

Workforce Demographic Analytics Yield Health-Care Savings

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Health-care costs have risen dramatically in recent years, draining resources away from valued business functions and negatively affecting corporate profitability and competitiveness. Data from the National Health Statistics Group show that in 2008, \$2.4 trillion was spent on health care. This number is projected to reach \$3.1 trillion in 2012 and \$4.3 trillion by 2016. In 2008, the United States spent 17 percent of its gross domestic product (GDP) on health care. It is projected that the percentage will reach 20 percent by 2017. Health-care spending is 4.3 times the amount spent on national defense.¹

Business leaders know that health-care expenditures can negatively affect their organization's competitiveness and profitability. In the past ten years, employer-sponsored health-coverage premiums have increased four times faster on average than workers' earnings, according to a survey by the Kaiser Family Foundation and Health Research and Educational Trust. The average employee contribution to company-provided health insurance has increased more than 120 percent since 2000. Average out-of-pocket costs for deductibles, copayments for medications, and coinsurance for physician and hospital visits rose 115 percent during the same period.²

Premiums for employer-based health insurance rose by 5.0 percent in 2008. In 2007, small employers saw their premiums

increase, on average, 5.5 percent. Firms with fewer than 24 workers experienced an increase of 6.8 percent.³ It is no wonder that employers are investing money to improve the health of their workforce; they have the best tools in place to determine the most effective use of those health-care dollars. The goal is to ensure their health-care resources are being spent in the right areas, on the programs that will have the greatest possible impact or reach the largest number of employees.

Some large employers have begun transitioning to employer-sponsored health-care models. This trend is fueled in part by the understanding that healthy employees are productive employees. To maximize workforce health, employers have begun offering accessible, preventive, and proactive health care through onsite medical clinics, pharmacy-benefits management, and electronic medical records.

Onsite health centers, such as the Hybrid-Health model of Comprehensive Health Services (CHS), offer a spectrum of health-care services to employees, retirees, and their dependents, including primary care, preventive screenings, and occupational health. This method of employer-sponsored, onsite delivery of health services can improve efficiency and reduce overall health-care costs. However, to realize the greatest return on health-care dollars spent, employers have begun

tracking spending to be sure they are having a direct impact on health outcomes.

A new strategy that uses analytics for reducing health-care costs takes tracking a step further. By analyzing demographic data for a particular workforce population, employers can not only predict the disease burden and risk factors for that population, but also intervene to reduce or reverse those risks. These predictive tools allow an employer to better understand precisely what kinds of health-care programs should be put in place and to plan how health-care dollars will be allocated in the future.

PREDICTIVE MODELING ASSESSES WORKFORCE HEALTH

Currently, business leaders focus on treatment and mitigation of health consequences rather than health-risk prevention and reduction. Moving instead toward health-promotion and disease-prevention programs, however, can improve employee health, lower health risks, and increase employee morale and day-to-day functioning, while effectively managing the rising costs of health care.

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The need to maximize the effectiveness of every health-care dollar spent has given rise to the crucial role of analytics and metrics in the workforce health industry today. Analytics is truly transforming the health-care landscape. An example is the Workforce Health Assessment Model (WHAM) developed by CHS in partnership with the Health Systems Institute at the Georgia Institute of Technology and

Emory University. The model can determine the most prevalent and most expensive illnesses in a given workforce and then devise the best strategy to reduce those disease risks. WHAM estimates health risks and finds cost-effective strategies to reduce those risks.

The CHS health-assessment model analyzes publicly available demographic data to identify risk factors in employee populations. This data analysis allows employers to better understand and plan for health-care expenditures, thereby avoiding some long-term cost burdens. This type of analysis allows employers to identify the prevalence of the most potentially expensive medical conditions faced by its employees, such as hypertension, asthma, and diabetes. The top ten diseases are ranked according to cost, while also factoring in obesity and other lifestyle risks. The model looks at what diseases the workforce population already has and combines that with an analysis of existing risk factors that may lead to serious health problems in the coming years.

The model utilizes vast amounts of employee data, including age, race, gender, job type, and geographic region, to build an enterprise-specific workforce risk profile. The data is gathered from the Centers for Disease Control and Prevention, the National Health Interview Survey (NHIS), the National Health and Nutrition Examination Survey (NHANES), and geographic and industry statistics from the U.S. Census Bureau and the Department of Labor Statistics.

Comparison with Other Assessment Methods

There are different methods of assessing the health needs of any given population, ranging from direct measurement to traditional statistical models. Directly measuring the population

includes the administration of health-risk-assessment surveys and/or biometric tests. Although this is the most complete method of discovering the afflictions of the individuals in a given population, it can be very costly and time-consuming. Another method is to examine historical spending and health claims, but that only gives information on employees who were aware of conditions and use the company medical plan. This does not address individuals who have not used the plan and cannot capture the costs incurred by an individual who is less productive at work due to an untreated condition.

A key distinction of the WHAM model from other predictive-modeling programs is the fact that the statistical technique used (based on the Bayesian method) enables estimation of missing data, incorporation of any available prior information, creation of confidence bounds on the predicted values, assessment of risks for subgroups, and inclusion of additional predictors. The model's forecasting capability arms HR executives with the tools they need to design employee health-care programming.

APPLICATION AND BENEFITS

When WHAM was used to assess the health risks of employees at a major national food corporation, the analysis of the demographics for that employee population revealed a large number of undiagnosed diabetics in the workforce. Because WHAM can forecast how many diabetics should exist in that workforce population, based on the demographics, if the actual number of confirmed diabetics comes up significantly lower, the employer can take action. In the case of the food manufacturer, the company quickly implemented a diabetic screening program to diagnose the disease

before employees experienced more serious manifestations, like amputations. Without the WHAM profile, numerous employees would have remained undiagnosed until serious complications arose. Of course, the sooner health-care practitioners can identify health problems, the better.

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Because it is difficult and often expensive to screen employees for every possible health condition, WHAM's value is in providing the ability to target employee groups for health screenings based on the workforce risk profile. For example, hypertension is a commonly underdiagnosed condition that can lead to serious problems later, as it is a major risk indicator for heart attacks. Young to middle-aged men who do not have primary physicians typically wait until they have symptoms before visiting a doctor or clinic. Only then does a blood pressure check raise a red flag. Because WHAM can predict how many probable cases of hypertension should exist in a given workforce population, if that number turns up low, employers can set up health fairs for screening to identify hypertension long before treatment is needed for massive heart attacks.

Predictive models such as WHAM are powerful tools that, when used in combination with good clinical judgment and claims analysis, can be very effective in targeting screening dollars and getting employees engaged in the appropriate prevention programs. Intervening early, at the primary-care

level, for a hypertension patient is much more cost-effective than intervening in the emergency room.

DATA ANALYSIS DRIVES WORKFORCE HEALTH PROGRAMMING

Once a predictive assessment model lays out a workforce population's disease forecast, recommendations can be made for highly targeted health programs that will yield significant cost savings. With that information, employers can make some decisions about their health-care offerings. That is where HR executives and CFOs alike will see huge returns on their health-care investments—on the order of 300 percent—by measuring the cost-effectiveness of various workforce health programs and strategies designed to address those specific health risks.

The WHAM model can predict the risks a company has in its population today and forecast the changes in risk profile as the workforce changes, for example, with the addition of 500 new employees, or simple aging of the population from an average age of 25 to an average age of 55.

This kind of data-driven analysis had previously been possible only by using claims information combined with health-risk assessments (HRAs) that rely on self-selecting surveys with participation rates of less than 50 percent. Whereas HRAs are administered by outside companies, and employers often must offer incentives to boost participation, the WHAM model does not require any employee participation and requires no cost to run in comparison.

Obviously, the more risks a workforce population has, the more employees cost in terms of health care. The WHAM model can predict the risks a company has in its population

today and forecast the changes in risk profile as the workforce changes, for example, with the addition of 500 new employees, or simple aging of the population from an average age of 25 to an average age of 55. WHAM simply performs a superior data analysis by using more information to derive more precise projections.

Additionally, WHAM has a "smart" capability that enables it to easily update and refine its output, delivering the most current analysis as new data is input. As new information becomes available, it is a simple matter of updating the system, rather than starting over at square one. This adaptability factor allows for early identification of trends across regions and industries and sets WHAM apart from other forecasting tools. Once the model is built, it can continue learning.

This type of detailed, data-driven analysis proves most effective for employers without onsite clinics or regular HRAs (i.e., companies that are not already tracking exactly what they are spending in terms of medical claims). Predictive health assessments can deliver the highest return on investment to companies that do not currently have a strong handle on the health and welfare of their employees but know their health costs are out of control.

Analytic models such as WHAM can enable corporations to design and deliver effective health-care programs. Because most employers seek to implement a health-care plan that improves productivity, decreases absenteeism, leads to a faster recovery, and has reduced medical costs, a one-size-fits-all approach to health-care policy will not suffice. To truly assess risk—and design effective preventative programming—employers must consider the cost burden of certain health conditions, along with the impact of those

conditions on an individual's productivity at work.

Using predictive health-assessment models, employers can identify which disease conditions affect the largest number of employees and which diseases are the most expensive, in terms of productivity, lost work days, and treatment. That information will then enable employers to target areas that need to be addressed and design health-care policies and benefits that will best address specific health issues.

With data-generated risk projections in hand, employers can custom tailor health-care initiatives. If, for example, the WHAM forecast indicates a high number of smokers in the population, an employer can begin funding smoking cessation counseling. With high indications of obesity, the employer can subsidize health club memberships or provide onsite physical trainers or nutrition counseling. This means employers are not wasting precious health-care dollars on smoking cessation programs when their money would be better spent addressing obesity.

WHAM's sophisticated analysis saves money by helping employers understand their company's own unique disease-risk burden. Risk factors vary by industry, with different disease burdens for manufacturing as compared with accounting. If, for example, an Atlanta-based company filtered its data by geographic region, as WHAM does, it would quickly make sense of a spike in allergy levels, compared with an industry counterpart based in New York. Seasonal pollen counts traditionally reach high levels for extended periods in Atlanta, triggering allergies. Another example involves migraines, which are more prevalent in women, and have certain known triggers, such as stress and fluorescent lighting. So an industry that employs more women than men,

or one that has employees exposed to fluorescent lighting during the workday, would have an explanation for any uptick in migraines, and they would be able to plan for that by budgeting appropriately for migraine-related health-care costs and developing prevention and education programs.

Actionable Analysis Yields Efficient Health Programming

The workforce health industry is focused on wellness and disease prevention. The foundation of predictive health-assessment models enables HR executives to develop integrated plans for employee health. Our goal from the start was to develop an assessment tool that is not focused exclusively on treatment, but rather in preventing well people from getting sick, and sick people from becoming sicker. The WHAM model is focused on cost avoidance as much as cost reduction.

To truly assess risk—and design effective preventative programming—employers must consider the cost burden of certain health conditions, along with the impact of those conditions on an individual's productivity at work.

If a company makes the right health-care investments, it can gain tremendous returns—up to three or four times the initial investment for WHAM.

Benchmarking continues to be a hot topic in workforce health-care planning. With the information afforded by predictive assessment models, HR professionals can develop cost-effective service and benefit programs that are custom designed for their workforce populations. This in turn will lead to the improved health and productivity of the company's workers.

NOTES

1. Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group, 2007 National Health Expenditures Data. January 2009.
2. The Henry J. Kaiser Family Foundation and Health Research and Educational Trust, Employee Health Benefits: 2008 Annual Survey. September 2008.
3. Ibid.

Ned Cooper is CFO of Comprehensive Health Services, Inc., a national workforce health-management company. Founded in 1975, CHS provides onsite health centers and national examination programs. Major corporations and government agencies look to CHS for workforce health and productivity management solutions, including onsite primary care and occupational health and pharmacy services, as well as nationwide medical surveillance, preplacement, and fitness-for-duty exams. For more information, contact Ned Cooper at ncooper@chsmedical.com, or visit www.chsmedical.com.