interventions applied in high-income countries has typically not been implemented in low-income countries. These include behavioral interventions—promoting seat belt use for adolescents and adults and use of appropriate restraints for infant and child passengers, encouraging bicycle and motorcycle riders to wear helmets—as well as traffic engineering interventions, such as the removal of "unforgiving" roadside objects, proper maintenance of existing roads, and planning new roads so that high-speed traffic is not routed through densely settled communities or busy markets, schools, and children's play spaces. In many developing countries, only the most meager of resources are allotted to traffic control and enforcement of speed and road safety laws. Public health planners will also need to assess the role of emergency rescue services (which may involve connections between the health system and the police) and the availability of prehospital care and in-hospital trauma centers.

FUTURE RISKS FROM CLIMATE CHANGE

Although much remains to be done to clarify the health implications of global climate change, enough is already known to sketch the core elements of an urban adaptation strategy for poor countries. According to current estimates, gradual increases in sea level are now all but inevitable over the coming decades, placing large coastal urban populations under threat. Many of Asia's largest cities are located in the floodplains of major rivers (the Ganges-Brahmaputra, Mekong, and Yangtze rivers) and in coastal areas prone to cyclones. Mumbai saw massive floods in 2005, as did Karachi in 2007. Flooding and storm surges also present a threat in coastal African cities (such as Port Harcourt, Nigeria, and Mombasa, Kenya) and in Latin America (such as Caracas, Venezuela). Figure 9 depicts one of the major low-elevation coastal zones of China near Shanghai and Tianjin, two of the world's fastest-developing economic regions, where increasing numbers of urban dwellers will be placed at risk.[56]

Urban flooding in poor countries is due to a number of factors: city landscapes dominated by impermeable surfaces that cause water runoff; the general scarcity of parks and other green spaces to absorb these flows; rudimentary drainage systems that are often clogged by waste and quickly overloaded with water; and the ill-advised development of marshlands and other natural buffers. When urban flooding takes place, fecal and other hazardous materials contaminate flood waters and spill into open wells, elevating the risks of water-borne disease. The urban poor are often more exposed than others to these environmental hazards.

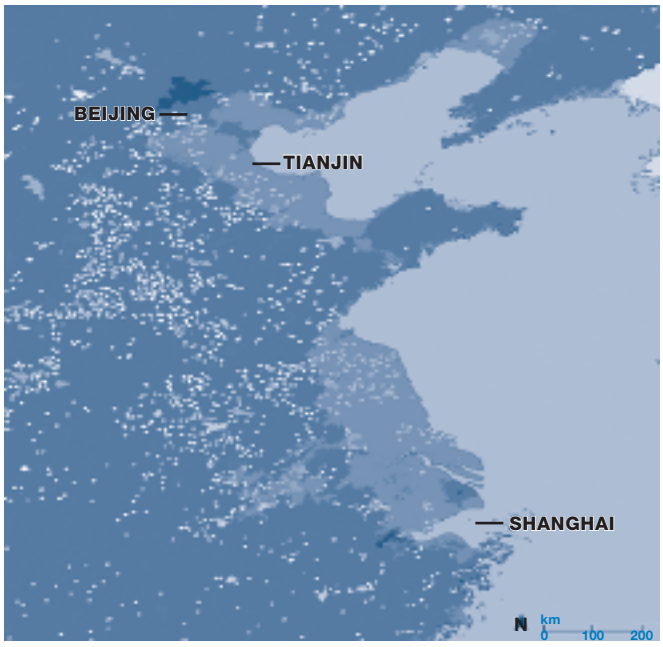
In a detailed analysis of urban adaptation needs in India, Aromar Revi concluded that governments from the local to national levels and their public health systems will need to plan for increases in extreme weather events.[57] The Indian Ocean tsunami of 2004 heightened attention to coastal zone management in India and the region, but the responsibilities for urban adaptation and disaster management are not yet organized coherently. Various types of infrastructure are needed to cope with extreme weather events: secure roads, bridges, and other transport systems; water, sewer, and gas pipelines; coastal defenses and drainage; and power and telecommunications networks. New arrangements will need to be made to coordinate the efforts of local nongovernmental and relief agencies to alert populations to imminent threats and respond to disaster, and to engage hospitals, fire and police stations, schools, military forces, and other first-responders. To effectively organize to meet the threats of climate change, urban public health systems must begin to work with partners across a broad range of urban agencies. Many of the priority areas are already areas of concern on other counts, but the prospects of climate change adds a new element of urgency to them.

Conclusion

Unlike the wealthier residents of cities and towns, the urban poor live in health environments that are often little better than the environments of rural villages. Many of the poor live in slums, where they are subjected to a barrage of health threats, but other poor urbanites are dispersed across a variety of neighborhoods. Geographic targeting may be an effective health strategy for reaching slum dwellers, but other approaches will need to be devised to meet the needs of the poor who live outside slums. The health needs of small-city residents—who account for the vast majority of urban dwellers—cannot continue to be neglected.

FIGURE 9

Yellow Sea Region of China, Areas Within 10 Meters of Sea Level



Note: Towns and small cities appear as points of light; larger cities as patches of light.
Source: Deborah Balk. An earlier version appeared in Gordon McGranahan et al., "The Rising Tide: Assessing the Risks of Climate Change to Human Settlements in Low-Elevation Coastal Zones," *Environment and Urbanization* 19, no. 1 (2007): 17-37.

A main theme in this *Bulletin* is the need for the public health sector to work in tandem with other government agencies. Public health professionals cannot mandate the provision of safe water and adequate sanitation for the urban poor by themselves; nor can they reorganize traffic flows and pedestrian activities to reduce deaths and injuries, or make cities ready to adapt to upcoming threats from climate change. These priorities will require a strategy of "joined-up governance," whereby public health agencies join with concerned actors in other sectors of municipal, regional, and national government. Because the urban health system is dauntingly complex, with private for-profit and private nonprofit care a significant presence in most cities, effective partnerships are also likely to require engagement with the private sector. With political and administrative decentralization now underway in many countries, creative partnerships will increasingly be forged at the local and municipal level. Much remains to be learned about how health expertise in national ministries of health and international funding and technical assistance can be redeployed to meet the many health needs of cities and their neighborhoods.

Among the key issues that lie squarely within the scope of the public health sector, the quality of urban health care has received too little attention. Recent studies of quality show that the poor can receive very little in return for their fees; the care delivered by both private-sector and public-sector health providers can be grossly inadequate. Given the monetization of the urban system, the performance of subsidy schemes to assist the poor also needs careful scrutiny.

The social capital of the urban poor has been emphasized throughout this discussion—as embodied in their personal networks and in the local political or economic associations with which municipal governments could engage as partners. In the well-documented case of India, associations of slum dwellers have provided the poor with an effective "voice" in local bureaucratic and political circles, but there are now examples of similar associations across the developing world.[58] A number of these associations began as grassroots savings groups, but with assistance from NGOs have expanded their reach to improve local sanitation (public toilets in Mumbai) and water supply (extensions of water and sewer lines in Karachi).

Slum dweller associations from a number of countries are now linked to each other via Slum/Shack Dwellers International (SDI). In 1996 when it began, the members of SDI included South Africa, India, Zimbabwe, Namibia, Cambodia, Nepal, and Thailand; the network now includes Kenya, Malawi, Uganda, Ghana, Zambia, Sri Lanka, the Philippines, and Brazil. Recently, an International Urban Poor Fund, managed jointly by the International Institute for Environment and Development (IIED) and SDI, has been organized as a vehicle to make small grants available to SDI member groups to support community-driven initiatives.[59]

Networks such as these provide one important mechanism for international assistance to reach the urban poor, and for the experiences of one country or city to be made known to others. The large slum-dweller associations have not taken on a broad range of urban health concerns so far, but there is no reason to think that greater breadth cannot be achieved. Recent work conducted in the slums of Indore, India, shows that when links are fostered between slum community-based organizations and supportive local and city-level NGOs, health programs can address neonatal survival, diarrhea control, and other maternal and child health priorities.[60] Among all the misconceptions that have hindered work on urban health, perhaps the most pernicious is the view that unlike rural villages, urban neighborhoods somehow lack the social cohesion needed to sustain community participation. In an urbanizing era, there is every reason to design health programs for the urban poor that take full advantage of the social resources and resourcefulness of their communities.

Suggested Resources

Rockefeller Foundation/CSUD Global Urban Summit, http://csud.ei.columbia.edu/?id=projects_urbansummit

International Institute for Environment and Development (IIED), Human Settlements Program, www.iied.org

World Health Organization, www.who.org

The Health Effects Institute, http://healtheffects.org

UN-Habitat, www.unhabitat.org

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URBAN POVERTY AND HEALTH
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To understand urban health in developing countries, the situations of the urban poor and near-poor must be distinguished from those of other city residents. Among the urban poor, some live in communities of concentrated disadvantage (slums) where they are subjected to a daily barrage of health threats; others are dispersed across a variety of neighborhoods. The urban health system is dauntingly complex, with government agencies, private for-profit, and private nonprofit care present in most cities. Although modern health services would appear to be near at hand, the poor do not necessarily have access to these services. Even when the poor are able to reach modern services, the quality of care they receive can be grossly inadequate. The author argues that in order to address the health needs of the urban poor, public health agencies need to work in tandem with other government agencies and that public health programs should draw on the social capital that is embodied in the associations of the urban poor.

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