INTEGRATED BENEFITS INSTITUTE

# *The High Costs of Low Prevalence Diseases*

## EVIDENCE FROM IBI'S 2013 BENCHMARKING DATA

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### THE ISSUE

When it comes to managing workforce health and productivity, employers typically focus on costly, high-prevalence conditions such as low back pain, depression and obesity. However, less common diseases can still take their toll through wage replacement and lost productivity costs when cases end up in the disability system.

### EVIDENCE

To demonstrate this point, we focus on short- and long-term disability (STD & LTD, respectively) claim expenses and lost productivity costs for eleven low-prevalence conditions using data from IBI's 2013 benchmarking database. We find that:

- Average STD wage replacement costs across all claims are about $4,800. Costs for cancer, viral hepatitis, congestive heart failure and rheumatoid arthritis STD claims are estimated to be at least 20% higher.
- About 9% of all STD claims reach their plan's maximum benefit duration. This could be a precursor to entering the LTD system. Rheumatoid arthritis, congestive heart failure, cancer and viral hepatitis STD claims are more than twice as likely to reach their plan's maximum benefit duration.
- A majority of LTD claims close within one to three years after they start. COPD, rheumatoid arthritis and diabetes are among the LTD diagnoses least likely to close within one year. Rheumatoid arthritis and diabetes are among the most likely to remain open longer than 10 years – driving a long "tail" of losses for employers and wage losses for employees.
- Average LTD wage replacement costs across all claims are about $36,200. Costs for rheumatoid arthritis, diabetes and coronary artery disease LTD claims are estimated to be at least 43% higher.
- Considering average STD wage replacement costs, the likelihood of converting to LTD, average LTD wage replacement costs and lost productivity for STD time away from work, the average costs for any claim entering the disability system is about $12,200. Estimated costs for rheumatoid arthritis claims are about 2.3 times the average; estimated claim costs for viral hepatitis and congestive heart failure are at least 63% higher than the average.

### IMPLICATIONS FOR EMPLOYERS:

Low prevalence chronic health conditions tend to fly under employers' radar. The results of this study indicate that some of the least common chronic conditions are among the most expensive once they enter the disability system. These cost estimates are conservative because they don't include sick day wages and lost productivity incurred during the STD waiting period. Employers could benefit from helping employees recognize their risk for these conditions and by considering disease management strategies to lower the risk of disability leaves and expedite recovery and return to work when disability claims occur. One practical first step employers can take is to assess the prevalence of different chronic conditions in their workforce, as well as the health risks that contribute to preventable disease.

## Background

When it comes to managing workforce health and productivity, employers typically focus on costly, high-prevalence conditions such as low back pain, depression and obesity. However, less common diseases can still take their toll through wage replacement and lost productivity costs when cases end up in the disability system. To demonstrate this point, we focus on short- and long-term disability (STD & LTD, respectively) claims expenses and estimated lost productivity costs for conditions that show up in 5% or fewer of the employees in IBI's HPQ-Select research data.[1] We also look at two conditions not included in the HPQ-Select survey, rheumatoid arthritis and viral hepatitis.

## Low Prevalence Conditions

The eleven conditions included in this study are listed in Table 1, along with their prevalence in the HPQ-Select data and the number of STD and LTD claims in IBI's 2013 benchmarking data. The current database contains 3.7 million claims representing more than 49,000 employer policies from 13 major data providers. We compare these claims to "all other" non-pregnancy claims that are not specified in Table 1. As the "other" claims comprise the vast majority of the data, they serve as a reasonable approximation of the "average" claim experience.

**Table 1: Low prevalence conditions in IBI's HPQ-Select research database**

| | % of HPQ-Select employees with condition | # of claims analyzed | |
|---|---|---|---|
| | | STD | LTD |
| Urinary & bladder | 4.0% | 4,967 | 191 |
| Diabetes | 3.2% | 4,078 | 1,166 |
| Ulcer | 2.0% | 2,559 | 320 |
| Cancer | 1.8% | 42,838 | 16,890 |
| Skin cancer | 1.0% | 2,047 | 279 |
| Coronary artery disease | 0.9% | 14,443 | 2,651 |
| COPD | 0.9% | 4,213 | 1,385 |
| Osteoporosis | 0.4% | 375 | 116 |
| Congestive heart failure | 0.2% | 2,469 | 966 |
| Rheumatoid arthritis | * | 1,918 | 1,108 |
| Viral hepatitis | * | 1,032 | 419 |
| All other disability diagnoses | * | 754,153 | 117,337 |

Table 1 notes: * = Not applicable.

Diseases are identified by the ICD-9 code associated with the disability claim. These codes vary in their level of precision.

"All other disability diagnoses" excludes claims related to pregnancy. "Cancer" is a general category of malignant neoplasms that excludes skin cancers. COPD includes chronic bronchitis and emphysema. Viral hepatitis includes elsewhere unclassified liver disorders associated with hepatitis.

[1] The HPQ-Select is an employee health and productivity survey developed by IBI in collaboration with Dr. Ronald Kessler of the Harvard Medical School. It is based on Dr. Kessler's and the World Health Organization's *Health and Work Performance Questionnaire (HPQ)*. See IBI's website for more information.

## *STD Claims Costs*

For all STD claims, average wage replacement costs are about $4,800. Figure 1 shows that STD claims for cancer have the highest costs, with an average of about $7,800. Of the low prevalence conditions in this study, urinary and bladder conditions have the lowest STD costs with an average of about $2,600.

**Figure 1: Cancer, viral hepatitis, rheumatoid arthritis and congestive heart failure have higher than average STD wage replacement costs. STD claims for urinary and bladder conditions have the lowest costs.**

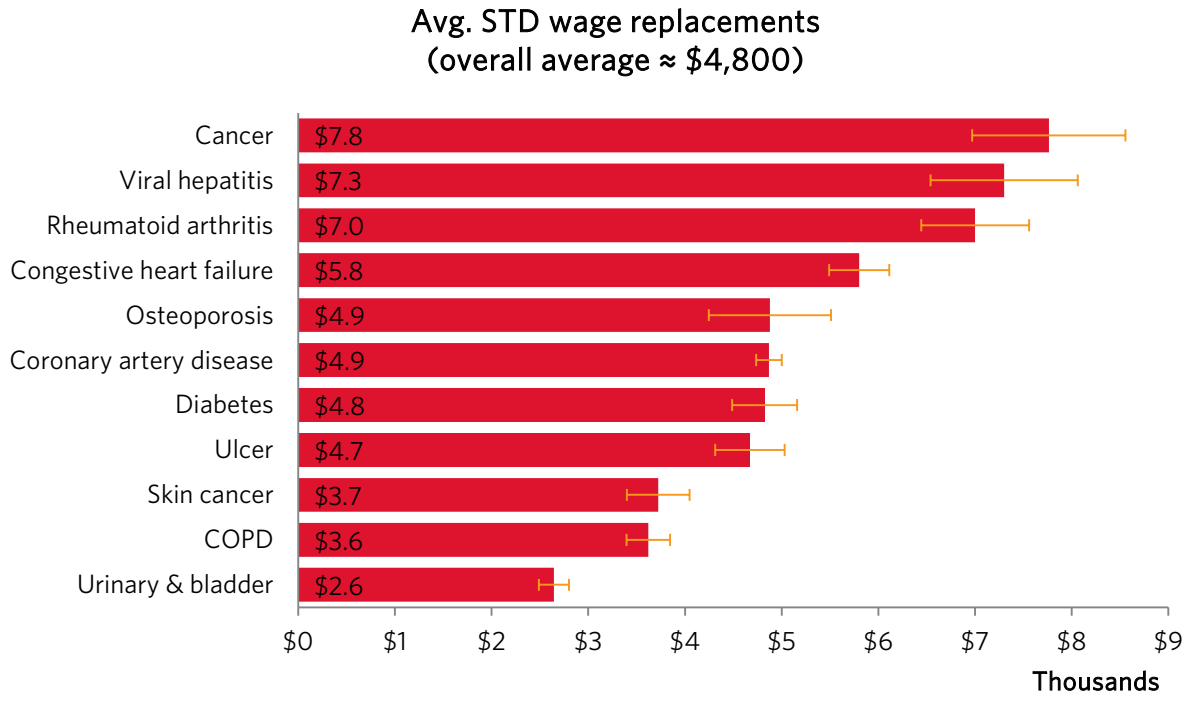



Figure 1 notes: Results are for closed claims in the 2013 benchmarking data year. 74% of STD claims had a 6-month maximum benefit duration; 15% had a 13-week maximum benefit duration; the remaining 11% had a one-year maximum benefit duration. For further information on how STD plan design impacts costs, see IBI's previous study from May, 2013.

The brackets represent the 95% confidence intervals based on the standard errors of the mean. All else equal, conditions with many claims will have smaller confidence intervals than conditions with few claims. Generally, conditions with brackets that overlap the average are not different from one another at the most commonly used level of statistical significance (0.05).

Many STD claimants who reach the maximum duration of their benefits will transition to the LTD system (assuming the claimant participated in an LTD benefit plan). Figure 2 shows the percentage of claims that reach their maximum benefit duration. Only about 9% of all STD claims reach their plan's maximum duration. The likelihood for congestive heart failure and rheumatoid arthritis claims is more than twice as high, at about 21% and 24% of claims reaching the plan maximum duration. Only about 3% of STD claims for urinary and bladder conditions reach the maximum duration.

**Figure 2: Several low prevalence conditions have a higher than average likelihood of reaching maximum benefit duration.**

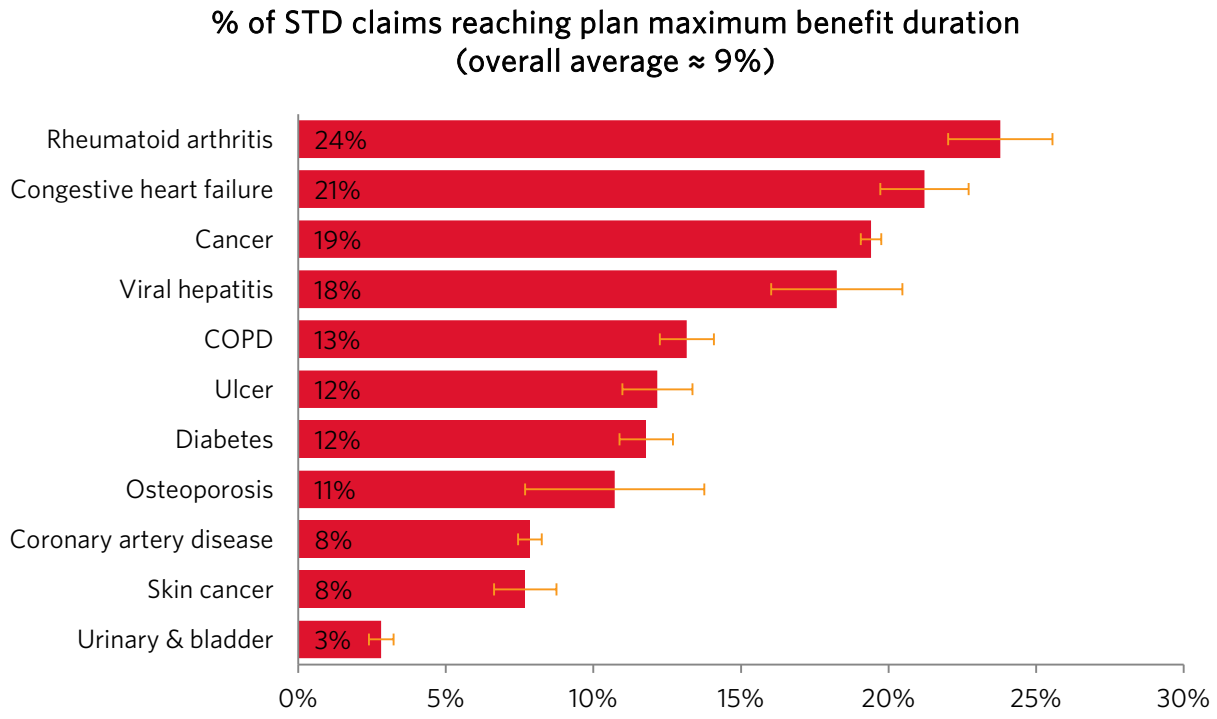



Figure 2 notes: Results are for closed claims in the 2013 benchmarking data year. 74% of STD claims had a 6-month maximum benefit duration; 15% had a 13-week maximum benefit duration; the remaining 11% had a one-year maximum benefit duration.

See Figure 1 notes for information about brackets.

## *LTD Claims Costs*

While most LTD claims end within one to three years (because the claimant returns to work or reaches normal Social Security retirement age), a small portion of claims remain active for a very long time – creating a long "tail" of losses to employers and wage losses for employees. Figure 3 shows that COPD and rheumatoid arthritis claims are the least likely to close in a year or less – between 16% and 17% of claims respectively. Rheumatoid arthritis has the highest percentage of claims that last longer than 10 years (24%), followed by diabetes (20%). COPD has relatively few claims that exceed 10 years (10%) despite the finding that a minority closes within one year. A majority of cancer, skin cancer, ulcer and urinary/bladder claims close within one year.

**Figure 3: COPD, rheumatoid arthritis and diabetes are among the LTD diagnoses least likely to close within one year. Rheumatoid arthritis and diabetes are among the most likely to remain open longer than 10 years**

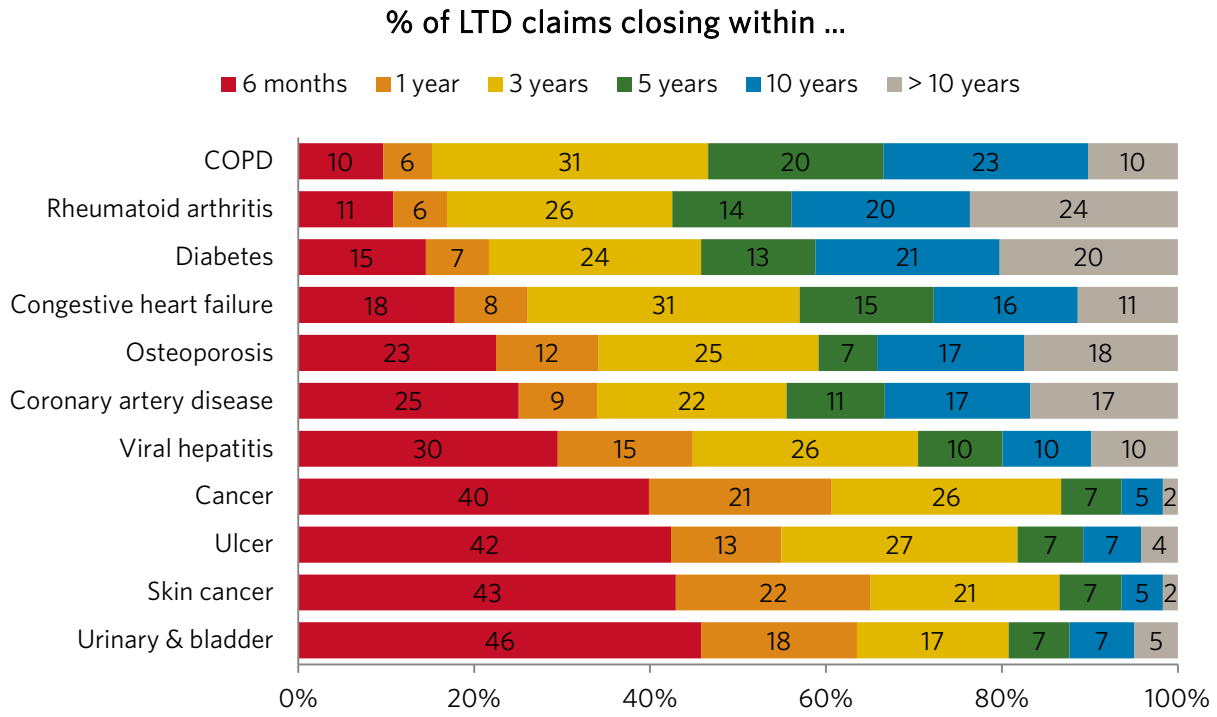



Figure 3 notes: Results are for closed claims in the 2013 benchmarking data year. Almost 80% of LTD claims had plan designs that provided benefits up to "normal social security retirement age." The remainder had a mix of maximum durations.

The long tail of LTD durations can also be seen in wage replacement costs. For all LTD claims, average wage replacement costs are about $36,200. Figure 4 shows that rheumatoid arthritis and diabetes impose the highest average LTD wage replacement costs (about $62,000 and $57,000, respectively). Claims for ulcer, cancer, and skin cancer have the lowest LTD wage replacement costs – but still represent substantial losses when they occur.

**Figure 4: Rheumatoid arthritis, diabetes and coronary artery disease are among the conditions with the highest LTD costs.**

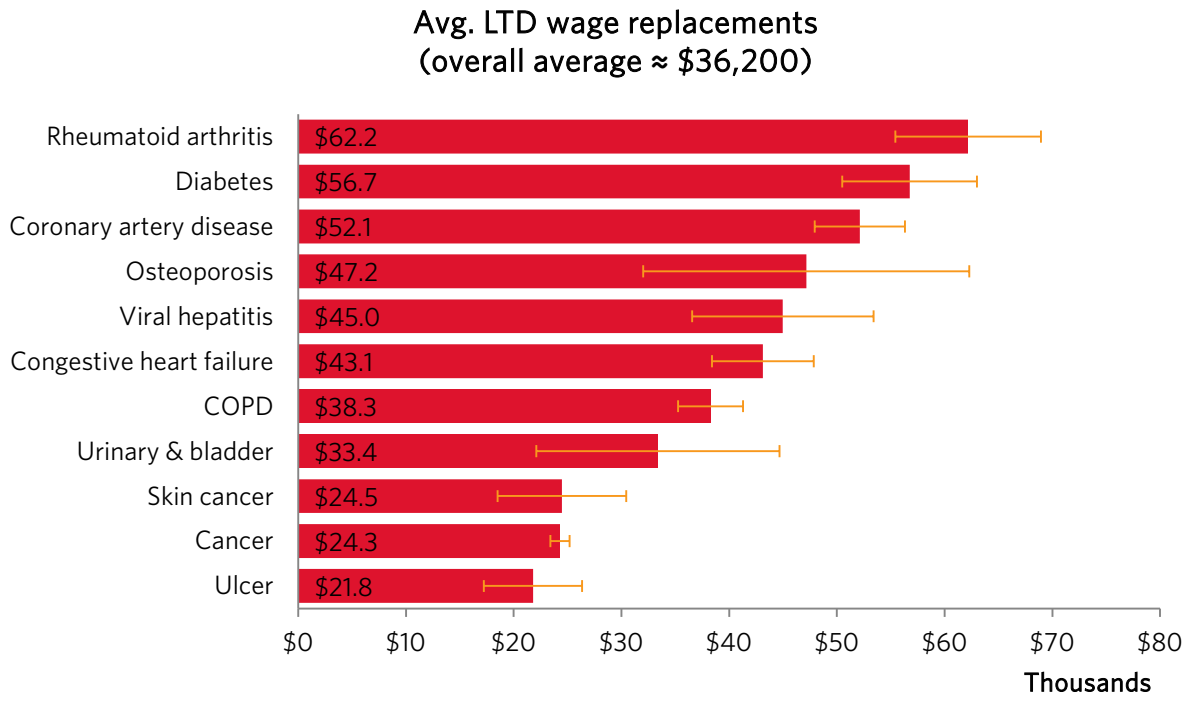



Figure 4 notes: Results are for closed claims in the 2013 benchmarking data year. Almost 80% of LTD claims had plan designs that provided benefits up to "normal social security retirement age." The remainder had a mix of maximum durations.

See Figure 1 notes for information about brackets.

It is worth keeping in mind that as large as LTD losses are to employers, they represent a fraction of employees' wages – typically about 58% of wages, according to the Bureau of Labor Statistics (BLS).[2] Employees themselves stand to lose about 42% of their earnings for each year they spend on disability – a substantial loss of income.

## *Modeling the Full STD & LTD Costs*

By combining the values in Figure 1, Figure 2 and Figure 4, we can calculate the total disability wage replacement expenses for a person entering the STD disability system, assuming that all claimants who reach their STD plan's maximum benefit duration are covered for LTD and enter the LTD system.

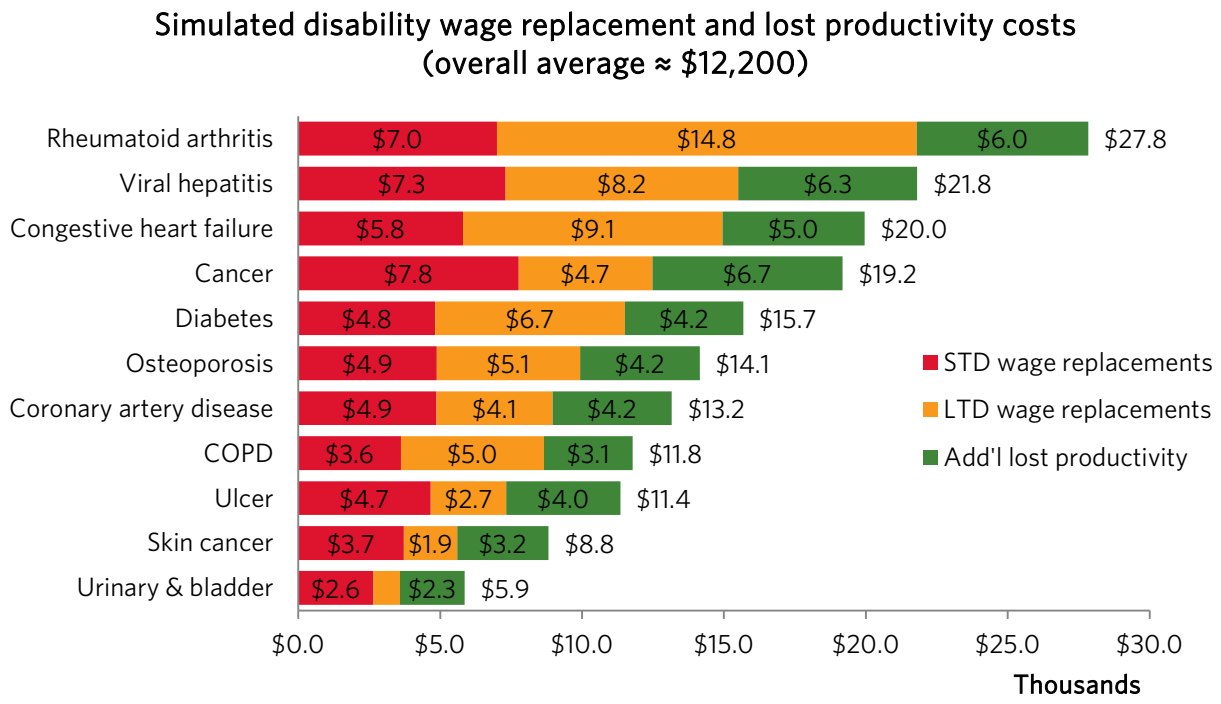
We can also estimate additional lost productivity costs to businesses to the extent that STD absences result in missed opportunities to make sales, require employers to maintain a larger than optimal staff prospectively, rely on temporary replacement workers (or divert other workers from their usual duties), and/or pay overtime to other workers in order to maintain the work flow. Our method is based on economic studies by Sean Nicholson of Cornell University, Mark Pauly of the University of Pennsylvania and their colleagues. Generally speaking, costs

[2] <http://www.bls.gov/ncs/ebs/benefits/2013/ownership/private/table19a.htm>

are higher when employees are not easily replaced by equivalent substitutes, when they perform work that cannot be postponed, and when they work as members of teams.[3]

The average costs for any claim entering the disability system is about $12,200. Figure 5 shows that rheumatoid arthritis, viral hepatitis, and congestive heart failure are estimated to have the highest average total disability claims costs. As an example, we estimate (from Figure 1) that an STD claim for rheumatoid arthritis will average around $7,000 in wage replacements. About 24% of rheumatoid arthritis STD claims are estimated to enter the LTD system (see Figure 2), which, when multiplied by the average rheumatoid arthritis LTD wage replacement amount (see Figure 4), comes to about $15,000. Lost productivity adds another $6,000. The modeled full STD and LTD costs for rheumatoid arthritis claims that enter the disability system are therefore about $28,000. The lowest costs are for urinary and bladder claims (about $5,900) and skin cancer claims (about $8,800).

**Figure 5: Rheumatoid arthritis claims that enter the disability system have the highest costs, followed by viral hepatitis and congestive heart failure.**




## *What Can Employers Do?*

Low prevalence chronic health conditions tend to fly under employers' radar. The results of this study indicate that some of the least common chronic conditions are among the most expensive once they enter the disability system. Employers could benefit from helping employees recognize their risk for these conditions and by

[3] See Nicholson, S., Pauly, M.V., Polsky, D., Sharda, C., Szrek, H. and Berger, M.L. "Measuring the effects of work loss on productivity with team production." Health Economics. 2006;15(2):111-123. Using the Nicholson-Pauly method, our lost productivity estimates assume that for each STD claims, employers incurs losses of 38% of the absent employee's average daily wages and benefits wages on top of the wage replacement costs. Lost productivity costs are not calculated for LTD on the assumption that absent employees are replaced. We estimate average daily wages and benefits on the assumption that STD wage replacements are paid at an average of 63% of wages and that employers continue to pay costs for benefits such as retirement, health premiums, and payroll taxes (at a value of 43% of wages). Average STD wage replacement rates and benefits loads come from the BLS.

considering disease management strategies to lower the risk of disability leave and expedite recovery and return to work when disability claims occur.

One practical first step employers can take is to assess the prevalence of different chronic conditions in their workforce. Reviews of medical treatment claims are a potential information source, as are health risk assessment surveys (HRAs). IBI's recent collaboration with Bruce Sherman of the Employers' Health Coalition[4] provides further guidance on developing a dashboard of common metrics that can help employers understand the health status of their workforce.

[4] Parry, Thomas and Bruce Sherman. 2012. "A Pragmatic Approach for Employers to Improve Measurement in Workforce Health and Productivity." *Population Health Management*. 15(2). < http://ibiweb.org/research-resources/detail/data-data-everywhere-the-search-for-employer-value/public>