Improving Access To Oral Health Care

For Vulnerable People Living In Canada

Canadian Academy of Health Sciences
Académie canadienne des sciences de la santé

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The Canadian Academy of Health Sciences

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

This report concludes a three-year evaluation by a multi-disciplinary Canadian Academy of Health Sciences (CAHS) panel (from here on referred to as "the Panel") into the issue of access to oral health care among vulnerable groups in Canada. It presents an innovative analysis of data from the recent Canadian Health Measures Survey (CHMS), which for the first time in approximately 40 years has provided nationally representative, clinical information on the oral health status of Canadians. In addition, targeted literature reviews were completed, with all resulting information reviewed, discussed, and integrated into the report by the Panel.

The following major issues have emerged from the CAHS investigation in relation to oral health and oral health care in Canada:

- Many low income, and even middle income, Canadians suffer from pain, discomfort, disability, and loss of opportunity because of poor oral health.
- Approximately six million Canadians avoid visiting the dentist every year because of the cost.
- There are significant income-related inequalities in oral health and inequity in access to oral health care.
- Those with the highest levels of oral health problems are also those with the greatest difficulty accessing oral health care.
- Income-related inequalities in oral health are greater than income-related inequalities in general health indicators.
- Income-related inequalities in oral health are greater in women than men.
- Inequalities in access to dental care are contributing to inequalities in oral health.
- Oral health is part of general health, with the same social, economic, and behavioural determinants, and with direct links between poor oral and poor general health.
- The vast majority of dental care is provided in the private sector, with only approximately six per cent of expenditure on dental care in the public sector.
- Private sector dentistry is providing good quality oral health care for a majority of people living in Canada, but it is not a good model of health care provision for the vulnerable groups who suffer the highest levels of oral health problems.
- There is no consensus on standards of oral health care provision among federal, provincial, territorial, and municipal governments in Canada. The small proportion of publically-funded oral health care services provided across the country varies enormously between jurisdictions.

- There is no consensus among federal, provincial, territorial, and municipal governments across Canada on the use of a range of dental and other health care professionals that might improve access to oral health care services, particularly for groups suffering the greatest burden of oral diseases.
- In Canada, tax legislation helps reduce the financial burden of dental care for those with private dental insurance. Those without such insurance do not have this benefit, yet these are the groups with the highest levels of disease and the greatest difficulty accessing dental care.

In summary, analysis of the CHMS data illustrates major inequalities in oral health and access to oral health care across social groups in Canada. *Compared to the rest of the population, vulnerable groups in Canada are i) less likely to have dental insurance; ii) more likely to avoid the dentist due to cost; iii) more likely to consult dentists only in emergencies; iv) more likely to have untreated dental decay, gum diseases, missing teeth, and dental pain; and v) more likely to avoid eating healthy foods such as fruits and vegetables due to oral health problems*. The CAHS investigation also found that the differences in ability to access and use oral health care makes a major contribution to inequalities in oral health status. In a wealthy country with explicit policy goals of reasonable access to health care as part of the *Canada Health Act*, these inequalities and the resulting inequity should be a matter of national concern.

This situation goes against Canadian principles 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." Some agreed upon standard of preventive and restorative oral health care should be provided for people in Canada who need it, irrespective of their physical or geographical ability to access services, or their capacity to pay. There are important challenges in being able to utilize oral health care services, namely: **affordability** (Do the provider's charges relate to the client's ability to pay for services?); **availability** (Does the provider have the requisite resources, such as personnel and technology, to meet the needs of the client?); **accessibility** (How easily can the client physically reach the provider's location?); **accommodation** (Is the provider's operation organized in ways that meet the constraints and needs of the client?); and **acceptability** (Is the client comfortable with the characteristics of the provider, and vice versa?).

Oral health care in Canada is overwhelmingly privately financed and delivered. Payment is predominantly made through employment-based or individually purchased insurance or directly "out-of-pocket" by users. Canada contributes one of the lowest proportions of public funds among Organisation for Economic Co-operation and Development (OECD) countries. For example, Canada's public share of expenditure on dental care is approximately six per cent, compared to 7.9 per cent in the U.S. (another country with a low public share) and 79 per cent in Finland (a country with among the highest public contributions to the cost of dental care).

While this system of private finance and private provision may provide access to good quality care for many in Canada, the evidence is that this system also creates substantial barriers to care for many others. These other people are Canada's most vulnerable groups, including:

- those with low incomes;
- young children living in low income families;
- young adults and others working without dental insurance;
- elderly people living in institutions or with low incomes;
- aboriginal peoples;
- refugees and immigrants;
- those with disabilities; and
- people living in rural and remote regions.

Furthermore, there is increasing evidence that with the current economically difficult times, lower middle income families in Canada are also struggling to access affordable oral health care.

Although the affordability of oral health care is certainly an important barrier, it is not the only one. The CAHS investigation found evidence for other problems, including:

- The lack of integration of dental professionals into public institutions delivering other health and social services, with a lack of options and versatility in the workforce;
- The organization of dental and other health care professions, including their scope of practice, does not facilitate equitable access to oral health care; and
- The lack of national oral health care standards to ensure reasonable access to an agreed quality of oral health care for all people living in Canada, regardless of their situation.

Given these important and well-substantiated observations, the Panel has developed a vision for oral health care in Canada and makes recommendations aimed at advising a variety of stakeholders on how to move towards achieving this vision. The stakeholders targeted by this report include:

- Federal, provincial, territorial, and municipal governments and governmental agencies;
- The dental professions, including dental professional regulatory bodies, professional associations, dental education and research institutions, and other forms of "organized dentistry;"
- Physicians, nurses, and other health care professionals that regularly care for vulnerable groups; and
- The organizations or advocacy groups representing vulnerable groups in Canada.

A Vision for Oral Health Care in Canada

The Panel envisages equity[1] in access to oral health care for all people living in Canada.

[1] By equity in access, the Panel means reasonable access, based on need for care, to agreed-upon standards of preventive and restorative oral health care

The Core Problems Identified in this Report

This report identifies a number of issues, as outlined in the aforementioned list. These can be distilled to the following core problems:

- Vulnerable groups living in Canada have both the highest level of oral health problems and the most difficulty accessing oral health care; and
- The public and private oral health care systems in Canada are not effective in providing reasonable access to oral health care for all vulnerable people living in Canada.

Recommendations to Address the Core Problems and Achieve the Vision

The recommendations designed to address the core problems identified in the report are grouped into a framework that provides a logical order of priority, proceeding as follows:

A. Communicate with relevant stakeholders concerning the core problems raised in the report.

B. Establish appropriate standards of preventive and restorative oral health care to which all people living in Canada should have reasonable access.

C. Identify the health care delivery systems and the personnel necessary to provide these standards of oral health care.

D. Identify how provision of these standards of preventive and restorative oral health care will be financed.

E. Identify the research and evaluation systems that monitor the effects of putting these recommendations into place.

As an aid to making progress, the Panel also identified groups that should be acting on the recommendations, either within the wording of the recommendations or identified at the end of each one. The recommendations are therefore expanded as follows:

A. Communicate with relevant stakeholders concerning the core problems, to enable mutual understanding of the report's findings and initiate discussions to address the recommendations.

i. Communicate the findings of this report with representatives of relevant vulnerable groups and obtain their input to contextualize them.

ii. Communicate the findings of this report with relevant dental and other health care professional groups and obtain their input to contextualize them.

iii. Communicate the findings of this report with relevant federal, provincial, territorial, and municipal government agencies and obtain their input to contextualize them.

iv. Communicate the findings of this report with relevant private sector stakeholders (e.g., health insurance companies) and obtain their input to contextualise them.

B. Engage with relevant decision-making, professional, and client/patient groups to develop evidence-based standards of preventive and restorative oral health care to which all people living in Canada have reasonable access.

i. Engage vulnerable groups and their representation as partners in order to identify their needs for standards of oral health care.

ii. Engage with the dental professions to identify their views on what evidence-based standards of oral health care should be.

iii. Engage with federal, provincial, territorial, and municipal government and other public agencies to identify their views on what agreed-upon standards of oral health care should be.

C. Plan the personnel and delivery systems required to provide these standards of oral health care to diverse groups, in a variety of settings, with particular attention to vulnerable groups.

i. Create or enhance public options for oral health care in alternative service settings, such as community health centres, institutions for elderly people who are non- and semi-autonomous, long-term care settings for those with handicaps, etc. *(Targets: community health centres; centres for the elderly and those with handicaps.)*

ii. Deliver simple, preventive oral health care for children in non-dental settings and dental offices so that children get a good start in life. *(Targets: pediatric dentists, physicians, nurses and other pediatric health professionals; dental hygienists; preschool institutions; primary schools.)*

iii. Develop domiciliary and other “outreach” oral health care for those with difficulties accessing private dental offices or community services, for example, on-site services for the institutionalized elderly. *(Targets: geriatricians, dentists and other health professionals caring for the elderly; dental hygienists; institutions for the elderly and handicapped.)*

iv. Renew the role of dental therapy, review the use of dental hygienists, and explore the use of alternative providers of oral health care to ensure that cost-effective care is provided in settings not currently served by dental professionals. *(Target: provincial governments; dental regulatory bodies; dental therapists; dental hygienists.)*

v. Provide explicit training for oral health care professionals in versatile approaches to oral health care delivery for a variety of vulnerable groups. *(Targets:*

Association of Canadian Faculties of Dentistry [ACFD]; dental schools; dental hygiene colleges; Commission on Dental Accreditation of Canada.)

vi. Promote and deliver continuing education that equips practicing professionals with the knowledge and skills to understand and treat the oral health care needs of vulnerable groups. *(Targets: dental schools; dental hygiene colleges; Canadian Dental Regulatory Authorities Federation; provincial dental regulatory bodies.)*

vii. Promote the inclusion of relevant oral health and oral health care training in non-dental training programs, such as medicine and nursing. *(Targets: Canadian Association of Schools of Nursing; Association of Faculties of Medicine of Canada.)*

D. Review and provide the financing of necessary personnel and systems and create mechanisms to ensure the availability and prioritization of funds for the provision of agreed-upon standards of oral health care.

i. Establish more equity in the financing of oral health care by developing policy to promote dental insurance that promotes evidence-based practice among all employers, employees, and self-employed people, including those working in non-traditional work arrangements. *(Targets: federal, provincial, and territorial governments; insurance companies; employers' associations; workers' associations; unions.)*

ii. Review the legislation concerning tax treatment for employment-based dental insurance to address the lack of tax benefits for those without insurance. *(Targets: federal, provincial, and territorial governments; employers' associations; workers' associations; unions)*

iii. Review the fees paid for oral health care to ensure that they are fair for both provider and patient, and incentivize the provision of care based on evidence. *(Targets: federal, provincial, and territorial governments; dental profession.)*

iv. Prioritize the financing of interventions where there is strong evidence of therapeutic effect and social gain (e.g., community water fluoridation and fluoride varnish), with disinvestment from interventions where there is weak or no evidence of effectiveness (e.g., routine teeth scaling in healthy individuals) or evidence of more effective and efficient alternatives. *(Targets: federal, provincial, and territorial governments; dental profession; ACFD; dental schools.)*

E. Monitor and evaluate publically funded oral health care systems that are designed to improve access to agreed-upon standards of care for all people living in Canada.

i. Create effective data collection and information systems for use in answering policy-relevant questions, using appropriate outcome indicators. *(Targets: federal, provincial, and territorial governments; Canadian Institutes of Health Research [CIHR]; ACFD; dental schools; dental profession.)*

ii. Develop a more integrated approach to generating and translating knowledge into evidence to provide more effective oral health care for vulnerable groups. Government agencies, health care professionals, researchers, educators, and

those representing the client groups and organizations involved in care need to create networks to enable the development, implementation and evaluation of standards of care. *(Targets: federal, provincial, and territorial governments; CIHR; ACFD; dental professions; client group representatives; insurance companies)*

1 BACKGROUND TO THIS REPORT

1.1 The Charge to the Panel

Although the oral health status of people in Western societies has improved greatly in the last four decades, oral diseases, especially dental caries (cavities) and periodontal diseases (infections of the gums and bones supporting the teeth), are still highly prevalent and affect many people throughout their lives. Oral diseases are widespread but their societal distribution is very uneven; the health burden imposed by oral diseases is particularly high in disadvantaged groups, and the oral health gap between the advantaged and disadvantaged is getting worse.

Dental caries and periodontal diseases have major impacts on health and the quality of life, and there is increasing evidence of associations between oral and systemic diseases. Enhancing oral health and ensuring timely access to quality oral health care for all citizens has become a public health priority in most Western countries. However, the costs of prevention and management of these diseases are not generally incorporated in provincial or territorial health care systems (Medicare) in Canada.

Accordingly, the Canadian Academy of Health Sciences (CAHS) decided to undertake a formal assessment of oral health care in Canada through the creation of a multi-disciplinary panel of experts. The CAHS ensured that the process engaged appropriate expertise, was evidence-based, and avoided conflicts of interest. The specific charge to the Panel was to address the following questions and make recommendations, as appropriate:

1. What is the current state of oral health in Canada?
2. What is the current state of Canada's oral health care system(s)? How are they structured, administered and governed?
3. What factors determine the oral health of individuals and communities?
4. What are the impacts of poor oral health on individuals and on Canadian society? Are there any identifiable groups among whom these impacts are more severe?
5. What measures could be taken to improve the oral health of Canadians? What would be the associated direct and indirect costs of such measures?

1.2 The Aim of the Report

This aim of this report is to answer the questions charged to the Panel by describing the impacts of oral disease and illness on individuals and society, the impacts of good oral health care, the determinants of oral health and oral health care utilization and access, and the oral health care systems that exist throughout Canada. The oral health status and oral health care experiences of people living in Canada are reviewed, concentrating on vulnerable groups such as low income households, young children, the elderly, aboriginal groups, refugees, immigrants, those with disabilities, and people living in rural regions. New data analyses are presented using data from the recent Canadian Health Measures Survey

(CHMS), which for the first time in approximately 40 years has provided nationally representative clinical information on the oral health status of Canadians. Targeted literature reviews were also completed, with all information reviewed and discussed by the Panel. Finally, recommendations are made to political, administrative, and professional decision-makers at national, provincial, municipal, institutional, and organizational levels, as well as to organizations and associations representing vulnerable groups.

1.3 Methods Used

1.3.1 Framework for Describing and Understanding the Issues

This report uses the concept of *access* as proposed by Penchansky and Thomas [1]. These authors noted that while *access* was frequently used when discussing health care, it generally lacked a precise definition in health care policy. They suggested that without an operational definition, it constrained policy debates on health care to the realm of political discourse, rather than empirical demonstrations of the challenges experienced by individuals when trying to access health care. They proposed five dimensions to the concept of access:

1. Affordability (Do the provider's charges relate to the client's ability and willingness to pay for services?).
2. Availability (Does the provider have the requisite resources, such as personnel and technology, to meet the needs of the client?).
3. Accessibility (How easily can the client physically reach the provider's location?).
4. Accommodation (Is the provider's operation organized in ways that meet the constraints and preferences of the client?).
5. Acceptability (Is the client comfortable with the characteristics of the provider, and vice versa?).

Quantitative and qualitative evidence presented in this report speaks to these five dimensions of access in Canada's oral health care system.

In addition, the following definitions were also used for key phrases in the report:

Vulnerable populations—Mechanic and Tanner [2] state that "vulnerability involves several interrelated dimensions: individual capacities and actions; the availability or lack of intimate and instrumental support; and neighborhood and community resources that may facilitate or hinder personal coping and interpersonal relationships." In the context of this report, we take this to mean people who have one or more of these dimensions of vulnerability: they may have reduced capacities as an individual (whether these are physical, cognitive, educational, financial or other); lack family or other intimate support networks; or their local and broader community may lack or have barriers to access necessary facilities.

Health inequality and inequity—The World Health Organization [3] describes these concepts as follows: "Health inequalities can be defined as differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in

mortality rates between people from different social classes. It is important to distinguish between inequality in health and inequity. Some health inequalities are attributable to biological variations or free choice and others are attributable to the external environment and conditions mainly outside the control of the individuals concerned. In the first case it may be impossible or ethically or ideologically unacceptable to change the health determinants and so the health inequalities are unavoidable. In the second, the uneven distribution may be unnecessary and avoidable as well as unjust and unfair, so that the resulting health inequalities also lead to inequity in health."

The Panel's vision and recommendations mention equity in access to oral health care for all people living in Canada, which means reasonable access to agreed-upon standards of preventive and restorative oral health care based on need for care.

1.3.2 The Literature Review Performed for this Report

This report is based on targeted reviews of the literature as determined by the Panel. Key words were defined and articles were located using various databases such as Medline and Google Scholar. Through four face-to-face meetings, members of the Panel also provided periodic review, input, and additional resources. The best available evidence was obtained and prioritized using the generally accepted hierarchy of evidence (randomized clinical trials > cohort > case control > cross-sectional > case series and reports). Articles that appear in this report have also been abstracted to evidence tables, where appropriate, and included in an appendix.

1.3.3 Analyses of the Canadian Health Measures Survey

For approximately 40 years, Canada had no national clinical data on oral health. Yet this changed with the introduction of the Canadian Health Measures Survey (CHMS) by Statistics Canada in 2007. As a result, the Panel felt that analyses of this survey were necessary for this report, in order to make clear the current national state of oral health, as well as the utilization of, and access to, oral health care in Canada. As with the literature review, targeted analyses were conducted, with the Panel providing periodic review and input.

Therefore, the report includes secondary data analyses of the CHMS, Cycle 1 Household and Clinic Questionnaires. The data were accessed through Statistics Canada's Research Data Centre (RDC) in Montreal, Canada. The RDC provided access, in a secure university setting, to the confidential micro data files from the CHMS.

The CHMS is an observational (cross-sectional) multistage stratified survey of the non-institutionalized Canadian population. The CHMS collected data from 5,604 Canadians aged six to 79 years old between 2007 and 2009, statistically representing 97 per cent of the Canadian population within this age bracket. The age bracket of this sample covered children, adolescents, young adults, and older adults. This consisted of those living in privately occupied dwellings in the ten provinces and the three territories. For each respondent in the survey, a sample weight was applied that corresponded to the number of people in Canada represented by the respondent in the survey population as a whole. Those excluded from the survey included persons living on Indian Reserves or Crown lands, residents of

institutions, full-time members of the Canadian Forces, and residents of certain remote regions.

The CHMS data collection was conducted by Statistics Canada in partnership with Health Canada between March 2007 and February 2009. The CHMS used a personal household interview using a computer-assisted interviewing method in combination with a visit to a mobile examination centre for the direct clinical measures, such as oral health. For the household interview, 34 specific oral health questions were asked that gathered data on oral symptoms, habits, and source of funds to pay for oral health care. Within the mobile examination centre, clinical data were collected using calibrated examiners, noting such things as dental caries (cavities), periodontal (gum) conditions, and treatment needs, among other indicators. Details of the methods used for the CHMS are reported elsewhere [3].

The targeted analyses conducted for this report included simple descriptive analyses, along with bivariate and multivariate logistic and linear regression analyses. Since the Panel was particularly interested in understanding the nature of inequalities in oral health and access to oral health care, the health concentration index (CI) approach was used. This approach is a way to quantify income-related health inequalities across the income spectrum rather than simply comparing extremes (i.e., highest and lowest income groups). The CI approach was first developed by Wagstaff and colleagues and has since been used frequently to describe and measure the degree of inequality for various health outcomes [4]. This approach has now become a common measurement tool in the epidemiological and health economics literature to investigate the magnitude of inequality in health and health care. Values of CI range from -1 to +1 with 0 indicating no inequality, negative values indicating concentration of the health or access indicator among the lower income group, and positive values indicating concentration of the health or access indicator in the higher income group. The greater the absolute value of CI, the greater the degree of concentration in a negative or positive direction and the greater the inequality.

More recently, an approach was developed by health economists to decompose the CI in order to estimate the relative contribution of various components in explaining the total inequality [5, 6]. The decomposition analyses enable calculations of the percentage contribution of factors (e.g., health behaviours, health care systems, and socio-economic status) to oral health inequalities.

All data analyses were performed using STATA 11.1 and ADePT. STATA is a strong tool for analysing health survey data with complex sampling design, and ADePT is a statistical program recently developed by the World Bank specifically for health inequality research. It is particularly useful for analyzing large national health surveys.

2 DEFINING THE PROBLEM

2.1 Inequalities in Oral Health in Canada

While the majority of people living in Canada report having good oral health, there are important inequalities within the population. These inequalities in oral health are expressed in a variety of ways in terms of different oral health indicators and between different groups. To illustrate the point, this section provides examples using a range of health indicators and vulnerable population groups.

One of the most common indicators of oral health used in dentistry is the index of Decayed, Missing, and Filled Teeth (DMFT). This is an indicator of experience of dental decay and its consequences. Figure 2.1 shows that the number of missing teeth and overall caries experience (DMFT) are higher in adults within households with the lowest education level, while the number of sound teeth (i.e., those with no decay or filling and which are not missing) is highest in the higher education level group. Similarly, Figure 2.2 illustrates the relationship between gum disease and immigration and gum disease and education status in adults, with immigrants and those with lower levels of education more frequently having gum disease.

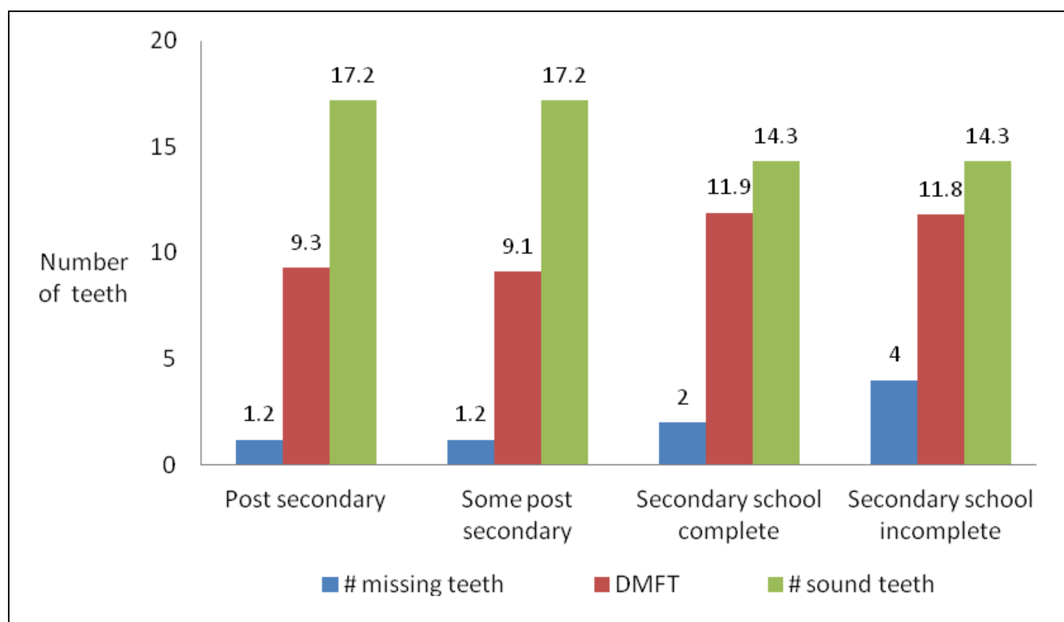

Figure 2.1 Oral health indicators by education level in adults

DMFT: Decayed, missing, and filled teeth.

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

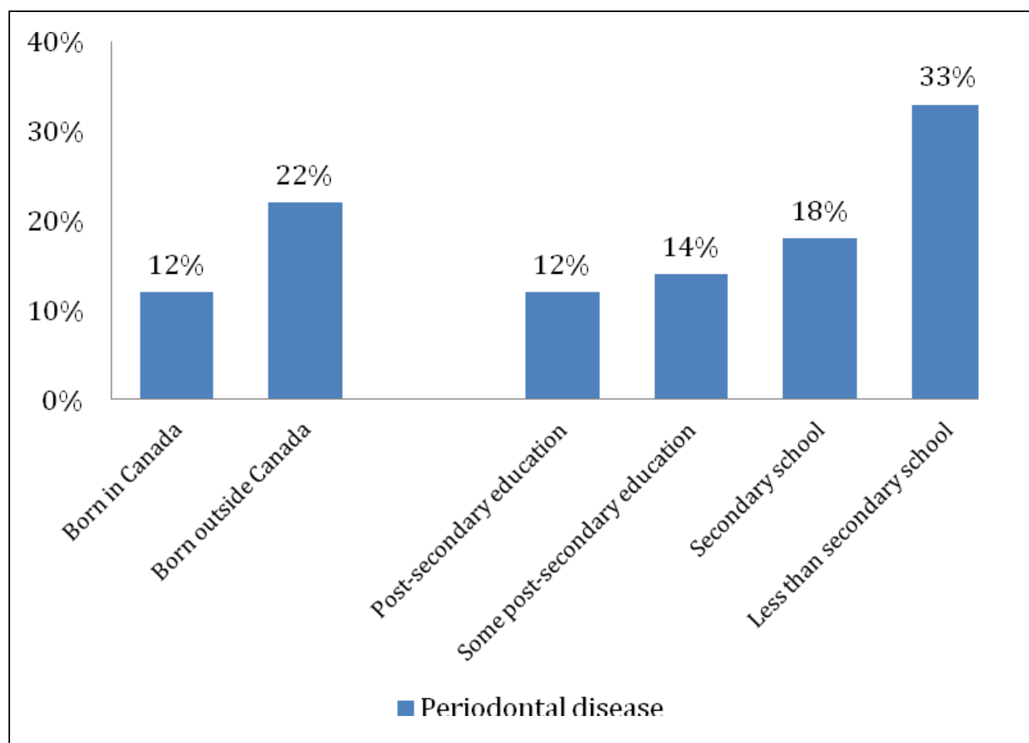

Figure 2.2 Prevalence of periodontal (gum) disease in 20–59 year old adults by immigration and education status

Periodontal disease: Presence of loss of periodontal attachment of 4mm or more on one or more teeth.

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

Figure 2.3, Figure 2.4,Figure 2.5 further demonstrate that the experience of dental or oral pain, and mean numbers of untreated decayed teeth in children and adolescents living in Canada is strongly associated with household income and whether their parents own the place in which they live. In these cases, the poorer groups or non-ownership of a home are associated with a higher prevalence of dental pain, and children from families whose parents have the lowest education level have the highest level of untreated dental decay.

Another way to look at health inequities is the *concentration index* (as explained in section 1.3.3). The data in the analyses illustrated in Figure 2.8 are from adults in the CHMS survey and demonstrate how untreated dental decay, missing teeth, oral pain, and periodontal (gum) disease are concentrated in lower income groups living in Canada, while filled teeth are concentrated in those with higher incomes.

An important observation from Figure 2.6 is that *the concentration of untreated dental decay, missing teeth, and oral pain in women from low-income groups is much greater than among men from low-income groups.* To add to this important new observation, data in Table 2.1 enable comparison of inequalities for general health outcomes such as obesity and high blood pressure with oral health inequalities. From these comparisons,

it is clear that while there is a greater concentration of all diseases among those from lower-income groups, the concentration of oral disease in the poor is much greater than for these general health conditions.

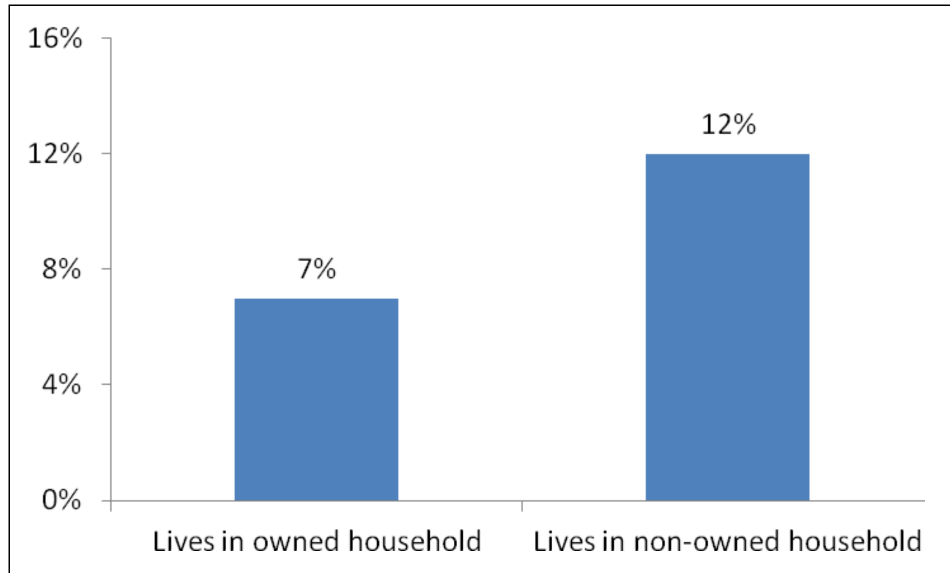

Figure 2.3 Percentage of children and adolescents experiencing dental pain during the past year by ownership of residence in which they live

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

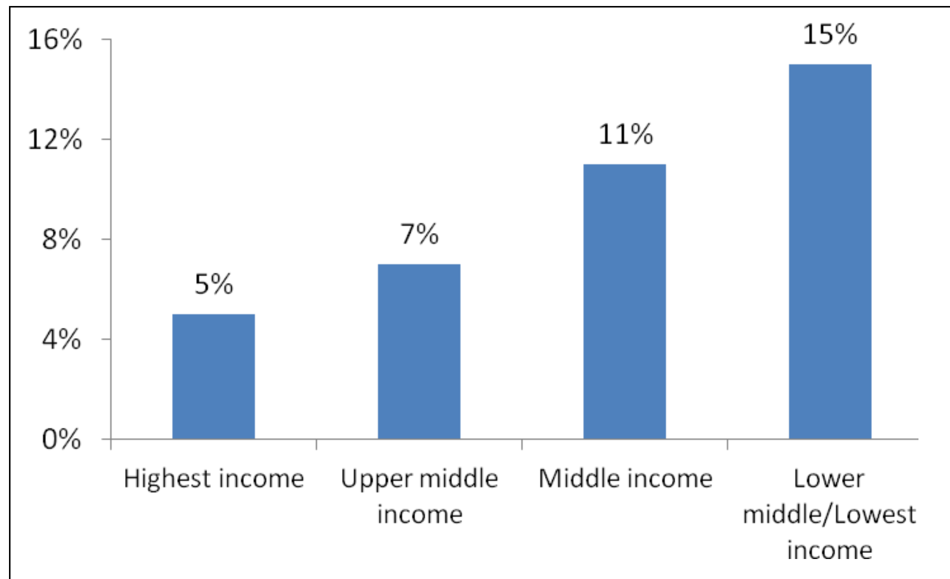

Figure 2.4 Percentage of children and adolescents experiencing dental pain during the past year by household income level

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

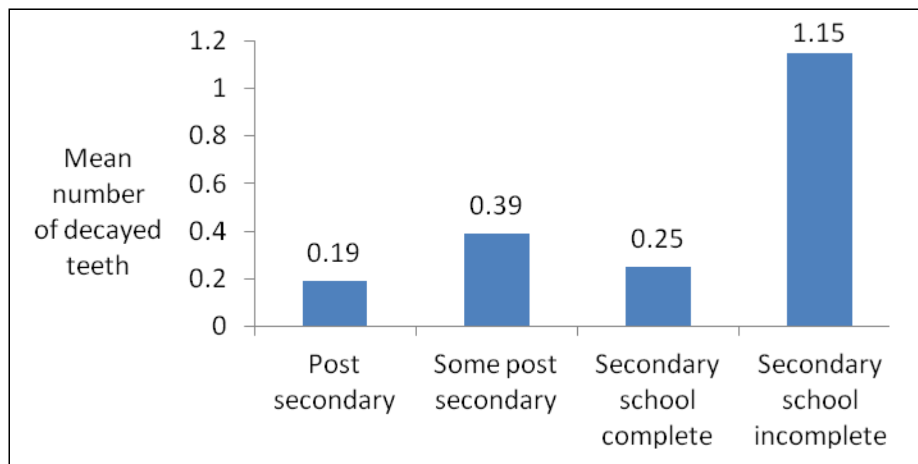

Figure 2.5 Mean number of decayed teeth in children and adolescents by highest level of parental education

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

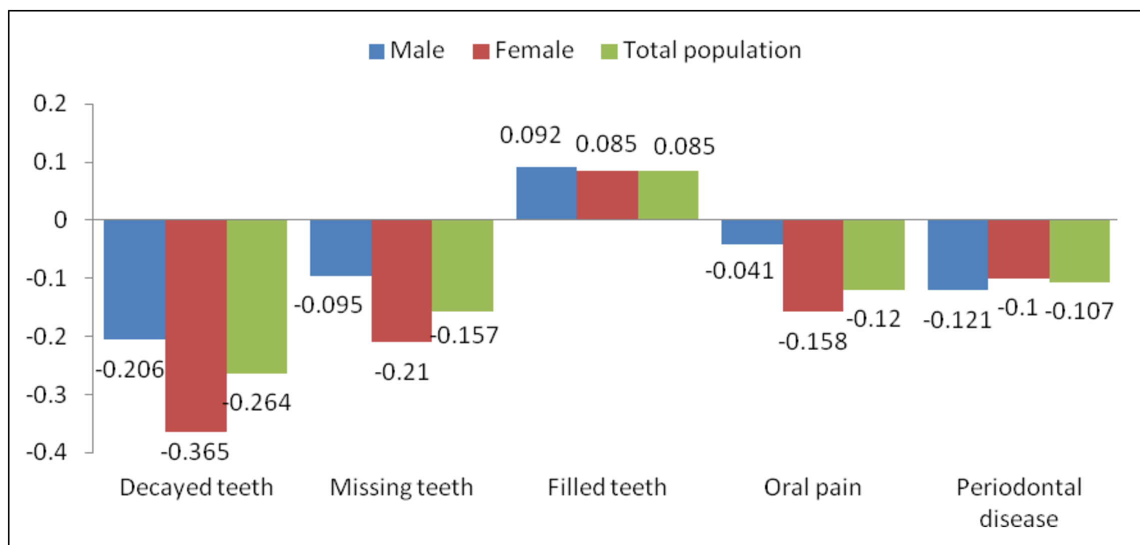

Figure 2.6 Concentration indices for selected oral health measures among adults*

*Range of Concentration Index (CI) is -1 to +1, with 0 indicating no inequality, negative figures indicating the outcome is experienced more in those from poorer households and positive figures indicating the outcome is more common in wealthier households.

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

Table 2.1. Concentration indices for general and oral health indicators among adults

	Indicator	Concentration Index (CI)*
General health indicators	Obesity	-0.05
	High blood pressure	-0.04
Oral health indicators	Decayed teeth	-0.26
	Missing teeth	-0.15

*Range of Concentration Index (CI) is -1 to +1, with 0 indicating no inequality, negative figures indicating the outcome is experienced more in those from poorer households and positive figures indicating the outcome is more common in wealthier households.

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

2.2 Inequalities in Oral Health Care in Canada

As demonstrated in section 3.1, there are systemic oral health inequalities in Canada, with poor oral health and its impacts concentrated in vulnerable and disadvantaged groups. To add to this, while dental care is accessible for the majority of people living in Canada, just as there are important inequalities in oral health, there are also important inequalities in the ability of people living in Canada to access to dental care. Furthermore, the same groups are suffering the double burden of the highest level of oral health problems and the greatest barriers to oral health care. The CHMS study shows that 84.5 per cent of people living in Canada report good to excellent oral health and 74.3 per cent report visiting a dentist yearly [7]. However, there is a significant minority of people living in Canada reporting difficulties accessing care. This minority consists of socially and economically vulnerable populations for whom conventional private oral health care is often inaccessible [7]. For instance, 17.3 per cent of the whole population (i.e., approximately 6 million people) reports avoiding visiting a dentist in the last year due to the costs, and those living in the lowest income families report this as being a problem far more often than the highest income families (34 per cent vs. 9 per cent, respectively. See Figure 2.7) [7].

In addition, there is a pattern that is uniform across all age groups: those without dental insurance of any kind (public or private) do not visit the dentist regularly and avoid oral health care due to the costs (see Figure 2.8, Figure 2.9, and Figure 2.10). Furthermore, there are striking differences in who has dental insurance by age and income group. Those in the eldest age group report having no insurance much more frequently than younger groups, and approximately 50 per cent of people in the lowest income group also report having no insurance (see Figure 2.11). Furthermore, when focusing on the elderly, the level of problems accessing dental care across the income groups increase but the inequalities remain (Figure 2.12).

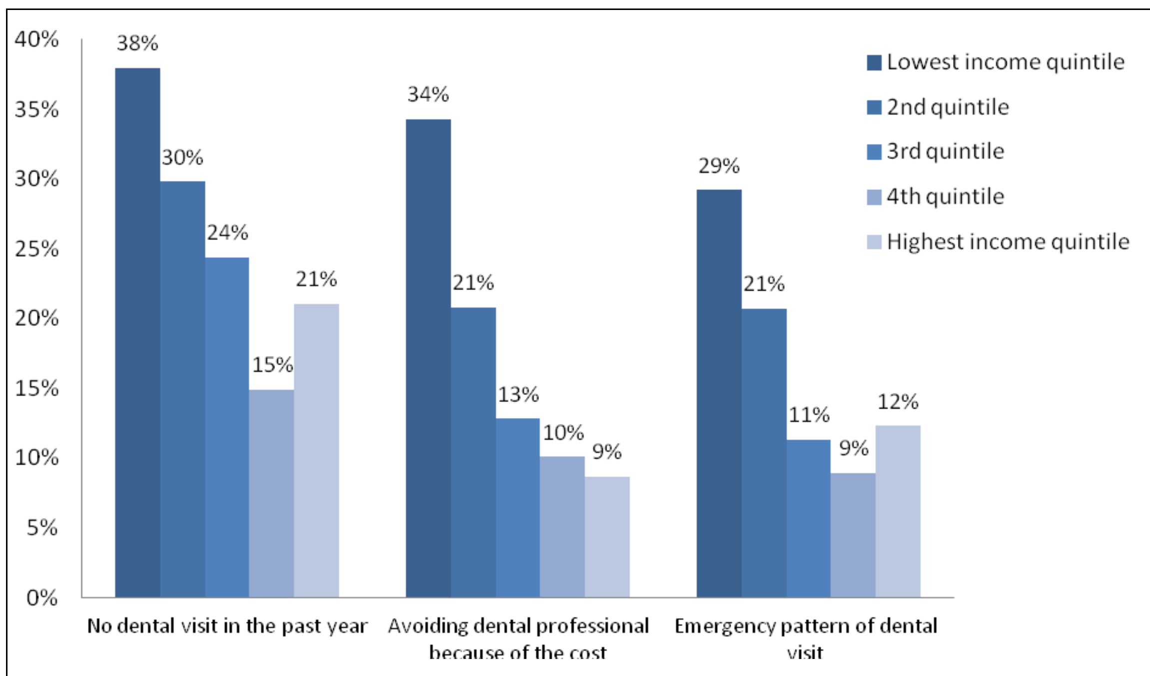

Figure 2.7 Indicators of dental care access by family income levels in Canada

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

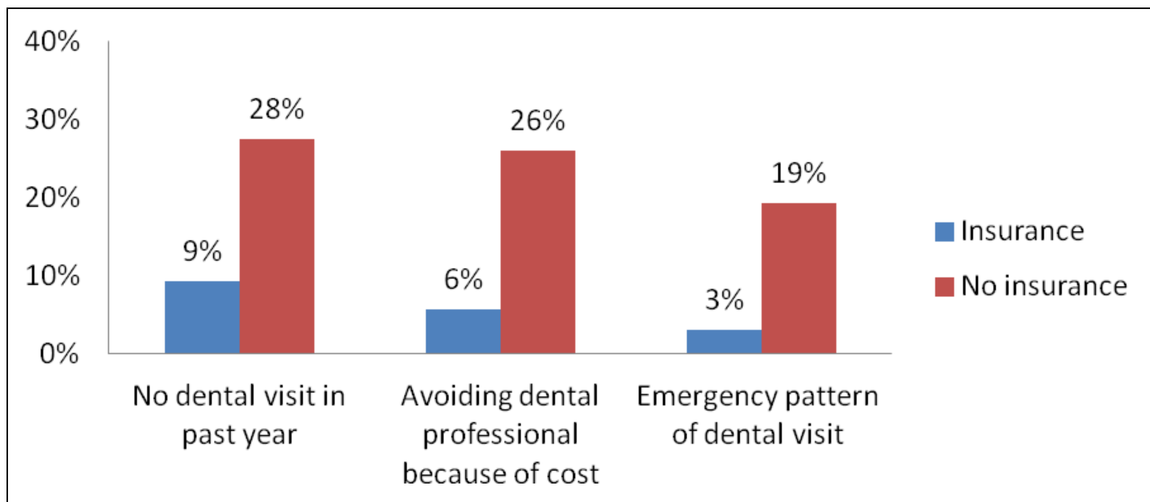

Figure 2.8 Insurance and access to oral health care among children & adolescents

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

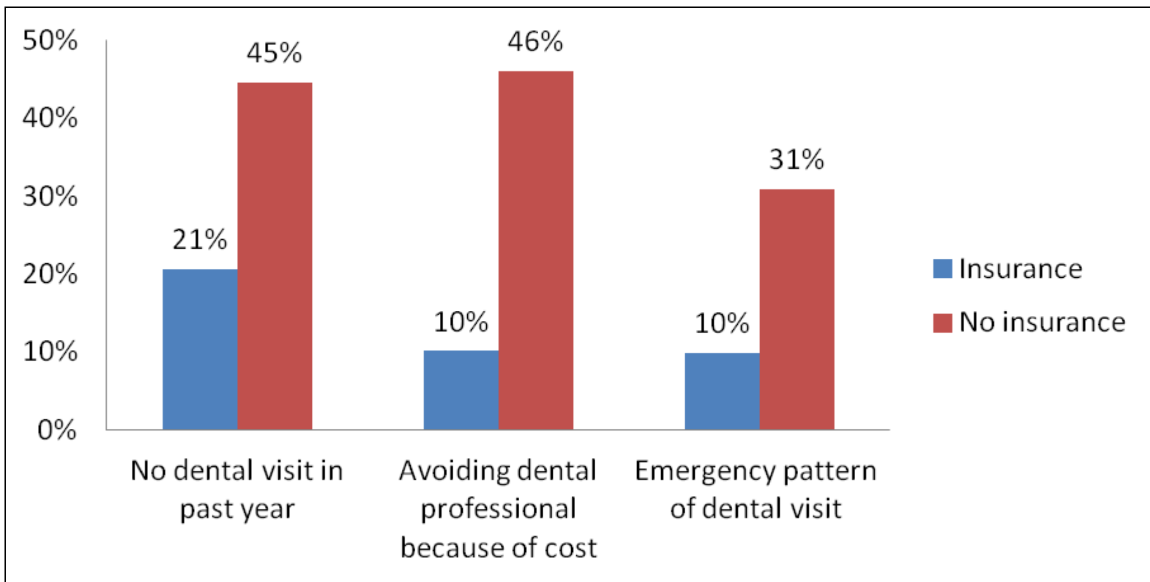

Figure 2.9 Insurance and access to oral health care among adults

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

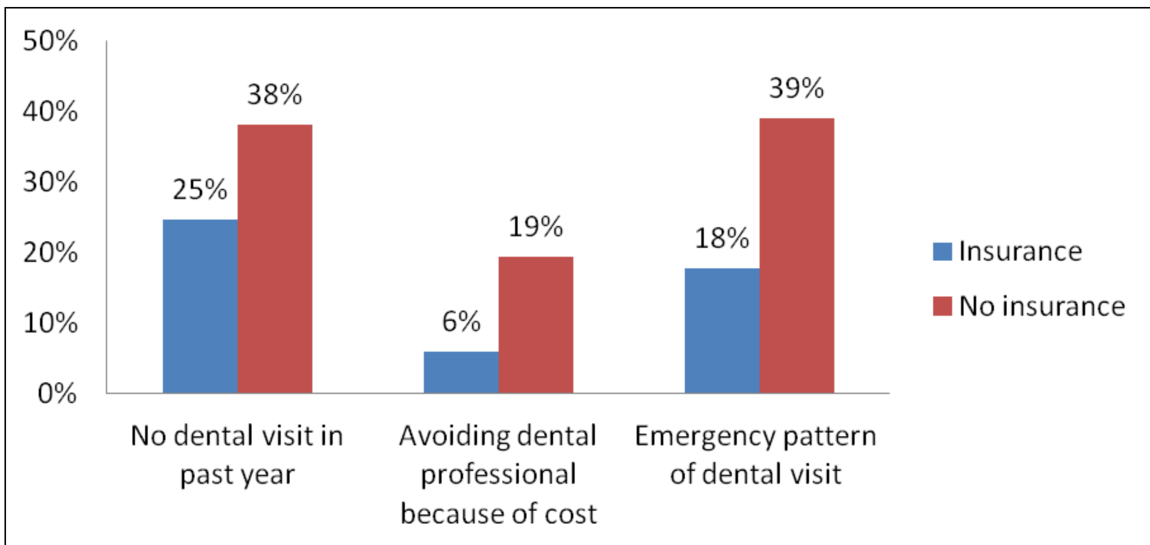

Figure 2.10 Insurance and access to oral health care among the elderly

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

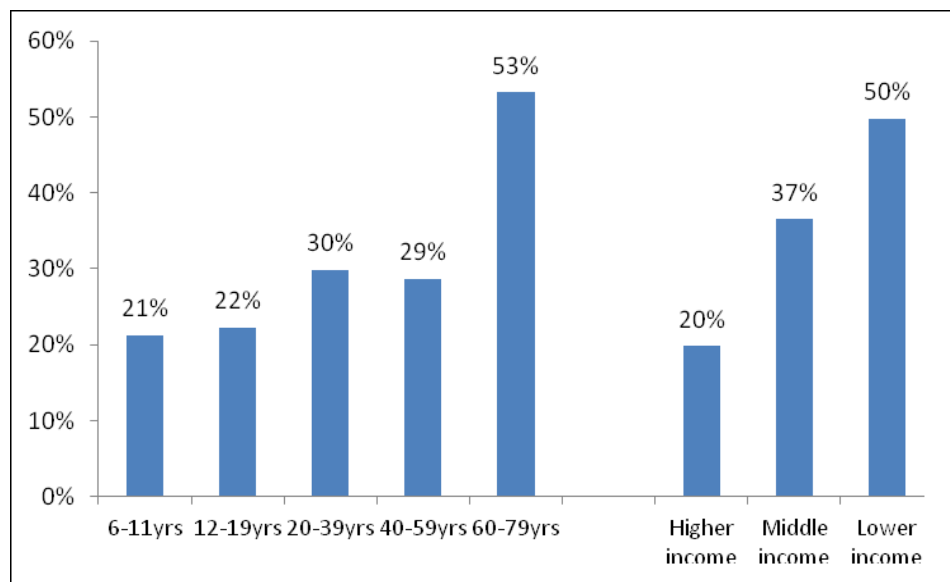

Figure 2.11 Prevalence of no dental insurance by age group and family income level

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

These data from the CHMS highlight important inequalities in access to dental care in Canada. In addition, Canada's oral health care system has been described as inequitable on a variety of fronts. Leake [8] has stressed that Canada's oral health care system is a clear example of "the inverse care law" [9], where the people that need the most care receive the least. In Canada, general medical health care is typically available to people who need it, irrespective of their ability to pay. The *Canada Health Act* states that "continued access to quality health care without financial or other barriers will be critical to maintaining and improving the health and well-being of Canadians" [10]. The question remains as to why policy attempting to achieve "continued access without financial or other barriers" has not been enacted for oral health care.

In addition, Allin [11] and Grignon *et al*. [12] have demonstrated that Canada's oral health care system is "pro-rich." They confirm that in all of Canada's 10 provinces, the probability of visiting a dentist is much higher for those with the least need for care. Similar work by van Doorslaer and Masseria shows that Canada ranks among the poorest performers when compared to other OECD nations in this regard [13]. Allin also notes that the main contributors to inequity in oral health care use are income and dental insurance coverage, meaning that low income and a lack of insurance play the dominant role in limiting people's ability to access oral health care. Most importantly, it is both income and insurance that are most likely to be improved by policy intervention [11].

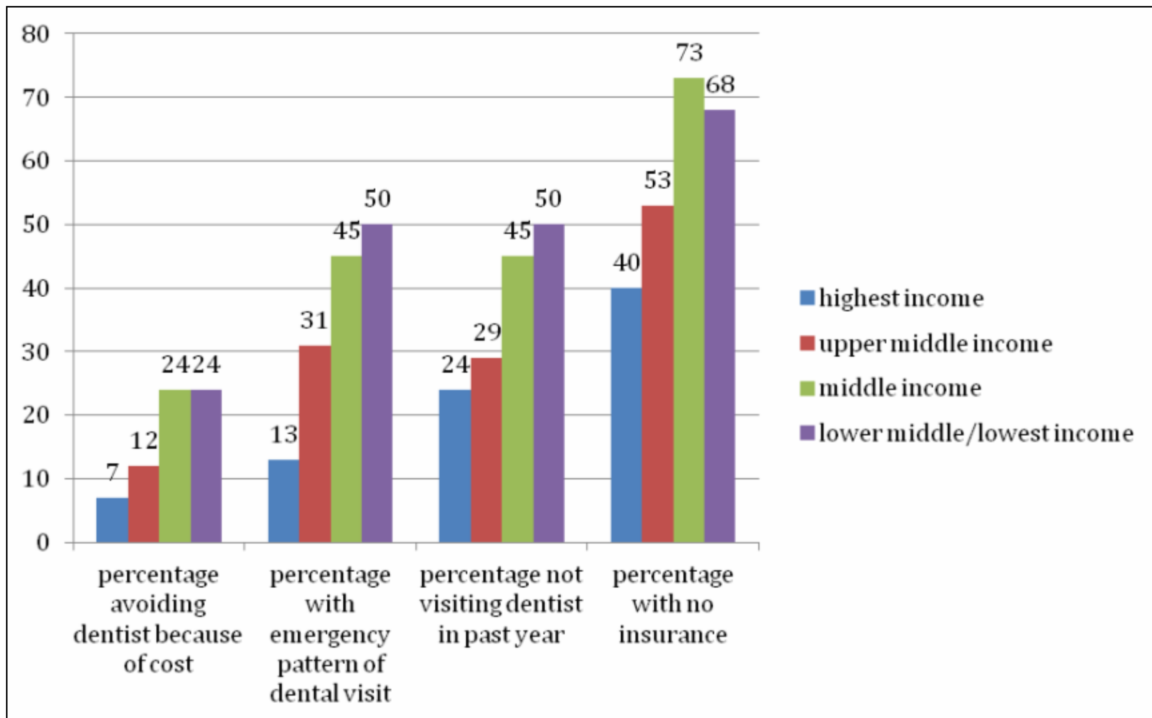

Figure 2.12 Indicators of access to dental care and household income among elderly people living in Canada

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

The financing of oral health care in Canada has also been heavily criticized relative to its shortcomings in the face of the general policy push towards health care equity [8]. Oral health care is predominantly financed privately through employer-employee arrangements, but these "non-wage benefits" are exempt from income tax. This results in a situation where those with the least amount of need and fewest economic barriers to care (i.e., those with high income and employer provided dental insurance) have the costs of care covered by insurance paid from pre-tax dollars (i.e., income before tax is deducted), while those with the most need and the greatest financial barriers to care (i.e., low income and no employer provided dental insurance) pay for any care received out-of-pocket, with after-tax dollars. This increases inequalities in oral health and oral health care.

2.3 The Relationship between Inequalities in Oral Health and Access to Oral Health Care in Canada

Previous sections of this report present evidence for inequalities in oral health and inequalities in oral health care in Canada. This section demonstrates the links between the two phenomena: how those that have difficulty accessing care also have more prevalent and severe disease.

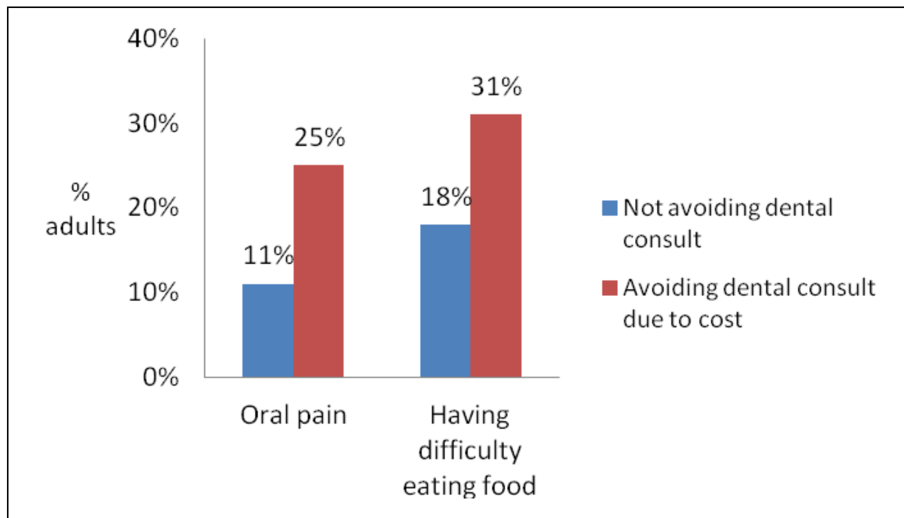

Figure 2.13 Prevalence of oral pain and having difficulty eating food according to dental avoidance because of the cost

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

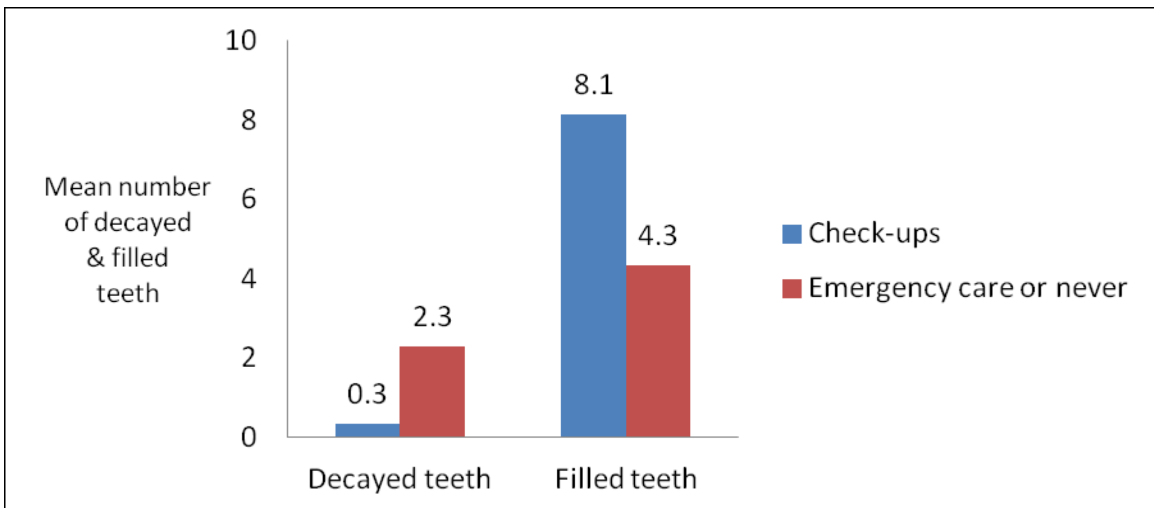

Figure 2.14 Pattern of dental service use and the mean number of decayed teeth and filled teeth in adults

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data. Check-ups: people attending regularly for check-ups; Emergency care or never: people attending only for emergency care or never.

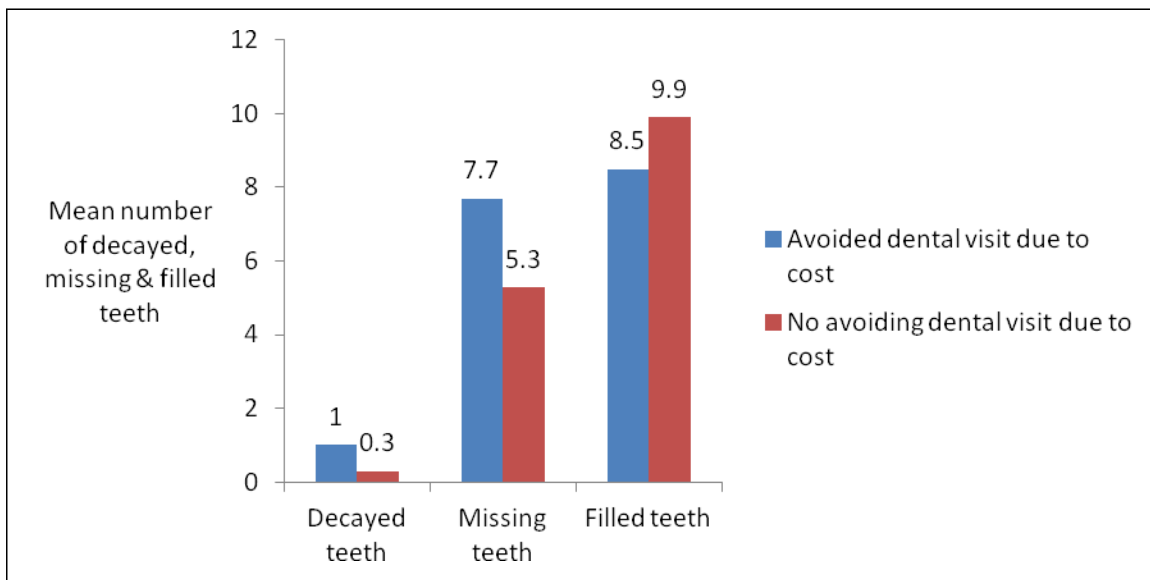

Figure 2.15 Dental status and avoidance of dental visits due to cost among elderly people living in Canada

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

Figure 2.13 illustrates how the experience of dental and oral pain and difficulty eating certain foods during the past 12 months are related to avoiding a dental consult due to cost. Those who avoid the dentist much more frequently experience pain and difficulty eating foods compared to those who do not avoid the dentist due to cost. Similarly, in Figure 2.14, those adults who only consult a dentist in cases of emergencies or who never consult a dentist have on average nearly eight times more dental decay and they have half the fillings than those who consult regularly for “check-ups.” Among the elderly, a similar picture exists (Figure 2.15), with those avoiding the dentist due to cost having a mean number of decayed teeth three times that of regular attenders, and over two more missing teeth than those elderly people attending a dentist regularly.

In summary, vulnerable and disadvantaged groups in Canada have the greatest burden of oral disease and also have the greatest difficulty accessing oral health care. These factors are linked; those people who have difficulty accessing oral health care also have the highest levels of oral disease and pain and discomfort.

3 THE CURRENT MODEL OF FINANCING AND DELIVERY OF DENTAL CARE IN CANADA

The current model of delivery for the vast majority of dental care provided in Canada is simple: it is delivered through private dental offices and financed almost exclusively through a combination of employment-based insurance and out-of-pocket payments. The small minority of dental care provided through various public sector agencies is, on the other hand, a complex and ad hoc mix of models of delivery, providers, and financing. This chapter addresses the second charge to the panel and, in particular, highlights the gaps that exist in this mixture of systems. Given the overall complexity of the situation, this chapter describes the history of Canadian oral health care policy, the current systems in place, and the workforce currently used; it also makes international comparisons and highlights problem areas.

3.1 The Historical Development of Canadian Oral Health Care Services

In the second half of the nineteenth century, Canadian dentistry was a mix of formal and informal activity. In jurisdictions like Ontario and Nova Scotia, dentistry was controlled through educational requirements and professional regulation, while in others, anyone could deliver care with minimal oversight [14, 15]. At this time, John Adams, recognized as Canada's father of "public health dentistry," opened a dental hospital offering free care for poor children and published mass health education material. This is important as it reflects much of what concerns Canadian dentistry in its response to social need, even today, namely public support for the treatment of vulnerable groups, in particular children, with a heavy emphasis on prevention.

By 1902, the Canadian Dental Association (CDA) was formed, and was soon calling for the legislated public coverage of children's dental examinations and the inclusion of education materials in public settings. By the Roaring Twenties, dentistry had established its modern and easily recognizable market appeal through mass print media, promoting the benefits of clean, white teeth for social success. As the 1920s boom gave way to the Great Depression, widespread social suffering resulted in the idea that the State should have a role in the delivery of health care services writ large. This growth in social thinking, or social responsibility, led to the 1938 Royal Commission on Dominion Provincial Relations, which in part considered a potential system of national health insurance that included dentistry. In its brief, the CDA characterised oral health care in terms of "Those able to provide adequate dental services for themselves [...]. Those only able to provide partial and inadequate dental services for themselves [and] those unable to provide any dental services for themselves" [16]. With a clear and strong emphasis on individual responsibility, the profession continued to advocate for a preventive approach that focussed on children and health education. Oral health care policy in Canada was essentially defined: a strong bias towards children, prevention, and personal responsibility.

World War II played a strong role in establishing dentistry as a social priority, as one-in-five recruits were reported as unfit for enlistment due to dental disease [17]. Oral health care gained new prominence, and dental departments were incorporated into health ministries across the country. This was also linked to the major social investments made after the war, which for health care involved federal grants that promoted investments in government-delivered services, including oral health care. Canada began adopting community water fluoridation at this time as well. By the 1950s, Canada created public health care coverage systems, including hospital care, which in specific jurisdictions informally included some surgical-dental services. Based on the plans of the 1964 Royal Commission on Health Services, the country nationalized payment for physician services in 1968, giving rise to Medicare, but dentistry was not included. The Commission had defined dentistry as a personal responsibility, and for the most part only supported public funding for oral health care for children and for those people receiving social assistance, or for those where individual responsibility was seen as lessened. Canada thus guaranteed a social minimum, but one based on age, employment (or lack thereof), and a particular conception of social need.

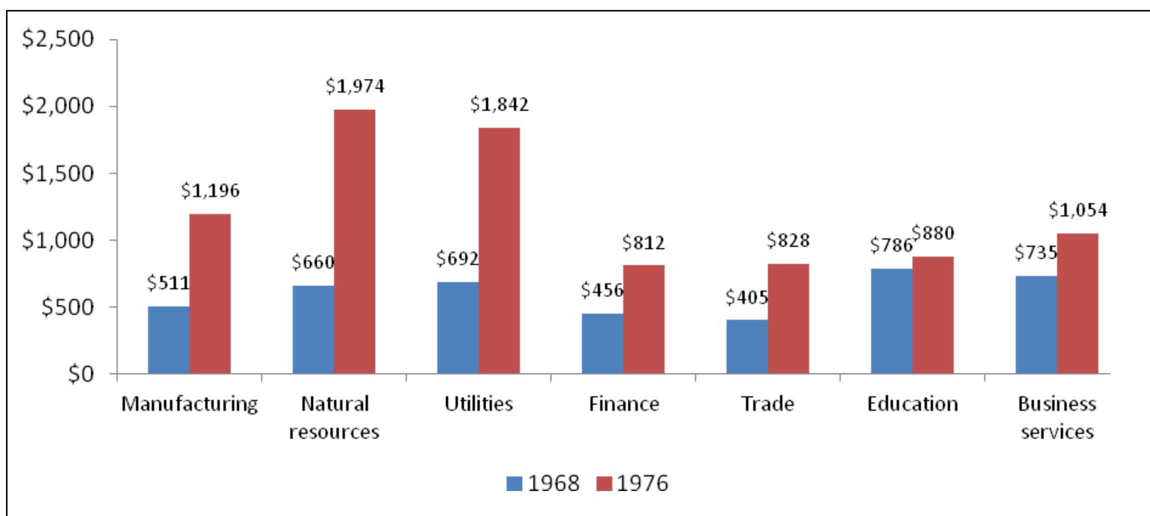

Figure 3.1 Employer contributions to employee benefit plans, select industries, 1968 and 1976 (dollars per employee)

Source: Quiñonez et al., (2010) [18].

Concurrently, private, employment-based dental insurance was taking hold in Canada, supported by new tax incentives for both the employer and employee. The growth in the private sector was significant, and across many industries employer contributions for health benefit plans increased substantially (Figure 3.1). Public investments also grew, as almost all provinces established children's and welfare programming during this period (Figure 3.2). By the 1980s, public investments had slowed, and with the impacts of an economic recession in the 1980s and another in the 1990s, governments imposed severe cutbacks, and public financing for oral health care began its decline.

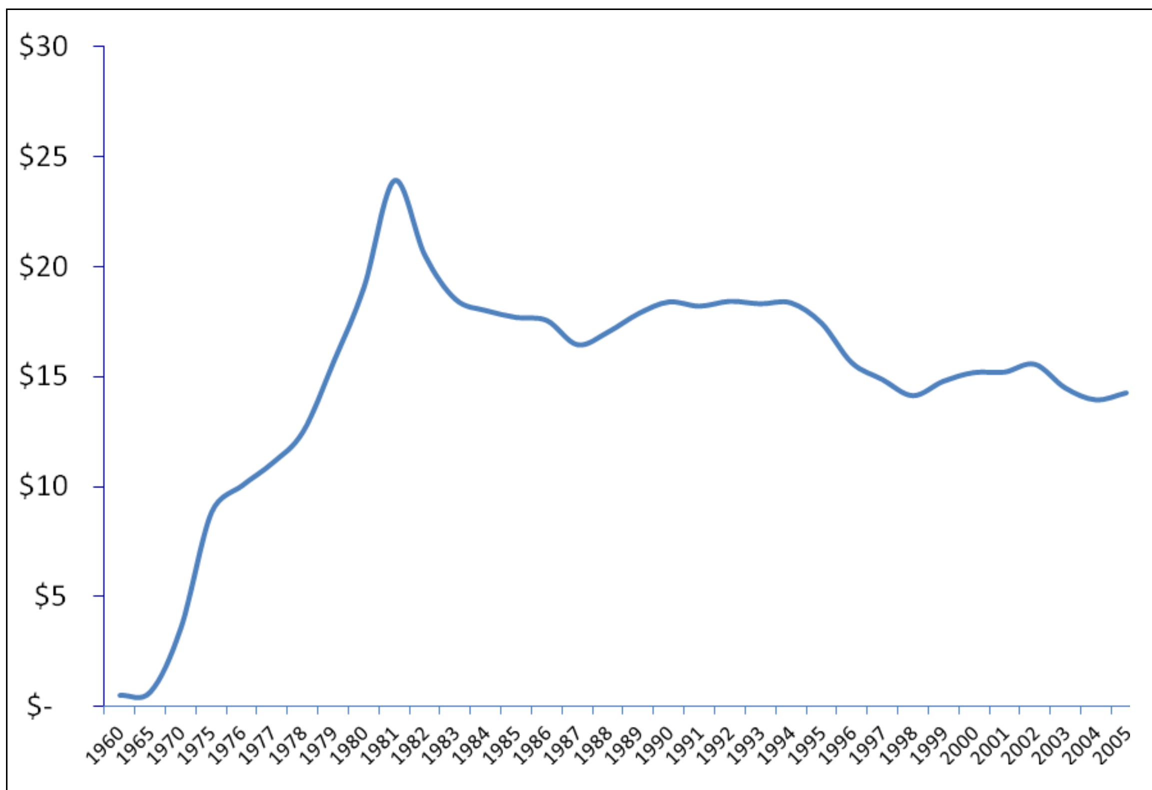

Figure 3.2 Public per capita oral health care expenditures in Canada, 1960–2005 (2005 constant dollars)

Source: Quiñonez C., et al., (2007) [19]

3.2 Canadian Oral Health Care Systems as They Exist Now

As in general medical health care, Canada ostensibly has 14 oral health care arrangements for funding and delivery of oral health care: ten provinces, three territories, and a federal system. All jurisdictions publicly finance dental care for various groups (Table 3.1), predominantly low income populations, with the federal system largely defined by the care it targets to First Nations and Inuit populations [19], but including services for the armed forces, Veterans Affairs, RCMP, prisoners, and Citizenship and Immigration Canada. In addition, there are services provided by some municipalities on an ad hoc basis. For instance, fluoridation of water supplies is a municipal responsibility.

Described collectively, the systems are mixed, meaning they are made up of public and private financing and delivery. Yet it is more accurate to say that Canada has one oral health care "system." On a national basis, the vast majority of all care is financed privately and delivered in private dental offices, regardless of location.

Table 3.1. Provincial- and territorial-level mandated public oral health care programming, and municipal and non-governmental services, Canada, 2007

	In-hospital surgical dental services	Social assistance services	Child services	Seniors Services	Disability services	Municipal services		NGO services	
						Treatment	Prevention	University	Community
BC	X	X				X	X	X	X
AB	X	X		X	X	X	X	X	X
SK	X	X				X	X	X	
MB	X	X				X	X	X	X
ON	X	X	X		X	X	X	X	X
QC	X	X	X			X	X	X	
NB	X	X					X		
NS	X	X	X			X	X	X	X
PEI	X	X	X			X	X		
NF/LA	X	X	X						
NU	X	X		X		X	X	X	
NWT	X	X		X		X	X	X	
YK	X	X	X	X		X	X		

Source: Quiñonez et al., (2008) [20].

In fact, although there are some differences in the territories because of the very high numbers of registered First Nations peoples, within each provincial jurisdiction, the structure of oral health care systems is very similar:

- Legislated and unlegislated public health programs, publically financing care delivered in the private sector;
- A private system that is far larger than anything public, predominantly financed by employment-based insurance and out-of-pocket payments, almost wholly delivered by dentists on a fee-for-service basis; and
- Municipalities deciding whether to fluoridate the water supply on an ad hoc basis.

Nevertheless, unlike the transferability of coverage under Medicare between Canadian provinces and territories, these public dental care systems are not inter-related, resulting in important gaps in policy, services, and population coverage.

Trying to understand the balance of private versus public dental care is best illustrated through a breakdown of its financing. Oral health care is almost wholly financed through the private sector in Canada, with approximately 51 per cent of all care paid for through employment-based insurance and 44 per cent through direct out-of-pocket payments (Table 3.2) [21].

Table 3.2 Total health and oral health care expenditures, by source of finance, Canada, 2008 ($000,000s; excluding federal government expenses)

General/medical health care expenditures			
Public sector	**Private sector**		**Total**
$135,100 (70.5% of total)	$56,600 (28.5% of total)		$191,700
Oral/dental health care expenditures			
$585 (4.9% of total)	$11,256 (95% of total)		$11,841
	Out-of-pocket	**Insurance**	
	$5,218 (44% of total)	$6,038 (51% of total)	

Source: CIHI, (2011) [21].

Almost all of the limited public financing that is available (approximately 5 per cent of the total dental financing) is targeted to socially marginalized groups and delivered in the private sector through public forms of third party payments (Table 3.3Table 3.4) [19].

3.2.1 The Public/Private Divide in Oral Healthcare Provision

Understanding the details of public and private oral health care financing and delivery in Canada is important, as it has a bearing on what types of service gaps have been created and for which groups. It also has a bearing on what policy options are politically feasible. As previously stated, the vast majority of all oral health care is delivered in the private sector, with very little publicly financed care available (approximately 5 per cent of all oral health care expenditures). This was not always the case, as in the early 1980s, approximately 20 per cent of all oral health care was publicly financed, and a significant public infrastructure for oral health care delivery was present in many jurisdictions [19]. This took the form of public dental clinics staffed by salaried dentists, dental hygienists, or both. In the provinces of Saskatchewan and Manitoba, in federal jurisdictions, and in the Yukon, Northwest Territories, and Labrador, dental therapists played a significant role. Stemming from the 1964 Royal Commission on Health Services, which recommended that another dental professional category be created to treat isolated aboriginal populations that were then (and remain) severely under-serviced, the dental therapist model was imported from New Zealand, where individuals are trained for two years to provide preventive and restorative treatment to children and emergency care for adults. Since that time, provincial oral health care policy has changed, meaning government support for the direct delivery of oral health care has undergone major retrenchment, with governments shifting almost all of the public financing available towards indirect delivery through private offices (Tables 3.5 and 3.6).

Table 3.3 Dental public health expenditures in Canada, 2007

	Targeted public oral health care expenditures ($000)	Targeted oral health treatment expenditures for socially marginalized ($000)	Surgical oral health care expenditures ($000)	Total publicly financed oral health care expenditures ($000)
BC	3,500	44,809	1,539	49,848
AB	6,000[a]	40,000[a]	3,276	49,276
SK	1,200[a]	7,247	1,511	9,958
MB	1,800[a]	4,300	985	7,085
ON	33,000[a]	65,500[a]	14,230	112,730
QC	45,529	47,710	5,966	99,205
NB	50	3,400	505	3,955
NS	1,000	9,220[a]	1,064	11,284
PEI	2,389	533	91	3,013
NF/LA	0	5,740	313	6,053
NU			1,700	1,700
NWT	1,067		348	1,415
YK	375	221[a]	25	621
Federal			247,687	247,687
			Total	**603,830**

[a] Estimate

Source: Quiñonez et al., (2008) [20].

Table 3.4 Federal public oral health care expenditures in Canada, 2007

Federal organization	Expenditures ($000)
Department of National Defence	27,000
Veterans Affairs Canada	18,000
Royal Canadian Mounted Police	8,888
Correctional Services Canada	2,800
Citizenship and Immigration Canada	999
Health Canada, First Nations and Inuit Health Branch	190,000
Total Federal	247,687

Source: Quiñonez et al., (2008) [20].

Table 3.5 Comparing the distribution of dental public health care resources, 1986 and 2005 (M is $000,000)

	1986	2005
Provincial Government Programs (mostly direct delivery)	$204M	$110M
Provincial Social Assistance Programs (mostly indirect delivery)	$56M	$212M
Dental/Surgical Payments, Medicare	$14M	$31M
Federal Government Programs	$70M (45% Aboriginal)	$225M (77% Aboriginal)
Total	**$344M**	**$578M**

Sources: Bedford (1986) AND Quiñonez (2005) [19, 22]..

The relevance of these factors is reviewed below. However, it is important to say that this public/private split also reflects a major tension in dentistry: that of the professional preference for private care and indirect delivery of dental care in private settings, in the face of a clear need for direct, publically financed care in easily accessible public service delivery settings. In this regard, it should perhaps be surprising that only 5 per cent of all oral health care expenditures attract so much professional attention and debate, while the remainder attracts so little. Yet employment-based insurance, as the major form of financing oral health care in the country, also deserves attention relative to new threats to its viability. For example, the robustness of private dental benefits has been slowly eroded over the last 20 years, and in the face of recent economic challenges, non-wage benefits are under scrutiny by major employers [24]. Historically, this form of financing was promoted by government subsidies in the form of private health and dental benefits that do not attract taxation, and this acts as an incentive for employers to offer these non-wage benefits to employees, thus improving the overall nature of employment contracts. Furthermore, in the context of this report, it is important to note that those with employer-based dental insurance have a tax benefit over those with no such insurance. As noted previously, those without insurance are more likely to come from poorer groups (see Figure 2.11 and Figure 2.12), have poorer oral health and access to oral health care (see Figure 2.8, Figure 2.9, and Figure 2.10), and have to pay for oral health care with after-tax dollars.

Table 3.6 Public expenditures for oral health care, by governmental focus, select provinces, 1980 and 2005 ($000s)

	Public health programs (mostly direct delivery)		Social assistance programs (mostly indirect delivery)		Surgical-dental services	
	1980	**2005**	**1980**	**2005**	**1980**	**2005**
BC	29,131	3,500	14,843	40,270	1,843	5,269
AB	5,344	6,100	25,070	40,000	221	2,404
SK	13,416	2,468	1,224	7,088	507	1,499
MB	3,997	1,800	1,826	4,300	746	750
QC	77,255	45,529	22,935	47,710	3,784	5,966
NB	927	50	1,600	2,980	50	189
NS	9,320	7,655	139	4,000	1,309	1,707
PEI	1,555	2,600	100	250	41	91
Total	**142,925**	**71,707**	**69,717**	**148,603**	**10,481**	**19,880**

Note: Ontario, Newfoundland, and the territories are excluded, as expenditure data is unclear.

Sources: Stamm et al., (1986) AND Quiñonez (2005) [19, 23]

3.2.2 The Federal/Provincial/Municipal Divide in Oral Health Care Provision

Understanding who is involved in the public financing and delivery of oral health care is also important. The federal government, through its financing of care for First Nations and Inuit populations, contributes a significant percentage of all public dollars spent on oral health care in Canada. Federal authorities, unlike most provinces, still have a dedicated oral health care delivery system that it employs to deliver care to aboriginal communities. In some places, this is accomplished through dental therapists, but now is mostly provided through the work of salaried, per diem, or fee-for-service dentists who travel to these largely isolated communities. Nevertheless, the majority of the care financed by federal authority for aboriginal populations is still delivered in private dental practices in urban and suburban settings overall. Provinces, on the other hand, finance care for socially marginalized groups, but as a general rule have no dedicated oral health care delivery systems except in unique cases such as Quebec; here, this comprises the work of dental hygienists delivering preventive care.

The scenario also changes at the level of municipalities. In most provinces in Canada, larger municipalities are involved in the financing of oral health care, either through cost-sharing agreements with provinces, or through completely independent programs. They too deliver care indirectly, but very large municipalities have some level of direct delivery through small networks of public clinics. This results in an unclear and uneven mix of public financing and delivery across the provinces and territories; consequentially,

this also results in differential coverage and access to dental care across the country. The relevance of this situation is described more fully below.

3.3 Canada and International Comparisons

Using 1999/2000 data, van Doorslaer and Masseria [13] showed that Canada ranks among the poorest performers in terms of equity in dental care use when compared to other OECD nations. When not controlling for need and simply presenting descriptive information, 2011 OECD data demonstrate that Canada has some of the largest differences between the rich and poor in terms of annual dental visits (see Figure 3.3). Just under 80 per cent of those in the the richest groups are likely to visit a dentist in the past year, while approximately 47 per cent of those in the poorest group are likely to visit a dentist in the past year.

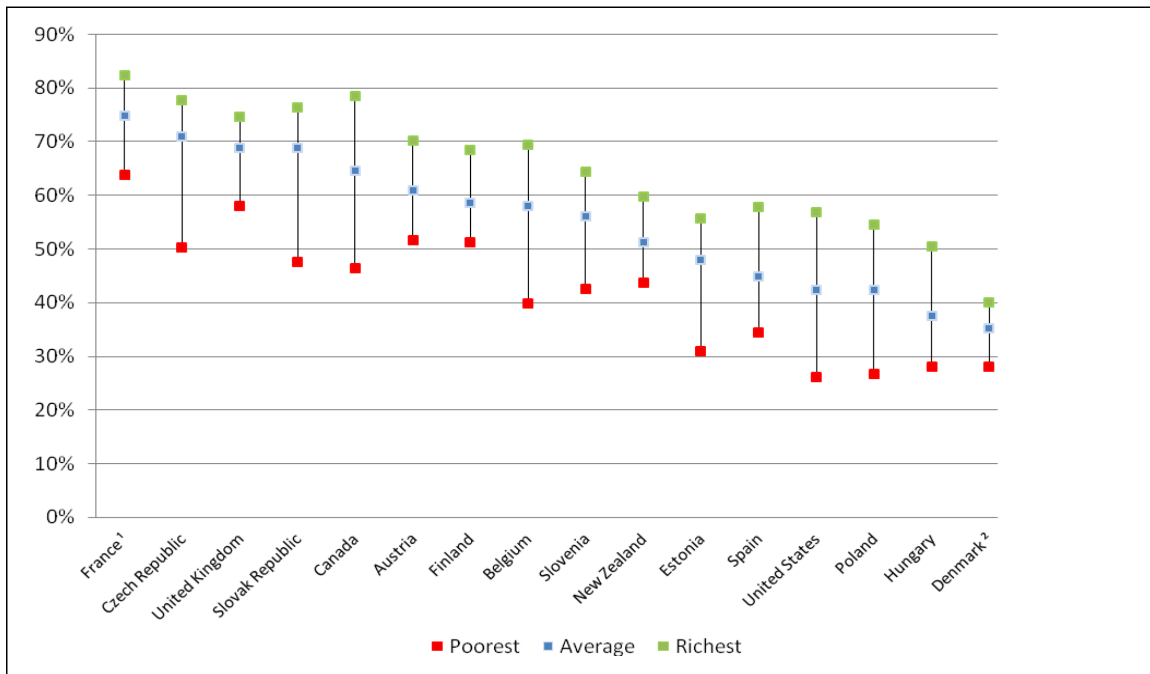

Figure 3.3 Probability of a dental visit in past year by income group of 16 OECD countries (2009/or nearest year)

[1] Visits in past 2 years

[2] Visits in past 3 months

Source: Adapted from Figure 6.6.2: OECD estimates (2011) [25].

Additionally, when ranked by the amount of public funds allocated to oral health care, Canada is close to last [26] (Figure 3.4). Moreover, when observing trends in the proportion of dental expenditures from public funds for 2001, 2005, and 2008, the U.S. and other OECD nations have increased their public share in total oral health care, while Canada's share has decreased. In short, most OECD nations provide much more public

funding for oral health care than Canada and, as will be described further on in this report, have more robust and equitable ways of providing oral health care to their populations.

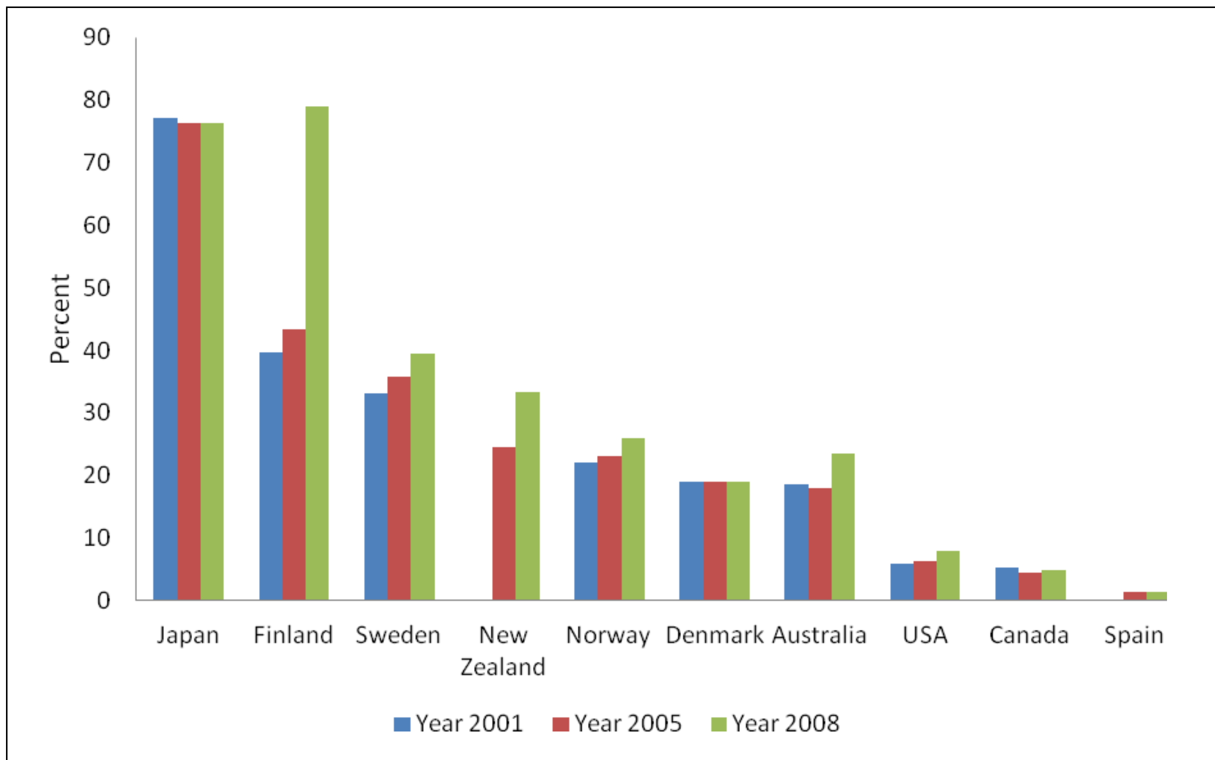

Figure 3.4 Public share of per capita dental care expenditure in OECD countries during 2001–08

Source: Adapted from Parkin and Devlin (2003) [26].

Birch and Anderson have described one of the consequences of Canada's decreasing public investments in oral health care [27] (see Table 3.7). They show that, among individuals who do not consult a dentist due to the costs, the differences between those of high and low income are markedly pronounced, yet not in countries that have more robust public funding and delivery of oral health care, such as the United Kingdom, Australia, and New Zealand. In Canada, while 15 per cent of those in high-income groups do not consult a dentist due to cost, 42 per cent of those in low income families do not consult a dentist. The same figures for high and low income families not consulting a physician due to cost in Canada are three and nine per cent. In short, while Canada attempts to attain an equitable approach to the financing and delivery of general medical health care, this is definitely not the case for oral health care. This observation is supported by other work showing that in Canada, as people report themselves feeling less healthy, they report more visits to a family physician, yet the same is not true for oral health [28] (Figure 3.5). For oral health care in Canada, the poorer that someone's general health is rated, the lower the likelihood of them visiting a dentist.

Table 3.7 Proportion of adults needing care but not consulting physician or dentist due to cost (2001–02)

Country	% not consulting physician due to cost				% not consulting dentist due to cost			
	sick adults	all adults	high income	low income	sick adults	all adults	high income	low income
USA	28	24	15	36	40	35	24	51
New Zealand	26	20	18	24	47	37	36	40
Australia	16	11	10	14	44	33	31	38
Canada	9	5	3	9	35	26	15	42
UK	4	3	2	4	21	19	19	20

Source: Adapted from Birch and Anderson (2005) [27].

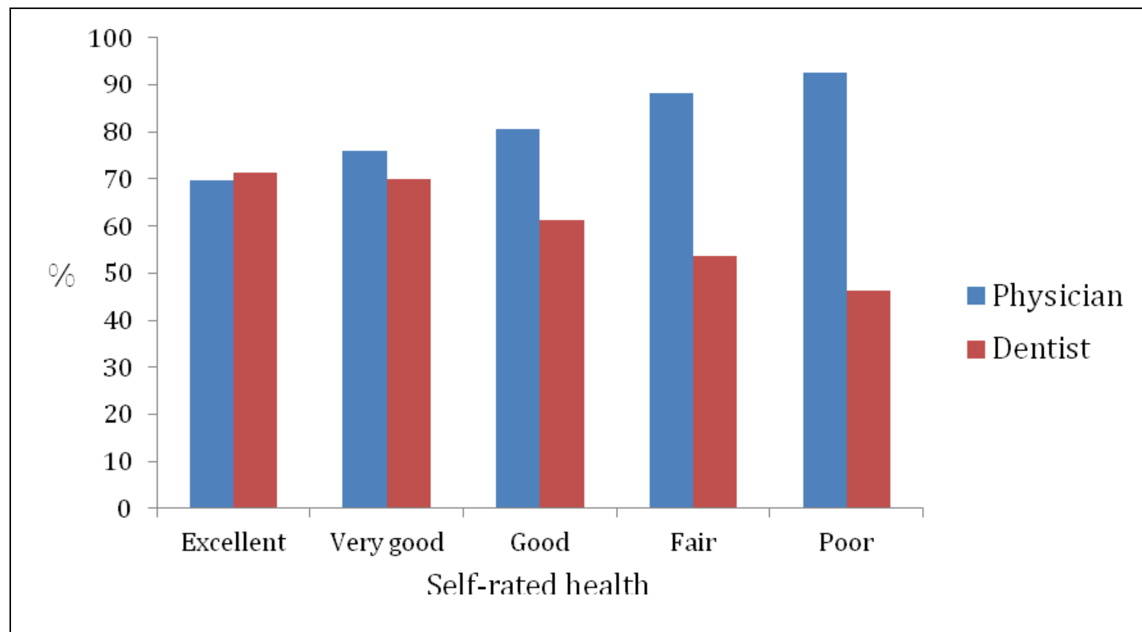

Figure 3.5 Consultation with dentist or family physician by level of health (Canadian Community Health Survey, 2010)

Source: Adapted from Sabbah and Leake (2000) [28].

3.4 The Problems with the Current Provision of Oral Health Care in Canada

Many are now recognizing the problems inherent in Canada's oral health care system. As a result, access to oral health care has gained prominence as a health policy issue [29-37]. For example, the media have championed the challenges experienced by low-

income groups in accessing care [29-31]. Provincial governments have responded with targeted funds for low-income children, adults, and seniors [32-36]. The federal government has added an Office of the Chief Dental Officer to provide policy leadership and direction in the area of oral health and oral health care across Canada (a similar office had not been in place for approximately thirty years) [37]. A recent President of the Canadian Medical Association (CMA) has suggested that Medicare be extended to include oral health care [29]. Finally, the Canadian Dental Association now recommends that governments establish a "dental safety net" for all disadvantaged Canadians, changing its traditional policy advice of only targeting specific vulnerable groups, particularly children [38].

Most recently, a report authored by major public and private oral health care policy stakeholders in collaboration with the Canadian Centre for Policy Alternatives asked what the future of oral health care in Canada should look like [39]. They queried "a strange truth of Canadian public policy: [that] the care of our lips, tongues and throats is fully covered by public funding, but not our teeth and gums." All of this activity represents policy renewal in the context of 30 years of decreasing expenditures for publicly financed oral health care in Canada [21] (Figure 3.6).

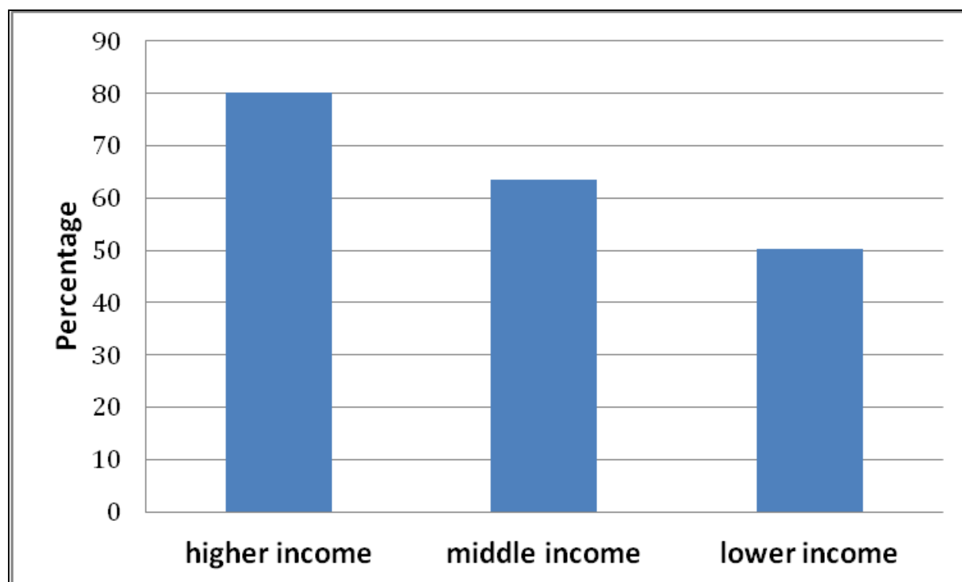

Figure 3.6 Adults living in Canada with public or private dental insurance by income

Source: Created by the authors from the analyses of the 2007-2009 Canadian Health Measures Survey data.

As was previously shown (see section 4.3), among OECD nations Canada ranks near the bottom in terms of the public financing of oral health care [26]. In effect, the *public* aspect of Canada's oral health care system was developed to provide prevention and treatment services for those most at risk or those with no regular access to care (e.g., low-income children, social assistance recipients, and people with disabilities).

Unfortunately, this has excluded groups that arguably should receive public support when using care (e.g., low-income adults and seniors and the working poor) [40-42]. To summarize, the very small amount of public resources going into oral health care may not be enough to meet existing need and may not be targeted at all those in greatest need.

3.4.1 Exclusion of, and Challenges with, Specific Populations

Apart from sporadic public investments, the decline of governmental support for oral health care has continued, resulting in major gaps in our current system. These gaps were inherent in the system from its very beginnings, specifically due to policy predilections, again focussing on children, employment status, and individual responsibility [43]. In terms of children, most—if not all—provinces provide support for low-income children due to a heightened assessment of social responsibility. Yet this means that many age groups are completely excluded, including vulnerable populations such as low-income adolescents, adults, and seniors.

The focus on employment status has also led to a more discrete and unique gap, which is best highlighted through the challenge experienced by people working for low wages (the so-called "working poor") and now potentially the middle class [43, 44]. These individuals have employment, but do not generally have jobs that provide non-wage benefits, or have experienced a degradation of their employment-based dental benefits in general (Figure 3.3). This leaves dental care for these groups in particular jeopardy, as there are no public options available for them. Similarly, the assumption that employment is generally accompanied by non-wage benefits also leaves many retirees (Figure 2.11 Figure 2.12) who have limited incomes in difficulty, as non-wage benefits are very often lost upon retirement.

As for the issue of personal responsibility for oral health, this has resulted in a gap since personal responsibility cannot fully cover and manage the complexities of barriers to accessing oral health care. Again, being employed while facing a limited income is the clearest example of this, as these individuals are wholly responsible in relation to the current logic (i.e., they are employed), yet they are marginalized by the very system that implicitly privileges them. To be sure, the health care ethics literature has identified individual responsibility as an inadequate and potentially dangerous approach to distributional policy [45].

The results of these gaps are significant. At a minimum, they leave people without reasonable access to oral health care; at worst, the impacts can be extreme, such as the chronic experience of severe pain, loss of self-esteem, and even physical handicap. Additionally, the notion of a public context for oral health care has been severely diminished overall. Many of the public incentives that used to be part of the approach to publicly financed oral health care have been forgotten. For example, there is little support in the form of public subsidies for rural and poorly serviced communities who want to attract dentists; incentives that used to be supported by many provinces, yet are no longer [19].

The uniqueness of aboriginal populations is relevant here as well. Aboriginal populations suffer from some of the worst oral disease rates in Canada. As a result, due to their historical relationship with the federal government, select aboriginal populations have access to a quite robust set of services through Health Canada's Non-Insured Health Benefits Program. Nonetheless, due to rural isolation, care is often not available even if payment for services is. Furthermore, due to their specific relationship with the federal government, other problems appear. For example, there is often debate between provincial and federal authorities regarding who is responsible for First Nations populations when they are not living on reserve land. Both authorities consider themselves the insurer of last resort, which by definition cannot exist concurrently. There is also the issue that the state can be fickle in recognizing Aboriginal status, meaning it can be lost, which results in challenging situations where members of the same family, in the same community, lose access to oral health care, while others still have it.

Similar challenges exist for disabled, refugee and new immigrant populations as well. These groups suffer an inordinate burden of oral disease compared to their general Canadian counterparts. they often experience limited incomes, and while they sometimes have access to some public support (disabled and refugee populations specifically), they also experience significant barriers in accessing dental care. For example, the federal government has historically supported some refugees, but the coverage is limited and the timeline of coverage is short (often only one year from entry). This support may be completely lost in the near future, as the federal government has proposed the cancellation of this important program [46]. In addition, no province other than Quebec offers support for refugees. Furthermore, new immigrants have no public support for oral health care unless they qualify for social assistance coverage, and here too, the challenges of poverty are at play. Finally, for the disabled, their potential physical and cognitive inability to access oral health care in traditional settings limits the availability and appropriateness of care. In short, there is no integrated and omnibus approach to oral health care policy that attempts to address the challenges experienced by these different populations.

3.4.2 Lack of Oral Health Care Standards Across the Country

The lack of any clear oral health care policy across the country, in combination with the nature of Canadian governance, whereby health is largely governed at the provincial/territorial level with oral health care sometimes governed at the municipal level too, has resulted in major service gaps and a lack of service standards. Since there is no overarching legislation for oral health care, as there is for physician- and hospital-based care under the *Canada Health Act*, each province/territory has approached the financing of oral health care services in their own ways. As a result, the same publicly insured person could be covered for different services depending on the province they live in and, in some circumstances, the municipality they live in within the same province. In some cases, support for groups such as low income adults and seniors is extremely limited or can be completely discretionary. In tough economic times, the lack

of legislative protection for these programs allows governments to stop funding without any significant resistance, regardless of the negative impact that this can have on many people's lives.

All of this has implications in terms of the appropriateness of the care that is publicly funded, and for the efficiency and effectiveness of the care that is provided. For example, by privileging insurance as a mechanism to pay for care, government oral health care programs have almost unknowingly structured themselves as private dental benefit plans, attempting to provide the same or similar services as those that are available through employment arrangements. The Auditor General of Canada has been critical of the federal financing of oral health care for Aboriginal populations for this very reason, stating that it is unclear whether the federal government is funding a public program or an insurance mechanism [47]. Structuring public care as an insurance mechanism creates a quagmire in relation to what policy makers are pressured to respond to, meaning policy debates are often more reflective of insurance problems than they are of the challenges associated with a true public health program. In this regard, there has been an inversion of priorities in public programs. As previously mentioned, over the last 30 years, as the (private) dental profession pressured governments on the perceived shortcomings of public health programs, governments began to shift their funding from direct delivery to indirect delivery (Table 3.6). This means that most public care now functions in the form of a third-party financing mechanism, tending to marginalize the needs and preferences of the publicly insured compared to the majority clientele served in the vast majority of private dental offices. To add to this, there is a major disconnect between the preferences of private practitioners, who want public programs to function as private insurance mechanisms (i.e., little adjudication and oversight), and the preferences of marginalized groups, who have been shown to be more likely to prefer care delivered in a public rather than a private setting [48].

3.4.3 Dental Treatments Provided not Supported by Scientific Evidence

The aforementioned unclear policy logic has ramifications for treatments provided. For example, in the early 1980s, as governments looked for ways to contain costs, they began to limit public fee schedules. The first services to be limited or cut were clinical preventive services such as oral hygiene instruction/education, with governments noting that behavior change was much more complicated than, for instance, simply telling and showing someone how to brush their teeth. Over time, this extended to the number of units available for periodontal scaling (cleaning), and services such as molar root canal treatments. As a compromise, governments began to fund other services, of most importance being composite (white-coloured, "plastic" fillings) rather than amalgam (silver-coloured, metallic fillings) restorations, which were incorporated into public fee schedules in the 1990s.

Such an approach creates a provider incentive to deliver composite restorations because public fee schedules pay higher fees for composite than they do for amalgam restorations. The incentive becomes even stronger considering that public fee schedules

always pay less than professional fee schedules. Secondly, there is a patient incentive in relation to the preference for dental materials that are tooth-coloured and against a mercury-containing restorative material, which makes it increasingly controversial to use even if there is no evidence of deleterious effects of mercury in amalgam restorations. From the point of view of public programs, this is problematic in terms of costs and evidence-based care. Research has shown that composites are not the ideal choice of dental material in high caries populations, as they are more likely to fail and require re-treatment more often, and these are specifically the same populations that are often the purview of public programs [49]. As seen in Table 3.8, in two of Canada's largest public oral health care programs over a 10-year period, the number of amalgams delivered dropped substantially and was replaced with a concomitant increase in the number of composites. In both the Children In Need of Treatment program (CINOT), which finances care for children of low-income families in Ontario, and in the federal government's Non-Insured Health Benefits program (NIHB), which finances care for state-recognized aboriginal groups, the influence on expenditures is evident and has major implications for program sustainability.

Table 3.8 Ontario's Children in Need of Treatment (0–13 years) and Federal Non-Insured Health Benefits (all ages) programs, number of restorations and expenditures ($000) on amalgam and composite resin restorations, fiscal years 1999/2000 and 2009/2010

	Fiscal year 1999/2000		Fiscal year 2009/2010		Percent difference 1999/2000 to 2009/2010	
	Numbers	**Expenditures**	**Numbers**	**Expenditures**	**Numbers**	**Expenditures**
CINOT Amalgam	39,145	$1,695	18,972	$956	-51.53%	-43.58%
CINOT Composite	25,590	$1,706	64,258	$5,091	151.10%	198.36%
NIHB Amalgam	151,258	$9,310	70,724	$6,470	-53.24%	-30.51%
NIHB Composite	128,470	$9,664	297,369	$39,079	131.47%	304.37%

Sources: Nicolae et al., (2011) and Al-Rudainy (2010) [50, 51].

The lack of a consistent, evidence-based approach to the allocation of publicly funded oral health care services is clearly problematic. As described in section 6.6, there are lessons to be learned from around the world where publicly funded oral health care is based on explicit values of universality, targeting, age, or need, or where clear goals for the delivery of care have been set (i.e., prevention and the relief of pain and infection). Furthermore, by providing publicly funded care in piecemeal and haphazard ways, Canadian jurisdictions have created programs that are arguably unsustainable due to budgeting pressures associated with provider and patient expectations. Indeed, if the

aim is to improve access to quality oral health care in ways that are responsive to vulnerable populations, that are efficient and effective, and can help in achieving social and economic gains, attention must be paid to the lack of rigour and consistency by which Canadian jurisdictions provide this important and fundamental health service.

3.4.4 Non-diversified Oral Health Care Settings and Workforce

The Canadian, ad hoc approach to publicly financed oral health care also results in an uncritical support for the status quo. In Canada, there are very limited options for service delivery environments and providers. There are numerous well-established methods of delivering oral health care beyond traditional Canadian service settings, and new experiments underway in the U.S. have shown that success is possible if creative thinking is used.

In the U.S., programs are in place delivering preventive care through non-dental providers, such as physicians, nurses, and community health workers [52, 53]. These programs have proven beneficial in terms of outcomes (both by improving health and decreasing resource consumption), and are reviewed in section 6.2. What is important is that serious consideration in Canada for using alterative oral health care providers is limited. In fact, one of the programs that Canada is most famous for internationally is dental therapy; while some U.S. states are now training such providers, the role and training of dental therapists in Canada is now at significant risk. Due to professional pressures and the economic recessions of the last thirty years, the only training program for dental therapy in Canada is now closed. In short, while the U.S. is diversifying its oral health care workforce to meet the needs of underserviced groups, Canada is moving in the opposite direction.

However, there are some unique developments. At the federal government level, a recent initiative in care for First Nations is the use of Children's Oral Health Initiative Aides as non-dental providers of preventive advice. Also, select provinces have recently adopted legislated independent dental hygiene practice (e.g., Ontario, Nova Scotia), giving dental hygienists the opportunity to provide services without the supervision of a dentist. One argument forwarded by dental hygiene's professional leadership is that independent dental hygienists will move into underserviced environments such as long-term care settings. As well, the argument has been put forth that this will drive competition in the oral health care market giving consumers greater choice and potentially decreasing dental service prices. Unfortunately though, no research has been conducted to confirm whether these arguments are correct. After all, it is not apparent that a private dental hygiene office is any more likely to be set up in an under-served, poor population/neighbourhood than is a private dentist office, especially given the current remuneration system.

In the context of exploring a more flexible and diversified use of dental and non-dental professionals to improve access to oral health care and reduce oral health inequalities, it is important to understand the different types of dental professionals that exist in

Canada (different definitions of the scope of practice exist in each provincial jurisdiction but the definitions below outline the common features of each profession):

- A dentist can perform all necessary acts to diagnose, treat, prevent, and otherwise manage all health conditions related to the teeth, mouth, and jaws;
- A dental therapist can perform certain activities such as identifying decay and dental abscesses, performing restorations, performing simple extractions, administering local anaesthesia, administering fluoride varnish and fissure sealants, and taking radiographs;
- A dental hygienist can communicate treatment plans and disease prevention information, perform supra- and sub-gingival scaling, take radiographs, and (depending on the jurisdiction) administer local anaesthesia;
- A denturist can make, fit, and repair removable dental prostheses (a denturist works directly with patients);
- A dental technician can make and repair dental prostheses (a dental technician works in a laboratory); and
- A dental assistant can assistant a dentist in the performance of his or her care for a patient, including the taking of radiographs.

3.4.5 Not Taxing Dental Benefits

Another gap in Canada's oral health care policy logic concerns employment-based dental benefits and the nature of taxation [8, 24, 39]. In Canada, these expenditures are not treated as employee income and hence do not attract income taxation, which is a direct incentive to the employer and employee. Yet this form of financing is completely inequitable in terms of the wealth-transfer principle in welfare states. This means that the insured pay for dental insurance premiums with pre-tax dollars, while the uninsured pay out-of-pocket for any dental care with after-tax dollars. Some have argued that this is highly irresponsible and unfair [8]. Apart from penalizing large segments of the population, it also contributes to poor international rankings on measures of equity and access to oral health care [13]. This also results in a significant level of foregone revenue that could, at least in theory, be used to finance care for underserviced groups [8]. As reported in the 2002 Commission on the Future of Health Care in Canada, the foregone revenue in 1994 from providing employers and employees with tax breaks for the provision of private health and dental benefits was estimated at approximately $1.5 billion dollars for all governments [54]. Finkelstein has noted the estimate at $1.6 billion dollars in 1998 for the federal government alone, and argues that this only includes lost revenue from the tax subsidy for those above a certain income, and that the total loss in revenue may be much higher once foregone revenues from provincial and payroll taxes are considered [55]. Summarizing this issue, the Commission on the Future of Health Care in Canada estimated the loss in revenue related to all health benefits, including dental insurance, for all governments to be approximately $4 billion dollars.

3.4.6 The Emerging Context

A variety of factors make access to oral health care for vulnerable groups an important public health issue today. For example, the uneven nature of how oral disease is distributed in the population, as indicated by the concentration index (see section 2.1), suggests that governments and the dental professions should seriously reconsider how they will deal with the population's oral health now and into the future. Figure 3.7 indicates how, for instance, approximately 60 per cent of decayed teeth are concentrated in the poorest 36 per cent of the Canadian population.

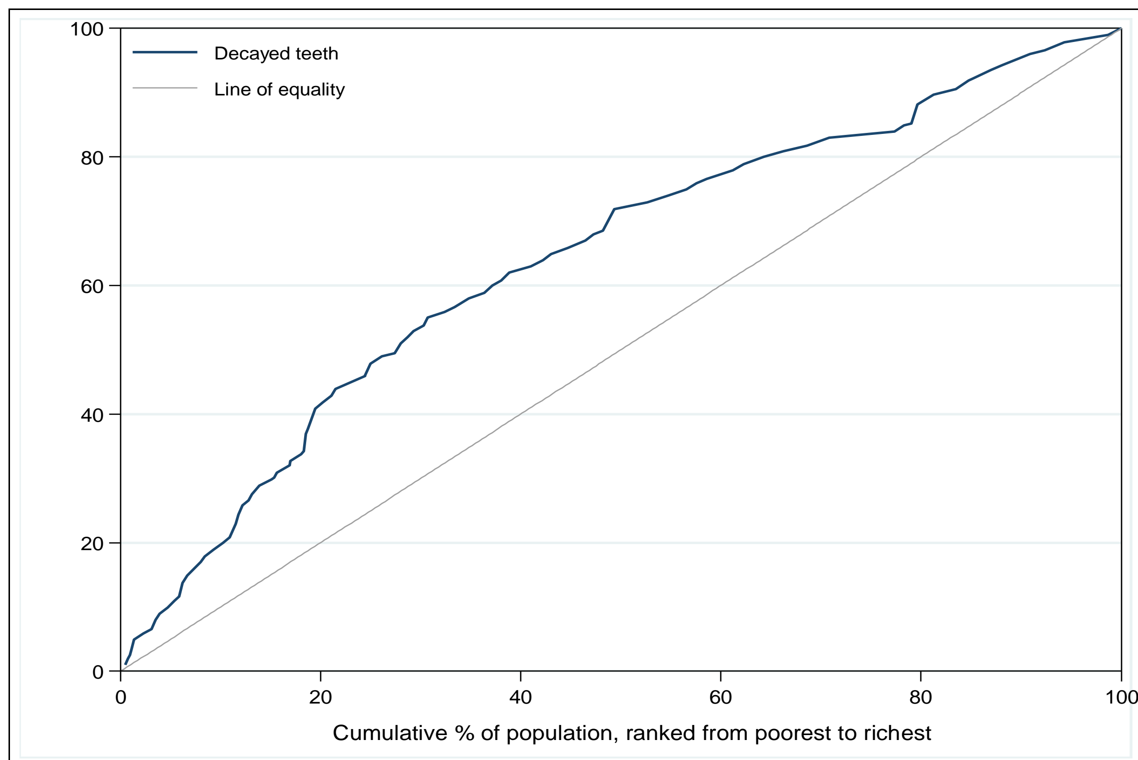

Figure 3.7 Concentration Index for decayed teeth in the Canadian population

Source: Created by the authors from the analyses of the 2007–2009 Canadian Health Measures Survey data.

Now, more than ever, the significant minority of people that experiences the greatest burden of oral disease has the least recourse to care, as oral health care becomes more expensive and, as previously described, fewer options are available to receive publicly supported care. This has major implications for the well-being of these vulnerable populations in terms of their health, productivity, and quality of life, which in turn have implications for Canadian society in general.

Another important, emerging consideration is the well-known fact that the population is aging. The increasing numbers of people maintaining their teeth into old age, coupled with the increased care needs of those who become frail and dependent, are resulting in the emergence of an increased burden of disease and new challenges for providing

care. Currently, however, there appears to be no concerted effort at the professional or policy level to address this issue in an integrated and organized way.

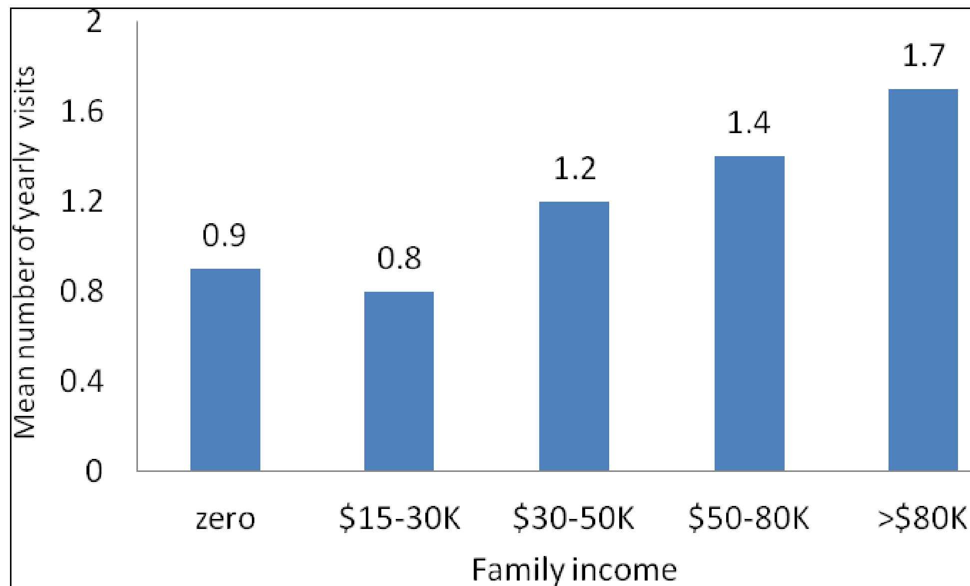

Figure 3.8 Mean number of yearly visits to the dentist

Source: Adapted from Bhatti and Grootendorst 2007 [56].

There are also newer and subtler challenges emerging in terms of access to oral health care. For example, it is now known that the issue of access extends to "the working poor," or those individuals who work for low wages, but do not have jobs that provide dental insurance. In some cases, the working poor now have worse access to oral health care than their lowest income counterparts, as the latter have access to public insurance while the former do not [43, 57] (Figure 3.8). Similarly, evidence suggests that experiencing problems with accessing oral health care is now an issue for middle-income families, as they increasingly report cost barriers to using oral health care, and experience degradation in the quantity and quality of their employment-based dental insurance [44] (Figure 3.9, Figure 3.10, and Figure 3.11).

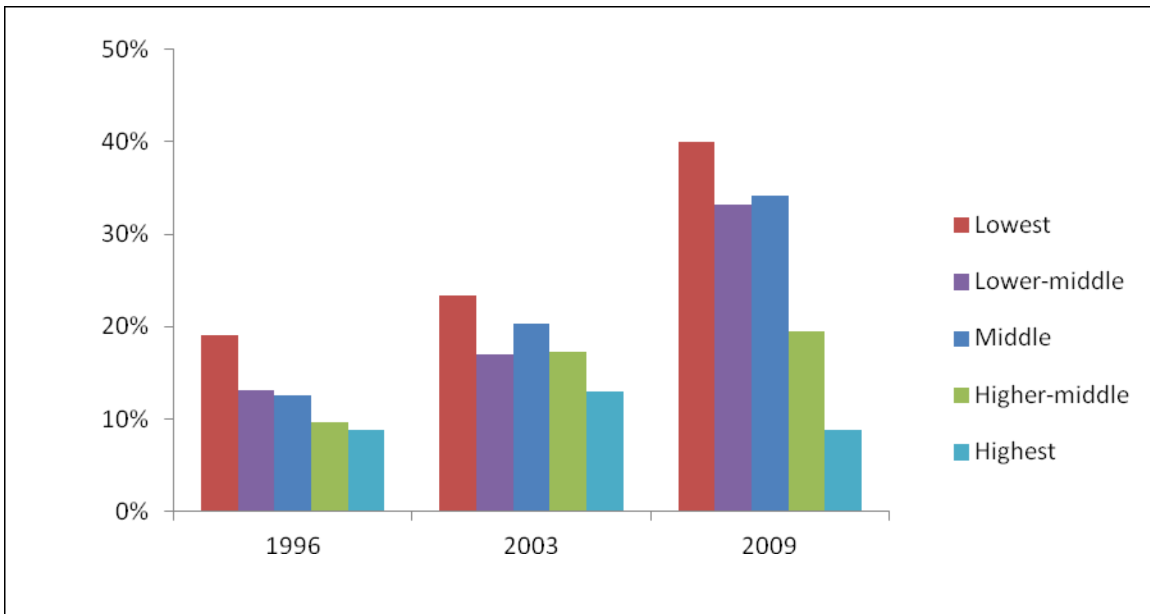

Figure 3.9 Perceived cost-barriers to dental care reported by Canadians according to income level, 1996–2009

Source: Adapted from Sadeghi (2012) [44].

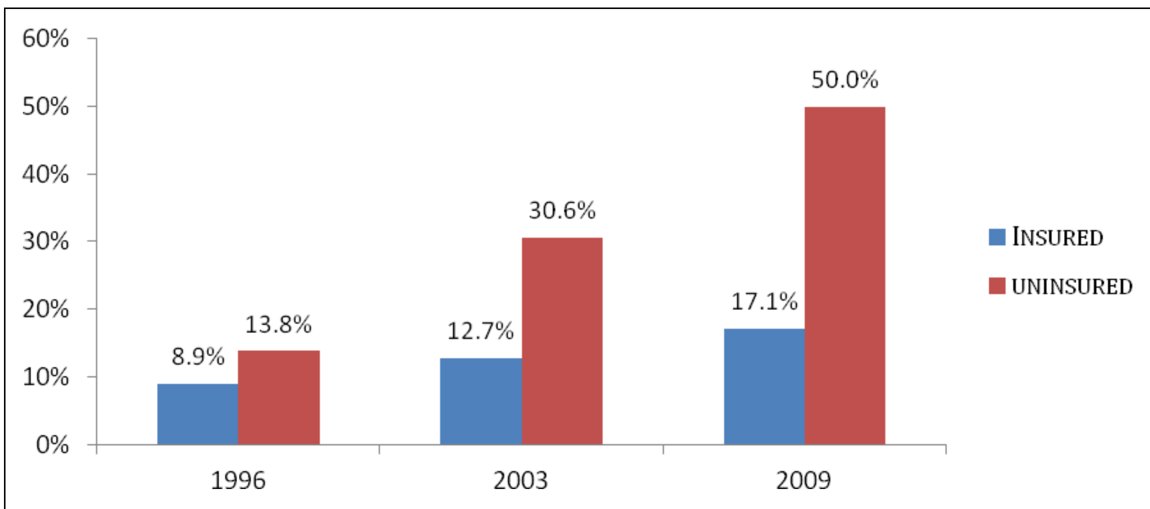

Figure 3.10 Perceived cost-barriers to dental care reported by middle-income Canadians with and without dental insurance, 1996–2009

Source: Adapted from Sadeghi (2012) [18].

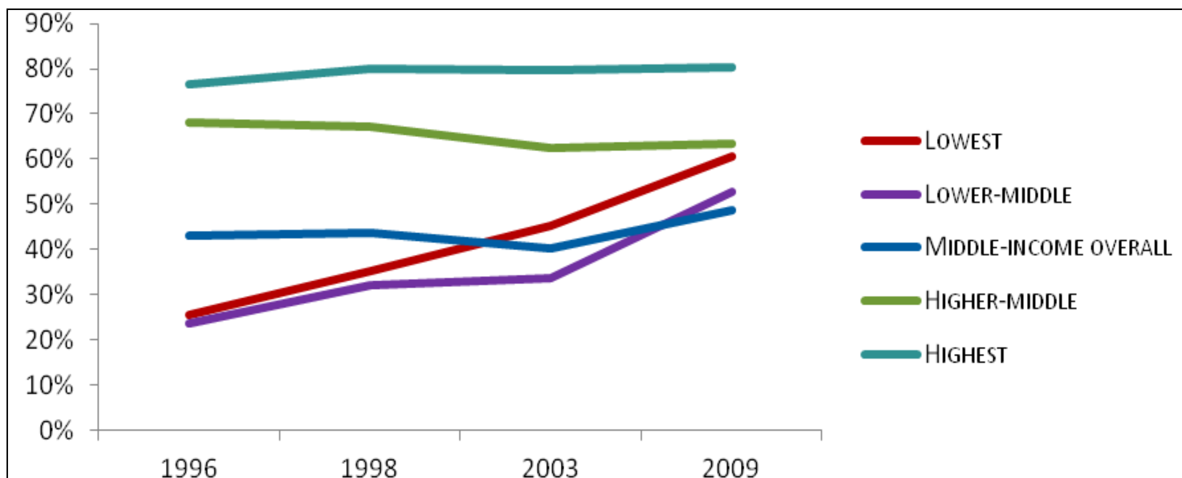

Figure 3.11 Prevalence of dental insurance among Canadians according to income level, 1996–2009

Source: Adapted from Sadeghi (2012) [18].

Environmental factors should also be considered. For example, community water fluoridation, the hallmark of the dental professional and societal approach to the prevention of dental caries, is being challenged in an increasing number of Canadian communities. Even though the evidence is positive in terms of its effectiveness, safety, and the ability of fluoride to reduce the gap in dental caries experience between the rich and poor [58], a number of municipalities in Canada have chosen to discontinue the practice of water fluoridation. This is happening through a combination of lobbying by anti-fluoridation groups and municipalities wanting to cut related maintenance costs. What is important here is that despite its benefits, water fluoridation is being discontinued with little to no consideration of the potential consequences, or of how the dental caries prevention options that could replace it (e.g., targeted fluoride therapies) will be enacted. There is also little to no discussion of how monies that were used for fluoridating water supplies could be reinvested for other oral disease prevention programs (e.g., subsidizing fluoridated toothpaste and toothbrushes).

All of these issues are also influenced by the growing competition for resources within governments, especially in light of the current economic challenges. Where can money be found to fund more access to oral health care? As this report describes, while this area remains largely unexplored, a significant amount of new funds may not be needed, as policymakers have not fully considered the issue of value-for-money in terms of the oral health care that governments currently pay for—as previously noted, there is no clear policy logic. It may be that more can be done with the resources currently being invested. Also, the question remains as to whether Canada is prepared to continue foregoing the treatment of oral diseases among vulnerable groups, given the potential implications for their general health and the health care system. For example, what are the economic implications of choosing to deliver publicly funded care for emergency

conditions, compared to not treating these diseases, before they impose their burdens on individuals and Canadian society?

3.4.7 Variations in Use of Resources/Standards/Principles of Oral Health Care Across Canada

As previously alluded to, Canada currently experiences a significant variation in the use of public oral health care resources. Depending on whom one is (e.g., child or adult, low income or no income, or level of disability) and where one is located (e.g., province or territory and in some cases the municipality), vulnerable populations have access to a variable and often very limited collection of oral health care goods and services. Unlike the role that the *Canada Health Act* plays for hospital and physician services, there is no overarching legislation that guides the financing and delivery of oral health care in Canada. This means that there are no national standards or principles that Canadian jurisdictions can look to for guiding the allocation of publicly financed oral health care. This leads to major gaps and variations in population coverage and in the services that are funded. It also means that the policy logic for publicly funded oral health care is unclear. Unlike other jurisdictions around the world where publicly funded oral health care is based on explicit values of universality, targeting, age or need, and where clear goals are set (i.e., prevention or the relief of pain and infection) [59-61], Canada has a rather implicit and unclear approach. As a result, publicly funded oral health care is provided in piecemeal and haphazard ways. Indeed, if the aim is to improve access to quality oral health care in ways that are responsive to vulnerable populations, are efficient and effective and that achieve social and economic gains, attention must be paid to the lack of rigour and consistency by which oral health care is provided.

4 THE DETERMINANTS OF ORAL HEALTH

The majority of the burden of oral disease and the most common oral diseases and health problems (e.g., dental decay, gum disease, and tooth loss) are chronic diseases or health problems. As such, they have broadly the same determinants as many other chronic diseases such as diabetes and heart disease or health problems like obesity and high blood pressure. Much has been written on this subject, but it is generally well accepted that the determinants of these chronic conditions are a complex array of factors, as illustrated in Figure 4.1.

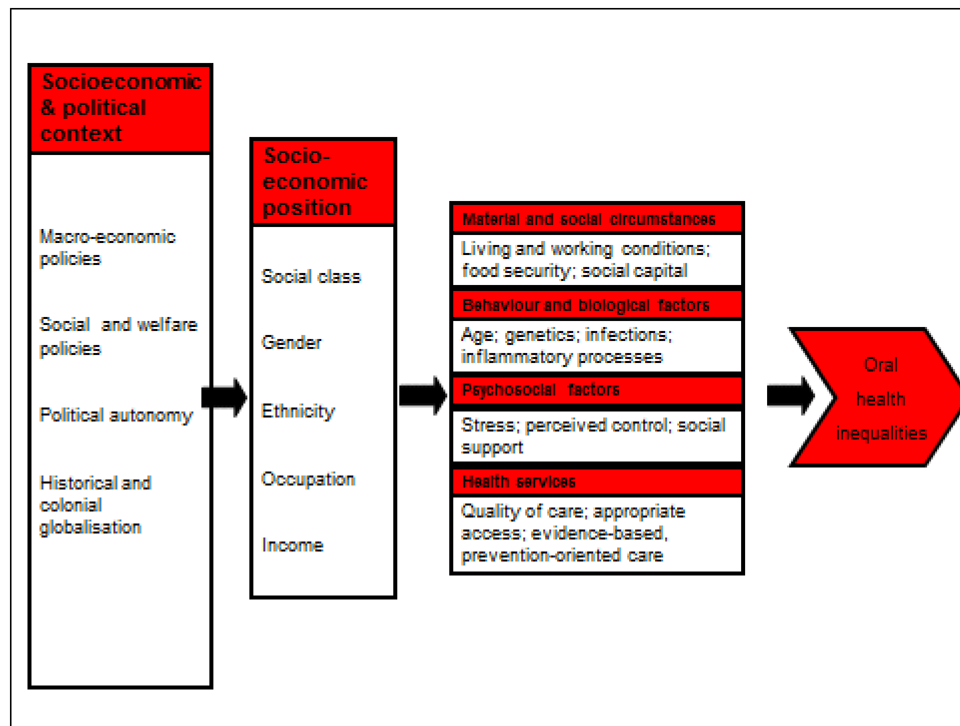

Figure 4.1 Integrating the common risk factor approach into a social determinants framework

Source: Adapted from Watt & Sheiham 2012 [62].

Using the concentration index (CI) approach, a *decomposition analysis* can be performed to find those factors that explain the inequalities in oral health. Table 4.1 illustrates the contribution of socioeconomic factors, access to oral health care, and oral health behaviours to the inequalities in a variety of oral disease and oral health indicators.

Table 4.1 provides information on which to make several very important observations concerning inequalities in oral health in Canada:

- Poor health is concentrated in those with low income (as indicated by the negative signs), while a treatment indicator (filled teeth) is concentrated in higher income groups.

Table 4.1 Decomposition of factors explaining the concentration of oral health outcomes in adults in poverty living in Canada

	Socioeconomic status % Contribution to Concentration index	**Access to oral health care** % Contribution to Concentration index	**Oral health behaviours** % Contribution to Concentration index	**Total Inequality**[a] Concentration index
Decayed teeth	32%[b]	45.1%	4.1%	-0.248
Missing teeth	51.4%	18.4%	4.1%	-0.158
Oral pain	49.6%	38.2%	5.3%	-0.131
Filled teeth	37.3%	12.6%	6.4%	0.069

[a] Inequality (the Concentration Index) is adjusted for age, sex, racial background, country of birth.

[b] The percentage figure in each cell indicates the extent to which socioeconomic, access and behavioural factors contribute towards the total inequality in that disease or health indicator. Percentages in a row do not summate to 100 per cent, indicating that they explain less than 100 per cent of inequalities. The rest of inequalities are due to other factors contributing to the inequality that were not measured and addressed in the analyses.

Source: Created by the authors from the analyses of the 2007-2009 Canadian Health Measures Survey data

- Poor access to care accounts for 45 per cent of inequality in dental decay and 38 per cent of inequality in oral pain.
- Oral health-related behaviours such as tooth-brushing, flossing, and smoking make relatively small contributions to inequalities in health.
- Socioeconomic factors are important determinants of inequalities in oral health and oral health care.

Taken together, these observations suggest that policy makers, health care administrators, and public health practitioners, plus the dental and other health professions, should be addressing socioeconomic factors and access to oral health care if they want to reduce inequalities in these indicators. Although cross-sectional in nature, these data also suggest that interventions that encourage a change in behaviour—such as brushing one's teeth—will make little contribution to reducing inequalities in oral health in Canada. That is not to say that these behaviours are unimportant in determining the health of peoples' teeth and gums but a vast amount of documented research shows that social, environmental, and health system factors are more important determinants of many indicators of health and health inequalities. In other words, interventions to reduce inequalities in oral health and oral health care in Canada should target the oral health care delivery system and broad socioeconomic factors, more than individual behaviour change.

5 THE IMPACTS OF ORAL HEALTH AND DISEASE AND ORAL HEALTH CARE

This report has so far described the oral health and oral health care inequalities that exist in Canada and demonstrated the links of these phenomena with indicators of access to dental care. It has also described the health care systems that exist in Canada. The Panel has established the links between oral health inequalities and access to dental care and described the gaps and problems that exist in the current oral health care system. Before coming to conclusions concerning how best to address these issues, it is important to establish the impact these problems have on individuals and the whole population, as well as the potential for the benefits of providing oral health care. This chapter describes these impacts.

5.1 The Impacts of Poor Oral Health

In children, Jürgensen *et al.* have shown that active dental caries and total dental caries experience is associated with toothache, missing school, and impairments to daily life activities (eating, smiling, and sleeping) [63]. Blumenshine *et al.* demonstrated that children with both poor oral and general health are more than twice as likely than those without these problems to report poor school performance [64]. Similarly, Jackson *et al.* showed that children with poor oral health are nearly three times more likely to miss school as a result of dental pain than those in good oral health [65]. Importantly, these authors found that oral health status is associated with performance independent of pain (i.e., even if there was no dental or oral pain), meaning that as an end-point, pain is by far the extreme, with the threshold for impacts present much earlier when experiencing poor oral health.

Agou *et al.* have shown that even malocclusion (i.e., a problem with the way teeth and jaws bite together) has quality of life impacts on children and, more specifically, on children with low self-esteem [66]. Their study demonstrated that socioeconomic status is a significant mediator of quality of life impacts on these children. Using the same data, Locker further demonstrated that the worse the quality of life impact, the greater the effect on children of lower socioeconomic status [67]. Similarly, among adults, Locker found that income disparities in oral health-related quality of life outcomes remain after accounting for differences in levels of oral disease [68]. All of this implies that treating oral disease, especially among socioeconomically vulnerable populations, has the potential to decrease time lost from school and improve learning in children, and move individuals towards better health and psychological gains.

The impacts of poor oral health and the benefits of access to quality oral health care also extend into adulthood. For example, in terms of productivity, McGrath *et al.* found that among those with dental infection, one in five adults reported that they had to take time off work or study because of these problems [69]. Quiñonez *et al.* found that employed, low-income Canadians who reported chronic painful aching in their mouths were more likely than those without such pain to have experienced a disability day

(implying that they stayed in bed, did not work, or could not engage in normal activity) associated with a dental problem in the previous two weeks [70].

This bears out in system impacts as well. Governments and health care systems are affected by inefficient and ineffective allocation of resources when it comes to populations with poor oral health. Recent Canadian work has demonstrated the influence of poor access to oral health care on the health care system through the use of hospital emergency departments for dental conditions that are most effectively treated in regular oral health care settings [71]. This is an allocation issue, and one that extends to the use of physician offices as well [72]. Ultimately, if hospitalization occurs, costs can be extreme, and the pathway associated with this endpoint consumes societal resources not meant for oral health care that can be used for other illnesses best treated in hospital settings.

5.2 The Benefits of Good Oral Health Care

The benefits of quality oral health care can start very early. For example, in a study among Medicaid-enrolled children in the U.S., those children who had their first preventive dental visit before they were two years old were more likely to have subsequent preventive visits. They were less likely to have subsequent restorative or emergency visits compared to children who had their first preventive visit at the age of two or three years. The average dental-related costs for children who had received preventive care before the age of two years were approximately half of the costs for children who had received their first preventive care at the age of three to four years [73].

In terms of older adults, Locker has shown that dental treatment has a marked effect on their self-perceived oral health [74]. Following approximately 900 older adults over a three-year period, Locker found that those who reported their oral health as improving were far more likely to have made dental visits and received dental services. Other benefits of treatment included self-reported improvements in the ability to chew food, to maintain a nutritious diet, to socialize, to be free of pain, and ultimately to function successfully in daily life [74].

5.3 Oral Health and General Health

At present, much research is being performed into the links between oral and general health, covering domains such as the relationship between periodontal (gum) disease and diabetes, gum disease and cardiovascular disease, gum disease and childbirth outcomes, and gum disease and pneumonia. The nature of many of these relationships remains to be clarified, although the evidence for causal relationships between gum disease and diabetic control, and between gum disease and aspiration pneumonia in the frail elderly, is strong.

For example, Yoneyama *et al.* have shown that by providing oral care in long-term care settings, the risk of developing aspiration pneumonia is reduced [75]. They found that patients receiving oral care had fewer febrile days than patients not receiving oral care,

and that the removal of latent oral infections could reduce the incidence of lower respiratory tract infection [75]. The findings of this single study have been confirmed by those of a systematic review on the benefits of routine oral care in the prevention of aspiration pneumonia among the frail elderly [76].

In another important domain, a 2010 Cochrane review assessed seven randomized controlled trials on the treatment of periodontal disease for glycemic control. It concluded that periodontal therapy in individuals with diabetes helped to improve glycemic control and the subsequent management of diabetes [77]. It further recommended that periodontal therapy should be part of routine diabetes management.

In 2004, D'Aiuto *et al.* investigated the outcomes of periodontal therapy on changes in cardiovascular disease risk [78]. A total of 94 participants with severe periodontal disease received non-surgical periodontal therapy, with results showing that participants who responded to periodontal treatment were four times more likely to reduce their cardiovascular risk category. Elter *et al.* also discovered a decrease in inflammatory biomarkers plus improved brachial artery blood flow after 22 patients with periodontal disease were treated with scaling, root planning, and periodontal surgery [79]. Seinost *et al.* compared 30 individuals with severe periodontal disease with 31 healthy controls before and after non-surgical periodontal therapy interventions [80]. Results showed that periodontitis patients with favourable clinical responses to therapy exhibited substantial improvements in flow-mediated dilation of the brachial artery and reductions in inflammatory biomarkers. Most recently, using survey data prospectively linked to administrative data, de Oliveira *et al.* reported that those who reported poor oral hygiene (never/rarely brushed their teeth) had a 1.7 fold increased risk of a cardiovascular disease event [81].

Poor oral health is also causally linked to chronic pain, poor nutrition, impaired learning, and persistent infection, and it is strongly associated with arthritis and dementia [77, 81-87]. People with poor oral health also suffer from reduced dignity, self-respect, employability, and social connectedness, all of which have major health implications [88-90]. In short, the case is so strong that there really is no reason to consider oral and general health separately: health is health.

Ultimately, this case is based on three observations:

- The determinants of oral health problems are the same as or similar to other health problems (e.g., tobacco smoking causes oral cancer, gum disease, and multiple other health problems; excessive refined carbohydrate consumption contributes to dental decay, diabetes, cardiovascular disease, etc.; poverty increases the likelihood of dental decay, tooth loss, gum disease, and multiple other health problems).
- Oral (particularly periodontal) health is linked in a causal relationship with a number of diseases.
- The two most common oral diseases (dental decay and gum disease) are chronic infections that would benefit from non-surgical approaches used in medicine to deal with other chronic diseases.

This means that “oral health” is simply a phrase used by dental professionals to describe their domain of health care, just as psychiatrists use “mental health,” and other health professionals use similar phrases to demarcate their expertise. While this is legitimate in some contexts, it emphasizes an approach focused on domains of expertise rather than a complete approach to the understanding of health and illness. Fundamentally, however, the oral illnesses experienced by Canadians are a manifestation of chronic exposure to a number of unhealthy factors—tobacco consumption, unhealthy diet, excessive alcohol consumption, the chronic stress of poverty and insecure work, and family and community environments. Ultimately, from an aetiological perspective and in terms of prevention, oral health is general health and requires the same approaches.

6 WHAT CAN BE DONE TO REDUCE INEQUALITIES IN ORAL HEALTH AND ORAL HEALTH CARE IN CANADA?

Given the policy and economic context of the new millennium, it is necessary for any health care, including publicly financed oral health care, to be evidence-based. Evidence exists for oral health care services, particularly preventive services, but surprisingly little exists for the benefits of one service environment over another. Nevertheless, this chapter describes the evidence where it is present, in an effort to promote value-for-money in relation to how we can improve oral health and access to oral health care in Canada.

6.1 Prevention in Children and Potential Impacts for Adults

There is a significant amount of evidence concerning the benefits of preventive modalities in oral health care. For example, the evidence behind community water fluoridation and clinical preventive therapies such as fluoride varnish is very strong. Since 1997, there have been 18 major reviews examining community water fluoridation, including an expert panel convened by Health Canada in 2007. These reviews have consistently found that fluoridation is effective in reducing the risk of tooth decay, and is the most cost-effective way of providing the benefits of fluoride to communities. A systematic review of the literature in 2000 concluded that "water fluoridation has an effect over and above that of fluoridated toothpaste (and other sources of fluoride)" [91].

Seven Cochrane systematic reviews on topical fluorides have also synthesized a large body of knowledge, and have demonstrated that all four topical fluoride modalities (fluoridated toothpaste, mouth-rinses, gels, and varnish) are effective, regardless of exposure to community water fluoridation. The prevented fractions (i.e., percentage caries reduction compared to those not using these interventions) were 24 per cent (fluoridated toothpaste), 26 per cent (mouth-rinses), 28 per cent (gels), and 46 per cent (varnish). Higher initial caries levels resulted in larger treatment effects as well, as did an increased frequency or concentration of the application [92].

The placement of resin-based sealants on the permanent molars of children and adolescents has also been shown to be effective for reduction in caries incidence. Reduction of caries incidence in children and adolescents after placement of sealants ranges from 86 per cent at one year to 78.6 per cent at two years and 58.6 per cent at four years [93, 94]. Caries reduction has been observed to be 65.4 per cent nine years from initial treatment, with no reapplication during the last five years [95].

These modalities are also cost-effective. Systematic reviews have demonstrated that despite varying costs of implementation and maintenance, community water fluoridation is cost-saving (i.e., saves money from a societal perspective and also reduces caries) [96]. For most cities, every $1,000 invested in water fluoridation could save $38,000 in dental treatment costs [97]. In terms of fluoride varnish (a

professionally applied form of fluoride therapy), for children three to six years of age, the cost per varnish application, including labour, is less than other professional topical fluoride applications and is generally more accepted by patients [98]. For sealants, cost-effectiveness depends on risk, meaning they have been predominantly shown to be cost-effective in high risk groups, especially when coupled with school-based provision [96].

There is also a business case to be made for prevention in non-dental settings [99, 100]. In North Carolina in the U.S., two innovative models of financing and delivering oral health care services have demonstrated significant returns. First, food security programming has introduced oral health education and dental referrals for low-income families and their children. Importantly, when compared to those children that do not receive the service, those involved in the program go to a dentist more often and end up consuming less costly oral health care over time. The intervention also reduced the amount of children's general anaesthetic care, which is very costly. The second program involves the financing of oral health education, screening, as well as referral, and fluoride varnish applications by physician- and nurses-aids in public and private practices. Strong evaluation has demonstrated results similar to the aforementioned food security program, confirming impacts on oral health care utilization and consumption over time.

Concentrating on children also has implications for adulthood and caregivers. For example, in the context of childhood oral disease, parental oral health habits significantly affect the oral health of children [101-103]. Caries-related habits established during infancy are generally maintained throughout childhood [104, 105] and into adolescence [106]. Since poor oral health habits can extend well into adulthood, it would seem reasonable that exposing the family, in particular primary caregivers, to oral health education and early preventive treatment holds intuitive benefit.

This is important, as the common wisdom surrounding oral health education at the individual and population level is that, in general, it is neither efficient nor effective [107-109]. That said, for high-risk populations in particular, the clinical effectiveness of early oral health education has been demonstrated in the socioeconomically challenged/high caries districts of Leeds and Glasgow in the United Kingdom [110, 111]. In this context, a preventive program was started with pregnant mothers and continued until children were six years of age, showing beneficial effects on the oral health of the children [112]. Prolonged benefits were found when the children were ten years of age as well [113]. Kowash *et al.* observed that the mothers of infants participating in the dental health education program also improved their own oral health-related habits [110].

Overall, early preventive care appears to be a sound strategy in the prevention of oral disease and the promotion of oral health. As described in section 6.2, in a study among Medicaid-enrolled children in the U.S., those children who had their first preventive dental visit before they were two years old were more likely to have subsequent preventive visits. They were less likely to have subsequent restorative or emergency visits compared to children who had their first preventive visit at the age of two or three

years. The average dental-related costs for children who had received preventive care before the age of one year were approximately half of the costs for children who had received their first preventive care at the age of three to four years [73]. Some studies in the Nordic countries further indicate that in populations with an overall low level of caries occurrence, early risk-based prevention can be effective in reducing both costs and dental caries in pre-school children, provided that the screening and preventive measures are delegated to preventive dental assistants [114-117].

6.2 The Residential or Long-term Care Setting

As previously reviewed, providing oral health care to individuals in long-term care settings has beneficial effects for their oral and general health. As previously referred to, Yoneyama *et al.* have shown that by providing oral care in long-term care settings, the risk of developing aspiration pneumonia can be reduced [75]. Nevertheless, provision of both professional and personal oral care in these environments is difficult. Few dental providers provide mobile dentistry or deliver care in long-term care settings, and organizational policies and processes are difficult to establish and maintain [118, 119].

It is argued that an interdisciplinary approach that includes nurses, physicians, occupational therapists, and speech language pathologists in addition to dental hygienists, denturists, and dentists will improve knowledge and awareness and move oral health practices closer to best practice [120]. It is also recognized that unregulated health care providers, friends, families, and clients also contribute and should be included in this team approach [120]. In this regard, the Registered Nurses' Association of Ontario [120] and the Canadian Dental Association [121] suggest similar long- and short-term strategies to improve oral health and access to care for seniors. These strategies include:

- Educating seniors, families, and caregivers on the importance of maintaining good oral health.
- Developing mandatory oral health standards in long-term care facilities for daily oral care and annual access to professional care.
- Supporting collaboration among health care providers to promote oral health as part of overall health.
- Creating single point entry assessment instruments that include oral health when determining continuing care service needs.
- Supporting tax-based (income-tested) dental benefits for seniors in long-term care facilities and seniors with low incomes.
- Supporting training for facility staff on geriatric dentistry.
- Allocating space on-site with the appropriate dental equipment to provide preventive, surgical, and restorative care.

6.3 Poverty and Public Options

Historically, Canadian governments have supported oral health care for low-income individuals through the financing of direct and indirect delivery options, and through subsidies to middle- and high-income individuals through tax-support for non-wage benefits. Unfortunately though, as has been demonstrated in previous chapters of this report, this is insufficient to meet everyone's needs, resulting in significant gaps in care.

It can therefore be argued that there is a need to provide a more robust public option for those that cannot afford care in private dental practices. Right now, there are little to no public options available, even though recent research has shown that the lower a person's income, the greater the preference to access care in public, community health centre-type settings [48]. This is also supported by the fact that dentists in general are not satisfied with the fees paid to them by public programs, and sometimes are not willing to see publicly insured patients both because of these fees and their associated administration, and because of the qualities they perceive as problematic in these individuals (e.g., a lack of self-care, regularly missing appointments) [48, 122]. In this regard, renewed emphasis on direct delivery is arguably warranted.

In terms of tax subsidies for private health and dental plans, they already exist in Canada for unincorporated self-employed individuals. Yet this option needs to be promoted more broadly. That said, oral health care can still remain out of reach for many working poor families, and as above, broadening the base of public support for these families is also important.

The issue of fair financing also leads to considering the option of taxing supplementary health and dental benefits as is done in Quebec. This creates one potential source for funding expanded public programs aimed at those without insurance and those that experience difficulties in accessing oral health care. As reported in the 2002 Commission on the Future of Health Care in Canada, the estimated loss in revenue for all governments is approximately $4 billion dollars [54]. There are risks to this approach. The political costs might be significant, as the upper and middle class—who are the main recipients of supplementary health and dental benefit plans—may consider this a difficult tax benefit to lose. The dental profession may reject this proposal, noting the risk of reducing non-wage offers by employers and the rejection of these offers for straight cash by employees. For example, Finkelstein [55] has shown that after Quebec reduced the tax subsidy to employer-provided supplementary health and dental benefits by almost 60 per cent, there was a decrease of about one fifth in all supplementary benefits coverage as a result, and that the greatest impact was borne by smaller firms. For dentistry specifically, the drop ranged from six to eight per cent. Finkelstein also tested a smaller 1993 reform in Ontario, where the government imposed an eight per cent sales tax on group health and dental benefits. In this case, the drop ranged from four to eight per cent. Ultimately, from what is known about the potential new challenges in accessing oral health care among the middle class, the impacts of any reforms would have to be carefully studied. At the very least, they deserve serious attention and debate.

6.4 Administration and Payment in Public Programs

With so much professional dissatisfaction concerning the administrative processes and fees paid by public programs, governments could explore the potential to improve this aspect of their programs. Research suggests that rate increases for providers improve access to oral health care, but importantly, they are also not sufficient on their own. Easing administrative processes and engaging private dentists and patients as active partners in program improvement are also core elements of reforms. In the early 2000s, U.S. states such as Alabama, Michigan, South Carolina, Tennessee, Virginia, Indiana, and Washington introduced improved provider reimbursement—even doubling rates paid to providers in some cases—resulting in increased dentist participation and the number of patients treated by at least one third in the first two years. The fee increases, however, took place in the context of other administrative modifications that included improving supportive services and education and building partnerships with state dental societies [123, 124]. This is an area where mutually working on the often somewhat combative relations between government agencies and dental professional bodies could result in improved services for all stakeholders.

6.5 Making Oral Health Care Universal

Dental insurance or having coverage for the cost of dental care is the most dominant predictor of utilizing and accessing oral health care [7]. Research has shown that providing coverage has significant effects for those with low or no incomes. For example, Long showed that in one U.S. state, after the restoration of dental and other health benefits through Medicaid, the share of adults reporting high out-of-pocket costs and problems paying medical and dental bills dropped, those that reported not accessing oral health care because of cost decreased, and the number of low-income adults with a dental care visit increased [125]. In Thailand, which recently implemented universal financing for oral health care, Somkotra and Detsomboonrat showed that after implementation, there was an increased likelihood among the poor to access and utilize oral health care services at public and private facilities [126].

In Canada, the principle of universal coverage could be applied to oral health care, making it part of the national system of health insurance. This could be done wholly or partially, meaning coverage for the same "basket of services" could be extended to everyone, or a "small basket of oral health care services" could be extended to everyone with a more robust set of services extended to those who are deemed at risk. Nevertheless, while feasible, there are barriers to this approach in terms of international law, as agreements such as the *North American Free Trade Agreement* impose financial penalties for the appropriation of privately existing services into public authority (i.e., compensation would have to be paid to private corporations). At the very least, this could stimulate Canada to think about national standards for the delivery of publicly financed oral health care, an issue that is addressed below.

6.6 Allocation of Oral Health Care Services

Outcomes could be improved by having a more logical way of providing publicly financed oral health care to vulnerable populations. Dental care is currently haphazard and provided in a piecemeal fashion. If national standards and principles were agreed to by provinces and territories, a similar "basket of oral health care services" covering the medically necessary aspects of oral disease could be available across the country. This might be difficult to achieve as a result of the nature of Canadian governance and because few, if any, attempts have been made to determine what services should be covered. However, as a suggestion, such a set of services and interventions for minimum care could include those aimed at:

- The relief of pain and infection;
- The prevention of oral disease in children, pregnant women, and the institutionalized elderly; and
- The restoration of function.

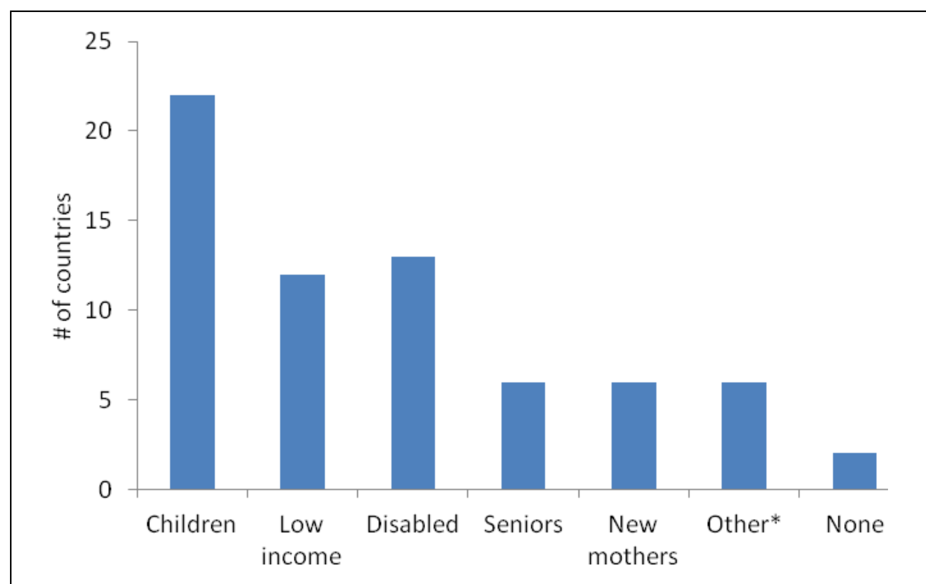

Figure 6.1 Priority populations by number of countries identifying them

Note: *Other included drug addicts, homeless, unemployed, incarcerated & military persons

Sources: Gift & Andersen (2007), Kravitz & Treasure (2009), Widström & Eaton (2004), Vanobbergen (2007), Holst (2007), and Steele (2009) [59-61, 127, 128].

A review of European Union countries demonstrates that many fund universal systems for health care (including oral health care) through general taxation or through compulsory contributions by employers and employees to national health insurance or "sickness" funds. Oral health care programs are either universal, or they prioritize populations (Figure 6.1), often identifying these populations explicitly, and providing

robust public service delivery options. In Canada, none of this is done. In some cases, these countries also identify the issues that services are intended to address (Figure 6.2), in effect defining principles for why they publicly finance oral health care (e.g., prevention, relief of pain, and infection); again, Canada falls short with its implicit approach. Ultimately, having a set of services and interventions for minimally acceptable care, and being specific about who should be eligible for these services, would move Canada's provinces and territories in the direction of standards for publicly financed oral health care, thus minimizing the lack of consistency across the provinces and territories.

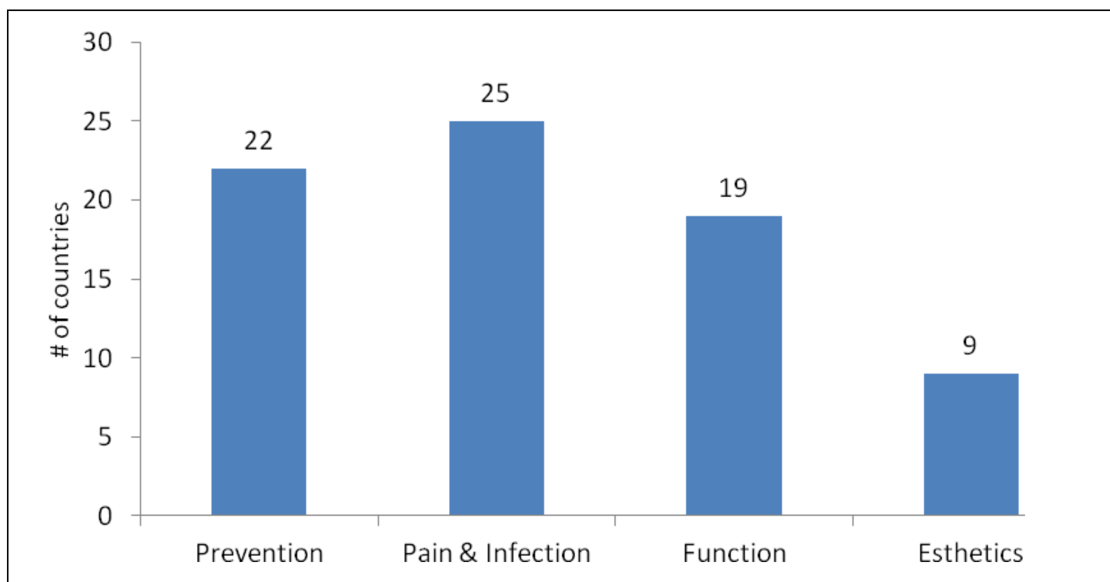

Figure 6.2 Service themes by numbers of countries in which they were identified (in most cases, services regarded as supporting and maintaining function as well as aesthetics were supported to a limited extent only)

Sources: Gift & Andersen (2007), Kravitz & Treasure (2009), Widström & Eaton (2004), Vanobbergen (2007), Holst (2007), and Steele (2009) [59-61, 127, 128].

6.7 Diversifying the Oral Health Care Workforce

Alternative means of dental service provision have proven beneficial, as previously noted in this report. The dental therapy model in Canada is the best example of this; however, this model of care is almost defunct [129]. This is unfortunate, as the dental therapy model, which is aimed at providing basic oral health care to children and emergency care to adults, has been shown to be successful. It could provide a model for improving access to many child populations beyond the limited jurisdiction in which it is currently allowed (i.e., Aboriginal reserves, the three territories, and Saskatchewan and Manitoba) [129, 130].

Indeed, the effectiveness of dental therapists was well documented early on, putting to rest professional criticisms on productivity and quality. For example, taking into account training, employment costs, and the annual value of services provided by dental therapists, one dental therapy position would pay for itself, at a minimum, in 2.2 years [131]. In fact, a cohort of four consecutive graduating classes paid for themselves in 3.5 years [132]. Furthermore, when compared to dentists in the same region, dental therapists had significantly higher mean quality level scores across basic restorative services [133]. When controlling for complexity, such quality continued to favour dental therapists [132]. Finally, from 1974 to 1980, the Saskatchewan Dental Health Plan was credited with controlling dental caries among the province's youth by reducing its incidence by approximately 25 per cent [134]. In the U.S., similar evidence more recently indicates that the work of "dental restorative auxiliaries" is as good as that of dentists [135]. In addition to the use of dental therapists, it should be possible to explore the use of dental hygienists in the delivery of fluoride varnish and fissure sealants, for example.

The involvement of other health and social service providers is also beneficial from the point of view of the common risk factor approach [136]. The clustering of risk factors for chronic diseases frequently occurs in the same individuals. For example, individuals who smoke are more likely to eat a diet that is high in fats and sugars but low in fibre, polyunsaturated fatty acids, fruit, and nutrient rich foods. They are also more likely to drink alcohol than non-smokers. These are all contributing factors to dental disease as well as several other chronic illnesses. This clustering of healthy or unhealthy behaviours suggests that preventive approaches should be directed at clusters of risk factors common to a number of diseases and the social structures that influence an individual's health. Nevertheless, in Canada, the integration of oral health (and oral health care) into the health care sphere has been slow if not absent. In the U.S., the factors influencing inadequate, poorly integrated oral health services in primary care have been noted to include private and third-party insurance for these services, inadequate public funding, workforce capacity constraints for underserviced populations, and a historical belief that oral health is secondary to overall health status [137].

Little research has actually been conducted to assess the benefits and health outcomes of patients cared for through collaborative team approaches [138]. Only one study on integrated primary dental and medical care was found, which showed that it can increase the amount of care patients receive, avoid discrepancies in patient information, and reduce the need for secondary referrals [139]. Taking a step back, however, it is important to note that oral health has had limited integration into medical education overall [140]. There are very few formal medical education and residency programs related to oral health, with many medical school graduates having inadequate training about oral diseases, risks for oral diseases, or instruction in the examination of the oral tissues [141]. Also, a systematic review [52] reported that there were no studies on the accuracy of primary care providers in identifying children aged zero to five years at elevated risk for future dental caries. However, three studies [142-144] found that after two to five hours of training, physicians and nurses were able to perform oral screenings

with a similar accuracy to that of dentists, and these screenings were suitable for the purposes of referral for a complete evaluation by a dentist. It is important to note that school-based screening and treatment programs also offer advantages for innovative, integrated approaches to improving the oral health of children. For example, delivering services in a location where children are grouped together and regularly attend (e.g., day care) may remove many of the barriers faced by low-income children and their parents [130, 145, 146].

6.8 The Role of Dental Education

The challenge of access to oral health care is partly a cultural issue [130, 147]. Like other professions, the dental professions have cultures and models of care that privilege those with dental insurance and those that can pay for oral health care without major difficulty. In this regard, efforts are needed to improve the willingness of dentists to treat low income populations by educating them in ways that address the specific challenges associated with these groups, and attempts to change the nature of their cultural indoctrination.

Importantly, undergraduate dental competencies recognize the needs of disadvantaged groups and the connection between oral and general health. The competencies of the National Dental Examining Board, the organization responsible for establishing and maintaining a national standard of competence for dentists in Canada, recognize that (among other competencies) "[a] beginning dental practitioner in Canada must be competent to:

- Recognize the determinants of oral health in individuals and populations and the role of dentists in health promotion, including the disadvantaged;
- Recognize the relationship between general health and oral health; and
- Demonstrate professional behaviour that is ethical, supersedes self-interest, strives for excellence, is committed to continued professional development and is accountable to individual patients, society and the profession."

Nevertheless, there is no specific mention of access to oral health care, and the achievement of equity in access cannot simply depend on the good actions of dental professionals. It must involve structural changes to dental education and to the oral health care system.

Across dental faculties globally, this has meant a stronger emphasis on public health and community education, whereby the issue of equity is given a stronger voice, and the training of dental students, while occurring in traditional "dental school teaching clinics," is increasingly being shifted to the community, usually in under-serviced areas. Whether this leads to a professional who is more aware of, and open to, contributing to reductions in health and health care inequalities is largely unknown. However, a study comparing students who experienced outreach situations to those in the traditional main clinic setting suggested that outreach experiences improved students' confidence in tackling clinical situations [148]. One study suggested that outreach situations help

students develop a more nuanced understanding of the complexity of the determinants of oral health [149]. Another study reported that young clinicians who as students experienced outreach situations felt that it was beneficial to their practice careers [150]. Whatever the case, in the end, an effort to change the cultural prerogatives of the dental profession will ultimately begin at its educational roots.

Furthermore, it is clear that if dentists are to provide dental care to under-served populations in non-traditional settings using alternative techniques, then dental schools have important responsibilities. They need to provide relevant training at both the undergraduate and postgraduate levels. They also need to collaborate with licensing bodies through the provision of appropriately accredited continuing education in these areas.

7 VISION, CORE PROBLEMS AND RECOMMENDATIONS

Given the contents of this report, the Panel has decided to outline a vision for oral health care in Canada, the core problems identified by the report and a collection of recommendations that are intended to provide a framework by which to address these problems. The stakeholders targeted by this report, and those who the Panel wishes to act on the recommendations, include:

- Federal, provincial, territorial, and municipal governments and governmental agencies;
- The dental professions, including dental professional regulatory bodies, professional associations, dental education, and research institutions, and other forms of "organized dentistry;"
- Physicians, nurses, and other health care professionals that regularly care for vulnerable groups; and
- The organizations or advocacy groups that represent vulnerable groups in Canada.

7.1 A Vision for Oral Health Care in Canada

The Panel envisages equity in access[1] to oral health care for all people living in Canada.

[1] By equity in access, the Panel means reasonable access, based on need for care, to agreed-upon standards of preventive and restorative oral health care

7.2 The Core Problems Identified in this Report

The following major issues have emerged from the Panel's investigation in relation to oral health and oral health care in Canada:

- Many low income, and even middle income, Canadians suffer from pain, discomfort, disability, and loss of opportunity because of poor oral health.
- Approximately six million Canadians avoid visiting the dentist every year because of the cost.
- There are significant income-related inequalities in oral health and inequity in access to oral health care.
- Those with the highest levels of oral health problems are also those with the greatest difficulty accessing oral health care.
- Income-related inequalities in oral health are greater than income-related inequalities in general health indicators.
- Income-related inequalities in oral health are greater in women than men.
- Inequalities in access to dental care are contributing to inequalities in oral health.

- Oral health is part of general health, with the same social, economic, and behavioural determinants, and with direct links between poor oral and poor general health.
- The vast majority of dental care is provided in the private sector, with only approximately six per cent of expenditure on dental care in the public sector.
- Private sector dentistry is providing good quality oral health care for a majority of people living in Canada, but it is not a good model of health care provision for the vulnerable groups who suffer the highest levels of oral health problems.
- There is no consensus on standards of oral health care provision among federal, provincial, territorial and municipal governments in Canada. The small proportion of publically-funded oral health care services provided across the country varies enormously between jurisdictions.
- There is no consensus among federal, provincial, territorial and municipal governments across Canada on the use of a range of dental and other health care professionals that might improve access to oral health care services, particularly for groups suffering the greatest burden of oral diseases.
- In Canada, tax legislation helps reduce the financial burden of dental care for those with private dental insurance. Those without such insurance do not have this benefit, yet these are the groups with the highest levels of disease and the greatest difficulty accessing dental care.

These issues can be distilled to the following core problems:

- Vulnerable groups living in Canada have both the highest level of oral health problems and the most difficulty accessing oral health care; and
- The public and private oral health care systems in Canada are not effective in providing reasonable access to oral health care for all vulnerable people living in Canada.

7.3 Recommendations to Address the Core Problems and Achieve the Vision

The recommendations designed to address the core problems identified in this report are grouped into a framework that provides a logical order of priority, proceeding as follows:

A. Communicate with relevant stakeholders concerning the core problems raised in the report.

B. Establish appropriate standards of preventive and restorative oral health care to which all people living in Canada should have reasonable access.

C. Identify the health care delivery systems and the personnel necessary to provide these standards of oral health care.

D. Identify how provision of these standards of preventive and restorative oral health care will be financed.

E. Identify the research and evaluation systems that monitor the effects of putting these recommendations into place.

As an aid to making progress, the Panel also identified groups that should be acting on the recommendations, either within the wording of the recommendations or identified at the end of each one. The recommendations are therefore expanded as follows:

A. Communicate with relevant stakeholders concerning the core problems, to enable mutual understanding of the report's findings and initiate discussions to address the recommendations.

i. Communicate the findings of this report with representatives of relevant vulnerable groups and obtain their input to contextualize them.

ii. Communicate the findings of this report with relevant dental and other health care professional groups and obtain their input to contextualize them.

iii. Communicate the findings of this report with relevant federal, provincial, territorial, and municipal government agencies and obtain their input to contextualize them.

iv. Communicate the findings of this report with relevant private sector stakeholders (e.g., health insurance companies) and obtain their input to contextualise them.

B. Engage with relevant decision-making, professional, and client/patient groups to develop evidence-based standards of preventive and restorative oral health care to which all people living in Canada have reasonable access.

i. Engage vulnerable groups and their representation as partners in order to identify their needs for standards of oral health care.

ii. Engage with the dental professions to identify their views on what evidence-based standards of oral health care should be.

iii. Engage with federal, provincial, territorial, and municipal government and other public agencies to identify their views on what agreed-upon standards of oral health care should be.

C. Plan the personnel and delivery systems required to provide these standards of oral health care to diverse groups, in a variety of settings, with particular attention to vulnerable groups.

i. Create or enhance public options for oral health care in alternative service settings, such as community health centres, institutions for elderly people who are non- and semi-autonomous, long-term care settings for those with handicaps, etc. *(Targets: community health centres; centres for the elderly and those with handicaps.)*

ii. Deliver simple, preventive oral health care for children in non-dental settings and dental offices so that children get a good start in life. *(Targets: pediatric dentists, physicians, nurses and other pediatric health professionals; dental hygienists; preschool institutions; primary schools.)*

iii. Develop domiciliary and other "outreach" oral health care for those with difficulties accessing private dental offices or community services, for example, on-site services for the institutionalized elderly. *(Targets: geriatricians, dentists and other health professionals caring for the elderly; dental hygienists; institutions for the elderly and handicapped.)*

iv. Renew the role of dental therapy, review the use of dental hygienists, and explore the use of alternative providers of oral health care to ensure that cost-effective care is provided in settings not currently served by dental professionals. *(Target: provincial governments; dental regulatory bodies; dental therapists; dental hygienists.)*

v. Provide explicit training for oral health care professionals in versatile approaches to oral health care delivery for a variety of vulnerable groups. *(Targets: Association of Canadian Faculties of Dentistry [ACFD]; dental schools; dental hygiene colleges; Commission on Dental Accreditation of Canada.)*

vi. Promote and deliver continuing education that equips practicing professionals with the knowledge and skills to understand and treat the oral health care needs of vulnerable groups. *(Targets: dental schools; dental hygiene colleges; Canadian Dental Regulatory Authorities Federation; provincial dental regulatory bodies.)*

vii. Promote the inclusion of relevant oral health and oral health care training in non-dental training programs, such as medicine and nursing. *(Targets: Canadian Association of Schools of Nursing; Association of Faculties of Medicine of Canada.)*

D. Review and provide the financing of necessary personnel and systems and create mechanisms to ensure the availability and prioritization of funds for the provision of agreed-upon standards of oral health care.

i. Establish more equity in the financing of oral health care by developing policy to promote dental insurance that promotes evidence-based practice among all employers, employees, and self-employed people, including those working in non-traditional work arrangements. *(Targets: federal, provincial, and territorial governments; insurance companies; employers' associations; workers' associations; unions.)*

ii. Review the legislation concerning tax treatment for employment-based dental insurance to address the lack of tax benefits for those without

insurance. *(Targets: federal, provincial, and territorial governments; employers' associations; workers' associations; unions)*

iii. Review the fees paid for oral health care to ensure that they are fair for both provider and patient, and incentivize the provision of care based on evidence. *(Targets: federal, provincial, and territorial governments; dental profession.)*

iv. Prioritize the financing of interventions where there is strong evidence of therapeutic effect and social gain (e.g., community water fluoridation and fluoride varnish), with disinvestment from interventions where there is weak or no evidence of effectiveness (e.g., routine teeth scaling in healthy individuals) or evidence of more effective and efficient alternatives. *(Targets: federal, provincial, and territorial governments; dental profession; ACFD; dental schools.)*

E. Monitor and evaluate publically funded oral health care systems that are designed to improve access to agreed-upon standards of care for all people living in Canada.

i. Create effective data collection and information systems for use in answering policy-relevant questions, using appropriate outcome indicators. *(Targets: federal, provincial, and territorial governments; Canadian Institutes of Health Research [CIHR]; ACFD; dental schools; dental profession.)*

ii. Develop a more integrated approach to generating and translating knowledge into evidence to provide more effective oral health care for vulnerable groups. Government agencies, health care professionals, researchers, educators, and those representing the client groups and organizations involved in care need to create networks to enable the development, implementation, and evaluation of standards of care. *(Targets: federal, provincial, and territorial governments; CIHR; ACFD; dental professions; client group representatives; insurance companies)*

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