2023
ENVIRONMENTAL SCANNING REPORT

CANADIAN DENTAL ASSOCIATION

ASSOCIATION DENTAIRE CANADIENNE

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OVERVIEW

WHAT IS ENVIRONMENTAL SCANNING?

The purpose of environmental scanning is to identify key information and trends, as well as changes and emerging issues, to assess how they may impact the profession, either positively or negatively. Ultimately, the process tries to answer two questions: "What?" and "So What?" to help the profession decide how to react "Now What?".

To support the CDA board as it sets its priorities, this report looks at the environment at three levels:

- The external environment where political, economic, social and technological (PEST) dimensions are considered, particularly factors that could relate to and impact dentistry and demand for oral health care.
- The health environment where pertinent information, trends and factors are explored from both the provider and patient perspectives.
- The dentistry environment where data and trends across the dental spectrum are examined including demographics, practice settings, economics, education, workforce, oral health status, regulation, and models of care.

Past environmental scanning reports identified and ranked dentistry megatrends for the next several years. This worked well when uncertainty was not extreme. Planning for the longer term is not useful now, however, because there are too many variables we are not yet able to assess. This scan reflects the limitations, uncertainty and extreme volatility in all key health, political, economic, social and technological indicators.

Three key environmental factors are directly impacting dentistry in the short term.

1) The continuing impacts of the COVID-19 pandemic on Canadian dentistry, from both the ongoing functionality and evolution of dental practices and from the public's gradual return to pre-pandemic dental habits.
2) The unanticipated investment by the federal government in dental care for lower-income Canadians without dental insurance. This is a watershed moment in Canadian dentistry that will radically change the course of oral health care delivery.
3) The global and Canadian economies are in a major slowdown and retraction (probably in recession), with several turbulent challenges ongoing, including inflation and interest rates being much higher than seen in several decades.

More than ever, political, health care and economic factors will have a major impact on how Canada's dentistry and the oral health care sector will evolve over the next few years.

This edition of the environmental scan identifies key factors that will directly or indirectly impact dentistry in the short term, given the current socioeconomic landscape. These key factors are classified as either supply side or demand side. As usual, brief highlights of some political, economic, societal, technological, health and dentistry trends are also presented as well as the potential impact of the federal investments in dental care. Although this version of the environmental scan will not follow the megatrends format of previous years, it will nonetheless identify and rank 10 key trends that will continue to be of significance to dentistry in the next five years.

DEMAND FACTORS

▶ Major federal investments in dental care

This is a watershed moment in Canadian dentistry that will radically change the course of oral health care delivery. The federal government will provide funding of $5.3 billion to Health Canada over five years, starting in 2022-2023, and $1.7 billion ongoing. This will start with under 12-year-olds in 2022, and then expand to under 18-year-olds, seniors, and persons living with a disability in 2023, with full implementation by 2025. The program will be restricted to families with an annual income of less than $90,000, with no co-pays for those under $70,000. The plan is expected to cover the costs of routine care and caries treatments, dentures, and periodontics. Co-payments will scale linearly for households with income between $70,000 and $90,000. The thresholds are indexed to inflation.

SO WHAT?

Opportunities

- Potential to increase the amount of money available for oral health care and significantly increase the patient population seeking dental care annually.
- Opportunity to positively impact CDA's long-standing access-to-care position.
- Potential for cooperation with the federal government on collection of clinical data, provider and user demographic data, health policy data, access to provincial EHRs, and development of clinical decision support tools.
- Further entrench CDA in the dental economy with the adoption of CDA methods for claims transmission and related processes.
- Potential for better integration of dentistry in general health care, opening opportunities for expansion of scope of practice.
- Potential for government investment in dental offices (computer infrastructure, ventilation systems, etc.).
- Potential to further develop rural and remote oral health care delivery models.

Threats

- Possibility of competition from alternative delivery models to the current private dentist delivered, fee-for-service model.
- Patients delaying dental care while waiting for the public plan.
- Media taking a negative view of dentists' positions on the federal investment, damaging the profession's reputation.
- Implementation of a plan with significant office overhead that reduces dental office productivity.
- Introduction of a non-CDAnet method for claims transmission that undermines CDAnet.
- Other professionals competing for federal funding (mental health, chiro/physio, vision care, etc.).
- Employers dropping private dental insurance benefits.
- Provincial governments reducing their public dental programs.

▶ Annual dental visitation rates are still below pre-pandemic levels

In 2018, the annual dental utilization/visitation rate was 75%. According to Abacus public polling from late 2022, that number dropped to approximately 67%. A considerable proportion of the Canadian population has still not resumed their usual dental visitation habits. As well:

- 8% have worse benefit coverage now compared to before the pandemic.
- 62% have some type of dental coverage compared to 65% before the pandemic.
- 21% have dental visitation habits that are different than before pandemic (and a third of these can be attributed to being dental care phobic, so this number is really 14%).
- 27% of Canadians are delaying further dental treatments this year due to the economy.

Some of the shortfall in annual dental visitation rates can be attributed to a slight reduction (3% to 5%) in dental benefits coverage. As well, the majority (63%) of Canadians aged 65 and over do not have dental benefits. A greater number of people in this age group are not going to the dentist due to rising inflation.

SO WHAT?

Consumer spending will be difficult to predict throughout this period of high inflation. It will be an ongoing challenge to return to pre-pandemic dental sector conditions (i.e., reaching annual population visitation rates of 75%). However, the recent federal government investment in dentistry

will definitely increase the annual utilization rate, as may provincial public funding initiatives.

In a tight labour market, employer benefits will continue to be an important instrument for recruitment and retention. Abacus polling has shown that benefits coverage has remained consistent even through periods of turbulence. We can reasonably assume that over the next two years the same proportion of Canadians will have dental benefits, which is a strong predictor of dental service utilization. The task is to ensure that those with dental benefits can afford to resume their habits.

▶ Canada is in a major economic downturn and recession

Economic growth depends primarily on household consumption. The ratio of Canadian household debt to disposable income recently rose to 181.7%. In the current environment, inflation and rising interest rates are reducing consumers' purchasing power. The high level of household debt in Canada makes this country's economy more sensitive to rate hikes than that of the United States.

Canadians have just experienced the largest decline in household wealth on record. It fell by nearly $1 trillion in the second quarter of 2022, reflecting significant declines in the stock, bond and real estate markets. This decline could weigh heavily on consumption levels because people typically spend less when the value of their assets decreases. This is especially true when consumers are worried about the future and become wary of making discretionary purchases.

SO WHAT?

For patients

Approximately 40% of dental service expenditures are out-of-pocket, and as a result discretionary spending on dental care will be reduced in favor of debt repayment. Elective procedures will be delayed more often than non-elective procedures.

Emergency rooms, hospitals and public programs for dental care will become overwhelmed and oral health may worsen for those who neglect care for too long; seniors in particular will be impacted by deteriorating oral health, which in turn leads to other health issues.

Depending on the scope and timeline of the economic downturn, there could be greater political pressure for universal single-payer dental care now that federal government investments are a reality.

Moderating factors are affecting current economic conditions. For example, the labour market remains tight in Canada, which is helping to boost wages despite a decline in employment, and this will help moderate the slowdown. Also, as of November 2022, most components of the consumer price index are now below their year-over-year changes on a three-month annualized basis. This could mean that inflationary pressures may be close to peaking, except for food prices.

For dentists

Dentists may see a drop in gross practice billings, especially those with fewer third-party insured patients. Decreasing net incomes will not meet many dentists' lifestyle needs, and some debt reduction strategies and personal spending cuts will be required.

Younger, less established dentists, and those with higher debt loads may want to associate with larger (and corporate) practice models that are potentially better able to navigate this period. More established dentists and those closer to retirement may require updated financial strategies. All dental practices will need to effectively deal with supply chain and staffing shortage issues in what will be a more competitive marketplace.

Moderating factors: dentists are working in a sector in which most services are not discretionary or debt-financed, and therefore the impact of inflation will be subdued. It is most likely that over the next two years, employers will need to maintain dental benefits as a strong retention tool. This will likely be especially true in high-paying sectors in which workers are in high demand.

The federal investments in dental care will also have a moderating effect: 40% of those eligible for first phase said they are more likely to go to the dentist regularly due to the benefit and 70% feel it will relieve some financial pressure.

▶ Impact of federal investments and the economic downturn on the redesign of employers' benefits plans

In 2021, the health insurance sector paid a record $30.4 billion in supplementary health claims for 27 million Canadians, who used benefits for health, drugs and dental care. An estimated $9.5 billion (32%) of the total was for dental care.

Canadians value their workplace dental benefits. The majority of employees consider basic dental services a valued benefit, and an inadequate employer benefit plan is a good reason to look for another job. Employers will be looking for ways redesign their benefit plans to factor in the

federal government dental care program while maintaining competitive offerings.

A recent Abacus poll of Canadians found that 78% support the federal investments in dental care. However, support declined by half to 39% if the federal program negatively impacts current employer benefits. 70% of Canadians with employer benefits would be unable or less able to afford dental care if they lost those benefits.

SO WHAT?

Employers have two streams of employees: those who could potentially be covered under the public plan, and those who are not eligible and need to have a workplace plan. This will create complexities in redesigning employee dental benefit plans. The government's goal should be to develop a public program that does not lead to a substantial decline in employer benefit plans, which could limit access to dental care for millions of Canadians.

One possibility is that employers may try to restructure their plans by removing dental coverage and putting those savings into increasingly common and popular health care spending accounts (HCSA), which employees may or may not spend on their dental care. Another possibility is that employers exclusively cover major dental surgeries. However, both scenarios could lead to unequal coverage among employees at different pay scales.

Organized dentistry needs to ensure that publicly funded dental coverage programs serve as the payer of last resort, instead of replacing employer-provided dental benefits. We should advocate for the federal government to work with provincial and territorial governments and alongside industry stakeholders to put a system in place that preserves and promotes further employer-provided dental care coverage.

▶ Rapid change through disruptive technologies

Emerging technologies are enabling preventive and restorative approaches that provide more affordable and responsive services. Artificial Intelligence (AI) will have a huge impact on dental insurance, and may lead to changes in service delivery models and benefit packages, automated payments, identification of insurance services based on population studies and patients' needs, or denial of care based on data on lifestyle. Most dentists have little knowledge about the full range of how these technologies could be applied. However, soon they will need to understand the potential of disruptive technology to enhance their practices, and how to assess risks and benefits of specific technologies.

SO WHAT?

As governments further fund telehealth, telehealth-connected teams will become more important. These teams can reach people who do not traditionally receive regular dental care, improving overall population oral health, lowering the cost of care, and decreasing the consequences of neglect. Teledentistry is rising rapidly, and we will need to integrate it with local, regional, and national Canadian telehealth programs and the overarching Canadian health care system.

Dentistry will also face increasing societal expectations, with a greater emphasis on social determinants of health that foster wellness. It is important to shift dental education towards a model that emphasizes prevention, diagnosis, and non-surgical treatment using modern technologies to better prepare dentists for the future demands of the oral health care market.

The combined effects of technologies like mobile apps, the cloud, AI, sensors and analytics are accelerating progress exponentially. Once physical limitations that are inhibiting exponential gains in mass-market technologies are overcome, the pace of change will accelerate even faster.

The risk of the interposition of companies that decide if dentists are providing appropriate care is real and could have a significant impact on the practice of dentistry and the patient-dentist relationship. New graduates will likely be the drivers of technology uptake in dental offices. They are more likely to be "tech savvy" than their predecessors, and will embrace the digital dentistry era.

SUPPLY FACTORS

▶ Dental market consolidation will continue at an increased pace

A recent Canadian dental IPO is a good indicator of sector trends. According to the 2021 DIAC Annual Future of Dentistry Survey, 18% of dentists were in a corporate practice and 39% in solo practice; however, respondents were relatively young—the average time in practice was only 9 years. Of those in solo practice, 24% were looking to join a group practice and 12% a corporate organization. In the U.S., there has also been an acceleration in the shift away from solo practice. Now for the first time, the percentage of private practice dentists has dipped to below 50%.

The pandemic has made the dental practice environment even more economically challenging for new dentists. The growth of larger groups, networks of dental practices, and dental management firms will outpace solo practices and partnerships.

SO WHAT?

The practice environment of dentists has been changing and will continue to change, due in large part to the demographic mix and work-life balance expectations of younger dentists. The trend towards larger, multi-site practices is here to stay and organized dentistry needs to maintain its relevance to individual practitioners while showing value for large and corporate practice owners.

▶ The commercial aspect of dentistry has become more pronounced

The after-effects of the pandemic, a challenging economic environment, and increased competition in certain regions for a smaller patient pool has increased the need for business acumen in dentistry. Dentists and group practices need to find ways to survive and thrive during the economic downturn. The public will also look increasingly for cheaper alternatives such as direct-to-consumer and will not be as concerned with safety considerations of these dental treatments after their positive COVID experiences with telehealth.

SO WHAT?

Lower annual revenues per patient will give dentists the incentive to treat more patients to maintain incomes that justify their investment in dental education and practice. To cope with increasing competition, dentists may invest in marketing to attract new patients, upsell services and retain their patient base. This could be perceived negatively by the public.

▶ Severe and worsening staffing shortages in dentistry

Health workforce capacity issues will continue to be at the forefront as significant and complex problems remain across the broad health care system, both in the public and private sectors. Even before the pandemic, a shortage of dental assistants and concerns about unhealthy work environments were issues. Post-pandemic, dental providers are facing unprecedented challenges.

Staff are hard to come by. Offices in some regions have reported shortages that have led to a reduction in available appointments. In recent Abacus polling, an estimated 500,000 adult Canadians had a dental appointment cancelled due to staffing availability issues over a 2-month period. That adds up to 3 million cancellations throughout the year; approximately 120 per dentist. There are also high attrition rates: 25.3% of dental assistants reported they will likely seek a new job within the next 12 months, and 10% of dental hygienists plan to leave the profession within the next two years and 18% plan to leave within three to five years. New entrant rates into these professions have been declining.

In 2022, the American Institute of Dental Public Health evaluated the impact on workforce numbers and wages using data from the U.S. Bureau of Labor Statistics Occupational Employment and Wage Statistics. They found that the dental workforce as a whole was reduced by 3% from pre-pandemic levels.

SO WHAT?

Workforce shortage and capacity issues have become even more pronounced recently. Larger numbers of dental assistants and hygienists are planning to exit the sector for a variety of reasons, including mental stress and burnout. Replacing them will require innovation, especially now that dental care will be available to millions of Canadians through the federal program.

Economic and staffing challenges will accelerate the trend towards alternative practice models. Younger and less established dentists (and those with higher debt loads) will potentially look for larger practices that may be able to better navigate turbulence.

Organized dentistry needs to research and analyze the marketplace to better understand

the viability and sustainability of new alternative and integrated practice models. We also need a systematic analysis of the current workforce structure, and ideas about how it can be mended. Now more than ever, we need a well-designed and researched human resources planning model for oral health care to quantify the number and location of oral health providers, their practice environments and demand projections. This is even more important given the move towards voluntary association membership.

▶ Mental health issues affecting the profession

The pandemic is not over. Pandemic measures and procedures implemented in dental practices over the last two years will need to be continuously modified as new information becomes available. In addition, the current economic downturn and financial stressors of practice may further contribute to burnout and other mental health issues. Dentists will continue to work in an unstable environment.

SO WHAT?
Organized dentistry will need to help members navigate in a post-COVID-19 practice environment for many years to come.

▶ Lack of infrastructure and capacity to deliver efficient dental care to seniors

Pressure continues to build on all governments to re-organize the public health care delivery system to accommodate Canada's rapidly increasing senior population. Models of health care delivery and payment will be changing to ensure sustainability. Seniors' oral health care has been identified as a key component in the federal dental care investment strategy.

SO WHAT?
There are opportunities for dentistry to address access to oral health care for seniors with other stakeholders. For example, there may be more funds available for research into new models of oral care.

Legislation may expand the scope of physicians, nurses and others with advanced geriatrics training to provide basic oral care services, particularly for seniors in home care, long-term care (LTC) facilities, hospitals, and other non-office settings.

Organized dentistry needs to propose innovative models for prompt access to oral care for seniors so that governments do not impose their own models unilaterally. This could lead to calls for more advanced training in geriatric dentistry to deal with the increased number of seniors with access to oral health care.

▶ Government priorities for health care system sustainability

Sustaining the health care system continues to be a top priority for governments across the country. There is now a high degree of alignment among provinces, territories and the federal government on which initiatives to fund:

- Mental health care.
- Increasing system capacity.
- Care for older adults and continuing care.

Additionally, physicians and other providers are experiencing burnout, stress, and depression and some are leaving health care, causing critical staff shortages to the public system (for example, emergency rooms).

SO WHAT?
Provincial public dental programs and hospital-based dentistry may be negatively impacted as governments realign their budgets and cut funding in some areas to further support the traditional health care system. However, dentistry can find areas of alignment with government priorities; for example, oral health care for seniors.

Key Trends

Past environmental scanning reports identified and ranked dentistry megatrends for the next several years. That part of environmental scanning is being paused due to the current uncertainty and extreme volatility in the environment. However, the 10 key trends listed below continue to impact dentistry in the short to middle term. We will report on megatrends again when there is more stability in the environment and there is a clearer understanding of the impact of the federal dental plan.

Major government investments in dental care
Human resource challenges in dentistry
Evolution of alternative dental care delivery models
Evolving concepts of the workplace and benefits
Increasing commercial nature of oral health care
Growing income inequality affecting access to dental care
Shifting care needs for an aging population
Empowered health consumers
Increasing global mobility of health professionals
Expansion of alternative health providers

PEST SCAN

POLITICAL

LIBERAL/NDP FEDERAL INVESTMENT IN DENTAL CARE

On October 27, 2022 the House of Commons voted to approve bill C-31, an act respecting cost of living relief measures related to dental care and rental housing, at third reading. C-31 created the Canada Dental Benefit (CDB) for eligible Canadian children under age 12.

A total of 172 Members of Parliament (MPs) voted in favour of the bill, with 138 opposed. MPs from the Liberal Party, New Democratic Party, and Green Party supported of the bill, with MPs from the Conservative Party and the Bloc Québecois voting against it.

On November 18, 2022 the bill received Royal Assent and became law, which enacted the Canada Dental Benefit (CDB). The CDB is an interim measure that will provide financial support for dental care to parents and guardians of children under 12 years old who do not have access to a private dental insurance plan.

The next phase of the federal government's program will include children under age 18, seniors, and persons with disabilities. Full implementation of the CDB program will be in place by 2025.

Interim dental benefit for children aged under 12

To address pressing needs for Canadian children, this legislation grants the Minister of Health, with support from the Minister of National Revenue, the authority to disburse a benefit to eligible recipients as an interim solution. An upfront payment recognizes that many eligible recipients do not have the financial flexibility to wait for reimbursement.

Eligibility criteria target those most in need of immediate support. Inequities in access to oral health care disproportionately affect children; the consequences of poor oral health in childhood can be lifelong.

To receive the benefit, an applicant must have:

- A child in their care who is younger than 12 and does not have access to private dental insurance.
- Filed the previous year's tax return and be in receipt of the Canada Child Benefit for that child.
- An annual adjusted family net income less than $90,000.
- Incurred dental care expenses on behalf of their child, or plan to do so within the benefit period.
- Not been and will not be fully reimbursed for those dental expenses by another provincial or federal plan.

Two benefit periods are defined in the Act. The first runs between October 1, 2022 and June 30, 2023. To be eligible during this period:

- Eligible expenses must be incurred between these dates.
- The child must be under 12 years old and the family income must be under the $90,000 threshold on December 1, 2022.

The second benefit period runs between July 1, 2023 and June 30, 2024. To be eligible during this period:

- Eligible expenses must be incurred between hese dates .
- The child must be under 12 years old and the family income must be under the threshold on July 1, 2023 or, if the applicant is requesting a benefit for the previous year, on December 1, 2022.

The CRA will verify information like income, age of child and the applicant's relationship to that child in its tax and Canada Child Benefit systems, but parents will also be asked to provide information including:

- Contact information for the dental professional who did or will provide the dental services, including date of planned visit or recent visit.
- Contact information for their employer, if they have one, as well as that of their cohabiting spouse or common-law partner to verify that the child does not have access to an employer dental care plan.
- Any other information required to verify eligibility.

Payment amounts:

- $650 for a child whose family income is less than $70,000.
- $390 for a child whose family income is between $70,000 and $79,999.
- $260 for a child whose family income is between $80,000 and $89,999.

Assumptions used by the Parliamentary Budget Officer (PBO) to determine the cost of the dental benefit program are as follows:

- Eligible children under 12 years old who are uninsured or partially insured by the public sector, and who belong to a family with a net income of less than $90,000, were identified using a customized version of Statistics Canada's Social Policy Simulation Database/Health Model (SPSD/Health).
- The PBO also considered the fees and limits of coverage and type of dental services covered by provincial oral health care programs and the utilization rate of each service.
- The participation rate was approximated by the percentage of children under 12 years of age who visited a dental professional during the year for any reason. Participation rates of 76% and 90% were used for uninsured and publicly insured children, respectively.
- With the introduction of the Canadian Dental Benefit, it is assumed access to dental care services will be less constrained by income. The participation rate for children from higher income families was used to approximate the higher number of beneficiaries.

CDA VIRTUAL ROUNDTABLES

The CDA reached out to dentists across Canada through a series of virtual roundtables to get their thoughts on the new federal funding . Here is a summary of their feedback.

1) **Ensure that reimbursement of dental services and compensation of dentists is in line with provincial/territorial fee guides**

   We heard that this is one of the most significant factors impacting dentists' participation in a publicly-funded dental program and improving access for Canadians to oral health care. Increasing the ratio of remuneration levels in relation to provincial fee guide levels will help ensure that patients who need treatment continue to be seen. It will also ensure that dentists can afford to keep their practices going.

2) **Provincial/territorial public plans already exist and there is infrastructure in place**

   Keeping already established provincial programs in place will avoid conflict over jurisdiction and will allow for efficient implementation of the program by the end of 2023. It will also ensure ease of administration so that programs currently working well for patients will continue to provide the same or enhanced services and increased eligibility.

3) **Income eligibility criteria need to be administered efficiently by governments**

   Dentists hope that determining income eligibility will be an easy process so that they can avoid making mistakes as well as avoid additional administrative burden. They also hope this process includes the critical step of ensuring that the government plan is the payer of last resort in the case of private dental insurance availability. This will ensure effective and efficient service provision in dental offices and help prevent employers from dropping existing coverage.

4) **Provincial/territorial fee guides and claims processing systems should continue**

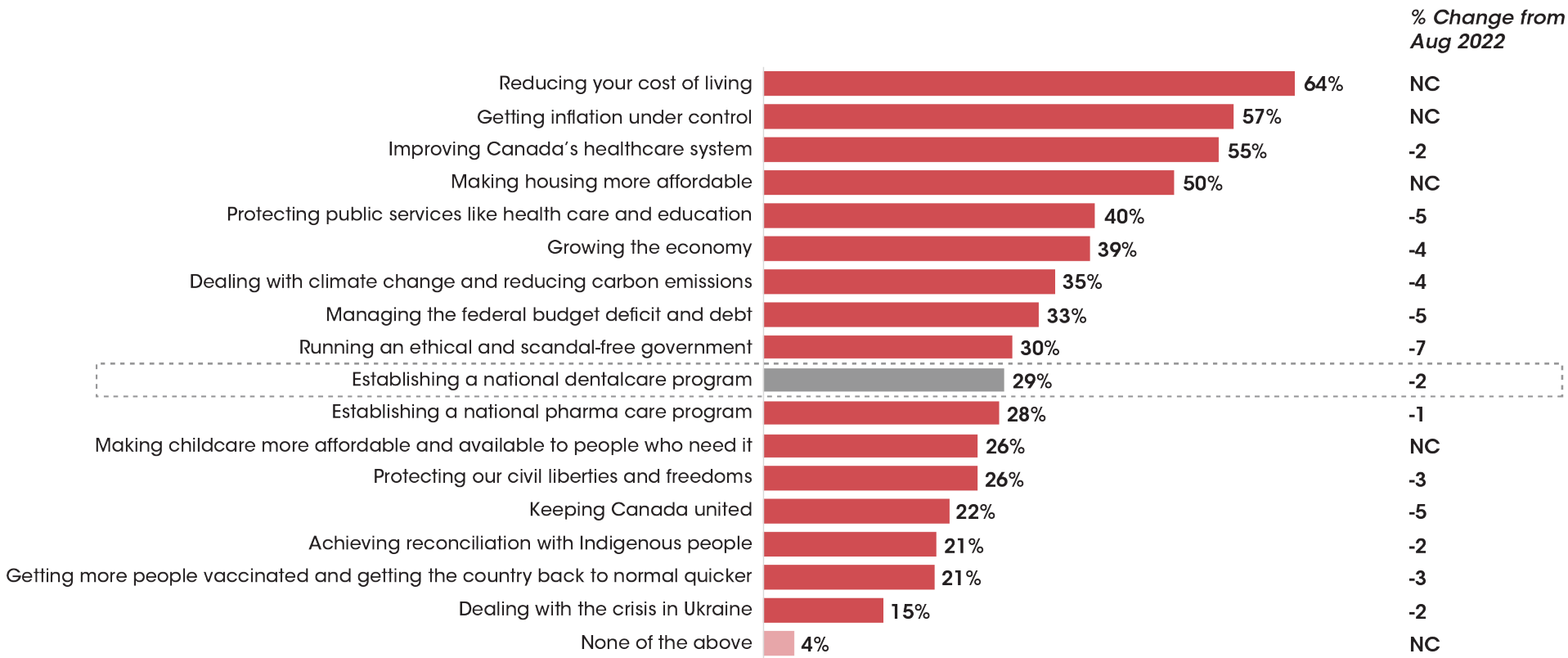
   The provincial fee guides are reviewed yearly by experts and incorporate the procedure, time required, materials used, staffing requirements, cost of living and other factors. Keeping the current system would ensure that the fee guides remain up to date and would make administration easier for dental staff who have been using the fee guide and coding system for years.

5) Ensure that the private employer-based insurance system, which has worked well for decades, remains intact

Mechanisms should be in place before roll out of the federal dental program to avoid major decreases in private dental insurance coverage, which would significantly compromise the viability of many dental practices. Private insurance must be the primary payer, and government plans should only be used as a last resort. Dentists feel that the ability to balance-bill should be an element of the plans. They also hope that public programs are used as a way to fill in the gaps for patients who do not currently have access to private insurance.

Prioritizing the federal government's key issues

ABACUS OCTOBER 2022



ECONOMIC

GLOBAL ECONOMY

World economic forecasts from the International Monetary Fund (IMF)

- The global economy is experiencing several turbulent challenges. Higher Inflation than we've seen in several decades, tightening financial conditions in most regions, Russia's invasion of Ukraine, and the lingering COVID-19 pandemic all weigh heavily on the outlook.
- Normalization of monetary and fiscal policies that delivered unprecedented support during the pandemic is cooling demand as policymakers aim to lower inflation back to target.
- A growing number of economies are in a growth slowdown or contraction.The global economy's future health rests critically on the successful calibration of monetary policy, the course of the war in Ukraine, and the possibility of further pandemic-related supply-side disruptions—for example, in China.
- Global growth is forecast to slow from 6.0% in 2021 to 3.2% in 2022 and 2.7% in 2023.
- This is the weakest growth profile since 2001, except for the 2008 global financial crisis and the acute phase of the COVID-19 pandemic, and it reflects significant slowdowns for the largest economies.
- About one-third of the world economy faces two consecutive quarters of negative growth. Global inflation is forecast to rise from 4.7% in 2021 to 8.8% in 2022 but will then decline to 6.5% in 2023 and to 4.1% by 2024.

Risks to the outlook remain unusually large:

- Monetary policy could miscalculate the way to reduce inflation.
- Policy in the largest economies could continue to diverge, leading to further U.S. dollar appreciation and cross-border tensions.
- More energy and food price shocks might cause inflation to persist.
- Global tightening in financing could trigger widespread emerging market debt distress.
- Reduced or halted Russian gas supplies could depress output in Europe.
- A resurgence of COVID-19 or new global health crises might further stunt growth.
- A worsening of China's property sector crisis could spill over to the domestic banking sector and weigh heavily on the country's growth, with negative cross-border effects.
- The OECD believes that further interest rate increases are needed in most major advanced economies to reduce inflation, and these will likely bring "below-trend growth".

The global economy continues to be buffeted by multiple shocks, and business should prepare for continued volatility. Global recession fears have resurfaced, with likely recessions in the U.S. and Europe and a severe slowdown in China. At the same time, it is important to not lose sight of the longer trend. Beyond 2023, the global economy will likely return to its slowing trend growth rate compared to the pre-pandemic period. Emerging economies are expected to drive global growth even more than before, while the contributions from mature economies, especially Japan and Europe, are poised to be less significant.

Global economic outlook

- The 10-year economic outlook signals a prolonged period of disruptions and uncertainties for businesses, but also opportunity. Global growth will return on a slowing trajectory once the 2022 to 2023 regional recessions end, with mature markets making smaller contributions to global GDP over the next decade. Nonetheless, there are still opportunities for firms to invest in both mature markets (given their wealth and need for innovation to compensate for shrinking labor forces) and emerging markets (given their need for both physical and digital infrastructure to support their sizable and young labor forces).
- The global economy is weakening rapidly, with the U.S. and Europe forecast to experience recessions in the very near term and China to suffer significantly weaker growth in 2023. A global recession may be avoided, but the world probably will experience notably below-trend growth of 2.1% in 2023.
- Beyond 2023, a shrinking and aging workforce across many mature and large emerging market economies will have a dampening effect on growth in the supply of labor and capital.
- As quantitative drivers of growth, such as capital and labor, are slowing, productivity increases will

become more important drivers of output and revenue growth. Technological development and adoption of new technologies, especially automation, have accelerated in recent years, and business should be better placed than before to reap the benefits.

- As investment opportunities are becoming more limited in mature economies, a focus on emerging economies can be a potential growth strategy. Growth opportunities in emerging economies are driven by increased spending on goods and services associated with expanding middle classes and surpluses of young and educated workers.
- Sub-Saharan African economies and emerging Asian economies seem best placed to continue to outperform the global average pace of growth. However, increasing geopolitical tensions and reversal of globalization trends pose challenges to continued economic integration and convergence of these economies.

Source: Global Economic Outlook 2023; The Conference Board of Canada.

CANADIAN ECONOMY

Canada: federal government fall economic statement highlights, November 2022

Source: Bracing for a Slowdown: Canada's Three-Year Business and Industry Outlook, Conference Board of Canada, 2022.

Economic outlook

- In Canada, headline inflation declined for the third month in a row to 6.9% year-over-year in September, below the 8.1% peak in June, and more moderate than many peer countries (U.S., Europe, U.K., Australia, New Zealand, etc.)
- Canada's economic recovery from the pandemic recession has been strong, with real gross domestic product (GDP) having returned to pre-pandemic levels in the fourth quarter of 2021, which is the fastest recovery of the last three recessions.
- Despite slowing global economic growth, the Canadian economy has demonstrated resilience, having seen strong growth in the first half of 2022, with real GDP growing by 3.2 % at an annual rate, by far the fastest pace in the G7.
- Canada's economy is now 102.6% the size that it was before the pandemic.
- Canada has seen one of the fastest jobs recoveries in the G7, with about 400,000 more Canadians working today than before the pandemic, and the unemployment rate of 5.2% in September is near its record low.
- Employers were seeking to fill over 1 million jobs in the second quarter, a record high, though the timeliest data suggests some easing in labour demand. This tightness in the labour market has also resulted in a solid rise in wage growth, which has helped lessen the impacts for some of the rising cost of living.
- Overall, real GDP expanded by 1.8% at an annual rate from May to August. This is a notable deceleration from a growth pace of 7.1% between January and April.
- While private sector economists continue to believe that Consumer Price Index (CPI) inflation will return to the Bank of Canada's target, this is taking longer than expected. CPI inflation was projected to remain above 3% until the third quarter of 2023—almost a year later than what private sector economists predicted in Budget 202—before reaching 2% in mid-2024.
- Real GDP was projected to expand by a still-strong 3.2% in 2022 (from an estimated 3.9% in Budget 2022) but growth was expected to slow to 0.7% in 2023 (from 3.1%).
- As a result, the unemployment rate was expected to increase from the current rate of 5.2% to 6.3% by the end of 2023, still low by historical standards, before declining to 5.7% by 2026.
- Most private sector economists continue to expect that Canada will avoid a "hard landing"; that is, inflation will moderate without a recession. This growth outlook is subject to significant downside risks, primarily related to inflation. A more pronounced slowdown, both in Canada

and globally, is possible if high inflation becomes more deeply entrenched.

- In this downside scenario, Consumer Price Index (CPI) inflation is 1.8 percentage points above projections in 2023, and stays above 3% until the first quarter of 2024, about 6 months longer than expected, before reaching 2% by the end of 2024.
- As a result of inflation driving higher interest rates, Canada will enter a mild recession in the first quarter of 2023. Real GDP will contract by 1.6% from peak to trough, far less than the 4.4% contraction in 2008 to 2009. Similarly, the unemployment rate will rise 1.7 percentage points to 6.9% in the second half of 2023, far lower than the peak of 8.7% experienced following the 2008 to 2009 contraction. For 2023 as a whole, real GDP will decline by 0.9% and the unemployment rate will be 0.5 percentage point above expectations.

Fiscal plan

- Fiscal results to date show that the aggregate provincial-territorial budgetary balances moved into a surplus position in 2021 to 2022, as opposed to the 1% of GDP deficit that had been expected at the time of 2022 budgets. The improvement was in line with, but somewhat larger than, the better-than-expected result at the federal level of a deficit of 3.6% of GDP.
- The budgetary balance is expected to remain below the $52.8 billion deficit projected in Budget 2022, with a $36.4 billion expected deficit in 2022-23, about -1.3% of GDP, improving to a $4.5 billion surplus in 2027 to 2028, or about 0.1% of GDP.
- The federal deficit and federal debt as a share of the economy are projected to be reduced each year and remain well below the Budget 2022 forecast.
- In the downside scenario, the budgetary balance would deteriorate by an average of approximately $16 billion per year and add 3.3 percentage points to the federal debt-to-GDP ratio by 2027 to 2028, though these positions would still be improvements from projections at the time of the Budget 2022.
- Even under the downside scenario, the federal debt-to-GDP ratio would still be on a downward trend over the medium term and be lower in 2027 to 2028 than it is today.

Key highlights: Canada's 3-year business and industry outlook

- Many businesses anticipate a recession in Canada within the next year, derailing their production and investment plans.
- Elevated oil prices mean the energy sector will lead in investment over the short term.
- Industries hit hard over the past two years, such as transportation and manufacturing, are poised for increased investment, though challenges remain.
- Softer domestic and global demand and ongoing supply chain problems will continue to temper output in several manufacturing sectors throughout 2023.
- Commercial services will face competing forces over the short term; the lifting of most pandemic-related restrictions will help some industries, but higher inflation and interest rates will hinder others.
- Fiscal constraints at all levels of government will soften output growth for the public sector for most of the forecast period.

Economic pulse of Canadians

There is still no consensus among economists as to whether Canada will enter a recession in 2023, or how early and deep it will be. While this year's interest rate hikes (+375 basis points) are starting to slow inflation, a possible recession in the next few months could be amplified by Canada's high debt loads and high inflation. More stubborn inflation trends over the coming months could prompt additional hikes, a potentially larger decline in household consumption, and a deeper recession.

Canada's inflation rate will stay at 6.9% this year, but should cool to 4.5% in 2023, though this is still higher than the Bank of Canada's target range of between 2% and 3%. The rate should decline starting at the end of 2023, reaching 1.75% by year-end 2024.

Labour market in Canada

- The labour market is the tightest it has been in decades. An excess of job openings and a scarcity of workers will protect against a major spike in unemployment in the very near term.
- The jobless rate will likely rise to 7% by the end of 2023, up almost 2 percentage points from a low of 4.9% in June and July 2022.

Consumer debt and consumption

- A survey conducted by Ipsos, which tracks Canadians' attitudes towards their debt situation, found that 52% of respondents say it's becoming less affordable to feed themselves and their families. This is an increase of five percentage points from the survey results from December 2021.
- In a Statistics Canada survey, nearly 3 in 4 Canadians say that rising prices are affecting their ability to cover day-to-day costs, and 24% had to draw on savings.

Household net worth falls by nearly one trillion dollars

- While household incomes continued to expand in the second quarter of 2022, balance sheets contracted sharply as asset markets plunged into correction territory. Household wealth contracted by 6.1% but remained 23.9% higher than before the pandemic.
- After expanding by 5.0% in the first quarter, household disposable income edged up 1.0% in the second as higher wages and salaries offset lower government transfers. Stronger spending pushed the savings rate down to 6.2%. Household income and savings in the quarter remained well above pre-pandemic levels. Disposable income was 16% above levels reported in late 2019, while the savings rate was over twice its pre-COVID baseline.
- Household net worth is the value of all household assets minus liabilities. This fell by $990 billion in the second quarter, the largest quarterly decline on record. Household financial assets were hit by weaker equity markets, while the value of residential properties fell sharply as borrowing costs rose. Households took on more debt as both mortgage and non-mortgage borrowing increased, the former advancing at a near record pace.
- Household wealth inequality increased in the second quarter for the first time since the onset of the pandemic. The net worth of households in the bottom 40% of the wealth distribution fell by 12.0% (an average decrease of $8,828). This is more than twice the rate of decline for households in the top wealth quintile (5.9%, or an average decrease of $199,118). While wealth fell across all age groups, younger households were the most heavily impacted. The average net worth of households in the youngest age group (less than 35 years) fell by 8.2%, reflecting the sharp decline in real estate values.

Increasingly costly issue of employee turnover

Employee turnover is becoming an increasingly costly problem plaguing Canadian employers, according to a 2022 Harris Poll survey, commissioned by Express Employment Professionals, of 504 hiring decision-makers. More than one in three (35%) say turnover has increased compared to last year—a significant rise from the one in four (24%) who said the same thing in 2021. Workers are willing to jump for better opportunities.

Why are people leaving? Compensation comes out on top:

- Better pay or benefits offered elsewhere (36%).
- Employees resigning (35%).
- Employees feeling overworked (33%).
- Retirements (30%).
- Increased workplace demands (29%).
- Better perks elsewhere such as summer Fridays and unlimited vacation days (28%).

Employers are meeting the challenge of the labour shortage head on by making changes to their work and reward programs as they battle to attract, retain and engage workers.

Employee turnover costs companies an average of over $41,000 each year (including the cost to rehire, lost productivity and more). But one in 10 hiring managers (16%) say the cost can run as high as $100,000 or more per year.

Two-thirds of companies agree that employee turnover places a heavy burden on remaining employees (64%). This is especially the case with large employers with 100 or more employees (75%) compared to small businesses with fewer than 10 employees (50%).

Top ways employers in Canada are fighting turnover

Companies have been innovating and adapting, but job seekers keep increasing their demands. Businesses are more willing to hire for aptitude and motivation and then train for skill and knowledge but, as a result, the learning curve is great and longer tenure is required for the business to see a return.

Employers are meeting the challenge of the labour shortage head on by making changes to their work and reward programs as they battle to attract, retain and engage workers.

- 86% are hiring employees at the higher end of salary ranges.
- 84% are increasing flexibility in where employees work (such as home versus office) and how they work.
- 81% are offering sign-on bonuses to attract talent.
- 65% are using retention bonuses to keep employees, mostly by targeting such bonuses for managers (82%) and professionals (80%).
- 55% are increasing training opportunities.

While enhancing compensation programs can help employers' immediate recruitment and retention efforts, they recognize they will need to improve the overall employee experience to achieve sustainable success.

Half (50%) of Canadian employers say they need more employees but lack the capacity to hire.

Source: Canadian HHR Reporter, Sarah Dobsen, December 2022.

SOCIETAL

CANADIAN DEMOGRAPHICS

Canadian demographics highlights for July 2022

Source: Statistics Canada

- Population estimate: 38,929,902 (quarterly change: 0.7%)
- Proportion of people aged 0 to 14 years: 15.6%
- Proportion of people aged 65 years and older: 18.8%
- Number of centenarians: 13,484
- Median age: 41.0 years
- Average age: 41.7 years
- Life expectancy at 65 (2018 to 2020):
  - → Males: 19.49 years
  - → Females: 22.19 years
- Indigenous population: 1,807,250
- Rural population: 5,957,695
- Percentage of the population with English as first official language spoken: 75.5%
- Percentage of population speaking a first language other than English or French at home: 12.7%
- Canadians living in poverty (2020): 6.4%, down from 10.3% in 2019
- Canadians living in deep income poverty (2020): 3.0%, down from 5.1% in 2019
- Canadians living in households that had experienced moderate or severe food insecurity (2020): 11.2%, compared with 10.8% in 2019
- The median hourly wage for Canadian employees was $26.00 in 2021, down from $26.36 in 2020 (in 2021 dollars)
- Average hourly wage rate for the employed population 15 and over, 2021: $30.03.
- Immigrants (%) in Canada: 21.9% (2016)
- Second generation population (%) in Canada: 17.7% (2016)
- Visible minority population (%) in Canada: 22.3% (2016)
- Number of recent immigrants (landed between 2011 and 2016) in Canada: 1,212,075 (2016)
- Labour force participation rate, 2021:
  - → Total: 65.1%
  - → Men: 69.6%
  - → Women: 60.6%
- Employment rate, 2021:
- Total: 60.2%.
  - → Men: 64.3%.
  - → Women: 56.3%.
- Homeownership rate: 66.5%.
- Proportion of persons aged 15 and older who live in private households alone: 14.5%.
- Proportion of couples who have children: 50%.
- Proportion of young adults (20 to 34) who are living with at least one parent: 35.1%.

CHANGES IN CANADIAN SOCIETY

The rise of the experience economy

Younger generations are showing a marked preference for spending their money on doing things rather than owning things, in what's become known as the experience economy. This trend is pushing retailers to explore how they can respond to "experiential" desires. For example, companies are involving customers in co-creating products through online surveys, and they are sponsoring more in-store events and courses.

Younger people also prefer to spend their money on access to goods and services rather than ownership. This has led to the rise of the sharing economy and a trend toward renting rather than owning. This trend reflects increasing environmental consciousness that is also leading to a preference for eco-friendly and reusable products.

Baby boomers work more years than earlier generations

Longer life expectancies and a shift to more knowledge-based employment may have contributed to baby boomers working more years than earlier generations. To arrive at this conclusion, labour force participation (LFP) rates were compared between 5 birth cohorts born between 1920 and 1965, including baby boomers who were born between 1946 and 1965. At age 65, male baby boomers had a LFP rate at least 16 percentage points higher than their counterparts born before 1940. Female baby boomers achieved even higher LFP rates than their counterparts in previous generations, with more than 50% still participating in the labour force at age 60, and more than 25% at age 65.

Forces of change in Canadian society

In our rapidly changing world, the typical life course is changing, and this might have policy implications. The following is from Policy Horizons Canada, Future Lives Report; Government of Canada, 2022.

Nine forces of change:

- Longer lifespans are shifting when and how people reach certain life milestones.
- People are having fewer children, and at a later age.
- Changing social norms for families are affecting people's life experiences.
- Data and AI-powered systems are increasingly used to make decisions about us, as well as influencing the decisions we make ourselves.
- The way we access and accumulate wealth is changing, leading to greater economic insecurity for many, and more security for some.
- Rising anxiety about existential threats like climate change is challenging people's beliefs about the future.
- Migration to and within Canada is increasing, but future patterns are uncertain.
- The structural forces that define how, where, and why we work over the life course are changing.
- People's expectations about available life course options are increasingly challenging social contracts that rely on social cohesion.

These transformations will create new challenges and opportunities across different parts of society and the economy. Each one can be considered on its own, but they often overlap and affect each other. For that reason, they are best understood together. In the future, they could drive the following changes:

Care

- Global health crises could increase the care burden as people live longer with more chronic disease. The long-term health impacts of COVID-19, climate change, and increasing rates of poverty and mental illness remain unknown. With rising needs for care, more people may drop out of education and paid employment to look after others. In addition, rising needs for care may lead to new demands for support.

- People who become parents later in life might need different kinds of support. As people start families later, they may not have their children's aging grandparents to help with childcare. Members of the growing "sandwich generation" struggle to meet the demands of caring for both children and seniors at the same time. These parents may not have as much help right after a baby is born or for raising the child.

- When people have children later in life, future generations may be responsible for eldercare at a younger age. With delayed parenthood and shrinking family support networks, more young people could be pushed into caregiving roles earlier in life. This could affect their ability to complete postsecondary education or training, earn an income, or start a family.

Education

- Frequent periods of unemployment for people in Canada could generate demand for rapid reskilling. As knowledge becomes obsolete more quickly in the labour market, it could lead to demands for rapid reskilling. This applies both to the employed and to those who lose their jobs because their skills are no longer relevant.

- More transient lifestyles might create demand for more flexible education. Online learning means that students can live anywhere, and tuition fees may become linked to where people live rather than at which institution they study. With parents' working hours generally becoming more flexible and less predictable, the "normal" school day may also need to be rethought.

- Radically new kinds of educational institutions may seek government recognition. As demand rises for learning across the life course, new kinds of educational institutions could emerge.

Living arrangements

- More people in Canada could need to move due to climate change. Natural disasters such as floods, heatwaves, and wildfires used to happen "once in a century." As such disasters become more frequent, more Canadians may need help relocating their families, possessions, and livelihoods.

- More people might migrate to Canada temporarily. The assumption that people who migrate to Canada will stay here may not hold. Immigrants typically settle in large urban centres. As a result, they may be more affected by the rising costs of living.

- Demands may emerge to formalize new care and cohabitation relationships. As new family configurations and relationships of care become increasingly normalized, we could see demands for these relationships to receive formal legal status.

Reproduction

- Tech companies and central data holders could have an outsized influence on who has children with whom. More people may find romantic partners via dating apps. If so, algorithms will be bringing together more new parents in the future. Dating apps based on genetic matching could be marketed as a way to prevent hereditary disease, and may reinforce prejudice against certain groups and lead to ethical concerns over new forms of eugenics.

- More childless older adults needing care will not have family caregivers. Currently, younger family members do much of the eldercare. As a result, childless older adults may demand alternative arrangements to provide the care they need. Childless older adults may find new ways to distribute any wealth and property they have accumulated.

- Research on the lasting impact of early childhood experiences may lead to new legal challenges. Governments and corporations have increasingly faced legal challenges based on future generations' right to climate justice and a sustainable tomorrow.

Labour

- The division could become starker between people who live off passively accumulated wealth and those who work full time for their income. The "great intergenerational wealth transfer" could deepen the divide between social classes. People who do not inherit assets may find them increasingly hard to accumulate.

- Care work might become better paid, and paid care more expensive. More older adults may lack family members nearby to care for them and rely more on paid care workers. This may lead to shortages of care workers.

- "Kidfluencers" may call on digital content platforms to provide fair compensation,

oversight, and work permits, and for a redesign of labour guidelines. The line between productive economic activity and leisure has been blurring as online platforms profit from the engagement of their users by aggregating and monetizing data.

Older adulthood

- Aging adults could look for different ways to achieve economic security. Retirement as we know it may become much less common. More people with fewer savings might have to delay their retirement. Different decisions on pensions and savings could be made earlier in the life course.
- Pervasive agism might decrease as older adults take up more space in society relative to other age groups. New choices are emerging for wealthy older adults to spend the "third act" of their lives. We may see a more radical "politics of old age" that pushes for greater entitlements and more consideration for the needs of older adults.
- Home design and infrastructure development may evolve to cater to an aging population. Cities today are largely built around the needs of working-age, able-bodied adults. People living healthier lives for longer will expect greater independence in older adulthood than previous generations.

After a robust economic recovery, pressure points emerge:

- Labour market imbalances persist despite robust job gains.
- Population aging weighs steadily on labour force participation.
- Household balance sheets remain healthy, but affordability pressures mount.
- Purchasing power falls as wage gains lag behind rising consumer prices.
- Business productivity slows as supply disruptions persist and capital outlays are slow to recover.
- Challenges to social cohesion remain as public health measures are lifted.
- Mental health impacts persist, especially among young Canadians.

Employment growth is dominated by professional services and occupations that typically require university education:

- The portion of core-age workers now working is well above pre-pandemic levels.
- Vulnerable population groups, including many racialized communities, have seen robust job gains over the past year.
- Growth in the number of public sector employees (+390,000) reflects increases in health care and social assistance, public administration, and educational services.
- In private sector industries, large net increases in professional, scientific and technical services (+274,000) and finance and real estate industries (+149,000) have been partly offset by declines in accommodation and food services (-142,000). Self-employment also remains well below pre-pandemic levels.
- Net employment gains since the onset of the pandemic have been fully concentrated in occupations that usually require university education (+700,000).

Source: Labour Force Survey, August 2022.

AGING POPULATION

Population aging is an important factor in explaining current labour shortages

Source: Recent Economic and Social Developments. Labour Force Survey, August 2022. Statistics Canada.

- While current economic conditions play an important role, labour supply is increasingly influenced by population aging and changes in the age structure of the workforce over time. More than 1 in 5 working-age Canadians are approaching retirement age.
- Job vacancies climbed to a record high in mid-2022 despite the strong recovery in payroll jobs. Older Canadians led the increase in the working-age population, slowing the growth of the labour force.
- Since the onset of the pandemic, the working-age population has increased by about 900,000. About two-thirds of that increase is accounted for by workers who are now 55 years of age and older. Many older people have rejoined the workforce because economic conditions are preventing them from retiring.
- Population change during this period has been driven by more elderly Canadians with much lower labour force participation rates. Participation rates for specific age groups are very similar to their pre-pandemic baselines.
- In August 2022, 307,000 Canadians had left their job to retire at some point in the last year, up from 233,000 one year earlier and from 273,000 in August 2019.
- Limits on labour force growth: If the contribution of each age group to the total population had stayed constant over the past three years, there would have been 374,000 more people in the labour force than there are currently.

Social strains remain as public health measures are lifted

The percentage of Canadians reporting mental health challenges has yet to decline to pre-pandemic levels, particularly among youth, and fewer than 6 in 10 Canadians report a strong feeling of meaning or purpose. Rising crime severity and increased instances of discrimination are negatively impacting marginalized populations.

TECHNOLOGICAL

TOP HEALTH TECHNOLOGY TRENDS

Some of the top health technology trends to watch in 2022 and beyond

Source: Digital technology and Internet use, 2021. Statistics Canada, November 2022.

The 2022 Health Technology Trends to Watch list presents the top 10 technologies that have the potential to fundamentally shift the way health care is provided and accessed in Canada within the next 2 years. The list was developed with direction and insights from pan-Canadian stakeholders, which included patients, health care decision-makers, researchers, representatives from government agencies, and industry experts.

Remote diagnostics, remote monitoring, and remote care management

Remote care refers to the delivery of care at a location and time that is convenient for all members within the circle of care. The proliferation and expansion of remote care technologies that allow for the diagnosis, monitoring, and management of patients outside of traditional health care settings may fundamentally shift the way health care is provided and the way people access health care in Canada. These technologies include synchronous (real-time) apps such as videoconferencing and asynchronous (store-and-forward) technologies such as digital pathology or digital dermatology tools.

Remote care technologies have the potential to expand access to health care across wider geographic areas; for example, by enabling people in rural and remote areas to connect with specialists and specialty care otherwise unavailable to them without travel. However, the proliferation of these technologies does not come without challenges of equity and implementation, such as bandwidth and connectivity, equitable design, and culturally appropriate care.

Point-of-care testing

Point-of-care testing refers to testing outside of a centralized laboratory and has a variety of potential applications for screening and diagnosis. Common tests already in use include those for blood glucose monitoring, home pregnancy tests, and assays for detecting infectious diseases. The onset of the COVID-19 pandemic also spurred substantial uptake of COVID-19 tests that can rapidly and accurately provide results at or near the point-of-care. This proliferation also led to an increased awareness about how such tests may be applied across different aspects of medicine.

Health apps and wearable technologies (mHealth)

Mobile health apps are a growing field of digital health technology, and are intended for the diagnosis, treatment, or prevention of health conditions or diseases. Mobile health apps offer a variety of functions to support health and well-being. Some of these include the ability to store and track health information, provide health education information, provide periodic reminders or motivational guidance, and use GPS tracking to alert patients.

Mobile health apps and technologies are likely to be disruptive as they proliferate across the health care landscape. If shown to be clinically effective, they will provide a novel approach for accessing and collecting health information, increasing patient involvement, and providing a new platform to improve treatment of certain conditions. Although the emergence of mobile health apps and wearable technologies has happened quickly and on a large scale (there are more than 350,000 health apps available for download), few of these apps have been designed for or reviewed and authorized for clinical use in Canada.

Voice technology

Voice technology has many applications within the virtual care space, including conversational AI technology (e.g., chatbots) that act as voice assistants for health assessment, diagnostics, and companionship for patients. It can also play a key role in the administrative tasks handled by health care providers through real-time charting, storing health care data, and communicating with other health professionals. Voice technology has the potential to provide an accessible platform for patients to interface with aspects of the health care system and drive efficiencies in areas of care that require a high volume of resources.

Artificial intelligence for diagnostics and public health

Artificial intelligence is an umbrella term used to describe a variety of approaches (e.g., machine learning, natural language processing) that allow computer programs to perform tasks that have been traditionally done by humans. Automating or making informed predictions can potentially

increase the efficiency of clinical workflows, reduce costs, reduce the time it takes to perform tasks and report findings, and free up costly and limited health human resources (e.g., specialized technicians and radiologists).

Artificial intelligence for health professionals

Another emerging application of AI within the health care system is to change the way health professionals approach patient consultations and develop treatment plans. A main functionality of AI in health care is the ability to store and analyze data in a way that could offer helpful predictions for health care delivery. This ability to make data-driven predictions can play a major role in health screening (e.g., for cancer) by alerting health professionals to early signs of disease. AI for use by health professionals is likely to be disruptive because it could change how treatment decisions are made in real time and bring the technology to the people responsible for providing care or making decisions about care needs.

DIGITAL TECHNOLOGIES

Digital technology and Internet use in Canada

Source: Digital technology and Internet use, 2021. The Daily, Statistics Canada, September 2021.

Since the onset of the pandemic, work and business transactions have increasingly been conducted virtually rather than in-person. This continued through 2021 for many businesses, as the pandemic has emphasized the need to use digital technologies to adapt to new realities.

In 2021, Canadian businesses with five or more employees grossed $398 billion in e-commerce sales, roughly 30% higher than in 2019 ($305 billion), the year before the start of the pandemic. This also marked a nearly four-fold increase in e-commerce sales over the past decade, when sales reached $106 billion in 2012.

One-third (33%) of Canadian businesses had at least some e-commerce sales in 2021, an increase from 2019 when one-quarter (25%) received or made sales of goods or services over the Internet.

Large businesses (38%) were the most likely to report e-commerce sales, while medium (36%) and small (32%) businesses did not lag far behind. This compares favourably to other small businesses internationally; the Organisation for Economic Co-operation and Development (OECD) reported that 25% of small businesses from reporting member countries had online sales in 2020.

Use of various information and communication technologies in Canadian business grows in 2021

Beyond growth in e-commerce, the pandemic has accelerated the use of other digital technologies. In 2021, more Canadian businesses used information and communication technologies (ICT) (85%) compared with 2019 (80%). Some of the most used technologies were:

- Company-wide computer networks (53%)
- Industry specific software (46%)
- Cloud computing (45%)
- Internet-connected smart devices (22%)

Conversely, some more advanced types of ICT were less common, such as software and hardware using artificial intelligence (4%), 3D printing (2%), advanced robotics (1%), and blockchain technologies (less than 1%).

Cloud computing was one of the most used ICTs in 2021, with an increase of six percentage points from 2019. In addition, businesses using cloud computing technologies reported spending, on average, $43,000 in 2021, an increase of roughly $15,000 from 2019. On average, large businesses spent $558,000, medium-sized businesses spent $44,000 and small businesses spent $8,800 on cloud computing in 2021. Businesses in the information and cultural industries sector (77%) were the most likely to use cloud computing technologies, followed by those in the utilities sector (72%) and the professional, scientific, and technical services sector (70%).

Although adoption of software and hardware using artificial intelligence (AI) was uncommon within the overall business population, the rate of adoption in 2021 was highest among large businesses (20%), and businesses in the utilities sector (17%) and in the information and cultural industries sector (13%). Among businesses that used AI technologies, machine learning (37%) and technologies that automate workflows or assist in decision making (37%) were used most frequently.

One-third (33%) of Canadian businesses offered some or all their employees the option to telework in 2021, an increase of 14 percentage points compared with 2019 (19%). Nearly three-quarters (74%) of large businesses allowed teleworking in 2021, compared with 53% of medium-sized and 27% of small businesses.

A large majority of Canadian businesses (89%) had at least one type of web presence in 2021, marking a slight increase from 2019 (85%).

Web presences include company websites (78%), social media accounts (61%), and email marketing (19%). Among businesses with a company website, around three in five (59%) had a website optimized for use on a mobile device.

CYBERSECURITY

Cybersecurity trends in Canadian business

Source: Impact of cybercrime on Canadian businesses, 2021. Statistics Canada, November 2022.

Canadian businesses are implementing formal policies for cyber security. In addition to increases in prevention and detection expenses, many Canadian businesses are implementing policies and procedures to mitigate risks. Over 6 in 10 Canadian businesses (61%) designated at least one employee with responsibility for overseeing cyber security risks and threats, almost 4 in 10 (38%) had a consultant or contractor to manage cyber security risks and threats, and almost one-third (29%) had monthly or more frequent patching or updating of operating systems for security reasons.

Another risk management tool for many businesses was cyber risk insurance, which 16% of Canadian businesses had in 2021, down from 17% in 2019. For those with cyber risk insurance, their policies covered items such as direct losses from an attack or intrusion (84%), restoration expenses for software, hardware, and electronic data (75%), and businesses interruption and reputational losses (73%). Amongst Canadian businesses with cyber risk insurance and who had cyber security incidents, 88% did not make a claim for the incident, 8% successfully made a claim against the insurance, and 2% attempted to make a claim but were unsuccessful.

Overall, 1 in 10 businesses in Canada with a cyber security incident were impacted by ransomware, and fewer made ransom payments. As ransomware becomes more used by attackers, 11% of Canadian businesses that were impacted by a cyber security incident in 2021 were impacted by ransomware. Among these businesses, a large proportion (82%) did not pay the ransom, while a smaller proportion (18%) reported making a ransom payment, with 1% paying more than $500,000. In addition, among those that made a ransom payment, 14% of them did so with cryptocurrency.

To resolve a ransomware attack, 6 in 10 (60%) businesses impacted by ransomware used an external information technology (IT) consultant or contractor, 14% worked with other external parties, and 13% went through their cyber risk insurance provider.

Fewer businesses reported incidents to police in 2021. Overall, 1 in 10 (10%) of businesses that were impacted by a cyber security incident reported the incident to police, a decrease from 12% in 2019. Small, medium, and large businesses all saw a decrease in reporting to police from 2019 to 2021. Businesses that reported incidents to police were also three times more likely to have reported being impacted by an incident involving theft or manipulation of intellectual property or business data (26% compared with 8%), twice as likely to have reported being impacted by an incident involving theft of money or demands for a ransom payment (66% compared with 34%), and were twice as likely to have reported being impacted by an incident that disrupted or defaced the business or web presence (38% compared with 17%), when compared with those that did not report incidents to police. In addition, businesses that reported incidents to police reported an average cost of $53,500 to recover from cyber security incidents, compared with $14,000 for those that did not report the incident to police. Of those that did not report cyber security incidents to police, the main reasons for not doing so were that the incidents were resolved internally (43%), incidents were resolved through an IT consultant or contractor (30%), or that the incidents were minor (29%).

TYPES OF CYBER SECURITY INCIDENTS THAT IMPACTED BUSINESSES, CANADA, % OF BUSINESSES		
	2019	**2021**
Business was impacted by any cyber security incidents	20.8	18.1
Incidents to disrupt or deface the business or web presence	3.2	3.5
Incidents to steal personal or financial information	6.1	5.9
Incidents to steal money or demand ransom payments	8.8	6.7
Incidents to steal or manipulate intellectual property or business data	1.6	1.8
Incidents to access unauthorised or privileged areas	3.7	3.8
Incidents to monitor or track business activity	1.2	1.6
Incidents with an unknown motive	7.9	7

HEALTH CARE SCAN

CANADIAN HEALTH CARE EXPENDITURES FORECASTS FOR 2022

The following information is taken from the National Health Expenditure Trends, 1975 to 2022, which is the Canadian Institute for Health Information (CIHI) annual health expenditure trends publication. This edition was published in November 2022.

- In 2022, the public sector will pay for about 72% of total health expenditures (65.6% from the provincial and territorial governments and 6.2% from other parts of the public sector).
- Private-sector spending will account for the other 28% of total health expenditure in 2022. The private sector has 3 components, the largest of which is out-of-pocket spending (14.3%), followed by private health insurance (11.4%) and non-consumption (2.5%).
- The public-private split was fairly consistent from the early 2000s to 2019, with the public sector share of total health spending remaining relatively stable at around 70%.
- In 2000, 2005, 2010 and 2019, the split was 70% public/30% private.

Health spending per person varies among the provinces and territories and is highest in the territories.

These are the 2022 forecasts for per-person spending and the corresponding growth rates for Canada as a whole and for each province and territory in decreasing order:

- Nunavut: $21,978 per person: an 8.3% decrease.
- Northwest Territories: $21,946 per person; a 2.3% decrease.
- Yukon: $15,884 per person: a 1.2% increase.
- Newfoundland and Labrador: $9,894 per person; a 1.5% increase.
- Nova Scotia: $9,536 per person: a 5.0% increase.
- Saskatchewan: $8,954 per person: a 0.03% decrease.
- British Columbia: $8,790 per person: a 2.4% increase.
- Quebec: $8,701 per person: a 1.8% decrease.
- Canada: $8,563 per person: a 0.3% decrease.
- Alberta: $8,545 per person: a 3.5% decrease.
- Prince Edward Island: $8,531 per person: a 2.3% increase.
- Manitoba: $8,417 per person: a 1.0% decrease.
- Ontario: $8,213 per person: a 0.3% increase.
- New Brunswick: $8,010 per person: a 0.9% increase.

Key findings:

- Total health expenditure is expected to reach $331 billion, or $8,563 per Canadian in 2022.
- Overall, health expenditure will represent 12.2% of Canada's gross domestic product in 2022 (following a high of 13.8% in 2020).
- Total health expenditure in Canada is expected to rise by 0.8% in 2022, following high growth of 13.2% in 2020 and 7.6% in 2021. Prior to the pandemic, from 2015 to 2019, growth in health spending averaged 4% per year.
- Hospitals (24.34%), physicians (13.60%) and drugs (13.58%) continue to account for the largest shares of health dollars (more than half of total health spending) in 2022.
- Per person spending:
  - → Hospitals $2,084
  - → Physicians $1,164
  - → Drugs $1,163
- In 2020, federal, provincial and territorial governments combined spent $770 per person on health-specific funding to deal with COVID-19. Pandemic response funding is projected to decline to $376 per person in 2022.
- Continued growth in spending is expected in 2022 as care that was deferred during the pandemic returns, resulting in an increase in the number of health care services provided compared with pre-pandemic years. In addition, demographic factors such as population aging and population growth will continue to contribute to spending growth.

TOTAL HEALTH EXPENDITURE PER CAPITA BY HEALTH SPENDING CATEGORY, CANADA, 2022 (CURRENT DOLLARS AND PERCENTAGE SHARE)		
Category	**Per capita health expenditure**	**Share of health expenditure**
Hospitals	$2,084	24.3%
Drugs	$1,163	13.6%
Physicians	$1,164	13.6%
Other Institutions	$1118	13.1%
Other Professionals: Dental Services	$477	5.6%
Other Professionals: Vision Care Services	$169	2.0%
Other Professionals: Other Health Professionals	$236	2.8%
OHS: Other Health Spending	$614	7.2%
OHS: Health Research	$131	1.5%
Public Health	$449	5.3%
Capital	$335	3.9%
Administration	$243	2.8%
COVID-19 Response Funding	$376	4.4%

Source: National Health Expenditure Database, Canadian Institute for Health Information 2022

Canada is among the highest spenders in the OECD

Source: Organisation for Economic Co-operation and Development. OECD Health Statistics 2022.

Canada is above the OECD average in per-person spending on health care. Among 38 countries in the OECD in 2020 (the latest year for which comparable data is available), spending per person on health care remained highest in the United States (CA $15,275). Canada's per capita spending on health care was among the highest internationally, at CA $7,507; less than Germany (CA $8,938) and the Netherlands (CA $7,973), but more than Sweden (CA $7,416) and Australia (CA $7,248).

Health care issues to monitor:

- Canada's economy is projected to grow by almost 4% per year. Continuous economic growth and the prospects for higher government revenues in the next few years may lead to sustained health spending increases in the near future.
- High-cost medicines coming to the market will drive prescribed drug spending growth but savings from generics will have a dampening effect. A national pharmacare program could impact future spending trends.
- More growth in the number of physicians as well as higher demand for physician services due to an aging population will contribute to a rise in expenditures on physicians.
- New health technologies will drive change but their development and impact are hard to predict.

COVID-19 statistics

Detailed preliminary information on cases of COVID-19, 2020-2022. Source: Public Health Agency of Canada. October 2022

CANADA, ALL GENDERS, ALL AGE GROUPS					
	Death	**Total, by death status**	**Yes, deceased**	**No, not deceased**	**Not stated, deceased**
Transmission	Hospitalization				
		Number			
Total, by transmission	Total, by hospitalization status	4,014,019	45,705	3,567,933	400,381
	Yes, hospitalized and ICU admitted	29,581	7,940	16,240	5,401
	Yes, hospitalized but not ICU admitted	164,016	17,922	123,597	22,497
	Not hospitalized	2,421,979	14,109	2,084,613	323,257
	Not stated, hospitalized	1,398,443	5,734	1,343,483	49,226
Community exposures	Total, by hospitalization status	1,813,656	23,266	1,542,671	247,719
	Yes, hospitalized and ICU admitted	16,474	4,605	8,579	3,290
	Yes, hospitalized but not ICU admitted	75,830	8,663	55,967	11,200
	Not hospitalized	1,087,251	8,156	845,935	233,160
	Not stated, hospitalized	634,101	1,842	632,190	69
Travel exposures	Total, by hospitalization status	13,645	117	10,759	2,769
	Yes, hospitalized and ICU admitted	226	53	127	46
	Yes, hospitalized but not ICU admitted	469	26	366	77
	Not hospitalized	12,530	21	9,865	2,644
	Not stated, hospitalized	420	17	401	2
Not stated, transmission	Total, by hospitalization status	2,186,718	22,322	2,014,503	149,893
	Yes, hospitalized and ICU admitted	12,881	3,282	7,534	2,065
	Yes, hospitalized but not ICU admitted	87,717	9,233	67,264	11,220
	Not hospitalized	1,322,198	5,932	1,228,813	87,453
	Not stated, hospitalized	763,922	3,875	710,892	49,155

Source: Statistics Canada. Table 13-10-0774-01. Detailed preliminary information on cases of COVID-19, 2020-2022: 6-Dimensions (Aggregated data), Public Health Agency of Canada

COVID AND MENTAL HEALTH ISSUES

Long COVID

Source: Frequency and impact of longer-term symptoms following COVID-19 in Canadian adults. Government of Canada, 2022.

Some people continue to experience symptoms after the acute phase of COVID-19. These longer-term symptoms are known as post COVID-19 condition, or long COVID. The Government of Canada developed the Canadian COVID-19 Antibody and Health Survey (CCAHS) to find out more about these longer-term symptoms. The CCAHS covers from the beginning of the COVID-19 pandemic until August 31, 2022.

It found that 14.8% of adults with a confirmed or suspected COVID-19 infection experienced longer-term symptoms. The rate was higher for females (18%) than males (11.6%), and for those who had severe symptoms as soon as they became ill (36.4%).

Among adults with longer-term symptoms, the most common were:

- Fatigue, tiredness or loss of energy (72.1%)
- Coughing (39.3%)
- Shortness of breath or difficulty breathing (38.5%)
- Difficulty thinking or problem solving (32.9%)
- General weakness (30.9%)

Almost half (47.3%) experienced symptoms for a year or longer, and 21.3% said that their symptoms often or always limited their daily activities.

Among adults with longer-term symptoms who were employed or attending school, approximately three-quarters (74.1%) missed some work or school due to their symptoms. On average, they missed 20 days.

These findings are consistent with results from other surveys and international evidence.

Mental health of Canadians

Source: Profiles of mental health and their association with negative impacts and suicidal ideation during the COVID-19 pandemic: A Canadian perspective. Statistics Canada. Health Reports, Vol. 33, no. 8, August 2022.

The COVID-19 pandemic has had a profound negative impact on the mental health of Canadians, with vulnerable populations hit hardest.

A recent Canadians Statistics Canada survey explored the differential impact of the pandemic on those experiencing different degrees of mental health difficulties.

Two-thirds (65.70%) of Canadian adults reported having no mental health difficulties (Profile 1).

One-quarter (25.52%) reported having low-to-moderate mental health difficulties (Profile 2) and 1/12 (8.78%) reported having severe mental health difficulties (Profile 3).

Individuals who were most vulnerable to negative impacts and suicidal ideation during the pandemic included those who experienced severe levels of anxiety, depression and psychological distress.

Individuals in Profile 2 (4.27%) and Profile 3 (19.09%), compared with those in Profile 1 (0.16%), were at greater risk of having contemplated suicide since the onset of the pandemic. Among individuals with severe mental health difficulties, one in five had contemplated suicide since the onset of the pandemic.

PERCENTAGE OF CANADIANS REPORTING VERY GOOD OR EXCELLENT MENTAL HEALTH, BY AGE GROUP AND PERIOD, CANADA, EXCLUDING THE TERRITORIES, %

	Jan to Dec 2018	Jan to Dec 2019	Sept to Dec 2020	Sept 2021 to Feb 2022
12 to 17 years	74.1	73	67.1	61.2
18 to 34 years	64	60.8	57.7	50.9
35 to 49 years	68.5	66.6	63.5	56.1
50 to 64 years	69.4	69.6	64.9	59
65 years and older	72.2	70.8	70.8	67.7

Source(s): Canadian Community Health Survey, 2018, 2019, September to December 2020, and September 2021 to February 2022

CMA National Physician Health Survey 2021

Source: CMA 2021 National Physician Health Survey. Prepared for the Canadian Medical Association August 2022.

The Canadian Medical Association (CMA) conducts a national survey every three to four years to monitor health and wellness trends among physicians in Canada. Even before the global COVID-19 pandemic was declared in March 2020, research showed physicians are at a high risk of developing symptoms of burnout, depression and other psychological distress (2017 NPHS). The pandemic has only exacerbated this. While everyone has been affected by personal stressors, physicians have had to face additional workplace and systemic challenges.

With physician wellness as one of the CMA's key priorities, the goal of the 2021 NPHS was to generate an in-depth, up-to-date and relevant data set to inform and advance physician wellness initiatives. In comparing the results of the 2021 NPHS with those of the 2017 survey, it's clear that physicians' well-being has decreased significantly; many rate their mental health as being worse now than before the pandemic.

Notably, there has been a sharp increase in the proportion of respondents reporting burnout and suicidal ideation in the past 12 months (1.7 and 1.5 times higher, respectively) compared with in 2017.

It's likely that the pandemic has contributed to these increases, and this is particularly true among practising physicians, for whom larger shifts were seen since 2017 on several psychological indictors compared with medical residents.

Overall, physicians scored low on professional fulfillment, which consists of sentiments around contentment, satisfaction and meaningfulness in one's work. Those who score low on professional fulfillment also show greater signs of fatigue and a lack of work-life integration; they are significantly more likely to be burned out and less likely to be thriving in terms of mental health.

The key findings from the study reveal that numerous subgroups are experiencing more negative wellness outcomes, including medical residents, those under 35 years of age, those identifying as women, those practising six to 10 years, caregivers of a child and/or parent or family member in the home, those living with disabilities, and those working in small towns/rural or isolated/remote areas.

Not all the results are discouraging; there are signs of a culture shift toward prioritizing wellness. Medical residents and younger physicians report accessing support for their mental health challenges more frequently than practising physicians who are at a later career stage.

While some of those who need wellness supports are accessing them, there are still significant barriers to overcome, such as stigma, availability and concerns around confidentiality.

About 60% of physicians in Canada say that their mental health is worse now than it was before the pandemic, and about 80% of respondents reported a lack of professional fulfillment, which has led to burnout, moral distress, and an exit from the profession, and a very high 15% have had suicidal thoughts in the past year. In addition, 48% screened positive for depression, marking a significant increase from 34% in 2017. About 25% said they experience severe or moderate anxiety, with 10% reporting severe anxiety issues.

Direct support professionals (Personal Support Workers)

Source: Canadian Association of Mental Health 2022.

35% of direct support professionals (DSPs) are reporting moderate to severe levels of distress. Levels of distress have continued to rise over the last two years.

Several factors may be contributing to higher levels of pandemic-related mental distress among DSPs, including:

- Pandemic pressures at work. These include ongoing staff shortages, longer hours and lack of time off.
- Structural and system challenges. These include low pay, unpaid sick time and lack of benefits.
- Infection prevention and control procedures. These include increased fears about risk of exposure to COVID-19 in the community and frustration regarding a perceived lack of public concern regarding the more vulnerable clients they work with.
- Impact of the pandemic on the health and well-being of people with developmental disabilities. These include poor mental and physical health, decrease in quality of life, long-term effects of not seeing family and friends, decline in independence and feelings of compromised care due to staffing shortages.
- Barriers to seeking their own mental health supports. Nearly half of DSPs (49%) reported barriers to accessing mental health supports for themselves, including financial barriers, lack of time to seek supports and stigma.

HEALTH CARE SYSTEM WORKFORCE CRISIS

CMA–CNA COVID-19 health care worker crisis emergency summits in 2021/2022

Source: Measures to Address Health System Challenges: Review of Canadian, Provincial and Territorial 2022 Budgets. CMA and Deloitte Canada, September 2022.

Two years into the pandemic, organizations representing health workers across the country are sounding the alarm that Canada's health care system is collapsing. Without immediate action, there is little to hope for in the future. On top of severe exhaustion and burnout from working through two years of COVID-19, health care workers now face both massive system backlogs and a shortage of colleagues to cope with these demands.

Two virtual summits hosted in 2021 and 2022 by the Canadian Medical Association (CMA) and the Canadian Nurses Association (CNA) discussed the crisis and made recommendations.

Key themes from the first meeting in October 2021 included:

- Quick and decisive action is needed to address short-term staffing needs.
- A robust health human resources (HHR) plan must be developed.
- The lack of data to support HHR planning needs to be addressed.
- Canada's reliance on overseas recruitment must be decreased.
- Mental health and wellness supports must be put in place for health care workers and patients.
- Government action is needed at all levels.
- An understanding of the pressures faced by health care workers must be built by refining terminology and language.
- Regulations that classify and categorize health care workers must be harmonized.

Progress since that summit include the following:

- There was recognition in the throne speech of the health workforce's efforts throughout the pandemic.
- The health minister's mandate highlighted the need to ensure health care workers are supported and recruited across the country and the need to advance a comprehensive patient-centric strategy.
- Bill C-3 responded to the threats and harassment that health care workers have faced by prioritizing new protections.
- The position of chief nursing officer was reinstated at the federal level to provide strategic advice on public policy from a nursing perspective.
- Parliamentary studies were initiated by the House of Commons Standing Committee on Health on Canada's health workforce, and by the House of Commons Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities on labour shortages, working conditions, and the care economy.
- Health Canada's 2022–23 Departmental Plan indicated that "Health Canada is committed to working with P/Ts, health system partners and stakeholders to address these challenges, including sustainable solutions to support and bolster the health care workforce."

Key themes from 2022 summit:

The workforce crisis is not resolving. Circumstances are worsening and concrete commitments to address the health workforce crisis in a sustainable manner have been slow to come. In Ontario hospital staff vacancy rates grew from 4% in October 2020 to 8% in October 2021. Between March 2020 and September 2021, resignations went up from 5% to 8% across hospital staff. Rural and remote regions are experiencing upwards of 30% to 40% staff vacancy rates.

Addressing the workforce crisis requires robust data collection. Canada continues to lack data on its health workforce, both in the public and private sectors. Formulating a plan to improve data collection will take time, but the country cannot plan for its workforce without basic standardized and comparable data elements. The Canadian Health Workforce Network is accelerating its Canadian Institutes of Health Research (CIHR)-funded study on the creation of a health workforce minimum data standard. This study is purpose-built for planning, with the goal of enabling adoption by all health workforce stakeholder organizations.

Canada needs to decrease its reliance on foreign-trained professionals. Using immigration pathways to address Canada's health workforce crisis will not be a quick fix, nor is it responsible; countries across the globe have been managing the same challenges as Canada throughout the pandemic and will continue to do so in the recovery stages.

Scope-of-practice barriers continue to affect service provision. Limitations or a lack of clarity on scope of practice can deeply affect a health

care worker's ability to provide quality care for their patients and can increase workload and service inefficiencies.

Access to psychological supports continues to be a systemic challenge. Access to mental health supports remains a challenge because of public coverage limitations that make it difficult to recruit and retain psychologists within the public sector. The gaps in public and privately insured psychological services continue to perpetuate access issues, which is unfortunate because these services are much needed in community settings.

Ineffective use of resources is compounding workloads. Addressing the HHR crisis in Canada requires more people, but we also need to consider what we are asking these workers to do. There is a need to frame conversations around how human resources can be used and deployed more effectively (e.g., what is appropriate work and what is not).

Organizations and professional associations across the country are working to address the health workforce crisis through advocacy. Decisive action is needed now on short-, medium- and long-term solutions to address Canada's health workforce crisis. Summit participants acknowledged the role each profession, institution and organization plays in helping governments determine the most effective and appropriate actions to recruit, retain, redeploy, and support health care workers.

Action must be taken on implementing a multidisciplinary nationwide health human resource strategy. There was a shared understanding at the summit that new approaches to planning can no longer be siloed and that collaboration on meaningful solutions is the path forward.

Addressing the health workforce crisis means committing to health system transformation. There was also a shared recognition that the health system must be reimagined to respond to the needs of patients in an aging society and that health care environments must be transformed to be responsive to workers' needs.

CANADIAN HEALTH CARE SYSTEM PRIORITIES

Leaders at every level of government have acknowledged that Canada's health system is in crisis and that additional funding is urgently needed both to address immediate gaps in care and to make longer-term structural changes. Addressing these challenges and ensuring system sustainability will require the provincial/territorial and federal governments to work together using a mix of funding, reforms and health innovations.

To identify which areas of health care governments are prioritizing, the Canadian Medical Association (CMA) commissioned a first-of-its-kind report on health spending in the 2022–23 federal, provincial and territorial budgets. The findings in this report are a starting point for reform and an impetus for political leaders to move forward together, to stabilize the health system and transform the future of care.

This report builds on the CMA's recent calls for collaboration between all levels of government to fix Canada's collapsing health system and will be heavily leveraged as the CMA continues to work with policy makers on these burning issues.

Shared challenges

Health care continues to be a top priority for governments across the country. Provinces are budgeting for an average increase of 4.4% in health spending compared to an average increase of 0.9% across other areas. Health funding continues to represent 30% to 40% of provincial/territorial budgets.

There is also a high degree of alignment among provinces, territories and the federal government on which initiatives to fund:

1) Mental health care. All provinces and the federal government dedicated significant funding to improve access to mental health care, including the deployment of new facilities and staff. The federal government and some provinces also targeted addiction programs.

2) Increasing system capacity. The federal government and many provinces have earmarked funds for the recruitment of health care professionals, with a focus on increasing the workforce in remote and underserved communities. Budgets also reflect investments in building and repairing health care infrastructure, with some provinces targeting emergency medical services.

3) Care for older adults and continuing care. Many provinces are committing to new infrastructure and additional funding for home-support services to ensure that older adults and people with disabilities can receive the right level of care at home.

Other shared health care funding priorities:

- Upgrading health facilities to increase capacity.
- Reducing surgical and diagnostic backlogs.
- Investing in emergency services, including increasing the number of paramedics and hiring more emergency department staff.
- Improving access to medications by supplementing drug benefit programs.
- Expanding virtual care to increase access to primary care.

Canada health transfers

While health funding (the largest budget item in most cases) is primarily the responsibility of the provinces and territories, they do receive federal money. The Canada Health Transfer (CHT) is the federal government's primary funding vehicle for provincial and territorial health expenses, but it accounts for less than 25% of their health budgets.

Given the long-term challenges facing the health care system, this report examined three funding scenarios to assess how much of provincial/territorial health spending will be covered by the CHT over the next 12 years.

Scenario #1 – status quo

This scenario increased the CHT based on the formula currently in place. It showed that demand will outpace growth in the CHT, leading to a steady decline in the share of provincial/territorial health costs covered by the CHT beginning in 2026–27.

Scenario #2 – CHT at 35% of provincial/territorial spending

This scenario calculated how much the CHT would need to be raised to cover 35% of provincial/territorial health spending (as called for by provincial/territorial leaders). It found that in fiscal year 2023–24, the CHT would need to increase by 75% to meet 35% of provincial/territorial spending on health cares. That is equal to a $34 billion boost to the CHT.

Scenario #3 – annual growth and base adjustment

This scenario assumes a $4 billion annual base adjustment to cover continuing pandemic costs, and the annual CHT increase is returned to 6%. Given that care for older adults is a provincial/territorial priority, the cost of moving some home care currently provided by informal caregivers into the health care system is included. The report found that average CHT funding would need to increase by about $14 billion per year and would cover almost one-quarter of provincial/territorial health care costs by the end of the forecast.

New initiatives

Investing in innovation: Despite relatively high levels of health spending in Canada, the availability and timeliness of care is below the average of the 38 member countries of the Organisation for Economic Co-operation and Development. This suggests that innovation is as essential as increased funding to a more sustainable health system, and several provinces and territories are investing in innovative programs.

Expanding virtual care: Nova Scotia will make virtual care more available for family physicians and expand virtual care services for mental health and emergency departments.

Team-based care: Prince Edward Island is implementing "medical homes and neighbourhoods." This model follows a team-based approach to primary health care, with "homes" and "neighbourhoods" consisting of both specialized and general health care workers.

Centralizing access to specialists: New Brunswick has announced a pilot project to streamline access to orthopedic specialists: primary care physicians will be able to refer patients to specialists, who can then choose an available specialist in their zone or wait for a specific surgeon.

Measuring what matters: Quebec, Nova Scotia, British Columbia and Ontario have announced measures to improve the availability and utility of patient health and epidemiological data.

The takeaway

Provinces and territories have many common health care priorities. Many are investing in innovative solutions to both short- and long-term challenges but will require additional federal funding to support future health care reform. What's needed now is a "Team Canada" approach. This would require a commitment from governments to work across jurisdictions to tackle shared challenges and ensure every Canadian, wherever they live, has access to a sustainable health system.

Inequities in pharmaceutical access and use

Source: Insights on Canadian Society: Pharmaceutical access and use during the pandemic, Statistics Canada.

This study examines Canadians' access to and use of pharmaceuticals, using data from the 2021 Survey on Access to Health Care and Pharmaceuticals During the Pandemic, collected from March to May 2021.

First, it examines the proportion and characteristics of Canadians who reported not having prescription insurance to cover medication costs, as well as those who reported that their prescription insurance was affected by the pandemic. Next, medication use, out-of-pocket spending on prescription medication, and non-adherence to prescription medication because of cost were examined. Analyses are presented across province, immigration status, and racialized groups, among other sociodemographic variables, and thus offer insight into potential inequities in access to pharmaceuticals in Canada.

- In 2021, about one fifth (21%) of Canadians reported not having insurance to cover any of the cost of prescription medications in the past 12 months.
- Among the provinces, the proportion without prescription insurance to cover medication costs was highest among residents of British Columbia (26%), especially seniors in British Columbia (33%), as well as residents of Prince Edward Island (25%). It was lowest among people living in Nova Scotia (14%).
- Percentages of people reporting not having prescription insurance to cover medication cost was higher among immigrants (29%) relative to non-immigrants (17%) and among racialized persons (29%) relative to non-racialized and non-Indigenous persons (17%).
- Close to 1 in 5 Canadians reported that the pandemic affected their prescription coverage, with immigrants being nearly twice as likely as non-immigrants to be affected (28% versus 15% of non-immigrants). Similarly, racialized persons were more likely than non-racialized and non-Indigenous groups to report consequences of the pandemic on their coverage (29% versus 14%).
- Prescription medication use was lower among people who did not have prescription medication insurance (56%) compared to those who did (70%).
- Close to 1 in 5 Canadians (18%) spent $500 or more out-of-pocket on prescription medications over the past year. Spending was higher for those without prescription insurance than for those with coverage.
- One in 10 Canadians (9%) reported not adhering (e.g., skipping doses, delaying filling) to their prescription medication because of cost. The share of Canadians reporting cost-related non-adherence was more than double among people without prescription insurance (17%) compared to those with prescription insurance (7%).

VALUE-BASED HEALTH CARE

Source: The Conference Board of Canada. VBHC Canada: Project Advisory Report, July 2019.

Value-based health care (VBHC) is a patient-centric approach to designing and managing health systems. This approach assesses costs incurred and services provided to patients with a focus on outcomes that are meaningful to them. It represents a shift away from the traditional care and funding models that focus on volumes of services, processes or products that may or may not achieve those outcomes.

Value-based health care criteria

A true value-based health care approach is guided by six principles.

1) Care is structured around the medical conditions of the patient. Primary care is structured around population segments with differing primary care needs, such as healthy adults, patients with chronic illnesses and lower-income elderly. Value is derived through the full cycle of care and is driven by provider experience, scale and learning at the medical condition level.
2) Outcomes and costs are measured for every patient. The resulting information is widely available to support value-based learning and competition.
3) Health care costs align to the value of care. Focus is on enhancing value for patients, not just lowering costs, so that reimbursement models reward both better outcomes and efficiency.
4) Efficient and proper care practices are effectively integrated. Regional care matches patients with the correct provider, treatment and setting. System integration yields higher quality care, which is less costly over the long-term.
5) Standards of care apply across geographies. Approaches to standards implementation and measured outcomes are relevant to and scalable at local, regional, and national levels.

6) Innovations that increase value to the system are rewarded. These innovations are acknowledged and, if necessary, incentivized.

Value-based procurement in Canada

Source: Gagnon-Arpin, Isabelle, Isabella Moroz, Nick Moroz, and Chad Leaver: Setting the Stage: The Status of Value-Based Procurement in Canada. Ottawa: The Conference Board of Canada, 2022.

With increasing challenges to the sustainability and resiliency of Canada's health care systems and supply chains, value-based health care (VBHC) approaches continue to gain momentum worldwide, including across Canada.

- Value-based procurement (VBP) is an advanced approach to procurement. It shifts the focus from the lowest acquisition price of a health technology or solution to its overall value in terms of outcomes for patients and health systems.
- Canada is building foundations for VBP. Some provinces have introduced legislation in support of VBP and initiatives across the country are advancing its integration at both the system and health care centre level.
- The COVID-19 pandemic served as a catalyst to unlock opportunities to advance VBP. This occurred as a result of centralized procurement, improved partnerships with industry, and the use of real-time data to reduce supply chain bottlenecks.
- Uptake of VBP (and the potential for Canada's health systems to realize value) remains low despite promising applications and progress in supporting policies, legislation, and processes. Barriers to its adoption include siloed hospital budgets, lack of supportive funding models (at the provincial level), and lack of timely access to patient and system outcome data to measure value.
- Factors that will speed uptake of VBP include policies and directives, outcome-focused funding formulas, financial and clinical systems that track activity-based costing, and tools for procurement professionals to support practice change.

CONSUMER PRICE INDEX – HEALTH CARE IN CANADA

Health and personal care consumer price index (monthly, percentage change, not seasonally adjusted) for Canada's provinces, Whitehorse and Yellowknife

GEOGRAPHY	CANADA		
Products and product groups	21-Aug	22-Aug	Aug 2021 to Aug 2022
	2002=100		
Health and personal care	133.3	139.1	4.4
Health care	134.9	138.9	3
Health care goods	106.8	108.9	2
Medicinal and pharmaceutical products	102.4	104.6	2.1
Prescribed medicines (excluding medicinal cannabis)	87.9	87.8	-0.1
	2002=100		
Medicinal cannabis (201812=100)	81.4	75.9	-6.8
	2002=100		
Non-prescribed medicines	131.4	138.6	5.5
Eye care goods	119.3	123.8	3.8
Health care services	183.7	191.8	4.4
	2002=100		
Eye care services (200704=100)	144.8	148.1	2.3
	2002=100		
Dental care services	179.1	187.4	4.6
Personal care	132	139.7	5.8
Personal care supplies and equipment	108.2	115.3	6.6
Personal care services	169.6	176.1	3.8

DIGITAL DISRUPTORS IN HEALTH CARE

Digital disruptors creating paradigm shift across health care in Canada

Source: The digital disruptors changing health care in Canada. Pwc Canada 2021.

In the pandemic environment, the Canadian digital health space is getting increasing attention as health systems increase adoption and more people become comfortable with digital solutions.

Digital health companies are accelerating transformation by enabling shifts to a care system that's more predictive, preventative, personalized, and participatory (also known as 4P medicine).

Key digital health segments and trends to watch include virtual care, home care, predictive analytics, privacy and mental health care.

It is not just demand that's up; so is satisfaction with digital health solutions as Canadians are forming new, potentially longer-term habits, such as online booking and quantified self and virtual visits.

Shifts continue from institutional care to digitally enabled care in the community and from doctor-centred care to patient-centred care.

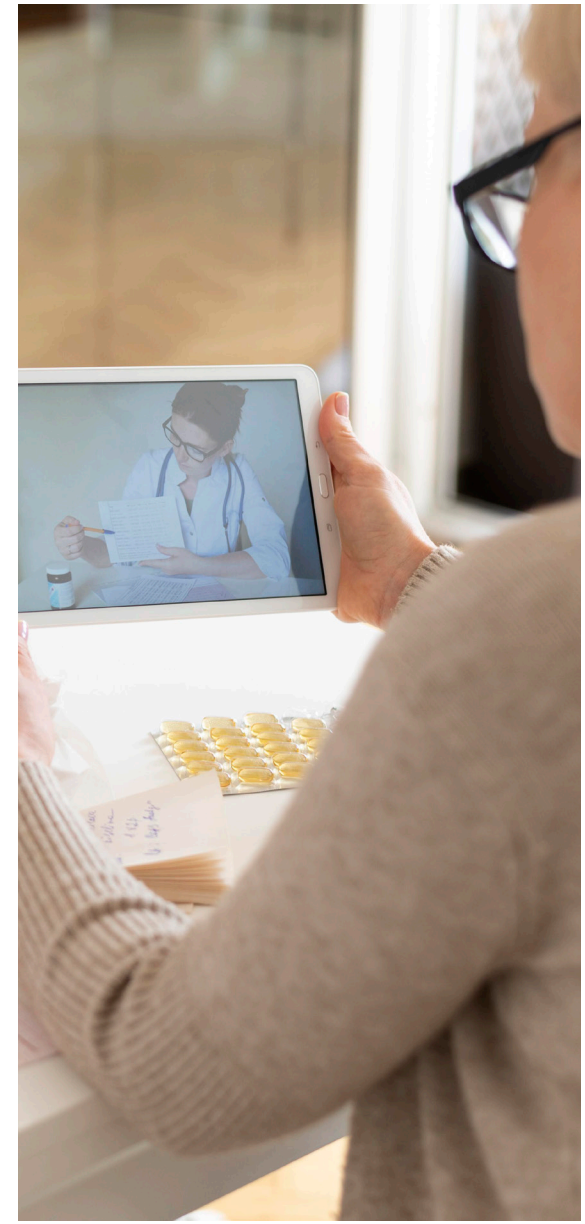
There is increased adoption of 4P medicine:

- Predictive health technologies make intelligent use of data: they accumulate, analyze, synthesize and act on data, often proactively.
- As we begin to be able to predict health risks, we can take preventative action, whether at home or in the community.
- Instant, real-time health monitoring allows us to understand the consumer's needs as an individual and help them act on and manage their health in a personalized way.
- In a connected health system, each individual has more time to take care of themselves, allowing them to take a participatory role in managing their own health.

Home care: Remote care monitoring and other innovative home-based care solutions are helping reduce the risk of infection in more cost-effective care settings.

Privacy: Individuals have become more comfortable allowing companies to use their data to better protect and manage their health, store it in the cloud and provide it to third parties. This means we'll likely continue to see investments in solutions that help organizations keep data secure.

Mental health: We can expect increased momentum in digital mental health solutions as many people struggle with the short- and long-term effects of social isolation.



DENTISTRY SCAN

FEDERAL INVESTMENTS IN DENTAL CARE: A CLOSER LOOK

FORECASTING ELIGIBILITY FOR FEDERAL DENTAL INVESTMENTS AND DENTAL INSURANCE RATES IN CANADA

Source: Statistics Canada, Canadian Community Health Survey 2018. Custom tabulations for Canadian Dental Association, September 2022.

ELIGIBILITY FORECASTS FOR FEDERAL DENTAL INVESTMENTS (BASED ON 2018 CANADIAN COMMUNITY HEALTH SURVEY (CCHS) DATA)				
Indicators	**Total Population**	**Under 70K**	**70K to 90K**	**90K Over**
	(% of population aged 12 and over)			
[DEN_045] Has insurance or a government program that covers all or part of your dental expenses	64.1	47.7	65.4	77.3
[DEN_050A] Type of insurance – dental – employer	53.1	32.1	56.8	77.3
[DEN_050B] Type of insurance – dental – govt (children/ seniors)	1.4	2.2	1.3	0.8
[DEN_050C] Type of insurance – dental – private plan	5.3	5.0	5.4	5.5
[DEN_050D] Type of insurance – dental – govt (social service clients)	2.7	5.4	1.2	0.9
[DEN_050E] Type of insurance – dental – govt (First Nations and Inuit)	0.6	0.9	0.5	0.3
[DEN_050F] Type of insurance – dental – other	2.1	2.8	1.9	1.4

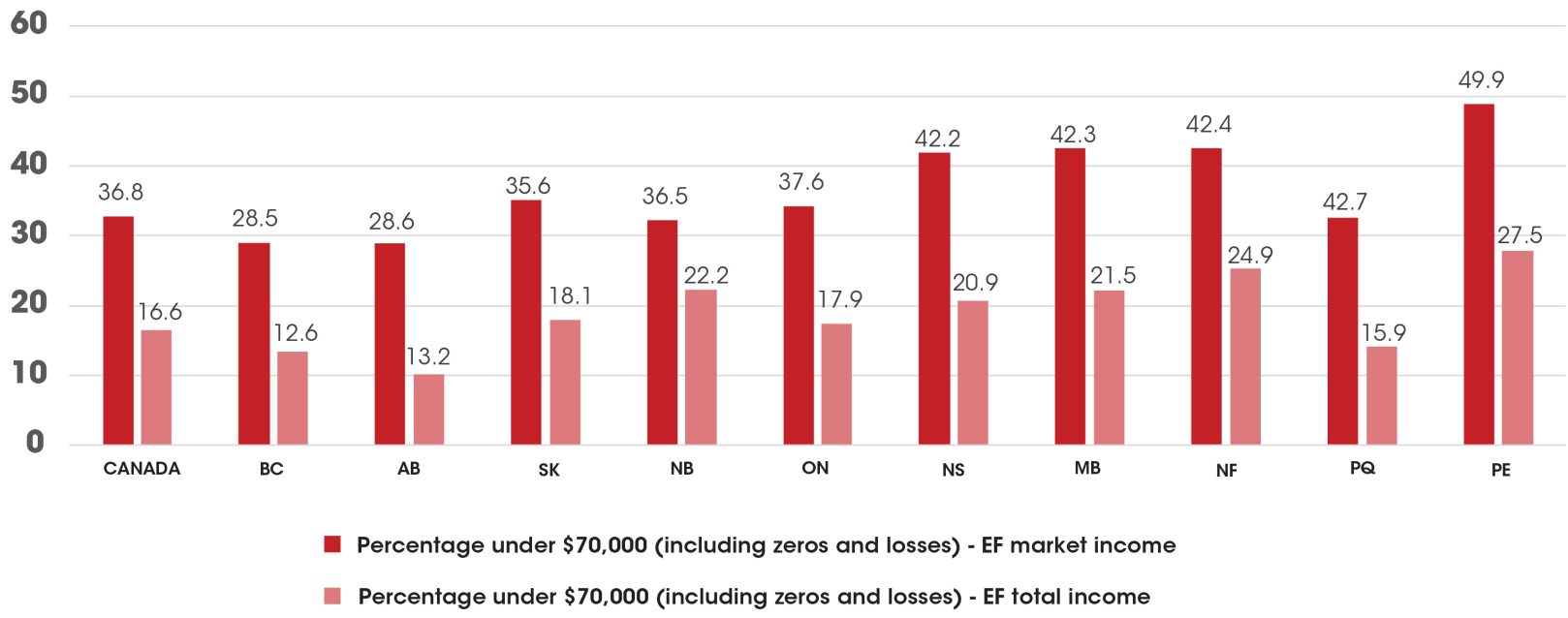
ELIGIBILITY FORECASTS FOR FEDERAL DENTAL INVESTMENTS (BASED ON 2018 CCHS DATA)				
Province	**Total Population**	**Under 70K**	**70K to 90K**	**90K Over**
[DEN_045] Has insurance or a government program that covers all or part of your dental expenses	**(% of population aged 12 and over)**			
Canada	64.1	47.7	65.4	77.3
Canada - Rural	58.2	39.5	61.8	73.5
Newfoundland/Labrador	64.8	44.1	71.1	84.2
Prince Edward Island	63.3	47.7	79.9	77.0
Nova Scotia	67.6	51.3	74.7	85.5
New Brunswick	67.6	49.2	73.6	86.0
Quebec	48.9	34.9	48.8	64.9
Ontario	66.3	49.2	68.1	78.3
Manitoba	71.8	59.4	69.3	83.8
Saskatchewan	71.9	56.0	74.8	83.9
Alberta	77.6	65.8	76.9	83.8
British Columbia	67.8	52.3	71.5	79.4

ELIGIBILITY FORECASTS FOR FEDERAL DENTAL INVESTMENTS (BASED ON 2018 CCHS DATA)				
Province	**Total Population**	**Under 70K**	**70K to 90K**	**90K Over**
[DEN_050A] Type of insurance – dental- employer	**(% of population aged 12 and over)**			
Canada	53.1	32.1	56.8	69.4
Canada - Rural	49.0	27.6	53.3	66.3
Newfoundland/Labrador	55.1	31.0	63.0	77.7
Prince Edward Island	54.6	36.3	70.4	71.8
Nova Scotia	56.3	39.3	60.3	76.3
New Brunswick	55.7	33.6	66.6	76.7
Quebec	40.1	23.8	43.2	57.6
Ontario	57.3	35.0	61.4	72.5
Manitoba	57.3	37.8	63.6	73.4
Saskatchewan	54.6	32.8	56.2	71.9
Alberta	59.8	35.7	62.2	71.5
British Columbia	55.2	35.0	59.0	70.7

ABACUS/CDA PUBLIC POLLING: DISTRIBUTION OF EMPLOYER + PUBLIC INSURANCE (OCTOBER 2022)

		Employer insurance	Public insurance
Income <$70K	Overall [MOE +/- 2.1]	32%	17%
	Kids under 12 [MOE +/- 3]	47%	13%
	Kids 12-17 [MOE +/- 5]	48%	18%
Income $70-$90K	Overall [MOE +/- 4.4]	61%	8%
	Kids under 12 [MOE +/- 6.7]	77%	12%
	Kids 12-17 [MOE +/- 9.5]	75%	8%

Percentage of all children aged 11 years and under in economic families making under $70,000



Source: Statistics Canada, Income Statistics Division, Canadian Income Survey. Custom tabulations for Canadian Dental Association, September 2022.

Percentage of all children aged 12 to 17 and in economic families making under $70,000

Source: Statistics Canada, Income Statistics Division, Canadian Income Survey. Custom tabulations for Canadian Dental Association, September 2022.

SUPPLEMENTARY INFORMATION CANADA DENTAL BENEFIT COST BY PROVINCE						
$ millions	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**Total**
BC	30	45	10	-	-	85
AB	36	58	13	-	-	107
SK	10	16	4	-	-	30
MB	14	24	6	-	-	44
ON	111	171	38	-	-	320
QC	35	47	10	-	-	92
NB	5	7	2	-	-	13
NS	3	2	0	-	-	5
PE	2	3	1	-	-	5
NL	1	1	0	-	-	2
Total cost	**247**	**372**	**83**	**-**	**-**	**703**

Source: PBO calculations

FORECASTING THE LONGER-TERM IMPACT ON DENTAL CARE FINANCING OF THE 5-YEAR FEDERAL DENTAL PLAN INVESTMENT:

- Total additional public sector expenditure projected in 2026/2027 = $1.712 billion.
- Private sector increase over next 8 years projected (40% increase) = $21.6 billion.
- Public sector increase over next 8 years projected (50% increase) = $1.5 billion.
- Projected expenditures on dental care services in 2026 = $24.8 billion.
- Public share of dental expenditures increases from 6% in 2019 to 13% in 2027.

Average treatment cost per visit:

Based on a representative sample of more than 109,000 ITRANS electronic claim submissions from the first nine months of 2022, 95.5% of dentists submitting claims via ITRANS submitted at least one for a child under age 12.

As of September 30th, 2022, 409 dentists listed a specialty in paediatric dentistry.

The median claim per visit for a patient under age 12 was $169. Half of all claims fell between $111 and $265. Across jurisdictions, the median claim per visit ranged from a low of $118 to a high of $242.

Given the wide range of fees at the higher end of the distribution, the average claim per visit was higher at $245, with the range across provinces varying from a low of $165 to a high of $306.

More than 94% of all claims submitted were for less than $650. This was consistent across jurisdictions, ranging from a low of 91% to a high of 98%. Among claims that included a recall examination for an existing patient under age 12 (a "check-up" appointment), the average amount was $175, with amounts varying across jurisdictions from $113 to $259.

2020 ECONOMIC FAMILY INCOME ($000s)							
	EF-Total Income	Mild or moderate disablity			Severe or very severe disability		
		Total - Age Group	Age 16 to 64	Age 65 and over	Total - Age Group	Age 16 to 64	Age 65 and over
Canada	Under $70,000	2278	1371	907	1464	782	682
	$70,000 to $89,999	845	619	226	330	206	124
	Under $90,000	3123	1990	1133	1794	988	806
Newfoundland Labrador	Under $70,000	41	20	21	28	15	13
	$70,000 to $89,999	7	x	x	x	x	x
PEI	Under $70,000	12	7	6	7	3	4
	$70,000 to $89,999	3	2	x	x	x	x
Nova Scotia	Under $70,000	77	44	34	61	34	26
	$70,000 to $89,999	27	20	7	15	10	x
New Brunswick	Under $70,000	62	41	22	43	24	19
	$70,000 to $89,999	20	11	8	11	8	x
Quebec	Under $70,000	524	298	226	342	172	170
	$70,000 to $89,999	176	129	47	40	22	18
Ontario	Under $70,000	874	533	341	569	296	273
	$70,000 to $89,999	341	257	84	151	92	59
Manitoba	Under $70,000	80	53	28	53	27	26
	$70,000 to $89,999	33	23	9	16	10	6
Saskatchewan	Under $70,000	75	47	28	44	25	18
	$70,000 to $89,999	29	22	8	10	x	5
Alberta	Under $70,000	221	147	74	142	91	51
	$70,000 to $89,999	83	59	24	33	x	15
British Columbia	Under $70,000	311	184	128	176	94	82
	$70,000 to $89,999	126	90	36	46	34	12

Source: Statistics Canada, Income Statistics Division, Canadian Income Survey. Custom tabulations for Canadian Dental Association, September 2022.

Publicly funded dental programs in Canada

Source: Farmer J, Singhal S, Ghoneim A, Proaño D, Moharrami M, Kaura K, McIntyre J, Quiñonez C. Environmental scan of publicly financed dental care in Canada: 2022 update. Toronto, ON: Dental Public Health, Faculty of Dentistry, University of Toronto.

An environmental scan of publicly financed dental care was undertaken in 2022 and the following key findings emerged:

- Public dental care programs and services are administered and managed through various health and social services departments across provinces and territories. Most provincial and territorial programs or initiatives target children (<18 years of age), but there has been increased attention on older adults (>65 years).
- Legislated public funding of dental care across each jurisdiction in Canada typically covers two categories: (1) non-routine medically required dental care and (2) some forms of needs-based dental care.
- All jurisdictions have some form of needs-based dental care, and the dental services available to populations needing financial or social assistance vary significantly by jurisdiction.
- Expenditures for public dental programs have gradually increased across jurisdictions, with the exception of notable declines during the COVID-19 pandemic (2020-2021). The public per capita share of dental care expenditure is approximately $15.50 over the past three years.

Internationally, considerable attention has been given to universal health coverage packages that include dental care. In 2019, the United Nations General Assembly adopted a Political Declaration on Universal Health Coverage, which included oral health. And in May 2022, Member States in the World Health Assembly of the World Health Organization agreed to develop a global strategy to tackling oral diseases, with emphasis on achieving universal coverage by 2030.

Quebec government dental plan for children: highlights

Source: Régie de l'assurance maladie du Québec Banque de rémunération RAMQ, données 2017-2018, 2018-2019, 2019-2020, Compilation, ministère de la Santé et des Services sociaux, non publié, 2021.

Quebec has had a system of universal government (RAMQ) dental coverage for children under age 10 for several years now and provides a good example of what can be expected from Canada-wide universal dental coverage. Dental services covered include annual and emergency exams, local anesthesia, X-rays, dental restoration (amalgam posterior and composite anterior), endodontic (root canal treatment, apexification), pulpotomy (primary teeth / permanent teeth if general anesthesia), pulpectomy (primary teeth only), oral surgery services, and prefabricated crowns. It is important to note that prevention is not covered.

Even though curative dental care is covered by RAMQ for children and social assistance beneficiaries, utilization rates are not 100%. This demonstrates the importance of addressing all barriers to participation, not just the financial barrier.

Quebec: Dental services for children less than 10 years old

- 465,260 users/year (2017,2018,2019)
- % participation 2019: 51.6% including 31.3% for 0-4 year-olds and 70.3% for 5-9 year-olds
- $ 165.07/user (2019)
- 3.0 Services/user (2019)

In 2020 there were approximately 1,081,000 children under age 12 and 901,600 children under age 10 in Quebec.

It will be important to measure the impact of the federal plan in Quebec for children aged 10 and 11, particularly the level of uptake of federal plan preventive services.

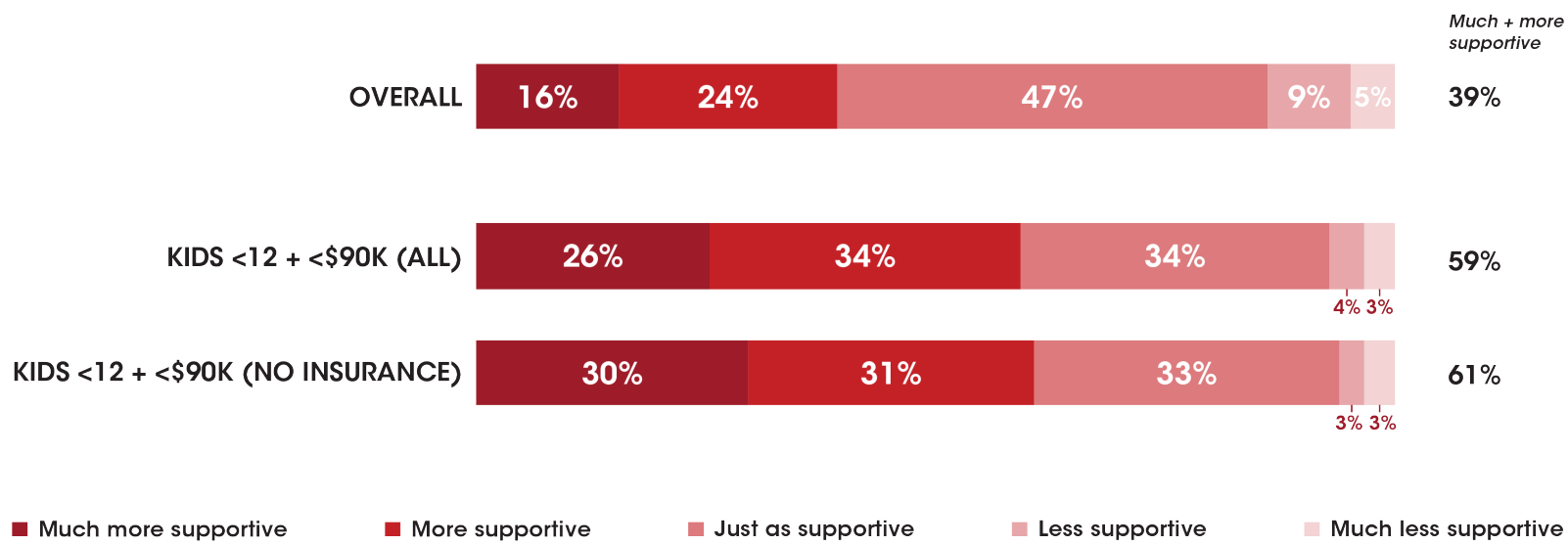
The Quebec government recently reached an agreement with dental surgeons for care covered by RAMQ, particularly for the children's program. Under this agreement, children under 10 and social assistance recipients receive free dental care because they are covered by the Régie de l'assurance maladie du Québec. The main stumbling block in the negotiations concerned the recognition of the operating costs of dental clinics.

Public opinion on federal dental investments

Half of the Canadian adult population has heard about the plan, as have half of the eligible population for the plan's first phase (families with children under 12 and with incomes of less than $90,000 but no dental insurance).

With details emerging on the targeted nature of the plan, support for it is slightly down, but with

With details clear, eligible Canadians much more supportive of the plan



slightly more Canadians neutral. Still, a large majority (7 in 10) support of the plan. Many in the eligible group for the first phase are much more supportive of the plan now that they know some of the details. Families targeted by the first phase report being more likely to visit a dentist, and most intend to apply for the plan.

SNAPSHOT: GLOBAL ORAL HEALTH CARE DELIVERY SYSTEMS

Canada has one of the best oral health care delivery systems in the world, with care primarily delivered through private dental clinics. But not all Canadians can access dental clinics. Alternative models of care or funding in other countries could provide insight into how to alleviate this inequity.

Oral health care delivery systems and coverage of dental care varies across OECD countries. The one common element is access to care barriers. In most countries many dental services require substantial cost-sharing, leading to high out-of-pocket spending. Socioeconomic status is a main determinant for access to dental care, but other factors such as geography, age and co-morbidities can also inhibit access and affect outcomes. Coverage in most oral health systems is targeted at treatment and less at preventative oral health care.

Features of the oral health care delivery systems of select countries are outlined below. Oral health care systems are based on a wide range of financing models, and are strongly influenced by the organization of the health care system.

Sweden has both public and private oral health-care providers. The public dental service (PDS) is operated by all 21 county councils/regions. Public provision is most pronounced in Sweden, where less than half of dentists work in private practices and he majority work in public dental clinics or municipal health centres that focus on dental care for children and adolescents. Approximately 60% of adult patients visit private dental care providers, while 40% visit the PDS. Dental care is free up to the age of 23 and all others receive an annual general dental care allowance to encourage dental checkups and preventive care. People with certain illnesses or conditions receive a special dental care subsidy, and most dental care in Sweden is subject to a high-cost protection scheme, which aims to protect patients from very high dental care costs. Even though private out-of-pocket makes up over 60% of all sources of financing for dental care, only 2% of the population in the country reports unmet dental care needs. However, dental care is not included in the basic benefits package, and it is subject to higher co-payments for adults above the age of 24. A recent government report recommended major reform to the dental care system in 2026 to tackle inequalities in access.

Germany has a statutory health insurance system, predominantly based on social health insurance as a source of financing for over 80% of health care and half of dental care. Almost 90% of Germans belong to not-for-profit "sick funds", which must provide a legally sanctioned package of health care. This is based on a cut-off income for employed people, so there is a requirement to get this social insurance. Premiums for membership of these funds are shared between employees and employers. Membership in a sick fund entitles the member to a package of free basic dental care, with advanced treatment options sometimes requiring significant patient co-payments. One of the challenges in Germany is that the number of state funds keep decreasing and amalgamating and there is a reduction of services to contain costs. There is also a burden of administration and delays in treatment, and people often must wait a year to get care for some procedures. Taking everything into account, it has been reported that Germany's safety net is resulting in an excessively high cost of its oral health system, and that both efficacy and efficiency could be substantially improved.

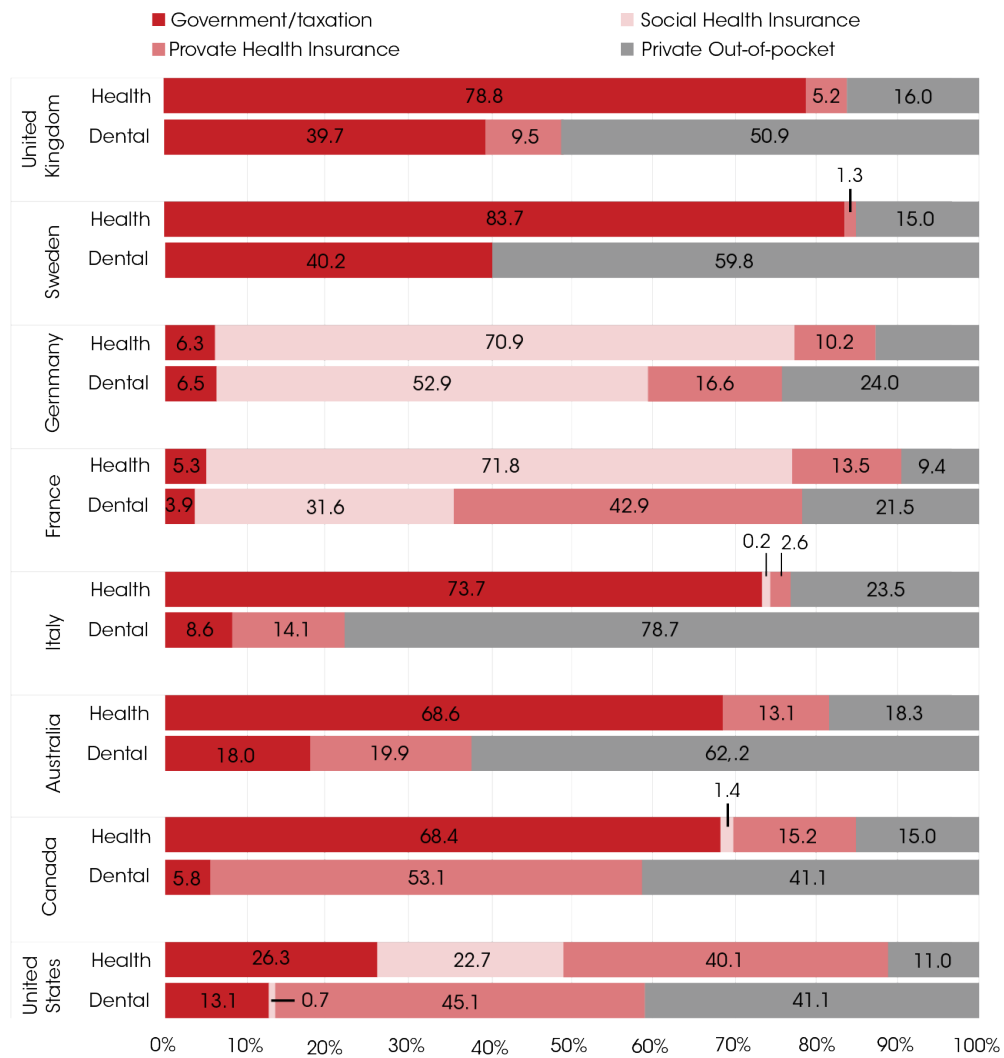
Japan has a universal health and dental system, where all providers are a part of the system and charge on a fee-for-service basis. Patients generally have a 30% co-payment for dental services. There are exceptions for those who are not able to afford it. There is also a variation across Japan of oral health indicators, although in general they have improved over the last decades. Japan also has a unique and effective system for delivering oral health care to its rapidly growing senior population, mostly because of its integrated medical/dental approach.

The United Kingdom has a national public dental service that finances over 40% of dental care, but there is also a private sector that accounts for about half of all financing for dental care. About 51% of adults consulted a dentist in the National Health Service (NHS) within a two-year period. A recent government report has found there are marked inequalities in oral health in England across all stages of the life course and over different clinical indicators such as dental decay and related quality of life measures. The relative inequalities in the prevalence of dental caries in 5-year-old children in England has increased. There are also inequalities in the availability and utilization of dental services across ages, sex, geographies and social groups. As well, a growing number of dentists do little or no NHS-funded work, citing problems with the dental contract.

Brazil is the only country in the world with a universal health care system that guarantees delivery of all levels of health care, free of charge, to a population of over 200 million. Brazil implemented its country-wide National Oral Health Policy in 2004. Recent findings demonstrate that although there has been a reduction in the percentage of individuals who don't have access to a dentist, high levels of relative inequality in access persist. More comprehensive policies for addressing the wider determinants of inequality are needed.

In the United States, a 2021 National Institutes of Health report reviewed the state of the U.S. oral health care system, achievements made since 2000, and remaining challenges.The percentage of Americans with an annual oral health care visit increased from 2000 through 2018, particularly for children younger than 18 years. Annual visit rates among older adults increased to 66% in 2018, but rates did not change among adults. Differences also persist across race and ethnicity and income groups for all adults older than 18 years. In 2018, less than half of older adults living below 200% of a federal poverty guideline had a dental visit. Access to comprehensive care continues to be one of the biggest challenges within the oral health care system and a key driver of inequity.This is because many cannot afford the high deductibles and co-payments of private dental insurance programs. Public insurance coverage has increased since 2000 but remains limited for many low-income, minority, and older adult populations.

The Australian government does not cover the costs of most dental services as it does with other health services. Less than one-fifth of dental care is financed through the government, one-fifth through private insurance and over 60% is out of pocket. However, Medicare does pay for some essential dental services for some eligible children and adults. Coverage is provided for children between the age of 2 and 17 and is family income-based. Eligible children are provided with up to $1,000 in benefits for basic and preventive dental services. Around one-tenth of people who saw a dental professional received public dental care, and one-third who needed to see a dental professional delayed seeing or did not see one. Around 1 in 7 reported that cost was a reason. Approximately 48% of the overall population goes for a dental visit annually.



Source: Allin S, et al. Do health systems cover the mouth? Comparing dental care coverage for older adults in eight jurisdictions. Health Policy. 2020 Sep;124(9):998-1007.

DENTAL BENEFITS

The future of employee health benefits in Canada

Source: Florko, Lauren, and Tabatha Thibault, Seeking Support: The Future of Employee Health. Ottawa, The Conference Board of Canada, 2021.

A total of 1,502 people employed in Canadian organizations participated in this Conference Board of Canada survey. The aim was to find out what benefits packages organizations are currently offering, what employees actually want, and what benefits are deal-breakers if organizations do not provide them.

Key Findings:

- Current employer-provided health benefits plans do not meet employees' wants or needs. This misalignment puts organizations at risk for disengagement and turnover.
- Employees' current coverage may not be enough. Most receive only partial coverage for their health benefits. Those employees who have a personal health spending account (HSA) spend it on dental care, vision care, and prescription drugs rather than paramedical health benefits, such as mental health services.
- The top benefits that employees want are basic dental services, eye exams, glasses/contacts, a pension, and retirement savings plans. The ranking of these benefits varied significantly by gender, age, and family status.
- Future benefits plans should be personalized and cover prevention, virtual health care, and telemedicine access as means for more effectively attracting and retaining employees.
- Beyond health benefits, most employees want flexible work arrangements to support their physical and mental health.

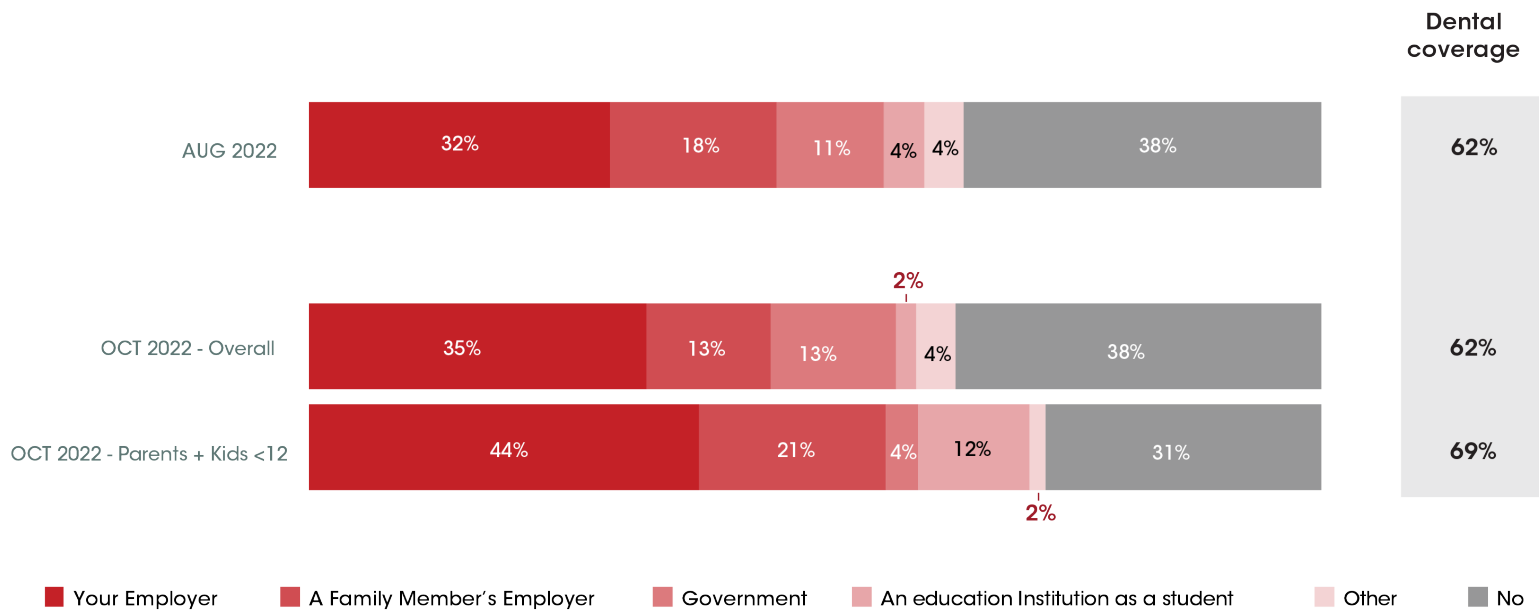
Health

- 77% of employees have benefits coverage.
- Set, or traditional, benefits plans are still the norm for most employees (57%).
- Unionized employees were more likely to have a traditional/set plan than non-unionized employees.
- Of those who have a health benefits plan, 42% reported having a personal HSA.

Dental

- For employees who have a benefits plan for dental care, 25.3% have full coverage, 62.4% had partial coverage, and 9.8% had no coverage.
- 82% of employees consider basic dental services to be the most valued benefit.
- Basic dental ranks #2 and restorative dental as #8 as a top benefit chosen, and would be a deal breaker if they did not have it in their employer benefit plans.
- Overall, employees used their HSA for dental care needs the most at 64.5%, followed by vision care (61%) and basic prescription drugs (55%).
- 8% of Canadians have worse dental benefit coverage now than before the pandemic.
- 62% have some type of dental coverage, compared to 65% before the pandemic in 2018.
- Only 37% of seniors aged 65 and over have some kind of dental benefits coverage.

Do you have dental benefits coverage through...



UTILIZATION OF DENTAL CARE IN CANADA

In 2018, the annual dental utilization rate was 75%. From the latest October 2022 Abacus polling:

- The annual dental visitation rate was approximately 67%.
- 21% still have dental visitation habits that are different from before the pandemic (and a third can be attributed to being dental phobic so this number in reality is 14%).
- 27% of Canadians are delaying further dental treatments this year due to the economy.

There is still an estimated 13% shortfall (10/75) compared to the pre-pandemic annual dental visitation rate. Some of this can be attributed to a slight reduction of about 3% to 5% in dental benefits coverage, and as well to economic conditions making it difficult for previous dental service users to return to a dentist. As well, the majority (63%) of Canadians aged 65 and over do not have dental benefits. A greater number of people in this age group are not going to the dentist because of high inflation.

In the past year, 7 in 10 Canadians have been to the dentist, the first significant dip since tracking began. The resurgence of COVID-19 is not the only potential factor delaying dental visits: 3 in 10 Canadians report delaying dental treatments or cleanings because of the current economic situation.

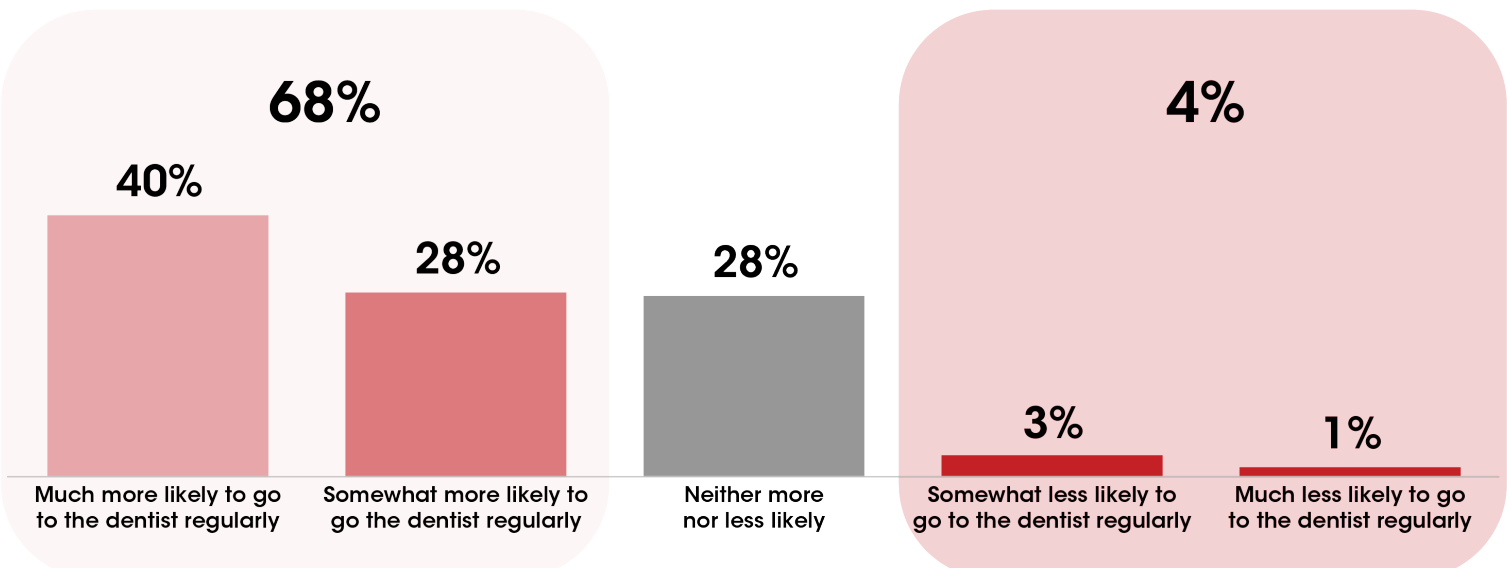
Half (51%) of Canadians have visited their dentist in the past 6 months, and 67% in the past 12 months. This annual rate is still significantly lower than the 75% of Canadians who visited dentists annually prior to the pandemic.

Among those who have not been to the dentist in a while, the top reason remains that it costs too much. This number is up 5 points from August 2022. Those who are delaying a dental appointment for their children because of cost have increased by 7 percentage points from August 2022 (with 22% currently delaying).

Sources: see page 72

The first phase of dental benefit will drive dental attendance

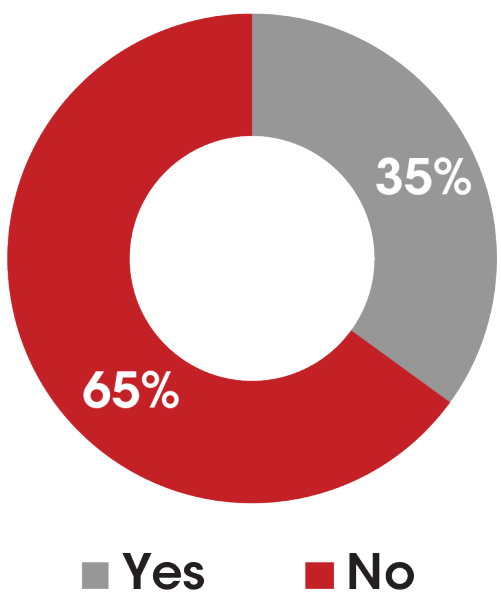
Parents with kids <12 + <$90K income + no insurance



1 in 3 delaying dental care due to economic climate

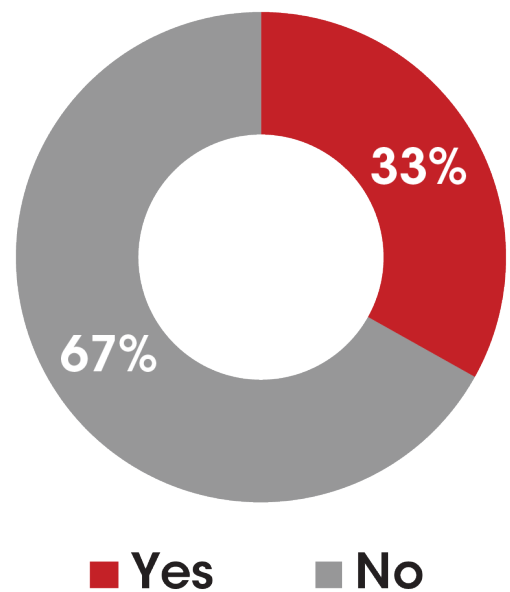
...DELAYING FURTHER DENTAL TREATMENTS THIS YEAR

+8 from August 2022



...DELAYING FURTHER DENTAL CHECK-UPS/CLEANINGS THIS YEAR

+6 from August 2022



DENTAL WORKFORCE

An Abacus poll found that approximately 500,000 adult Canadians had dental appointments cancelled due to staffing unavailability over a 2-month period. This adds up to 3 million cancellations in a year; approximately 120 per dentist.

A recent ADA survey on dental workforce shortages shows:

- 40% of dental offices have recently or are currently recruiting for dental assistants and dental hygienists.
- Of those recruiting and having challenges finding dental hygienists, about 80% indicate the reason is that there are not enough applicants.
- Dental service organizations (DSOs) had the lowest satisfaction rankings for dental assistants, hygienists and even dentists, even though DSOs offered much higher levels of benefits. Public health had the highest satisfaction rankings.
- About 50% of dental offices had given raises to dental hygienists and dental assistants within the last year, the majority having a pay raise of only between 1% to 3%.
- Unhealthy workplace culture was reported frequently.
- The most common reasons among dental hygienists for leaving the workforce were negative workplace culture, lack of growth opportunity, and inadequate benefits.
- The most common reasons among dental assistants for leaving the workforce were insufficient pay, negative workplace culture, and feeling overworked.
- About one-third of dental assistants and dental hygienists plan to retire in 5 years.
- With the decreasing pipeline of new assistants and hygienists, staffing shortages will be a chronic issue in the U.S. for the next several years.

According to the Canadian Dental Assistants' Association (CDAA) survey on work and mental wellbeing:

- 10% are currently unemployed due to mental health illness or issues.
- 31% reported there is often a lack of staff to complete work.
- 52.8% reported having too much work to complete all their assigned tasks well.
- 27.7% reported dissatisfaction with their current job.
- 25.3% reported it is likely they will seek a new job within the next 12 months.
- 62% felt anxious at the workplace all or most of the time.
- 17% felt depressed most of the time.

CDHA 2021 Job market and employment survey

The survey was sent out to 18,023 Canadian Dental Hygienists Association (CDHA) members. Students and retired members were excluded.

Highlights:

- The average effective hourly wage of dental hygienists across all provinces and territories has risen slightly each year since 2013.
- Dental hygiene baccalaureate degree holders report higher average wages.
- The approximate unemployment rate for dental hygienists remained at 1%, which was below the Canadian unemployment rate of 6.7% as of October 2021.
- 94% of respondents work in clinical dental hygiene and 75% work for a single employer.
- More than three-quarters (86%) of dental hygienists receive employee benefits.
- 88% of respondents have decision-making authority over implementing dental hygiene services.
- Respondents working in specialty practices work most often in periodontics (44%) and orthodontics (31%).
- Independently practising dental hygienists continue to report high levels of satisfaction.
- 14% of respondents working in clinical practice are employed by a dental corporation.

Impact of COVID-19

- 15% of respondents are on leave because of the pandemic.
- 17% of respondents leaving the profession within the next two years are leaving because of the impact of the pandemic.
- Half of dental hygiene practice owners report a decrease in their hours and/or gross revenue.

Challenges:

- Only 54% of respondents have a written contract with their employer, and only 38% have an annual performance review.
- Younger, less experienced dental hygienists are less likely to report a salary increase.
- More than 9 out of 10 respondents (92%) report experiencing work-related pain in the past year.
- There is an increasing trend towards interprofessional collaboration, but the majority of dental hygienists (64%) report that they have the least influence over making referrals to other health professionals.

Workforce attrition:

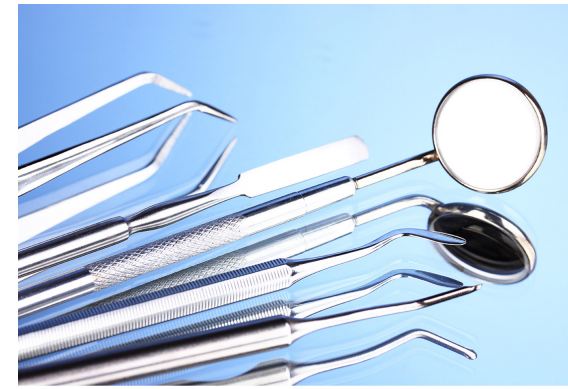
- 10% of respondents plan to leave the profession within the next two years.
- 18% plan to leave within 3 to 5 years.
- Only 48% plan to stay in the profession for more than 10 years.
- Among those who plan to stay longer than 2 years in the profession, the top preferred work setting is a clinical practice (75%), followed by community health or public health, government (37%), and educational institution (28%).
- Retirement is the most frequently cited reason for leaving the profession (60%), followed by seeking change and/or a new career (22%).

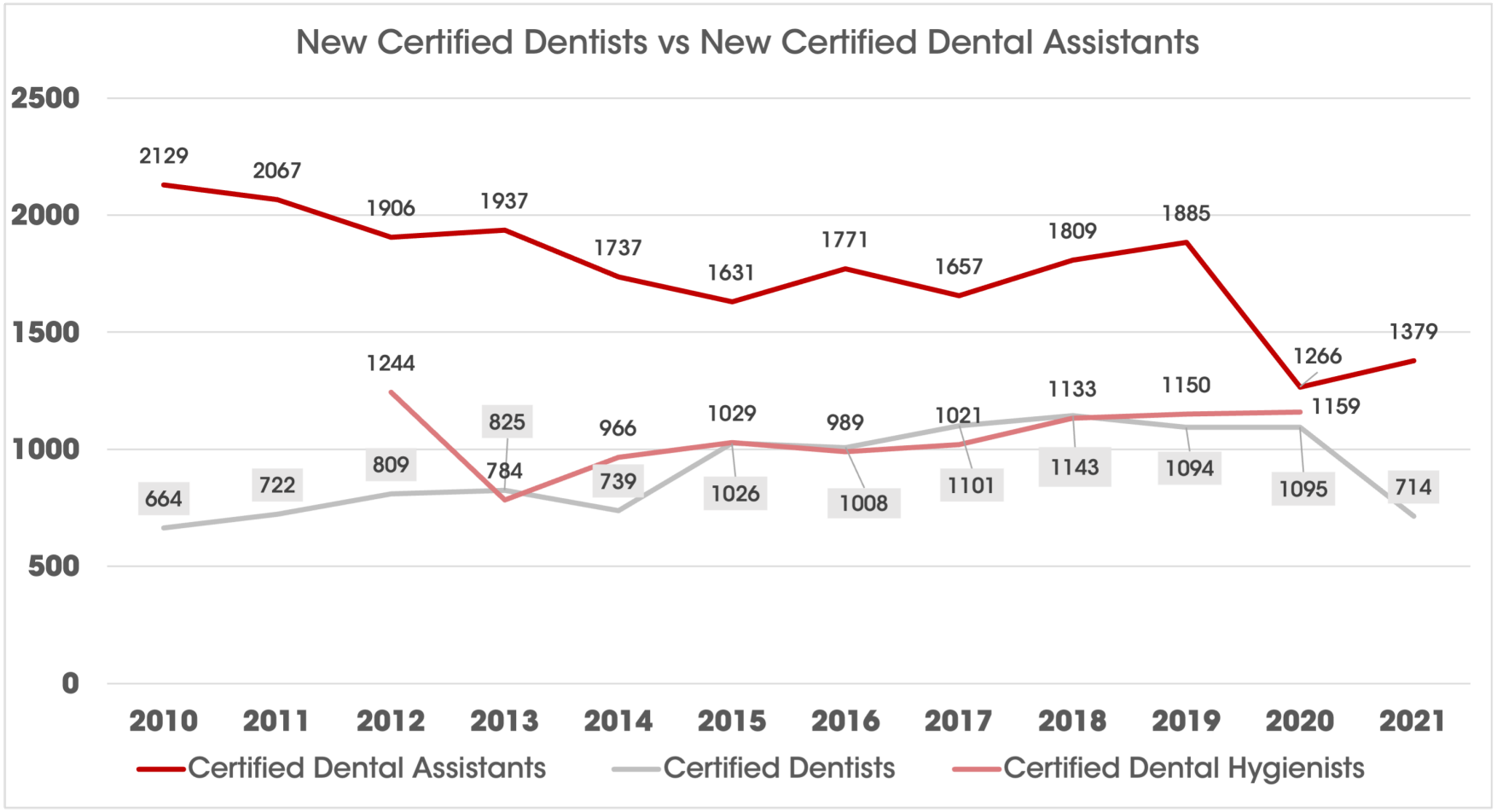
Canadian dentist outflow rates

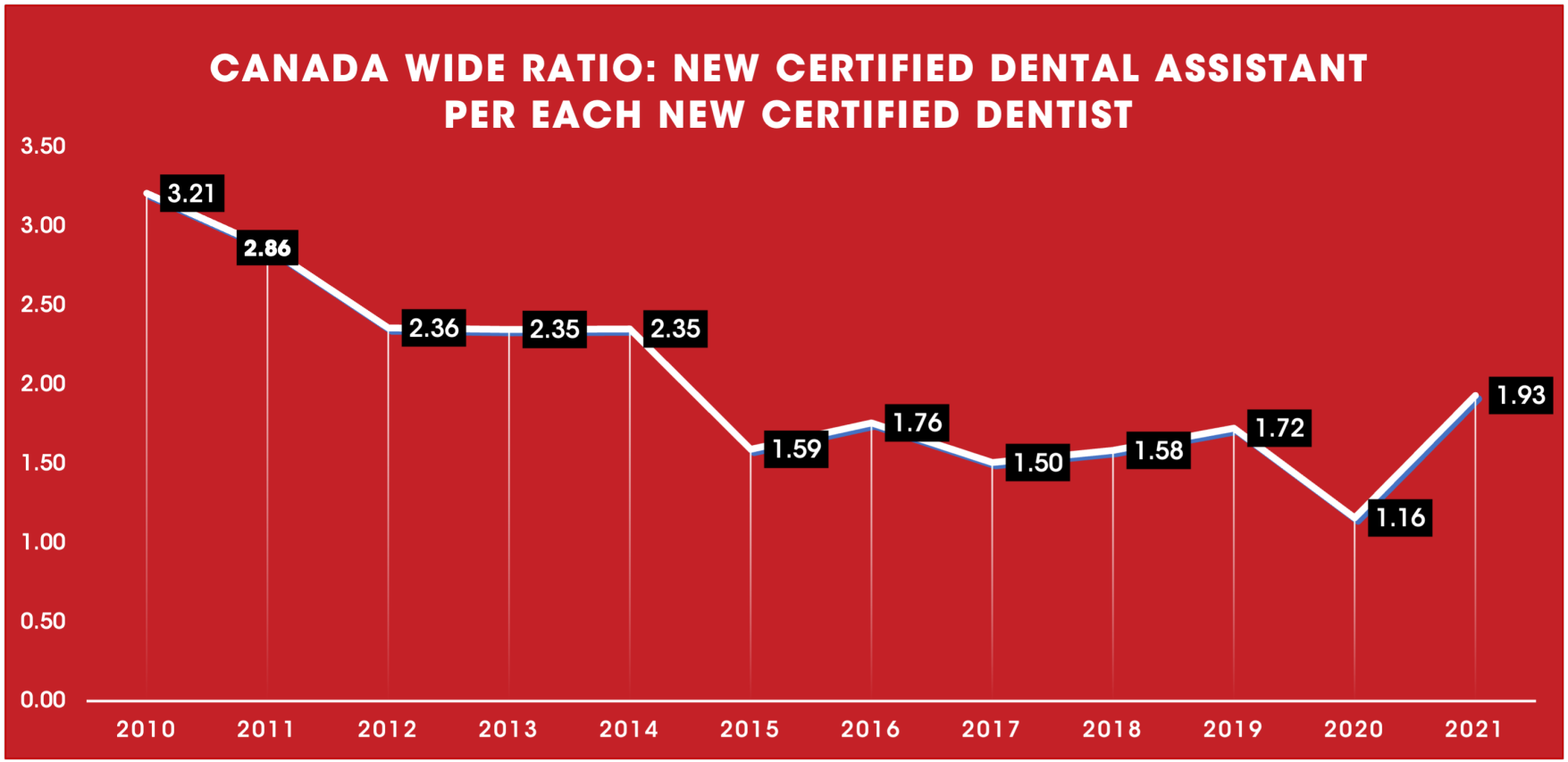
Data on dentist attrition and retirement rates are collected in Canada but do not provide details on the causes.

Between 2018 and 2021, 4-year attrition/outflow rates were 8.7%, meaning that 8.7% of dentists were no longer in practice 4 years later. By age group, about one-third of the 65+ category was not in practice 4 years later. Further study is needed to determine the impact of COVID and if attrition has accelerated.

45-49	2.2%
50-54	3.2%
55-59	8.0%
60-64	16.6%
65+	32.6%
Overall	8.7%




New Certified Dentists vs New Certified Dental Assistants
2500
2000
1500
1000
500
0
2129
2067
1906
1937
1737
1631
1771
1657
1809
1885
1266
1379
1244
825
966
1029
989
1021
1133
1150
1159
664
722
809
784
739
1026
1008
1101
1143
1094
1095
714
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Certified Dental Assistants
Certified Dentists
Certified Dental Hygienists


CANADA WIDE RATIO: NEW CERTIFIED DENTAL ASSISTANT PER EACH NEW CERTIFIED DENTIST
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
3.21
2.86
2.36
2.35
2.35
1.59
1.76
1.50
1.58
1.72
1.16
1.93
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

Dental certification

Source: NDEB Annual Report 2020

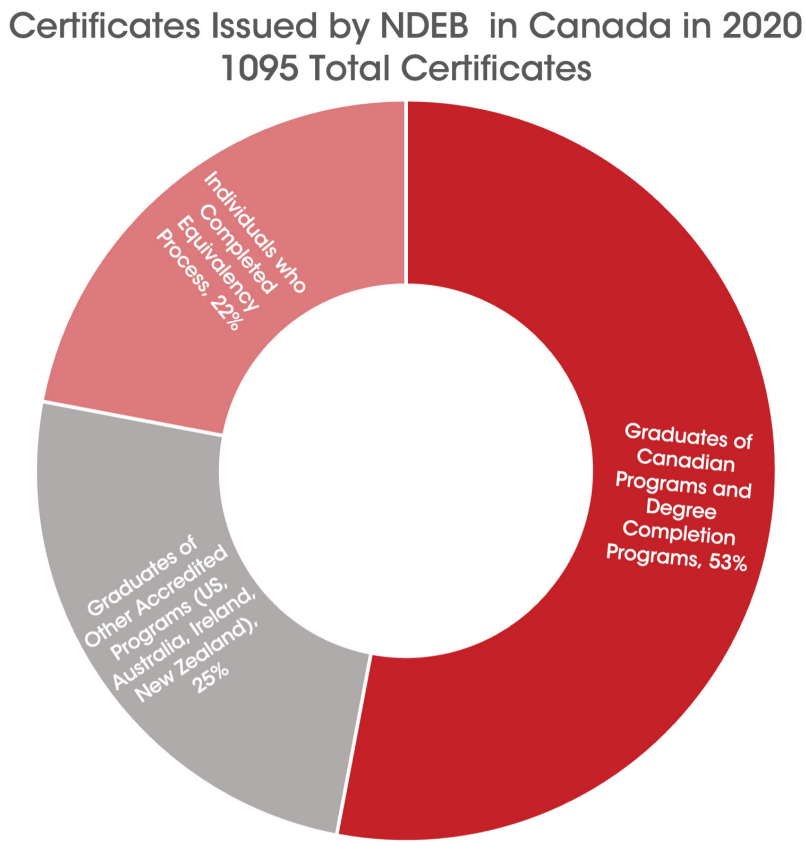
In 2020, the National Dental Examining Board of Canada (NDEB) received 912 new applications to the certification process. There were 908 applications in 2019 and 923 in 2018. The NDEB issued 1,095 certificates in 2020, 1,094 in 2019 and 1,150 in 2018.

Equivalency process

There were 1,619 applications received to the equivalency process in 2020. This 11% decrease from the previous year was due to the pandemic. A growing number of applicants are seeking to begin their careers as dentists in Canada, but the NDEB notes that there are currently delays in the system. Individuals who apply to the equivalency process are graduates of non-accredited dental programs around the world. The highest numbers were from India, Iran, Pakistan and Egypt in 2020.

Distribution of Applicants in 2020:

- India: (916) or 57%
- Iran: (169) or 10%
- Pakistan: (70) or 4%
- Egypt: (67) or 4%

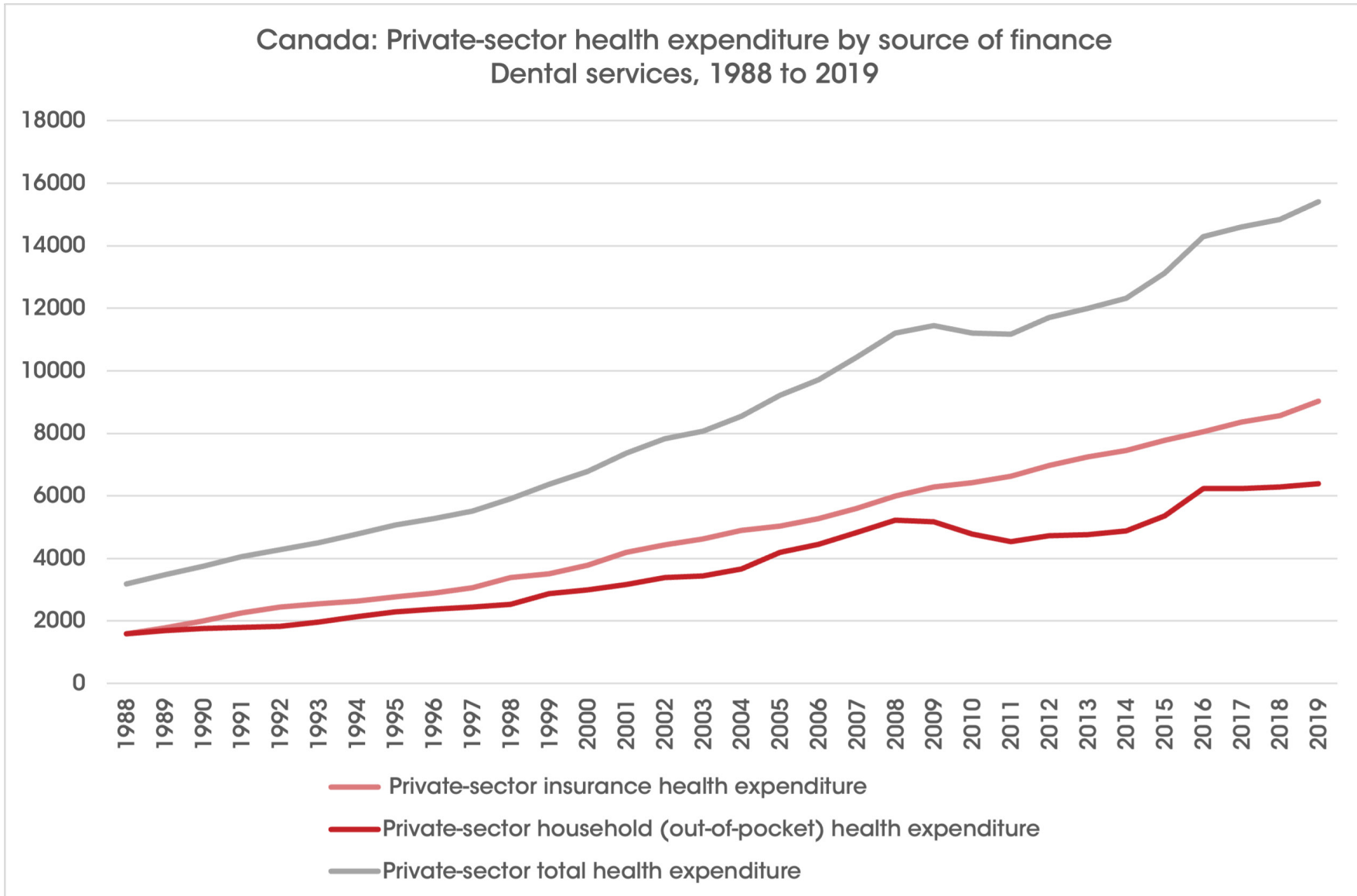


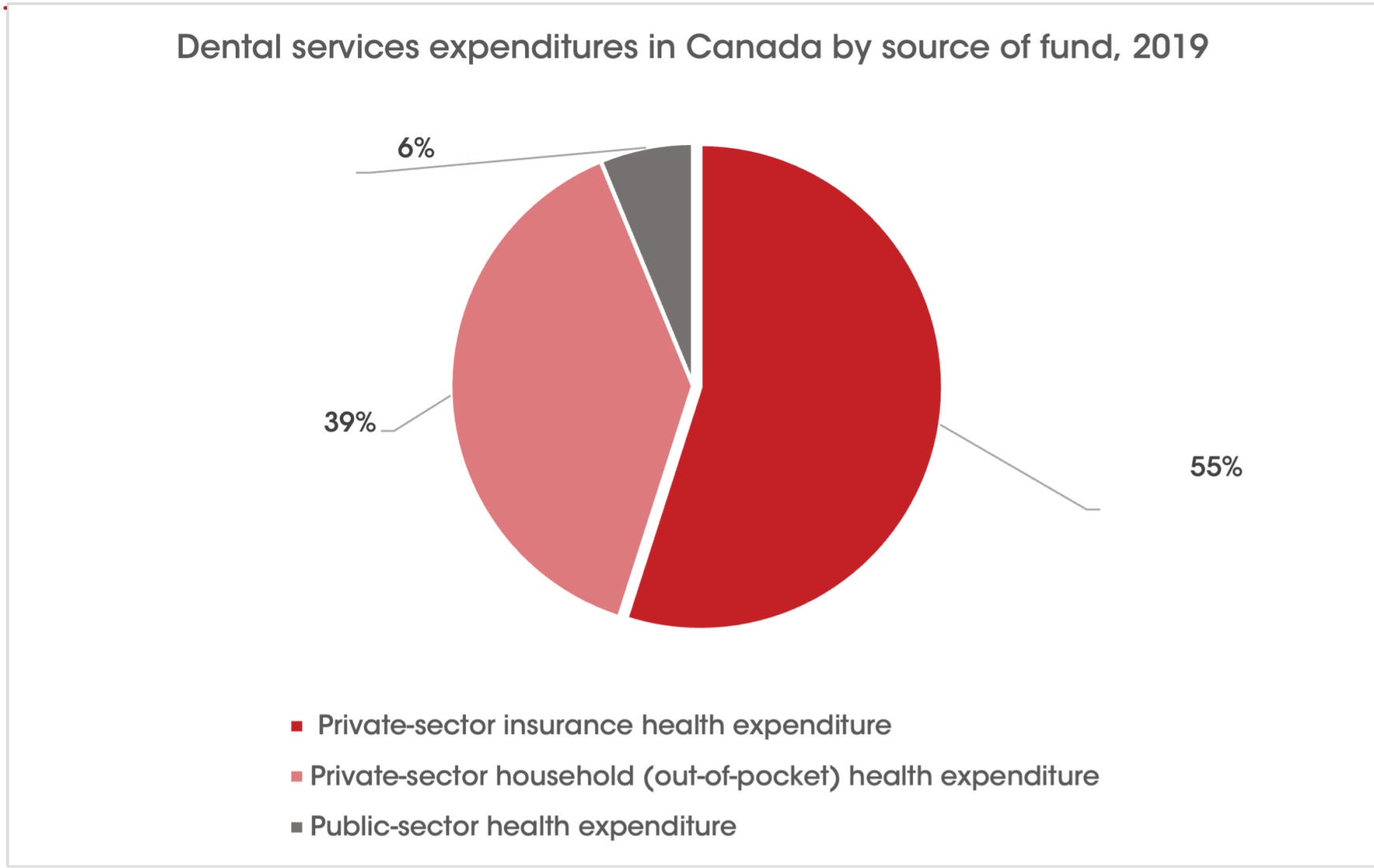
DENTAL EXPENDITURES

Source: CIHI National Health Expenditure Trends November 2022.

Forecasted dental spending 2022 in Canada:

- Total expenditures on dental services: $18.44 billion.
- Percentage of total health expenditures on dental services: 5.6%.
- Per capita total expenditure on dental services: $477.10.
- Private sector health expenditure on dental services: $17.45 billion.
- Total private sector health expenditures in Canada: $93.38 billion.
- Percentage distribution of private-sector health expenditures on dental services: 18.7%.
- Per capita private expenditure on dental services: $451.40.
- Public sector health expenditure on dental services: $991.8 million.
- Total public sector health expenditures in Canada: $237.6 billion.
- Percentage distribution of public-sector health expenditures on dental services: 0.4%.


Canada: Private-sector health expenditure by source of finance
Dental services, 1988 to 2019
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Private-sector insurance health expenditure
Private-sector household (out-of-pocket) health expenditure
Private-sector total health expenditure



- Out-of-pocket dental expenditures decreased from 50% in 1988 to 43.6% in 2016
- Private insurance dental expenditures increased from 50% in 1988 to 56.4% in 2016

NON-INSURED HEALTH BENEFITS

Source: Annual Report 2020/2021. First Nations and Inuit Health Branch Non-Insured Health Benefits Program, Indigenous Services Canada.

To be an eligible client of the Non-insured Health Benefits program, an individual must be a resident of Canada and one of the following:

- A First Nations person registered under the Indian Act.
- An Inuk recognized by an Inuit Land Claim organization.
- A child less than 18 months old whose parent is a registered First Nations person or a recognized Inuk.
- As of March 31, 2021, there were 898,839 First Nations and Inuit clients eligible to receive benefits under the NIHB program, an increase of 1.3% from March 2020.
- Ontario had the largest proportion of the eligible population, representing 24.3% of the national total, followed by Manitoba at 17.9% and Saskatchewan at 17.7%.
- Of the 898,839 total eligible clients at the end of the 2020 to 2021 fiscal year, 848,247 (94.4%) were First Nations clients while 50,592 (5.6%) were Inuit clients. The number of First Nations clients increased by 1.2% and the number of Inuit clients increased by 1.8%.
- From March 2020 to March 2021, British Columbia had the highest percentage change in total eligible clients with a 2.8% increase, followed by Quebec and the Atlantic region with increases of 2.3% and 2.2% respectively.
- From 2012 to 2021, the Canadian population increased by 10.6% while the NIHB-eligible First Nations and Inuit client population increased by 0.2%. Factoring out the impact of the removal of First Nations Health Authority (FNHA) clients, the NIHB ten-year eligible population increase was 17.8%, with an average annual growth of 1.7%.
- The NIHB-eligible client population is relatively young with nearly two-thirds (62.5%) under the age of 40. Of the total population, almost one-third (29.9%) are under the age of 20.
- The senior population, defined as clients 65 years of age and over, has been slowly increasing as a proportion of the total NIHB client population. In 2012, seniors represented 6.6% of the overall NIHB population. Most recently in 2021, seniors accounted for 9.4%.

NIHB expenditures by benefit (millions of dollars): 2020 to 2021

In 2020 to 2021, total NIHB program benefit expenditures were $1.49 billion. This represents a decrease of 1.9%, or $28.9 million, over NIHB expenditures of $1.52 billion in 2019 to 2020. Of the 2020 to 2021 total, pharmacy benefit costs represented the largest proportion at 37.0% of expenditures ($550.9 million), followed by medical transportation costs at 35.3% ($525.7 million) and dental benefit costs at 15.9% ($236.3 million).

NIHB pharmacy, dental and medical transportation benefit expenditures accounted for 88.1% of NIHB expenditures in 2020 to 2021.

NIHB program benefit expenditures decreased from fiscal year 2019 to 2020 due in large part to the effects of COVID-19 outbreak. Certain NIHB benefit areas had a decrease in expenditures over the previous fiscal year because of provincial/territorial public health restrictions on travel and in-person services.

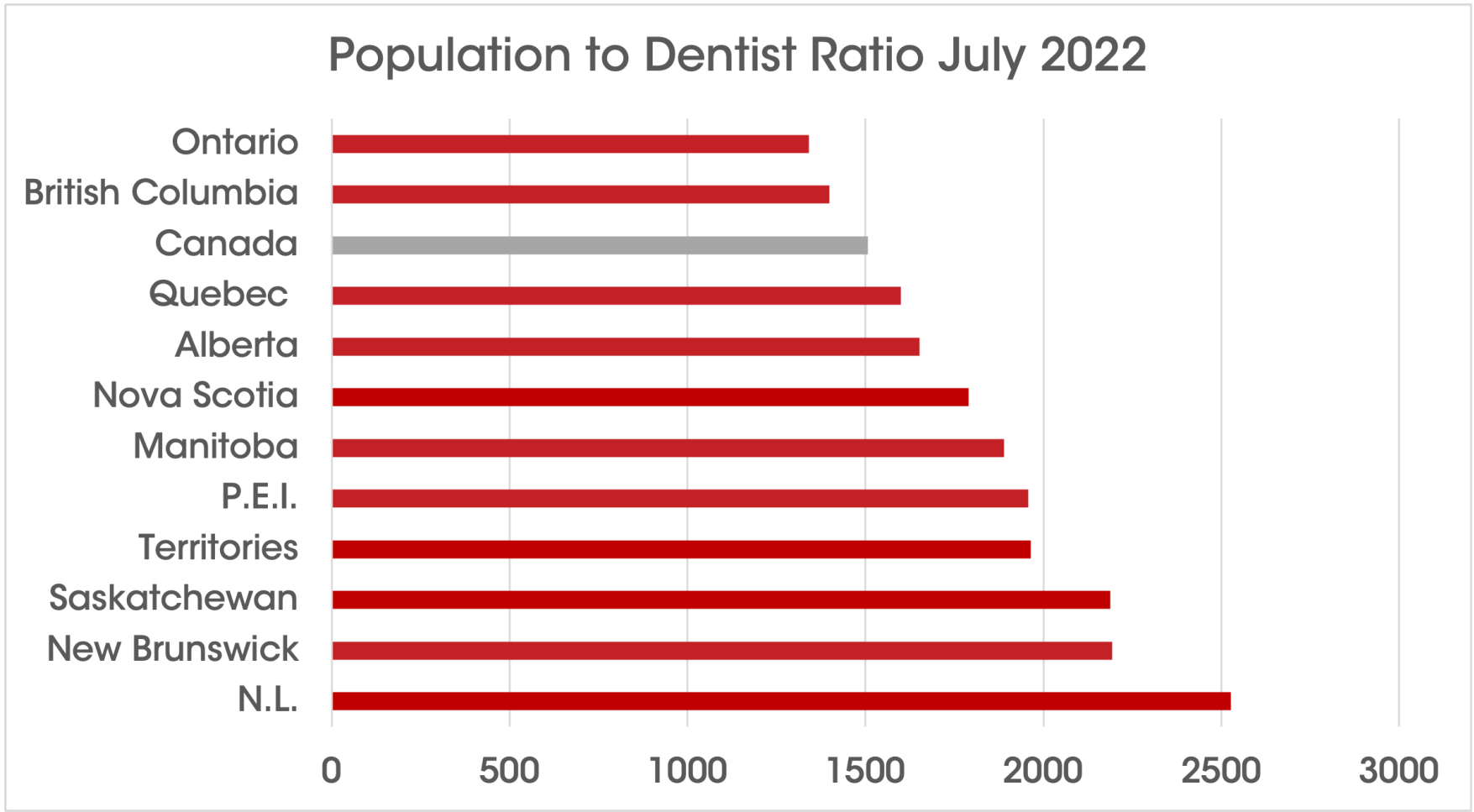
- The highest net increase in expenditures over fiscal year 2019 to 2020 was in the NIHB pharmacy and mental health benefits at $18.9 and $18.8 million respectively.
- The NIHB dental benefit saw the largest decrease at $46.6 million.
- In 2020 to 2021, national per capita NIHB dental expenditures were $259, a decrease of 17.0% from $313 in 2019 to 2020.
- Alberta had the highest per capita dental expenditures at $372, followed by Saskatchewan at $299 and the Northern region at $282. The Atlantic region had the lowest per capita dental expenditures at $142 per eligible client.

Per capita values reflect NIHB dental expenditures only, and do not include additional dental services that may be provided to First Nations and Inuit populations through other Indigenous Services Canada programs or through transfers and other arrangements.

NON-INSURED HEALTH BENEFITS (NIHB) FEE AS A PERCENTAGE OF PROVINCIAL DENTAL GUIDE FEE (2021)											
	ONTARIO	**P.E.I.**	**N.B.**	**N.S.**	**N.L.**	**SASK**	**ALBERTA**	**B.C.**	**MANITOBA**	**NWT**	**NUNAVUT**
Diagnostic	85.30%	86.10%	85.20%	85.20%	82.30%	87.30%	97.20%	77.40%	78.46%	91.60%	85.00%
Prevention	93.30%	92.10%	96.00%	92.90%	92.00%	94.60%	95.90%	96.30%	90.76%	97.10%	97.10%
Restoration	79.00%	93.10%	86.90%	91.40%	81.60%	87.90%	86.20%	91.10%	79.57%	79.00%	71.80%
Other	78.30%	89.10%	83.30%	93.60%	79.60%	79.90%	74.00%	81.50%	78.66%	81.60%	74.40%

Note: Clients of NIHB often have different dental conditions and needs than the general population

If procedure codes were missing from either the NIHB or provincial fee guide, that code was skipped when determining an average for the codes per type of code.


Population to Dentist Ratio July 2022
Ontario
British Columbia
Canada
Quebec
Alberta
Nova Scotia
Manitoba
P.E.I.
Territories
Saskatchewan
New Brunswick
N.L.
0
500
1000
1500
2000
2500
3000

DENTAL SUPPLIES INDUSTRY

Rising dependence on teledentistry

Following the COVID-19 outbreak, most dental practices were unable to offer routine services in the office. Teledentistry—offering dental services (consultation, diagnosis and treatment) through interactive video, audio or other electronic media—helped clinicians serve patients amid this crisis. Dependence on teledentistry is expected to continue even as the pandemic eases because it helps dental professionals consult with current patients, enhancing treatment efficiency.

Digital influence

The latest technologies help dentists carry out minimally invasive procedures that ensure precision and efficiency, reducing patients' trauma. Industry players actively promote digital workflows for general dentistry and dental specialties. Further, dental 3D printers are revolutionizing dentistry by reducing time and cost for orthodontics and dental practices.

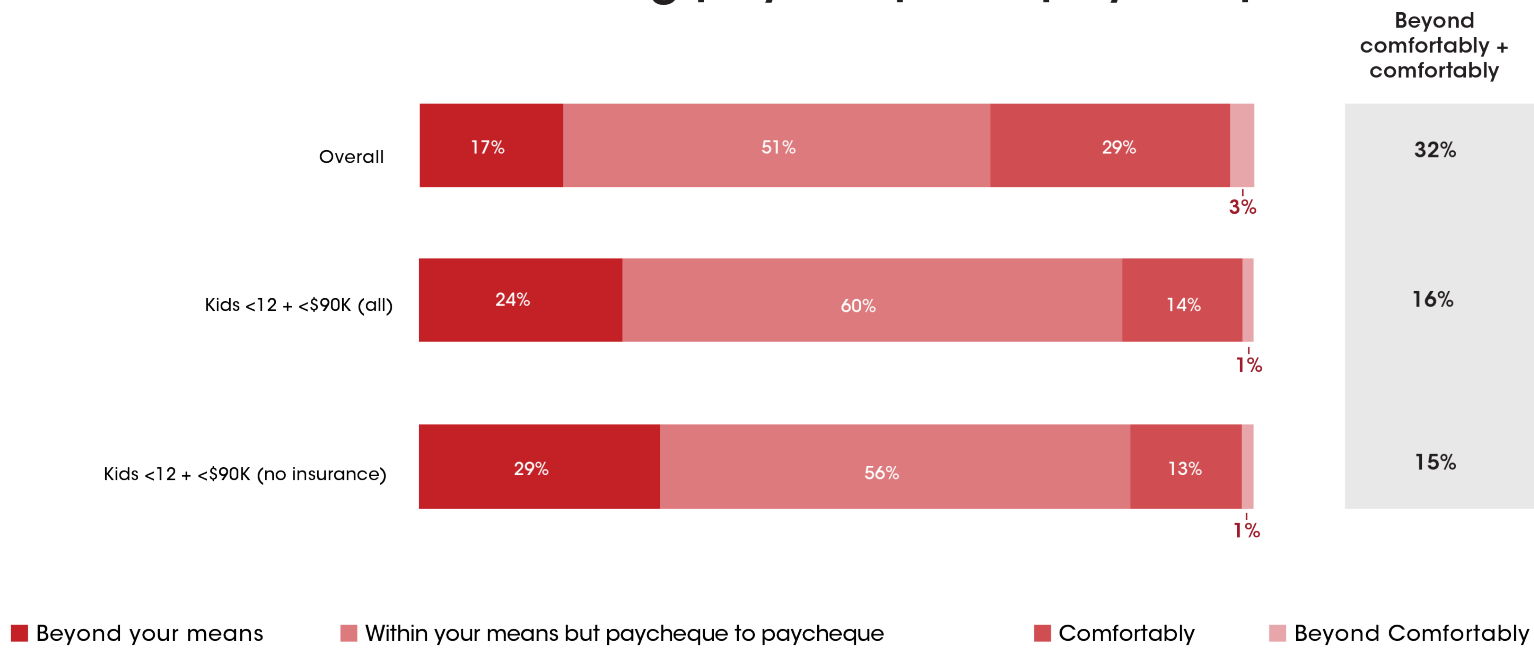
AI & robotics

AI has been affecting the dental industry for some time. This decade is likely to see powerful computers become more accessible and affordable for dental practitioners. This will transform the way dentists work and patients receive treatment, especially with the introduction of robot dentists that are now able to perform minimally invasive dental work like filling cavities and extracting teeth.

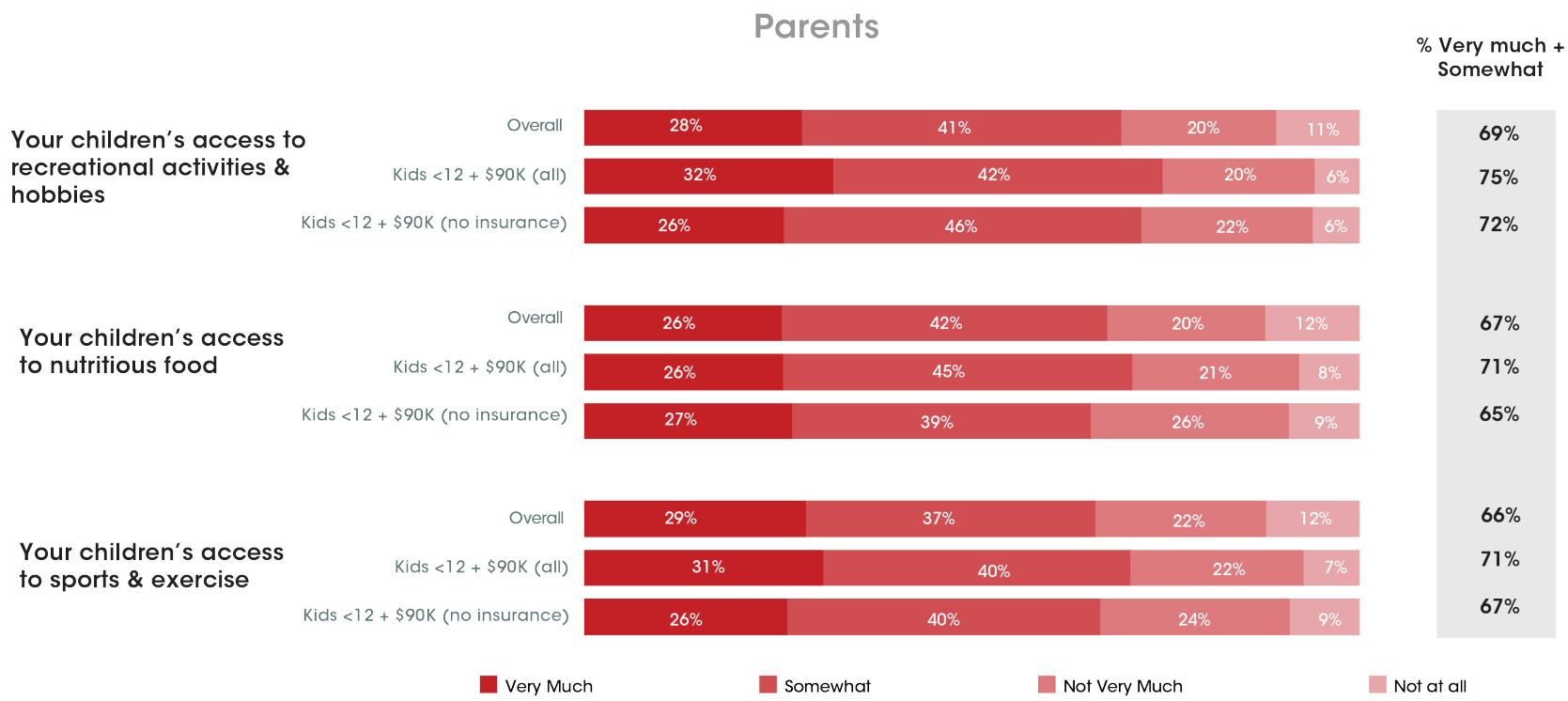
IMPACT OF THE ECONOMY ON CHILDREN'S ORAL HEALTH

ABACUS SEPTEMBER 2022

Over half are living paycheque to paycheque



Inflation negatively impacting child nutrition; access to recreation & exercise



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DISCLAIMER:

The Canadian Dental Association (CDA) has completed the 2023 Environmental Scanning Report with the goal of gathering information that can help the dental profession plan and identify issues that may require further investigation. Please note that this scanning process was limited in scope. As a result, this report contains predictions made about the future which may require adjusting should any of the assumptions presented turn out to be inaccurate or invalid.

CDA will regularly update versions of this report to keep it current, and will provide the latest version to relevant stakeholders, as needed. In addition to this year's Environmental Scanning Report, for additional context, data and/or for a broader snapshot of the external environment, consider referring to previous editions as an adjunct to this one.

While significant efforts were made to identify relevant information while keeping the report concise, we acknowledge that some important details may have been missed or omitted. CDA is committed to continuous improvement and therefore, would appreciate any assistance in making this report more comprehensive and focused. If you would like to share any observations or helpful information for future versions or editions, please contact Costa Papadopoulos, Health Policy at cpapadopoulos@cda-adc.ca.

CANADIAN DENTAL ASSOCIATION

ASSOCIATION DENTAIRE CANADIENNE