



Making the Business Case for Ergonomics

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Overview

- ▶ Concepts in cost-benefit analysis.
- ▶ Review of the business case for ergonomics.
- ▶ Resources to learn more.



Concepts



Ergonomics

Really expensive!



Costs

Benefits

Equipment

Training

Fewer injuries

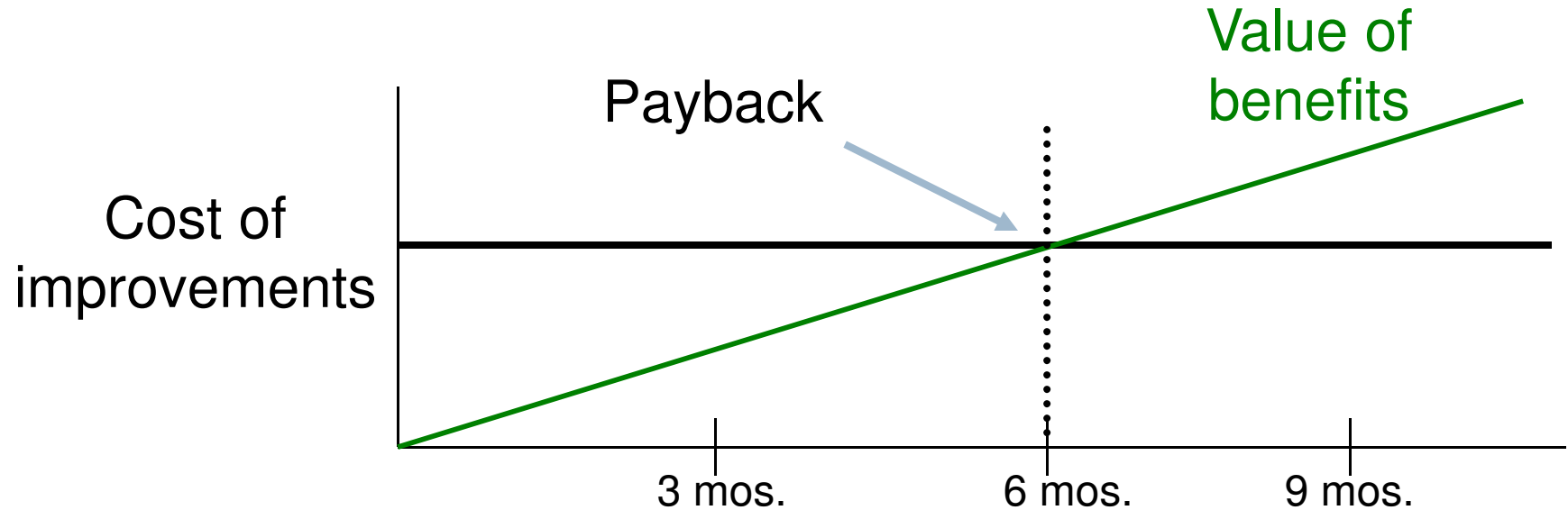
Less turnover

Higher productivity



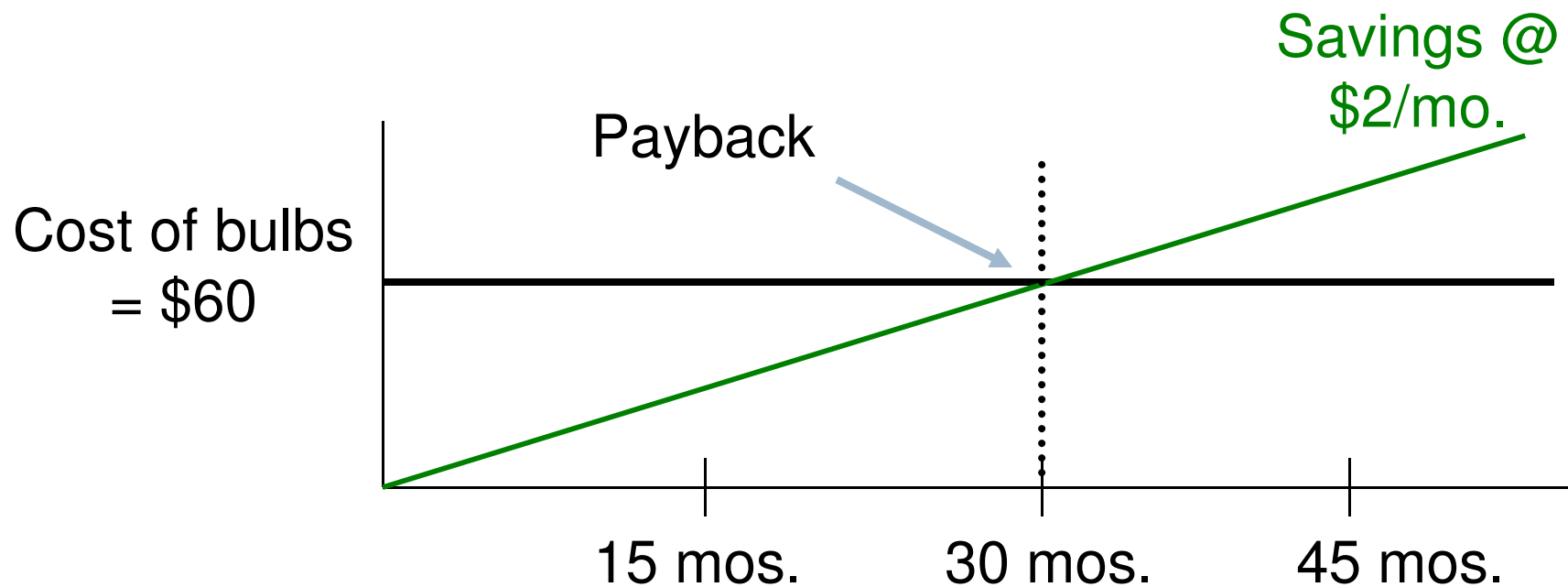
Payback Period

- ▶ Time required for accrued benefits to equal cost of initial investment



Payback Period

- ▶ \$60 more for LED bulbs
- ▶ Saves \$2 per month on electric bill
- ▶ What's your payback period?



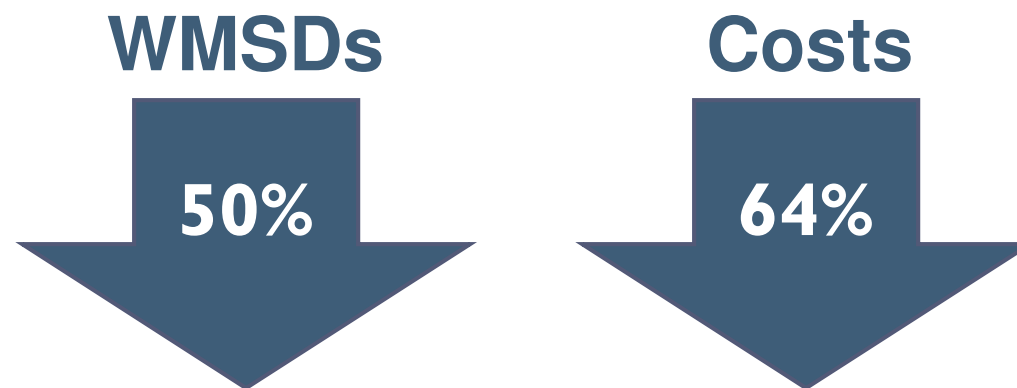
Business Case



Reviews of effectiveness

Department of Labor and Industries [DLI] (2000). *Cost-benefit analysis of the ergonomics standard*. Olympia, WA: Author.

- ▶ Economists and ergonomists reviewed 63 published reports of effectiveness of ergonomics interventions
- ▶ Most studies were peer reviewed



Reviews of effectiveness

Goggins, R., Spielholz, P. & Nothstein, G. (2008). Estimating the effectiveness of ergonomics interventions through case studies: implications for predictive cost-benefit analysis. *Journal of Safety Research* 39. 339–344.

- ▶ Review of 250 case studies, mostly anecdotal
- ▶ Most savings from reducing injuries, increasing productivity



Results from the case studies

Metric	Number of examples	Mean	Median	Range
WMSDs	90	59% ↓	56% ↓	8%-100%
Lost workdays	78	75% ↓	80% ↓	3%-100%
Workers' comp costs	52	68% ↓	70% ↓	15%-100%
Productivity	61	25% ↑	20% ↑	-0.2%-80%

Results from the case studies

- ▶ **Average payback periods:**
 - Comprehensive programs - 2½ months
 - Office ergonomics programs – 5 months
 - Individual solutions – 5 months
- ▶ **Most payback periods less than 1 year**



Review of cost-effectiveness

- ▶ Tompa, E., Dolinschi, R., de Oliveira, C., Irvin, E.A. (2007). Systematic Review of OHS Interventions with Economic Evaluations. Toronto: Institute for Work & Health.
- ▶ **Insufficient evidence** for cost-effectiveness of ergonomics in most industry sectors
- ▶ **Moderate evidence of cost-effectiveness** – Offices (8 studies), Healthcare (11 studies), Transportation (3 studies)
- ▶ **Strong evidence of cost effectiveness** - Manufacturing and Warehousing (9 studies)



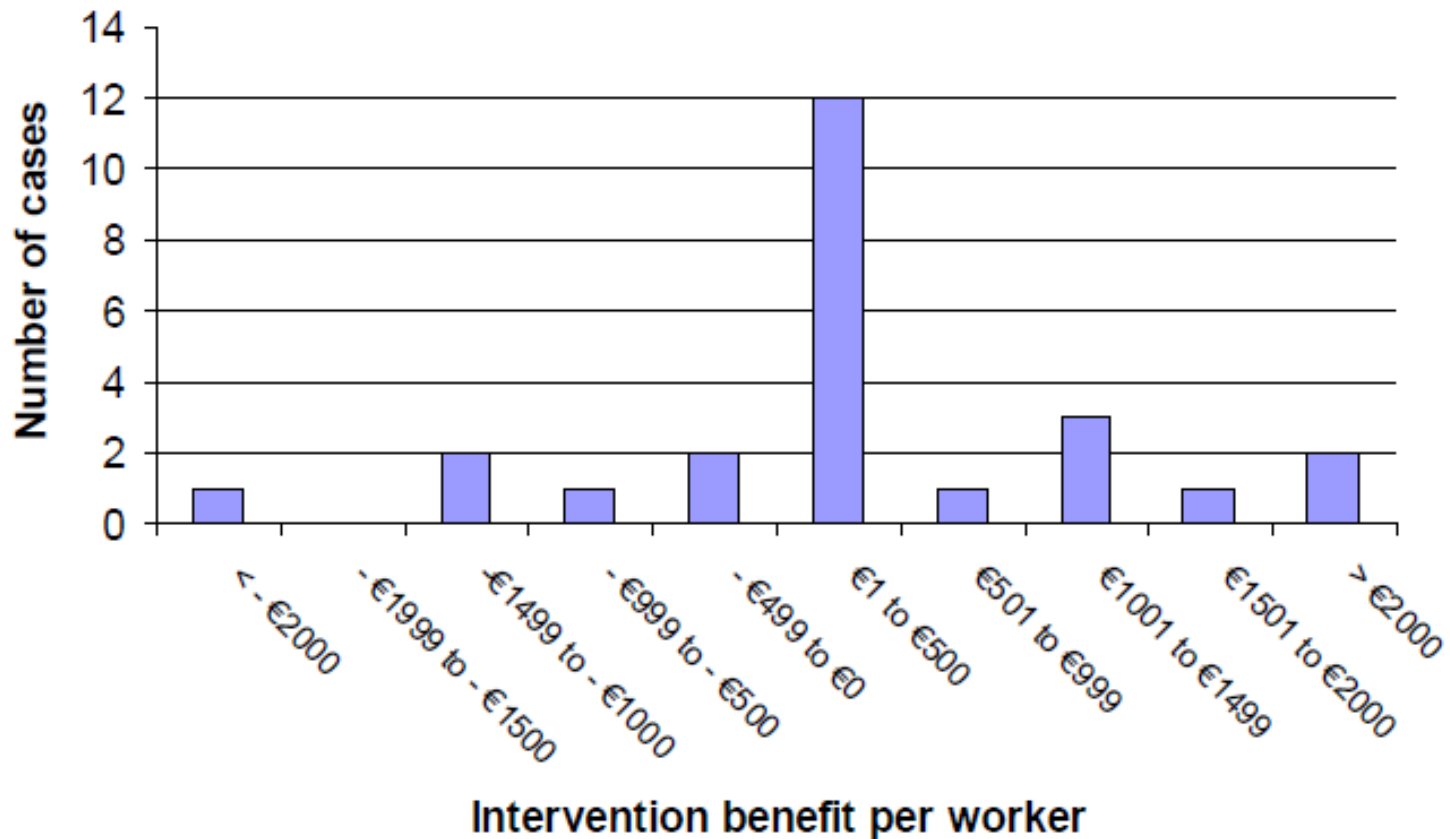
Review of cost-effectiveness

- ▶ Verbeek, J., Pulliainen, M. & Kankaanpää, E. (2009). A systematic review of occupational safety and health business cases. *Scand J Work Environ Health*;35(6):403–412.
- ▶ 26 reported cases, 19 related to ergonomics



Verbeek, et al. (2009), findings

- ▶ Median net value of benefits in first year = €214 per worker



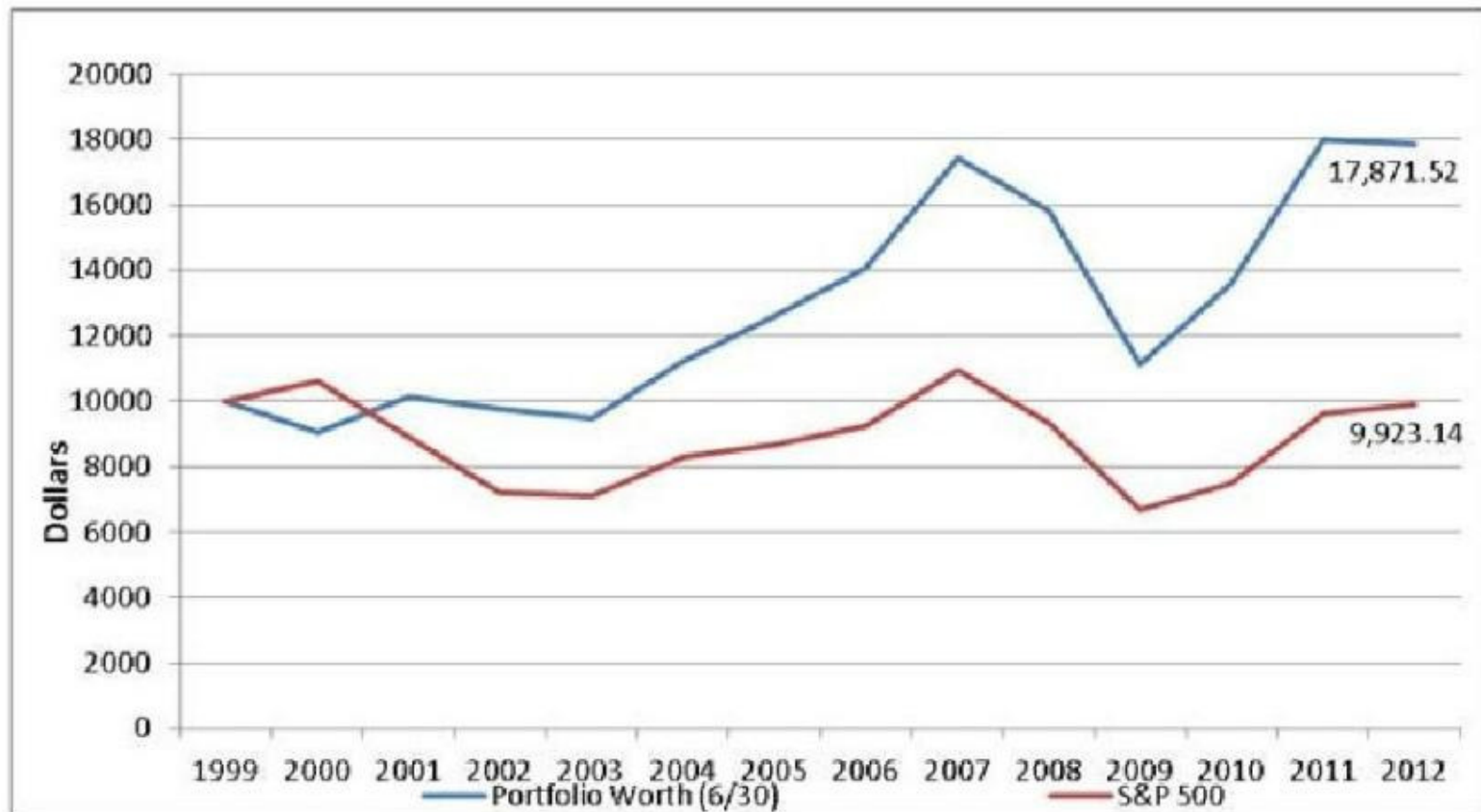
Stock market performance

- ▶ *Fabius, R., Thayer, R. D., Konicki, D. L., Yarborough, C. M., Peterson, K. W., Isaac, F., Loepcke, R. R., Eisenberg, B. S., and Dreger, M. (2013). The link between workforce health and safety and the health of the bottom line. J Occ Env Med, 55 (9), 993-1000.*
- ▶ Stock portfolio of Corporate Health Achievement Award (CHAA) winners compared to market index.



Fabius, et al. (2013), results

CHAA vs. S&P 500 Performance Comparison 1999-2012



American College of Occupational and Environmental Medicine – acoem.org

Resources

- ▶ *Increasing Productivity and Profit through Health and Safety*, Oxenburgh et al., 2004.
- ▶ Good Ergonomics is Good Economics, Hal Hendrick, 1996: hfes.org
- ▶ Washington State CBA model: www.pshfes.org
- ▶ Health & Safety Smart Planner - <http://www.iwh.on.ca/smart-planner>
- ▶ Visualize ROI - <https://www.visualize-roi.com>
- ▶ WorkSafe BC Small Business Safety Calculator - <http://www.healthandsafetycentre.org/sc/calculator/default.htm>



Thank You

▶ Any questions?



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