

# What do employers spend to protect the health and safety of workers?

**While the financial costs of work-related injury and illness are well known, limited information is available on what employers spend to control or eliminate the causes of work-related injury and illness. This *Issue Briefing* describes the results of a 2017 study to estimate occupational health and safety expenditures among employers from 17 economic sectors in Ontario, Canada.**

Work-related injury and illness are preventable (Chambers et al, 2015). Employers can reduce the risk of workplace injuries and illnesses by investing in safer technologies, providing coordination and management of health and safety policies and practices, providing workers with personal protective equipment, and providing training to workers and their supervisors. Workers can reduce the risk of injury by following safe work practices.

While the direct and indirect costs of a work-related injury or illness borne by an employer can be substantial, the great majority of the costs of work-related injury and illness are borne by workers and society (Leigh, 2011). In this context, when a very substantial share of the true costs of work-related injury and illness are external to the workplace, there is a clear argument for the role of government in influencing employer expenditures on prevention programs.

Public policy can influence employers' investments in occupational health and safety (OHS) by three primary means: establishing regulatory standards for minimum workplace practices, obligating insurance coverage, and providing information to guide employers in the adoption of effective practices in workplace health and safety. Regulatory standards and the enforcement of those standards can raise employer investments in OHS (Levine et al, 2012). Work disability insurance premiums can clarify the precise costs of preventable work-related injury and illness, and may provide incentives for organizations to invest in OHS (Tompas et al, 2007). And information and consultation services provided by prevention authorities, OHS product vendors and consultants can increase workplace knowledge of effective OHS policies and practices.

While the costs of work-related injury and illness are well known, limited information is available on what a typical employer spends to control or eliminate the causes of work-related injury and illness. This information is important to better inform public policy aimed at influencing employer investments in OHS. With the participation of a broadly

## KEY MESSAGES

- In 2017, the average estimated occupational health and safety (OHS) expenditure per worker per year among 334 employers in Ontario was \$1,303. OHS expenditure estimates were three times higher in the goods-producing sectors (\$2,417) relative to the service sectors (\$847). The proportion of estimated expenditure allocated to each of five dimensions of OHS was generally consistent across economic sectors: 58 per cent to organizational management and supervision, 22 per cent to staff training in health and safety, 14 per cent to personal protective equipment, and less than five per cent to each of professional services and new capital investment.
- Employer expenditures on protecting worker health and safety are substantial in many sectors. Accurate information on employer expenditures and investments in OHS can help stakeholders understand the progress made over recent decades in the protection of worker health. It can also provide sector benchmarks for employers and inform public policy aimed at influencing employer investments in OHS.

representative sample of more than 300 employers in the province of Ontario, the Institute for Work & Health conducted a study in 2017 estimating the scale of employer expenditures to protect the health and safety of their workers. In many sectors, these expenditures were substantial.

## Methods

We recruited Ontario employers with 20 or more employees from 17 economic sectors, with the number of employers recruited from each sector representing the percentage of the Ontario labour force working in that sector.

- Two primary sample frames were employed for recruitment:
1. organizations that had previously participated in field research with the Institute for Work & Health; and
  2. a random sample of 2,000 Ontario employers obtained from a proprietary database.

We sought a primary contact person within each organization who was most knowledgeable about OHS practices. Through an interview-administered or self-administered workbook, this person provided information on the organization's employment count, economic sector, proportion of employees covered by collective agreements, and OHS expenditures in five dimensions, as follows.

**Organizational management and supervision:** We requested information on the proportion of time (share of a full-time equivalent) spent on health and safety by the most senior person responsible for health and safety and the number of staff who supported this person in that role. In Ontario, employers with 20 or more employees are required to establish a joint health and safety committee (JHSC) with representation from management and non-management workers. We requested information about the JHSC: the number of members, the frequency and duration of meetings, and the number of hours per year that committee members spent on workplace inspections. Finally, information was requested on the number of supervisors in the organization, and an estimate of the annual percentage of time each supervisor devoted to monitoring compliance with the organization's health and safety policies.

**Staff training in health and safety:** Respondents were asked for information on the investment of time and resources to provide health and safety training to new and regular staff, which included an estimated count of trainees each year, the number of hours of health and safety orientation and training provided, and an estimate of the per-person cost of training.

**Personal protective equipment:** Information was requested on the number of units and estimated unit cost of personal protective equipment purchased in a typical year, by type of equipment.

**Professional services provided by external organizations:** Survey respondents were asked to indicate if their organization had procured external consulting services in the past five years to advise or audit aspects of the organization's health and safety policies and procedures. For those organizations that reported retaining external professional services, we requested an estimate of the annual cost of external consulting services.

**Share of new capital investment attributed to improved OHS performance:** Survey respondents were asked to indicate if the organization had invested in new or renovated facilities, acquired new vehicles or purchased significant capital equipment in the past five years. For respondents who reported capital investments, we requested information on the approximate capital cost, the estimated life of the new facilities or equipment, and the estimated share of this capital investment that would be attributed to improvements in worker health protection.

Information provided by participating employers was reviewed by the project research team and abstracted to a standardized data-entry form. Average hourly wage estimates in each sector were obtained from Statistics Canada and used to convert hours into wage/salary expenditures. Organization expenditure estimates for each of the five OHS dimensions were summed

and divided by the number of employees to produce an estimate of OHS expenditure per employee per year. Note that workers' compensation insurance premiums were excluded from these estimates of OHS expenditures.

For each of the 17 economic sectors, we estimated average expenditures per employee per year for each of the five dimensions and in total. Average expenditure estimates were also calculated for two broad classifications of employers: organizations in goods-producing sectors (mining, construction, utilities, manufacturing, agriculture and forestry) and organizations in service sectors (all other sectors, including retail, health care, public administration, etc.).

## Results

A total of 370 organizations participated in this study. We excluded workbooks by employers with fewer than 20 employees, with a high frequency of missing responses, with estimates significantly different to the average in their sector, or from a sector with fewer than five employer respondents. That excluded 36 organizations, leaving 334 employer respondents. The incidence rate of lost-time and no-lost-time workers' compensation claims among participating organizations was not statistically different from the population of all employers in their sector.

**Table 1: Average employer expenditure (among employers with 20 or more employees) on health and safety per worker per year for 17 sectors, Ontario 2017**

Sector (NAICS code)	N	
Mining, quarrying, and oil and gas extraction (21)	5	\$4,433
Construction (23)	30	\$3,626
Utilities (22)	7	\$3,335
Manufacturing (31-33)	50	\$1,515
Agriculture, forestry, fishing and hunting (11)	5	\$890
<b>Total: Goods-producing sectors</b>	<b>97</b>	<b>\$2,417</b>
Transportation and warehousing (48-49)	17	\$1,326
Health care and social assistance (62)	37	\$1,021
Public administration (92)	20	\$996
Other services (except public administration) (81)	7	\$936
Management /administration of enterprises (55-56)	12	\$903
Professional, scientific and technical services (54)	24	\$858
Finance and insurance, real estate (52-53)	17	\$819
Accommodation and food services (72)	19	\$733
Wholesale trade (42)	18	\$720
Retail trade (44-45)	47	\$636
Educational services (61)	12	\$631
Arts, entertainment and recreation (71)	7	\$584
<b>Total: Service sectors</b>	<b>237</b>	<b>\$847</b>
<b>Total</b>	<b>334</b>	<b>\$1,303</b>

Table 1 presents the estimated annual OHS expenditure per worker for each of the 17 sectors, ordered from highest (mining: \$4,433) to lowest (arts, entertainment and recreation: \$584). The overall average expenditure was \$1,303. The annual OHS expenditure per worker per year in the mining sector was eight times higher than the average expenditure in the arts, entertainment and recreation sector. Table 1 also shows estimates for two clusters: the goods-producing sectors and the service sectors. As we anticipated, expenditures were higher in the goods-producing sectors as work there tends to be more hazardous. Specifically, expenditures were three times higher in the goods-producing sectors (\$2,417) relative to the service sectors (\$847).

Table 2 presents average annual employer expenditures per worker by area of expenditure. Across all sectors, the largest share of annual per worker OHS expenditure was attributed to organizational management and supervision. The average share of total expenditures allocated in this dimension was 58 per cent (\$765 per worker per year), and was generally similar for employers in the goods-producing sectors at 55 per cent (\$1,330 per worker per year) and in the service sectors at 62 per cent (\$533 per worker per year). We note that, across all sectors, approximately one third of the payroll value of hours invested in organizational management and supervision time was attributed to the activities of the joint health and safety committee.

Staff training in health and safety accounted for the second largest share of annual OHS expenditure per worker. The average across all sectors was \$297 per worker per year, representing 22 per cent of total OHS expenditures. Employers in the goods-producing sectors invested a larger share of total OHS expenditures on staff training compared to employers in the service sectors (26 per cent compared to 18 per cent).

The average share of total OHS expenditures attributed to personal protective equipment was 14 per cent (\$184 per worker per year). While the share of total OHS expenditures attributed

to personal protective equipment was generally consistent across individual sectors, employers in the goods-producing sectors invested a slightly larger share than employers in the service sectors (15 per cent compared to 12 per cent).

In both the goods-producing sectors and the service sectors, the share of total expenditures attributed to OHS professional services and to the health and safety component of new capital investments was modest in both cases. Employers reported an average expenditure of approximately \$25 per worker per year on external OHS professional services, representing two per cent of total OHS expenditures. The average dollar value of the estimated health and safety share of new capital investments was \$52 per worker per year, representing four per cent of total OHS expenditures.

## Discussion

Over the past two decades, the incidence of work-related injury and illness in the province of Ontario has declined substantially. One study observing an eight-year period (2004-2011) found that the incidence of occupational injury presenting to emergency departments for treatment declined by more than 30 per cent (Chambers et al, 2015). This same study found that the percentage of all injuries among working-age adults that are attributable to work exposures has declined from 20.0 per cent in 2004 to 15.2 per cent in 2011. These reductions in work-related traumatic injury and non-traumatic musculoskeletal disorders are important and have been observed in many developed countries (Mustard et al, 2015). A range of factors are contributing to this substantial reduction in injury and illness attributed to occupational exposures, including growth in service-sector employment relative to employment in goods-producing sectors, the substitution of technology for human labour, and strengthened regulatory standards pertaining to worker health protection.

**Table 2:** Average annual employer expenditure on health and safety per worker per year, by expenditure component, among employers with 20 or more employees, Ontario 2017

Expenditure component	Expenditure per worker per year					
	All participating companies (N=334)		Goods-producing sectors (N=97)		Service sectors (N=237)	
	\$	% of total	\$	% of total	\$	% of total
Organizational management and supervision	\$765	58%	\$1,330	55%	\$533	62%
Staff training in health and safety	\$297	22%	\$635	26%	\$159	18%
Personal protective equipment	\$184	14%	\$370	15%	\$107	12%
OHS professional services	\$25	2%	\$50	2%	\$15	2%
Health and safety share of capital investments	\$52	4%	\$65	3%	\$47	6%
<b>Total</b>	<b>\$1,303</b>	<b>100%</b>	<b>\$2,417</b>	<b>100%</b>	<b>\$847</b>	<b>100%</b>

The findings of this study suggest a prominent factor contributing to the reduction in work-related injury and illness may be the scale of employer expenditures to protect the health and safety of workers. We estimate an average OHS expenditure per worker per year of approximately \$1,300, with expenditures three times larger in the more hazardous goods-producing sectors than in the less hazardous service sectors. Applying the estimates obtained in this study to the sectoral distribution of Ontario employers suggests that human and financial resources in the range of \$5 billion per year are committed to protect the health and safety of workers. In contrast, publicly administered prevention services, including labour inspection and enforcement services, represent an annual expenditure of approximately \$200 million, or \$30 per worker per year. The aggregate OHS expenditure estimate for employers in the Ontario economy is also greater than the annual benefit payments of \$2.7 billion provided by the Ontario Workplace Safety and Insurance Board in 2016 to workers who have experienced a work-related injury or illness (Ontario Workplace Safety and Insurance Board, 2016).

The findings of this study are broadly similar to estimates provided by a recent study conducted by the International Social Security Association, which estimated an annual expenditure per employee per year of more than €1,200 (\$1,800 CAD) among a sample of predominantly European employers (Braunig and Kohstall, 2013). The two studies applied broadly similar methods. The concordance of the expenditure estimates in these two settings gives insight into the degree to which employer policies and practices in the area of worker health protection are similar in developed economies.

In this *Issue Briefing*, we have summarized information on employer expenditures and investments in occupational health and safety for a sample of employers in the province of Ontario. Why is this information important? As this study has documented, employer expenditures on worker health protection are substantial in many sectors. Accurate information on employer expenditures and investments in OHS can help explain the progress made over recent decades in the protection of workers. Results from this study provide information on the expenditures per employee in high-hazard sectors, such as construction and mining. The sector benchmarking information developed in this study may be of value to individual employers in supporting comparisons between their own expenditures and those of their economic peers and competitors. It also provides important context for OHS policy aimed at influencing employer investment in OHS. Accurate information on employer expenditures and investments in OHS can help stakeholders better understand the significant progress made over the past decade in workplace injury prevention.

*This briefing was prepared by IWH President and Senior Scientist Dr. Cameron Mustard, with the assistance of Christa Orchard.*

*This work was supported by a grant from the Ontario Ministry of Labour Research Opportunities Program (14-R-014).*

## References

- Braunig D, Kohstall T. Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health. International Social Security Association. Geneva. 2013. [http://publikationen.dguv.de/dguv/pdf/10002/23\\_05\\_report\\_2013-en--web-doppelseite.pdf](http://publikationen.dguv.de/dguv/pdf/10002/23_05_report_2013-en--web-doppelseite.pdf)
- Chambers A, Ibrahim S, Etches J, Mustard C. Diverging trends in the incidence of occupational and nonoccupational injury in Ontario, 2004-2011. *Am J Public Health*, 2015; 105(2):338-343. doi:10.2105/AJPH.2014.302223
- Leigh JP. Economic burden of occupational injury and illness in the United States. *Milbank Q*, 2011; 89(4):728-72. doi: 10.1111/j.1468-0009.2011.00648.x
- Levine DI, Toffel MW, Johnson MS. Randomized government safety inspections reduce worker injuries with no detectable job loss. *Science*, 2012; 336(6083):907-911. doi:10.1126/science.1215191
- Mustard CA, Chambers A, Ibrahim S, Etches J, Smith P. Time trends in musculoskeletal disorders attributed to work exposures in Ontario using three independent data sources, 2004-2011. *Occup Environ Med*, 2015; 72(4):252-7. doi: 10.1136/oemed-2014-102442
- Ontario Workplace Safety and Insurance Board. 2016 Annual Report. Toronto, Canada. <http://www.wsib.on.ca/>
- Tomba E, Trevithick S, McLeod C. Systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety. *Scand J Work Environ Health*, 2007; 33(2):85-95.



*Issue Briefing* is published by the Institute for Work & Health, and is available on our website at: [www.iwh.on.ca/summaries/issue-briefing](http://www.iwh.on.ca/summaries/issue-briefing)

The Institute for Work & Health is an independent, not-for-profit organization whose mission is to promote, protect and improve the safety and health of working people by conducting actionable research that is valued by employers, workers and policy-makers.

The Institute for Work & Health operates with the support of the Province of Ontario. The views expressed in this publication are those of the Institute and do not necessarily reflect those of the Province of Ontario.

For more information, please contact: [info@iwh.on.ca](mailto:info@iwh.on.ca)

Institute for Work & Health  
481 University Ave., Suite 800  
Toronto, ON Canada M5G 2E9

© 2018

