



Association of Workers' Compensation Boards of Canada

Actuarial Update

Liability for latent occupational diseases and liability trends

Presentation to the Financial and Statistical Data
Comparability Committee & WCB CFO Meeting on
April 30, 2014

Beyond the numbers, a fractal is a striking
mathematical pattern which repeats in ever
smaller scales.

Objectives of the presentation

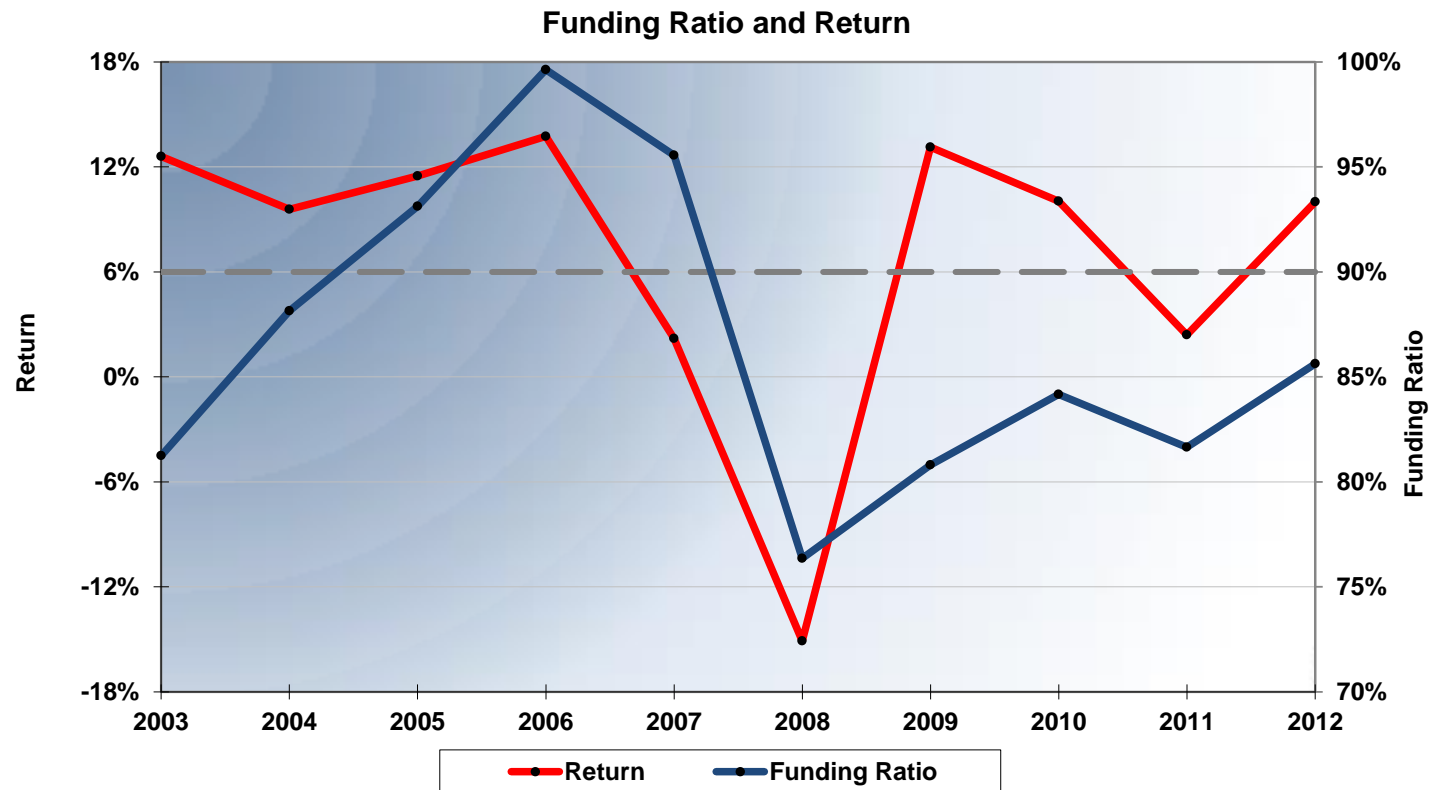
- Financial position of WCBs
- Funding policy
- Liability for latent occupational diseases
- Discount rate
- Trends and issues:
 - Lost-time claim frequency
 - Duration of claim
 - Long term disability claims
 - Health care cost growth
 - Mortality assumption
 - Cost of current year injuries
 - Financial reporting and actuarial standards

Financial position of WCBs

- Main components:
 - Assets: Investment portfolio
 - Liabilities: Claim benefits (including claim administration)
- Main drivers of financial position:
 - Investment return
 - Escalation (inflation, health care increase, wage growth, COLA)
 - Claim frequency and severity

Volatility of the Funding Ratio

- The funding ratio is quite volatile, essentially as a result of the volatility of the return on the Accident Fund:



Financial Results at 2012 Year-End (in \$M)

Board	Assets	Liabilities	Surplus (deficit)	Funding ratio
Alberta	\$8,534	\$6,552	\$1,982	130.2%
British Columbia	\$13,152	\$10,802	\$2,350	121.7%
Manitoba	\$1,344	\$1,062	\$282	126.6%
New Brunswick	\$1,322	\$1,043	\$279	126.7%
Newfoundland and Labrador	\$910	\$992	(\$82)	91.7%
Nova Scotia	\$1,196	\$1,800	(\$604)	66.4%
Northwest Territories and Nunavut	\$301	\$282	\$19	106.8%
Ontario	\$17,281	\$30,580	(\$13,299)	56.5%
Prince Edward Island	\$194	\$156	\$38	124.7%
Quebec	\$11,151	\$12,594	(\$1,443)	88.5%
Saskatchewan	\$1,654	\$1,208	\$446	136.9%
Yukon	\$192	\$132	\$60	145.8%
TOTAL	\$57,231	\$67,203	(\$9,972)	110.2%*

* Arithmetic average

Funding Policy

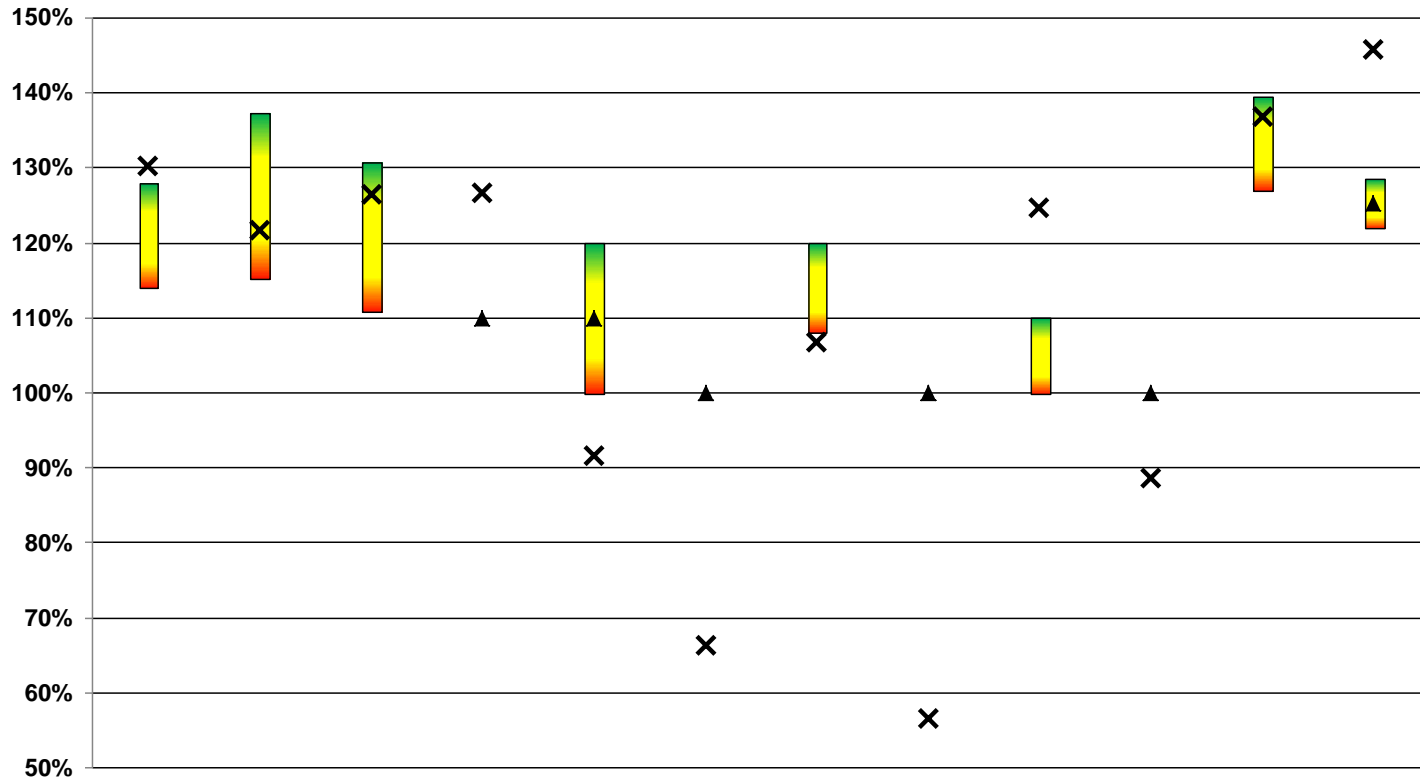
- Parameters of the policy include:
 - Target funding level (100%, or more)
 - No action zone (green zone)
 - Best estimate or more conservative assumptions (margins) for actuarial valuation
 - Corrective actions:
 - Premium increases or reductions
 - Amortization periods
 - Special dividends
- Some guiding principles:
 - Stability of premiums
 - Security of payments
 - Equity among generations of employers
 - Incentives for prevention

Characteristics of WCBs

- In developing the Investment and Funding policies, interests of different stakeholders may sometimes be in conflict
- For example, regarding **funding**:
 - From the workers' perspective, the higher the target funded ratio, the more secure the benefits, the lower the possibility the benefits could be reduced
 - From the employers' perspective, the lower the target funded ratio, the lower the possibility the benefits could be increased, and more money they have in their hands
- For example, regarding **investment**:
 - From the workers' perspective, the lower the risk of investments and volatility of results, the more secure the benefits, the lower the possibility the benefits could be reduced
 - From the employers' perspective, the higher the expected return, the lower the liability, the cost of benefits and the premiums, and more money they have in their hands

Funding Target and Position at 2012 YE

Funding Target at Year-End 2012



	AB	BC	MB	NB	NL	NS	NWT	ON	PEI	QC	SK	YT
■ Maximum	128.0%	137.3%	130.8%		120.0%		120.0%		110.0%		139.6%	128.6%
▲ Target				110.0%	110.0%	100.0%		100.0%		100.0%		125.3%
■ Minimum	114.0%	115.3%	110.8%		100.0%		108.0%		100.0%		127.1%	122.0%
x 2012 YE position	130.2%	121.7%	126.6%	126.7%	91.7%	66.4%	106.8%	56.5%	124.7%	88.5%	136.9%	145.8%

Benefit Liability at 2012 Year-End

- Two elements influencing the benefit liabilities: discount rate and provision for latent occupational diseases

Board	2012 real discount rate		Long latency occupational diseases
	Rate	Comment	
Alberta	3.00%	2.00 % from 2013 to 2016	Included
British Columbia	3.00%		No
Manitoba	3.00%		Included
New Brunswick	4.00%		Included
Newfoundland and Labrador	3.50%		Included
Nova Scotia	3.50%		No
Northwest Territories and Nunavut	3.50%		No
Ontario	3.50%	3.00 % from 2013 to 2017	Included
Prince Edward Island	3.50%		No
Quebec	3.75%		No
Saskatchewan	3.25%		No
Yukon	3.40%		No
Average (arithmetic)	3.41%		

Liability for Latent Occupational Diseases

- Actuarial standards require that an allowance be included in the benefit liabilities for long latency occupational diseases:
 - Expected to arise in the future
 - Resulting from past exposures
 - Recognized by the WCB
- Applicable to calculations as of December 31, 2014

Liability for Latent Occupational Diseases

- Major elements influencing the liability for long latency occupational diseases:
 - List of occupational diseases (OD)
 - Future number of OD claims with past exposure
 - Average cost per OD claim
 - Latency periods
- CIA research paper: draft version of the Research Paper on Latent Occupational Diseases to be published by the Canadian Institute of Actuaries
- Actuaries should be able to provide a consistent estimation of the liability

Liability for Latent Occupational Diseases

- Liability for long latency occupational diseases included for 5 WCBs at 2012 year-end
- Some boards have included this component at 2013 year-end
- What is the position of your board?

Discount Rate

- Actuarial Standards and CIA's Educational Note:
 - Best estimate investment return, without a margin for adverse deviations
 - If the assumption includes a margin for adverse deviations, the extent of such margin has to be disclosed
 - Building block approach:
 - Best estimate of long-term, expected future investment returns for various asset classes
 - Combining returns for different asset classes to reflect the investment policy, with consideration of the effects of diversification and rebalancing
 - Additional return due to active versus passive management, where appropriate
 - Appropriate provision for expenses
 - Approach of a stochastic asset model with a probability distribution of long-term investment returns

Discount Rate

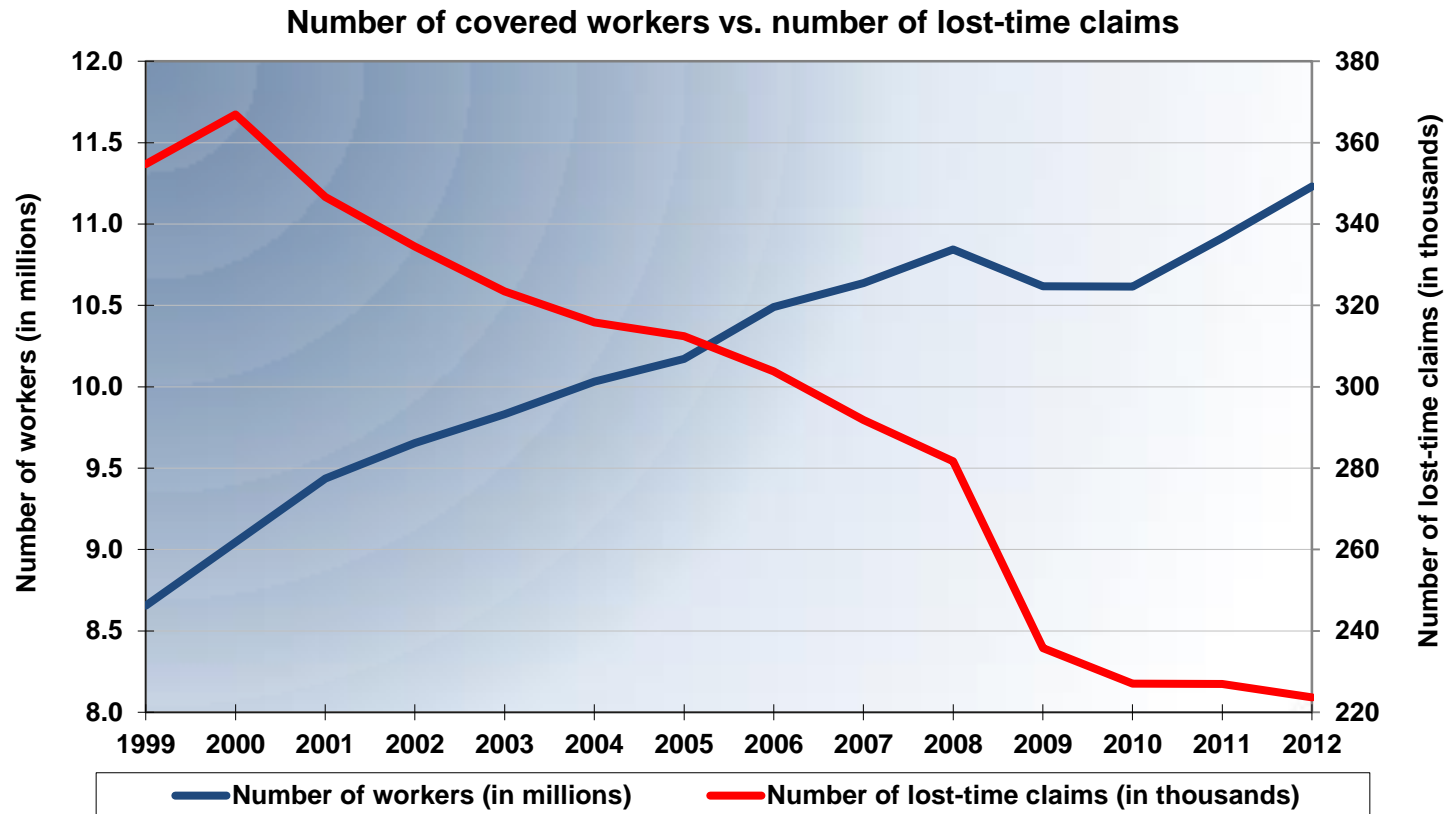
- Economic environment:
 - Current low yields on fixed income instruments
 - Lower expected return on fixed income in the short term as yields might increase
- Valuation of Canada Pension Plan as at December 31, 2012:
 - Assumption of a real rate of return of 2.8% in 2014, increasing progressively to 4.0% in 2019
 - Average of 3.2% over 2014-2018
 - Real rate of return stable at 4.0% from 2019

Trends and Issues

- Lost-time claim frequency is in a downward spiral
- Duration of claim is generally increasing
- The number of long term disability claims is slowly declining
- Health care costs continue to escalate, outpacing inflation, but at a slower rate
- Life expectancy is increasing
- Cost of current year injuries
- Future developments in financial reporting (IFRS) and actuarial standards

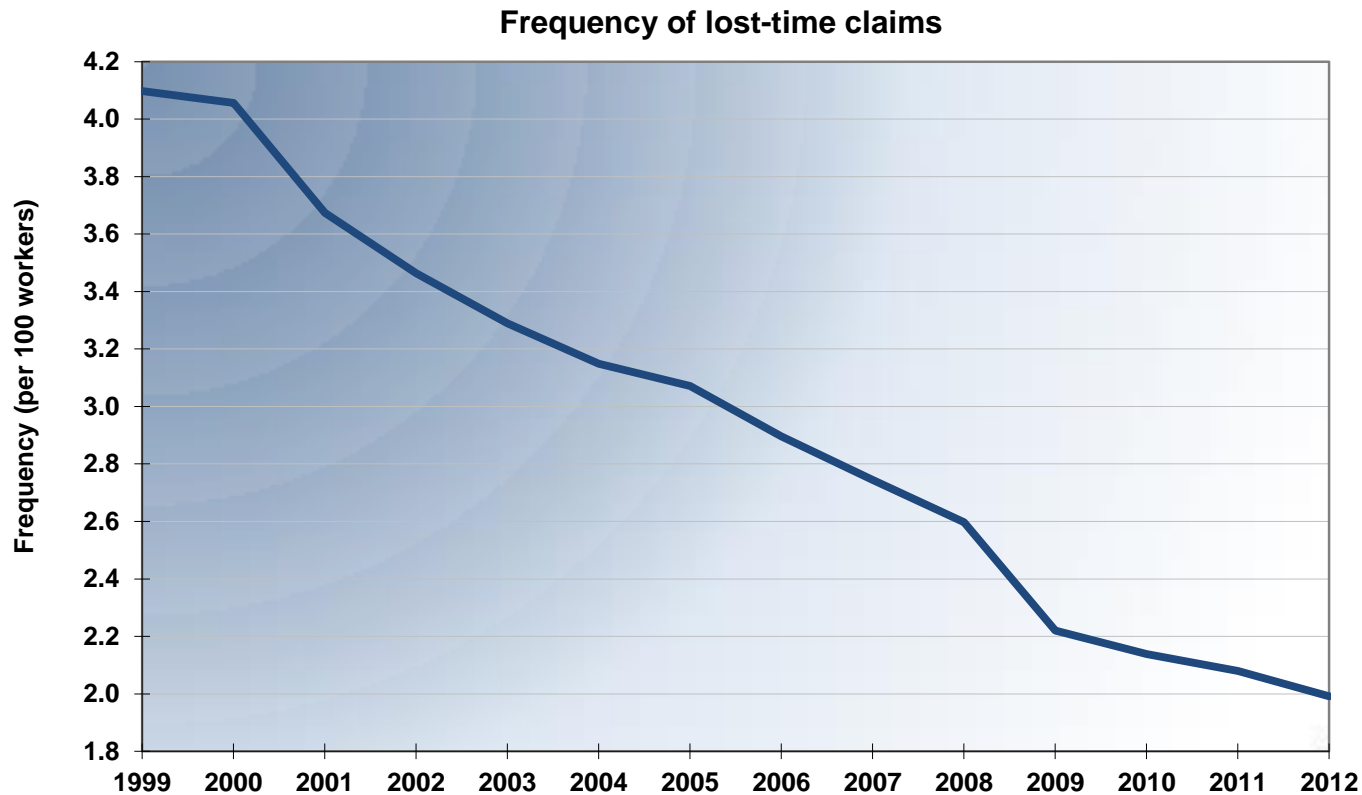
Lost-Time Claim Frequency

- Number of covered workers increased while the number of lost-time claims declined steadily in Canada since 1999:



Lost-Time Claim Frequency

- Lost-time claim frequency is in a downward spiral in Canada (estimated frequency per 100 workers):



Lost-Time Claim Frequency

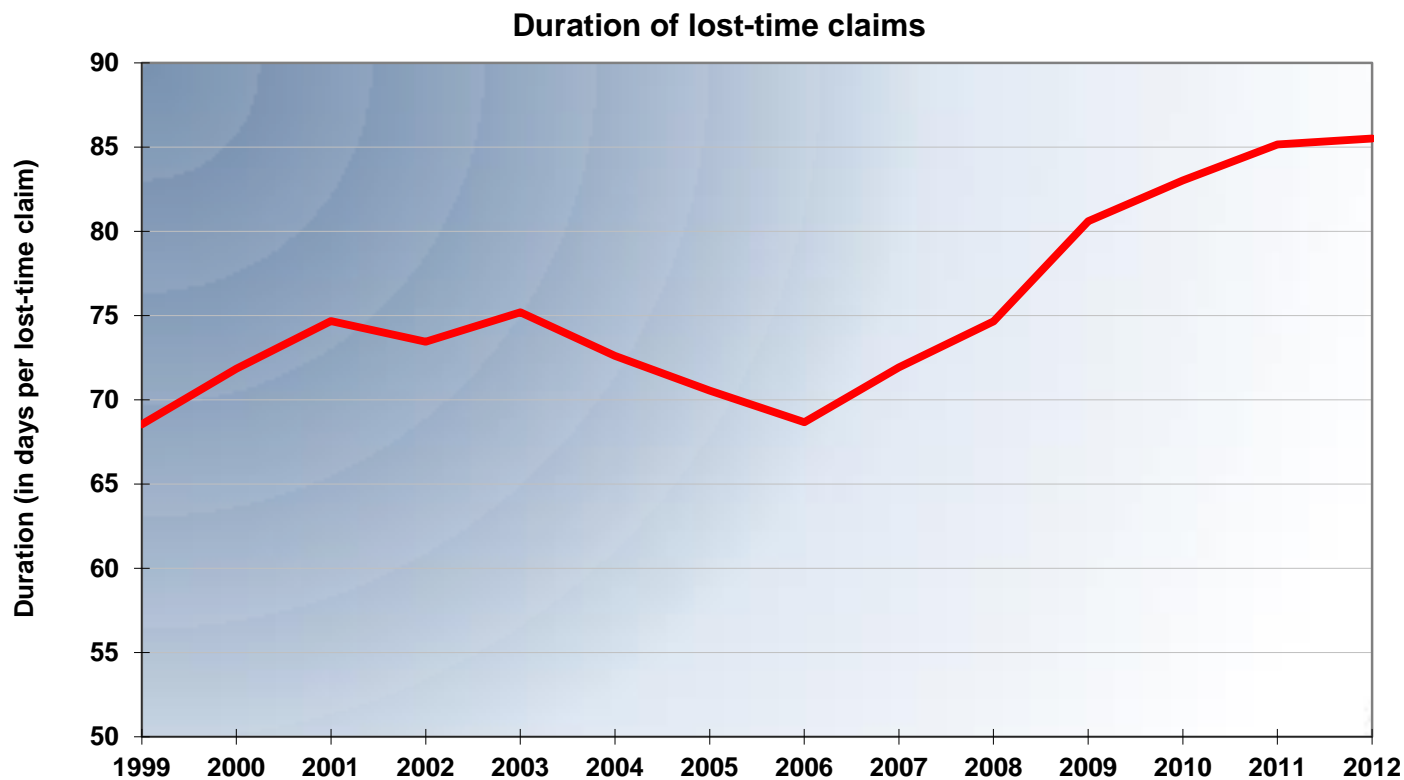
- In Canada, lost-time claim frequency has declined at an average rate of 5.4% per year since 1999
- In the U.S., lost-time claim frequency for workers' compensation injuries:
 - Up to 2010, had been declining at an average rate of more than 4% per year since 1990
 - In 2010, increased 3.8%, marking the first increase since 1997
 - Declined by a modest 0.9% in 2011 and by about 5% in 2012

Lost-Time Claim Frequency

- Causal factors of the reduction in lost-time claim frequency:
 - Global competition has fostered advances in automation, technology, and production
 - Emphasis on workplace safety and loss control
 - Experience rating / modified work programs
 - Economic and demographic trends

Duration of Claims

- Duration of compensation disability benefits has generally increased (estimated average composite duration of claim for Alberta, B.C. and Quebec combined, in number of days):



Duration of Claims

- Causal factors of an increase in the duration of disability compensation claims:
 - Decline in claim frequency most in the smaller value claims
 - More “subjective” claims
 - Aging of the workforce
 - Delays in medical system
- Other factors:
 - Willingness of employer to re-integrate the worker
 - Training and claim management
 - Motivation of the worker to return to work
 - Changing work ethic and work attitudes

Long Term Disability Claims

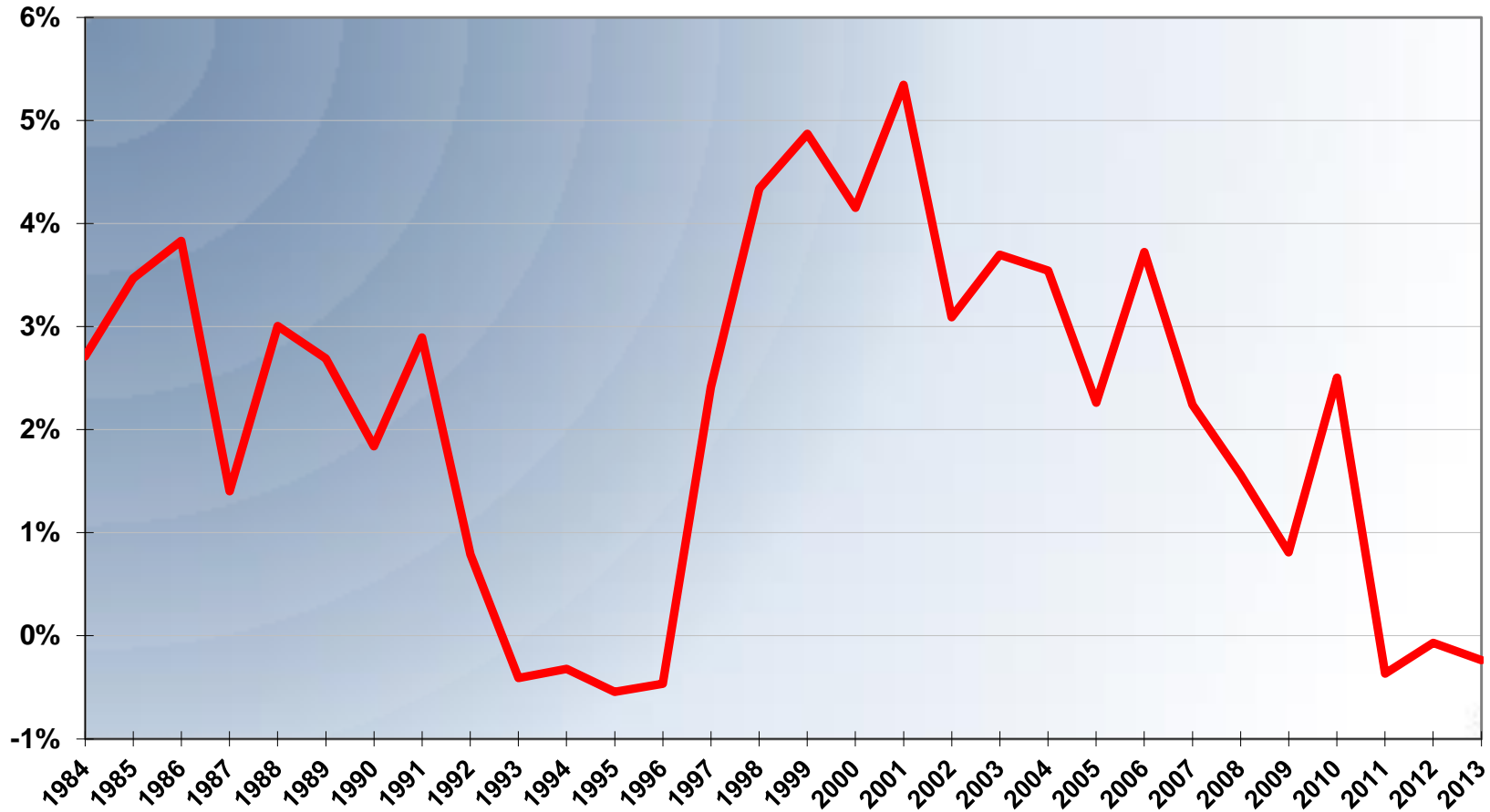
- The decline in the number of lost-time injuries was not accompanied by a proportional reduction in long term disability claims
- The situation has improved: relatively less long term disability claims than before

Health Care Cost Growth

- According to the Canadian Institute for Health Information (CIHI), total health care spending per capita increased at an annual rate, net of general inflation, of:
 - 2009-2013 (last 5 years): 0.5%
 - 2004-2008 (previous 5 years): 2.7%
 - 1994-2003 (previous 10 years): 2.6%
 - 1984-1993 (10 years before): 2.2%

Health Care Cost Growth

Annual Percentage Change in Health Expenditure per Capita in Constant \$



Health Care Cost Growth

- Recent experience varies by boards, but is generally in line with the CIHI findings of a smaller growth rate observed in recent years
- Assumption used in Canadian Boards for the valuation of Health Care claim costs: **inflation plus**
 - Alberta: 2.5%
 - Ontario: 2.0%
 - MB: 3.5%
 - BC: 3.0% (at 2012 YE)
- The health care cost growth varies by benefit category: generally higher for benefits which are paid on a long term basis, such as personal care allowances and hearing aids

Mortality Assumption

- Recent developments in mortality:
 - Population mortality tables released by Statistics Canada
 - CIA's studies on mortality of pensioners
 - All studies indicate an improvement in life expectancy significantly higher than expected
- Life expectancy for Canadian population:

Population Tables	At birth		Age 35		Age 65	
	Male	Female	Male	Female	Male	Female
Canada 1995-1997	75.42	81.15	42.11	47.19	16.04	19.90
Canada 2000-2002	76.92	82.03	43.39	47.97	16.98	20.52
Canada 2005-2007	78.17	82.78	44.60	48.70	18.00	21.07
Canada 2007-2009	78.64	83.12	45.00	49.02	18.32	21.37
Canada 2009-2011	79.33	83.60	45.64	49.47	18.82	21.73
Difference 2009-2011 vs. 1995-1997 (14 years)	+ 3.91	+ 2.45	+ 3.53	+ 2.28	+ 2.78	+ 1.83

Mortality Assumption

- Revised mortality assumptions for injured workers and survivors reflecting recent board's experience and anticipated mortality improvements
- Impact on the benefit liability would be dependent on:
 - Nature of benefits (e.g. life pension or up to age 65, survivor pension or lump sum)
 - Current mortality assumption

Cost of Current Year Injuries

- Benefits for 2013 injuries will be paid over a long period (this may vary based on nature of benefits):

Duration:	0	1-5	6-10	11 +	1 +
Benefit	2013	2014-2018	2019-2023	2024 +	2014 +
Short Term Disability	41%	42%	7%	10%	59%
Long Term Disability	1%	18%	18%	63%	99%
Voc. Rehab.	7%	70%	13%	10%	93%
Health Care	38%	31%	7%	24%	62%
Survivors	3%	17%	14%	66%	97%
Claim Administration	40%	35%	8%	17%	60%
TOTAL	26%	31%	11%	32%	74%

Cost of Current Year Injuries

- Cost of benefits for 2013 injuries in Alberta (in \$M):

Benefit	Payments in 2013	Liability at 2013 YE	Total Costs	Proportion
Short Term Disability	78	100	178	20%
Long Term Disability	3	162	165	19%
Voc. Rehab.	2	35	37	5%
Health Care	133	214	347	39%
Survivors	3	42	45	4%
Claim Administration	50	64	114	13%
TOTAL	269	617	886	100%

Cost of Current Year Injuries

- The proportion of the cost for health care benefits has been increasing
- In Alberta, it is currently as high as disability benefits
- In addition, in Alberta:
 - The proportion of health care and vocational rehabilitation benefit payments in 2012 to all benefit payments was 47% (vs. 27% for all Canadian boards)
 - But those payments per worker covered are similar to the Canadian average

Accounting Standards

- IFRS 4 -Insurance Contracts:
 - Re-exposure draft issued in 2013
 - Main issue: measurement of claim benefit liabilities, i.e. the rate used to discount claim benefit cash flows
 - Rate based on the insurer's current yield curve for the actual portfolio of assets held or a reference portfolio of assets with similar characteristics as the liabilities
- These requirements may result in volatility of benefit liabilities and the funding ratio
- Timing on release of the final standard and the effective date are both unknown at this time

Actuarial Standards

- Actuarial Standards Board has general standards as well as standards specific to Public Personal Injury Compensation Plans (PPICPs) since 1994
- Revised PPICPs standards in 2011
- No major changes expected
- Occupational diseases in latency stage
- Educational notes developed to support actuaries, including investment return and provision for future administration expenses

Actuarial Standards

- Future developments - Educational notes:
 - Best estimate for assumptions for the selection of inflation assumptions
 - Margin for adverse deviations
 - Selection of other best estimate assumptions
 - Sensitivity testing
 - Actuarial reports
 - Data