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Commentary

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Assessing the "price of caution" during the COVID-19 pandemic

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Pity the policy-makers forced to make important life-changing choices for other people. Their decisions influence not only the well-being of their constituents but also the trajectory of their careers.

In health care, politicians and health care administrators often lack domain expertise or the knowledge to know what questions to ask or where to find pertinent information. Consequently, they operate in shade, missing the vital, nuanced information necessary to make and understand the results of policy choices. Administrators are often forced to choose between experts who offer conflicting solutions. They are in the position of lay juries asked to decide which expert psychiatrist is correct when one psychiatrist claims a defendant did not know what he was doing and is innocent because of insanity, and the other alleges the defendant is especially sophisticated, knew what he was doing, and had exceptional insight and skills sufficient to fool the other expert.

The COVID-19 crisis poses a dilemma for everyone who must balance economic interests and health interests. This dilemma is not unique to COVID. Governments make trade-offs when they decide to equip railroad crossings with overpasses, swing-arms, flashing lights, a warning sign, or nothing at all. They usually make an intuitive estimate weighing the health benefits of accident prevention at varied sites against the financial costs of preventive infra-

structure. The most sophisticated administrators collect information about the railroad crossings most likely to be an accident scene. Economists estimate the price of additional quality adjusted life years[1] by linking the financial costs of health interventions to the subsequent benefits or harms.

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The COVID pandemic exposed deficits in existing Canadian health care and health information infrastructure. One failing is the inability to capture, in real time, information about the health and sickness of Canadians. Although many clinical practices use electronic health records they do not usually communicate with a central repository. So, policy-makers do not have the ability to know, in real time, when there are overall or local increases in particular illnesses or in which communities people are most likely to suffer from lack of access to timely care. Despite provincial and federal efforts over many years and the expenditure of billions of dollars, information about clinical encounters and patient health does not stream into a central repository and health information from clinical encounters is not captured and consolidated in a standardized way. Amazon, Costco, Facebook, and Google are way ahead!

Health care capacity

Canadians are at increased risk of harm when emergency departments and other clinical resources are stretched to capacity. Prior to COVID-19, people died because of excessive waits in emergency departments (Canadian Association of Emergency Physicians 2020; Campbell 2019). The lack of surge capacity pre-COVID meant that, as part of pandemic preparedness for COVID, administrators had to further reduce health care capacity and cancel or delay many routine and even urgent diagnostic and therapeutic procedures. In many hospitals, the expected COVID-19 surge did not occur, and hospitals continued to pay for excess, unused, clinical capacity while many patients suffered from the consequences of diagnostic or treatment delay (Lawrence 2020).[2] People were harmed because they could not receive, or did not seek, timely and appropriate care.

Collateral health benefits and harms from quarantine and reduced access to care

Benefits of quarantine

People who quarantine travel less. In California, traffic injuries and deaths decreased by 50 percent following the state's stay-at-home order (Road Ecology Center 2020). It appears that quarantine and handwashing also reduced the frequency of other infectious diseases (Sakamoto, Ishikane, and Ueda 2020). Reduced access to care also benefitted those people who spontaneously improved while waiting for care (Jauhar 2020).[3] They avoided the harms of unnecessary tests and treatments.

Anecdotally, many people reported that they spent less because the opportunities for spending decreased. Of course, every dollar not spent, meant a dollar not earned by someone else and loss of jobs and paid work. So, governments intervened with payments to unemployed people and businesses that were harmed. The result is that despite not spending personally on goods and services, eventually some of the savings will be lost through either a reduction in government services, or an increase in taxes or both.

Harms from reduced access to care

Reduced access harmed the health of those who suffered because important and vital care was delayed. Tangential evidence suggests that in the United States there was probably an underestimate of both the number of COVID-19 deaths and the increased deaths related to rationing interventions aimed at reducing COVID-19 mortality and morbidity (Zylke and Bauchner 2020).

> *Quarantine and handwashing also reduced the frequency of other infectious diseases.*

Access to hospital care contracted at first because health services administrators insisted on keeping capacity available just in case services were needed by COVID patients. A US study reported that hospitalizations for several emergency and life-threatening conditions decreased in the early stages of the pandemic (Baum and Schwartz 2020). Anecdotal evidence from Canadian emergency department clinicians and hospitalists suggests the same thing happened in Canada.[4]

In the United States, deaths between March 1, 2020 and April 25, 2020 were substantially higher than would have been expected based on deaths in the similar period in previous years. Some of the increase related to documented COVID cases. However, in this study, documented COVID deaths accounted for only 2/3 of the increase in overall deaths (Woolf et al. 2020). Another study, using data from March 1, 2020 to May 30, 2020 and taking into account death reporting delays, estimates that the figure of documented COVID deaths accounts for 78 percent of excess deaths, or 3/4 of the total (Weinberger et al. 2020). Presumably the remaining excess deaths are related to cases of undocumented COVID and deaths related to reduced access to appropriate care (Woolf et al. 2020).

It would be useful to know the extent of benefit or harm, in Canada, from reducing access to care.

A rational system, using the opportunity from COVID, would record and report the health consequences of these delays. What was the excess mortality (how many more people died) unrelated to COVID? What were the characteristics of people harmed because they had to wait too long? What were the characteristics of people on waiting lists for tests or treatment who spontaneously recovered and therefore did not receive superfluous or potentially harmful care?

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It is interesting that the lay press reported on both issues, unnecessary deaths from excessive waits (Mihaljevic and Farrugia 2020) and spontaneous recovery while on a waiting list (Jauhar 2020). However, neither provincial health departments, nor the federal government are reporting this information. Learning the characteristics of those who improved while waiting would help avoid unnecessary and superfluous care post-pandemic.

The technology to link activities to subsequent results is widely used in most industries, especially retail. Health care administrators should know the characteristics of people who benefit or are harmed by a test or treatment in the same way that retailers know the characteristics of people who buy or return types of merchandise. Unfortunately, health services in Canada do not routinely capture information about whether you felt better, were more comfortable, or had an increased life expectancy after treatment, so they cannot routinely link health

care activities to subsequent health. Nor can they report on overall changes in population health resulting from reducing access during the COVID-19 crisis.

Canadian hospitals and those in many other jurisdictions collect information about mortality for particular diagnoses. They do not capture changes in health associated with care, and mostly they do not use information linking illness severity to the diagnosis and mortality outcome.

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Health Level 7 International (HL7)[5] is an international organization that develops standards to ensure that people who collect health care information use technical and language protocols to enable data sharing. They have developed standards for collecting and sharing health information and are developing standards to report on patient outcomes including patient reported outcomes. Most Canadian provinces adopt vendor promoted, proprietary, health information systems, rather than encouraging health care providers to use information systems they like, as long as they meet standards for interoperability.

Long-term care

To protect residents, some long-term care organizations (such as Northwood Centre in Halifax, for example) totally restricted visitor access. In the case of Northwood Centre, in Halifax, that strategy did not seem to help. Northwood became the Nova Scotia facility with the most COVID-related deaths. Family and friends, those most concerned about the residents' well-being, and most likely to use personal protective equipment, were barred from access. At the same time workers were able to move about the community and work in more than one facility. The nursing union complained (McPhee 2020) that staff did not have access to suitable protective equipment and that infection control standards were not met. Of course, restricted access meant that family members, those most concerned about resident well-being, were not able to observe and make suggestions when they saw that staff might not be using appropriate infection control measures. Stories like this were also common in other provinces

It is probable that keeping relatives out was counterproductive. It would be useful to compare organizations that welcomed close family or friends and insisted on rigorous infection control for all as compared with those that prevented even close family from visiting.

Avoiding economic damage and lockdowns

COVID is an infectious disease spread by liquid droplets discharged when infected people cough or sneeze. It is transmitted to others when they inhale the infected droplets. It is also transmitted when people touch their face after touching surfaces on which on which droplets have landed. Consequently, the US Centers for Disease Control and Prevention (CDC) recommends wearing masks so that infected individuals do not spread infected droplets. They also recommend regular hand washing, and cleaning, with soap, so that individuals who have touched surfaces that have been infected will remove and destroy the active surface of the virus. Many people with COVID infection can infect other people even if they are asymptomatic. Therefore, it is important to learn the prevalence (e.g., frequency per 100,000 people) of COVID-19 in communities.

The evidence so far is that each infected person infects two or three other people. Wearing masks and maintaining social distance reduces the number of people an infected person infects. When an infected person infects less than one other person, community infection wanes. Some communities have successfully reduced infection rates, others who ignored recommendations for social distancing and mask wearing are seeing an increase. Contact tracing that identifies and quarantines those who have been in contact with COVID-infected patients also reduces the spread of infection and contributes to a more rapid return to worth-

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while face-to-face commerce (Loder 2020).

Communities, for example Nova Scotia, with few new infections can start returning to normal behaviors, especially if routine testing shows low community prevalence. It is becoming clear that some people with COVID are "super spreaders," or people who are more likely to transmit the virus. Meanwhile, others, also infected, are less likely to transmit infection (Endo et al. 2020; Zimmer 2020). Regular testing of symptomatic and asymptomatic people will help jurisdictions know how cautious they must be.

It would be worthwhile if communities adopted systems to inform the "price of caution." What are the mental health (including suicide) consequences of shutting down an economy? What are the health consequences of reducing routine hospital capacity to cater to potential COVID cases?

What has been the overall economic costs? Did some industries benefit while others suffered substantial harm? Stock markets indicate that companies supporting remote technologies and communication, including tele-medicine, are thriving. Ones that were shut down including restaurants and hairdressers and gyms are failing.

In Canada, the good news is that Canadians have largely embraced the methods, distancing, and masks, that help reduce COVID spread. According to Statista (2020), as of July 27, Canada had about 113,000 confirmed cumulative cases, while the United States, the world leader in per capita infection, had about 4,163,000 confirmed cases. Many people – some estimate between 6 and 40 percent (Huang 2020) – with COVID-19 shed the virus and can infect other people but are themselves asymptomatic. Therefore, the Canadian embrace of distancing and masks is sensible because absent symptoms do not mean a person is not infected. Regular and concurrent screening is essential to learn the current prevalence of COVID in a community.

The controversies over mask usage and social distancing in the United States seem to be a natural experiment suggesting that social distancing and masking have been effective. Consequently, many Canadian communities, those with low levels of infection, can open and Canadians have not been subject to restrictions on travel to other countries. This can be contrasted to the United States, whose residents have been barred, for the time being, from travel to the European Union countries.

Of course, the eventual development of a vaccine might end the continued worry, and economic and health destruction caused by COVID-19. Fortunately, sophisticated scientists are attacking the problem and will probably find a solution within the next year (Gao et al. 2020).

About the author

Dr. David Zitner, a retired family physician, was a Professor and the founding director of the Graduate Program in Health Informatics at Dalhousie University. He has contributed to the boards and advisory committees of a diverse group of Canadian health organizations including the economics committee of the Canadian Medical Association, the physician advisory committee to the Canadian Institute for Health Information, and the board of Accreditation Canada. He has chaired the quality, utilization and other committees of the Halifax Infirmary, a major Canadian teaching hospital.

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Endnotes

1 A quality adjusted life year is an estimate of how many years of life are gained or lost from an intervention with an adjustment for the quality of the extra year. People who use this measure suggest, for example, that a year spend totally paralyzed is worth less than a year of good health with normal comfort and function.

2 This includes, for example, the reported increase in drug overdose deaths in British Columbia, and decreased access to cancer screening for people at risk.

3 Estimates are that 30 to 50 percent of care is superfluous or harmful, such as from unnecessary surgery. The classic example is former President George W. Bush's coronary artery stent, where he did not have indications either for aggressive testing or for the stenting procedure. See Prasad and Cifu 2013 and Malhotra 2013. Reducing access and rationing care as happened as hospitals reserved spaces for COVID patients meant not only that necessary and important services were delayed, but also that some unnecessary ones were also delayed or avoided

4 Anecdotes related by physicians in Nova Scotia.

5 According to its website, "Health Level 7 International (HL7) is a not-for-profit, ANSI-accredited standards developing organization dedicated to providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services." See http://www.hl7.org/about/index.cfm?ref=nav.

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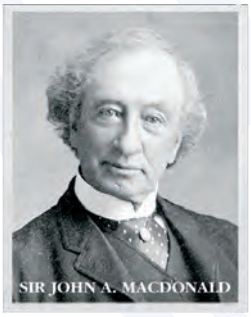
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