

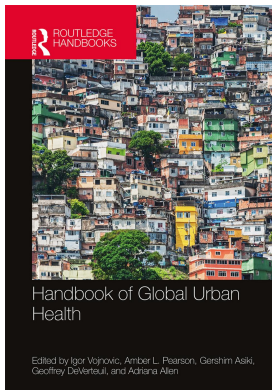
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Igor Vojnovic, Amber L. Pearson, Gershim Asiki, Geoffrey DeVerteuil,
Adriana Allen

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Mark W. Rosenberg

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4

HEALTHCARE AND THE CITY

A North American Perspective

Mark W. Rosenberg

North America is generally defined as Canada, the United States of America (USA) and Mexico. Their respective healthcare systems share some similarities, but are also substantially different. The similarities stem from a shared belief in a western, biomedical model of health and healthcare that dominates in all three countries. The three countries also share many of the same health problems that drive how healthcare is delivered in urban places.

There are, however, significant differences as well. The differences stem first and foremost from the political and economic differences that characterize the three countries and how these differences structure the consumption and geographies of healthcare. A second set of differences stem mainly from those parts of the population who are the most vulnerable to diseases, injury and violence and who are therefore most likely to show up in the respective healthcare systems.

The remainder of the chapter is divided into four sections. First, an overview of the healthcare system of each country is presented, focusing particularly on how people pay for their healthcare. Second, the demographic and health trends of the three countries are examined. The differences in health and healthcare delivery in the cities of the three countries are the foci of the third section. In the last section, emerging and re-emerging health and healthcare issues are the subjects of discussion.

An Overview of the Healthcare Systems of Canada, Mexico and the USA

On the continuum of healthcare insurance systems (see Preker et al. 2013), from the purely private to the purely public, Canada and Mexico are generally considered closer to purely public healthcare systems, while the USA is considered closer to a purely private healthcare system. In reality, there is a mix of both public and private expenditure and provision of healthcare in all three countries. What immediately stands out in Table 4.1 is that the healthcare system in the USA consumes a far larger percentage of its gross domestic product (16.9 percent) in comparison to Canada (10.0 percent) or Mexico (5.7 percent).

While the mix of public and private healthcare expenditure and provision is complex in every country, Canadian healthcare is a relatively straightforward system by international standards. In terms of “medically necessary” services, Canada’s healthcare insurance system is universal (i.e., it covers virtually everyone through single-payer public provincial and territorial health insurance

systems), comprehensive (i.e., it covers all physician and hospital services that are deemed medically necessary), accessible (i.e., physicians and hospitals cannot charge additional fees for services covered by the provincial or territorial health insurance systems) and portable (i.e., an individual's provincial or territorial health insurance covers the person anywhere in Canada), and provincial/territorial health insurance systems must be completely publicly administered (Vayda and Deber 1992). What one sees in Table 4.1, however, is that private per capita expenditure is \$1,316.80 and that the ratio of public to private expenditure in Canada is 2.41:1. These private expenditures are for healthcare services and products not covered by provincial/territorial health insurance plans (e.g., prescription drugs sold at pharmacies are covered by provincial/territorial drug plans mainly for the older population and those who have no or very little income). The other aspect of Canada's healthcare system that stands out in contrast to the healthcare systems in Mexico or the USA is that virtually all of Canada's hospitals are public. They are administered by independent hospital boards and they are regulated by the provincial/territorial governments.

Mexico also has universal, public healthcare insurance, but the system is more complex than the Canadian system. There are separate public insurance plans for those who have no formal employment, for those who have formal employment but not in the government, and for those who have formal employment in the government offered by three separate federal institutions. In addition, the state governments provide their own forms of public healthcare insurance. Even with this web of public health insurance schemes, private expenditure per capita is \$498.70 and the ratio of public to private expenditure is 2.01:1 in Mexico (Table 4.1). What is also notable is that two-thirds of the hospitals in Mexico are private and about half of the public hospitals are very small, with fewer than 50 beds (Wikipedia 2017b).

The US healthcare system is often thought of as the epitome of a private healthcare system. Private per capita spending is \$4,576.20, or more than three times as much as people in Canada spend, but the ratio of public to private per capita expenditure is still 1.84:1 (Table 4.1). MEDICARE (public healthcare insurance for the population aged 65 and over), MEDICAID (public healthcare insurance for those with no or very low incomes) and a system of hospitals for the military and veterans mainly explain the high levels of public expenditure for healthcare. For the majority of the population who are not covered by MEDICARE, MEDICAID or the Veteran's Administration (VA), their healthcare is either paid for by private insurance or out of pocket or they are uninsured (Doonan and Katz 2015).

Prior to the Affordable Care Act (ACA), often called "Obamacare" in the popular press or social media, approximately 16 percent of the US population was uninsured in 2010 (Doonan and Katz 2015). The ACA was an attempt by the Obama administration to reduce the number of uninsured in two ways. First, the ACA expanded MEDICAID coverage to states on a voluntary basis. Second, the ACA created state-based health insurance marketplaces with competing health plans based on price and quality with a system of subsidies to make health insurance more affordable. Based on the 2016 National Health Interview Survey carried out by the National Center for Health Statistics, the uninsured population had fallen to 9 percent (Clarke et al. 2017).

Hospitals in the USA are a reflection of this mixture of payment systems. There are public, private, not-for-profit and VA hospitals. Where people go to get their healthcare depends to a large extent on the ability to pay and the source of the ability to pay. In a comparative study of 11 countries, Schoen et al. (2013) found that US adults "were significantly more likely than their counterparts in other countries to forgo care because of cost, to have difficulty paying for care even when insured, and to encounter time-consuming complexity." In the case of the uninsured, they are most likely to end up in emergency departments at public hospitals when their healthcare problems are so severe that they can no longer delay treatment and at a much higher cost than had they received treatment at an early stage in the progression of their health issues.

Demographic and Health Trends

Demographically, Canada has the highest percentage of older people, the lowest fertility rate, the longest life expectancy and the lowest infant mortality rate of the three countries (Table 4.1). Mexico has the lowest percentage of older people, the highest fertility rate, the shortest life expectancy and the highest infant mortality rate of the three countries. In terms of demographics, the USA falls somewhere in between Canada and Mexico, but in terms of economic measures the United States is much wealthier than Canada or Mexico. What is, however, most surprising about the three countries is that they all have very high rates of urbanization at around 80 percent.

Population growth in urban Canada is mainly driven by immigration (now mainly from Asia), and internal migration of working age Canadians mainly seeking employment in the more economically vibrant cities of Canada (e.g., Vancouver, Edmonton, Calgary and Toronto). In addition, a unique feature of urban Canada has been the growth in the Aboriginal population. Particularly in cities like Edmonton, Calgary, Saskatoon, Regina and Winnipeg, the Aboriginal population is growing significantly and presents a unique set of health challenges to healthcare providers. In Mexico, rural to urban migration remains the key driver of urban growth alongside higher fertility rates than those found in Canada or the USA. Arguably, the key trend of cities in the USA that is critical to our understanding of health and care is the various types of growing inequalities. These include: geographic inequalities between urban and suburban neighborhoods; inequalities between the urban rich and poor; and inequalities based on race, immigration status and gender.

Notwithstanding its limitations, Canada and the USA can be characterized as countries in the final stage of the epidemiological transition model (McMichael et al. 2004; Mercer 2018; Omran 1971). Chronic health issues, lifestyle health issues and aging of the population are reflected in the diseases that dominate in the population and therefore the healthcare systems of the two countries (Table 4.2).

Table 4.1 Some basic information about Canada, Mexico and the USA

	Canada	Mexico	USA
Population, 2010 ^a	35,940,000	127,017,000	321,774,000
Percentage aged 60+, 2010 ^a	22.3	9.6	20.7
Fertility rate, 2010–2015 ^a	1.61	2.29	1.89
Life expectancy at birth, 2010–2015 ^a	81.8	76.5	78.9
Infant mortality rate per 1,000 live births, 2010–2015 ^a	4.7	18.8	6.0
Under 5 mortality rate per 1,000 live births, 2010–2015 ^a	5.4	23.2	7.0
Gross national income per capita, 2010 ^b	\$39,200	\$14,590	\$48,880
Percentage of the population urban, 2010 ^b	80.9	77.8	80.8
Current expenditures on all health functions as a percentage of GDP, 2014 ^c	10.0	5.7	16.9
Government per capita expenditure on all health functions (PPP), 2014 ^c (A)	\$3,174.9	\$1,005.9	\$8,423.0
Private per capita expenditure on all health functions (PPP), 2014 ^c (B)	\$1,316.8	\$498.7	\$4,576.2
Public per capita expenditure to private per capita expenditure	2.41:1	2.01:1	1.84:1

Sources: a. UNDESA (2015); b. WHO (2017); c. OECD (2017).

Note: All dollar amounts are standardized and reported in US dollars. See the original sources for detailed explanations of the standardization methods.

Table 4.2 Ten most common global burden of disease (GBD) Level 3 causes of disability-adjusted life years (DALYs) for Canada, Mexico and the USA

Canada	Mexico	USA
Back and neck	Diabetes	IHD
IHD	IHD	Back and neck
Lung C	CKD	COPD
Other MSK	Back and neck	Lung C
Alzheimer's	Depression	Depression
Diabetes	Road inj	Diabetes
Sense	Congenital	Alzheimer's
Depression	Violence	Other MSK
COPD	Sense	Stroke
Stroke	COPD	Sense

Source: GBD 2013 DALYs and HALE Collaborators (2015).

Notes: Alzheimer's = Alzheimer's disease and other dementias; Back and neck = low back and neck pain; CKD = chronic kidney disease; Congenital = congenital disorders; COPD = chronic obstructive pulmonary disease; Depression = depressive disorders; Diabetes = diabetes mellitus; IHD = ischemic heart diseases; Lung C = tracheal, bronchus and lung cancer; Other MSK = other musculoskeletal disorders; Road inj = road injury; Sense = sense organ diseases; Stroke = cerebrovascular disease; Violence = interpersonal violence.

While Mexico shares many of the same challenges as Canada and the USA, there are three causes of disability-adjusted life years (DALYs) that challenge the healthcare system in Mexico in ways that one does not see to the same extent in Canada or the USA (i.e., road injuries, congenital disorders and violence). Congenital disorders reflect the higher fertility rates and the poverty under which much of the population lives. Road injuries are also a reflection of the younger age profile of the population of Mexico. Violence as a top ten cause of the burden of disease can be associated with the violence of the drug wars that have become a part of everyday life in Mexico.

The basic parameters of the three healthcare systems, the payment systems, demographics and wealth of the three countries, dictate the health and healthcare issues that each country faces, but also obscure many of the underlying issues that are unique to each country. In the next section, the focus is on urban health and healthcare issues.

Urban Health and Healthcare

By definition, urban health and healthcare is what takes place in the cities of the three countries. As previously noted, the three countries are similar in the size of their urban populations as a percentage of the total population, but the urban systems are very different. With the smallest total population, Canada also has the simplest urban system, with only 16 cities with populations over 300,000, and of those 16 cities, only seven have populations over 1 million. In the case of Mexico, there are 51 cities with populations over 300,000, and 12 of those cities have populations over 1 million. The most developed urban system belongs to the USA, where there are 134 cities with populations over 300,000 and 44 cities have populations over 1 million (UNDESA 2014).

Urban health and healthcare is ultimately tied to where people live and thus to housing, homelessness and neighborhoods and their correlations with low socio-economic status (poverty, low levels of educational attainment, etc.), race, gender and aging. In Canada, the estimated population who experience homelessness any time in a year is between 200,000 and 300,000 (Homeless Hub 2017). In the USA, the similar statistic is between 1.6 million and 3.5 million any time in a year

(Homeless World Cup Foundation 2017). While no national statistics could be found for Mexico, one estimate of the homeless population in Mexico City was 15,000 to 30,000, and, crucially, an estimated 50 percent of the population live in informal settlements (Homeless World Cup Foundation 2017).

Within these broader health trends and the urban systems of the three countries, much of the emphasis of the recent research on urban health in Canada and the USA has focused on health, the built environment and particularly neighborhoods (e.g., Chitewere et al. 2017; O'Campo et al. 2015). The health and built environment literature can be further subdivided into research on: "food deserts, food mirages and foods swamps"; how the built environment affects physical activity and thus health; and the effects of air pollution on urban health. The first two sub-themes are often associated with obesity and consequently health outcomes like diabetes and cardiovascular disease. Across Canadian cities as diverse as Edmonton, London and Toronto, researchers have identified food deserts (i.e., neighborhoods with poor access to low cost supermarkets and/or concentrations of only fast food outlets and convenience stores) and how these neighborhoods are generally populated by people on low incomes and more likely to be in poor health (e.g., Larsen and Gilliland 2008; Lister 2007; Smoyer-Tomic et al. 2006, 2008). In a more recent study of Winnipeg, Wiebe and Distasio (2016) have extended the concept of food deserts to talk about "food mirages," neighborhoods where people have good geographic access to outlets that sell healthy foods but who cannot afford to purchase the food because of their socio-economic status. An even broader literature on food deserts, food mirages and food swamps can be found documenting the challenges that inner city neighborhoods face across the United States (e.g., Breyer and Voss-Andreae 2013; Cooksey-Stowers et al. 2017; Eisenhauer 2001; Lacagnina et al. 2017; Walker et al. 2010). The links between food deserts and urban neighborhood poverty is also a common theme in the discussion of cities in the USA. The one great difference in the literature on food deserts in cities in the USA is that it also emphasizes the role of race. Impoverished, inner city neighborhoods where African-Americans are concentrated are consistently identified as food deserts (Beaulac et al. 2009; Block et al. 2004; Hager et al. 2017; Morland et al. 2002; Thibodeaux 2016; Zenk et al. 2005). LeDoux and Vojnovic (2013) have, however, questioned the importance of food deserts in a study of how disadvantaged consumers living in the Lower Eastside neighborhoods of Detroit travel outside of those neighborhoods to shop for food. In contrast to cities in Canada and the United States, Mexico and cities in Mexico have only recently gone through a "nutrition transition" from a historical focus on under-nutrition to many of the same chronic health issues associated with obesity as discussed above (Rivera et al. 2004). In her research on food and obesity in Mazatlán, Bridle-Fitzpatrick (2015) argues that access and exposure to unhealthy foods, or what she calls "food swamps," may be a greater concern than food deserts in Mexican cities.

The connections among the built environment, physical activity and health have arguably become among the most researched topics in urban health in Canada and the USA in recent times. The basic argument is that urban infrastructure that encourages people to participate in active transportation (i.e., people who walk or cycle) will have better health outcomes all other things being equal. Studies from cities in Canada and the USA appear to support this general proposition (e.g., Berger et al. 2018; Berry et al. 2010; Butler et al. 2007; Gauvin et al. 2008; Pouliou and Elliott 2010; Pucher et al. 2010; Sallis et al. 2004). While no one would reasonably argue that the links between obesity and chronic health issues should be ignored, some have raised concerns about whether the links between urban infrastructure, active transportation and health are being over-stated and leading to new forms of environmental determinism (see Andrews et al. 2012; Rosenberg 2016).

The third sub-theme, the links between air pollution and urban health, has also received considerable attention among urban health researchers (Chen et al. 2014; Dell et al. 2014; Hatzopoulou et al. 2013; Jerrett et al. 2014; Parent et al. 2013; Pope et al. 2015, 2018; Shekarrizfard et al. 2015;

Straus et al. 2012). There is growing evidence from cities in both Canada and the USA that high levels of air pollution in general have negative effects on health and especially among those who are very young or very old and/or who already suffer from asthma, other respiratory diseases or cancers (Collins et al. 2011; Dell et al. 2014; Grineski et al. 2013; Lavigne et al. 2017). There is also growing evidence that those living for long periods of time nearest to sustained higher levels of air pollution (e.g., those living adjacent to automobile freeways) are more likely to suffer the negative effects of air pollution on their health than those living farther away (Chen et al. 2014; Hatzopoulou et al. 2013; Straus et al. 2012). In the case of cities in Mexico, there is a relatively long and well-documented history of the efforts of the government to reduce air pollution, especially in Mexico City, and the impacts that air pollution has on the health of people living in Mexico City, especially children (Gouveia and Junger 2018; Holguín et al. 2003; Loomis et al. 1999). Since it is often the case that those living nearest to the sources of sustained higher levels of air pollution are those whose socio-economic status is the lowest or those who are most discriminated against, this again raises questions about the links between health inequalities and broader questions of social and environmental justice in cities in Canada, Mexico and the USA.

When one examines access to healthcare services in cities in Canada, Mexico and the USA, geographic distance to the nearest physician or hospital is rarely as important as socio-economic status, ethnicity or race, the ability to pay for your healthcare or the characteristics of the neighborhood in which you live. In Canadian cities, even with their public, universal health insurance systems, those whose socio-economic status is low and/or those who are new arrivals are the most likely to have challenges accessing the healthcare system (Asanin and Wilson 2008; Harrington et al. 2014; Khanlou et al. 2017; Newbold et al. 2013; Woodgate et al. 2017). At the neighborhood level, measuring potential and actual access to healthcare in two Canadian cities, researchers have found that the neighborhood in which someone lives does not matter as much as the characteristics of the individuals themselves. People living in poorer neighborhoods, however, often have lower potential access to primary healthcare services, and this affects both their health status and actual use of primary care services (Bell et al. 2013; Bissonnette et al. 2012; Harrington et al. 2012). In the USA, much of the focus is on the lack of access to healthcare services experienced by Latinos and African-Americans. Beyond the lack of health insurance (economic access), it is the “presence of cultural and socioeconomic barriers such as language, unemployment and low income” that reduces the likelihood of access to healthcare services (Dickman et al. 2017; DuBard and Gizlice 2008; Larimer et al. 2017; Ryvicker et al. 2012). Particularly complex questions arise for both the US and the Mexican authorities over Mexican migrant access to healthcare in border cities between the two countries (Martinez-Donate et al. 2017).

Emerging and Re-emerging Health and Healthcare Issues

Mental health, drug use and violence are increasingly linked in the cities of Canada, the USA and Mexico. Without returning to the debates of the 1980s and 1990s about whether the underlying causes of mental illness are rooted in economic pressures, homelessness, or other forms of individual or collective social breakdown (Dear and Wolch 1987; Smith 1988), the lack of mental health services and/or the inability of people to access mental health services remains a common refrain heard across the board in the cities of Canada, the USA and Mexico (Cook et al. 2017; Hodgkinson et al. 2017; Urbanoski et al. 2017). The empirical manifestations are measured in suicide rates, illegal drug use and the violence associated with the buying and selling of illegal drugs.

In cities in the United States, lack of access to mental health services in cities is associated with residential segregation and the differences among the non-Hispanic White population, the Hispanic population and the African-American population, with the Hispanic and African-American population facing more difficulties accessing mental health services and consequently more negative health

outcomes (Dinwiddie et al. 2013). The links between violence, anxiety and where one lives are not only an inner city issue but an issue in suburban communities as well. Casciano and Massey (2012) show how living in affordable housing in a suburban residential project has a protective effect for the residents in contrast to a sample of non-residents. Thinking even more provocatively, one group of researchers has examined individual-level feelings of hopelessness with the characteristics of the neighborhoods in which they live. They ask: “Are there hopeless neighborhoods?” (Mair et al. 2012). The story of access to mental health services in Canadian cities is much the same as it is in the cities in the USA with one important exception. In the context of urban Canada, much of the focus has been on Aboriginal youth (Kirmayer and Valaskakis 2009), whose suicide rates are seven to ten times higher among males and 16 to 22 times higher among females depending on how rates are measured (Kumar and Nahwegahbow 2016). In general there is a lack of mental health services in Mexico. Most of the mental health services remain in the form of psychiatric hospitals. They are in the largest cities, but only 2 percent of the health budget goes to mental health services and most of it goes to the psychiatric hospitals (Berenzon Gorn et al. 2013).

A widely held view is that violent crime rates are increasing and that violent crime is mainly an issue in the largest cities in Canada, Mexico and the USA. While Mexico has a significantly higher intentional homicide rate compared to Canada or the USA, what Table 4.3 also shows is that the intentional homicide rates in the largest city in Canada and Mexico is lower than the national rate in the respective country.

The data on the largest cities of each country should, however, be carefully interpreted, because there are other large cities in each country that might have higher homicide rates than the national rate and/or the rate for the largest city in each country. For example, in the USA there are many cities with populations over 1 million that have violent crime rates higher than the violent crime rate of New York City (FBI 2016).

Contrary to the perceptions about urban violence, violent crime rates in general in Canada and the USA have been trending down since the early 1990s. What also remains true is the highly racialized nature of incarceration in both countries. In the case of Canada it is the over-representation of Aboriginal peoples, and in the USA it is the over-representation of African-Americans that dominate the data (Statistics Canada 2016; US Department of Justice 2015). In contrast, violent crime in Mexico is on the increase. It is mainly associated with the illegal drug trade and very much focused on Mexico’s largest cities and its border cities with the USA (Wikipedia 2017a).

DeVerteuil (2015) makes a strong case that health geographers should conceptualize violence as a health issue, but this remains an area of research in urban health that deserves much more attention. One notable exception that has gained some traction at the nexus of mental health and illegal drug

Table 4.3 Intentional homicides by country and the most populous city^a

	<i>Canada</i>	<i>Mexico</i>	<i>USA</i>
Intentional homicide count, 2015	604	20,762	15,696
Intentional homicide rates per 100,000 population,	1.68	16.35	4.88
	<i>Toronto</i>	<i>Mexico City</i>	<i>New York City</i>
Intentional homicide count, 2011	78	779	515
Intentional homicide rate per 100,000 population	1.3	8.8	6.3

Source: UNODC (2017).

Note: a Intentional homicide is defined as unlawful death inflicted upon a person with the intent to cause death or serious injury.

use in urban health research has been the debates about legal injection sites and needle exchange programs. In Canadian cities, much of the focus has been on the sites of treatment, siting of legal injection sites, the opposition to where they are located and the benefits they bring to the users and the neighborhoods where the sites are located (Wilton et al. 2014). In the United States, where the strategy has mainly been to focus on needle exchange programs, health outcomes are of increasing interest (Cooper et al. 2012; Parker et al. 2012).

Although much has improved in health and healthcare in the cities of Canada, Mexico and the USA, what remains true is that the overall improvements mask growing health inequities associated with differences in socio-economic status, race and where people live. Health issues related to obesity, pollution, mental health, violence and illegal drug use are preventable, but there needs to be a consensus not only among experts but more importantly among the people living in the most needy neighborhoods about their health priorities. Only through processes that engage the people living in their neighborhoods will the growing inequities in urban health in North American cities be reduced.

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