DENTAL CARE

Brandon Doucet

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Excerpt

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"Those in power can kill one, two, or three roses,
but they will never be able to stop the coming of spring."
— President of Brazil Lula da Silva's historic speech, April 7, 2018

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ABBREVIATIONS

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CDA	Canadian Dental Association
CDSS	College of Dental Surgeons of Saskatchewan
CCF	Co-operative Commonwealth Federation
CFNU	Canadian Federation of Nurses Unions
CLHIA	Canadian Life and Health Insurance Association
CHA	Canada Health Act
CMA	Canadian Medical Association
CSC	Correctional Services Canada
CWF	community water fluoridation
DCC	Dental Corporation of Canada
DND	Department of National Defence
DSO	dental service organization
IFHP	Interim Federal Health Program
NHS	National Health Service (UK)
NIHB	Non-Insured Health Benefits
PBO	Parliamentary Budget Officer
RAMQ	Régie de l'assurance maladie du Québec
SDC	SmileDirectClub
SDP	Saskatchewan Dental Plan
SID	supplier-induced demand

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THE STRUGGLE FOR ORAL HEALTH

Several components contribute to poor oral health, with the most obvious being dental decay, also known as cavities, or caries. Dental decay occurs when bacteria in the mouth digest sugars and produce an acid byproduct that demineralizes the teeth. Once demineralization undermines enough tooth structure, a hole forms in the tooth. If left untreated, the cavity will continue to grow. Over the centuries, access to sugar has changed trends in dental decay. In the nineteenth century, sugar was a commodity of the affluent, who developed cavities at disproportionately higher rates as a result. Nowadays, sugar is widely and cheaply available, and dental decay disproportionately affects those of low socioeconomic status.[1]

Another component of poor oral health is gum disease, also known as periodontal disease. Gum disease is caused by the bacteria in the plaque on the teeth producing byproducts that cause inflammation of the gums and eventually the supporting bone underneath. Over time inflammation leads to the destruction of tissue, which is what most would see as their gums receding. If enough supporting tissue is destroyed by this process, pain and mobility issues can cause the teeth

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to lose their ability to function.[2] Globally, untreated dental decay is the most common health condition, and severe periodontal disease is the sixth most common.[3]

Oral health also encompasses the ability to chew, which we need in order to eat and properly digest food.[4] Cancers can impact oral health by damaging the tissues and supporting structures of the mouth, and misaligned teeth can affect both chewing efficiency and a person's willingness to smile.[5] Being able to speak and smile are components of oral health that can have profound social consequences; for people who have lost teeth, adequate replacement can restore the ability to chew and speak, and the confidence to smile.

Despite the critical importance of good oral health, which is highlighted throughout this chapter, our society tends to consider the perfect smile as a sign of status.[6] People make assumptions about individuals baring a smile with misaligned, broken, discoloured and missing teeth in comparison to someone whose teeth are perfectly straight and white. Studies have shown that people see those with a perfect smile as more intelligent, successful and attractive than those whose smile shows visible decay.[7]

There is a tacit acknowledgement in this line of thinking that access to dental care and good oral health are determined by one's income. This is borne out by the evidence, as oral health outcomes are consistently worse for people of a lower socioeconomic status. A study using data from the Canadian Health Measures Survey (2007–09) found that the prevalence of decayed and missing teeth and the prevalence of oral pain all decreased as income increased.[8] The presence of periodontal disease in adults increased as education levels decreased.[9] People who avoided the dentist due to cost were three and a half times more likely to have untreated dental decay than the group that did not avoid the dentist due to cost.[10] People

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in the lowest income quintile were shown to be seven times more likely to be missing all of their teeth than those in the highest income quintile.[11] People in the lower income quintiles experience a greater burden of dental disease and face greater difficulties accessing care, which results in more teeth deteriorating until they are no longer salvageable or are too costly to save.

Financial barriers inhibit people from accessing dental care, and the more income a person has, the more likely they are to have dental insurance and disposable income to pay for care out of pocket.[12] While other factors, such as diet, oral hygiene, alcohol and tobacco use influence oral health, socioeconomic status remains the most important.[13] The goal of improving access to dental care for Canadians should be paired with a plan to end poverty, something that should not be difficult in such a rich country but nevertheless is beyond the scope of this book.[14] This book focuses on access to dental care. This is not to downplay the importance of the other factors but rather to highlight the greatest factor that contributes to inequality in oral health outcomes.

In 2014, the Canadian Academy of Health Sciences sought to understand the differences in oral health outcomes between low- and high-income groups. When factors like dental decay, dental pain and difficulty eating food were examined, it was found that 90–95 percent of the differences between the income groups could be accounted for by access to dental care and socioeconomic status. Access to dental care accounted for over 50 percent of the differences between income groups for dental decay and difficulty eating, and it was a close second to socioeconomic status for dental pain. Oral health behaviours accounted for the remaining 5–10 percent for each category.[15] Clearly, lacking access to dental care leads to worse oral health outcomes.

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Since access to dental care is an essential component of achieving good oral health, it is worth exploring what factors influence it. The two largest factors contributing to access to dental care are socioeconomic status and geography.[16] Socioeconomic status influences the likelihood of having dental insurance and disposable income to pay for care. In terms of geography, a disproportionate number of dental professionals practise in urban centres, leaving many rural communities underserviced.[17] Too few dental providers results in a dental workforce that is unable to meet the population needs, which results in rationing of services and people having to travel greater distances to find the nearest dental office.

Geography and socioeconomic status are compounding factors, and people with low incomes in rural or remote communities tend to have worse oral health than those who experience only one of those factors.[18] Taken together with colonial policies of underfunding healthcare, high food costs and lack of access to clean drinking water are significant factors for why many Indigenous communities struggle with achieving good oral health.[19]

Other factors also influence access to dental care. For example, people with disabilities may require specific equipment or sedation in order to access care, but these are not widely available.[20] Language and cultural practices can also influence access.[21] Injustices can lead to mistrust in the dental profession, which can cause hesitancy in seeking care. This is particularly true for Indigenous Peoples, who faced particularly inhumane dental treatment in the residential school system.[22] Clearly, access to dental care is made worse by colonialism, ableism and racism. Structures of social and economic inequality affect oral health, and the struggle for dental care is an important part of broader struggles for justice.

Without access to comprehensive dental care, people tend to

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ration dental services, which can take different forms. For some, it is skipping a cleaning. For others, it means extracting a tooth instead of saving it with root canal treatment. For others, it means living with decayed and infected teeth for many years. Preventative services and early interventions are neglected, and dental disease festers, which leads to pain and infection.[23]

ORAL HEALTH AND OVERALL HEALTH

While historically and politically, the mouth has been treated as separate from the body, evidence is mounting that poor oral health has significant downstream effects on an individual's overall health.[24] As highlighted by Dr. Hasan Sheikh from the Canadian Association of Emergency Physicians, poor oral health has been associated with cardiovascular disease, diabetes, having a low-birth-weight infant, aspiration pneumonia, erectile dysfunction, osteoporosis, metabolic syndrome and stroke.[25] Recent research has found that people with active gum disease have a higher likelihood of being hospitalized or dying from COVID-19 than people with good oral health.[26]

Some studies show that poor oral health is not just associated with poorer general health but can actually cause it. For example, the provision of regular oral care in long-term care settings has been shown to reduce residents' risk for aspiration pneumonia.[27] This lung infection can be caused by bacteria being inhaled from the significant plaque buildup on the teeth.

A bidirectional relationship between oral health and type II diabetes has been identified. Treatment of periodontal disease in type II diabetics leads to improved blood sugar control equivalent to adding a new medication.[28] Conversely, individuals with poorly controlled type II diabetes experience more severe periodontal disease.[29] Treating periodontal disease has also been shown to reduce

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patients' risk for cardiovascular disease.[30] Periodontal disease leads to chronic inflammation, which worsens both type II diabetes and cardiovascular disease.

Poor oral health also has mental-health related consequences. A study from Cambridge University determined that "tooth loss causally increased depression among US adults. Losing ten or more teeth had an impact comparable to adults with major depressive disorder not receiving antidepressant drugs."[31] Poor oral health has been shown to negatively impact a person's self-esteem and affect the quality of their social interactions.[32]

Lack of access to dental care contributes considerably to the cycle of poverty. First, without dental insurance or sufficient disposable income, and consequently insufficient access to dental care, many experience poor oral health. Poor oral health can affect employability, further perpetuating the cycle of poverty.[33] One can imagine the preconceived notions an employer might have of an individual at a job interview who has visible dental decay or missing front teeth. Further, dental pain may impact a person's performance at work; it can be challenging to concentrate on tasks while experiencing significant discomfort, especially if the same ache has negatively impacted quality of sleep. In the time an individual lacks access to dental care, dental disease only worsens, further exacerbating the problem.

Conversely, oral health treatment can have considerable positive effects. For instance, individuals undergoing treatment for addiction who were provided with dental care were more likely to find employment and abstain from drug use and less likely to experience homelessness when compared to their counterparts who did not receive dental treatment.[34] In other words, access to dental care is an important factor in breaking the cycle of poverty.

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Oral health is also relevant to overall health insofar as it impacts a person's ability to chew efficiently, which is critical to attaining proper nutrition and digestion. People who cannot chew tend to eat softer and less healthy food. In 2018, the Public Health Agency of Canada estimated that 1.8 million Canadians were unable to chew. The report identified that the main causes of the inability to chew were 1) decayed or painful teeth; 2) no dentures or poorly fitting dentures; and 3) medical conditions (e.g., Parkinson's disease).[35] The report demonstrated a class divide relating to the ability to chew. For instance, those of low socioeconomic status were often unable to get their teeth extracted, were unable to afford dentures to replace their extracted teeth or had old dentures that no longer fit. As a result, many people were forced to live with decayed teeth for years. When the pain becomes unbearable, many incur debt to access the necessary treatment.

The report identified that adults who have a permanent disability leaving them unable to work were four times more likely to be unable to chew when compared to people who are employed. Further, those with less than a high school education were three times more likely to be unable to chew than those with university degrees. Those in the lowest income quintile were more than three times more likely to be unable to chew than those in the top income quintile, who were more likely to access to dental care.

Clearly oral health is more than just having the perfect smile. A comprehensive view of oral health and how it interacts with overall health should guide how governments fund and deliver dental care. The World Health Organization states that universal health coverage should be a global priority and that oral health treatment should be integrated into healthcare.[36] The World Dental Federation defines oral health as "multi-faceted and includes the ability to speak, smile, smell,

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taste, touch, chew, swallow and convey a range of emotions though facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex (head, face, and oral cavity)."[37] Given the importance of oral health and its relationship to overall health, the aim of this book is to highlight how Canada's current dental care system is inconsistent with the primary purpose of the Canada Health Act, which is "to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers."[38]

ORAL HEALTH AND CANADA'S HEALTHCARE SYSTEM

Poor oral health negatively affects individuals and the broader society. In Canada, where large numbers of people lack access to dental care, people suffer poorer oral health and consequently poorer general health. Thus, poor oral health increases the need for spending on general healthcare. While comprehensive estimates of the increased healthcare costs due to lack of access to dental care have not been done due to the complexity of analysis, some studies have narrowed in on direct and quantifiable effects of poor access to dental care. For instance, many people who cannot afford emergency dental care end up in doctors' offices and emergency departments seeking pain relief for a toothache.[39] While physicians and nurse practitioners try to help individuals suffering with immense dental pain, they do not have the necessary skills or equipment to address dental issues.

The most common reason people go to a physician for dental pain is a dental abscess. An abscess occurs most often when a cavity reaches the nerve inside of a tooth, causing a toothache and infection. This infection leads to pus collecting around the tip of the root of the tooth, which causes the face to swell. Anyone who has experienced a

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toothache knows just how miserable this is, leading people without access to dental care to seek relief wherever they can. Some even try to extract their own teeth in a desperate attempt to get out of pain.[40]

A study from the Ontario Oral Health Alliance showed just how frequent visits to physicians for dental pain are. In 2014, Ontario emergency rooms were visited 61,000 times and physicians' offices were visited 222,000 times by patients seeking treatment for dental pain. That amounted to one visit every three minutes to a medical clinic and one visit every nine minutes to an ER by patients.[41] One study showed that ER visits for dental pain increased more than population growth between 2001and 2015 in Ontario, which is an indicator that access to dental care has been worsening.[42] A study in British Columbia found that 1 percent of all visits to the emergency department were for patients with non-traumatic dental pain caused by decay.[43] However, physicians are not trained to extract teeth or perform root canal treatments to deal with dental abscesses, so they can only offer Band-Aid relief in the form of a prescription for antibiotics and/or pain medications. Nationwide, this problem is estimated to cost taxpayers more than $150 million per year.[44] This number is likely an underestimate as it looks at the minimum cost per visit to the emergency department for dental pain, when in reality some people need to be hospitalized, which is much more expensive. Despite these resources being used to help people with dental pain, patients are still left needing to see a dentist. This inefficiency could be eliminated if everyone had access dental and primary preventative care in the first place.

A dental abscess is a localized infection, but if left untreated or treated improperly, the infection can spread to other parts of the body. An infection of an upper tooth can spread to the brain, while an infection of a lower tooth can cause swelling and compression of

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the airway.[45] For people with specific heart conditions, bacteria from a dental infection can spread to the inner lining of the heart.[46] The spread of a dental infection in these ways can become fatal.

In 2015, a nine-year-old girl in Edmonton fell gravely ill from malnutrition, septic shock and congestive heart failure caused by a dental infection.[47] In 2016, a man in his 30s had a dental infection that led to sepsis and resulted in him losing his right leg below his knee, the fingers on his left hand and several toes on his left foot. He was in a medically induced coma for a week and a half, followed by over a month in the intensive care unit, where he required dialysis for his kidneys, followed by a year in a long-term care setting.[48] In June 2021, a person from Sioux Lookout died from a dental infection that led to sepsis as the tooth was left untreated due to lack of access to dental care.[49] While these stories occasionally make the news headlines, undoubtedly many others are not reported.

In a country with universal healthcare, these people are able access a health provider and treatment, but not the right kind of treatment at the right time from the right provider.[50] The healthcare system uses tremendous resources to react to a problem that could have easily been prevented with upstream investments in public dental care at a fraction of the cost. This represents a serious shortcoming of Canada's healthcare system: it reacts to health problems rather than proactively preventing problems from happening in the first place.

The inability of people with dental pain to see the right provider results in suboptimal treatment for their condition, which has its own consequences. Patients are often given two prescriptions when they present to a physician for dental pain, one for an antibiotic and another for pain medication, which due to the severity of a toothache often comes in the form of an opioid.[51] There are consequences of being over-reliant on these two types of medications, especially

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considering that they would usually not be needed if the person had been able to seek expedient and proper treatment from a dentist.

Antibiotics kill or inhibit the growth of bacteria, which is useful when fighting an infection. It is important that we use antibiotics sparingly though, as bacteria can learn to survive repeat exposures to antibiotics, which results in strains of bacteria that are resistant to the drug. When someone seeks treatment for a dental infection from a physician, they are given an antibiotic, but the underlying infected tooth is left in place until the patient seeks treatment from a dentist. This often leads to the infected tooth flaring up again down the road, as many seeking this type of treatment are unable to afford the subsequent dental care. In most cases, patients could have had the infected tooth extracted without needing an antibiotic. This overuse of antibiotics without any clinical benefit gives bacteria an opportunity to develop resistance.

In 2019, it was estimated that drug-resistant diseases kill 1.27 million people worldwide each year.[52] A report from the government of the United Kingdom stated that on our current trajectory this number could balloon to 10 million per year in 2050.[53] The complications associated with antibiotic resistant infections are expensive to treat and thus siphon resources away from other health services. We need to stop over-relying on antibiotics in Canada as a substitute for proper access to dental care, and thus lessen the number of antibiotic resistant infections in the process.

When patients go to their physician for the treatment of a dental abscess, they are also often given pain medication. Due to the severity of pain a toothache causes, an opioid is often needed.[54] Opioids are highly addictive and should be used sparingly. Rather than masking dental pain with opioids, it is wiser to treat the root cause of the pain by ensuring patients can access dental care. With proper access

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to dental care for all, many of these emergencies could have been prevented.

When children suffer from poor oral health and lack of access to dental care, they often need general anesthetic in a hospital setting to be treated. This not only creates traumatic experiences for children, but it also places an increased strain on the healthcare system. Cavities are the leading cause of day surgery for children aged one to five, accounting for approximately one in three day surgeries in this age range.[55] There are significant regional differences across the country, with children in rural communities needing dental surgery three times more often than their urban counterparts. Similarly, children from low-income families are more than three times more likely to need dental surgery than their high-income counterparts. Children from communities with a high proportion of Indigenous People were in need of dental surgery at rates approximately eight times greater than children from communities with a low proportion of Indigenous People.

This situation was made worse by the COVID-19 pandemic as many rural communities rely on dentists who fly into the community to treat patients. With travel restrictions on top of an already limited number of dentists working in these communities, the waitlist in Nunavut doubled for children's dental surgery, and children's health suffered as a consequence. In 2021, Nunavut, a territory with a population of only 38,700, had 1,000 children on the waitlist for dental surgery.[56]

With dental day surgeries costing on average $1,564 per child in Canada, it is far more expensive to allow dental disease to fester until children need general anesthesia in a hospital setting to be treated.[57] The problem is that many children are unable to access dental care until the decay is so extensive that the child could not tolerate the

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dental work while conscious. If children were able to easily access preventative and restorative dental care, as well as a healthy diet, many of these dental surgeries could be avoided.

Dental surgeries in children are a sign of rampant dental decay leading to pain and infection.[58] This suffering can affect a child's ability to eat and sleep, which can have lifelong ramifications. Nutritional deficiencies and lack of sleep can result in failure to thrive and have long-term impacts on the development of the nervous system.[59] A woman in Nunavut spoke to the CBC about her 12-year-old son losing 15 pounds while waiting to have a tooth removed.[60]

Access to dental care is also important for the detection of certain medical conditions. The human immunodeficiency virus (HIV) can cause sores in the mouth that can be detected by a dental professional, which would result in the patient being referred to a physician for further investigation. Eating disorders and acid reflux can be indicated if there is erosion of the outer enamel layer of teeth.[61] Signs of undiagnosed diabetes and hypertension can be detected during dental visits, and early detection of cancers of the throat and mouth can lead to greater survival rates.[62] Those who lack access to routine dental care do not have a dental professional regularly looking out for these signs and are more likely to have these conditions diagnosed at a later stage in the disease's progression. Later detection of these conditions ultimately leads to greater healthcare spending and worse outcomes for individuals.

The effects of poor oral health extend to individuals, the healthcare system and the broader society. Too often, discussions around addressing access to dental care focus solely on the immediate cost to governments of funding a dental plan, but it ignores the broader effects that poor oral health have on our society and the suffering it causes to individuals.

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