

# Safety Culture in Healthcare

## The \$13 Billion Case

By Scott Harris

**H**ealthcare workers represented approximately 12% (126 million) of the 2011 U.S. workforce and included 15.2 million professionals, technicians, support workers and others not directly providing patient care (e.g., maintenance and laundry). A steadily growing sector, the healthcare worker population already far exceeds that of the manufacturing sector (11.6 million) (BLS, 2012).

Bureau of Labor Statistics (BLS, 2012d) divides healthcare [North American Industry Classification System (NAICS) 62] into three sectors:

- 1) ambulatory health (NAICS 621), with a 2011 worker population of 6.1 million divided across physician offices (2.3 million), home healthcare (1.1 million), outpatient and ambulatory surgery centers (0.6 million) and similar;
- 2) hospitals (NAICS 622), with 5.7 million workers;
- 3) nursing and residential care (NAICS 623), with 3.4 million.

### OSHA Inspection Priorities

With only one inspector for every 59,000 covered employees across more than 8 million work sites in the U.S., Washington, DC, Puerto Rico and the Virgin Islands (U.S. DOL, 2012a), OSHA prioritizes inspections by 1) imminent danger situations; 2) fatalities and catastrophes; 3) complaints and re-

ferrals; and 4) programmed or planned investigations of high-hazard industries or those with high injury and illness rates (OSHA, 2002). OSHA (2012b) also develops national, regional and local emphasis programs such as for overexertion injuries in nursing and residential care facilities (national) to address newly recognized hazards or issues specific to a region or local jurisdiction, such as hazardous dairy farm activities in Wisconsin (local) (OSHA, 2011a).

### OSHA Inspections of Healthcare Hospitals

In FY2012, OSHA conducted 46,869 inspections, of which 208 (0.44%) were hospitals, while state OSHA programs conducted 56,121 inspections, of which 368 (0.66%) were hospitals. Figure 1 (p. 50) illustrates the annual numbers of hospital inspections by state and federal OSHA since 2003 (OSHA, 2013a).

Based strictly on worker population with no prioritization for high incidence rates, complaints or fatalities, at 4.5% of the U.S. workforce (assuming no change in 2012) hospitals

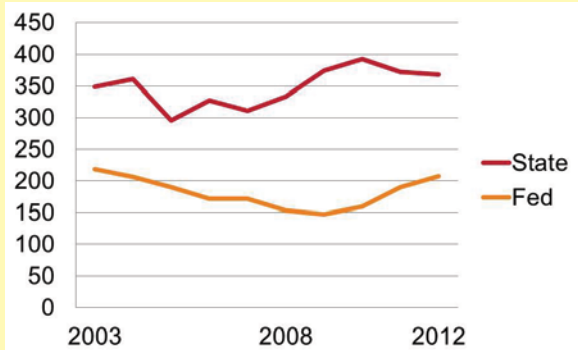
### IN BRIEF

- With few OSHA inspections and low penalties, 15.2 million healthcare workers continually record some of the highest injury rates in the U.S., costing the industry \$13.1 billion and more than 2 million lost workdays in 2011.
- A weak culture of worker safety in healthcare appears to have OSHA's attention. Beginning in 2012, targeted inspections, and regional and national emphasis programs aimed potentially thousands of additional inspections at nursing, residential and ambulatory care facilities with hospitals not far behind.
- Continuing losses in human and economic capital due to injuries make a compelling case for building a safety culture in healthcare.

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**Figure 1**  
**OSHA Inspections of Hospitals, FY2003-FY2012**



**Figure 2**  
**OSHA Inspections of Nursing & Residential Care Facilities, FY2003-FY2012**

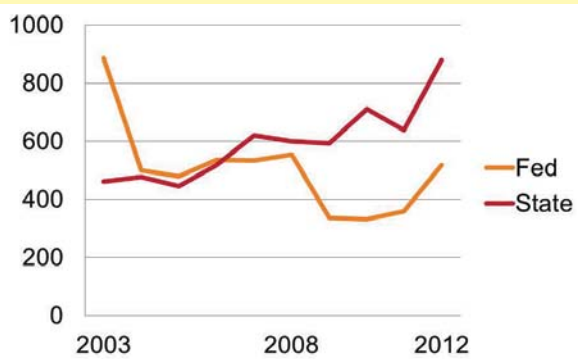


Figure 1 shows annual numbers of hospital inspections by state and federal OSHA since 2003.

Figure 2 shows annual numbers of nursing and residential care inspections by state and federal OSHA since 2003.

would have experienced 4,635 of the 102,990 inspections conducted. They received only 12.4% of that amount.

**Nursing & Residential Care**

From the same pool of FY2012 inspections, OSHA conducted 519 (1.1%) on nursing and residential care facilities, while state programs conducted 880 (1.6%). Figure 2 illustrates the annual numbers of nursing and residential care inspections by state and federal OSHA since 2003 (OSHA, 2013a).

Based strictly on worker population with no prioritization for high incidence rates, complaints or fatalities, at 2.7% of the U.S. workforce (assuming no change in 2012) nursing and residential care facilities would have experienced 2,781 of the 102,990 inspections conducted. They received only 50.3% of that amount.

**Ambulatory Health**

Of FY2012 inspections, federal OSHA conducted 407 (0.9%) on ambulatory health facilities, while state programs conducted 654 (1.2%). Figure 3 illustrates the annual numbers of ambulatory health

facilities inspections by state and federal OSHA since 2003 (OSHA, 2013a).

Based strictly on worker population with no prioritization for high incidence rates, complaints or fatalities, at 4.8% of the U.S. workforce (assuming no change in 2012) ambulatory health facilities would have experienced 4,944 of the 102,990 inspections conducted. They received only 21.5% of that amount.

**Healthcare Safety Performance**

Healthcare and social assistance (BLS combines these two for sector reporting) reported the highest number of nonfatal injuries and illnesses of any sector in FY2011 (BLS, 2012c), the latest year for which these data currently are available. This is not a new development for the industry:

- General medical and surgical hospitals (NAICS 6221) reported more injuries and illnesses than any other industry in 2006—more than 264,300 cases (BLS, 2007).
- General medical and surgical hospitals (NAICS 6221) reported more injuries and illnesses than any other industry in 2007—more than 253,500 cases (BLS, 2008).
- While not significantly different from one another, manufacturing and healthcare and social assistance industry sectors reported more injury cases in 2008 than other industry sectors (BLS, 2009).
- Healthcare and social assistance reported more injury cases than any other private industry sector (623,900 cases) and accounted for 20.1% of all injury cases reported among private industry workplaces in 2009 (BLS, 2010).
- Healthcare and social assistance reported more cases than any other private industry sector in 2010 (BLS, 2011).
- “Healthcare and social assistance reported more cases (631,100) than any other private industry sector in 2011” (BLS, 2012a).

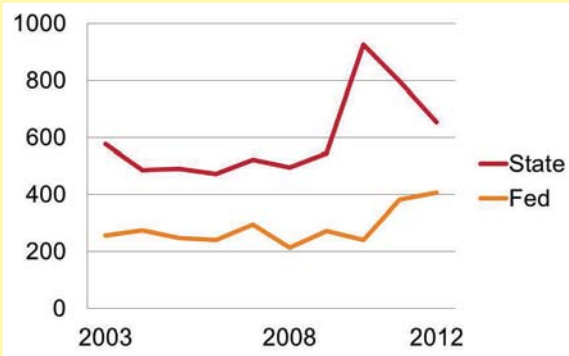
Gross numbers of injuries and illnesses do not allow fair comparison between industries/sectors. For that, numbers of cases are converted to incidence rates per 100 employees, effectively defining the percentage of the given workforce injured or made ill. FY2011 healthcare rates (Figure 4) reveal that safety performance across the sector is far from consistent (BLS, 2012a). With the exception of ambulatory health, which reported a total case rate less than the FY2011 U.S. average for all industries, all other healthcare components reported higher than average rates, with state facilities the highest for hospitals, and nursing and residential care.

**Most Frequently Injured Healthcare Employees**

BLS compiles detailed information on the most costly injuries—those involving days away from work, also known as lost-time injuries. In FY2011 for private-sector healthcare (the largest worker population):

**Figure 3**

## OSHA Inspections of Ambulatory Health Facilities, FY2003-FY2012



- The most frequently injured hospital employee was a female with more than 5 years on the job, while for ambulatory health and nursing and residential care it was a female with 1 to 5 years.

- The most commonly injured age group was 45- to 54-year-olds.

- The average time on duty prior to injury was 2 to 4 hours.

- Tuesday was the most common day of injury for ambulatory health and hospitals, while for nursing and residential care it was Monday.

- For ambulatory health, and nursing and residential care, the most common time of injury was between 8:01 a.m. and noon, while for hospitals it was 12:01 p.m. to 4:00 p.m. (BLS, 2012b).

### Most Frequent Days-Away-From-Work Healthcare Injuries

In FY2011, healthcare reported the highest number of days away, restricted or transferred (DART) injuries of any sector. Within 179,020 reported days away from work injuries (Figure 5, p. 52), for all three healthcare groups (including state and local government facilities) the most common were sprains/strains/tears to the back (BLS, 2012b). The most frequent event leading to the injury was overexertion and bodily reaction except in ambulatory health (slips, trips and falls) and state government hospitals (violence and other injuries by persons) (BLS, 2012b). Patients were the most common source of injury except in ambulatory health, which reported floors just slightly more frequently than patients as the leading source (BLS, 2012b). As a whole, the most frequent injury across healthcare in FY2011 was a strain or sprain of the back due to overexertion from patient handling.

### Time Lost From Injuries

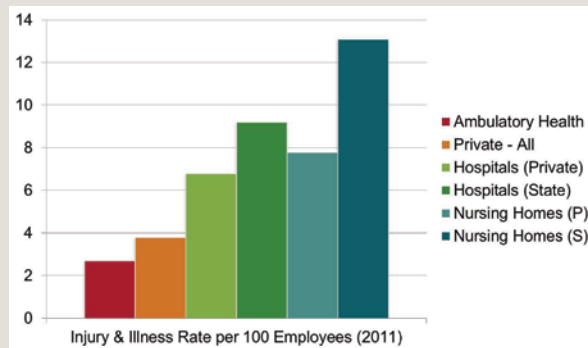
BLS data indicate that time lost from days away injuries is significant. Based on the lowest end of the ranges reported by BLS, healthcare lost a combined minimum of 2,021,890 work days in 2011 from DART-related injuries (Figure 6, p. 52). The median time lost per injury ranged from 5 days (nursing and residential care) to 7 days, with 20% (nursing and residential care) to 25% (ambulatory health) of those injured out for 31 days or more (BLS, 2012b).

### Cost of Injuries

Loading the reported healthcare days away injury data (BLS, 2012) into the OSHA "Safety Pays" calculator produces an estimate of the direct and indirect costs of those injuries to each group along with the amount of additional sales needed (based on a given profit margin) to recover those losses. For direct costs, the calculator uses the average cost of lost time workers' compensation insurance claims derived from statistical reports submitted to National Council on Compensation Insurance Inc. for policy years 2007 to 2009. Indirect cost estimates are based on a study conducted by the Stan-

**Figure 4**

## 2011 Injury & Illness Rates



*Note.* Adapted from 2011 survey of occupational injuries and illnesses summary estimates charts package, by BLS, 2012. Retrieved from [www.bls.gov/iif/oshwc/osh/os/osch0046.pdf](http://www.bls.gov/iif/oshwc/osh/os/osch0046.pdf)

ford University Department of Civil Engineering (OSHA Safety Pays).

For hospitals (Figure 7, p. 53), the cost of FY2011 injuries exceeded \$6.1 billion, requiring additional sales (patient billing) of \$85.5 billion (7.2% profit margin) to offset. Nursing and residential care (Figure 8, p. 54) spent \$4.8 billion, needing \$48.1 billion in additional sales at 10% profit. Ambulatory health (Figure 9, p. 55) spent the least on injuries at \$2.1 billion, requiring \$8.2 billion in sales to recover (assumed 25% profit). Collectively, the industry lost \$13.1 billion to days-away (lost-time) injuries in FY2011.

### Joint Commission Coverage of OSHA Requirements

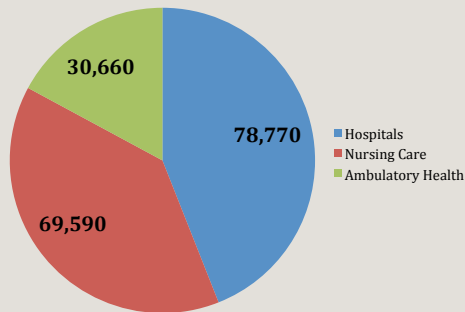
An often-repeated myth within healthcare is that accreditation by The Joint Commission (TJC) satisfies applicable OSHA requirements found in 29 CFR Part 1910. TJC standards overlap some OSHA requirements. For example, hospitals must label hazardous materials and waste under EC.02.02.01-12, which notes that the OSHA Bloodborne Patho-

Figure 3 shows annual numbers of ambulatory health facilities inspections by state and federal OSHA since 2003.

Figure 4 shows results from an occupational injury and illness survey.

**Figure 5**

## Days Away Injuries, 2011

**Figure 6**

## Days Lost, 2011

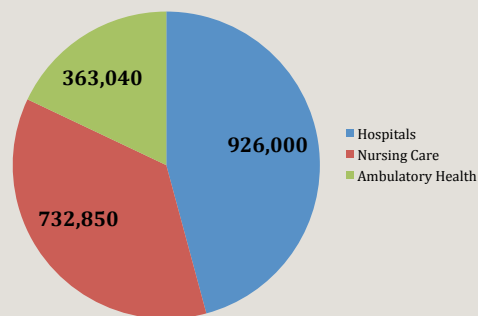


Figure 5 shows reported days away from work in 2011.

Figure 6 shows lost workdays in 2011.

gens and HazCom standards “provide details on labeling requirements.” EC.02.02.01-10 requires hospitals to monitor “levels of hazardous gases and vapors to determine that they are in safe ranges” noting only that “law and regulation determine the frequency of monitoring hazardous gases and vapors as well as acceptable ranges.” EC.04.01.01 requires that a hospital “establishes a process(es) for continually monitoring, internally reporting and investigating” a range of activities including “injuries to patients or others” and “occupational illnesses and staff injuries” (TJC, 2009). Covered through incorporation by reference of comprehensive national codes are fire protection, exits and life safety (TJC, 2008).

As an example of the gaps between the two programs, the most common FY2012 OSHA violations (bloodborne pathogens, formaldehyde, HazCom and annual employee injury summaries) at general medical and surgical hospitals (OSHA, 2013c) are only incidentally addressed, if at all, by TJC. The problem for hospitals is that to comply with OSHA standards, healthcare personnel largely are left to research, identify and implement solutions separate from TJC responsibilities, which often is simply not practical given the resource constraints at many facilities. So healthcare finds itself with a relatively solid TJC process, but a \$13 billion annual OSHA injury problem.

### Healthcare Finally Gets OSHA's Attention Infection Control Becomes an OSHA Issue

In the May 6, 2010, *Federal Register*, OSHA (2010) published a request for information (RFI) to collect information from the healthcare industry on “occupational exposure to infectious agents in settings where healthcare is provided.” This included hospitals, outpatient clinics, clinics in schools and correctional facilities, and healthcare-related settings ranging from laboratories that handle potentially infectious materials to medical examiner offices to mortuaries. Specifically interested in current infection control strategies and practices, OSHA

described healthcare as having “a weak culture of worker safety” related to a lack of data on the prevalence of infections among healthcare workers and “a lack of effort by healthcare employers” in tracking or documenting those infections, indicating it would use the information to “determine what action, if any, the agency may take to further limit the spread of occupationally acquired infectious diseases in these settings” (OSHA, 2010).

A sign of the emerging link between worker and patient safety, OSHA prominently observed in the RFI that infectious agents are transmitted between employees and patients, noting that healthcare-associated infections (HAIs) were “among the leading causes of death in the U.S., accounting for an estimated 1.7 million infections and 99,000 associated deaths in 2002” (OSHA, 2010). Although the HAI issue historically refers to patients, OSHA clearly thinks too many healthcare workers are getting sick at work and that voluntary standards are not working, largely due to poor safety programs and lack of regulatory oversight.

For perspective on the relative magnitude of 99,000 annual HAI fatalities, consider causes of death that generate many more headlines and much stronger public reaction:

- 38,329 from drug overdoses in 2010 (CDC, 2013c)
- 34,434 from transportation crashes in 2011 (NTSB, 2012)
- 13,913 from murder in 2011 (FBI, 2012)
- 8,369 from AIDS in 2010 (CDC, 2013a)
- 4,609 from workplace injuries in 2011 (BLS, 2012c)
- 3,000 from foodborne illness (average) (CDC, 2013b).

These sources nominally represent 102,654 fatalities per year. So, based on OSHA's estimate, HAIs, those infections one catches while being treated for something else, kill almost as many people in the U.S. every year as drug overdoses, highway, rail and aviation crashes, murder, AIDS, workplace fatalities and foodborne illness combined. The U.S. spends billions annually on awareness and prevention, treatment, safety engineering, research, regulations, investigations, training, litigation and media coverage on these threats, yet HAIs remain largely unheard of outside the healthcare industry. That OSHA is so interested is a strong indicator of changing times. Responses to the RFI, still under review, totaled 502 (USA.gov, 2011).

### OSHA “Reaches Out”

In March 2013, OSHA sent letters to 9,413 workplaces experiencing high rates of DART injuries and illnesses. Recipients had recorded FY2011 DART case rates higher than their respective sector averages. Employers were told to develop better safety and health plans, to seek expert advice if needed, and that they might be targeted for inspection. Of the 1,218 received by healthcare, 97.5% (1,187) went to nursing and residential care facilities (U.S. DOL, 2012b).

## Nursing Home NEP

A 2012 nursing home national emphasis plan (NEP) will focus for 3 years on ergonomic hazards related to patient handling, exposures to bloodborne pathogens and TB, and slips, trips and falls. Under the NEP approximately 1,000 nursing homes with DART incidence rates greater than 10 are targeted for inspection by specially trained teams. Enforcement for ergonomic hazards will be under the General Duty Clause (OSHA, 2012).

## Regional Emphasis Program

Citing more than 380,000 sharps-related injuries annually in hospital settings and 600,000 to 800,000 across healthcare, Region 4 OSHA implemented a regional emphasis program effective March 25, 2011, through Sept. 30, 2012, focused on bloodborne pathogen exposures and sharps/needlestick injuries at ambulatory surgical centers (ASCs), emergency care clinics and primary care medical clinics (OSHA, 2011b). More than half of surgeries in the U.S. are performed in ASCs, and in the past 10 years more than 130,000 patients served at ASCs were notified of potential hepatitis and/or HIV exposure due to "unsafe injection practices and lapses in infection control" (OSHA, 2011c).

## Targeted Inspections

On Jan. 4, 2013, OSHA (2013d) announced its Site-Specific Targeting 2012 (SST-12) inspection plan. The list is based on 2010 injury and illness data collected by the 2011 survey of approximately 80,000 establishments in historically high-rate industries, which included hospitals and nursing care. Healthcare facilities (except nursing and residential care) fall into the nonmanufacturing group to be inspected if they reported a 2010 DART rate of 15 or greater. Nursing and residential care facilities will continue to be inspected under the 2012 NEP. A second group of 2,250 establishments was randomly selected from the SST-11 list as part of a study of recidivism by previously inspected facilities.

## Defining Safety Culture in the Healthcare Workplace

A safety culture is a common set of beliefs, assumptions and normative behaviors that actively influence how participants think and act with regard to safety issues. A safety culture is not a policy, program or procedure, nor is it distinct from the prevailing organizational culture. Instead, a safety culture is a reflection of the extent to which people take personal responsibility for their own safety, and that of coworkers and patients, as well as their willingness to adopt behaviors that further improve safety and reduce risks. A healthcare safety culture cannot simply be mandated by organization leaders and implemented overnight. Instead, the development of an effective safety culture takes time and requires continuous attention and maintenance to remain effective.

Developing and sustaining a healthcare safety culture produces several benefits for healthcare in-

stitutions, workers and patients. An effective safety culture can:

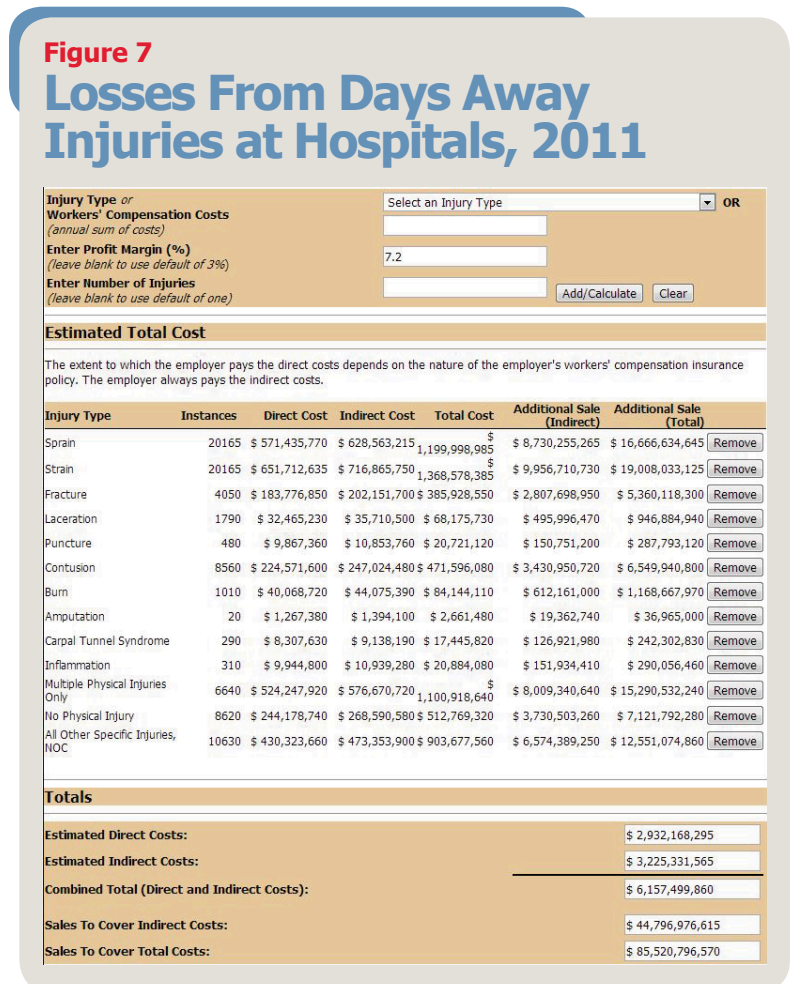
- lower rates of worker injuries and illnesses;
- improve staff morale and worker retention;
- reduce transmission of diseases and transfer of pathogens and other infectious agents from workers to patients, protecting patients from infection-related complications;
- help initiate process changes that increase the quality of patient care while improving operational efficiencies and driving down delivery costs.

## Sustaining a Safety Culture in Healthcare

The goal of reducing safety and health risks for healthcare employees is inextricably linked with the goals of improved patient safety and quality of care. Individual safety improvement initiatives that separate worker safety and health issues from those experienced by patients often fail to address root causes that are common to both, squandering well-intentioned efforts and perpetuating the risks.

For these reasons, healthcare organizations that are most successful in reducing worker safety and health risks focus their primary efforts on developing an organization-wide culture of safety that addresses all safety issues without regard to "favorite" programs. Essential culture elements include:

Figure 7 shows estimated costs of losses from days away injuries reported at hospitals.



**Figure 8**

# Losses From Days Away Injuries at Nursing & Residential Care Facilities, 2011

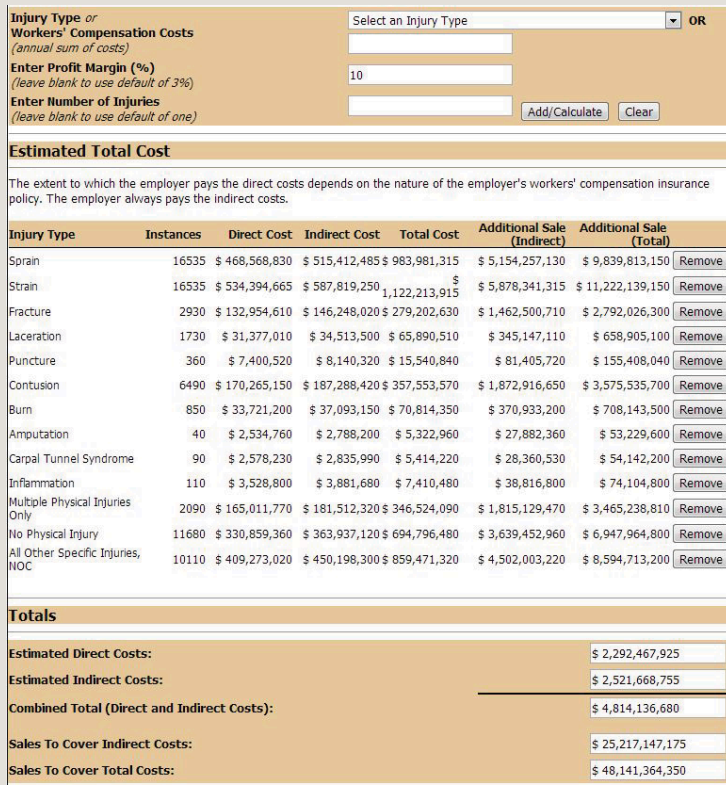


Figure 8 shows estimated costs of losses from days away injuries reported at nursing and residential care facilities.

- organization-wide commitment to safety;
- visibility and transparency;
- ongoing learning as a key prevention tool;
- a focus on leading indicators and early reporting of safety and health risks;
- continuous communication;
- recognition and rewards;
- eliminating fear of reprisal for reporting;
- commitment to continuous improvement.

### Conclusion

This is a wake-up call for healthcare. With 15.2 million employees across tens of thousands of work sites, incidence rates far higher than general industry norms, low inspection rates, millions of HAI infections and 99,000 HAI fatalities per year, healthcare remains an attractive target. OSHA sees healthcare as poor safety performers, and targeted inspections and national/regional emphasis programs for nursing and residential care and ASCs/clinics are a major shift from the historically low amount of OSHA attention this sector received. The industry is far underinspected considering its chronic poor safety performance. Based strictly on worker population, with no enhancements for poor performance, healthcare could have seen an additional 8,294 inspections in 2011. Does the industry really want to force OSHA into that position?

Although high, with rates below those of their nursing care facilities, hospitals avoid much OSHA attention. But, avoiding inspections is not the real

issue. Those 179,020 days away (lost-time) injuries, which in 2011 collectively cost the industry \$13.1 billion (direct and indirect) and more than 2 million work days, drained nearly \$142 billion in sales to cover the loss. Of course, healthcare does not sell in the traditional sense, and the need to replace billions in lost revenue through patient billing lands healthcare in a quandary. Eliminating staff is not the answer, since most of these injuries came as a result of overexertion, often from staff shortages and/or lack of job expertise. Forcing even fewer staff (mostly female nurses) to do more only exacerbates the issue. Is the answer simply to increase fees?

A 2010 report from AHIP Center for Policy and Research (2010) found that the average patient charge for a 325-mg Tylenol tablet among 10 of the largest hospitals in California was \$7.50, while CVS sold the same pill for about \$0.08. With demands for healthcare reform making daily headlines and the average cost of a hospital stay in the U.S. already more than \$3,900 per day (International Federation of Health Plans), the idea of a \$142 billion cost increase to pay for injuries that largely should not happen seems untenable.

There are no healthcare exemptions to the OSHA requirements, and it is neither a TJC issue nor solution. The healthcare industry pays dearly in human and economic capital for lack of safety culture, which brings the conversation to investing in safety. Millions of workdays lost from hundreds of thousands of injuries each year make a compelling \$13 billion case for healthcare to pursue building safety culture.

But it is important to remember that an effective safety culture is more than just a collection of individual workplace safety initiatives. It is nothing less than a lifestyle change to an overall organizational philosophy that makes workplace safety everyone's concern and achieves results through integrated programs designed to reduce risks, increase safety communication across multiple disciplines and stimulate continuous learning. In this way, a safety culture complements patient safety efforts, supports the overall mission of a healthcare organization, and addresses industry and regulatory requirements. The best part: It pays for itself. **PS**

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Figure 9

## Losses From Days Away Injuries at Ambulatory Health Facilities, 2011

Injury Type	Instances	Direct Cost	Indirect Cost	Total Cost	Additional Sale (Indirect)	Additional Sale (Total)	
Sprain	6250	\$ 169,875,000	\$ 186,862,500	\$ 356,737,500	\$ 747,450,000	\$ 1,426,950,000	Remove
Strain	6250	\$ 190,943,750	\$ 210,037,500	\$ 400,981,250	\$ 840,150,000	\$ 1,603,925,000	Remove
Fracture	2380	\$ 105,812,420	\$ 116,391,520	\$ 222,203,940	\$ 465,573,220	\$ 888,815,760	Remove
Laceration	440	\$ 7,641,920	\$ 8,405,760	\$ 16,047,680	\$ 33,624,360	\$ 64,190,720	Remove
Puncture	950	\$ 18,438,550	\$ 20,281,550	\$ 38,720,100	\$ 81,129,050	\$ 154,880,400	Remove
Contusion	2550	\$ 64,961,250	\$ 71,456,100	\$ 136,417,350	\$ 285,829,500	\$ 545,669,400	Remove
Burn	70	\$ 2,562,490	\$ 2,818,690	\$ 5,381,180	\$ 11,274,900	\$ 21,524,720	Remove
Carpal Tunnel Syndrome	430	\$ 11,929,920	\$ 13,122,740	\$ 25,052,660	\$ 52,491,390	\$ 100,210,640	Remove
Inflammation	50	\$ 1,462,600	\$ 1,608,850	\$ 3,071,450	\$ 6,435,400	\$ 12,285,800	Remove
Multiple Physical Injuries Only	1000	\$ 76,929,000	\$ 84,621,000	\$ 161,550,000	\$ 338,487,000	\$ 646,200,000	Remove
No Physical Injury	5690	\$ 148,150,530	\$ 162,961,600	\$ 311,112,130	\$ 651,857,780	\$ 1,244,448,520	Remove
All Other Specific Injuries, NOC	4590	\$ 179,390,970	\$ 197,328,690	\$ 376,719,660	\$ 789,319,350	\$ 1,506,878,640	Remove
<b>Totals</b>							
Estimated Direct Costs:						\$ 978,098,400	
Estimated Indirect Costs:						\$ 1,075,896,500	
Combined Total (Direct and Indirect Costs):						\$ 2,053,994,900	
Sales To Cover Indirect Costs:						\$ 4,303,621,950	
Sales To Cover Total Costs:						\$ 8,215,979,600	

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Figure 9 shows estimated costs of losses from days away injuries reported at ambulatory health facilities.