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# Pay It Forward

Programs to Protect Health Care Workers Significantly Reduce Injuries and Quickly Recoup Investment Costs

## **Acknowledgments**

This report was written by Taylor Lincoln, Research Director of Public Citizen's Congress Watch division, and edited by Congress Watch Deputy Director Susan Harley.

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## Introduction

Health care workers suffer more injuries requiring days away from work than those in any other industry.<sup>1</sup> As shown in an earlier report in this series, “Nursing: A Profession in Peril,” these episodes often result in career-ending injuries and sometimes leave their victims suffering from permanent pain.<sup>2</sup>

Many of these injuries result from moving or repositioning patients, which is an innately difficult task. But methods to overcome these challenges are relatively straightforward. Mechanical lifts and other technological transfer aids enable workers to move or reposition patients at little risk to themselves.<sup>3</sup>

The problem is that relatively few health care providers have comprehensive programs to spare employees the burden of heavy lifting. For this series, we asked three experts to estimate the rate of hospitals that have adopted comprehensive safe patient handling programs. Their estimates ranged from just 3 to 25 percent of the total number of hospitals.<sup>4</sup>

This report examines what happens when hospitals and other health care facilities invest in programs that protect their workers.

Internal reports of a major health care network and a large hospital, coupled with several academic studies, show that implementation of safe patient handling programs yield substantial – at times extraordinary – reductions in injuries to workers.

Meanwhile, reduced workers’ compensation costs and other savings for providers are so significant that these programs consistently recoup their costs within four years.

There are no federal regulations covering patient handling practices, although employers are required by federal law to provide their employees with “safe and healthful working conditions.”<sup>5</sup> Eleven states have passed laws aimed specifically at protecting health care workers.<sup>6</sup>

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<sup>1</sup> Press release, U.S. Bureau of Labor Statistics, *Table 2: Number, Median Days Away From Work, and Incidence Rate for Nonfatal Occupational Injuries and Illnesses Involving Days Away From Work by Ownership, Industry, And Nature Of Injury*, 2013 (Dec. 16, 2014), <http://1.usa.gov/1GxDhx2>

<sup>2</sup> TAYLOR LINCOLN, PUBLIC CITIZEN, THE HEALTH CARE INDUSTRY’S CASTOFFS (June 9, 2015), <http://bit.ly/1B8sfTh>.

<sup>3</sup> TAYLOR LINCOLN, PUBLIC CITIZEN, TAKING THE BURDEN OFF THEIR BACKS (June 16, 2015), <http://bit.ly/1KkS0kl>.

<sup>4</sup> Experts consulted were Lynda Enos, Co-Chair, Oregon Coalition for Healthcare Ergonomics (May 20, 2014); James W. Collins, National Institute for Occupational Safety and Health (NIOSH) (May 21, 2014); and Elizabeth White, Founder and Clinical Strategist, ErgoNurse Inc. (June 3, 2015).

<sup>5</sup> The Occupational Safety and Health Act, 29 U.S.C. § 651(2)(b) (1970).

<sup>6</sup> TAYLOR LINCOLN AND KEITH WRIGHTSON, PUBLIC CITIZEN, UPLIFTING AN INDUSTRY (June 24, 2015), <http://bit.ly/1QQ3p1l>.

This report shows that it's in providers' financial interest to furnish safe environments for their employees, regardless of their moral and legal obligations.

## Intermountain Healthcare

(Period studied: 2008 to 2010)

Intermountain Healthcare, which consists of 22 hospitals and more than 185 clinics in Utah and Idaho, began an effort in 2006 to study "transfer and lifting risk, injury, and prevention programs."<sup>7</sup> From that study, the organization determined that its employees were suffering an average of 205 injuries per year from patient handling activities. Forty-nine percent of injured employees were applying for long-term disability and 25 to 30 people each year were permanently disabled. Intermountain concluded that the total cost of these injuries was about \$1.5 million per year.<sup>8</sup>

Analysis of health care worker injury reports showed that high-risk activities were repositioning patients in bed (responsible for 26 percent of injuries), catching a falling patient (17 percent), and transferring patients on or off stationary tables (22 percent).<sup>9</sup> Additionally, Intermountain's review indicated that manual lift or transfer activities were responsible for an average of 219 patient falls per year.<sup>10</sup>

Because of these findings, Intermountain in 2008 implemented a comprehensive safe patient handling program, which included deployment of mechanical lift and transfer devices, lateral-transfer air mattresses and slide boards. The organization also established patient handling policies, conducted training and pledged leadership support for the program.<sup>11</sup>

Within one year of the program's implementation, employee injury rates were reduced by 42 percent and patient falls reduced by 45 percent. Those gains held roughly constant in year two.<sup>12</sup>

"We conservatively estimate that the cost savings from reducing employee injuries system-wide is \$500,000 per year. The benefit in terms of safety for all concerned is far greater," wrote Marlyn T. Conti, quality and patient safety initiatives manager for Intermountain Healthcare.<sup>13</sup>

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<sup>7</sup> Marlyn Conti and Vickie Johnsen, *Is Your Facility Equipped for Safe Patient Handling?* 42 NURSING MANAGEMENT 4 (April 2011), <http://bit.ly/1l8Sfmt> and e-mail from Conti to author ( June 24, 2015).

<sup>8</sup> Marlyn T. Conti, *The Hidden Cost of Moving Patients*, HBR BLOG NETWORK (Sept. 17, 2013), <http://bit.ly/1p3k6b7>.

<sup>9</sup> Marlyn Conti and Vickie Johnsen, *Is Your Facility Equipped for Safe Patient Handling?* 42 NURSING MANAGEMENT 4 (April 2011), <http://bit.ly/1l8Sfmt>.

<sup>10</sup> Marlyn T. Conti, *The Hidden Cost of Moving Patients*, HBR BLOG NETWORK (Sept. 17, 2013), <http://bit.ly/1p3k6b7>.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

These figures suggest that Intermountain recouped its capital investment in about three years.

## **Tampa General Hospital** (Period studied: 1999 to 2013)

Tampa General, a 1,000 bed hospital with 7,000 employees, implemented a safe patient handling program between 1999 and 2002. The program included deploying ceiling lifts to serve about half the beds in the hospital, floor-based lifts, and other patient handling equipment. The hospital also created a lift team unit, consisting of 28 employees by 2013, to handle transfers and repositioning of patients.<sup>14</sup>

- The rate of patient handling injuries per 100,000 hours worked dropped from 1.3 to 0.38 (71 percent) between 2001 and 2013, according to data provided by Tampa General to Public Citizen;<sup>15</sup>
- The number of lost work days due to patient handling injuries fell by 92 percent between 2001 and 2013;<sup>16</sup>
- The number of restricted work days fell by 67 percent between 2001 and 2013;<sup>17</sup>
- The hospitals' workers' compensation costs fell to less than a tenth of their former level. Such costs equaled 1 percent of payroll in 2001; they equaled just 0.08 percent of payroll in 2013. In dollars, these costs declined by about \$1 million per year, to about \$70,000;<sup>18</sup> and
- Direct costs for patient handling injuries (which the hospital defines fairly narrowly as including only medical costs paid outside of Tampa General Hospital, legal costs, surveillance costs, and costs of recorded statements), declined from \$273,837 in 2001 to \$14,164 in 2013, a 95 percent decrease. In the meantime, the hospital's number of employees increased from 3,727 to 6,796.<sup>19</sup>

Capital equipment to establish the program cost about \$2 million, and the program costs about \$1 million annually in salaries for lift team members. Some of the costs for the lift team are presumably recouped because nurses and other caregivers are freed from the time-consuming tasks of lifting and transferring patients.

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<sup>14</sup> Manon Labreche, Injury Prevention Coordinator, Tampa General Hospital, interview with Public Citizen Researcher Taylor Lincoln (May 19, 2014).

<sup>15</sup> Data provided by Tampa General Hospital to Public Citizen.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

Also, the existence of the lift teams permits injured nurses to return to work sooner because they do not have to perform the physically taxing patient-transfer functions, Manon Labreche, injury prevention coordinator at Tampa General Hospital, told Public Citizen.<sup>20</sup>

If one were to assume that the reduced workers' compensation costs were entirely cancelled out by the lift team expense, Tampa General would still have recouped its capital investment costs in about four years due to savings in its narrowly defined "direct costs," according to the figures provided to Public Citizen.

## **Multiple Nursing Home Study** (Period studied: 1995 to 2001)

In perhaps the most comprehensive study of the effectiveness of using mechanical lifting devices to care for patients, James W. Collins of the National Institute of Occupational Safety and Health (NIOSH) and three other researchers studied six years of injury data for six nursing homes that were part of an unidentified corporation. The study involved 1,728 employees covering 3.7 million hours worked. Periods studied were 1995 to 1997, before a comprehensive safe patient handling system was implemented, and 1998 to 2001, after the implementation.<sup>21</sup>

The safe patient handling program involved the introduction of two types of mechanical lifts (one that aided residents who could not bear weight at all and a second to assist residents with some ambulatory ability) and converting to the use of friction reducing sheets in beds to better facilitate repositioning residents. The facilities also implemented zero-lift policies, which effectively called on staff to provide no more than limited manual assistance in lifting or transferring patients.<sup>22</sup>

The researchers compared injury rates for musculoskeletal injuries that occurred while lifting or moving a resident over the pre-implementation and post-implementation periods. Injury data was gleaned from three sources: workers' compensation claims, injury reports to the Occupational Safety and Health Administration, and injury reports maintained by the safety department of each nursing home.<sup>23</sup>

The number of musculoskeletal injuries from repositioning or moving patients dropped sharply after the implementation. This was reflected in markedly reduced lost work days, reduced number of days for which workers were on restricted duty, and reduced workers' compensation claims.

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<sup>20</sup> Manon Short, Injury Prevention Coordinator, Tampa General Hospital, Interview with Public Citizen Researcher Taylor Lincoln (May 19, 2014).

<sup>21</sup> James W. Collins, L. Wolf, J. Bell and B. Evanoff, *An Evaluation of a 'Best Practices' Musculoskeletal Injury Prevention Program in Nursing Homes*, 10 INJURY PREVENTION 206 (2004), <http://1.usa.gov/15Ua7bp>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

- The number of lost work days declined from 5.8 to 2.0 per 100 employees, a reduction of 66 percent;
- The number of restricted-duty days declined from 9.3 to 5.7 per 100 employees, a reduction of 39 percent;
- Workers' compensation claims related to resident handling declined from 129 to 56, a reduction of 57 percent; and
- Workers' compensation costs declined from \$441,670 to \$227,060, a reduction of 49 percent.<sup>24</sup>

“This study showed that the reduction in workers' compensation injury claims expenses effectively recovered the initial capital investment in equipment and training in slightly less than three years, and potentially more quickly if indirect costs are considered,” the authors wrote.<sup>25</sup>

## **U.S. Department of Veterans Affairs** (Period studied: 2001 and 2002)

The U.S. Department of Veterans Affairs implemented a safe patient handling program for nursing staff in 23 high risk units in 2002.<sup>26</sup> The program involved conducting an ergonomic needs assessment, purchasing patient-handling equipment to fulfill the identified needs, and instituting a “no-lift” policy, a term that generally means that caregivers should not manually lift patients.<sup>27</sup>

Researchers later analyzed data from the nine months prior to the implementation (May 2001 to January 2002) and the nine months after (February 2002 to October 2002).<sup>28</sup>

Significant reductions in injuries and related costs followed the implementation of the program:

- The injury rate in the covered units declined from 24 per 100 caregivers in the pre-implementation period to 16.9 per 100 caregivers in the post-implementation period, a reduction of 30 percent;

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<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> High-risk units were defined as “inpatient hospital units with a high proportion of dependent patients, requiring full assistance with patient handling tasks, including lifting and activities of daily living.”

<sup>27</sup> *Id.*

<sup>28</sup> Audrey Nelsona, Mary Matza, Fangfei Chena, Kris Siddharthana, John Lloyd and Guy Fragalad, *Development and Evaluation of a Multifaceted Ergonomics Program to Prevent Injuries Associated With Patient Handling Tasks*, 43 INTERNATIONAL JOURNAL OF NURSING STUDIES 717–733 (2006).

- The per person cost of medical care for workers suffering patient handling injuries declined from \$95,091 to \$49,244, a reduction of 48.2 percent;
- Taking into account costs for disability payments, lost work days and restricted-duty work days, the authors calculated the costs for patient-handling worker injuries in the period prior to the implementation at \$422,023 compared to \$176,296 in the post-implementation period, a reduction of 58 percent; and
- Annualized savings from the program were calculated at \$327,636. Annualized costs, primarily for capital equipment amortized over a 10-year period, were calculated at \$123,037. Thus, overall annualized savings were calculated at \$204,599.<sup>29</sup>

The authors determined that such savings constituted an internal rate of return of close to 19 percent and that the program recouped its costs in 3.75 years.<sup>30</sup>

## Ohio Nursing Homes (Period studied: 1995 to 2004)

Using data from 1995 to 2004, researchers studied the change in injury rates in nursing homes that used grants from the Ohio Bureau of Workers Compensation to implement safe patient handling programs.<sup>31</sup>

During the 10 years studied, 23,724 back injury workers' compensation claims were approved for workers in 887 Ohio nursing homes, resulting in \$232 million in workers' compensation payments. (These payments consisted of \$80.6 million for medical bills; \$60.2 million in indemnity payments for lost-time; and \$91.4 million in set-asides for reserves.) Aside from the 23,724 approved back injury claims, there were 12,551 compensated injuries to workers' shoulders, knees, elbows or neck, resulting in an additional \$77 million in costs.

The average cost to implement patient-lifting equipment was approximately \$500 per employee.<sup>32</sup> The researchers assumed that such equipment would last for 10 years.

Following implementation of safe-patient-handling programs at these institutions, workers' compensation claims declined by 21 percent for back injuries and 14 percent for all musculoskeletal injuries. The researchers calculated that the overall annual cost for back injury claims declined by \$77 per employee, on average, equal to \$766 per employee over a 10-year span. Factoring in a cost of \$500 per employee for implementation of the program,

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Robert M. Park, P. Timothy Bushnell, John Bailer, James W. Collins, and Leslie T. Stayner, *Impact of Publicly Sponsored Interventions on Musculoskeletal Injury Claims in Nursing Homes*, 52 AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 683–697 (2009).

<sup>32</sup> *Id.*

researchers calculated that the program resulted in net savings of \$266 per employee over a 10 year span.<sup>33</sup>

## **Canadian Extended Care Facility** (Period studied: 1995 to 2001)

An unidentified extended care facility in British Columbia, Canada, in 1998 implemented a ceiling mounted resident lifting system “to reduce the risk of [musculoskeletal injuries] to health care staff and to improve the quality of care for the residents,” researchers Rahul Chokkar, et al. reported in 2005.<sup>34</sup>

The program included 65 ceiling lifts that serviced 165 beds. The facility also implemented a “no-unsafe manual lift policy” in 1998.<sup>35</sup>

Chokkar et al. assessed the workers’ compensation costs associated with employee injuries for matters involving two categories of patient handling activities: “lifting/transferring” and “repositioning” for the three years prior to implementation of the system and the three years following it. They also measured the costs of implementing the program.<sup>36</sup>

The number of patient-handling injuries was 27.7 percent less in the three years following implementation than in the three years preceding implementation. This improvement occurred despite a slight increase in injuries associated with repositioning patients.

Injuries associated with lifting and transferring patients were 66.7 percent lower in the post-implementation period. Injuries sustained while repositioning patients were 5.7 percent higher.<sup>37</sup>

The number of claims had risen starkly in the three years prior to the program’s implementation. Chokkar et al. assessed the return on investment for the program by the two methodologies. One assumed costs in the three years following implementation would have held constant with the most recent year prior to implementation. The other methodology assumed that claims costs would have continued to rise on the same trajectory as in the three years leading up to the intervention.<sup>38</sup>

The cost of implementing the program was \$344,323. Claims costs in the year prior to the intervention were \$238,166. In the three ensuing years, claims costs averaged \$137,584 less than that, the authors reported. By this method of calculation, the program paid for

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<sup>33</sup> *Id.*

<sup>34</sup> Rahul Chokkar, Chris Engst, Aaron Miller, Dan Robinson, Robert B Tate, and Annalee Yassi, *The Three-Year Economic Benefits of a Ceiling Lift Intervention Aimed to Reduce Healthcare Worker Injuries*, 36 APPLIED ERGONOMICS 223–229 (2005).

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

itself in 2.5 years, the authors' concluded. Under the assumption that claims would otherwise have continued to rise at the pre-intervention trajectory, the program paid for itself in 0.82 years.<sup>39</sup>

## Conclusion

The United States has a longstanding law calling for employers to ensure “so far as possible every working man and woman in the Nation safe and healthful working conditions.”<sup>40</sup> This promise is not being kept on behalf of the caregivers who treat the injured, sick and elderly among us.

Evidence that health care providers are able to improve their bottom lines by implementing safe patient-handling programs should not be needed to justify such programs. Providers have a moral and legal obligation to protect their workers regardless of the costs. But evidence that such safeguards quickly pay for themselves removes an excuse for failing to implement them.

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<sup>39</sup> *Id.*

<sup>40</sup> The Occupational Safety and Health Act, 29 U.S.C. § 651(2)(b) (1970).