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*Commentary*

## Urban Governance of Disease

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**Abstract:** Rapid population growth, urbanization, and the growing challenges faced by the urban poor require redefining the paradigm for public health interventions in the 21st century, creating new approaches that take urban determinants of health into consideration. The widening disparity between the urban poor and the urban rich further exacerbates health inequities. Existing tools for global governance of urban health risks fall short, particularly in the lack of formal mechanisms to strengthen collaboration and communication among national and municipal agencies and between their local and international non-governmental partners. There is also a clear disconnect between governance strategies crafted at the international level and implementation on the ground. The challenge is to find common ground for global goods and municipal needs, and to craft innovative and dynamic policy solutions that can benefit some of the poorest citizens of the global urban network.

**Keywords:** global health governance; urban health governance; poverty; urbanization

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## 1. Introduction—Global Governance of Disease

In 2008, the world's urban population exceeded the rural population for the first time, and in 2011, the global population surpassed 7 billion [1,2]. These noteworthy milestones have significant implications for the current and future health status of the global population. Meeting the health challenges of the newly urban, densely networked world requires more than just a few new tools: it will require redefining of the paradigm for public health interventions in the 21st century [3,4].

Global and urban governance of health is a forefront issue in outlining a new, successful approach to global public health. The interconnection of health with issues such as human rights, environmental protection, international law, and security has received increasing recognition [5]. While global health interventions have achieved many successes, including the eradication of smallpox and steady improvements in child survival, the field has experienced an “institutional overload” with an ever-increasing number of non-governmental organizations, public-private partnerships, and government agencies working bilaterally and multilaterally toward overlapping goals [5,6]. The growing number of influential actors places even more pressure on instruments of global and urban health governance to manage the global burden of disease effectively [7].

Health governance encompasses all health actors, global and local. As defined by Dodgson, Lee, and Drager, “Health governance concerns the actions and means adopted by a society to organize itself in the promotion and protection of the health of its population” [8]. The rules of governance can be informal or formal, situated at any level of government, and span both public and private entities.

Two examples of formal mechanisms of health governance are the International Health Regulations (2005) [IHR (2005)] and the Framework Convention on Tobacco Control (FCTC). The revised IHR, which entered into force in 2007, focus on strengthening capabilities to confront all potential public health emergencies of international concern when and where they occur, building networks that can prevent local public health crises from becoming international catastrophes. Under the aegis of the World Health Organization (WHO), 194 states committed to developing core capacities to detect, assess, report, and respond to any public health event that might cross borders, whether of natural, accidental, or deliberate origin [9]. The FCTC, an international treaty created to address the globalization of the tobacco epidemic, was adopted by the World Health Assembly (WHA) in 2003 and entered into force in 2005 [10]. The Convention focuses on access to and use of addictive substances through a regulatory strategy that addresses trade liberalization, foreign direct investment, and other supply issues [11].

While the definition by Dodgson, Lee, and Drager provides clear examples of health governance, in practice, global health governance is not as distinctly defined. Some researchers have projected that accelerated globalization and the interconnectedness of world economies, combined with waning political will and funds for global health, will cause global health governance to become even more fragmented [12,13]. Recent publications highlight the persistent obstacles to truly global health governance, such as weak coordination among multilateral organizations; the lack of long-term commitment from donors; and insufficient global health leadership, among others [6,14]. Understanding and operating under clear global health governance architecture is essential. The future success of global public health interventions, however, may rest on the ability of municipalities to organize themselves to promote health—urban health governance.

Researchers have increasingly cited the urbanization of the world and its impact on infrastructure development, governance, climate change, health inequalities and inequities, as well as politics, but few have collectively addressed the complexities of urban governance with a focus on health [4,15–25].

The United Nations Human Settlements Programme (HABITAT) defines urban governance as the “sum of the many ways individuals and institutions, public and private, plan and manage the common affairs of the city” [26]. Urban communities face highly concentrated environmental and behavioral health risks, often exacerbated by failures to manage complex public health and safety systems [23]. To address distinctly urban health issues effectively, it is essential to develop and employ new approaches that take urban determinants of health into consideration.

## **2. The New Urban Health**

### *2.1. The Causes and Consequences of Poor Urban Health*

Social determinants play a pivotal role in the negative health outcomes seen among the urban poor. Drawn by economic opportunities to the rapidly growing urban centers of low- and middle-income countries, poor urban migrants often crowd into precarious housing on marginal (possibly informally occupied) properties that lack adequate water, sanitation, and energy services. An estimated one out of every three urbanites worldwide lives in such slum-like conditions [2]. Poor urban communities teem with environmental hazards, such as water-borne illnesses and outdoor and indoor pollution. Weak infrastructure and urban violence leave the poor more vulnerable to injuries in the home, workplace, and on the road. Highly disrupted urban social networks and ready supply networks encourage high-risk behaviors such as tobacco and drug use and transactional sex. Physical inactivity and obesity leading to non-communicable chronic diseases—once considered primarily plagues of the rich—are now climbing steadily among poor urban dwellers [28].

The burden of disease in poor urban areas can be broadly divided into the following categories: (i) communicable diseases; (ii) maternal and infant health; (iii) undernutrition; and (iv) non-communicable diseases, including mental health issues. Physical and social conditions in urban areas create an ideal environment for the rapid spread of communicable diseases. Two of the diseases considered high priority targets by the international community, HIV and tuberculosis (TB), can be classified as urban-centered epidemics. Evidence suggests that HIV most likely originated as a zoonotic disease early in the 20th century, seeding generalized epidemics only when accelerating urbanization in sub-Saharan Africa introduced asymptomatic carriers into populations sufficiently large, dense, and interconnected via social networks to allow the virus to spread steadily [29]. HIV/AIDS first came to the attention of the scientific community when international travelers linked the silently growing numbers of affected people in Africa to equally susceptible populations in New York and Paris [4]. Demographic surveys from high- and mid-burden developing nations indicate that adult HIV prevalence tends to be higher in urban than rural populations [30]. Among its other impacts, HIV infection increases susceptibility to TB. Although incidence rates have declined in the last decade, TB still caused 1.45 million deaths worldwide in 2010. In addition to immunocompromise due to HIV or other conditions, risk factors for TB infection include the likelihood of being exposed to an

infected person in a crowded or closed setting, as well as underlying conditions such as chronic diseases, exposure to indoor and outdoor pollution, and malnutrition—hazards encountered frequently among poor urban populations. Reaching poor urban households with the complete prevention and treatment regimens required to prevent the further emergence of multidrug-resistant TB (MDR-TB) requires significant resources; spending on the growing problem of multidrug-resistant (MDR) TB is anticipated to reach \$600 million worldwide in 2012 [31,32].

Dengue hemorrhagic fever offers an example of an infectious disease whose spread has been accelerated by the growth of large cities. Until the 1970s, outbreaks of dengue or “breakbone” fever occurred sporadically even in tropical regions, especially after the introduction of programs to control the mosquito vector. Ecological disruptions and increasingly frequent and rapid travel allowed dengue to spread among urban centers from Rio de Janeiro to Karachi. Poor water management in these tropical and semi-tropical cities, from lack of rainfall drainage to inadequate sanitation to accidental containers such as tires and plastic waste, provides idyllic breeding grounds for the *Aedes aegyptii* mosquito that transmits dengue fever to humans [33]. The movement of dengue fever and its vectors between and beyond cities expanded endemic areas dramatically in the last fifty years, putting an estimated 2.5 billion people worldwide at risk of dengue infections [34]. In 2003, the previously unknown virus that caused SARS (severe acute respiratory syndrome) spread rapidly and directly between densely populated urban centers via international air travel [35]. The unfolding 2009 H1N1 influenza pandemic in Mexico City and New York offered a glimpse into the challenges of coordinating public health and safety responses in very large, complex municipal systems [36]. Rapid urbanization often precipitates new commuting patterns, including traffic levels that outstrip the safe carrying capacity of road systems. The urban poor are particularly likely to endure long commutes on top of long work hours, reducing physical activity and encouraging adoption of diets rich with the high-calorie prepared foods that are increasingly available and affordable in urban markets. Such habits can lead to overweight and obesity, high blood pressure, and high cholesterol, all significant risks for the development of non-communicable chronic diseases (NCD) such as diabetes and cardiovascular diseases. In both sub-Saharan Africa and South Asia, tobacco use tends to be highest among urban men of lower socioeconomic and educational status, and is particularly prevalent among slum dwellers [37,38]. These risk factors combine with existing environmental health hazards, such as exposures to indoor and outdoor air pollutants, to increase the risks of cardiovascular and respiratory diseases and cancers [39,40].

In highly developed nations, screening and early treatment can help delay the onset of the most debilitating symptoms of NCDs. However, the structure of the urban health system can create a barrier to accessible, affordable, and high-quality health care for the urban poor. Driven by business opportunities, urban health systems often include a much higher ratio of private-to-public healthcare providers than surrounding rural areas. The quality of these private health services varies widely, but tends to be lower in poor than in more affluent neighborhoods. Geographic proximity is often used as a proxy for access to care, but this ignores socioeconomic barriers. Public sector community-based health centers often provide services only during typical work hours, making them functionally inaccessible to laborers who cannot afford to take time to seek care. Urban households that cannot afford even the nominal fee-for-service required by many public health centers in the highly monetized urban health system may postpone screening for and treatment of illnesses until their symptoms

become serious enough to justify admission to large (often government-funded) hospitals that accept urgent patients during non-business hours, thus requiring more intensive and costly curative services [23]. Municipal governments may hesitate to legitimize informal settlements by determining and providing for their health needs accurately. The urban poor in middle-income countries, where standards and costs of living are rising in parallel, may particularly find themselves too far above absolute measurements of poverty to motivate external assistance, and too cash-poor to afford appropriate health services [41].

For some health indicators, such as child survival, urban populations on average enjoy better outcomes than rural populations in the same nation. However, such assessments often compare aggregated data for urbanites of all income levels against their generally poorer rural neighbors, masking wide variations between communities. For example, a study that compared child mortality in rural and urban Kenya found that rates in Nairobi fell well below the national average, suggesting that urban children enjoyed a strong survival advantage. However, the rate of 151 child deaths per thousand live births in Nairobi's slums—among the largest in Africa—far exceeded the average of 113 child deaths per thousand live births in rural areas [42]. As a result of environmental and behavioral risks and inadequate access to high-quality health services, the urban poor may find themselves—contrary to oft-held perceptions—worse off than their wealthy neighbors *and* their rural counterparts [41].

## 2.2. Urban Governance—Why it Matters

Rapid urbanization and, more specifically, rapid growth in poor urban populations, presents significant governance challenges. In most large cities, including those in the developed world, municipal governments function relatively autonomously, with weak policy linkages to national-level government structures. Rapid urbanization increases the size, density and diversity of the population for which municipal authorities are responsible, complicating the provision of basic services; legal and regulatory frameworks for urban residents; and management of health and safety issues, including sanitation, traffic, pollution, and protection from violence. Poverty lines drawn at the national level often neglect to adjust for higher costs of living in urban areas, and do not measure quality or costs of living in the informal economy in areas of concentrated urban poverty [43].

There is increasing evidence that urbanization affects health independently of the size of the city, suggesting that common factors across all types of urban areas can be included in a framework for governing urban health and disease [44]. Although the increasing number of medium-size cities worldwide characterizes the face of 21st century urbanization, megacities also play a complex role in terms of their political, economic, and social place in the global order. The UN defines megacities as metropolitan areas with total populations exceeding 10 million inhabitants [4]. They are pivotal centers of phenomenal global economic growth, particularly in the developing world. Several of the largest megacities in the next decade will be in some of the most dynamic economies, including Brazil, China, India, Indonesia, and Mexico. Most are “dual cities”, with large segments of the urban population living in marginalized communities under slum-like conditions while elites and the growing urban middle class access new economic resources and opportunities, and the gap between the two is ever-widening [45].

For the health sector, developing effective strategies to identify and intervene in health risks also requires defining the urban poor, as well as urban slums. Although most urban poor live in slum-like conditions, a significant portion of the poor and “near-poor” live in small settlements nestled among more affluent neighborhoods, rather than in geographically defined slums. The distinction between urban poor and slum dwellers is important with regards to inclusion in governance networks. Policies and interventions that are targeted exclusively at highly visible but often illegal slums have an organizational advantage in identifying populations, but exclude those living in equally tenuous conditions in less clearly demarcated communities that may be legally recognized. For example, community-based stakeholder participation can strengthen the effectiveness of health-related interventions at the neighborhood level, such as development of water and sanitation programs [46]. If municipal authorities identify slums as the only affected urban poor communities, outreach to stakeholders will exclude leaders from commingled neighborhoods who might be able to leverage the stronger infrastructure and resources more effectively—or may not take place at all, if leaders hesitate to empower slum dwellers to demand more accountability and assert property rights. The legal and social factors resulting in the physical realities that increase health risks for urban residents, and in particular the urban poor, require a governance structure that addresses, first and foremost, the unique urban issues of population size, density, and diversity, along with coordination across government agencies, disciplines, and sectors.

### *2.3. Challenges to Urban Governance—Integrating Local Implementation with International Frameworks*

Despite increasing acceptance by experts that urban living itself is a determining factor of health, national leaders and their international development partners still approach many health problems on a disease- or population-specific basis. During the 19th century urbanization of the industrialized world, public investments in organized water and sanitation services, health education, and urban infrastructures increased life expectancies long before the prevention and cure of disease through individualized interventions became practical. Nonetheless, donor-driven initiatives have bypassed such messy, local issues to take on far more programmatically manageable “vertical” public health efforts that do not necessarily align with local priorities or disease burden [47].

To get into the business of urban health—that is, the health of the 21st century—public and private sector donors will have to identify new mechanisms for forging cross-sectoral partnerships with government agencies, international organizations, and local NGOs. While public health departments can play a key role in preventing the spread of illness, they are not responsible for the provision of clean water, sanitation, electricity, access to transportation, or reforms in housing policy that can significantly impact health. National and state level government policies influence services and often determine what resources will be available at the local level, but municipal agencies are responsible for the implementation of policies. Poor governance and coordination among global, national, and municipal governance has been identified as a major driver of increased slum populations in cities, in turn correlated with poorer health outcomes [28]. The coordination required for effective urban governance becomes more challenging when multiple, independent projects and municipal units are involved in developing and implementing urban policies. For example, in Addis Ababa, Ethiopia, several large-scale, parallel community-based slum upgrading projects are being conducted by three

distinct municipal units, and the lack of coordination increases the risk of duplicate and inefficient work. Beyond the Addis Ababa municipality, the most serious obstacle to improving urban residence is the absence of coordination among the main public agencies involved in various types of urban development programs [48].

Often, the gaps in policy, institutional weaknesses, and problems of coordination around urban governance extend to projects and programs conducted by non-governmental organizations (NGOs). Civil society organizations have an important responsibility to cultivate community-based leadership and community-managed initiatives to improve health, especially in slum areas where residents may have few legal protections and little recourse to official representation in local government [49,28].

#### *2.4. Case Studies in Good Governance: Successful Implementation of Multi-Sectoral Approaches in Urban Health*

Collaboration between such leaders and civil society organizations can mobilize social networks in poor neighborhoods where government agencies face challenges in conducting outreach activities effectively. They also can create social capital and leverage local capacity. For example, in urban areas in Ethiopia, “TB clubs” have been very effective in reducing the local stigma attached to the disease. The clubs have also provided social support to infected individuals to adhere to treatment regimens. Similar TB strategies have been implemented in urban areas in India [50]. These kinds of approaches, a form of “joined up governance,” require a more holistic view of urban governance and can only be successful with broad political commitment, cross-sectoral planning, and community participation [23].

The experiences of local governments in Havana City, Cuba, and Yogyakarta, Indonesia, in the reduction of the spread of dengue fever offer examples of successful collaborative governance of urban health. Following a stakeholder analysis and multidisciplinary research that included ecologists, entomologists, and social scientists, political leaders adopted a participatory approach to decision making. In both cases, community-based forums allowed experts to identify eco-bio-social issues, the impact of interventions on local livelihoods, possible environmental impact, and sustainability. In Havana City, the Government of Cuba, the Ministry of Public Health, and several research institutions jointly initiated the Integrated Dengue Surveillance System (IDSS) in 2003. The Ministry of Public Health supported the creation of Health Councils at both the national and local levels. These Health Councils focused specifically on identifying and implementing inter-sectoral interventions at the local level. The creation of “Neighborhood Groups” further encouraged community participation by health NGOs. Following a dengue virus outbreak in Havana City, the interdisciplinary stakeholders rolled out the project in a densely populated neighborhood that had reported the highest number of cases in the city. The participation of scientists from different disciplines and communities, and engagement by local stakeholders, allowed creation of maps and graphs that depicted relevant environmental, epidemiological, and entomological data, facilitating quick decision-making to reduce risks. For example, after four years of implementing IDSS, communities reduced the number of uncovered water sources from 62% to 5%, the proportion of unsanitary backyards from 16% to 1%, and completely eliminated backyard sites positive for *Aedes aegyptii*, the mosquito vector of dengue virus, while increasing green public spaces and the community’s willingness to participate in eradication and environmental clean-up efforts [51]. Yogyakarta in Indonesia also adopted a community-based and



“eco-bio-social” research approach to address its regular dengue virus outbreaks. In Phase I of the Yogyakarta project, researchers analyzed existing data and conducted cross-sectional household surveys, stakeholder analysis, and household interviews to identify appropriate local interventions. In Phase II, local community leaders, policy makers and decision makers, and relevant municipal authorities for water supply and waste management worked together to identify and implement interventions such as sanitation and covering water sources. Preliminary results in Yogyakarta suggest growing community awareness of and participation in dengue prevention [52].

### *2.5. Gaps in Integration: The Missing Links*

International economic policies have encouraged the decentralization of government services in the developing world since the 1980s. In the context of public health, oversight over management and delivery of health services has devolved from the national to provincial/state and community levels. While decentralization can lead to more responsiveness to community needs and innovations, health sector reforms do not always take into account the limited resources and capacity of urban authorities to respond to the needs of the population, particularly during a crisis.

While local interventions have succeeded at the community scale, the global flow of health risks between and among megacities requires equally global tools, such as international standards and agreements. The increased international focus on urban health includes the 2000 Millennium Summit Declaration’s “Cities without Slums Initiative”, designed to improve the lives of at least 100 million slum dwellers worldwide, and the Johannesburg Plan of Implementation from the World Summit on Sustainable Development in August-September 2002 [53]. Several international organizations focus on the health issues of the urban poor—the United Nations Human Settlements Programme (UN Habitat), the World Health Organization’s Healthy Cities and Urban Governance Programme, and the United Nations Environment Programme (UNEP). Activities funded by international actors include housing and urban development, infrastructure, water supply and basic services, environmental planning and management, disaster management, municipal finance and management, urban safety and security, and participatory decision making and planning [53]. Current international agreements—like IHR (2005) and FCTC—can alleviate urban public health risks if they are integrated into decision-making at the subnational level. For example, Nakuru, Kenya became the first city in East Africa to ban smoking in all public buildings and other places of social gatherings such as schools, hospitals, food courts, and places of worship. The Nakuru Municipal Council enacted this law, drawn from the norms propagated by FCTC [54]. Where existing tools for global governance of urban health risks fall short is the lack of formal mechanisms to strengthen collaboration and communication among national and municipal agencies and their local and international non-governmental partners.

### *2.6. The Need for Better Data*

As discussed above, research to date indicates that urban health poses new challenges along multiple dimensions: the fragmentation and diversity of health services provision; disparities in health conditions and exposures to health risks; and the effects of concentrated poverty on environmental hazards and access to affordable and appropriate healthcare [28,44,55]. The approach to understanding and addressing the environmental, socioeconomic, governance, and other risks underlying urban

determinants of health has been fragmented, hindering the kind of analysis required to plan and govern effective population health interventions in resource-constrained environments. Almost no studies synthesize these dimensions explicitly in terms of measurement and analysis.

What is clear from available data is that urban populations are at increased risk for certain endemic and epidemic-prone infectious diseases, as well as lifestyle and market-driven non-communicable chronic diseases. It is also likely that these risks correlate to more than one factor inherent to highly urbanized environments, such as: pollution; poor and crowded housing; access to basic infrastructure, such as potable water and toilets; access to and utilization of private goods and services, including foodstuffs; and the distribution of health and health-related services, both public and private. The biggest challenge in unpacking this basket of risks and developing better strategies for addressing uniquely urban health and governance issues is that the data to assess the significance of these relationships, and critically, the inter-relationships, do not currently exist [55]. For example, only a handful of studies have examined healthcare-seeking behaviors among the urban poor living in economically diverse neighborhoods. Contemporary geospatial information tools could be combined with cross-disciplinary studies to characterize such behaviors more fully, and to examine opportunities to improve social marketing and the quality of services and outcomes. Similarly, more rigorous studies could help municipal decision makers set priorities for introducing interventions when faced with multiple, overlapping population health risks.

Municipal and public health decision makers are only beginning to appreciate the governance complexities of urban health, particularly in rapidly urbanizing developing economies where the historical challenge has been to reach far-flung rural populations through provision of public services. There must be a sustained effort to collect and analyze data that will help us better understand the risks of residence in urban settings, and inform how urban governance should be shaped, and what urban governance can do to coherently address these problems in a way that improves population health of all urban residents.

### **3. Conclusion**

Globalization has created remarkable opportunities in the last half-century but it has also heightened the risk posed by an increasingly interdependent world. The last two decades have witnessed unprecedented technological advances that have connected communities all over the world. These linkages affect human security. Disease outbreaks in one country, as witnessed in the case of SARS, can develop into a global crisis at an alarming rate. Today, investments in public health surveillance and response help ensure that we have warning when a global health crisis is imminent, rather than being taken by surprise as during the pandemics of the past. Yet there is a clear disconnect between governance strategies crafted at the international level and implementation on the ground. The challenge is to find common ground for global goods and municipal needs, and to craft innovative and dynamic policy solutions that can benefit some of the poorest citizens of the global urban network.

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