Each fall, Canadians begin to encounter all sorts of public service reminders about the flu vaccine. Health agencies place ads in bus shelters, newspapers and websites while drug store chains in some regions offer free inoculations.

These notices are friendly but insistent, encouraging Canadians to take steps to fortify themselves against an infectious disease that can, depending on the year and severity, be merely unpleasant, debilitating and occasionally deadly.

Today, reasonably well-informed people would know that each new waves of the flu originates from Asia and spreads across the globe in predictable patterns. They may also be aware that some strains – H1N1 or Avian flu – can be difficult to treat, while other variants appear to be worryingly vaccine resistant, as was the case with the flu bug that swept across the country during the winter of 2017/2018.

Influenza, of course, isn’t the only highly infectious disease to afflict contemporary Canadian society. In 2003, thousands of people fell ill, and many died, because of a pneumonia-like condition called Severe Acute Respiratory Syndrome (SARS), which caused especially severe outbreaks in Toronto and Vancouver.¹

A generation earlier, HIV -- which attacks the immune system and is passed by sexual contact, blood transfusions and intravenous drug use -- spread rapidly around the world. Acquired Immune Deficiency Syndrome (AIDS) was lethal until the development of treatment regimes, public education campaigns and other prevention measures. Meanwhile, certain sub-populations, like homeless shelter users, have experienced tuberculosis (TB) outbreaks, although public health authorities have taken steps to contain the spread among vulnerable individuals.²

Despite these and other outbreaks, contemporary urbanized societies aren’t generally plagued by the threat of widespread epidemics or pandemics, during which highly communicable diseases ravage entire communities. However, this sense of security, rooted as it is in public confidence in health protections and medical science, is a relatively new phenomenon, scarcely a century old. For the bulk of recorded history, human beings have lived with the threat of sudden death or infirmity at the hands of diseases that moved swiftly and mysteriously through communities, leaving in their wake illness, suffering, fear and tragedy.

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During the so-called Dark and Middle Ages in much of Europe, urban populations were regularly decimated by pandemics associated with rat infestations, contaminated water and crowded conditions. One of the most deadly was the bubonic plague, transmitted by fleas and parasites. According to the World Health

¹ http://www.ehatlas.ca/sars-severe-acute-respiratory-syndrome/case-study/sars-outbreak-canada
Organization, the bubonic plague – also known as “The Black Death” – killed about 50 million people in 14th century Europe and continued to circulate for centuries. The plague still exists, with several thousand people infected each year worldwide, although the disease is now easily treated with antibiotics. For generations, rats were seen as the vector of infection, but recent research suggests that the plague spread through the transmission of human parasites.

Later on, the conditions of urban life as well as mass migration became key factors driving the rapid spread of highly infectious and deadly diseases such as smallpox, typhus and cholera, which thrived in cities where water supplies, like wells or rivers, were polluted with human waste (feces). Successive epidemics of cholera, which causes extreme diarrhea and can bring on death from dehydration within hours of exposure, swept through Europe and spread to North America on ships filled with migrants from Britain.

In Canada, cholera arrived in the 1830s and triggered health emergencies in cities like Montreal and Toronto, prompting unprepared authorities to establish the earliest public health boards. Local officials hastily buried the dead in mass graves to prevent further infection.

At the time, no one knew how cholera, or indeed most infectious diseases spread from one individual to another. Scientists hadn’t yet discovered bacteria or “germs,” the microscope hadn’t been invented and the concept of vaccination was in its infancy. In fact, one of the prevailing explanations for disease transmission focused on the concept of “miasma,” or bad or putrid air – an idea that traced back to the ancient Greeks and persisted into the late 19th centuries despite advances in micro-biology.

As a 2010 history of Canadian public health by Christopher Rutty and Sue Sullivan points out, 18th and 19th century colonial governments enacted draconian quarantine laws, but these often failed to be enforced by local officials.

A turning point in the containment of infectious disease outbreaks occurred during a cholera epidemic in London, England, in 1854. Tens of thousands of Londoners had died of cholera epidemics in 1849 and 1853. Reformers and health officials were focused on addressing disgusting living conditions characterized by over-crowded houses whose basements were literally overflowing with human waste disposal and the widespread use of the Thames as an open sewer. During an 1854 cholera outbreak, a young physician named John Snow began came up with the idea of mapping the addresses of victims in an west-end neighbourhood centred on Broad Street.

When he analyzed his famous “ghost map,” he realized that many of the sick and dead lived close to an

3 http://www.who.int/mediacentre/factsheets/fs267/en/
5 https://www.mayoclinic.org/diseases-conditions/cholera/symptoms-causes/syc-20355287
6 http://www.thecanadianencyclopedia.ca/en/article/cholera/
7 Several have been located in downtown Toronto, including one behind St. James Cathedral. https://thebulletin.ca/do-st-james-park-protesters-know-whats-beneath-them/
outdoor water pump that drew on a well contaminated by a nearby privy. By contrast, people who worked at nearby local breweries tended not to fall ill. Snow’s empirical observations, considered to be among the first breakthroughs of modern epidemiology, prompted local officials to remove the handle on the Broad Street water pump, a turning point in public health policy.\(^\text{10}\)

During the late 19th and early 20th centuries, many public health advocates and governments pushed to implement prevention-oriented improvements geared at limiting the spread of diseases like cholera – modernized sewers and fresh water infrastructure, housing design standards, the development of sanitary burial rules for cemeteries, and eventually, measures such as chlorination, milk pasteurization and regulations governing abattoirs, and the processing and handling of raw meat.

The mass production of vaccines and the advent of large-scale inoculation campaigns shifted the fight against infectious disease and epidemics into the realm of preventative medicine. But vaccination wasn’t immediately accepted as a preventative measure. During a devastating smallpox outbreak in Montreal in the 1870s, provincial and municipal officials made vaccination mandatory. But as historian Michael Bliss explains in “Plague: A History of Smallpox in Montreal,” Protestant communities were far more accepting of the inoculation campaigns than Catholic neighbourhoods, and thus experienced far lower rates of disease.\(^\text{11}\)

Despite the controversy, routine vaccinations have become one of the principal prevention measures against a range of infectious diseases, and succeeded in virtually wiping out debilitating illness such as polio, which causes childhood paralysis and deformity. Global vaccination campaigns have reduced the incidence by 99%; today, only a handful of highly unstable countries continue to see cases.\(^\text{12}\)

Yet not all infectious diseases that turn into epidemics have been purged as effectively as smallpox and polio. Yemen, for example, has seen a dramatic surge in cholera in recent years – “the largest and fastest-spreading outbreak of the disease in modern history, with a million cases expected by the end of the year and at least 600,000 children likely to be affected,” as The Guardian reported in October, 2017.\(^\text{13}\)

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The Defining Moments Canada website provides a wealth of information about the impact of perhaps the worst infectious disease outbreak in record history – the Spanish flu pandemic of 1918-1920. The content includes a range of perspectives on an event that has mostly receded from memory, including scholarship on the evolving public health policy environment, political reaction and scientific explanations for the way this family of diseases spreads. Most importantly, DMC includes a wide range of entries drawn from primary sources and oral histories which, taken together, will reveal how the Spanish flu ravaged military camps,


\(^{12}\) http://polioeradication.org/polio-today/history-of-polio/

urban/ethnic neighbourhoods, remote rural and Indigenous communities, and even the 1919 Stanley Cup final.

This Centennial project aims to create a virtual hub for commemorating and documenting the flu pandemic in Canada -- a profoundly transformative event that has, nonetheless, all but slipped from collective memory. The site draws on the innovative student engagement and digital story-telling techniques developed for the Digital Historian Project, an award-winning collaboration between the Upper Grand District School Board and the Dufferin County Museum and Archives.