



How Canadians benefit from

The **Value** of **Medicines**

*New Medicines: Saving Lives,
Saving Health Care Resources*



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Improving Our Quality of Life

From breakthrough medicines to improved drug therapies, pharmaceutical discoveries allow Canadians to live longer, healthier, happier and more productive lives. At the turn of the last century, the average life expectancy was only 47 years. A child born today can expect to live until almost 80.¹ These longer life spans are due, in large part, to the conquest of diseases by pharmaceutical research.

Diseases that once resulted in painful, premature deaths - such as diphtheria and whooping cough - are now a thing of the past. Vaccines have virtually eliminated some diseases, and new medicines are making dramatic improvements in the fight against heart disease, cancer, osteoporosis, schizophrenia and many other illnesses.



New medicines add value to Canadians

The cost of using medicines is often considered without regard to the tremendous value they provide. In fact, new pharmaceuticals can, by controlling and preventing disease and helping people avoid more expensive and invasive treatments, improve our quality of life while saving health care dollars. Medicines provide real value - to patients and their families - as well as to the health care system and society as a whole.

Innovative medicines save lives, relieve pain, cure and prevent disease. Medicines also improve the quality of life for Canadians by reducing the need for surgery and hospitalization, allowing people to stay with their families and in their communities. They also help people avoid disability and nursing home care, thus maintaining independence and autonomy.

¹ The Value of Pharmaceuticals. PhRMA, 1998



Although **heart disease** remains the leading cause of death in Canada, new drug therapies have helped to reduce death rates from cardiovascular disease by 26% between 1973 and 1996. Each year 16,200 lives are saved through our improved ability to prevent, diagnose and treat heart disease.² New medicines such as beta-blocking agents, thrombolytic therapy and cholesterol-lowering drugs are helping Canadians to live longer, more comfortable lives.

Schizophrenia is a disabling, incurable mental illness that afflicts 1% of the world's population. In Canada, 300,000 people between the ages of 16 and 30 experience the symptoms of schizophrenia and nearly one-third of the homeless in Canada suffer from the disease. The social and economic costs of this disease are tremendous, as are the direct costs to Canada's health care system to treat and care for those patients with schizophrenia. However, new drugs have been discovered that help control the disease and allow patients to return to their families and communities.⁴

Osteoporosis, a disease characterized by decreased bone mass and the leading cause of hip fractures, affects one in four Canadian women over the age of 50. There are approximately 25,000 hip fractures in Canada each year, and 70% of these are osteoporosis-related. Hip fractures result in death in up to 20% of cases (5,000 Canadians), and disability in 50% of those who survive. Hormone therapy, which was discovered and developed in Canada, stops bone loss, and thus helps Canadians remain healthy and autonomous. A relatively new class of drugs called aminobisphosphonates has been shown to build healthy bone, and to reduce the risk of spinal fractures by nearly half.³

Nearly 130,000 new cases of **cancer** are expected to be diagnosed this year in Canada. In 1999, the four deadliest cancers: lung, breast, prostate and colorectal, took more than 33,000 lives. However, a new drug has been found to stop cancer by blocking hormone receptors on cancer cells. As a result, researchers have found that breast cancer death rates have decreased by one quarter.⁵ This represents 14,000 lives saved in the U.S. and Britain alone.

² Statistics Canada

³ www.merck.com

⁴ Novartis Pharmaceuticals Canada Inc.

⁵ Tamoxifen Credited with Huge Drop in Breast Cancer Deaths. Toronto Star, Toronto, May 19, 2000

Modern medicines save lives and improve the well being of patients.

Adding Value to Our Health Care System

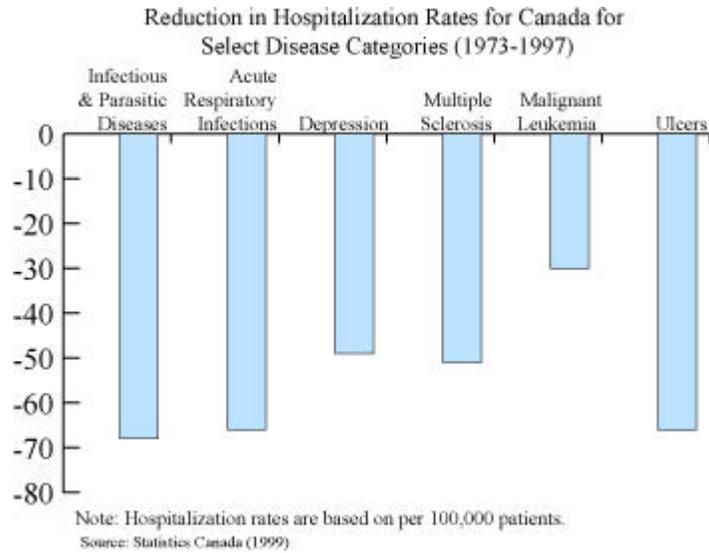
New medicines play an important role in maximizing health care resources by helping to reduce hospitalization and by replacing other more expensive and less effective treatments. In fact, medicines are one of the most cost-effective interventions in our health care system. Appropriate use of medicines can result in fewer hospital admissions, shorter hospital stays and fewer visits to physicians.



In Canada, the rate of hospitalization declined by over 30% in the period from 1975 to 1995:



In some disease categories, including infectious and parasitic diseases, acute respiratory infections, malignant leukemia and ulcers, hospitalization rates have been cut in half:

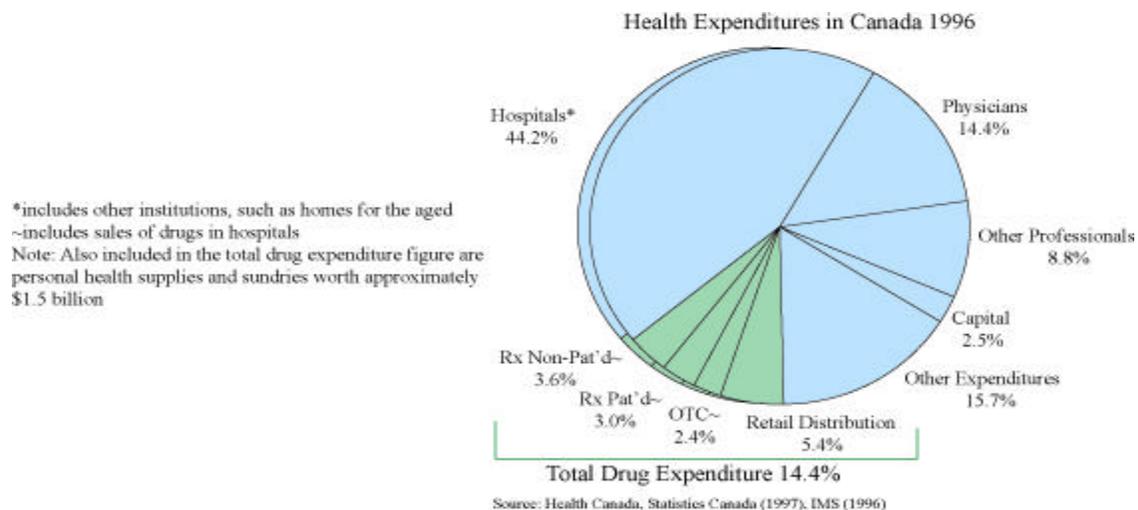


As the need for hospitalization is reduced, so are overall costs to the health system. Researchers in Saskatchewan found that patients who convalesced at home with the assistance of home care had equally good medical outcomes and similar satisfaction with care as those who recovered in hospitals - and the average cost of treatment was \$830 less per case.⁶

Reducing The Cost of Care

The cost of illness to the Canadian health care system is staggering. A Health Canada study released in 1997 revealed that the total cost of illness in Canada was nearly \$160 billion in one year alone.⁷ By controlling or preventing disease and helping people avoid more expensive and invasive treatments, medicines can both improve health outcomes and save precious health care dollars.

As the population ages, health costs will rise. Pharmaceuticals represent one of the most cost-effective health solutions. In fact, prescription drugs currently represent only 6.6% of the total health care expenditures in Canada:



There are direct and indirect costs related to illness. Direct costs, such as hospitalization, surgery, chronic care, medical consultations and drugs account for just under half of the total cost. Indirect costs, which include decreased productivity at work, increased mortality due to disease and reduced productivity and health of family members who are caregivers reflect the reality that there are also serious "social costs" to illness. Medicines provide value because they can reduce the overall costs of treating illness while at the same time improving the quality of life for those affected. For example, people suffering from schizophrenia occupy 1 in 12 hospital beds in Canada, at a cost of \$2.3 billion each year. It is estimated that 30% of Canadian patients can benefit from new drug therapies that cost only \$4,500 per year - as compared to hospitalization, which costs \$39,000 per patient per year.⁸

Did You Know...

Combination drug therapy has reduced AIDS deaths by more than 70% from 1994 to 1997.⁹

Today, seven out of 10 children survive all forms of cancer and nearly eight out of 10 survive leukemia.¹⁰

Arthritis is Canada's second most costly illness at \$9 billion each year and is the number one cause of long-term disability in Canada. Arthritis is also the third most common reason why people use prescription drugs.¹¹

Less than \$200 worth of medication can replace thousands of dollars in costs for surgery and hospitalization related to ulcers.¹²



⁸ Novartis Pharmaceuticals Canada Inc., 1997

⁹ HIV Outpatient Study Investigations, Declining Morbidity and Mortality Among Patients with Advanced HIV Infection. The New England Journal of Medicine, March 26, 1998, Vol. 338, No. 13

¹⁰ The Value of Pharmaceuticals. PhRMA, 1998

¹¹ Arthritis Myths Still Hold Sway. Vancouver Sun, June 28, 1999

¹² The Edmonton Journal, March 13, 1997



Canada's Contribution to the Search for Cures

Although Canada invests only a fraction of what other developing countries do in Research and Development, the quality of our researchers has made us leaders in the development of new medicines. Recent Canadian contributions include:

- A photosensitive **anti-cancer** drug was developed by a Canadian immunologist and was approved for treatment of bladder cancer in 1993. Other cancers of the skin, lung, stomach and cervix are also treatable. Research with second-generation photodynamic drugs are now underway with the goal of treating diseases such as arthritis, psoriasis and multiple sclerosis.¹³
- **Diabetics** may soon no longer require daily insulin injections, thanks to a discovery by a team of University of Alberta researchers. The team has successfully transplanted human pancreatic cells into eight people living with severe diabetes. These eight Canadians with chronic, (or type 1) diabetes are now living free of dependence on insulin injections and no longer have to watch what they eat. Islet transplantation could lead to a complete reversal of diabetes.¹⁴ Type I diabetes affects about 100,000 Canadians.
- Researchers in British Columbia have found a "master switch" to turn off the transport of **cancerous cells** throughout the body. This new approach involves using chemicals to suppress a gene in blood cells that appears to help cancer grow and spread. These findings could have major significance in fighting 60% of cancers, including those of the prostate, colon, breast, lung and brain.¹⁵ If research continues to progress smoothly, an oral drug could be available to cancer patients by the year 2006.
- Canadian scientists recently discovered a way to produce a "super salt": table salt fortified with both iron and iodine. **Iron deficiency** is pervasive in poor countries, affecting nearly 2 billion people, mostly women and children. It can reduce the physical and mental capacity of whole populations. It's estimated that 250,000 women die annually during childbirth from conditions associated with anemia. The new double fortified salt, which costs pennies per year to produce, could affect literally billions of people.¹⁶ "We estimate the benefits could be \$10 billion a year, just in quantifiable benefits." said M.G. Benkatesh Mannar, executive director of the Ottawa-based Micronutrient Initiative.¹⁷

¹³ Great Canadian Scientists Research Society

¹⁴ Talaga, Tanya. Diabetes Discovery Could End Insulin Shots. Toronto Star, May 18, 2000, Toronto

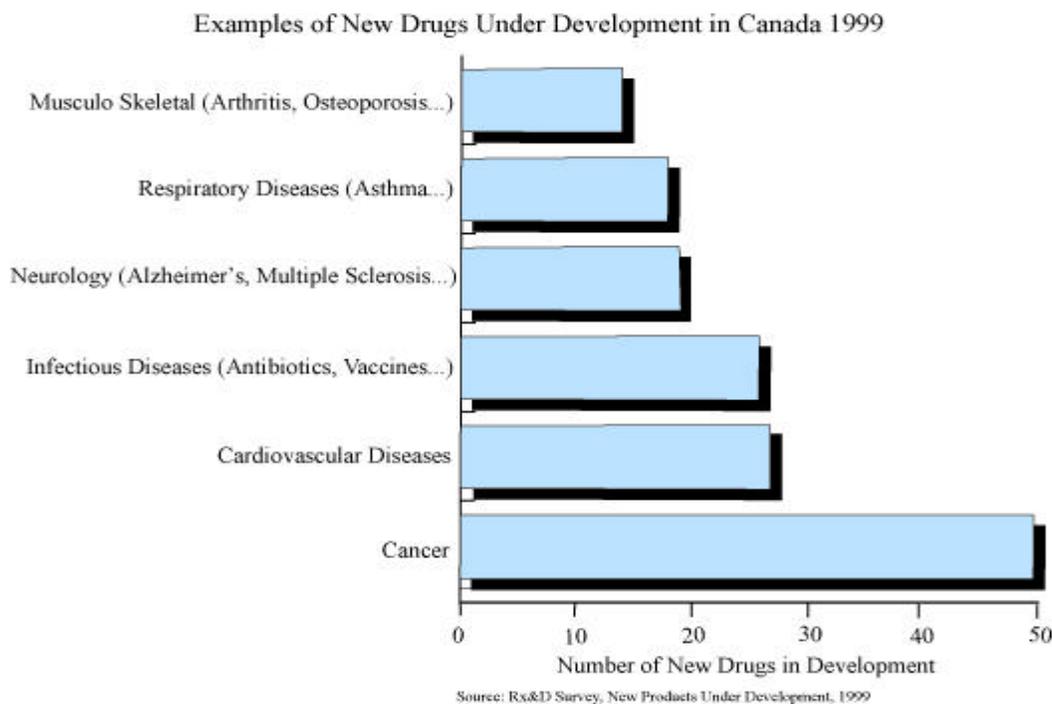
¹⁵ Anderson, Charlie. B.C. Scientists Find Cancer's 'Master Switch'. The Gazette, March 15, 2000. Montreal

¹⁶ It's a Discovery Worth It's Salt. The Gazette, May 05, 2000, Montreal

¹⁷ Stachhouse, John. New Salt Could Improve Health of Poor. Globe and Mail, May 05, 2000, Toronto

- ➔ It is estimated that 600,000 Canadian children (10-15%) have **asthma**, which is one of the most common chronic childhood diseases. While the exact cause is unclear, it is believed to be due to inflammation in the lungs (generally caused by a specific trigger) which leads to a narrowing of the airways. In 1992, Canadian researchers discovered the first medication in a new class of drugs called leukotriene receptor antagonists - the first major advance in asthma in 25 years. These drugs have been found to prevent the swelling and airway constriction associated with asthma, making it easier for the asthma sufferer to breathe.¹⁸
- ➔ The estimated 250,000 Canadians that are chronically infected with **Hepatitis B** have a well tolerated and easy-to-use treatment. Researchers in Canada played a key role in the discovery and development of lamivudine - a new medication for the treatment of chronic Hepatitis B. Hepatitis B infection, which affects 300 million people worldwide, can cause serious liver disease, and can lead to liver failure, liver cancer, and death. Lamivudine has been shown to decrease the amount of virus to undetectable levels in 98% of patients.¹⁹

This year, Rx&D member companies will invest \$1 billion in Canadian medical research. Every day, more than 8,500 researchers are searching for tomorrow's cures in laboratories across Canada.



¹⁸ www.merck.com

¹⁹ www.Glaxowellcome.com



The Future of New Medicines

Tomorrow's new drugs will only increase the value that pharmaceuticals bring to patients, the health care system and society as a whole. Exciting new medicines on the horizon include:

- New antibiotics to treat drug-resistant bacteria
- Medicines that decrease the risk of blindness in diabetics
- New antidepressant drugs
- A breakthrough drug that improves memory and attention functions in patients with Alzheimer's disease
- A new vaccine to treat malignant melanoma, one of the fastest growing categories of cancers
- New prevention therapies for breast cancer, heart disease and osteoporosis

As the population in Canada ages, the commitment to innovative research is more important than ever. With increased research and the greater use of these life-saving and life-enhancing medicines, Canadians can look forward to a future filled with more medical breakthroughs, more effective treatments, and most importantly, better health.

