

IBI Chronic Disease Profile

Low Back Pain

April 2013

A growing focus on the value of workforce health is broadening interventions, outcomes and management strategies for chronic health conditions. To support this broadened value proposition, IBI is drawing on a variety of information sources and publishing a series of “disease profiles” for employers and their benefits partners to highlight condition prevalence, full costs, co-morbidities and intervention approaches for key chronic health conditions.

Condition Prevalence

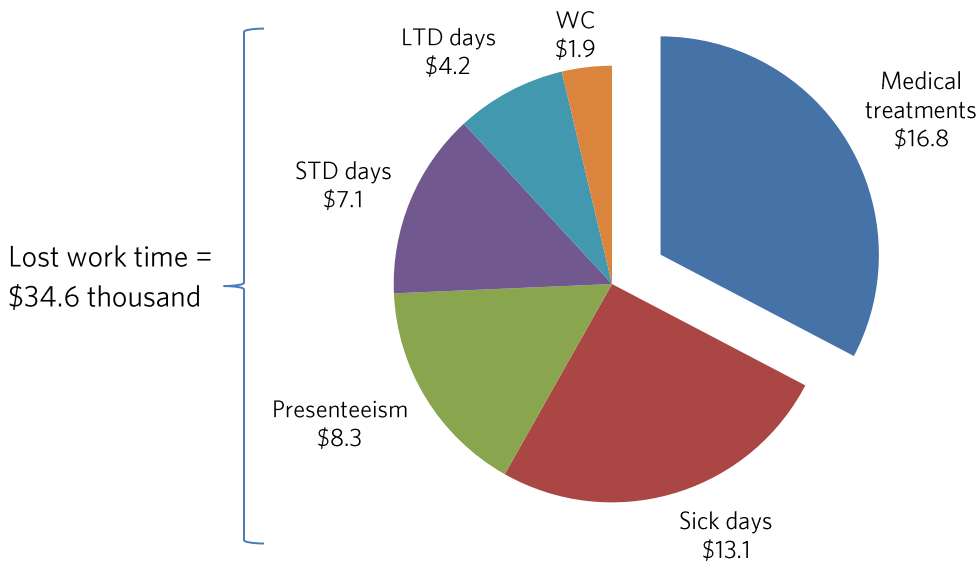
Nearly one in four U.S. employees reports experiencing low back pain. The symptoms can be due to a variety of causes ranging from strain, injury, congenital conditions or serious medical problems such as ruptured discs. Back pain not only takes a toll on the quality of patients’ lives, but impacts their work productivity as well.

Fortunately, most back pain can be treated non-surgically with medications and physical therapy and episodes of pain can be prevented with attention to proper techniques for sitting, working or exercising. Employers stand to benefit from understanding the extent of back pain in their workforce and helping employees prevent, treat and manage their pain.

Full Costs

For every 100 employees, low-back pain costs employers about \$51.4 thousand annually. While medical treatment costs are the single largest component in treating back conditions, costs associated with lost work time—including presenteeism (i.e., underperformance at work due to illness) and lost work time associated with occupational injuries—together comprise more than two-thirds of the total costs.

Annual back pain costs per 100 employees (\$ thousands). Total costs per 100 = \$51.4 thousand



Co-Morbidities

Back conditions typically don't exist in isolation. Employees with low-back conditions have an average of 4.9 other conditions that complicate care strategies. The most serious conditions relative to lost productivity include: depression (29% of the cases), chronic fatigue (41%) and obesity (8%).

Evidence for Workplace Interventions

Several sources are good starting points for crafting strategies to manage the full costs of low-back conditions. Examples include:

- Occupational therapy has been shown in a number of studies to reduce the duration of temporary disability from work for back pain.¹
- Research indicates that employees with positive expectations about their recovery from acute back pain had shorter work absence durations than employees with negative expectations.² In addition to somatic therapies and ergonomic interventions, back pain sufferers may also benefit from counseling and mental health interventions.
- Multidisciplinary interventions have proven effective in reducing long term sickness absence from work³. Therapies limited to single health care disciplines were not as effective as those involving two or more.
- Most cases of low back pain can resolve in a relatively short time frame using low cost workplace-based interventions such as job accommodation.⁴ If the prognosis for return to work is already good, structured interventions are unlikely to have an added impact until 8 to 12 weeks. Assuming that all interventions offered are high quality, a

cost-effective strategy is to use a stepped approach to treatment beginning with workplace-based interventions and followed by more structured medical and vocational rehabilitation interventions.

Additional Information

More information about the causes, treatment, and prevention of low back pain can be found at the following sources:

[National Institute of Neurological Disorders and Stroke: "Low Back Pain Fact Sheet"](#)

[CDC resources on ergonomics and musculoskeletal disorders](#)

[American Chronic Pain Association: "Practice Guidelines for Low Back Pain"](#)

Appendix: Incidence Rates, Cost Assumptions and Data Sources

The following information is utilized to produce comparable back-pain costs.

In a population of 100 working people:

- 25% report back or neck pain.⁵
- 8% had treatment for back problems.⁶
- There will be 24 STD days for back problems.⁷
- There will be 22 LTD days for back problems.⁸
- There will be 4 WC days for back problems.⁹
- There will be \approx \$1,700 for WC medical and non-wage indemnity costs for back problems.

People with back pain:

- Are absent 4 more days per year than people without back pain.
 - 1.5 of these days are attributable to back pain rather than co-morbidities.¹⁰
- Have the equivalent of 4.4 more days of presenteeism than people without back problems.
 - 1 of these days is attributable to back pain rather than co-morbidities.¹¹

Economic assumptions:

- Average daily wages and benefits for sick days and presenteeism are \$260.¹²
- Average daily wages and benefits for STD days are \$196.¹³
- Average daily wages and benefits for LTD days are \$188.¹⁴
- Average daily wages and benefits for WC days are \$201.¹⁵
- The average person with a medical treatment for back problems has total medical costs of \$1,844.¹⁶
- The average WC claim has \$1,696 in medical and non-wage indemnity costs. For the purposes of this display, non-wage indemnity costs are added to wage costs.
- For every missed work day, in addition to wage replacements, we assume that an employer experiences opportunity costs in lost revenues, over-time and overstaffing equal to 38% of daily wages and benefits.¹⁷
- For every equivalent lost work day due to presenteeism, in addition to wage replacements, we assume that an employer experiences opportunity costs in lost revenues, over-time and overstaffing equal to 31% of daily wages and benefits.¹⁸

- There is no lost productivity for LTD because typically employees have already been replaced.

Sources

¹ See for example Lambeek, L. C., van Mechelen, W., Knol, D. L., Loisel, P., & Anema, J. R. (2010). [Randomised controlled trial of integrated care to reduce disability from chronic low back pain in working and private life](#). *BMJ: British Medical Journal*, 340; Jousset, N., Fanello, S., Bontoux, L., Dubus, V., Billabert, C., Vielle, B. & Richard, I. (2004). [Effects of functional restoration versus 3 hours per week physical therapy: a randomized controlled study](#). *Spine*, 29(5), 487-493.; Joy, J. M., Lowy, J., & Mansoor, J. K. (2001). [Increased pain tolerance as an indicator of return to work in low-back injuries after work hardening](#). *The American Journal of Occupational Therapy*, 55(2), 200-205.

² Hallegraeff, Krijnen, van der Schans, and de Greef (2012). Expectations about recovery from acute non-specific low back pain predict absence from usual work due to chronic low back pain: a systematic review. *Journal of Physiotherapy*, 58, 165-172.

³ Norlund, Ropponen, Alexanderson (2009). Multidisciplinary Interventions: Review of Studies of Return to Work After Rehabilitation or Low Back Pain. *Journal of Rehabilitation Medicine*. 41. 115-121.

⁴ Van Duijn, Eijkemans, Koes, Koopmanschap, Burton and Burdorf (2010). The effects of timing on the cost-effectiveness of interventions for workers on sick leave due to low back pain. *Occupational and Environmental Medicine*. 67. 744-750.

⁵ Centers for Disease Control and Prevention, [National Health Interview Survey \(NHIS\)](#), 2010.

⁶ Agency for Healthcare Research and Quality (AHRQ), [Medical Expenditure Panel Survey \(MEPS\)](#), 2010 data. Results are for adults aged 18-64 with private insurance.

⁷ Integrated Benefits Institute, [IBI Health and Productivity Benchmarking](#), 2011. STD claims for almost five new dorsopathy claims (ICD-9 codes 720.xx through 724.xx) per 1,000 covered lives, with an average of 49 lost workdays per closed claim. We assume that our hypothetical pool is 100% STD eligible.

⁸ Integrated Benefits Institute, [IBI Health and Productivity Benchmarking](#), 2011. LTD claims for about one active dorsopathy claim (ICD-9 codes 720.xx through 724.xx) per 1,000 covered lives, with an average of 204 lost workdays per calendar year. We assume that our hypothetical pool is 100% LTD eligible.

⁹ Integrated Benefits Institute, [IBI Health and Productivity Benchmarking](#), 2011, and Bureau of Labor Statistics (BLS), [Injuries, Illness and Fatalities, 2011](#). WC claims for about six new dorsopathy (ICD-9 codes 720.xx through 724.xx) claims with lost work time per 10,000 employees, with an average of 72 lost workdays per calendar year. There will be an additional nine new dorsopathy claims without lost work time per 10,000 employees.

¹⁰ Integrated Benefits Institute, [HPQ-Select](#) and [Health & Productivity Snapshot](#). Results are adjusted for age, sex, occupation and co-morbidities. The marginal values of lost productivity are used to make the results consistent with the single-cause costs for medical treatments and disability claims.

¹¹ Integrated Benefits Institute, [HPQ-Select](#) and [Health & Productivity Snapshot](#). Results are adjusted for age, sex, occupation and co-morbidities. The marginal values of lost productivity are used to make the results consistent with the single-cause costs for medical treatments and disability claims.

¹² Bureau of Labor Statistics (BLS), [Occupational Employment Statistics; National Compensation Survey](#). Average daily wages of \$174, plus average daily benefits of \$82. We assume that 100% of employees are eligible for paid sick days.

¹³ Bureau of Labor Statistics (BLS), [Occupational Employment Statistics; National Compensation Survey; Employee Benefits Survey](#). Average daily benefits of \$82 plus the lesser of 63% of daily wages or \$112 per day.

¹⁴ Bureau of Labor Statistics (BLS), [Occupational Employment Statistics; National Compensation Survey; Employee Benefits Survey](#). Average daily benefits of \$82 plus the lesser of 59% of daily wages or \$375 per day.

¹⁵ Bureau of Labor Statistics (BLS), [Occupational Employment Statistics; National Compensation Survey; Employee Benefits Survey](#). National Academy of Social Insurance, [Workers' Compensation: Benefits, Coverage, and Costs, 2010](#). Average daily benefits of \$82 plus the lesser of 66% of daily wages or \$171 per day.

¹⁶ Agency for Healthcare Research and Quality (AHRQ), [Medical Expenditure Panel Survey \(MEPS\)](#), 2010 data. Results are for adults aged 18-64 with private insurance. Includes out-of-pocket expenses and payments by non-private insurance.

¹⁷ The method for valuing lost productivity is adapted from Nicholson, S., Pauly, M. V., Polsky, D., Sharda, C., Szrek, H., & Berger, M. L. (2006). [Measuring the effects of work loss on productivity with team production](#). *Health Economics*, 15(2), 111-123.

¹⁸ The method for valuing lost productivity is adapted from Pauly, M. V., Nicholson, S., Polsky, D., Berger, M. L., & Sharda, C. (2008). [Valuing reductions in on-the-job illness: 'presenteeism' from managerial and economic perspectives](#). *Health economics*, 17(4), 469-485.