

Urban health reading pack A

Data and evidence

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Introduction to the topic

The year 2007 marked a key event in urbanisation with more than half of the world's population living in urban areas for the first time. This proportion continues to grow, and by 2050, 66 per cent of the world's population are expected to be urbanites. This means an extra 2.5 billion people will be added to the urban population through population growth and migration. Africa and Asia are urbanising the fastest, and by 2050, 56 per cent of the population will be urban in Africa and 64 per cent in Asia.

There are currently 28 megacities (defined as those with a population of 10 million or more). By 2030, this is projected to rise to 41. While attention is often focused on these high-profile megacities, the fastest growing urban areas are medium-sized cities, and those with less than one million inhabitants, located in Asia and Africa. In fact, almost half of the world's urbanites live in relatively small settlements of less than 500,000 and only around one in eight live in the 28 megacities.

Getting the terms right

Urbanisation = the proportion of the total national population living in areas classed as urban.

Urban growth = the absolute number of people living in areas classed as urban.

Therefore, urban growth is mainly caused by natural population growth, but rural–urban migration is key to urbanisation.

N.B. Different countries use different definitions of 'urban', making it difficult to make comparisons.

About the authors

Dr Helen Elsey is a lecturer in public health at the University of Leeds. Helen's research interests lie in applied global public health research. In particular, in developing and evaluating public health interventions that reduce risks to health and well-being and improve health behaviour and access to health services among the most disadvantaged populations, particularly those in urban areas.

A physician, Dr Siddharth Agarwal works in medicine, public health, community empowerment, urban health, and policy, and has provided technical support for governments for 35 years. He is Director, Urban Health Resource Centre; Advisor, WHO, SEARO, WHO Kobe, UN Habitat, Nairobi; Expert, Global Committees. He has been a featured speaker at global, national and state consultations and conferences in several countries, and is in the editorial board of the Journal of Urban Health.

Accessing city health

WHO has recently developed an urban health index to compare the overall health of cities. The index covers a range of indicators that can be selected as appropriate to the context; they include access to water and sanitation, use of solid fuels, women's education, women's knowledge of HIV, and child health service coverage. The index is ranked from zero to one, with one equating to a conducive environment for health. Analysis of the index value in the recent *Global Report on Urban Health* ([WHO and UN-Habitat, 2016](#)) is twice as high for cities in lower-middle income countries (0.57) than in low-income countries (0.29). The index also shows megacities have worse conditions for health than smaller cities. This is a relatively new index and the indicators within it can be selected; this can lead to concerns over 'cherry-picking' to make particular arguments. Identifying which indicators have been included is vital.

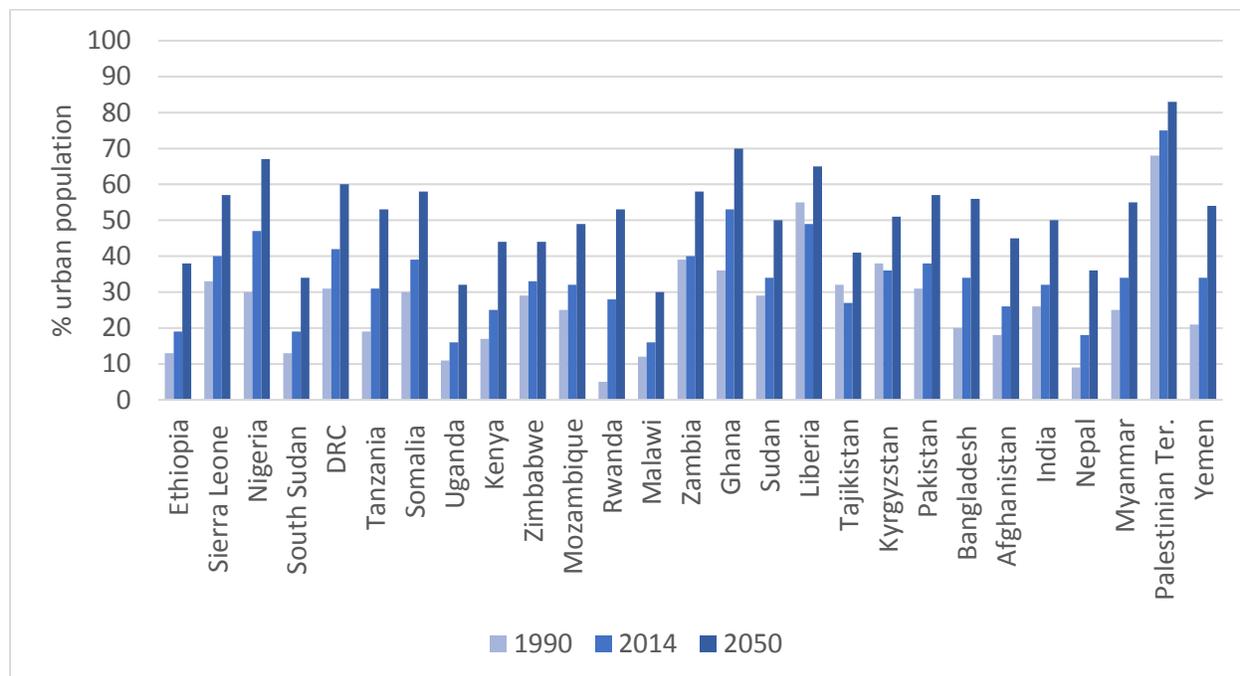


Figure 1: urbanisation: proportion of population living in urban areas: 1990, 2014, 2050 based on data from [UN DESA, 2014](#)

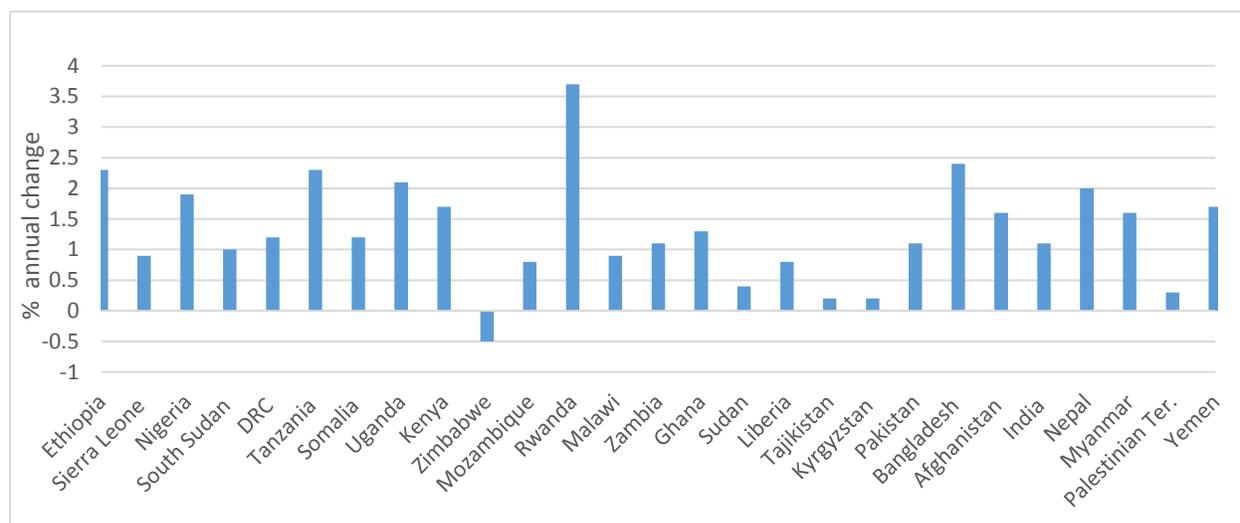


Figure 2: average annual rate of change in the proportion of urban dwellers 2010–2015 ([UN DESA, 2014](#))

Data on inequities in urban areas

Many reports present differences between rural and urban populations, often showing urban dwellers to have better health and social outcomes than their rural counterparts. However, the lack of disaggregation by wealth quintile within cities means that the situation of the poorest is masked by the good health of the richest ([Vlahov et al., 2011](#)).

This situation arises as national surveys rarely have sufficiently large sample sizes to look at disparities within urban populations. For example, in the Demographic and Health Survey (DHS) in Nepal ([MoHP, 2011](#)), out of a total sample of 10,826 households, 3148 were urban. Within this urban sample, 53 per cent were from the wealthiest quintile, while only 5 per cent came from the poorest quintile. Similarly, in Bangladesh's DHS ([NIPORT, 2011](#)), of the 5868 urban sample, 48 per cent of households were from the richest quintile and 7 per cent from the poorest. To overcome this, some countries have conducted urban specific surveys to look at 'within urban' inequities, however, this is still not the norm, and caution is needed when using urban data that cannot be disaggregated by wealth quintile.

Even with surveys that can identify intra-urban differences, ensuring the most vulnerable – the homeless and children living on the streets or in institutions – are included in the sampling frame is still a great challenge. The lack of disaggregated urban data, particularly for small areas, limits approaches like 'Urban HEART' ([WHO, 2008](#)) which attempt to use existing data to plan and allocate resources across urban areas ([Vlahov et al., 2011](#); [Agarwal et al., 2005](#)).

Understanding urban poverty

UN-Habitat estimates that 828 million people worldwide live in slum conditions. Of these, 90 per cent are in low-income countries. The UN definition of 'slum' is broad enough to include a wide range of informal settlements, those in poor rented accommodation, and the homeless. This is useful as there is great heterogeneity within and between slums.

Creating wealth indexes relevant to urban settings is key to understanding the nature of urban poverty and building an effective response (see [Gupta et al., 2009](#)). DHS wealth quintiles are the most commonly used relative measure of wealth. The measure is based on household ownership of physical assets such as water source type and cell phone ownership. They are calculated separately for urban and rural populations and then combined to account for the different value of the same asset in a rural versus urban context. Within urban areas, using physical assets to measure differences in wealth can prove misleading. Wealth includes income, saving, access to credit, and other financial assets beyond physical assets. For the poorest urban dwellers, high rents can keep a household in crippling poverty. In some informal settlements, such as those found in Kathmandu, residents pay little or no rent, and are, may be, comparatively better off than those living in better constructed formal dwellings paying high rents. These nuances are overlooked by a purely assets based categorisation.

Defining a slum

As agreed by the UN Expert Group Meeting in Nairobi, in October 2002, a slum is an area that combines all, or some, of the following:

- I. Inadequate access to safe water
- II. Inadequate access to sanitation and other infrastructure
- III. Poor structural quality of housing
- IV. Overcrowding
- V. Insecure residential status

Gender and urbanisation

Understanding gender differences driving urban migration and the gendered experience of urban living is another area where research is limited. The [COHRE \(2008\)](#) report summarises qualitative case studies from six cities highlighting women's increased vulnerability in slums due to lack of property ownership, gender-based violence within and outside the home, and lack of access to health and other services such as water, sanitation, electricity and protection by police and fire services.

Existing data suggests that violence outside the home is a particular issue in urban areas with a study in Tanzania noting that violence by an intimate partner is experienced by 56 per cent of women in rural areas compared to 41 per cent in cities; in turn, 19 per cent of women in rural areas experienced violence from a non-partner compared to 34 per cent in urban areas ([Mcilwaine, 2013](#)).

Gender-based violence has resulted in making the public space a restricted area for women and girls, eliminating freedom and the human right to participate in the cultural and social life of the community. Research on women using public spaces in Indian cities has found correlations with environmental design features and attitudes of society (Phadke et al. 2011; Mitra-Sarkar and Partheeban, 2009). Evidence from several countries, although not specific to urban areas, show clear associations between alcohol and gender-based violence ([WHO, 2005](#)).

Water and sanitation

Despite the limitations of the available data, there is some evidence of improvements in slum conditions in several countries. For example, in Bangladesh, the living space per person has increased in both slum and non-slum areas from 2006 to 2013. However, the living space is much smaller in slums, 48 sq feet, compared to 120 sq feet in non-slums. In terms of water and sanitation, the Nairobi Cross-section Slum Survey shows some improvements with a reduction of slum residents buying their water from 72 per cent in 2000 to 12 per cent in 2012, an increase in the use of public taps from 2 per cent to 59 per cent, reductions in the use of unimproved latrines and open spaces for defecation, and increases in the use of flush toilet ([APHRC, 2014](#)). Cities often show great differences in access to improved water and sanitation (WASH) facilities between slums. Such differences are frequently driven by governments not wanting to formally recognise settlements by allowing sanitation improvements.

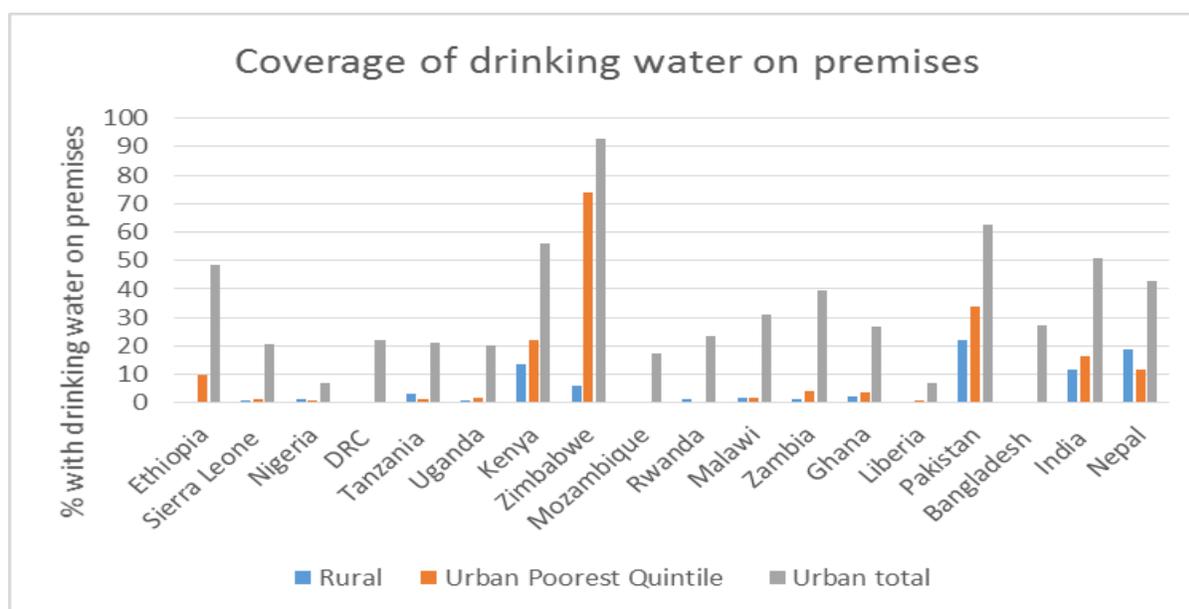


Figure 3: coverage of household access to drinking water ([WHO and UN-Habitat, 2016](#))

The *Global Report on Urban Health* ([WHO and UN-Habitat, 2016](#)) analysis highlights how, in many countries, the poorest urban residents have similar or worse access to on-premises drinking water than those in rural areas. Poor sanitation and facilities to store and manage water, coupled with high population densities within the poorest urban areas, are fuelling persistently high levels of vector-borne diseases, particularly dengue, chikungunya and zika, as well as gastro-intestinal diseases such as cholera and the antimicrobial drug resistant E-coli ([Neiderud, 2015](#)).

Access to health services

The concentration of health facilities and health professionals in urban areas can be seen as part of the 'urban advantage' and may be one of the 'pull' factors in migration. However, taking maternal health as an example, the limited access of poor urban women to quality and free maternity services is evident. In Bangladesh, only 37 per cent of pregnant women, compared to 68 per cent in non-slum areas, were delivered by a medically trained provider ([NIPORT, 2015](#)). Similarly, in Uttar Pradesh, India, only 53.2 per cent of the pregnant mothers received any antenatal check-up and only 27.2 per cent received the recommended number of check-ups ([UHRC policy brief](#)). Recent analysis of DHS data (various years 2005-2011) in the *Global Report on Urban Health* illustrates how coverage of antenatal care (ANC) among the poorest urbanites is often similar to that of rural areas, while in Pakistan, Bangladesh and Nepal, ANC coverage is higher in rural areas than in urban areas ([WHO and UN-Habitat, 2016](#)).

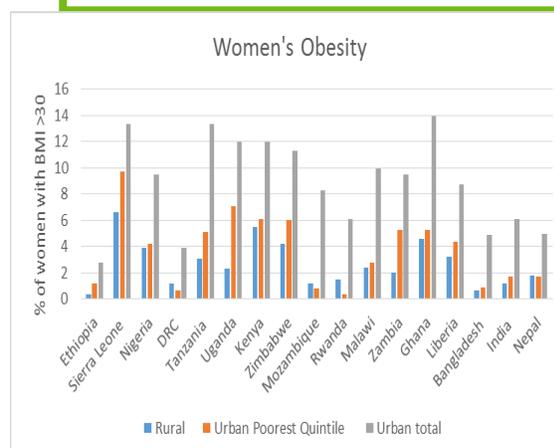
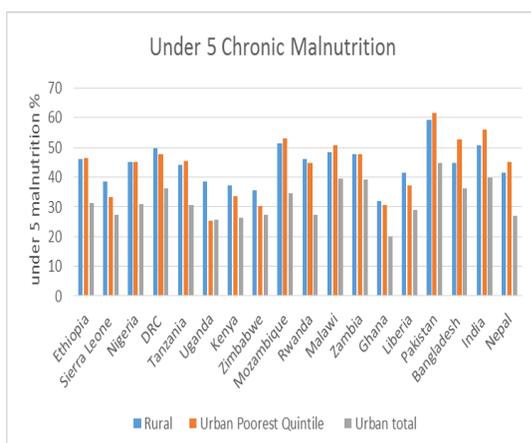
Non communicable diseases and their risk factors

Urban areas are at the forefront of disease transition, with vulnerability to both communicable (CD) and non-communicable diseases (NCD). Urban life brings changes to behaviours that increase the risk of NCDs, particularly diet, tobacco use and physical activity.

Dietary transition

Reduced access to fresh fruit and vegetables, combined with the increased availability, and aspiration for, processed foods is leading to dietary transition on a grand scale. Under and over-nutrition co-exist and one in every two women in megacities are malnourished, with over-nutrition occurring among women in non-slum areas, and underweight persisting as a key concern among slum dwellers (Gaur et. al., 2013). This dietary transition is leading to a pandemic of type 2 diabetes, further forward in South Asia than in sub-Saharan Africa, with it estimated to be 7.6 per cent and associated with being male, older and urban ([Cheema et al., 2014](#)). Smaller studies, particularly in Asia, are identifying higher rates of diabetes and hypertension among the urban poor (below the poverty line) than those above the poverty line, for example, in India the urban poor had three times the odds of having diabetes and/or hypertension than the non-poor (Bhojani et al., 2013).

In this reading pack and in the accompanying slides, graphs of key indicators comparing rural, urban and the poorest urban quintile are presented. This data (figures 3 to 6) is drawn from the [WHO and UN-Habitat \(2016\) Global Urban Health Report](#). A note of caution: country data is based on survey data from different years (2005 to 2011), so estimates for some countries are likely to be out of date and should not be directly compared. They are shown here to provide an overview of rural/urban poor differences. It should also be noted that this data analysis disaggregated by wealth quintile is not available as yet for a comprehensive set of indicators (Check http://www.who.int/gho/urban_health/en/ as further analysis may become available)



Figures 4 and 5: malnutrition and obesity are seen side by side in urban areas ([WHO and UN-Habitat, 2016](#))

Undernutrition

Undernutrition is still common among the urban poor, and children living in slums are more likely to suffer from undernutrition, including stunting, than children elsewhere in the city (Awasthi 2003; [Unger 2013](#)). Recent data from the [WHO and UN-Habitat \(2016\)](#) *Global Report on Urban Health* shows levels of chronic malnutrition amongst the urban poorest at similar levels to those in rural areas, and in some countries, particularly South Asia, the urban poorest have higher levels of chronic malnutrition than their rural counterparts. Women with short stature (less than 145 cm) were 1.7 times higher (14.5 vs 9.8 per cent) and maternal thinness (BMI lower than 18.5) was 1.8 times higher (38.5 vs 21 per cent) in the poorest urban quartile compared to rest of the urban population in India predisposing urban poor women to greater risk of low birth weight newborns (owing to intra-uterine growth retardation and of a caesarian section delivery ([Agarwal and Sethi, 2013](#))).

Tobacco

Tobacco consumption (both multinational and local products) is increasing in low-income countries. The urban poorest are clearly vulnerable with considerably higher rates of male current daily smokers among the urban poor than rural populations or other urbanites; this picture is fairly consistent across Africa and Asia and will continue to drive both NCDs – particularly cardiovascular disease (CVD), stroke, hypertension, chronic obstructive pulmonary disease (COPD), and asthma – and communicable diseases (CDs) such as tuberculosis (TB). Young men and women are also at growing risk.

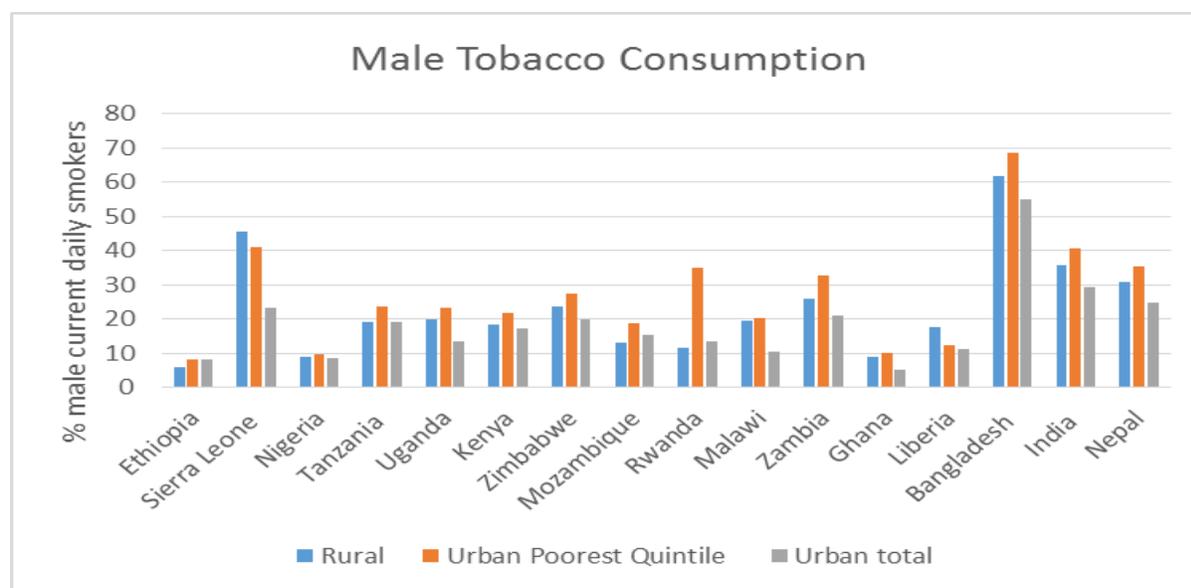


Figure 6: tobacco consumption among urban poor men is high compared to rural and all-urban men ([WHO and UN-Habitat, 2016](#))

Air Pollution

Air pollution is associated with increased risk of non-communicable diseases, particularly stroke, heart disease, lung cancer, and chronic and acute respiratory diseases, including asthma. WHO estimates that air pollution caused 7 million deaths in 2012 ([WHO, 2012](#)). WHO now has a database covering 3000 cities recording pollution levels and health effects. This data shows that for 2016, 98 per cent of LMIC cities do not meet WHO air quality guidelines ([WHO, 2016](#)). Over 90 per cent of air pollution in cities in LMICs is attributed to old, poorly-maintained vehicles running on low-quality fuel and poor road infrastructure leading to traffic build-ups (see the [United Nations Environment Programme for more information](#)).

Mental health

While less frequently studied, mental ill-health is increasingly recognised as a feature among the urban poorest. Stressors such as fear of eviction, flooding, and violence, as well as day-to-day survival, combined with reduced traditional social networks, are fuelling psychological ill-health, for example, 23 per cent of those living in the Mumbai slums were found to be suffering from depression and/or anxiety (Subbaraman et al., 2014). Greater emphasis on mental as well as physical health focuses attention on the wider social determinants of health as both a cause and consequence of ill-health. Issues such as alcoholism, gambling, and domestic and public violence are often omitted in urban health service planning. Data on mental health is rarely collected in nationally represented household surveys; attempts to address this omission are thwarted by the lack of questionnaires measuring mental health that have been properly validated (not just translated) for low-income country settings.

Communicable diseases

Overcrowded and unmanaged urban areas are ideal environments for the spread of communicable diseases (CDs). Tuberculosis (TB) prevalence has been found to be high in urban slum areas; 6.4 per cent of the slum population in Nigeria screened positive for TB (Ogbudebe et al., 2015), 0.3 per cent in slums in Bangladesh, 0.2 per cent in Cambodia, and 3.5 per cent in Uganda (Banu, 2012). In sub-Saharan Africa, HIV prevalence in urban areas is twice that in rural areas with higher rates among women, while this is even seen to be increasing in urban areas in Malawi ([WHO and UN-Habitat, 2016](#)). This highlights the vulnerability of women in poor urban areas to sexual exploitation, violence and abuse, for example, women in Indian slums are twice as likely to experience physical and sexual violence as women in other areas of the city ([Gupta et. al., 2009](#)).

Potential for change

Urbanisation brings with it great potential for social and economic change. The increasing use of mobile phones and access to information and communication that this brings is one example. In Bangladesh, 92 per cent of urban slum dwellers own a phone ([NIPORT, 2011](#)), while 47 per cent of young people in Kampala own a phone. This offers a great opportunity for e-health initiatives.

Women in particular are experiencing changes in their roles with increasing numbers of urban poor women working. In Bangladesh, 33 per cent of slum women work full time compared to 16 per cent of non-slum women ([NIPORT, 2015](#)). While such developments bring opportunities, gender discrimination and the impact on the vulnerable situation of women and their children should not be underestimated. Women are more likely to have insecure low paid jobs, not covered by labour laws and frequently not in control of the money they earn. Their growing participation in the workforce outside the home impacts on childcare, breastfeeding and household diet.

Key readings

The six 'must-reads' are in bold below:

Urban data and measuring urban inequities

WHO and UN-Habitat (2016) *Global Report on Urban Health: equitable, healthier cities for sustainable development*. http://www.heart-resources.org/doc_lib/global-report-urban-health-equitable-healthier-cities-sustainable-development/

United Nations, Department of Economic and Social Affairs, Population Division (2014) *World Urbanization Prospects: The 2014 Revision, Highlights* (ST/ESA/SER.A/352).

<http://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf>

Agarwal S, Taneja S. (2005) All Slums are not Equal. *Indian Paediatrics*, 42, 233-244
<http://indianpediatrics.net/mar2005/mar-233-244.htm>

Eley, H., Thomson, D. R., Lin, R. Y., Maharjan, U., Agarwal, S. & Newell, J. (2016) Addressing Inequities in Urban Health: Do Decision-Makers Have the Data They Need? Report from the Urban Health Data Special Session at International Conference on Urban Health Dhaka 2015. *Journal of Urban Health*, 1-12. http://www.heart-resources.org/doc_lib/addressing-inequities-urban-health-decision-makers-data-need-report-urban-health-data-special-session-international-conference-urban-health-dhaka-2015/

Vlahov, D., Agarwal S.R., Buckley, R., Caiaffa, W., Chika Ezeh, A., Finkelstein, R., Harpham, T., Hossain, M., Mboup, G., Montgomery, M., Ompad, D., Prasad, A., Rothman, A., Satterthwaite, D. and Watson, V. (2011) Roundtable on Urban Living Environment Research (RULER). *Journal of Urban Health*, 88. 5.55, 21-36 http://www.heart-resources.org/doc_lib/roundtable-urban-living-environment-research-ruler/

Gupta, K., Arnold, F. and Lhungdim, H. (2009) *Health and Living Conditions in Eight Indian Cities. National Family Health Survey (NFHS-3), India, 2005-06*. Mumbai: International Institute for Population Sciences; Calverton, Maryland, USA: ICF Macro. http://pdf.usaid.gov/pdf_docs/Pnadq634.pdf

WHO (2008) Urban Health Equity Assessment Response Tool (HEART)
http://www.who.int/kobe_centre/measuring/urbanheart/en/

Nutrition and NCDs in urban slums

MQSUN Report (2015) Addressing Undernutrition in the Context of Urbanisation in Low- and Middle-Income countries. <http://www.heart-resources.org/assignment/addressing-undernutrition-in-the-context-of-urbanisation-in-low-and-middle-income-countries/>

Gaur K, Keshri, K., Joe W. (2013) Does living in slums or non-slums influence women's nutritional status? Evidence from Indian mega-cities. *Social Science and Medicine*, 77, 137-146. doi: 10.1016/j.socscimed.2012.11.017.

Goudet SM, Griffiths PL, Bogin BA, Madise NJ. (2015) Nutritional interventions for preventing stunting in children (0 to 5 years) living in urban slums. *Cochrane Database of Systematic Reviews*, Issue 5. Art. No.: CD011695. DOI: 10.1002/14651858.CD011695.
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011695/epdf>

Lili Mohiddin, L. Phelps L. and Walters, T. (2012) *Urban malnutrition: a review of food security and nutrition among the urban poor*
http://www.fao.org/fileadmin/user_upload/drought/docs/Nutrition%20Workds%20Urban%20malnutrition%20201307.pdf

Cheema, A., Adeloje, D., Sidhu, S., Sridhar, D. and Chan, K. Y. (2014) Urbanization and prevalence of type 2 diabetes in Southern Asia: A systematic analysis. *Journal of Global Health*, 4.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4073245/>

Bhojani, U., Beerenahalli, T. S., Devadasan, R., Munegowda, C. M., Devadasan, N., Criel, B. & Kolsteren, P. (2013). No longer diseases of the wealthy: prevalence and health-seeking for self-reported chronic conditions among urban poor in Southern India. *BMC Health Services Research*, 13. doi 10.1186/1472-6963-13-306

Unger, A. (2013) Children's health in slum settings. *Global Child Health*. 0. 1-7
http://hospitalmedicine.ucsf.edu/downloads/childrens_health_in_slum_settings_unger.pdf

Singh, I and Grover, K. (2003) Nutritional Profile of Urban Preschool Children of Punjab. *Anthropologist*, 5 (3) 149-153 <http://www.krepublishers.com/02-Journals/T-Anth/Anth-05-0-000-000-2003-Web/Anth-05-3-141-216-2003-Abst-PDF/Anth-05-3-149-153-2003-Singh-I/Anth-05-3-149-153-2003-Singh-I-Text.pdf>

Water, sanitation and hygiene

Peal, A, Evans, BE, Blackett, I, Hawkins, P and Heymans, C (2014) Fecal Sludge Management: a comparative assessment of 12 cities. *Journal of Water, Sanitation and Hygiene for Development*. 4 (4). pp. 563-575. ISSN 2043-9083 <http://eprints.whiterose.ac.uk/78124/>

APHRC/World Bank Group (2015) *Access to Basic Services: The health status of the urban poor*.
http://aphrc.org/wp-content/uploads/2015/08/Policy_Brief_Access-to-Basic-Services-APHRC-and-World-Bank-Aug-2015.pdf

Maternal health

Save the Children Federation (2015) *State of the World's Mothers*.
http://www.heart-resources.org/doc_lib/urban-disadvantage-state-worlds-mothers-2015/

Africa Population and Health Research Center (2009) *The Maternal Health Challenge in Poor Urban Communities in Kenya*
<http://www.realising-rights.org/docs/newsletter/maternal%20health%20challenge%20PB-final.pdf>

Maternal Health Scenario in the slums of Meerut, Uttar Pradesh: Implications for Program & Policy UHRC
http://uhrc.in/downloads/Maternal_Health_Fact_Sheet.pdf

Anusornteerakul, Soiy et al. (2012) Adolescents' Reproductive Health Status in Urban Slums in the KhonKaen Municipality, Thailand. *American Journal of Health Sciences (AJHS)*, [S.I.], v. 3, n. 4, p. 269-276, sep. 2012. ISSN 2157-9636.
<http://www.cluteinstitute.com/ojs/index.php/AJHS/article/view/7320/7388>

Agarwal S, Sethi V. (2013) Nutritional disparities among women in urban India. *J Health Popul Nutr*. 31(4): 531–7. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3905648/>

Mental health in slums

Subbaraman, R., Nolan, L., Shitole, T., Sawant, K., Shitole, S., Sood, K., Nanarkar, M., Ghannam, J., Betancourt, T. S., Bloom, D. E. & Patil-Deshmukh, A. (2014). The psychological toll of slum living in Mumbai, India: a mixed methods study. *Social Science & Medicine*, 119, 155-69
doi:10.1016/j.socscimed.2014.08.021

Communicable diseases in slums

Ogbudebe CL, Chukwu JN, Nwafor CC, Meka AO, Ekeke N, Madichie NO et al. (2015) Reaching the underserved: active tuberculosis case finding in urban slums in southeastern Nigeria. *Int J Mycobacteriol*. 2015;4:18–24. doi:10.1016/j.ijmyco.2014.12.007

Banu S, Rahman MT, Uddin MKM, Khatun R, Ahmed T, Rahman MM et al. (2013) Epidemiology of tuberculosis in an urban slum of Dhaka City, Bangladesh. *PLoS One*. 2013;8:e77721. doi:10.1371/journal.pone.0077721.

Neiderud C-J. (2015) How urbanization affects the epidemiology of emerging infectious diseases *Infection Ecology and Epidemiology* 2015, 5: 27060 http://www.heart-resources.org/doc_lib/urbanization-affects-epidemiology-emerging-infectious-diseases/

Gender and urbanisation

Centre on Housing Rights and Evictions (COHRE) Women and Housing Rights Programme May 2008 Women, Slums and Urbanisation: Examining the Causes and Consequences http://globalinitiative-escr.org/wp-content/uploads/2013/05/women_slums_and_urbanisation_may_2008.pdf

WHO (2005) *Intimate Partner Violence and Alcohol*. http://www.who.int/violence_injury_prevention/violence/world_report/factsheets/ft_intimate.pdf

Mcllwaine, C., (2013) *Urbanization and gender-based violence: exploring the paradoxes in the global South*. *Environment and Urbanization*, 2013. **25**(1): p. 65-79. <http://eau.sagepub.com/content/25/1/65.full.pdf+html>

Bhattacharyya, Rituparna, *Understanding the Spatialities of Sexual Assault Against Indian Women in India* (October 17, 2014). *Gender, Place & Culture: A Journal of Feminist Geography*, 2014. <http://ssrn.com/abstract=2764103>

Mitra-Sarkar, S. and Partheeban, P. (2009) *Abandon All Hope, Ye Who Enter Here: Understanding the Problem of "Eve Teasing" in Chennai, India*, *Women's Issues in Transportation*, pp.74-84, Summary of the 4th International Conference, VOLUME 2: TECHNICAL PAPERS', October 27–30, 2009 Irvine, California

Urbanisation and air quality

WHO (2012) *Burden of disease from Household Air Pollution for 2012* http://www.who.int/phe/health_topics/outdoorair/databases/HAP_BoD_results_March2014.pdf?ua=1

WHO (2016) *WHO's Urban Ambient Air Pollution database - Update 2016* http://www.who.int/phe/health_topics/outdoorair/databases/AAP_database_summary_results_2016_v02.pdf?ua=1

Hoballah, A. and Smaoun, S. (2012) *Sustainable, Resource Efficient Cities – Making it Happen!* UNEP http://www.unep.org/urban_environment/PDFs/SustainableResourceEfficientCities.pdf

Mobile phone ownership

Swahn, Monica H; Braunstein, Sarah; & Kasirye, Rogers. (2014). *Demographic and Psychosocial Correlates of Mobile Phone Ownership and Usage among Youth Living in the Slums of Kampala, Uganda*. *Western Journal of Emergency Medicine*, 15(5). doi: 10.5811/westjem.2014.4.20879. uciem_westjem_20879. <http://escholarship.org/uc/item/2tw1f37b>

Wesolowski A, Eagle N, Noor AM, Snow RW, Buckee CO (2012) *Heterogeneous Mobile Phone Ownership and Usage Patterns in Kenya*. *PLoS ONE* 7(4): e35319. doi:10.1371/journal.pone.0035319

MOHP, *Nepal Demographic and Health Survey (2011 NDHS)* Ministry of Health and Population, Nepal. New ERA, 2011: Kathmandu, Nepal. <http://dhsprogram.com/publications/publication-fr257-dhs-final-reports.cfm>

NIPORT, MEASURE, and Mitra, *Bangladesh Demographic and Health Survey 2011 BDHS*, National Institute of Population Research and Training, MEASURE DHS ICF International, U.S.A., 2011: Dhaka, Bangladesh. <http://dhsprogram.com/pubs/pdf/fr265/fr265.pdf>

African Population and Health Research Center (APHRC). 2014. *Population and Health Dynamics in Nairobi's Informal Settlements: Report of the Nairobi Cross-sectional Slums Survey (NCSS) 2012*. Nairobi: APHRC. <http://aphrc.org/wp-content/uploads/2014/08/NCSS2-FINAL-Report.pdf>

NIPORT, icddr,b, MEASURE Evaluation 2015 *Bangladesh Urban Health Survey 2013 Final Report*. Dhaka Bangladesh and Chapel Hill North Carolina (USA) <http://www.cpc.unc.edu/measure/resources/publications/tr-15-117>

Questions for discussion

- Mapping formally listed, unlisted, and hidden slums, and informal settlements is a priority if the urban poorest are to be recognised in municipal and national planning and responses to urban inequity/inequality. With technology, the practicalities for doing this have reduced, but what are the political and operational challenges for making this actually happen and how can they be overcome?
- What role can communities themselves play in mapping informal settlements and areas of urban poverty?
- Urbanisation is changing patterns of risk factors and diseases. Can these be captured within existing national household surveys that are designed for rural areas as well, or are urban specific surveys the only answer? How can routinely collected data from urban health providers be utilised in this regard?
- How can governments and donor agencies, knowing that the needs of the urban disadvantaged are large, minimise expenditure on data collection and utilise resources to enable the urban disadvantaged improve their health and wellbeing?
- Urban areas offer huge potential for women's empowerment, but may also increase their vulnerability to risky survival strategies, violence and poor quality child-care. How can urban areas support women, and their children, to develop and thrive in urban areas?