

Adult Hearing Health: Canada's growing challenge

Investing in Hearing Health and Cochlear Implantation improves lives and saves Canadian society money

Hearing loss is a growing health and social issue. Hearing loss challenges our capacity to communicate which underlies our ability to function in the world: to relate to family, friends and partners, have a job, lead productive lives and maintain our health and wellbeing through social connections. Today's hearing technologies, including cochlear implants, have the ability to change this.

- Hearing loss is ranked as the **fifth-leading cause of Years Lived with Disability (YLD) in Canada** (GBD 2019).
- **19%** of Canadian adults under the age of 79 experience hearing loss such that it negatively affects their ability to comprehend speech (Feder et al., 2015).
- An estimated **30%** of Canadians between 40-79 have audiometrically measured disabling hearing loss (>40 dB) (Ramage-Morin et al., 2019).
- **11%** of adults 65 years and older report a significant hearing problem (Crowson, 2017).
- Untreated, disabling hearing loss in Canada costs **C\$ 25 billion** each year (Business Wire (EHIMA/Shield) 2019).
- Of Canadians living with hearing disabilities in 2017, around a third (**32%**) were employed compared to 62% of the rest of the population (Gupta et al., 2022).
- **38%** of people with a hearing disability in employment said that they were disadvantaged in their employment due to their hearing loss (Gupta et al., 2022, Morris et al., 2018).
- **Poor general, and psychosocial health** is "significantly associated with negative employment outcomes among working-age adults with hearing disabilities in Canada." (Gupta et al., 2022).
- Only around **1%** of the total public funding for health research is spent on hearing loss in Canada (Herbert, 2023).



"So, consistency I think is a huge thing and that's something we really need to look at so we are all asking and pushing for the same thing."

"There's not enough audiologists to handle the number of patients implanted."

"So, the government doesn't seem to see the value in aftercare, you know, replacements, repairs; none of that is covered or no financial assistance is provided. So basically, you're on your own."

CI Users

The impact of hearing loss often goes unaddressed, leading to multiple health problems for individuals and society;

- **8.0%** of dementia cases world-wide may be preventable or its affects ameliorated by taking early action on hearing loss as it is a potentially a modifiable risk factor (*Livingston et al., 2020*).
- In older age, people with hearing loss are at **greater risk of social isolation** and reduced mental well-being (*Shield, 2006, Shield, 2018, Pichora-Fuller et al., 2015*).
- Older people with hearing loss are **two and half times** more likely to experience depression than those without hearing loss (*Mathews, 2013*) and are also at increased **risk of major depression** (*Amieva et al., 2015, Davis 2011*).
- There is a strong correlation between **hearing loss and cognitive decline** (*Lin, 2013*), mental illness and dementia (*Lin 2011, 2012*) and premature death (*Friburg, 2014, Contrera, 2015*).
- Those with severe hearing loss are **five times** more at risk of developing dementia compared to those with normal hearing (*Lin & Ferrucci, 2012*).
- Hearing loss is associated with **greater use of medical and social services** including for mental health issues (*Xiao, 2018, O'Neill et al., 2016, WHO 2021*).
- Those with hearing loss have **higher rates of unemployment** and underemployment (*Kochkin, 2007, 2010*).

We have the technology to improve this:

- The latest hearing technologies, including hearing aids and implantable hearing devices, have been shown to **change the lives of those with hearing loss** (*Lamb et al., 2015, Morris 2012, Bond 2009*).
- Hearing aids **improve mental health**, physical abilities, cognitive abilities, and employability. (*Amieva et al., 2015, Contrera et al., 2015, Kochkin 2012, Dept of Health/NHS England 2015, Cochrane review, Ferguson et al., 2016, Mahmoudi et al., 2018*) and are associated with less cognitive decline (*Deal, 2015, Amieva et al., 2015, Mahmoudi et al., 2018*).
- Cochlear Implants for adults **improves quality of life**, reduces depression, and protects cognitive functioning (*Mosnier et al., 2014, Lamb & Archbold 2014, Ng et al., 2016*).
- A systematic review, covering 137,484 participants, found that the use of hearing aids and cochlear implants was associated with a **19% decrease in long-term cognitive decline** and was also associated with a **3% improvement in cognitive test scores** in the short term (*Yeo et al., 2023*).

Unaddressed hearing loss creates very significant additional costs for society

WHO concluded that globally unaddressed hearing loss poses an annual global cost of US\$ 980 billion. This includes;

- **Health-Care Sector:** costs are around \$314 billion and include health-care costs for children and adults.
- **Lost Productivity:** costs related to unemployment and premature retirement among people with hearing loss is conservatively estimated as \$182.5 billion annually.
- **Societal Costs:** the result of social isolation, communication difficulties and stigma result in a further \$456.5 billion each year (*WRH 2022*).

Investing in hearing care saves money

- The WHO World Report on Hearing concludes that: "With unilateral cochlear implants, estimations based on actual costs in a high-income setting showed a return of 2.59 International dollars for every 1 dollar invested . . ." (*WHO 2022*).
- In England the costs associated with unaddressed? hearing loss were estimated at £30.13 billion per year, including medical and social costs (*Archbold et al., 2014*). In France, the estimation was 23.4 billion euros (*Kervasdoué & Hartmann 2016*).
- The effective use of hearing aids and implantable hearing devices gives a Return on Investment of up to 30.1 in some countries (*Nassiri et al., 2022, WHO World Hearing Report, 2021*), and typically 10.1 (*Kervasdoué & Hartmann, 2016*).
- In high income countries with most access to hearing technologies, such as Denmark, the cost associated with use of other services, such as primary care and inpatient stays by those with hearing loss, is lower (*Lamb et al., 2016*).
- People with hearing loss put a very high economic value on the benefit of their cochlear implant. The majority (60%) valued their cochlear implants above £150 a month (*Ng et al., 2016*).

"Early rehabilitation along with the use of hearing devices such as cochlear implants are also cost-effective."

Lancet, 2021

- Adults and seniors with progressive profound hearing loss and a unilateral Cochlear Implant had a total net benefit of €275,000 and €76,000, respectively (*Neve et al., 2021*).
- The cost of NOT providing hearing technologies has been shown to be greater than the cost of providing them to health systems (*O'Neill et al., 2016, Kervasdoué & Hartmann 2016*).

Cochlear Implantation in Canada

Who could benefit from cochlear implantation?

- The overall estimated number of people who could benefit in 2019 is 191,736 (sensorineural hearing loss (SNHL) greater than 70 dB).
- The number of Canadians who have received a cochlear implant is around 13,146 while the number of new cochlear implantation surgeries was 972 in 2019.
- Fitting rates between provinces vary from 4% to 10% of the estimated number of people who could benefit in the respective provinces with SNHL greater than 70 dB (2019 figures). Overall, there is a fitting rate of 7% of those who could be eligible: approximately 9 in every 10 people who could benefit from a cochlear implant in Canada are not (*Figures from an analysis by Cochlear and related to 2019*).
- Current growth in the elderly population means there will continue to be a gap between Cochlear Implant provision and demand (*Crowson et al., 2017*).
- Differential costs and lack of transparency about costs may also hinder the development of adequate provision (*Crowson et al., 2017*).
- Cochlear Implant user groups report wide variations in policies around replacing equipment and aftercare.

“In some provinces what’s provided to an initial implant recipient in their kit is sometimes a processor or a backup processor and five different accessories and another province they don’t get the backup processor; they don’t get the number of accessories.”

CI User

What are the economic benefits of implantation in Canada?

- The use of hearing aids and cochlear implants increases employability and earning power. Cochlear implantation of a 6.6-year mean duration led to 31% of respondents having an increased income enough to move income brackets, with a mean category rise of \$10 021 and increased employability (*Clinkard, 2015*).
- Cochlear implantation was associated with a significant increase in median yearly income compared to preimplantation \$42 672 vs \$30 432 – a 40% increase (*Monteiro et al., 2012*).
- There are long-term sustained benefits from cochlear implantation on quality of life (*Arnoldner et al., 2014*).
- Cochlear implantation is cost-effective compared to no intervention for single-sided deafness (*Ontario 2020*).
- Sequential bilateral cochlear implantation was cost-effective when compared to no intervention (*Chen 2014*). Bilateral Cochlear Implantation was found to be reasonably good value for money (*Ontario 2018*).
- Following cochlear implantation, people describe profound changes to their lives, including greater confidence, greater ability to communicate, less reliance on others for communication support, gaining and retaining employment, and increased independence for themselves, with less reliance on health and social care services (*Lamb et al., 2015*).

Recommendations

Access, provision and ongoing support for today’s hearing technologies needs to be consistent across all the Canadian provinces. To achieve this:

Public health strategy should be developed in each province to produce an Action Plan on hearing loss to focus public health services.

National Adult Hearing Screening Programmes should be introduced to ensure that people are more aware of hearing loss and take action early to improve health and wellbeing and prevent additional costs later (*Hearing Alliance of Canada, 2023*).

Stigma related to hearing loss should be addressed in public health campaigns on awareness including the negative health and mental health implications of not addressing hearing loss.

Innovative service models including the latest innovations in teletherapy and health provision should be developed so that services can be delivered more cost effectively.

A new evidence-based standard for patient provision for cochlear implants would ensure quality and consistency in provision and lifelong Cochlear Implant services within and across provinces.

A review of candidacy criteria for cochlear implants to ensure that all who could benefit do so and that there is consistency across provinces.

Funding of hearing technologies should take into account the high cost of NOT treating hearing loss.

Cochlear implant users should receive lifelong care, not just at the point of implantation, including funding for upgrades and ongoing support.

There should also be a national and local workforce strategy to ensure that there are the trained professionals to successfully deliver services to meet demand and to provide follow up support.

“One of the things that I would really love to see happen is mandated referrals for Cochlear Implant because I believe I qualified at least five to ten years prior to receiving my referral.”

CI User

Summary

Hearing loss has a massive, unrecognised impact on the individual and society: investing in hearing care and today's hearing technologies, not only changes lives, it saves society money. Advances in hearing aids and implants have revolutionised their impact for those with hearing loss. The effectiveness and cost effectiveness of these hearing technologies has been proven and they should be available for all who need them, together with lifelong CI services.

"CI has given me my life back. How to value that?"

CI User

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