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## Life Science Industries [\(/eic/site/lsg-pdsv.nsf/eng/home\)](/eic/site/lsg-pdsv.nsf/eng/home)

# Pharmaceutical industry profile

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## Canada's pharmaceutical sector

The pharmaceutical sector is one of the most innovative industries in Canada. It is composed of companies developing and manufacturing innovative medicines and generic pharmaceuticals, as well as over the counter drug products. The sector is made up of a number of sub-sectors that service different market segments, these include brand-name pharmaceuticals companies, generic drug firms, biopharmaceutical small and medium sized enterprises (biopharmaceutical SMEs), and contract service providers (CSPs).

## Size and structure of the industry

Pharmaceutical sales in Canada have a 2.5 percent share of the global market, making Canada the 9<sup>th</sup> largest world market. Since 2009, compound annual growth has slowed to 0.4 percent (*IMS Health Pharmafocus 2018*).

Companies undertake research and development (R&D (research and development)) to develop new or improved patented therapies, while others develop bio-equivalent copies of innovative drugs once patents expire. An emerging field of biologics and subsequent entry biologics (SEBs) is also taking shape.

Brand-name products account for 77 percent of Canadian sales and 34 percent of prescriptions. Generics account for the rest.

In 2014, the manufacturing portion of the sector employed 26,300 people and over the last 5 years employment has fallen by 6.3 percent.

The industry is clustered mainly in the metropolitan areas of Vancouver, Montreal and Toronto.

**Table 1: Yearly Employment in Manufacturing Portion of Pharmaceutical Sector**

Year	Employment
2005	27,923
2006	29,935
2007	29,379
2008	28,635
2009	28,563
2010	28,059
2011	26,288
2012	26,974
2013	27,022
2014	26,301

Source: Statistics Canada, Monthly Labour Force Survey, CANSIM table 281-0023, Yearly employment is 12 month trailing average from July 2014.

## Canadian drug sales

From 2001 to 2013, total pharmaceutical sales (including non-patented over the counter medicines) in Canada have almost doubled to \$22 billion, with 89 percent sold to retail drug stores and 11 percent sold to hospitals. Governments account for 42 percent of drug expenditures and private payers the remaining 58 percent (private coverage and individuals).

Annual domestic pharmaceutical manufacturing production is valued at \$7.7 billion as of August 2014 with a declining compound annual growth rate of 2.5 percent since 2008 (Statistics Canada CANSIM table 304-0014).

Cross-border internet pharmacy sales between Canada and the U.S. grew rapidly from 2000 to 2003, but have since steadily declined to \$105 million or 2 percent of total exports in 2013.

**Table 2: Canadian Manufacturer's Sales of Patented and Non-Patented Drugs from 2004 to 2013 (Sales in \$ billions)**

Year	Patented	Non-Patented	Total
2004	11.0	4.2	15.2
2005	11.5	4.8	16.3
2006	11.9	5.7	17.6
2007	12.3	7.2	19.5
2008	12.6	7.8	20.4
2009	12.9	8.9	21.8
2010	12.4	9.7	22.1
2011	12.9	8.7	21.6
2012	12.8	8.8	21.6
2013	13.6	8.4	22.0

Source: 2013 PMPRB (Patented Medicine Prices Review Board) Annual Report <sup>1</sup>

## R&D activities

Total business expenditures on R&D <sup>2</sup> by Canadian pharmaceutical companies has fallen below \$1 billion since 2011. From 2001 to 2013, industry R&D spending has fallen by

29 percent.

However, the industry's changing business model means more R&D (research and development) <sup>2</sup> is being conducted externally and through partnerships. This includes investments in SMEs, venture funds and work with Canada's growing CSP sector. A recent survey by Rx&D (Canada's Research-Based Pharmaceutical Companies) <sup>3</sup> and KPMG highlights many of these new investments, indicating additional R&D (research and development) <sup>4</sup> expenditures of \$247M in 2013.

The pharmaceutical industry is second after the Information Technology (IT) sector in R&D (research and development) intensity. Twenty pharmaceutical and biotechnology companies are listed in Research Infosource's Top 100 Corporate R&D (research and development) Spenders 2014 in Canada.

R&D (research and development) costs per drug averaged US\$605 million over 12-13 years (Tufts Center for the Study of Drug Development). Full costing (including amortization of research failures and opportunity cost of capital) raises average costs significantly. A generic drug may take 2 to 3 years and requires \$3 to \$10 million of R&D (research and development) to develop and prove equivalency with original drug.

**Table 3: Total Canadian Pharmaceutique Business R&D <sup>1</sup> Expenditures (2004 to 2013)**

<b>Year</b>	<b>Expenditure (in \$ billions)</b>
2004	1.17
2005	1.23
2006	1.21
2007	1.33
2008	1.31
2009	1.27
2010	1.18
2011	0.99
2012	0.89
2013	0.75

Source: 2013 PMPRB (Patented Medicine Prices Review Board) Annual Report

**Table 4: 2013 Distribution of Canadian Business R&D Expenditures By Region**

Region	R&D (research and development) Distribution (%)
Ontario	44.1
Quebec	40.0
West	13.1
Maritimes	2.8

Source: 2013 PMPRB (Patented Medicine Prices Review Board) Annual Report

## International trade

From 2001 to 2013, pharmaceutical exports and imports between Canada and the rest of the world increased by 155 percent and 96 percent respectively.

More than half of Canadian production is exported (primarily to the United States) and a significant portion (62.3%) of the Canadian market is supplied by foreign imports (33 percent of imports from the U.S. and 43 percent from EU (European Union)).

**Table 5: Total Canadian Pharmaceutical Trade (2004 to 2013) (in \$ billions)**

Year	Domestic Exports	Imports	Trade Deficit
2004	3.7	9.6	5.5
2005	3.9	10.0	5.7
2006	5.1	11.4	5.9
2007	6.5	12.3	5.5
2008	6.5	12.7	5.9
2009	7.2	14.5	7.0

2010	5.7	13.3	7.2
2011	4.9	13.5	7.7
2012	5.2	13.5	8.0
2013	5.6	13.7	8.1

Source: Statistics Canada, Industry Canada Trade data online

## Leading companies

In 2013 the top ten pharmaceutical companies accounted for half of total Canadian pharmaceutical sales including both prescription and non-prescription medicines. (*IMS Health Pharmafocus 2018*)

**Table 6: Leading Pharmaceutical Companies in Canada in 2013**

Rank	Leading Companies	Total Sales (\$ billions)	Market Share (%)
1	Johnson & Johnson	2.13	9.6
2	Pfizer	1.45	6.5
3	Apotex	1.19	5.4
4	Merck	1.17	5.3
5	Novartis	1.13	5.1
6	Teva	0.97	4.4
7	GlaxoSmithKline	0.91	4.1
8	Roche	0.80	3.6
9	Pharmascience	0.77	3.5
10	AstraZeneca	0.77	3.4

Source: *IMS Health Pharmafocus 2018*

## Leading products

The top ten pharmaceutical products sold in Canada account for 14 percent of 2013 industry sales. Leading therapeutic categories including medicines for arthritis, depression, cholesterol reduction and Asthma therapies.

**Table 7: 2013 Leading Pharmaceutical Products in Canada**

Rank	Leading Products	Therapeutic Subclass	Total Sales (\$ millions)	2012 Growth (%)	Company
1	Remicade	Anti-arthritic	694.9	23.1	Schering
2	Humira	Anti-arthritic	434.9	18.2	AbbVie
3	Lucentis	Vision loss	402.2	40.4	Novartis
4	Enbrel	Anti-arthritic	332.9	5.4	Amgen
5	Cipralex	Antidepressant	250.0	16.1	Lundbeck
6	Rituxan	Autoimmune	217.6	8.7	Roche
7	Cymbalta	Depression	204.7	19.2	Lilly
8	Advair	Asthma Therapy	204.5	0.2	Abbott
9	Spiriva	Brochodilators	204.3	6.3	Boehringer
10	Ezetrol	Cholesterol reduction	185.0	6.4	Merck

Source: *IMS Health Pharmafocus 2018*

## Health expenditures on drugs

According to the Canadian Institute for Health Information's National health expenditure report <sup>5</sup>:

About 60 percent of total health expenditure in 2014 will be directed to hospitals, physicians and drugs.

Pharmaceuticals are the second largest component of health care expenditures representing 16 percent of total expenditures.

Growth in drug spending has slowed in recent years and is being outpaced by spending on hospitals and physicians.

**Table 8: Canada's Health Expenditure (2005 to 2014)**

Expenditure (\$ billions)			
Year	Total Health Expenditures	On Drugs	Share of Total (%)
2005	140.3	23.2	16.5
2006	150.8	25.1	16.6
2007	160.3	26.4	16.5
2008	172.1	27.9	16.2
2009	182.1	29.5	16.3
2010	193.3	32.4	16.8
2011	199.4	33.0	16.5
2012	205.4	33.3	16.2
2013f	210.4	33.7	16.1
2014f	214.9	33.9	15.8

Source: Canadian Institute of Health Information (CIHI); f=forecasted

## Canadian drug prices

Since 1998, when the PMPRB (Patented Medicine Prices Review Board) began collecting data on drug prices, the price of pharmaceuticals has been increasing at a slower rate than consumer inflation.

Canadian pharmaceutical prices have been on average lower than foreign countries <sup>6</sup>.

**Table 9 : Average Ratio of Median International Price to Canadian Price in**



## Patented Drug Products (2004 to 2013)

Year	Ratio
2004	1.16
2005	1.14
2006	1.07
2007	1.03
2008	1.03
2009	1.04
2010	1.06
2011	1.05
2012	1.07
2013	1.06

Source: 2013 PMPRB (Patented Medicine Prices Review Board) Annual Report

- 1 The Patented Medicines Prices Review Board (PMPRB) protects and informs Canadians by ensuring that the prices of patented medicines sold in Canada are not excessive and by reporting on pharmaceutical trends. To learn more visit <http://pmprb-cepmb.gc.ca/> (<http://pmprb-cepmb.gc.ca/>)
- 2 R&D (research and development) refers to Scientific Research and Experimental Development (SR&ED) expenditures outlined in *Income Tax Regulation*. For more information please visit <http://www.cra-arc.gc.ca/txcrdt/sred-rsde/clmng/brfhstrydfntnsrd-eng.html> (<http://www.ic.gc.ca/eic/site/lsg-pdsv.nsf/eng/home>)
- 3 The survey is published annually by the association of Canada's Research-Based Pharmaceutical Companies (Rx&D) and can be viewed at <http://www.canadapharma.org/> (<http://www.canadapharma.org/>)

- 4 The additional R&D measured is not considered eligible for SR&ED as per *the Income Tax Regulation*.
  - 5 This annual report published by CIHI tracks and reports health care spending across Canada. To learn more visit <http://www.cihi.ca> (<http://www.cihi.ca>)
  - 6 The PMPRB (Patented Medicine Prices Review Board) conducts an international price comparison of all patented drugs sold in Canada using seven foreign countries: France, Germany, Italy, Sweden, Switzerland, the United Kingdom and the United States.
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