



# How much is your life worth in Canadian healthcare

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## How much is your life worth from a Canadian healthcare perspective?

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## Introduction

How much is your life worth? “Priceless”, is an answer most of us have heard yet when making decisions, each government places a de facto economic value on your life. Now depending what country you are from the economic value differs but what about our own Canadian society, are all lives truly equal in value within Canadian borders? Should the cost of your life change depend on the situation? *Arthur Schafer said “When we talk about Medicare, therefore, we are talking about the values for which we stand as a community.” – in the article titled waiting for Romanow.* The value of a life is based on what Canadians as a community have decided.

Our own government, as well as most other democratic governments change the price on our lives based many factor including political ones, it appears. Insurance and Healthcare change the acceptable cost by the disease that inflicts you (if it’s a long-term vs short-term illness or a common vs rare illness).

We, as a society, change what we call it to make sure we can differ the cost to suit the policy, we call it cost of life, or value of preventing a fatality (VPF), or implied cost of averting a fatality (ICAF), or value of a statistical life (VSL). Most of these are used in the cost of preventing death, decisions like should we put that stop sign in, or is that safety label going to save enough lives at this price to be warranted. In Canada as of 2020, The approximation for VSL is about 7.6 million (US\$) for one Canadian life [1]. In healthcare, our society doesn’t put a whole life price on one individual but as a per year cost called quality-adjusted life-year (QALY). This isn’t as you might assume the \$7.6 million divided by the number of years an average life. Since our country has publicly paid for healthcare, it is important to look at both these economic ideas when policymakers are deciding options and need to value the cost of human life.

Additionally, the Canadian healthcare system is supported not only by the government and tax dollars but by other industries linked to the healthcare system including pharmaceuticals and insurance. These industries often look differently at what a human life is worth. This system needs improvements, and agreements need to be renegotiated.

## Methods used to calculate cost of life

The three main methods used in healthcare policymaking are value of a statistical life (VSL), Disability-adjusted life year (DALY), and Quality-adjusted life-year (QALY). It is important to discuss each separately as they are all used in different ways to evaluate the cost of healthcare. VSL is usually used in policy changes that benefit many individuals at once. DALY is used to calculate costs between the lasting effects of different illness. QALY is usually to choose between different treatment options.

The value of a statistical life (VSL) is an estimate of the monetary value placed on reducing the risk of death. The VSL is expressed as the amount of money a society is willing to spend to reduce the risk of death by a small amount. The VSL is often used by governments to prioritize investments in health and safety initiatives and to assess the trade-offs between the costs and benefits of these initiatives.

Disability-adjusted life year (DALY) is a measure used in health economics that quantifies the cost of different diseases and the long term disabilities they cause. DALY was developed by the World Health Organization (WHO) as a way to quantify the impact of various diseases and injuries on a population.

DALY is calculated by adding number of years of life lost (YLL) due to premature death and the number of years of healthy life lost due to disability (YLD). YLL takes into account the number of deaths and the age at which they occur, while YLD considers the years lived with a disability or illness, adjusted for its severity. This allows us to compare an acute disease with no long term affects and one that causes long term disability like blindness [2].

Quality-adjusted life-year (QALY) is a measure used in health economics that quantifies the amount of time a person lives with a particular quality of life. It combines the quantity of life lived (measured in years) with a quality-of-life assessment (measured on a scale from 0 to 1, where 0 is equivalent to death and 1 is equivalent to perfect health) [3]. The QALY is used to assess cost-effectiveness of medical treatments and interventions, allowing for a comparison of the benefits and costs of different health care options. The method used today is QALY but not without its faults both ethically and even economically it focuses too much on individual costs and less on the benefits especially at a broader level to the families and communities. Even on the government of Canada's website, Canada's Cost-Benefit Analysis Guide for Regulatory Proposals, they claim: "...cost of illness alone does not reflect the total value of an adverse health effect and understate the value of avoiding negative health impacts."

The QALY method does not start with the VSL \$7.6million price point that decreases with an adjusted age. It is occupied only with the cost on the system and not on the value that life provides to the system. It is subjective to the individual filling out the quality-of-life form. As we increase our social consciousness, an understand more in terms of including people of all races and genders we must also learn to include the full value of all people with illnesses and disabilities when improving our society.

In Canada, A cost threshold would be approximately \$30, 000 using QALY and around \$50,000 using DALY to assess health and would be a similar in each individual province [4].

## Current state of the supporting healthcare industries and how they support the rising cost of life

### Government

The Canadian government put in place an ethical publicly funded system in 1957 and improved it in 64' and it was overhauled into what we know it as today in 85' [5]. Many good things come from the system in terms of accessibility for all when it is "necessary medical treatment", including the poor and those with complicated medical histories being able to have their healthcare funded. However, this creates a focus on healthcare only being needed when necessary and individuals letting parts of their health decrease up to a critical state before seeking help. 1 in 6 Canadians don't have a family doctor at all and another third of Canadians it takes a week to get an appointment with their family doctor [6]. This is worse than it sounds.

Though Canadian healthcare is considered a publicly funded entity, 70% is funded through taxes, it is covered differently by each provincial government [7]. Each province has put in place their own systems to providing healthcare. For example, Ontario uses the Ontario Health Insurance Plan (OHIP). However, the Canadian healthcare system is not fully publicly funded. Other industries, businesses and individuals provide much needed support to our imperfect system. Provincial Governments have their own systems, each province system is no better than another with none being the best. And each provincial government cuts back funding to the healthcare systems in different ways and some have old us that privatization might be the way to go. We have seen how Privatization has worked in our southern neighbours. The US spends 17.8% of GDP on healthcare compared to our 11.7%, but this spending doesn't result in better health, avoidable deaths in the US reached 336 per 100,000 Americans compared to 171 avoidable Canadian deaths [8]. This leads to the idea of a nationalized government being perhaps the best and only way to keep Canadians healthy no matter what part of our vast country you live [9].

### Hospitals

Canadian hospitals often have a component of charity and private donations that keep the hospitals running and pay for much need infrastructure upgrades. Research that happens at universities and laboratories are often associated with nearby hospitals. Thus, hospitals nearby cities and university funded labs (partly funded by government) often have more resources to help and improve their communities than those in smaller obscure towns.

Healthcare research funding are directed towards the study of common chronic conditions, such as neurological diseases, cancer, and mental illness, as well as infectious diseases. Where if you have a rare disease, it won't even listed by itself but as part of a larger group containing thousands of diseases [10]. This follows the basic economic principles of supply and demand. The more eyes looking at your disease or symptoms the better chances of researchers finding a treatment or cure for what ails you.

## Insurance

Though Canadian healthcare is considered a publicly funded entity, private insurance companies still are used in Canada to cover life, health, and long-term disability. 66% of Canadians have private healthcare to cover outside acute care needs. This includes dental, vision, rehab, and private rooms while hospitalized unless required for a specific medical need [11]. Insurance companies have different risk analysis dependent on who they give insurance to and how much that individual pays. In Canada insurance companies often provide coverage for drugs outside a hospital care setting.

## Pharmaceuticals

Pharmaceuticals biggest expense usually is developing new medications. Initially the strategies for these drugs are to be created for common illnesses. Following the idea that common disease has more patients and thus more supply. However, since many common diseases already have treatments that work well with little side effects it can be difficult to find a candidate for these newer treatments. Pharmaceutical companies then try these drugs on more rare illnesses that they believe it may work on. Unfortunately, this increases the development costs of the drugs. As more trials are needed and furthermore getting approval by the governing bodies. Singleton drug supplying companies spend on average \$350 million to develop a new drug whereas established drug companies that develop more than 8 drugs in the decade it cost approximately \$5.5 billion per drug [12]. This number is drastically higher because it includes all the failed drugs that didn't come to market as well, whereas smaller manufacturers may go bankrupt before ever getting the chance to bring the drug to market.

## Discussion of how we may be able to decrease costs of healthcare going forward

In 2018 our government investments in healthcare spending were not keeping up with other developed countries [13], however by 2020 and 2021 with the onset of COVID those investment dollars increased to match other developed countries [8]. This provides a basis of investment that firstly our general healthcare was and is underfunded and secondly that there is money in the budget to increase it, as they did during covid, but permanently.

The Canadian government has put in place the healthcare system to attempt to ethically do the right and “Canadian” thing and keep those who are most at risk alive. Some of these individuals are incapable of making the decision of if they want to live with the hardship of being someone reliant on the healthcare system for the rest of their lives, think young children with lifelong illness. This focus on “necessary medical treatment” puts blinder’s on to the larger healthcare issues such as having family doctor’s available that would help improve preventative medicine and in turn decrease the toll of minor issues becoming major medical issues when they arrive in our emergency rooms. It’s only by looking at the entirety of the problems will we find solutions that will decrease the economic burden while improving the quality of life that our current QALY and DALY calculation method relies on. Our policymakers, need to give our healthcare providers the opportunity to make the medically based decisions not just at the major crisis points but as a preventative before we get to the crisis. This needs to start by having more family doctors available to those who need them.

Decreasing prices is not something that can be done without interindustry cooperation. While negotiating with the pharmaceutical suppliers not on a per patient, per insurance company, per hospital or per province basis but an all of Canada basis. Even with smaller patient basis in rare disease options if we use all of Canada’s population when negotiating. We could negotiate better prices on a national level. What if we included insurance companies when making these negotiations and are transparent about the pricing? What if we went on an even bigger scale negotiating as a multi country coalition with these pharmaceutical countries? Canada’s Patented Medicine Prices Review Board (PMPRB) regulates prices and has started getting some traction in doing so. However, regulating though it brings down costs to a reasonable level fast it loses traction when building those relationships that business is built on. This prevents our country from creating those backroom sweetheart deals that would make our country have lower prices. When some companies may have multi drugs they want to bring to Canada it may be advantageous to negotiate all at once if they are safe.

Similar to the 80/20 principle: “The one per cent of patients with multiple conditions who account for 49 per cent of total health care costs, are under-managed” [14]. These rare disease and complex patients that cost our system the most are not getting the care needed. Often the patients have multiple teams to follow each unique issue, but these teams are so hyper focused on the one problem with the patient they take care of they won’t look any other issue, leaving patients not looked at a whole person but a set of separate issues, and not having the time to make appointments for minor things since the communication is lacking between departments and thus small issues become large untreated issues. Surely there is room here for efficiencies as that small group utilizes a big chunk of the funding.

Our current methods for calculating the worth of someone's life are based on making decisions for large groups covered under public policy and don't account for groups of smaller people that cost the system more including rare diseases. As our healthcare improves with innovation and individuals are living longer lives, we will not only have an increasing elderly population but an increasing population of those with life-long illnesses. These individuals both young and old alike deserve care individualized to them with the most cost efficient and best individualized care a case-by-case bases. Unfortunately, the QALY method doesn't look at life but a year-by-year basis that is subjective to the person doing the quality-of-life assessment. If we were to use VSL and subtract medical cost almost like credits with the cost of some of the more expensive drugs today, people on the most expensive drugs wouldn't make it to 10 years. And those that live longer but mostly healthy lives may run out of their health credits too.

During the COVID pandemic, we saw many of these actions used when fighting one infectious disease. Preventative medicine was the forefront of our fight with face masks and handwashing. The Pharmaceutical companies and the governments came together to create better innovative solutions faster. RNA vaccines were finally used from previous research. We broaden our negotiation relationships since we bought drugs not only for us but for other nations to help prevent the worldwide spread and more mutations. When the government made decisions, it was for something that was affecting them personally and it showed. We still don't know the full lasting effects from it, but the up count in respiratory illness especially in children that weren't exposed during their first years of life is the newest phase of it. Long-term we know there is going to be more health effects that we need to worry about.

## Conclusion

Ethically we know it is right to save lives, economically with the rising cost of drugs and how much spending would be needed over the course of a lifetime we know it is not financially feasible to do so the way our system currently is, even when using the statistical cost of life and decreasing the Quality-adjusted life-year cost (QALY). To decrease costs overall we need to take a more systematic approach and look at everything and try preventative health measures over having only "necessary medical treatment" publicly funded. This requires us to switch our provincialized healthcare system to a nationalized one. This nationalized system would need to meet the same level of investment as other developed countries. We need to negotiate drug prices not only with big pharma but with other stakeholders and broaden still to negotiating with a coalition of countries. Decreasing these costs, catching minor problems early and using preventative instead of reactive medicine should also help us save money while improving health. Saving costs and improving health are not mutually exclusive.

The cost of our what we value our lives at is different than other countries and is different based on many factors. If there is a cure for what ails you, most of us would give up all our money for it. As Canadians we agree that we also would give up all we have for our neighbour's health as well. So our Canadian lives are Priceless, no matter what arbitrary figure the government use to make decisions.

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