

No More Smoke and Mirrors: Calculating Your Real ROI

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Introduction

As safety professionals, we are often challenged to demonstrate that safety is an investment that reaps rewards beyond regulatory compliance; however, most safety professionals can only point to reductions in injury frequency and severity. In some organizations, we may be able to show a reduction in insurance premiums. While these are important metrics, they don't demonstrate the business case that safety truly is an investment that can show significant returns. There are many reasons for this, but the main one is that safety professionals just don't understand how to speak the language of business executives or how to leverage existing resources to get the information they need to calculate ROI for safety.

First and foremost, we must understand that we can calculate a return on investment (ROI) for safety. Both Liberty Mutual and the American Society of Safety Engineers, regularly produce white papers on the subject that calculate the ROI for safety between \$3 to \$5 for every dollar of investment.¹ Second, we must understand the data and methodology behind these calculations. In most cases, an actuary is used to help identify the data needed and the methodology. Finally, we must understand the concept of the total cost of risk (TCOR). TCOR is widely used in the insurance industry and includes the total cost insurance premiums and/or self-insured losses for the workers' compensation, general liability (including auto, employment and property), and professional liability programs. Also included are all of the miscellaneous program costs and premiums, claims administration, safety, and other expenses associated with managing risk

¹ American Society of Safety Engineers (ASSE). (2002). "The return on investment in safety, health and environmental management programs" [White paper]. Des Plaines, IL: Author. Retrieved March 3, 2010, from <http://www.asse.org/professionallaffairs-new/bosc/ROI.php>.

For safety professionals, using insurance premiums or actuarial projected liabilities will require you to get out of your comfort zone of using just OSHA injury data, and require that you develop a relationship with your organization's risk manager, actuary, or insurance broker. It will also require a full understanding of how to calculate a ROI and being able to communicate "how" what the EHS department does contributes to the bottomline of the organization.

To help safety professionals better understand how to calculate an ROI for their safety programs, this paper is broken down into three sections: "The Language of Business and Risk Management," "Data Requirements: Comparing Apples to Apples," and a "Case Study: University of California."

The Language of Business and Risk Management

As with any organization, each profession has its own culture and unique language and lingo, including those in the safety profession. As an example, we use PPE, BBP, and other acronyms quite often and expect those around us to understand what they mean because they are important to us. The same is true for those in risk management and operations. We often might hear P&L, ROI, and TCOR to name a few. While it is important to know what these words mean, it is more important to understand how each of these people or processes plays a role in what we do as safety professionals. Here is a brief description of definitions and processes that are important for the safety professional to understand.

Actuary: The dictionary definition of an actuary is a "statistician who computes insurance risks and premiums," but they really do much more than that.² Whether an organization buys insurance or is self-insured, an actuary is involved. For safety professionals, an actuary can help analyze an organization's losses and determine the impact that safety expenditures programs have had on increasing/decreasing losses. While an actuary has all of the tools and data to do an ROI analysis on their own, they are usually not asked to do so. For our purposes, we can use an actuarial study to identify the effects of legislation on claim cost.

TCOR: As explained earlier, TCOR stands for the total cost of risk. While many executives may only view insurance premiums as the cost of doing business, sophisticated organizations understand that safety and risk management is more than just premiums. TCOR takes into account both direct and indirect cost of claims, as well as the cost to support the insurance programs, such as brokerage fees, loss control costs, and attorney fees.

P&L: Most safety professionals have not seen a profit and loss statement for their organization, but it is important to understand the line-items that make up the statement. Depending on the size and sophistication of the organization, the P&L statement can be a tool to identify how insurance and claim costs are paid in the organization.

ROI: Return on investment is a calculation by which most decisions are made. In its most basic form, you divide the total amount of gain minus the initial investment by the total investment. For our purposes, the formula is modified to reflect the amount saved over a period of time. So

²The Free Dictionary. 2010. *Actuary* (retrieved March 3, 2010) (<http://www.thefreedictionary.com/actuary>).

the formula is the total amount saved, minus the investment, divided by the total investment. So if a new safety program saves \$150,000 and cost \$50,000 to implement, the ROI would be $(\$150,000 - \$50,000) / \$50,000$ or 200% (2:1).

IBNR and Loss Development: Incurred but not reported (IBNR) is a term that is common in the insurance industry, but misunderstood by most people in business. Essentially, IBNR is a “fudge factor” in rate calculations and is based upon historical loss development. For example, most of us are accustomed to seeing a loss run that shows claims that occurred during a given fiscal or calendar year. At the end of that year on the last day, the loss run shows 15 claims with a total incurred of \$100,000. However, if we looked at that same year 12 months later, it may show 20 claims with a total incurred cost of \$250,000. This difference is called the loss development; when actuaries predict the liability for claims, they must include this potential loss as “incurred but not reported.” In other words, these are the claims that we don’t know about, such as the back sprain that eventually requires back surgery.

Claims Adjusters and TPAs: For those organizations who are self-insured, a third-party administrator (TPA) is an adjusting firm that manages your workers’ compensation or general liability claims, essentially doing the same function that a claims adjuster does for an insurance carrier. While claims adjusters and TPAs cannot prevent claims from occurring, they do have the ability to help control costs and encourage employees to return to work. For our purposes, the TPA or insurance carrier is where we will need to request our data. Understanding what data is available and how the data can be reported is an important conversation to have with your TPA/insurance carrier.

WCRI: Most states have a workers’ compensation rating insurance bureau (WCRI), which analyzes statewide workers’ compensation costs and provides recommendations on overall workers’ compensation rate increases/decreases, as well as establishes rates for specific job descriptions. In most cases, an annual study is performed, which can be used as a benchmark to compare your organization’s workers’ compensation performance to the statewide average.

Data Requirements: Comparing Apples to Apples

Now that we understand some basic definitions, it is time to establish the parameters of a basic ROI analysis.

We need to establish a starting point or control period for which we are going to compare our results. The control period should be the year prior to a new initiative beginning or an average of several years prior to the new initiative being analyzed. The analysis period should be the year following the full implementation of the program being proposed. The mistake many people make is that they analyze the year in which a new initiative was started, not recognizing that it takes at least six months for the effects of new program to be realized.

As part of the analysis, you must also recognize legislative or regulatory reforms that may impact your results. This is where developing a relationship with your actuary or insurance carrier can provide you with a great deal of information. For example, in California a major workers’ compensation reform was passed in April 2004. The result was that insurance rates and costs decreased an average of 40% within two years of the reform passing. By working with an

actuary, you can help determine the actual effect of those reforms on your specific losses so that you can isolate them and accurately report the true ROI of your programs.

When requesting data, the most important requirement is knowing when the data is “valued as of.” Generally, most safety professionals only see loss runs that show multiple years, with the claims data valued as of end of a calendar or fiscal year. The problem with this type of data is loss development of the older years. Table 1 shows the effect of loss development.

<i>Fiscal Year</i>	<i># of Claims Valued at end of each year</i>	<i># of Claims valued 6/30/09</i>	<i>Total Incurred End of each Year</i>	<i>Total Incurred Valued 6/30/09</i>
FY 06	5,490	5,898	\$22,391,668	\$ 49,662,177
FY 07	5,342	5,705	\$23,186,292	\$ 46,702,484
FY 08	5,272	5,663	\$25,977,736	\$ 42,212,556
FY 09	4,826	4,826	\$21,890,480	\$ 21,890,480

Table 1. University of California Workers’ Compensation Claims Loss Development

As the table shows, every year of development increases both the number of claims and the cost of those claims. So, trying to compare one year to the next with the same “valued as of” date does not provide us with a true picture to conduct an analysis.

In order to conduct a proper analysis and compare apples to apples, we need to look at claims and their costs with the same development period. Table 2 shows claims experience with 12 months of development for each fiscal year.

UNIVERSITY OF CALIFORNIA WORKERS' COMPENSATION				
Experience during the first 12 months of each program year				
<u>Total \$ Losses</u>	<u>2005-06</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>
Indemnity	15,754,452	16,213,319	18,054,483	14,650,047
Medical Only	6,637,216	6,972,973	7,923,253	7,240,433
TOTAL	\$22,391,668	\$23,186,292	\$25,977,736	\$21,890,480
<u>Number of Claims</u>	<u>2005-06</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>
Indemnity	1,172	1,158	1,175	1,001
Medical Only	4,318	4,384	4,097	3,825
TOTAL	5,490	5,342	5,272	4,826
<u>Average \$ Loss per Claim</u>	<u>2005-06</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>
Indemnity	13,442	14,001	15,366	14,635
Medical Only	1,537	1,667	1,934	1,893
TOTAL	\$4,079	\$4,340	\$4,927	\$4,536

Table 2. University of California Worker’s Compensation Data at 12 Months’ Development

Depending on the type of program to be analyzed, you may want to examine longer development periods. For example, if you implement a return-to-work program, most likely you would not see the reduction in claim cost during the first 12 months. It would be more practical to examine data after 24 months of development.

Case Study: University of California

The University of California (UC) is a public university system, consisting of ten campuses, five medical centers, two national laboratories, and a Division of Agriculture and Natural Resources. The University has over 170,000 employees and annual enrollment of approximately 190,000 students. Each campus functions as if it was its own city, often maintaining its own police, fire, public works, and other public service departments. In addition to teaching, the UC is one of the world’s largest research institutions, which include research in the areas of radiation, chemical, biological, and primates.

The UC is self-insured for all lines of coverage, with workers’ compensation as its most expensive coverage. Each location has a risk manager and director of environment, health and safety with additional staff to help support the program.

Beginning In 2006, the UC Office of Risk Services created the Be Smart About Safety (BSAS) Program with initial “new” funding of \$11.2 million. Subsequent “new” funding of \$15.3 million was provided in the following two years. As each campus already had existing safety program funding in place, the BSAS funds were one-time monies that were intended to be investments in new programs or initiatives. Each campus was required to submit applications to develop new initiatives that were approved by the UC Office of Risk Services. Since 2006, approximately \$60 million in new money was provided to the campuses to support new initiatives, which resulted in a reduction of the total cost of risk by over \$360 million. Based upon these results, the UC system has experienced a 5 to 1 return on investment during the last five years. Put another way, for every dollar spent, the UC system has reduced its total cost of risk by five dollars.



Table 3. University of California Total Cost of Risk

As with most studies of this type, the question arises that not all reductions can be attributed to just the investment of the new dollars into the program, which is true. In April 2004, the California legislature passed Senate Bill 899, which dramatically reformed the workers' compensation system in California. By most estimates, the reform reduced the workers' compensation premiums by an average of 40% between 2004 and 2007; however, the reduction of costs at UC was much more dramatic. The California Workers' Compensation Rating Insurance Bureau (WCRIB), in its most recent request to the California Department of Insurance, requested a 23.7% increase in rates for 2010 on behalf of commercial insurance carriers. The actuaries for the UC have recommended a reduction of approximately 1.5% during this same time period. Prior years also reflect the same trend that the UC is experiencing: a much greater reduction in claim cost and count than the average of all California employers.

As discussed in the prior section, when examining data with the same development period, the dramatic decrease in the count of claims can truly be seen.

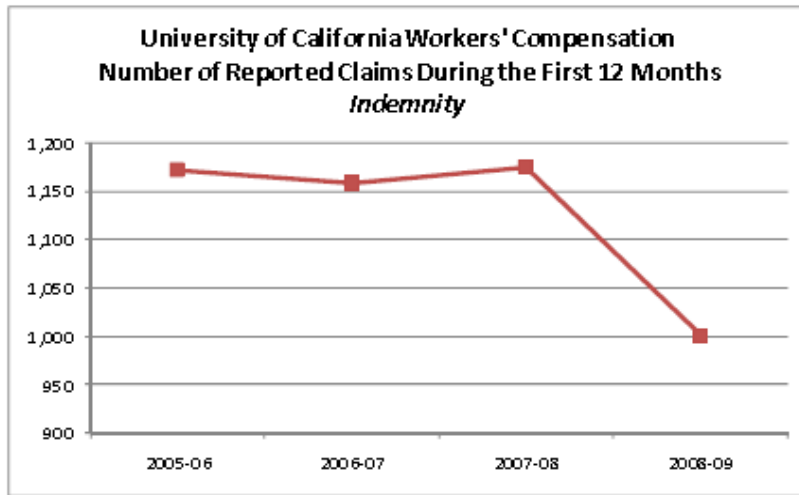


Table 4. Indemnity Claims During First 12 Months of Workers' Compensation

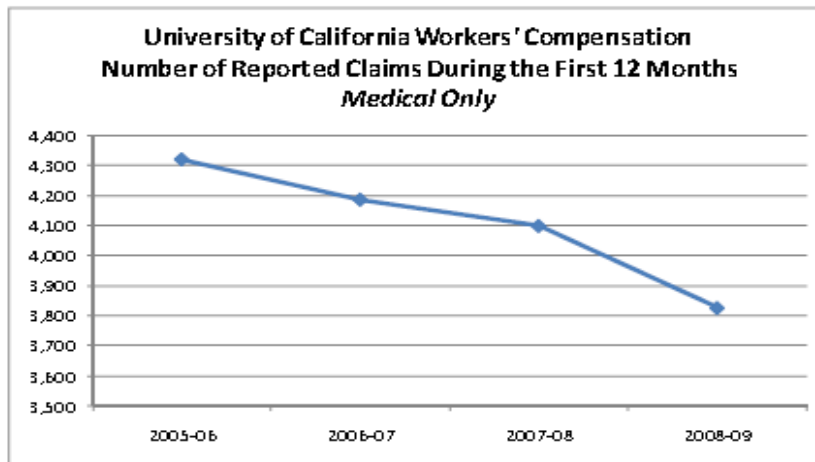


Table 5. Medical-Only Claims During First 12 Months of Workers' Compensation

Once the data showed that both the count and cost of claims were decreasing and the trend was occurring for several years, UC wanted to find out why these decreases were occurring and which types of programs demonstrated the largest ROI. To conduct this analysis, Bickmore Risk Services surveyed the campuses to determine where the “Be Smart About Safety” monies were being spent and broke them down into ten general categories: ergonomics assessments, ergonomic equipment, ergonomic training, safety equipment (PPE), safety training, wellness, safety marketing, staffing, patient lift teams, and safety tools (gas monitors, and so on.).

In order to determine if a detailed analysis of the loss runs was necessary, Bickmore compared the program spending by campus to the count and cost of workers’ compensation claims by campus to calculate correlation coefficient. The end result was that those campuses that spent their monies on ergonomic assessments and equipment saw the most dramatic decrease in both the count and cost of claims, and had a correlation coefficient of approximately 40%.

While 40% was considered to be a good correlation coefficient, the study team wanted to make sure that ergonomic-related claims were actually reduced. In order to do this type of analysis, the team selected three campus locations as test subjects that had different levels of ergonomic spending: low, middle, and high. A detailed loss run for each location was requested, and analysis of ergonomic related claims pre- and post-implementation was conducted. The results validated the original results: Those who spent more on ergonomic programs experienced a decrease in both the count and cost of ergonomic-related claims, and these claims accounted for the largest reduction in all types of claims. More importantly, spending on ergonomics returned \$5.00 for every \$1.00 spent.

Conclusion

As the business climate continues to change, safety professionals are going to be challenged to justify current and new spending. While regulatory compliance may serve as justification for many programs, we also know that regulatory compliance is a floor and often does not result in significant injury reduction. ROI studies conducted by ASSE, Liberty Mutual, and others provide evidence that in general there is a return-on-investment for safety spending; however, if asked, will you be able to show the same results? Understanding where and how to use properly valued loss data is your key to show the value that safety brings to the bottom line of your organization.

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