The First Nations Oral Health Strategy

Prepared for the First Nations NIHB Caucus, Assembly of First Nations

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October 15, 2010

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List of Abbreviations

AAGR	annualized average growth rate
ART	alternative restorative treatment
CDHA	Canadian Dental Hygienists Association
COHI	Children's Oral Health Initiative
ECC	early childhood caries
FFS	fee for service
FNIH	First Nations and Inuit Health
FNIHB	First Nations and Inuit Health Branch
FNIOHS	First Nations and Inuit Oral Health Survey
GA	general anaesthetic
GNWT	Government of the Northwest Territories
INAC	Indian and Northern Affairs Canada
NIHB	Non Insured Health Benefits
P&PH	Prevention and Public Health
PHCPH	Primary Health Care and Public Health
PHCPHD	Primary Health Care and Public Health Database
RHA	regional health authority
RHS	First Nations Regional Longitudinal Health Survey
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
WHO	World Health Organization

Executive Summary

Oral health is an integral component of physical, mental and social wellbeing. It has a primary role in preventing tooth loss and subsequent malnutrition. Poor oral health can cause pain and diminished quality of life, and contribute to diabetes, cardiovascular disease and lung disease. Arguably as important, is its effect through crooked and poorly positioned teeth, on the self esteem and mental wellness of children, youth and adults.

First Nations have high dental needs, as reported in the First Nations Regional Longitudinal Health Survey (RHS) and other surveys. The reasons for poor oral health is thought to be associated with the socioeconomic environment, though a myriad of psychosocial, economic, environmental and political factors that can influence an individual's stress levels and lifestyle choices in dental hygiene and diet. Geographic location can also limit access to timely dental care needed to prevent the exacerbation of cavities and periodontal disease.

Compared to the general Canadian population, First Nations are less likely to access dental services. On a per capita basis, dental costs are 55% of what the Canadian population spends on dental services. The introduction of the Children's Oral Health Initiative (COHI) to supplement Primary Health Care and Public Health (PHCPH) dental providers in First Nations communities has increased access by children to dental hygiene and oral health promotion services, and raised the percentage of 0-4 year old children who have caries free teeth. However, the severity of need remains as over one quarter of children less than five years old who receive services from PHCPD dental providers had eight or more decayed teeth in 2008/09. Early childhood caries is a serious health issue among First Nations children, and has been estimated in this report to cost over $16 million annually to federal, provincial and territorial health systems.

Other issues facing First Nations as they seek to improve their oral health include the Non Insured Health Benefits (NIHB) Program policy on extracting posterior second molar teeth (unless needed for stable occlusion) rather than using tooth saving measures, the limitations of orthodontic care to include only severe and functionally handicapping malocclusions, the lack of COHI services in many First Nations communities, administrative barriers which discourage dentists from participating in the NIHB Program, and limited access of communities to dental hygienists and dental therapists.

Teeth for Life

The overarching goal of this First Nations Oral Health Strategy is to improve oral health in First Nations communities through a multi-pillared "Teeth for Life" approach, which combines health promotion and disease prevention activities, a more responsive dental health workforce, NIHB policies that prioritize prevention strategies and saving teeth over extraction, and increased collaboration and partnerships among all stakeholders involved in providing dental services to First Nations communities.

This Strategy is based on a model of client-centred care, which positions First Nations as full participants in the type of care they receive.

This Strategy is described through seven goals and 45 priority actions:

Goal #1: To Advance the Message of "Teeth for Life" and Decrease the Number of Persons with Decayed or Missing Teeth
Seven priority actions have been developed to increase awareness of oral health promotion and the benefits of good oral health, including its relationship to mental wellness and positive self esteem. These include healthy food policies, a holistic approach and consistent messaging in oral health education, culturally sensitive and community designed oral health promotion approaches, and a Teeth for Life foundation to NIHB policies.

A further five priority actions specifically address the reduction of oral caries rates among infant and young children.

Goal #2: To Increase Capacity in the First Nations Community Dental Health System
Currently, the demand for First Nations dental hygienists and dental therapists is greater than their available supply. To increase the number of these dental health providers, six priority actions have been developed and include an emphasis on attracting high school students to these professions, career laddering opportunities, and advocating for the licensing of dental therapists in all provinces.

Goal #3: To Increase Access to Oral Health Prevention and Treatment Services for all First Nations regardless of age and geographic location.
Ten priority actions targeting increased access to services have been identified for Health Canada's implementation. These range from allowing dental hygienists to bill the NIHB Program independently, to improvements to the medical transportation policy (such as allowing travel for non-urgent dental appointments), changes to denture and denture lining policies on frequencies of benefits, removal of the predetermination requirement for posterior endodontic care, improved access to orthodontic care, and the provision of salaried or flexible options for dental providers in the NIHB Program.

Goal #4: To Improve the Administration of the NIHB Program
The objectives of improving timely access to services, ensuring service based on need, retaining dental providers and ensuring transparency of the Program to its clients have formed the basis of four priority actions for improving administration of the NIHB Program.

Goal #5: To Increase First Nations Access to Fluoridated Water
As part of a comprehensive approach to lowering the rate of tooth decay among First Nations, three priority actions focus on awareness, advocacy and collaboration initiatives to provide fluoridated treatment to community water systems.

Goal #6: To Increase Collaborative Care, Integrated Policy Development and Resource Sharing
Six diverse priority actions address collaboration and integration of oral health care at clinical, regional, interjurisdictional and policy levels.

Goal #7: To Increase Access to Information and Research on First Nations Oral Health Status and Service Utilization
Surveillance and research are essential functions of public health as they assist in the understanding of the impact of efforts to improve oral health and reduce the impact of disease. Four priority actions related to information and research are provided and include building an accessible national evidence base of First Nations oral health, conducting research into the health and social effects of oral disease on the lives of First Nations, developing community-based responses for the prevention and treatment of oral disease, and developing performance measures for an oral health promotion and prevention program.

Introduction

The challenges First Nations communities face in terms of a health burden are well known and documented. Diabetes, cardiovascular disease, arthritis, and injuries lead the list of health conditions disproportionately affecting First Nations. Less known, but arguably as important, is the impact of oral disease on First Nations health and wellness. Indeed, many persons accept cavities and missing teeth as part of life, and most are not aware of the effect of oral disease on overall health, and its role in diabetes, cardiovascular disease, and lung disease.[1] Oral health has a primary role in preventing malnutrition in seniors, and in self esteem and mental wellness of youth who have crooked and poorly positioned teeth from the premature loss of their primary teeth through early childhood oral disease.

If viewed through a holistic lens such as what the World Health Organization (WHO) has defined for health, then oral health is a contributor to "a completes state of physical, mental and social well being, and not just the absence of infirmity."[2] Oral health means a healthy and pain-free mouth and all related structures in the head and neck, including jaw joints and swallowing which are fully functioning.

Oral disease is an infectious disease (caries) which results in cavities in primary teeth. Caries are caused by bacteria which use sugars in food to produce acid to break down tooth enamel through demineralization. In infants and young children, caries can start early when teeth are most vulnerable and are least protected by the mouth's saliva. This type of oral disease is called early childhood caries (ECC), and is characterized as severe and rapidly progressing. It has various other names, such as baby bottle tooth decay, nursing caries, and milk bottle caries. These names reflect the decay-promoting practice of allowing infants to keep a bottle, sometimes containing sugary drinks, during the night.

The battle against oral disease is being waged at the community level through early detection and treatment, coupled with organized health promotion and disease prevention activities. These involve screening tools for care providers, recommended activities to totally prevent oral disease among infants and toddlers, fluoride varnishes for young children, as well as treatment to deal with existing disease. Recently a draft First Nations and Inuit Oral Health Strategy (FNIOHS) was developed by Health Canada, building on the success of the Children's Oral Health Initiative (COHI) in First Nations communities. Early evidence is demonstrating a lowered caries rate in communities that have implemented an organized COHI approach for some years. Through it and the FNIOHS, the importance of focusing early preventative care on children has been recognized. The FNIOHS provides a government perspective on required changes to improve children's

[1] http://www.cdha.ca/AM/Template.cfm?Section=Oral_Care_Home
[2] [2] Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

oral health.[3] The First Nations Oral Health Strategy which is offered in this document is not meant to replace the Health Canada strategy, rather provide a complementary view of improving oral health from a First Nations perspective and recognize the great need in *all* age groups to receive dental preventative and treatment services. It is desired that a collaborative approach be taken to marry these two views and contributions to First Nations oral health care in order to develop a synergy and momentum for greater change.

Context

Caries is important contributor to oral disease throughout life. If ignored in its early stages, it can cause pain, diminished quality of life and ultimately teeth extractions. However, the most prevalent chronic oral disease is periodontitis, which can affect all age groups, but is most often associated with adults and seniors.[4] It is an inflammatory condition of the tissues that surround and support the tooth, ultimately resulting in bone loss and tooth instability. The loss of bone occurs through the combination of a bacterial infection and the body's immune response. If the periodontitis is not severe, it can be controlled by deep cleaning treatments and medication. The management of severe periodontitis, when the bone loss becomes critical, is tooth extraction.

Other less common oral diseases include chronic oral-facial pain conditions, oral and pharyngeal (throat) cancers, oral soft tissue lesions, birth defects (e.g. cleft lip and palate), and many others that can affect the oral, dental and craniofacial tissues (e.g. salivary glands, jawbones and their joints).[5]

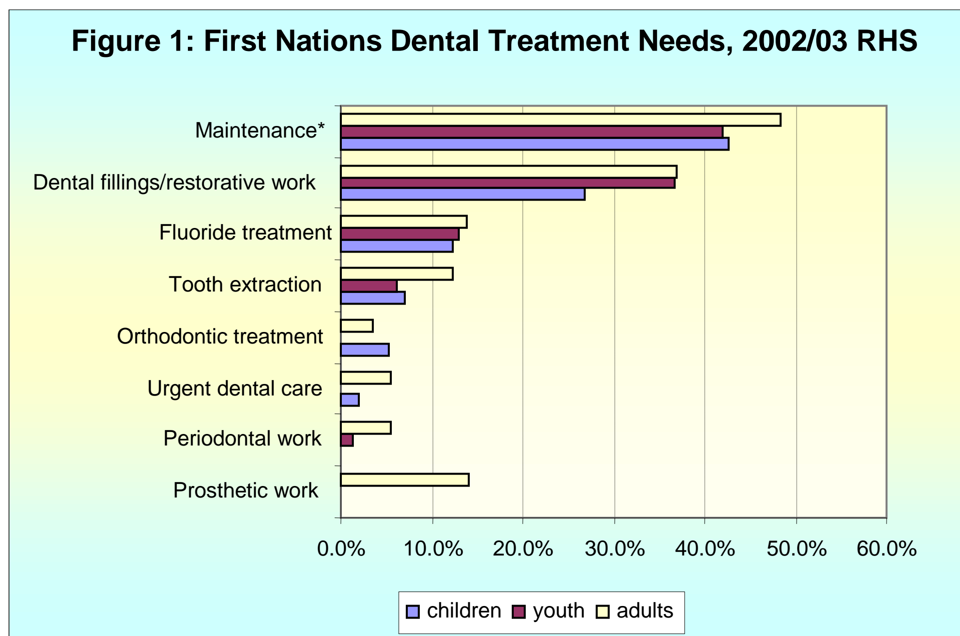
Dental Needs

In measures of caries and periodontitis, First Nations children, adults and elders fare much more poorly than other Canadians. The two landmark surveys of First Nations and Inuit children's oral health were undertaken in 1990/91 and 1996/97. Aside from documenting elevated rates of oral disease among this population, the two reports showed no improvement in tooth decay rates in this six year period.[6] Most recently, Health Canada acknowledged that the dental decay rates for First Nations and Inuit people which range from three to five times greater than for the rest of the Canadian population, are not

[3] First Nations and Inuit Health Branch. 2009. *Building an Integrated Oral Health Program: First Nations and Inuit Oral Health Strategy, draft for discussion only*, *November 29*. Ottawa: Health Canada.
[4] Ismail AI, Lewis DW and Dingle JL. Periodic health examination, 1995 update: 2. Prevention of dental periodontal disease. The Canadian Task Force on Preventative Health Care. www.ctfphc.org
[5] US Public Health Service. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General.* Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.
[6] Leake JL. *Report on the Oral Health Survey of Canada's Aboriginal Children Aged 6 and 12*. Toronto: University of Toronto, Department of Community Dentistry. 1992.
2. Saskatchewan Indian Federated College, National School of Dental Therapy. Report on the 1996-1999 Oral Health Survey of First Nations and Inuit Children in Canada. Ottawa: Minister of Public Works and Government Services Canada. 2000.

improving. Furthermore, children have heaviest burden of disease, and their rate does not meet the WHO goal of 50% of children entering school caries free.[7]

The First Nations Regional Longitudinal Health Survey (RHS) is the largest, most inclusive survey that measures health status and health needs of First Nations communities. In 2002/03, it included 10,962 adults (18+ years), 4,983 youth (11-17 years) and 6,657 children (0-11 years) in 238 communities throughout all provinces, NWT and Yukon. RHS data on self-reported dental treatment needs for all age groups are displayed in Figure 1. (Note: Annex 1 provides data tables for all displayed figures.) All age groups showed similar types of unmet needs. From 42% to 48% of respondents said they needed maintenance-type services such as check ups or teeth cleaning, followed by 27% to 37% who said that dental fillings or other types of restorative work (e.g. crowns) were needed. Fluoride treatment was a cited need in 12% to 14% of the respondents, and tooth extraction needs ranged from 7% to 12%. Of note, prosthodontic work was needed by 14% of adult respondents.



Source: First Nations Information Governance Committee. 2007.

Compared to its previous survey cycle in 1997, the 2002/03 RHS reported a dramatic increase in the rates of dental treatment among adults. The need for periodontal work increased by fourteen times, maintenance by almost six times, and restorative, extractions and prosthetic work by over two times each in this five-year period. The need for urgent care showed the most dramatic increase, from 0.2% in 1997 to 5.5% in 2002/03, or 27.5 times greater.[8]

[7] First Nations and Inuit Health Branch. 2009.

[8] *First Nations Information Governance Committee. 2007. First Nations Regional Longitudinal Health Survey 2002/03. Results for Adults, Youth and Children Living in First Nations Communities. Ottawa: Assembly of First Nations*

Factors behind High Dental Need

The reason for elevated rates of oral disease and dental treatment need is thought to be pivotally associated with the environment – both social and geographic aspects. On one hand, the low socio-economic conditions in many First Nations communities – poor housing, high unemployment combined with lack of education and the high cost of living in remote communities - predispose individuals to have poorer oral health. A myriad of psychosocial, economic, environmental and political factors can influence individuals' lifestyle choices in dental hygiene measures and diet, and their levels of stress, and thereby have an effect on dental decay.[9] Stress's influence is biologic (increased production of cortisol that may produce dental vulnerabilities in the mouth) and psychosocial (lifestyle choices influenced by socioeconomic determinants).[10] A diet which is low in refined, additive sugar is necessary to limit the growth of bacteria, as the intake of extrinsic sugars beyond four times a day lead to an increase risk of caries.[11] Nutritious food choices are not always voluntary, given the high cost and limited variety of healthy foods in northern communities.

The 2002/03 RHS adult component probed health determinants which had an impact on the accessibility of dental care. It showed that the highest percentages of people indicating 'lack of dental care' were obtained from those who did not graduate from high school (compared to college degree completion), were unemployed (compared to working full-time), had poorer self reported health status, and were more likely to have disability and activity limitations.[12] This same disparity based on income was reported for the general population in the Oral Health Module of the Canadian Health Measures Survey 2007-2009. In this survey, Canadians from lower income families had two times worse outcomes compared to higher income families in a range of outcome measures including decayed, missing or filled teeth among adolescents; edentulism, and prevalence of untreated caries. As well, lower rates were seen in lower income families for dental visits, use of sealants and orthodontic care.[13]

On the other hand, elevated oral disease rates can also be directly attributed the impact of geography on limiting access to dental care. Much of geographically remote and isolated First Nations communities' dental care is obtained through visiting dental providers. Communities may access these visiting services every few months, or only twice a year. Travel can be difficult, particularly in the winter months and recruiting a sufficient number of dentists to travel north is also not easy. Clinic space and equipment must be properly maintained for the intermittent visits, which are often months apart. Dental care,

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[9] Bunton R et al. "Theories of behavioral change and their use in health promotion: some neglected areas." *Health Education Research*. 1991; 6(2):153-62.
[10] Boyce T. *Socio-biological Health Promotion: The Care of Dental Health Disparities*. IUHPE Pre-Conference Symposium, Vancouver, June 2007.
[11] Sheiham A. "Dietary effects on dental disease." *Public Health Nutr*. 2001; 4(2B):569-91.
[12] First Nations Information Governance Committee. 2007.
[13] Cooney, P. 2010. *Report on the Findings of the Oral Health Module of the Canadian Health Measures Survey 2007-2009*. Presentation to the Oral Health Workshop: How Human Resources Impacts Access to Care in Remote Communities. May 18-19.

when it arrives, is triaged to the most urgent, and not surprisingly directed towards restorative care, leaving little time for preventative interventions to promote healthy dental practices among children, youth, or adults. In the 2002/03 RHS, 57% of adult persons living in isolated communities had not had dental care within the previous year, as compared to 38% of those living in non-isolated communities. The same trend towards decreasing access and/or greater dental need in remote and isolated communities was seen in the youth and children surveys.[14] This lack of access is worse than in the general population, where only 25% (all ages) in 2007-2009 had not seen a dental professional in the past year.[15]

The end result of decreased access is that persons may go for longer periods without seeing a dentist. At the extreme end of the access spectrum, 10% of First Nations reported in the 2002/03 RHS that they had last seen a dentist five years ago or longer.[16] In the general population, only 1.1% reported that they had last been to a dentist over five years ago.[17]

Utilization of Dental Services

In the provinces, dental services to First Nations communities are provided via a mixture of private practice dental providers, Health Canada employed or contracted dental providers, and First Nations employed or contracted dental providers. In the territories, First Nations communities also receive dental services from territorial government employees. Dental providers are dentists, dental specialists, denturists, dental therapists and dental hygienists. In the NIHB Program, the latter two operate under the purview of a dentist. In addition, in 270 First Nations communities with operational COHI services in 2009/10,[18] community trained workers assist in the delivery of COHI services to children aged 0-7 years. Their services include the application of fluoride to children's teeth and oral health promotion to families.

The largest component of this varied dental provider landscape is private practice dentists and dental specialists who, through fee for service (FFS), account for 83.5% of the dental expenditures in the Non Insured Health Benefits (NIHB) Program which provides dental, pharmacy, vision and medical transportation benefits to First Nations.[19] The majority of FFS billings are for direct dentist/specialist/denturist care, but some of these professionals also bill for services of dental therapists or dental hygienists in their employ.

Dental therapists deliver basic clinical care, emergency and preventative services in communities. They are an essential component of an optimally staffed and resourced

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[14] First Nations Information Governance Committee. 2007.
[15] Cooney. 2010.
[16] First Nations Information Governance Committee. 2007.
[17] Information provided by the Canadian Dental Association, March 26, 2010, from an internal analysis of 2003 Canadian Community Health Survey data.
[18] Doiron, A. 2010. Presentation to the Oral Health Workshop: How Human Resources Impacts Access to Care in Remote Communities. May 18-19.
[19] First Nations and Inuit Health Branch. 2009.

dental care continuum. Dental hygienists round out the professional staffing component in prevention as they provide basic dental hygiene through tooth cleaning and prevention education.[20] The complement of dentists, dental therapists, dental hygienists and COHI aides[21] who are either employees or under contract to Health Canada is the next largest group delivering dental services to First Nations communities, and are commonly described under Primary Health Care and Public Health (PHCPH) initiatives.

NIHB Program

Information on First Nations utilization of dental services is most extensive for the FFS dental providers and is captured in the NIHB database. This database allows a tracking of:

- individual utilization changes (e.g. the number of dental claims submitted by claimants on average every year);
- population changes (e.g. the number of claimants in the NIHB eligible population or the "claimant rate"); and
- expenditure changes (e.g. the average cost of services on a per claimant or per claim basis).

Figures 2 through 4 illustrate the recent changes in these indicators between 2004/05 and 2008/09 using data obtained from the NIHB Program. In Figure 2, the First Nations claimant rate is depicted. In 2008/09, the rate was 36.2% of the eligible NIHB population, with little variation seen in the previous four years. By age group, the rate ranged from 31.9% for 0-4 year olds to 42.5% for those aged 10-19. The overall rate (36.2%) increases to approximately 50%,[22] when other lesser intensity FNIHB services are included.[23] By comparison, in the Canadian population aged 12 and older, 63.7% consulted a dentist in 2005, with the highest rate (78.6%) in the 12-19 age group, and the lowest in the 75 years and older age group (40.8%).[24] Thus, Canadians are approximately twice as likely to have visited a dentist compared to First Nations who have demonstrably higher dental needs.

The data in Figure 2 show that the 0-4 and 5-9 claimant rates were essentially unchanged until 2008/09 when a large increase in the 0-4 claimant rate was counterbalanced by a similar decrease in the 5-9 claimant rate. This indicates that a shift in service occurred in that year of 6,000 to 7,000 children nationally, from kindergarten/grade one age children to infants and toddlers.

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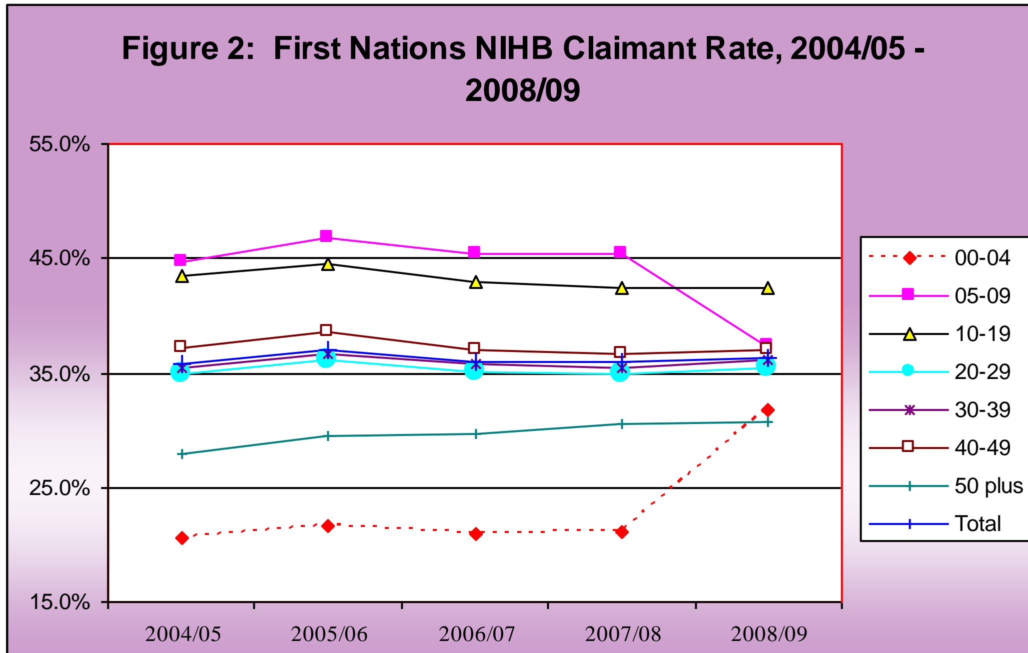
[20] Dental hygienists can also provide periodontal disease treatment, denture cleaning, oral cancer screening and tobacco cessation services.

[21] COHI aides may also be funded through Contribution Agreements to First Nations communities; however their services are captured as part of PHCPH data.

[22] Health Canada. 2008/09 *NIHB Program Annual Report*.

[23] These services include: Health Canada dental clinics (except in Yukon), contract oral health services in some regions, PHCPH services (dental therapists, COHI service providers) and oral health services provided through contribution agreements, pilot agreements or self government agreements.

[24] Information provided by the Canadian Dental Association, March 26, 2010.



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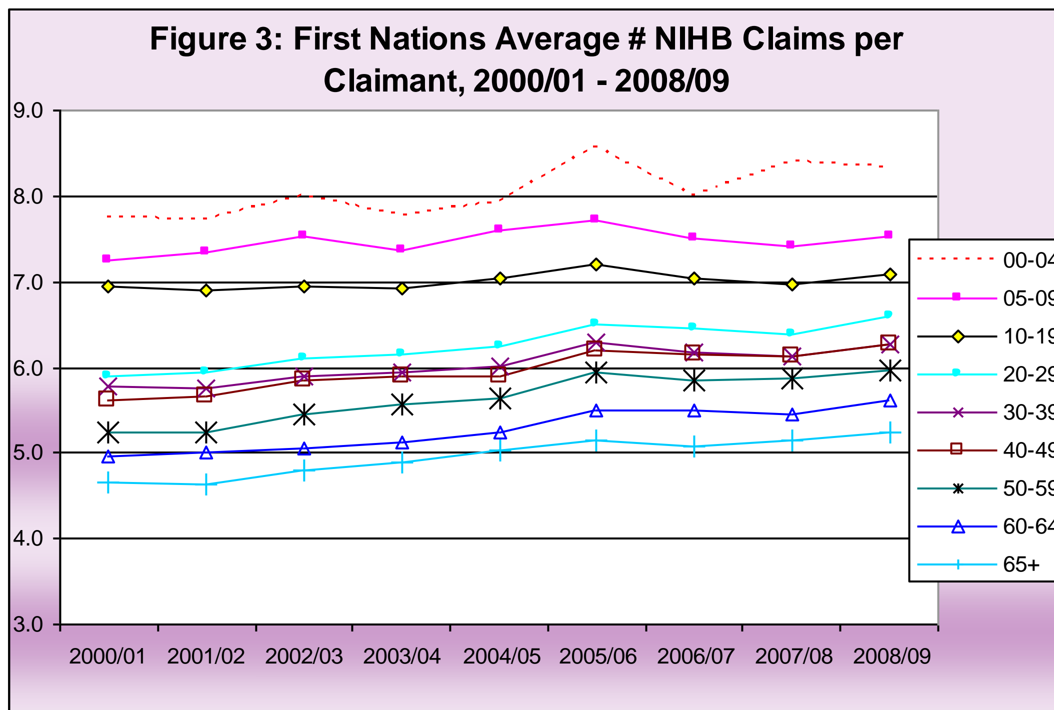

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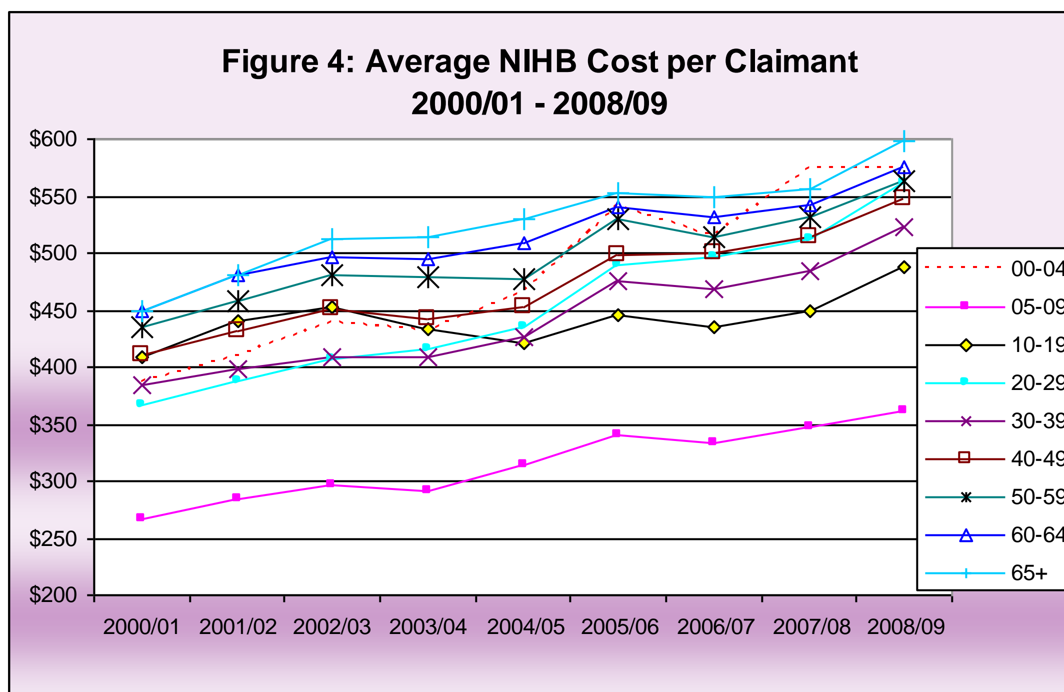

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In Figure 3, the higher utilization rates of children and youth, which average between 7 and 8 claims per person for the time period 2000/01 to 2008/09, are illustrated compared to older age groups who average from 4 to 6 claims per person. The number of claims for persons aged 20 and greater has risen slowly, with an annualized average growth rate (AAGR) of 1% to 2%, whereas children and youth had a fluctuating and more modest growth of less than 1% annually.

The average cost of care to claimants has consistently increased for all age groups from 2000/01 to 2008/09, with an overall AAGR of approximately 4% for First Nations over the time period (Figure 4). Figures 3 and 4 illustrate two basic characteristics of dental services: the intensity of care decreases through the life span, whereas the cost of care increases. The one exception is the high cost of care to 0-4 year olds, which is related to the incidence of ECC in this age group.

Average First Nations per capita FFS NIHB costs for the entire eligible population were $183.94 in 2008/09. The national per capita NIHB dental expenditure was $211 in this year,[25] or 55% of what was spent by the general Canadian population on dental services ($380.83) in 2009.[26]

Per capita dental expenditures are higher in other federal dental plans than in the NIHB Program except for Citizenship and Immigration Canada and Veterans Affairs Canada. In 2006/07, per capita dental expenditures in these plans ranged from $228 at the Department of National Defense to $503 at the RCMP (Table 1).

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[25] Health Canada. *2008/09 NIHB Program Annual Report*.
[26] Information provided by the Canadian Dental Association, March 26, 2010.

Table 1: Dental Care Expenditures, Federal Health Care Partnership 2006/07

	Eligible Clients	Expenditures	Expenditures per Eligible Client
Citizenship and Immigration Canada (CIC)	7,760	$1.1 million	$142
Correctional Services Canada (CSC)	12,671	$3.1 million	$245
Department of National Defence (DND)	94,056	$21.4 million	$228
Health Canada (NIHB)	779,950	$143.2 million	$184
RCMP	20,360	$10.24 million	$503
Veterans Affairs Canada (VAC)	134,000	$19.6 million	$146

From: Federal Healthcare Partnership 2007. Annual Report 2006/07.

Primary Health Care and Public Health

A second source of utilization information is the PHCPH database (PHCPHD) which covers Health Canada employee and contract provider dental services, and COHI aides who are supervised by dental therapists and dental hygienists. The PHCPHD has documented the progress of COHI since its inception in 2004. An impressive increase in the number of persons served by COHI and dental therapy has been seen, from 20,220 in 2004 to 31,358 in 2007. This rise of 55.1% in claimants was associated with an increase of $3.3 million in expenditures, as the cost per person rose from $31.58 in the school year 2002/03 to $125.49 in the school year 2006/07.[27] The number of new clients has leveled in more recent 2008/09 data as is shown in Figure 5, and could indicate that capacity has been reached among the PHCPH providers and COHI sites, and excess dental service need in infants and toddlers has been transferred to the FFS providers as Figure 2 above suggests.[28]

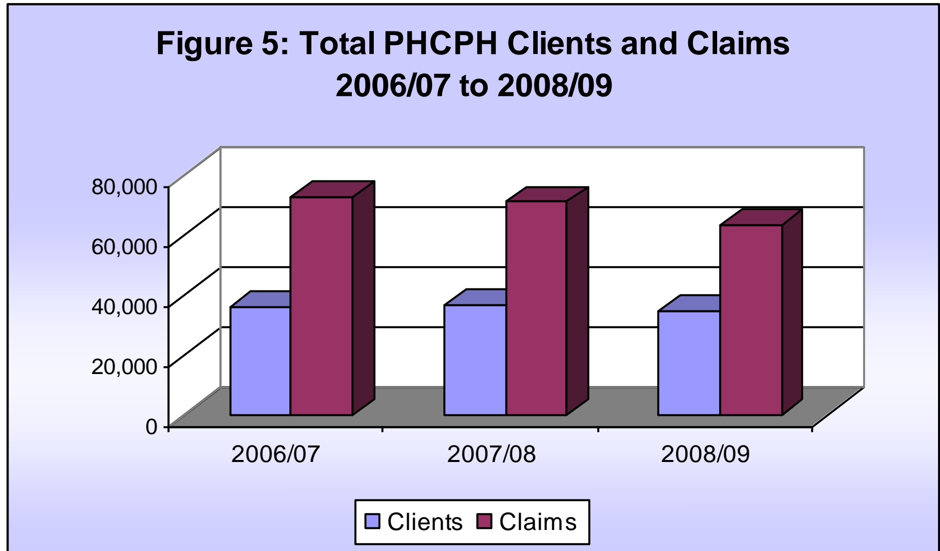
Decay Rate

Data from COHI provided by PHCPH indicate that this initiative has been successful in reducing caries rates for children. As Figure 6 demonstrates, the percent of 0-4 year old children in the PHCPHD with caries-free teeth has increased from 39.4% in 2006/07 to 44.4% two years later. Encouragingly, the percentages of children showing two or more decayed teeth have decreased in this time period. However, the severity of need among First Nations children remains, as the data in the figure show that in 2008/09 over one quarter of children younger than five years of age who receive services from PHCPH dental providers still had eight or more decayed teeth.

Health Canada Alberta Region's Care for a Smile Program which has served as a model for COHI has had a longer time period from which to document success. In 1999/00, no children enrolled in this program were without decay. In 2006/07, 24% of grade 2

[27] First Nations and Inuit Health Branch, 2009. Table 3, page 16.

[28] In the intervening one to two months since the PHCPH data was received, a small number of late submissions have been added to the 2008/09 database, but not in sufficient numbers to suggest a different interpretation of this data.



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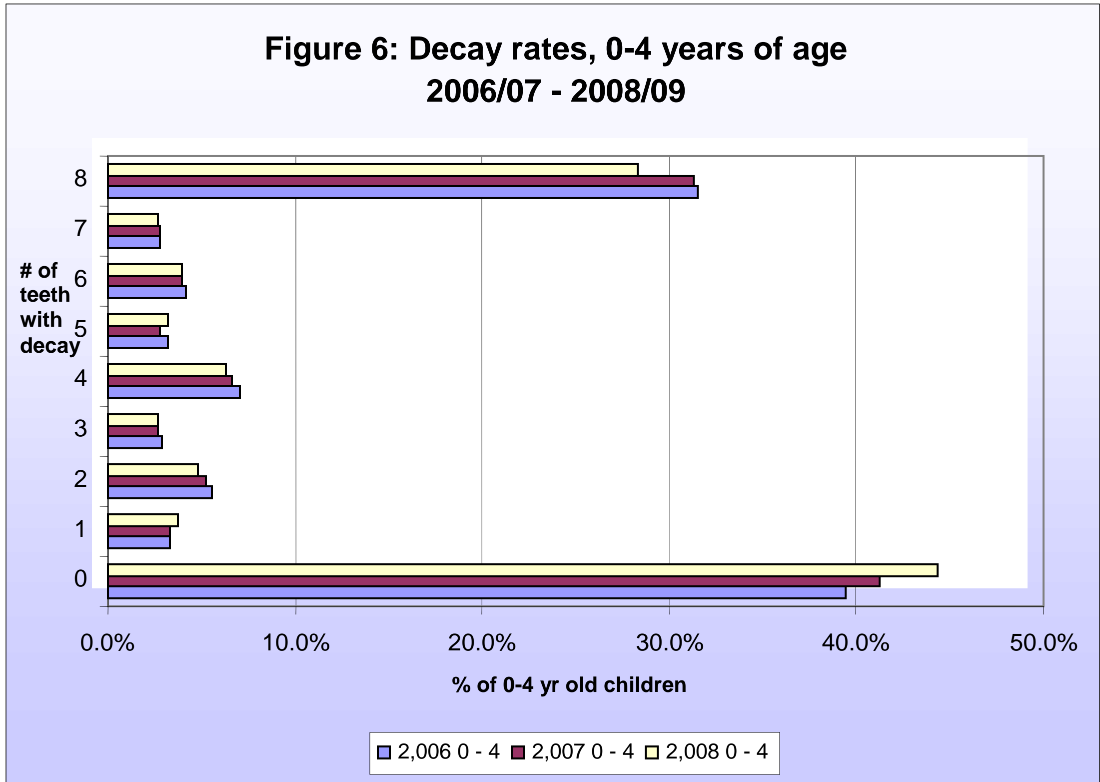

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students and 45% of grade 6 students were caries-free. This program met the WHO's Oral Health Goals which state that 12 year old children will have less than three permanent teeth affected by dental disease. The 2006/07 results for 11-13 year olds in the Care for a Smile Program showed an average of 1.91 decayed, filled or missing teeth.[29]

By merging the NIHB and PHCPHD data, the increased access to care stemming from a public health approach in conjunction with NIHB FFS providers is apparent, albeit small. The utilization rate for the total client population, obtained by identifying distinct clients in both databases, increased from 37.9% in 2002/03 to 38.4% in 2006/07. This rise has been attributed to the introduction of the COHI initiative.[30]

In the general population, ECC rates for children 0-7 years have been reported by the Canadian Dental Association to range from 6% to 8%.[31] The general definition of ECC is having ≥ 1 primary tooth affected by decay in infant (0-23 months) and preschool (24-71 months) children.[32] In communities receiving COHI screening services, the 2008/09 rate of decay for 0-4 year olds was 56.6% and rose to 70.7% for all persons, regardless of age, who were screened.

Oral Health Strategies

The Strategy presented in this document is consistent with the broad goals and intentions of other federal, and provincial/territorial oral health strategies in Canada. Health Canada's draft FNIOHS aims to close the gap between the oral health status of First Nations and Inuit populations and non-Aboriginal populations in similar geographic regions, with an initial focus on children aged twelve years and under. Its business goals focus on improving three areas: access to, and efficiency of, dental care/services; management of information needs; and evidence-based policy and guidelines.[33]

Federal, provincial and territorial dental directors collaborated on a Canadian Oral Health Strategy in 2005 which was developed through a wide consultation process. Their strategy publication identifies inequities in the system, disparities in health, and barriers to achieving optimal oral health which have been addressed through a measurable, systematic and detailed approach involving:

- improved leadership role by governments;
- integration of oral health promotion, prevention and treatment with other aspects of health care;

[29] Regional Statistical Report, obtained from Health Canada Alberta Region, February 9, 2009.
[30] First Nations and Inuit Health Branch, 2009. Table 1, page 16.
[31] Information provided by the Canadian Dental Association, March 26, 2010.
[32] Schroth R. Partnering to Improve Early Childhood Oral Health in Manitoba. Presentation to the Aboriginal Health Care Symposium, Canadian Association of Paediatric Health Centres. October 16, 2007.
[33] First Nations and Inuit Health Branch. 2009.

- standardization of methods of monitoring oral health and the progress towards the goals of this national oral health strategy;
- investigation and incorporation of alternate methods of service delivery to address the needs of those who have inadequate access to care;
- development of a human resources strategic plan; and
- improved support for oral health research.[34]

Rationale

High cost of ECC

A consequence of ECC in young children is the need for premature extraction of primary teeth. As these children cannot tolerate this intensive treatment in a regular office environment with local anesthetic, they are given general anaesthetic (GA) in a hospital environment. The NIHB Program allows GA procedures for children up to and including 12 years of age. The financial costs of this care are high. The NIHB database was explored in an effort to quantify these costs. In a previous Health Canada analysis of GA trends, it was assumed that clients younger than 12 years who had 8 or more NIHB claims on the same day would have received sedation or GA for restorations, extractions and pulpotomies. This assumption was applied to 2008/09 NIHB data.

The analysis found 6,647 clients (with 8+ services on a single day) received an average of 13.6 services each. Of these, 58.5% of these clients were between 0-4 years of age, and a further 38.2% were between 5-9 years. Figure 7 shows their 2008/09 distribution by region. Approximately 10% of 0-4 year old children in Manitoba and Alberta recorded in 8 or more services in a single day, with Pacific and Saskatchewan regions having rates of 5% or greater. The Manitoba estimate of children requiring GA services is in line with provincial data published by the Manitoba Centre for Health Policy, which reported 2005/06 rates of 5% to 7% for pediatric dental extractions in hospitals in the northern health regions.[35] The rates were based on the entire population of the regions, of which First Nations are 50% or greater.

Overall, it is estimated that one in five children aged 0-4 years (19.9%) who received NIHB services in 2008/09 underwent GA to treat ECC. This rate has decreased substantially from the previously reported rate of 24% in 2005.[36]

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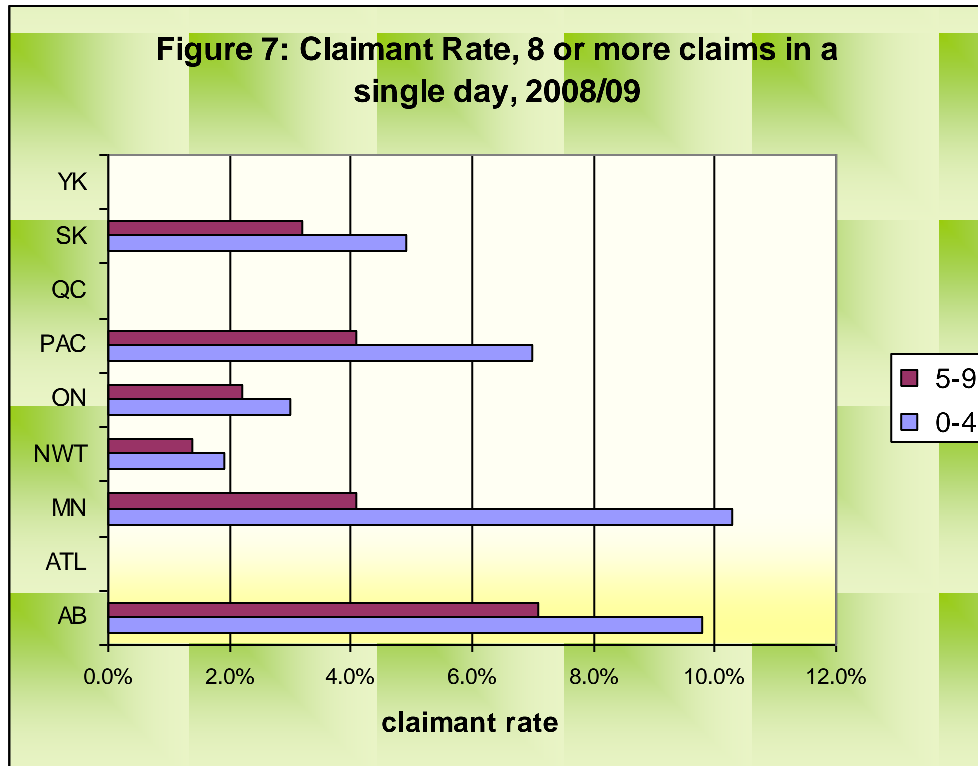
[34] Federal, Provincial and Territorial Dental Directors. 2005. http://www.fptdd.ca/English/e-cohs.html. Accessed October, 2008.

[35] Manitoba Centre for Health Policy. 2008. Manitoba Child Health Atlas Update. Winnipeg: University of Manitoba.

[36] First Nations and Inuit Health Branch, 2009.



Tabular data in Annex 1

NIHB expenditures related to GA services totaled $8.48 million in 2008/09, with provincial/ territorial hospital costs estimated at an additional $8.00 million.[37] This results in a total cost of $16.48 million in 2008 for ECC or $2,479 per child, not counting medical transportation costs from an often remote community to the hospital. (Note: Annex 2 provides total regional expenditures for dental transportation for 2005/06 to 2008/09. No breakdown by age group or reason for visit was available from Health Canada). In 2008/09, the total federal dental transportation cost was $2.5 million.

The cost savings to be realized from an effective prevention strategy are enormous. The annual cost of delivering COHI preventative services has been reported by FNIHB to be $110.00 or 4% of the GA administered services cost above, and includes activities such as education, oral health assessments, fluoride varnishes, sealants, scaling and oral hygiene services.

[37] Hospital costs were calculated using resource intensity weights (RIW) and costs per weighted case for extractions (ICD-10 K02-03) calculated on a province/territory-specific basis. An RIW of 0.236 from a previous unpublished study by the author of children undergoing hospital-based extractions was used. CWCs were obtained from published Canadian Institute of Health Information data from 2007/08. This resulted in a cost per child of $1,102 to $1,669 depending on the province/territory, and is in line with a 2005/06 estimate of Manitoba dental day surgery procedures of $1,084 (source: Manitoba Centre for Health Policy. 2009. *The Direct Cost of Hospitalizations in Manitoba 2005/06.* Winnipeg: University of Manitoba.)

Sedation Policy for Children

The NIHB Provider Guide, section 8.10.5 states that eligible First Nations and Inuit children under 12 years of age must meet all of the following criteria to receive coverage for GA or sedation for dental services:

- have severe age-related behaviour management limitations;
- previous attempts in the dental chair under local anaesthesia have failed; and
- all deciduous teeth must be erupted.[38]

The second point of the above policy, in practice, means that a child must have had a bad experience with dental treatment before a dentist can use sedation. These types of experiences play a part in making persons avoid dentists as they get older, to the extent that oral disease may be advanced before treatment is sought. Sedation using nitrous oxide for children in the dental office is a solution for this issue as it provides a low or no stress experience for children and can be safely delivered in a dentist's office. Nitrous oxide sedation for children in a dentist office requires predetermination – a practice which is seen by dentists as short sighted as it can devalue the importance of preventing physical and/or emotional trauma, and ongoing negative perceptions of dental care in young children. In 2009/10, there were 5,689 requests for nitrous oxide sedation in the NIHB Program, of which 72% were approved, and an additional 16% approved under an exceptions process, leaving 12% denied of this coverage. The majority of these requests were for nitrous oxide sedation to children under 12 years of age in the dentist office.[39]

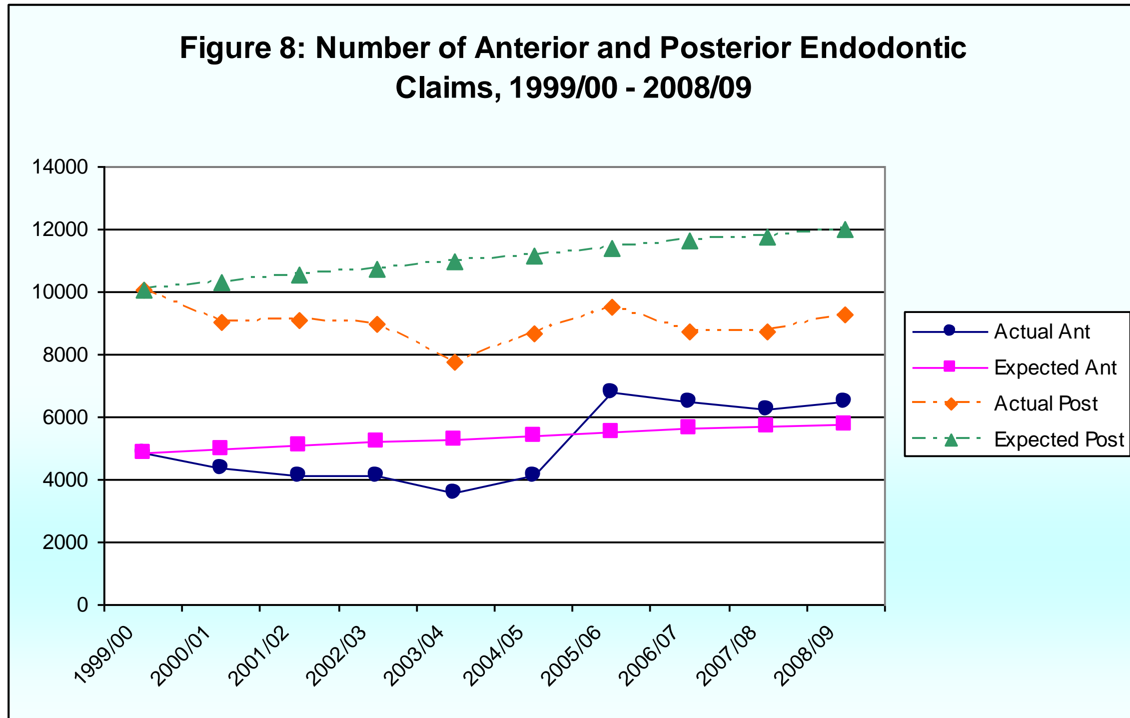
Endodontic Restorative Care

The NIHB Program's current policy for restoration involving root canals places an emphasis on saving the six anterior teeth (incisors and canines) in each of the upper and lower mouth. All anterior endodontic care (root canals) may be performed by dentists according to their own clinical judgment and without the need for pre approval by the Program. Endodontic care on the posterior teeth requires predetermination, a process whereby clinical information and x-rays of a patient's tooth are sent to the NIHB Program for approval of a restorative treatment.

In addition to reviewing and assessing the eligibility for coverage of a treating dentist's decision on the restorability of a tooth, the NIHB Program stipulates that second molars[40] are not to be covered for endodontic service unless they are deemed to be essential in maintaining a stable occlusion. The classing of teeth as non essential is counter to a "teeth for life" vision of oral health. As well, a posterior tooth will not be eligible for endodontic therapy if uncontrolled disease (e.g., caries and/or periodontal) is evident. This policy

[38] 2009. *Provider Guide for Dental Benefits*, Non Insured Health Benefits. Ottawa: Health Canada.
[39] Information provided by the NIHB Program to the Assembly of First Nations, October 15, 2010.
[40] It also stipulates that wisdom teeth (third molars) are not to receive root canals.

suggests a two tier system, whereby persons who have not, in the opinion of those who are reviewing a request, been successful in dealing with their oral health issues will be further penalized. If a request for posterior endodontic treatment is refused by the NIHB Program, the only alternative treatment which will be funded by the NIHB Program is extraction of the tooth. Data from the NIHB Program in 2008/09 showed that posterior teeth are eight times more likely to be extracted than restored through endodontic services, whereas anterior teeth were less than four times more likely to be extracted than restored.



Tabular data in Annex 1

The record of the NIHB Program in allowing endodontic treatments for First Nations teeth is shown in Figure 8. It provides a comparison of the actual numbers of anterior and posterior endodontic claims since 1999/00, and the expected number of claims based on population growth.

- With anterior root canals (the solid lines), the graph shows that claims were lagging behind population growth, with a short fall of 1,263 claims annually in 2004/05, prior to the removal of the predetermination requirement in 2005. A jump in anterior root canal claims followed in 2005/06 data but appears to be leveling off since 2006/07, at a slightly higher rate than what population growth would project.

- By contrast, there has been a decline in posterior endodontic claims (the hatched lines) in this nine year interval, from 10,084 in 1999/00 to 9,282 in 2008/09. If these claims followed population growth, 29.0% more claims would have been made in 2008/09.

Whereas posterior endodontic claims have decreased by 8.1% between 1999/00 and 2008/09, posterior extractions have increased by 35.9%. There has been little difference between anterior endodontic and extraction claims, with increases of 32.9% and 28.1% respectively over the same time period.

In the AFN Complaint Registry, the policy to not restore posterior teeth has been the subject of filings. In the words of one of several documented submissions regarding the lack of endodontic treatment: "the ease and willingness of Dental-NIHB Program…..to extract my teeth than provide necessary restorative work is shameful and unacceptable."

Orthodontic Care

In 1990-91, JL Leake undertook a national oral health survey of children aged six and twelve who lived in Aboriginal communities across Canada. This survey revealed poor oral health among these children; not a surprising finding given previous reports from smaller studies. However, another contribution of this national survey was the prevalence of malocclusion (improper alignment of teeth) – at almost half of examined children.[41] Malocclusion is commonly associated with hereditary factors, but among First Nations, it can also be the result of poor oral health and/or poor access to dental care among children leading to the premature extraction of primary teeth which would otherwise provide a guide for the positioning of the permanent teeth to follow.[42] By treating moderate or severe malocclusion, the teeth are easier to clean and there is less risk of tooth decay and periodontal diseases (gingivitis or periodontitis). Treatment eliminates strain on the teeth, jaws, and muscles, which lessens the risk of breaking a tooth and may reduce symptoms of temporomandibular joint disorders.

With respect to malocclusions, the NIHB Program only covers those which are severe and functionally handicapping. If a child is still able to chew, then orthodontic benefits cannot be accessed. Other NIHB orthodontic benefits are dento-facial anomalies (cleft and palate) and interceptive orthodontics. This benefit category is subject to many appeals stemming from unsuccessful requests for coverage of orthodontic treatment. Over one quarter (403) of all first level appeals to the Program between 2002 and 2006, and almost all third level appeals, were related to orthodontic treatment.[43] This situation is mirrored in the AFN Complaint Registry, as over 30% of all dental complaints are a result of unsuccessful access to orthodontic treatment. The increasing inaccessibility of orthodontic coverage is an urgent issue. Compared to the number of orthodontic clients in 2004/05, in 2008/09, 748 fewer, or 9.8% less, persons received orthodontic care coverage from the NIHB Program.

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[41] Leake JL. 1992.

[42] Harrison, RL and Davis, DW. "Dental malocclusion in Native children in British Columbia, Canada." *Community Dentistry and Oral Epidemiology*. 1996; 24:217-221.

[43] The appeal data was obtained from FNIHB, Health Canada. The number of appeals may be understated, as the NIHB Program now notes that there was no system in place to capture regional appeal data for the dental benefit in those years.

As was noted in the 2005 First Nations NIHB Action Plan, the Canadian Association of Orthodontists advised its membership to request payment from First Nations clients directly, with these clients then arranging reimbursement from the NIHB Program. This is due primarily to two reasons: NIHB's restrictive eligibility criteria and the high rate of rejection for orthodontic treatment, which was estimated by orthodontists at 80-85% a few years ago,[44] and more recently reported by the NIHB Program to be 58% over the past five years, [45] and secondly, the excessive amount of paperwork required to apply for approval to provide services. The immediate impact is denial of services, as many First Nations cannot afford to pay for orthodontic care for their children. A need has been expressed among First Nations in all regions that the NIHB policy restrictions on orthodontic care should be relaxed, to include not just functional criteria for eligibility, but also psychosocial aspects if a person's self esteem has been severely affected. Treatment of non-severe affected malocclusion should not be regarded as a simple cosmetic issue.

PHCPH Prevention

The implementation of COHI has significantly increased the number of fluoride varnish procedures in First Nations communities. There has been a lesser increase in the use of sealants and alternative restorative treatment (ART) as the number of dental therapists who deliver these services has remained static. FNIHB's FNIOHS has noted a number of achievements in providing prevention services and decreasing caries rates in First Nations communities:

- Dental therapists, available in 183 First Nations communities, have been able to reduce the decay rate of children.

- The introduction of COHI, where supported by dental therapists, has increased the awareness of the importance of good dental health.

- Between 2003/04 and 2006/07 (covering the initial implementation years of COHI), fluoride varnish applications to 0-7 year old children increased 131% and preventative sealants increased 21%. The rate of 0-4 year old children accessing services from COHI increased from 16% to 30%.

- One COHI community increased its rate of caries-free children from 4.16% to 7.14% in a four year period ending in 2008. The incidence of decay dropped by 13 percentage points in this community.[46]

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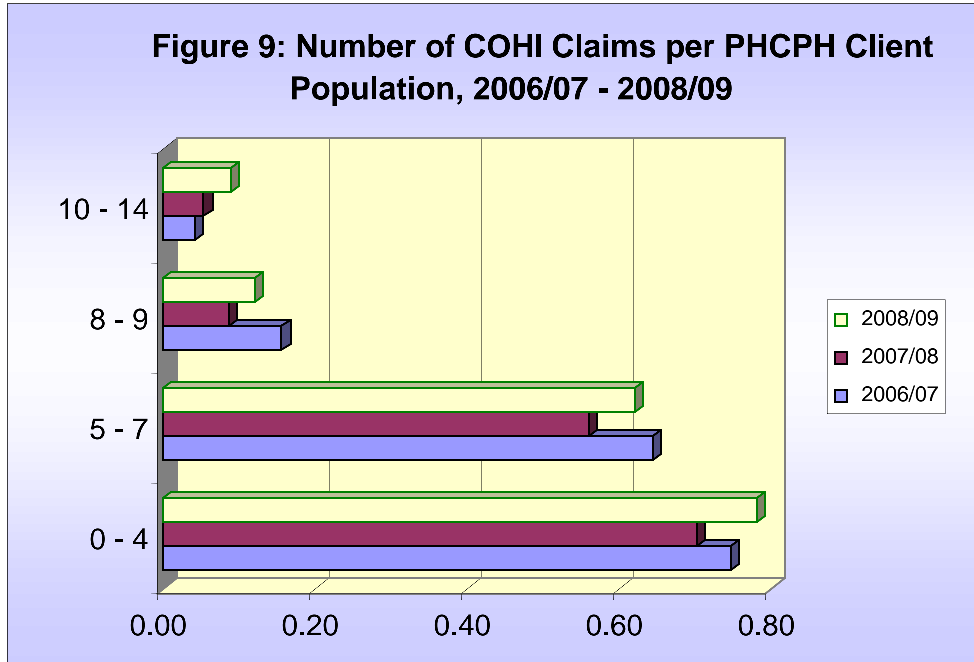
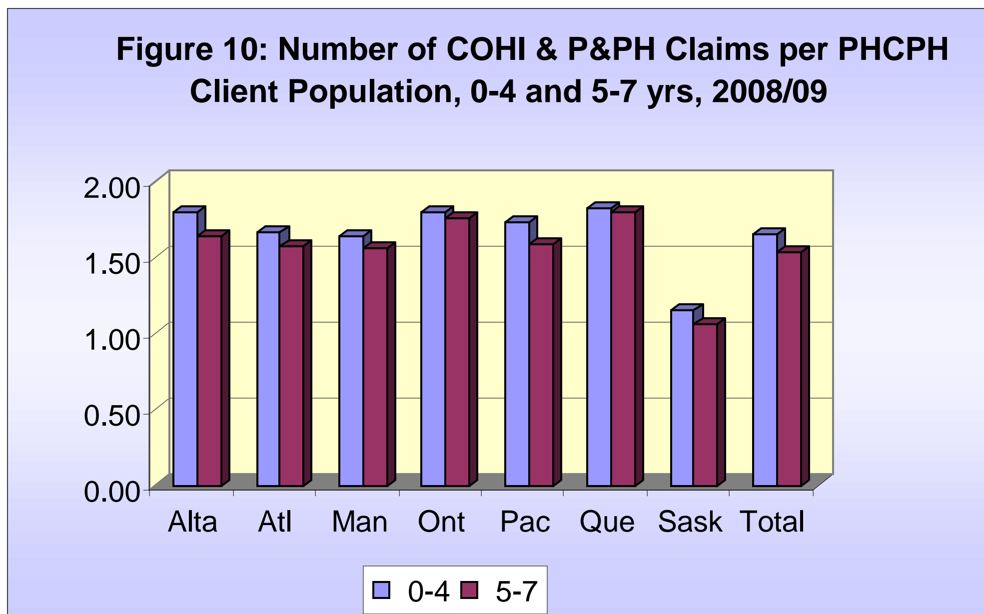
[44] This was a non-scientific estimate of the rejection rate for First Nations orthodontics care in Canada provided by the Canadian Association of Orthodontists, which was based on personal feedback from their members nation-wide.
[45] As provided by the NIHB Program to the Assembly of First Nations, September, 2010.
[46] First Nations and Inuit Health Branch. 2009.



Tabular data in Annex 1. Source: FNIHB, Health Canada



Tabular data in Annex 1. Source: FNIHB, Health Canada.

Figure 9 continues the analysis of PHCPHD data to 2008/09. It shows some additional positive gains in delivering COHI services to the PHCPH population compared to 2006/07, with the prevalence rate of COHI claims (claims per PHCPH population) at a high mark in 2008/09 for 0-4 and 10-14 age groups. The 0-4 age group was at almost one claim per child coverage. This rate is variable when region-specific data is analyzed. Figure 10 has included the Prevention and Public Health (P&PH) service claims with the

COHI claims so as to encompass all prevention services to children from the PHCPH dental providers. The figure shows that the incidence rate of prevention activities varies from 1.2 claims/PHCPH population for 0-4 year old Saskatchewan children to 1.8 for the same age group in Alberta, Ontario and Quebec.

In the NIHB Program database which encompasses the entire eligible First Nations population, the claimant rate for prevention services among 5-7 year olds increased from 36.9% in 2004/05 to 38.5% in 2008/09. All age groups except 10 to19 year olds also saw lesser increases in their claimant rates.

It is assumed that all 12,526 0-4 year old children in the PHCPHD received a COHI or P&PH service in 2008/09 (as suggested by the claim rate of 1.2 per population). When added to the 8,116 NIHB 0-4 year old claimants for prevention services, the total number of 0-4 year old children receiving a prevention service was 20,642. This is reduced by 3.6% to adjust for overlap of claimants among these two data sources.[47] The total of 19,899 0-4 year old claimants translates into a prevention claimant rate of 32.2% for both services combined.

Prevention Expenditures

When viewed from an expenditure perspective, NIHB prevention services grew at a slower pace than total NIHB services. Prevention expenditures dropped to 11.2% of total expenditures in 2008/09, from 12.2% in 2004/05. A similar decrease was seen when looking at claim data (i.e. the percent of prevention claims compared to total claims).

NIHB prevention services have not been a costly component of the dental service system, when measured against COHI. In 2008/09, COHI/dental therapy costs were $110 per enrolled child,[48] whereas NIHB prevention costs were $38.99 per claimant for 0-4 year old children, and $59.82 for 5-7 year olds. Prevention expenditures per claim are second only to diagnostic services as being the lowest cost service category in the NIHB Program.

Administrative Barriers

In the 2002/03 RHS, 45.5% of those adults reporting the need for urgent dental care said they had difficulties accessing NIHB services. Lack of access is more profound in remote environments. Forty-five percent of adult respondents living in remote communities said that the dental service they required was not available, with rates of non-availability of 21.2% in isolated communities, 35.0% in semi-isolated communities and 10.8% in non-isolated communities.[49]

[47] Data in the draft FNIOHS show a duplication rate of 3.6% for 2006/07 data. (First Nations and Inuit Health Branch. 2009. Table 1, page 16).
[48] First Nations and Inuit Health Branch. 2009.
[49] First Nations Information Governance Committee. 2007.

One of the reasons for this lack of access can be the availability of dentists who are enrolled with the NIHB Program and bill it directly. Dentists are increasingly concerned with the Program's administrative and bureaucratic requirements which are seen as arduous, invasive and not replicated in other major insurance plans in Canada. As access is a large issue affecting oral health now and in the future, some detail is necessary on why some dentists presently require that First Nations patients pay for their dental care directly, and then seek reimbursement from the Program. Because of this barrier, affordability has become an issue for all services, not just those which are not covered under the Program. This issue is reflected in the RHS data, where seventeen percent of adult First Nations said that they could not afford dental care.[50] Another administrative barrier, which is described in more detail below, is the inability of dental hygienists to bill the NIHB Program directly for services.

In the consultations for this Strategy development, dentists have said that bureaucratic burden is the single, largest reason why many of them choose not to participate in the NIHB Program. There are a number of factors involved that combine to make the NIHB Program unattractive to all but those dentists who have a large practice of First Nations patients. Dentists have shared the following in the development of this strategy:

- By signing on as a provider with the Program's claims processor (ESI Canada), dentists are subject to the terms and conditions of the 20 page Dental Claims Submission Kit which contains legal wording. Dentists who were interviewed in the development of this Strategy report that no other insurance plan in Canada requires this extent of a contractual commitment.

- The contract contains a termination clause that suggests that ESI Canada, in consultation with Health Canada, can unilaterally terminate a dentist from the plan (clause 5.5. of the Dental Claims Submission Kit).

- The NIHB Program requires providers to submit to audits (section 7.0 of the Dental Claims Submission Kit) which dentists have said to be time consuming and very disruptive to their office schedule.

- The requirements for predeterminations of proposed treatment are much more complicated than with other insurers, and are subject to peer review as to the appropriateness of the proposed treatment plan. Dental consultants provide an opinion from an x-ray and other patient information, if available, as to whether the tooth is salvageable and the service will be covered by the Program. The waiting time for this approval can be up to a month, although some dentists who work frequently with First Nations can get a faster decision if the dental consultant is available immediately by phone (within 9-5 working hours, which does not assist after hours dental clinics). Typically with other insurers, a review from on line documents would determine whether a root canal is a covered procedure or not. The predetermination requirement results in a waiting time for the majority of First Nations clients, who may be in pain and may have travel

[50] First Nations Information Governance Committee. 2007.

constraints.[51] It should be noted that when a patient is faced with the need for endodontic care on a posterior tooth to *save the tooth*, predetermination is required, but would not be if the dentist simply extracted the tooth.

- The replacement of dentures requires predetermination. This requirement for replacements is not seen in other major insurance plans as long as the time period for replacement has been met.

- The receipt of payment from the claims processor has been reported by dentists to be considerably longer than other insurers, and up to 30 days. In one dentist's practice, 80% of treatment fees from other insurers are generally paid in 4 to 6 days.

- The NIHB Program pays up to 90% of last year's provincial fees for services. This lower reimbursement has been described by dentists as not an issue on its own, but can become "the last straw" when they are faced with the contractual requirements, the threat of an audit, the occasional program delays in treatment, and the unpleasantness of having to be the bearer of bad news to clients whose request for coverage of a service has been turned down by the Program.

The NIHB Program is concerned about inappropriate services and billing from dentists; however every insurance plan operates within limits and guidelines. In other major insurance plans, sophisticated software is generally employed, which will pick up any unusual billing practices or if a patient had a root canal followed by an extraction within a short period of time. As well, dentists note that unscrupulous practitioners are adequately dealt with by the dental licensing and regulatory bodies, and by law enforcement authorities in the case of outright fraud.

Needs of Seniors

In the general population, seniors who are on low, fixed incomes without dental insurance present special issues as they often cannot travel to the dentist office or afford care, and therefore may have low utilization of dental services. First Nations elders also are similarly at risk. In the 2002/03 RHS, 33% of seniors reported that the last time they had obtained dental care was more than five years ago (compared to 10% for all First Nations adults).[52]

Tooth loss from cavities that cannot be restored or severe periodontitis destroying the bone structure of the tooth can be the result of a lifetime of inadequate access to dental care, poor dental hygiene and consumption of high sugar foods. As noted above, one of the most serious issues facing First Nations in their senior years is periodontal disease and tooth loss. Persons who have periodontal disease or may find eating difficult because

[51] The NIHB Program does cover emergency treatment to relieve pain, for example, an open and drain/pulpectomy service without predetermination.
[52] First Nations Information Governance Committee. 2007.

they cannot chew properly can suffer a poor quality of life,[53] inadequate nutrition[54] and social isolation.

The RHS does not include a clinical assessment in their survey; however Aboriginal people share similar chronic oral health issues, and the literature on Inuit seniors provides a relevant perspective. In a 1993 medical review of Canadian Inuit, elders averaged 6.3 medical conditions per person. Poorly fitting dentures and high levels of tooth decay, periodontal disease, soft tissue and temporomandibular joint anomalies were found.[55] Two surveys were conducted in Nunavik in 1983-84[56] and 1991-92[57] on aspects of adult oral health. The first survey reported that tooth loss was significant among elders. The second reported that 63.8% of those aged 45 years and older were completely edentulous (missing all teeth). Almost half of these did not wear dentures.

In societies where oral health is poor, young people may feel that losing teeth is just part of life. For example, almost 40% of youth surveyed in Nunavik in 2001 had the opinion that "tooth loss is a normal part of aging" and "dentures are better than real teeth."[58]

A link between periodontal disease and the development of lung disease in the elderly is now being established. The Canadian Dental Hygienists Association (CDHA) writes that inhaling bacteria present in the mouth into the lungs is now believed to be linked with respiratory infections and can aggravate existing lung conditions. The inflammatory condition in the mouth triggers the release of chemicals that can worsen lung inflammation.[59]

Prosthodontic care is another dental service where improvements are urgently needed. First Nations elders may travel for up to ten hours by road to receive dental services. Many of their problems stem from ill fitting dentures which cause painful and difficult chewing, and chronically irritated gums, and they need skilled practitioners to properly adjust and fit the existing dentures.[60] The time period for denture replacement in the NIHB Program is eight years, compared to five years as with many other plans and seven years for Veteran's Affairs Canada. One relining is provided every two years. Because of chronic diseases such as diabetes and the frailness of First Nations elders, bone loss and receding gums may mean that dentures need adjustment more frequently than every two years, and replacement before eight years.

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[53] Locker D. "The burden of oral disorders in a population of older adults." *Community Dental Health*. 1992; 9:109-24.
[54] Nowjack-Reimer RE and Sheiham A. "Association of edentulism and diet and nutrition in US adults." *J. Dent. Res.* 2002; 2:123-26.
[55] Galan D, Odium O, Grymonpre R and Brecx M. "Medical and dental status of a culture in transition, the case of the Inuit elderly of Canada. Gerodontology. 1993; 10(1):44-50.
[56] Blanchet C. 1992. *Highlights of the health survey conducted among the Inuit of Northern Quebec 1983-84*. Quebec: ministère de la Santé et des Services sociaux.
[57] Gagnon R and Brodeur JM. 1991. Dental Health In : Santé Québec, Jetté M. (ed). A Health Profile of the Inuit: report of the Santé Québec Health Survey Among the Inuit of Quebec, 1992. Vol 2. Montréal: ministère de la Santé et des Services sociaux, Gouvernement du Québec.
[58] Bélanger. 2001.
[59] http://www.cdha.ca/AM/Template.cfm?Section=Oral_Care_Home
[60] 2009. *First Nations NIHB Leadership Action Plan.* Ottawa: Assembly of First Nations.

The need for predetermination on whether or not dentures should be replaced after eight years is somewhat superfluous and deemed unnecessary in other plans. It involves extra cost to the NIHB Program, as dentists will not take an impression unless approval is given, often requiring travel for an additional visit.

Use of Dental Hygienists and Dental Therapists

Dental hygienists and dental therapists are valued additions to a comprehensive approach to dental care. Dental therapists can undertake a variety of dental services, from dental assessments, impressions and x-rays to tooth fillings, tooth extractions, and replacing portions of tooth crowns. They can perform advanced dental hygiene to remove calculus from teeth, as well as other basic oral hygiene functions. Dental hygienists complete the dental service continuum by providing scaling and root planing services, oral health promotion awareness, oral cancer screening and denture cleaning.

Dental therapist and dental hygiene services are limited in First Nations communities for different reasons. Ongoing pressure from private practice dentists has been cited as a reason that dental therapists are, for the most part, not licensed recognized by provincial governments as legitimate dental providers; Saskatchewan being a notable exception. The territorial governments do allow dental therapy practice and utilize them in First Nations communities. There is ongoing difficulty in fully staffing these territorial positions. Some dental therapists are employed in First Nations communities south of 60, but concerns about liability and other issues stemming from non-licensure have largely limited their services to First Nations clients. Currently, FNIH employs approximately 50 dental therapists who work under the supervision of a dentist, and others are funded through contribution agreements with communities. FNIH dental therapy services cover 160 First Nations communities, with contribution agreements providing services in another 23 communities.[61]

Dental hygienists do not have the licensing issues faced by their therapist colleagues, as seven provinces[62] have dental hygiene legislation that enable them to establish private business. The Canadian Dental Hygienist Association notes that 94% of NIHB clients live in these seven provinces, and that private dental hygiene practice presents an opportunity to provide improved client choice, introduce cost efficiencies and improve access to care in remote and northern communities where other dental professionals may be scarce.[63]

Currently, dental hygienists in private practice are not recognized by the NIHB Program as independent dental providers, and their services only can be paid if they are in the employ of a dentist who then bills the Program. Dental hygienists point to two cost savings from an independent practice: they bill at rates below what dentists charge, and

[61] Doiron, A. 2010.
[62] Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario and Saskatchewan.
[63] CDHA. 2009. *Improving Cost Effectiveness and Program Efficiencies in First Nations and Inuit Health Branch, Non Insured Health Benefits Program*. Ottawa: author.

secondly, they can provide several service delivery models, including stand alone clinics, and mobile services, which provide services to under served, northern, rural or remote populations or the homebound, frail elderly and disabled populations. They can also set up clinics in schools and long term care facilities. An additional incentive is that their services will reduce the need for costly restorative and surgery services.

Thirty-three dental benefit plans are now paying dental hygienists in private businesses for their services, including three Government of Canada plans, five provincial government plans, and twenty-five private plans. The Competition Bureau Canada has been interested in potential unfair competitive disadvantages in dental hygiene such as that posed by the NIHB policy which requires that only dentists can bill for dental hygienist services. It has supported the dental hygiene legislative changes in various provinces through letters which speak to the need to remove unnecessary barriers to competition.[64]

An eighteen month pilot project has recently begun in Alberta Region in which dental hygienists are recognized as FFS NIHB providers. This pilot will evaluate the merits of extending this practice on a national basis. The extension of this pilot to additional regions has been advocated by the CDHA to ensure the evaluation captures the various community population characteristics nationally.[65]

Fluoridated Water

Fluoride treatment of drinking water has been controversial in the past, with a number of potential health conditions suggested by opponents of this practice. Claims of these sorts have never been substantiated by research. Instead, in the view of the Centers for Disease Control and Prevention in the United States, fluoridation should be regarded as a significant public health achievement in the 20th century.[66] Over ninety national and international professional health organizations support the use of fluoride as a preventative measure, including Health Canada, WHO, and the Canadian Dental Association.[67] Water fluoridation's impact was initially seen as a 50% to 70% reduction of caries, but it has been reduced to about 25% due to the introduction of fluoridated toothpaste and cross over of students with non-fluoridated water supplies who attend schools in fluoridated communities.[68] The Canadian Task Force on Preventative Health Care has recommended that a concentration of 1.0 to 1.2 parts per million of fluoride be used in drinking water in high risk populations.[69]

[64] CDHA. 2009
[65] Communication by CDHA with V. Stevens, AFN, September 2010.
[66] Centres for Disease Control and Prevention. *Ten Great Public Health Achievements – United States, 1900-1999. Morbidity and Mortality Weekly Report*. 1999; 48:241-43.
[67] http://www.fptdd.ca/English/e-whatsnew.html#petition. Accessed October 16, 2008.
[68] Goldsmith LJ, Hutchison B, and Hurley J. *Economic Evaluation Across the Four Faces of Prevention: A Canadian Perspective*. 2004. Hamilton: McMaster University, Centre for Health Economics and Policy Analysis.
[69] Lewis DW and Ismail AI. "Periodic health examination, 1995 update: 2. Prevention of dental caries Donald: The Canadian Task Force on the Periodic Health Examination." *Canadian Medical Association Journ*al 1995; 152: 836-46.

Despite this safe track record, fluoridated water is only available in eleven of 61 Manitoba First Nations communities and two of 72 Saskatchewan First Nations communities. A few more communities obtain their water from municipal water systems which are fluoridated. In total, less then 10% of First Nations individuals living on reserve have access to fluoridated water. Currently, Health Canada is exploring the level of interest among First Nations in establishing fluoridation systems.[70]

Territorial Oral Health Systems

This Strategy and the implementation of goals and priority actions must take into account the differing systems of dental service delivery to First Nations living in the territories compared those living in provinces. In NWT and Yukon, the principle of universal health services to all residents has meant that the territorial governments have had a larger role to play in First Nations oral health care than do their provincial counterparts.

In Yukon, eleven of the fourteen First Nations are self-governing, and are transitioning to functioning governments which include health responsibilities under their mandate. With the transfer of children's dental services to the Yukon Government from the federal government as part of universal health transfer, there are unique challenges to coordinating First Nations, territorial and federal government involvement in oral health care which must be recognized when implementing the Strategy's vision and goals. Presently, the NIHB Program administers a dental clinic in Whitehorse which includes a salaried dentist and dental hygienist. The territorial government employs a dental therapist who visits communities, as well as a dentist who visits five of the fourteen communities and targets those who are unable to travel to the Whitehorse clinic. Whereas previously no private dentist would be involved in the NIHB Program in Yukon, two dentists now accept NIHB clients.

In the NWT, the territorial Department of Health and Social Services works with its regional and community boards to plan and manage oral health promotion and disease prevention services. These boards have First Nations and Inuit representation as appropriate. Dental services are administered through the territorial government and are funded from both NWT and federal sources: the NIHB Program pays dentists directly via FFS, and the Government of the NWT (GNWT) and/or its regional health authorities (RHAs) administer and coordinate contacts with these dentists. The GNWT receives NIHB contribution agreement funds for travel of dentists, dental specialists and dental assistants to communities. These funds also cover access of dental patients to services not available in their community. The GNWT funds dental therapists on a salary basis to work in the RHAs. They work primarily in the schools, although adults can be seen on an emergency basis.

The CDHA has recommended that Yukon and NWT dental hygiene legislation be amended to better facilitate access to care, such as what is seen in Alberta. Alberta's

[70] Information from Health Canada provided to the Assembly of First Nations, December 2009.

dental hygiene legislation enables dental hygienists to practice without the supervision of a dentist, and to prescribe some medication and administer nitrous oxide sedation.[71]

[71] Communication with V. Stevens, AFN, September 2010.

First Nations Oral Health Strategy

Vision

Teeth for Life

Oral health is an integral part of a person's positive physical, mental, emotional and social wellbeing. It is an absence of disease in the oral environment combined with full ability to eat and speak, and it promotes positive self-esteem.

In this vision:

- First Nations infants and young children have disease-free primary teeth, which are lost through the normal growth process, and not as a result of oral disease.
- First Nations receive timely and appropriate oral health care from infancy through adult years, and retain their permanent teeth through their lifetime.
- All age groups, including children, youth, parents, adults and elders understand the importance of oral health to overall health and have been given the skills to practice good oral hygiene.
- First Nations communities have access to nutritious foods and safe drinking water which contribute to good oral health.
- Oral health care is comprehensive and integrated with all aspects of the community's public health system.

Oral Health Principles

Holism
Oral health is an integral component to overall health, and includes physical, mental, social and emotional aspects.

Determinants of Oral Health
First Nations oral disease is a result of psychosocial, economic, environmental and political factors. An upstream approach to oral disease prevention starts with public health actions at local, regional and national levels which directly address underlying social determinants of population oral health, including poverty and food security among others.

Oral Healthy Public Policies
This inseparable connection between oral health and overall health is recognized through community health policies and through actions which include oral health promotion and disease prevention in community wellness programs and school curricula.

Access to Oral Health Care
All First Nations, including those with complex medical or oral health care needs, can access a comprehensive range of dental services that are equal in standard and availability as other Canadians, and have similar outcomes. This access is uncompromised by barriers of geography, dental program administration practices or lack of dental therapist legislation.

Cultural Security
First Nations dental services are culturally appropriate and provide a safe environment. The cultural diversity, rights, values and expectations of First Nations are respected in the delivery of dental services.

Freedom from Discrimination
First Nations clients receive non-discriminatory and non-judgmental oral health care.

Client-Centred Care
First Nations, as clients in the dental health system, are empowered through the introduction of more choice (e.g. root canals or tooth extraction), consumer involvement in decisions about their own treatment options, and good information on the risks and benefits of these choices.

Balance
An optimum balance is attained between preventative care and treatment, recognizing that the present treatment needs of First Nations are great, and time is required to reap the benefits of oral health education and promotion. Re-orienting the system and providing adequate preventative care such as fluoride rinses, sealants and teeth scaling is not at the expense of limiting access to a comprehensive range of treatment services.

Community-based Models of Care
First Nations communities are leaders in the planning, design and implementation of community-based oral health programs and services. They have sufficient information in order to make informed decisions on the most effective actions which will meet their oral health needs. Dialogue and mutual respect are hallmarks of the interaction between First Nations and federal, provincial and/or territorial governments, private dental providers and academic partners.

First Nations Capacity
First Nations community capacity and individual expertise in dental services are strengthened to facilitate a responsive, community-based dental service system, which includes dentists, dental hygienists, dental therapists and COHI aides.

Accountability
Accountability of oral health outcomes includes provision of services and effective use of funds. Governments are accountable for effective use of resources through sustainable funding and oral health program planning and service development which is

accomplished through a respectful and meaningful partnership among First Nations communities, federal government and dental providers, and territorial governments in NWT and Yukon.

Collaborative, Coordinated Care
A collaborative, team approach to oral health is based on the most appropriate health provider for the health need to be addressed. COHI aides, dental hygienists, dental therapists, and private and government dentists and dental specialists all have distinct skills to be used in the continuum of dental services extending from prevention activities through oral health hygiene and treatment modalities.

Goals and Priority Actions

The overarching goal of this First Nations Oral Health Strategy is to improve oral health in First Nations communities through a multi-pillared "Teeth for Life" approach, which combines health promotion and disease prevention activities, a more responsive dental health workforce, NIHB policies that prioritize prevention strategies and saving teeth over extraction, and increased collaboration and partnerships among all stakeholders involved in providing dental services to First Nations communities.

This Strategy is based on a model of client-centred care, which positions First Nations as full participants in the type of care they receive.

This Strategy has been drafted within the context of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The Declaration addresses both individual and collective rights, cultural rights and identity rights to education, health, employment, language and others. It outlaws discrimination against Indigenous peoples and promotes their full participation in all matters that concern them. It also ensures their right to remain distinct and to pursue their own visions of economic and social and cultural development.[72] Although the Government of Canada voted against the UNDRIP when it was adopted by 144 states, on March 2010 during the Speech from the Throne, the Canadian government announced that it would take steps to endorse the Declaration.[73]

Specific articles which address health directly include:

[72] United Nations Permanent Forum on the Indigenous Issues. 2006. *UN system and NGOs call for an early adoption of the United Nations Declaration on the Rights of Indigenous Peoples by the General Assembly*. Press Release. New York, October 17.
[73] http://www.un.org/esa/socdev/unpfii/en/declaration.html

- Article 7, whereby Indigenous individuals have the right to life, physical and mental integrity, liberty and security of the person;
- Article 23, whereby Indigenous peoples have the right to be actively involved in developing and determining health, housing and other economic and social programs affecting them, and, as far as possible, to administer such programmes through their own institutions; and
- Article 24, whereby Indigenous individuals have an equal right to the enjoyment of the highest attainable standard of physical and mental health. States shall take the necessary steps with a view to achieving progressively the full realization of this right.[74]

Goal #1: To Advance the Message of "Teeth for Life" and Decrease the Number of Persons with Decayed or Missing Teeth

Priority Actions

Increase awareness of oral health promotion and the benefits of good oral health, including its relationship to mental wellness and positive self esteem:

- Include the importance of oral health in nutrition and overall health as part of healthy food policies.
- Use a holistic approach in education which describes the interconnectedness of oral health and overall health, including the connection between the mouth and the body, and the effects of bacterial infections in the mouth on overall health.
- Make oral health a community issue. Educate leaders to become community champions, and use community events, groups and activities to convey the message that good oral health is an important aspect of overall health.
- Ensure that a consistent message is used among all persons involved in oral health promotion, such as when the first dentist visit by a toddler should occur.
- Develop culturally sensitive, community-designed oral health promotion approaches which target all age groups who are at risk for oral disease.
- Include education on oral health in smoking and chewing tobacco cessation strategies, and ensure that oral health is included in the national strategy on tobacco under development.

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[74] *United Nations Declaration on the Rights of Indigenous Peoples*. 2007. Adopted September 13, 2007 by the United Nations General Assembly.

- Change policies in the NIHB Program to promote retention of teeth as a priority, and to favour restoration over extraction of posterior teeth.

In order to reduce oral caries rates among infant and young children, an aggressive focus on the following actions is required:

- Collaboration among with First Nations, FNIHB, FNIH and private dental providers as appropriate to address the administrative reasons why some First Nations communities are finding it difficult to implement and maintain COHI.
- Extend the number of communities with COHI, with a five year plan to have all First Nations communities providing COHI services to their children and families.
- Increase collaboration among community wellness programs to include oral health promotion education and activities as part of their wellness activities (e.g. oral health friendly infant feeding practices in Maternal Child Health and Canada Prenatal Nutrition Program activities, and the association between periodontal disease and diabetes in Aboriginal Diabetes Initiative activities).
- Integrate oral health education into grade school curricula and include healthy snacks and teeth brushing as part of head start, day care and school activities with young children.
- Provide all children with topical fluoride and/or sealants as required on a regular basis.

Goal #2: To Increase Capacity in the First Nations Community Dental Health System

Currently, the demand for First Nations dental hygienists and dental therapists is greater than their available supply.

Priority Actions

- Emphasize benefits of dental hygiene, dental therapy and dentistry occupations to high school students as part of their career development activities.
- Coordinate with the Aboriginal Health Human Resources Initiative and other similar initiatives to ensure dental professions, both regulated and unregulated, are part of community, regional and national initiatives to increase the number of First Nations dental health providers.
- Create opportunities for career laddering in dental occupations among First Nations community workers. For example, enhance the COHI training program so that it can be recognized in the entrance requirements of colleges offering dental assistant or dental hygiene courses.

- Advocate for the licensing of dental therapists in all provinces.

- Provide ongoing and timely continuing education for all community-based dental providers in a culturally appropriate context that includes a non-judgmental approach to oral health care.

- Invest in dental infrastructure (dental chairs, sterilizing units etc.) in First Nations communities as required to support visiting dental service providers.

Goal #3: To Increase Access to Oral Health Prevention and Treatment Services for all First Nations regardless of age and geographic location, the following actions will be required by Health Canada:

Priority Actions

- As per the pilot project now occurring in Alberta Region, allow dental hygienists to bill the NIHB Program independently as private dental health providers, similarly to other federal, provincial and private dental insurance plans.

- Change the medical transportation policy where required to allow clients with dental appointments (prevention and treatment) to access medical transportation benefits on an equal basis as medical appointments.[75]

- Provide sustainable funding for communities for medical transportation using a needs based approach.

- Allow persons receiving new dentures who have traveled to a dentist or denturist under medical transportation benefits to remain in that town or city for one to two days so that they may receive post-fitting denture adjustments as needed.

- Change the denture relining frequency from every two years to yearly with an as-needed exception policy in the case of persons with medical conditions which can affect the health of gums. Similarly, change the denture replacement policy from eight to five years to be in line with other major insurance programs. Remove the predetermination requirement for both relining and denture benefits.

- Remove the predetermination requirement from posterior root canals, in support of a Teeth for Life vision of oral health.

- Revise the orthodontic care policy to recognize the emotional and psychosocial impacts from misaligned teeth. These impacts can include victimization from bullying, depression and isolation, which in severe cases can involve suicidal behavior.

[75] For example, until 2008/09, medical transportation for dental needs was not permitted in Pacific Region.

- Ensure cultural safety of dental services to First Nations by providing cultural training of dental health providers.

- Support salaried and/or flexible options for dental providers funded by the NIHB Program such as in clinics or other arrangements which are adequately resourced by Health Canada and administered by First Nations.

- Improve the appeal process to make it administratively easier for persons to appeal denials of coverage (i.e. simplified paperwork requirements).

Goal #4: To Improve the Administration of the NIHB Program with the objective of improving timely access to services, ensuring service based on need, retaining dental providers and ensuring transparency of the Program to its clients:

Priority Actions

- Reduce the administrative burden on dental providers by conducting a thorough review of practices of other major insurance programs in Canada, including their mechanisms to monitor for fraud and abuse, and redesigning the Program to be in line with contemporary dental insurance processes.

- Institute a visible quality improvement process within the NIHB Program including establishing service standards for response times, ensuring effective communications between the client and Program, and committing to ongoing and consistent shared analysis of the appeals process and its data.

- Review the cost of NIHB Program administration within Health Canada and the claims processor with the objective of ensuring administrative cost efficiency.

- Review and revise NIHB policies to ensure that they address the psychological and emotional impacts of poor oral health, as well as its physical manifestations.

Goal #5: To Increase First Nations Access to Fluoridated Water as part of a comprehensive approach to lowering the rate of tooth decay among First Nations.

Priority Actions:

- Improve awareness among First Nations communities and leadership of the benefits of fluoridating water.

- Advocate to Health Canada and Indian and Northern Affairs Canada (INAC) to ensure access to safe drinking water in all communities as the first part of a water strategy involving oral health.

- Collaborate among First Nations, Health Canada and INAC on a strategy to provide fluoridation treatment to community water systems, including five and ten year targets for improved coverage.

Goal #6: To Increase Collaborative Care, Integrated Policy Development and Resource Sharing

Priority Actions

- Coordinate the First Nations Oral Health Strategy with the FNIOHS (NIHB and PHCPH components) and provincial and territorial oral health strategies directed to children, youth and adults. Ensure that First Nations and private practitioners' perspectives are reflected in the FNIOHS.

- At the regional level, develop protocols with provincial and territorial referral systems regarding oral health needs of high risk clients with complex medical/dental needs.

- Support the creation of oral health care teams which span the continuum of community-based dental services (COHI aides, dental hygienists, dental therapists and dentists), provide comprehensive and integrated care, and are linked with provincial or territorial dental oral health systems as appropriate. Mobile oral health teams will increase access in communities which are not designated fly-in, but where poor gravel roads make transportation difficult.

- Include dental hygienists as part of community health teams, such as those for diabetes care.

- Coordinate oral health promotion activities with anti-smoking and anti-chewing tobacco messaging. As an example, dentists and dental hygienists see children frequently and are well positioned to reinforce an anti-smoking message to children before they begin smoking. This can be done through annual screening for oral cancer, at which point the dentist or dental hygienist can emphasize the link of smoking to this form of cancer.

- Remove silos at national, regional and community levels which prevent oral health from being incorporated into other health policies, activities and initiatives.

Goal #7: To Increase Access to Information and Research on First Nations Oral Health Status and Service Utilization

Surveillance and research are essential functions of public health as they assist in the understanding of the impact of efforts to improve oral health and reduce the impact of disease. All research and evaluation of First Nations oral health status and service utilization will be compliant with First Nations ownership, control, access and possession of data.

Priority Actions

- Build an accessible national evidence base of First Nations oral health using the success of the RHS and the leadership of the First Nations Information Governance Centre:

- Improve First Nations capacity for oral health surveillance and research (e.g. data collection, analysis and utilization of information by decision makers).
- Develop ongoing, consistent measures of First Nations oral health status.
- Using RHS data collection mechanisms, conduct regular regional-based surveys of oral health status and access to services.
- Identify and share effective Aboriginal oral health promotion activities and programs which are community-based and led.

- Develop guidelines and success measures by which an oral health promotion and prevention program may be measured and evaluated.

- Research the consequential health and social effects of oral disease on the lives of First Nations.

- In association with dental practitioners, develop community-based responses for the clinical prevention and treatment of oral diseases to all age groups, such as periodontal disease in diabetic people.

Key Measurable Outcomes

The following outcome measures are suggested as potential starting points to measure the success of the First Nations Oral Health Strategy.

Goal #1: To Advance the Message of "Teeth for Life" and Decrease the Number of Persons with Decayed or Missing Teeth

For age groups across the life span:

- Rate of persons with decay free teeth
- Rates of decayed, missing/extracted or filled teeth in persons
- Rate of ECC and cost
- Rate of persons who are not edentulous (by age group)
- Rate of persons who report no difficulties in eating food
- Frequency of brushing
- Frequency of flossing
- Rate of fluoride varnish use
- Rate of sealant use
- Rate of children who first see a dentist before age one
- Rate of person with prosthetics
- Rate of gingivitis, periodontitis
- Frequency and occurrence of persistent or on-going pain in the mouth
- Rate of children requiring hospital treatment for ECC
- Rate of malocclusions

Also:

- Number of communities with implemented COHI
- Number of children enrolled in COHI
- Number of First Nations schools with a regular, scheduled oral health curriculum

Goal #2: To Increase Capacity in the First Nations Community Dental Health System

- Number of trained COHI aides
- Number of COHI aides who have sought additional training (e.g. dental assistant, hygienist)
- Number of AHHRI projects which are community-based and which encompass dental service providers (unregulated and/or regulated)
- Number of provinces which license dental therapists
- Number of First Nations graduates of dental professions: COHI aides, dental hygienists, dental therapists, dental assistants, dentists.
- Number and type of continuing education opportunities for community-based dental providers
- Number of academic institutions which have included culturally relevant information in their dental curricula
- Number of communities with contribution agreements for dental services

Goal #3: To Increase Access to Oral Health Prevention and Treatment

- Need for dental health services by type of treatment (as used in the RHS)
- Barriers to dental treatment (as used in the RHS)
- Frequency of visit to a dental professional
- Rate of untreated dental conditions (as used in the RHS)
- Utilization measures of prevention and treatment services (e.g. claims per claimant, claimant rate for NIHB and PHCPH services)
- Number of teeth restored versus extracted
- Rate of orthodontic treatment of malocculsions
- Satisfaction with appearance of teeth
- Utilization of NIHB appeals process
- Success rate of NIHB appeals
- Satisfaction with NIHB appeals process
- Access to medical transportation for dental prevention and treatment needs
- Visits to dental hygienists
- Number of communities with medical transportation vans
- Number of cultural training sessions for dental providers
- Policy changes in the NIHB Program, e.g. dental hygienists ability to practice independently, removal of predetermination requirement from posterior root canals and prosthetics, removal of concept of "non-essential" teeth
- Satisfaction with dental services (quality of care)

Goal 4: To Improve the Administration of the NIHB Program

- Number of dentists who are registered with the NIHB Program
- Prevalence of dentists who require prepayment of treatment (linked with barriers to treatment above)
- Number and type of oral health complaints to the AFN Complaint Registry
- Expenditure ratio: administration/service delivery
- Average turnaround time for predetermination requests
- Average payment time for dental provider invoices
- Number of instances where predetermination has required a second trip by client to complete treatment
- Development of additional quality indicators in partnership with the NIHB Program to continuously evaluate NIHB administration

Goal #5: To Increase First Nations Access to Fluoridated Water

- Number of communities with access to safe drinking water
- Number of communities with access to fluoridated water
- Number of communities which are implementing a fluoridation system
- Rate of decay in communities with fluoridation (long term outcome)

Goal #6: To Increase Collaborative Care, Integrated Policy Development and Resource Sharing

- Number and types of collaborations and/or partnerships developed with provincial and territorial oral health strategies
- Number of protocols with provincial and territorial referral systems for oral health care
- Number of oral health teams
- Number of health policies (e.g. federal, First Nations) which include oral health.

Goal #7: To Increase Access to Information and Research on First Nations Oral Health Status and Service Utilization

- Number of regional oral health surveys, and frequency of their administration
- Number of First Nations community guidelines for prevention and treatment of oral diseases for all age groups

Annex 1 Data to Support Figures

Figure 1: First Nations Dental Treatment Needs, 2002/03 RHS

	children	youth	adults
Maintenance (e.g. check ups and teeth cleaning)	42.7%	42.0%	48.4%
Dental fillings/restorative work	29.6%	36.6%	36.9%
Fluoride treatment	12.4%	12.9%	13.8%
Tooth extraction	7.0%	6.1%	12.4%
Orthodontic treatment	5.2%	NR	3.6%
Urgent dental care	2.0%	NR	5.5%
Periodontal work	NR	1.4%	5.6%
Prosthetic work	NR	NR	14.0%

Source: First Nations Information Governance Committee. 2007
NR = not reported

Figure 2: First Nations NIHB Claimant Rate: 2004/05 - 2008/09

	2004/05	2005/06	2006/07	2007/08	2008/09
00-04	20.6%	21.7%	21.0%	21.1%	31.8%
05-09	44.6%	46.7%	45.4%	45.4%	37.3%
10-19	43.5%	44.6%	42.9%	42.5%	42.5%
20-29	34.8%	36.2%	35.0%	34.9%	35.4%
30-39	35.4%	36.6%	35.7%	35.5%	36.1%
40-49	37.2%	38.5%	37.1%	36.7%	37.1%
50 plus	27.9%	29.5%	29.7%	30.5%	30.8%
Total	35.8%	37.1%	36.0%	35.9%	36.2%

Figure 3: First Nations NIHB Average Number of Claims per Claimant: 2004/05 - 2008/09

	2000/01	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**AAGR**
00-04	7.7	7.7	8.0	7.8	7.92	8.56	8.00	8.39	8.31	0.9%
05-09	7.3	7.3	7.5	7.4	7.59	7.73	7.50	7.41	7.52	0.5%
10-19	6.9	6.9	6.9	6.9	7.03	7.21	7.05	6.96	7.08	0.3%
20-29	5.9	5.9	6.1	6.2	6.24	6.51	6.45	6.40	6.60	1.4%
30-39	5.8	5.8	5.9	5.9	6.01	6.29	6.17	6.14	6.28	1.1%
40-49	5.6	5.7	5.9	5.9	5.91	6.20	6.15	6.14	6.27	1.4%
50-59	5.2	5.2	5.5	5.6	5.64	5.95	5.84	5.86	5.96	1.6%
60-64	5.0	5.0	5.0	5.1	5.23	5.50	5.50	5.45	5.62	1.6%
65+	4.7	4.6	4.8	4.9	5.02	5.15	5.08	5.16	5.24	1.5%

AAGR: annualized average growth rate

Figure 4: First Nations NIHB Average Cost per Claimant: 2004/05 to 2008/09

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	AAGR
00-04	$386	$409	$438	$432	$465	$541	$513	$574	$573	5.1%
05-09	$266	$285	$297	$291	$314	$340	$334	$347	$362	3.9%
10-19	$410	$440	$453	$433	$421	$445	$434	$449	$488	2.2%
20-29	$367	$388	$408	$416	$435	$489	$496	$511	$562	5.5%
30-39	$385	$398	$408	$410	$426	$475	$469	$485	$523	3.9%
40-49	$411	$432	$451	$441	$453	$498	$501	$514	$548	3.6%
50-59	$435	$457	$480	$479	$477	$529	$514	$532	$563	3.3%
60-64	$449	$481	$497	$494	$508	$540	$532	$542	$576	3.2%
65+	$450	$480	$512	$514	$529	$552	$548	$557	$599	3.6%

AAGR: annualized average growth rate

Figure 5: Total PCHPH Clients and Claims, 2006/07 – 2008/09

	2006/07	2007/08	2008/09
Clients	36,158	36,843	34,340
Claims	72,804	71,230	63,477

Figure 6: Decay Rates, 0-4 years of age, 2006/07 – 2008/09

# deft	0	1	2	3	4	5	6	7	8
2,006	39.4%	3.3%	5.5%	2.9%	7.1%	3.3%	4.2%	2.8%	31.5%
2,007	41.3%	3.3%	5.2%	2.7%	6.7%	2.8%	3.9%	2.7%	31.3%
2,008	44.4%	3.7%	4.9%	2.7%	6.3%	3.2%	3.9%	2.7%	28.3%

Deft = decayed, extracted, filled teeth

Figure 7: Claimant Rate, 8 or more claims in a single day, 2008/09

	AB	ATL	MN	NWT	ON	PAC	QC	SK	YK
0-4	9.8%	0.0%	10.3%	1.9%	3.0%	7.0%	0.0%	4.9%	0.0%
5-9	7.1%	0.0%	4.1%	1.4%	2.2%	4.1%	0.0%	3.2%	0.0%

Figure 8: Number of Anterior and Posterior Endodontic Claims, 1999/00 – 2008/09

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Actual Anterior	4,872	4,381	4,144	4,148	3,592	4,125	6,771	6,513	6,217	6,476
Expected Anterior	4,872	4,984	5,087	5,186	5,268	5,388	5,495	5,621	5,668	5,784
Actual Posterior	10,084	9,051	9,078	8,980	7,757	8,643	9,540	8,709	8,747	9,282
Expected Posterior	10,084	10,316	10,528	10,733	10,942	11,153	11,374	11,635	11,731	11,972

Expected number of claims is based on actual eligible population growth.

Figure 9: Number of COHI Claims/PHCPHD Client Population, 2006/07 – 2008/09

	2006/07	2007/08	2008/09
0 - 4	0.75	0.70	0.78
5 - 7	0.64	0.56	0.62
8 - 9	0.16	0.09	0.12
10 - 14	0.04	0.05	0.09

Figure 10: Number of COHI and P&PH Claims/PHCPHD Client Population, 0-4 and 5-7 yrs, 2008/09

	0-4	5-7
AB	1.79	1.64
ATL	1.66	1.58
MN	1.64	1.56
ON	1.79	1.75
PAC	1.73	1.58
QC	1.82	1.79
SK	1.15	1.06
Total	1.65	1.53

Annex 2

NIHB Medical Transportation Expenditures for Dental Services
2005/06 to 2008/09*

	2005/06	2006/07	2007/08	2008/09
Northern Region	$57,250	$99,095	$121,033	$201,345
Atlantic Region **	n/a	n/a	n/a	$154,716
Quebec Region	$36,799	$22,391	$11,820	$21,904
Manitoba Region	$365,351	$599,690	$640,136	$517,284
Saskatchewan Region	$927,720	$924,317	$881,102	$608,050
Pacific Region	$2,024	$1,773	$5,789	$120,202
Ontario Region	$281,024	$489,772	$575,282	$924,810
TOTAL	$1,670,169	$2,137,039	$2,235,162	$2,548,312

Source: SAP, Health Canada

* All data in this table represents Medical Transportation expenditures that have been coded as Dental (311/F121 - Dental)
** Data breakdown for Atlantic Region 'dental' expenditures is unavailable for these years due to regional coding practices.

Note: Contribution agreement data is NOT included as FN/Inuit communities are not required to report on a breakdown by Benefit.