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Impact of a Safe Resident Handling Program in Nursing Homes on Return-to-Work and Re-injury Outcomes Following Work Injury

Alicia Kurowski[1], **Glenn Pransky**[1,2], and **Laura Punnett**[1]

[1]Department of Biomedical Engineering, University of Massachusetts Lowell, 1 University Ave., Lowell, MA 01854, USA

[2]Department of Family Medicine and Community Health, University of Massachusetts Medical School, Worcester, MA 01655, USA

Abstract

Purpose—This study examined the impact of a Safe Resident Handling Program (SRHP) on length of disability and re-injury, following work-related injuries of nursing home workers. Resident handling-related injuries and back injuries were of particular interest.

Methods—A large national nursing home corporation introduced a SRHP followed by three years of training for 136 centers. Lost-time workers' compensation claims (3 years pre-SRHP and 6 years post-SRHP) were evaluated. For each claim, length of first episode of disability and recurrence of disabling injury were evaluated over time. Differences were assessed using Chi square analyses and a generalized linear model, and "avoided" costs were projected.

Results—The SRHP had no impact on length of disability, but did appear to significantly reduce the rate of recurrence among resident handling-related injuries. As indemnity and medical costs were three times higher for claimants with recurrent disabling injuries, the SRHP resulted in significant "avoided" costs due to "avoided" recurrence.

Conclusions—In addition to reducing overall injury rates, SRHPs appear to improve long-term return-to-work success by reducing the rate of recurrent disabling injuries resulting in work disability. In this study, the impact was sustained over years, even after a formal training and implementation program ended. Since back pain is inherently a recurrent condition, results suggest that SRHPs help workers remain at work and return-to-work.

Keywords

Injury recurrence; Return-to-work; Nursing homes; Safe resident handling

Correspondence to: Alicia Kurowski.

Conflict of interest Alicia Kurowski, Glenn Pransky, and Laura Punnett declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Introduction

Workplace interventions can be especially effective in preventing work disability and enhancing return-to-work (RTW) after injury or illness [1]. For example, job modification and temporary alternate work, are associated with significantly better outcomes in RTW for persons with musculoskeletal disorders (MSDs). Instituting temporary alternate work as a pathway for RTW is associated with, on average, a 50% reduction in lost work days [2, 3]. Although there is some evidence supporting the impact of ergonomic job improvement in general on RTW outcomes, the results of prior studies have been somewhat inconsistent, and there has been little research on the impact on recurrence of work disability [4, 5]. This is especially important, as recurrent work disability, representing a failed RTW, occurs in a relatively small percentage of cases, but is associated with a two-to-three-fold increase in days away from work, and a disproportionate share of total disability-related costs [6].

The health care industry employs more than 15% of the US workforce, and patient care-related injuries, especially those related to moving patients, are the most common cause of work disability in this industry. Manually lifting, transferring, and repositioning patients have resulted in high rates of disabling back injuries and other MSDs in hospitals, nursing homes, and other health care settings [7–9]. Ergonomic interventions to minimize exposure to manually moving patients by use of slings, mechanical lifts, and patient transfer aids have become the primary strategy to prevent these problems [7, 10–13], and have consistently led to significant reductions in number of injuries, workers' compensation claims, and related costs [8–18]. Reduction of maximal workloads may also be effective in improving RTW outcomes among those with work-related MSDs, by accommodating RTW earlier in recovery, and lowering risk of recurrent injury and disability [1].

Inadequate accommodations or ineffective changes to decrease workplace risks are a key factor in delayed RTW and recurrent disabling injuries, and safe handling interventions could largely eliminate these problems [14]. Since recurrent disability costs represent a large share of total costs for low back injuries in the workplace [6], which are the most common type of lost time injury related to patient handling, the impact of safe handling interventions on both RTW and recurrent disabling injuries could represent a significant social and economic benefit that has not been evaluated in prior studies. However, the impacts of these ergonomic safe handling interventions on RTW and re-injury outcomes are not well characterized. This information could enhance the results of economic evaluations, and potentially lead to greater adoption of these practices.

The current study was conducted to address the question of how overall ergonomic improvements may enhance RTW outcomes, reduce related costs, and prevent recurrent work disability by examining a safe resident handling program (SRHP) intervention in a large, diverse population of nursing home employees. We hypothesized that length of first episode of disability, injury-related medical and indemnity costs, and disabling injury recurrence related to resident handling (RH) would decrease after implementation of a SRHP, and that this impact would be sustained even after the end of a formal external training program. We hypothesized that this effect would be most prominent for RH-related

back injuries, as they represent the category of injuries most impacted by SRHP interventions.

Materials and Methods

A large nursing home corporation in the eastern U.S. instituted a multi-level SRHP in all of its 234 skilled nursing facilities (SNFs) from 2004 to 2006. Implementation was conducted by a third-party company and was staggered over the 3-year period. Each center was assigned an implementation date coinciding with the date in which the third-party company representative first met with SNF department heads. As described in detail in prior reports [11, 15], the intervention included resident needs assessments, purchase of RH equipment along with periodic staff training and retraining on equipment policies and operation, and protocols for equipment maintenance. Prior analyses of this same population have already reported on reductions in ergonomic exposures [11, 16], low back pain (LBP) [17], injury rates, [15] and positive return-on-investment [18].

Needs assessments (initial, quarterly, upon readmission, and following significant changes in health) determined whether a resident was ambulatory or required assistance in mobilization from portable floor-based sit-to-stand lifts or total body lifts (204- or 272-kg maximum capacity). Equipment type and number of staff required for handling tasks was documented for each resident, and all equipment purchased was based on the needs of each center's residents.

For 3 years following implementation, the third-party contractor managed the SRHP and provided periodic training on equipment use, maintenance, and program policies, along with train-the-trainer sessions, resident/family education meetings, and investigations of program-related injuries. In the program's first year, training was provided at implementation and then after 2, 4, 10, 20, 30, 40, and 50 weeks. Six follow-up visits occurred in the second year, and 4 in the third year. At the end of this 3-year period, management of the SRHP was transferred to the individual centers and followed for three more years to examine program sustainability as it became engrained in the centers' culture.

Study Design

A timeline was developed for the program implementation stages. The 3 years prior to implementation date were considered the pre-SRHP period (ranging from 2001–2003 to 2003–2006 depending on center implementation date). The center-specific program implementation dates were used as the start of the 'first post' period, which ended after 3 years for each center (ranging from 2004–2007 to 2006–2009). The 3 years following the end of the first post period were categorized as the 'second post' period (ranging from 2007–2010 to 2009–2012). This second post period was different, as the external vendor no longer provided training and evaluation, and there was no indication of formal program standardization across the corporation in terms of maintenance or compliance.

The study sample was restricted to 136 centers, excluding those that were not skilled nursing facilities (i.e. assisted living facilities), did not have workers' compensation claims (WCC) data available, or closed during the course of the study (2001–2012). All lost-time work-

related injuries that occurred during the study (n = 3263) were identified in their detailed WCC data, and the onset of each case was classified into the appropriate time period based on the timeline described above. In this study, the unit of analysis was lost-time WCC. This study was approved by the University of Massachusetts Lowell Institutional Review Board.

Data Management

For each claim, employee age, job tenure, total paid medical and indemnity costs, and length of first episode of disability were calculated. Injuries caused by RH (Y/N), back injuries (Y/N), and disability recurrence (Y/N) were also identified from the WCC database. The 'cause of injury' field of the WCC dataset was used to identify claims related to RH. Claims coded as 'patient handling-bed to stretcher, etc.,' 'patient handling-helping patient into/out of bed,' 'patient handling-into or out of bath,' 'patient handling-into/out of chair, toilet, etc.,' 'patient handling-moving patient in bed,' and 'patient handling-NOC' were categorized as RH-related. For all other claims, accident description text was reviewed to identify RH-related claims that were incorrectly coded in the dataset. To identify potentially misclassified claims, free text searches were conducted for the following terms: resident, patient, client, customer, pt, hoyer, hoier, hoya, hoy, lift, sit to stand, sit stand, device, slide board, slip sheet, gait, gate, ergo, trapeze, and hoist.

Back injury claims were identified by reviewing the 'part of body' field in the WCC dataset. Body parts included in the back injuries category were 'disc,' 'lower back area,' 'upper back area,' 'vertebrae,' 'sacrum and coccyx,' and 'lumbar and/or sacral vertebrae.'

Detailed WCC data, including payments for lost wages during injury-related work absences, were used to determine length of first episode of disability (based on the number of paid lost work days) and recurrence of lost time. The length of the first episode of disability for each case was calculated based on state-specific indemnity payment rules for retroactive and waiting times for claims payment. The first episode of disability included gaps in disability payments of up to 3 days. It has been determined that a 3-day gap in services is unlikely to represent a new injury or actual recurrent work disability [19, 20]. First episode of disability was followed for a minimum of 2 years. (Follow-up in the WCC database was equal to the length of time the claimant was employed or that their claim was still open.)

Disability episodes which overlapped two time periods were assigned to the time period when the injury first occurred. Since a workers' compensation insurance company initiative to close long-term claims quickly through settlements coincided with this timeframe of this study, subsets of injuries with less than 3 months, less than 6 months, and less than 1 year of disability were identified to examine trends in short-term disability, as these claims would not have been affected by these practices. The time frame of less than 6 months first episode of disability was chosen for analyses because once workers are out of work for more than 6 months, RTW becomes much less likely, especially in this workplace [21].

Multiple claims for the same person were examined to determine whether they should be aggregated as a single injury, categorized as recurrent disabling injuries, or identified as a totally new injury. Recurrent disabling injuries were identified as lost-time injuries after a non-lost-time gap of more than 3 days, occurring within a maximum of 2 years after the end

of the first claim. Following a claimant's first back injury, back recurrence was coded only for additional back injuries.

Data Analysis

Differences in demographic features for those with RH-related injuries as well as the differences in mean length of first episode of disability (total as well as for those with disability of 6 months or less) were examined using a generalized linear model (GLM) with a log link. The negative binomial distribution was used for modeling, because the Poisson distribution resulted in overdispersion of variance. Trends in recurrent disabling injuries were examined using Chi square analyses only. We did not run a GLM for these analyses, because they tend to be unreliable with small sample sizes [22].

A projection of "avoided" costs over 6 years due to reductions in recurrent RH-related disabling injuries and recurrent RH-related disabling back injuries was also conducted. To estimate "avoided" recurrent disabling injuries, we assumed that the number of lost-time RH-related disabling injuries would have been consistent over time without the SRHP. Table 1 details the process for estimating "avoided" costs due to reductions in recurrent RH-related disabling injuries. All data management and analyses were conducted using SAS 9.2 (SAS Institute Inc., Cary, NC, USA).

Results

Of the 3263 lost-time injury claims in the sample, 1308 were related to RH. About 90% of claimants were female, the mean age was around 42 years across all time periods, and mean tenure ranged from 3.7 to 5.4 years across the three time periods. Direct care clinical staff comprised 77% of lost-time claimants. The remaining 23% of claimants included administrative, rehabilitation, housekeeping/maintenance, laundry, dietary, and social work staff. Claimants with RH-related injuries were significantly younger than those with non-RH-related injuries (38.6 vs. 44.0 years; $p < 0.0001$), and also had significantly less job tenure than those filing other types of claims (3.3 vs. 5.1 years; $p < 0.0001$) in a GLM analysis (negative binomial distribution, link = log). Less than 2% of RH-related claimants were not direct care clinical staff.

The total number of incident RH-related lost-time injuries was reduced in the first post period compared to pre-SRHP, and further reduced in the second post period (Table 2). RH-related lost time back injuries (subset of RH-related lost-time injuries) were reduced in the first post period. This reduction was sustained in the second post period. Non-RH-related injuries did not follow the same reduction patterns.

Length of First Episode of Disability

Across the three time periods, there were decreases in mean length of first episode of disability for all categories of lost time claims (Table 3a). For all RH-related lost-time injuries and RH-related back injuries, results from GLM analyses indicated there were significant decreases in the mean length of the first episode of disability in the second post period compared to pre-SRHP (Table 3a). This trend was also evident in non-RH-related injuries.

Claimants with short-term disability of 6 months or less represented 86.1% of the sample. In this group, GLM analyses indicated significant reductions in length of first episode of disability over time only for non-RH related lost time back claims, though the confidence intervals around the means for these claims were wider than the other lost time categories (Table 3b).

Recurrent Disabling Injuries

The overall percentages of disabling injuries per time period that had a recurrence were significantly reduced only for RH-related lost time claims (Fig. 1a). Chi square tests indicated a significant difference between RH-related claimants and non-RH-related claimants for incidence of recurrent disabling injuries over three time periods ($p < 0.0001$) (Table 4). A similar difference was present in the subset of RH and non-RH-related recurrent disabling back injuries ($p < 0.01$). In fact, for non-RH related back claims, there was actually an overall increase in the percentage of lost time claims that had a subsequent recurrent disabling injury (Fig. 1b).

Projected “Avoided” WCC Costs

Mean paid indemnity and medical costs were about three times higher for claimants with RH-related lost time injuries and recurrent disabling injuries, compared to those with a single RH-related episode of work disability (Table 5). The same pattern was observed for RH-related back injuries. “Avoided” recurrent RH-related ($n = 135$) and RH-related disabling back injuries ($n = 44$) were tabulated based on the recurrent disabling injuries reported in Table 4.

In the 6 years following the SRHP implementation, we estimated nearly 30,000 “avoided” days of disability due to reductions in RH-related lost-time recurrences, about a third of which were due to “avoided” RH-related disabling back injury recurrences (Table 5).

An estimated more than $3.8 million dollars was saved in “avoided” paid loss due to reductions in RH-related recurrence following the SRHP, around $1.3 million of which was related to “avoided” RH-related back recurrence (Table 5). This results in an estimated “avoided” paid loss per year of $638,241.75 for RH-related recurrence, of which $222,390.15 was due to “avoided” back recurrence. On average, each center saved $4,692.95 per year due to “avoided” RH-related recurrence, of which $1,635.22 was due to “avoided” back recurrence.

Discussion

This study demonstrated that a specific ergonomic intervention could significantly reduce recurrence after work-related injury, although the impact on length of work disability was less clear. Across time periods, downward trends in length of first episode of disability were observed for all injuries regardless of length, but most shorter duration injuries, with disability of 6 months or less, showed no reductions in length. However, among RH-related injuries, there was a significant reduction in the number of recurrent disabling injuries that was not seen among other types of injuries. Mean paid loss (indemnity and medical costs) was about three times higher for claimants with recurrent disabling injuries compared to

those with a single injury. The reduction in recurrent disabling injuries led to a projected avoidance of direct costs of more than $3.8 million over 6 years; savings related to indirect costs may be far greater. This reduction was sustained following the end of the formal training component of the SRHP, suggesting that the impact of an ergonomic improvement on RTW can be self-sustainable.

Although there was no observed difference over time in quicker recovery for most acute injuries (first episode of disability) there was a difference in whether work disability happened again. Recurrent disabling injury could represent injury exacerbation or a new episode. LBP and other MSD conditions typically have a varying course [23]. The decrease in recurrent disabling injuries for RH (more so than non-RH) may indicate that the SRHP allowed people to stay at work even if a re-exacerbation occurred. A 2012 study advised reducing perceived exertion during healthcare work in order to enhance recovery from chronic LBP [24]. Reduction in work demands (in this study, through SRHPs) may have a critical role in enabling RTW earlier in the process of recovery from an acute LBP episode, preventing recurrent disabling injury, and enabling a worker with recurrent pain to continue employment [25, 26]. These results extend the findings of prior investigations, demonstrating that improvements in work demands, workplace flexibility and workplace safety are effective in secondary prevention of work disability [27].

Mean length of first episode of disability for acute non RH-related lost time back claims was significantly reduced over time. Reductions in this category of claims are unlikely to be related to the SRHP, but we do not have any information on other potential initiatives that may have affected this reduction. Also, the percentage of non-RH related claims with recurrent disabling injuries increased over time, so although first episode of disability was reduced, perhaps workers in jobs that did not have the benefit of ergonomic improvements returned to work before full recovery, facing unmodified work demands, resulting in vulnerability to re-injury or inability to do their job with their condition [28].

Recurrent disabling injuries usually incur the highest costs and a disproportionate share of disability days [6]. Our calculation of projected “avoided” costs related to recurrence accounts only for costs related to “avoided” indemnity and medical payments. In reality, the total “avoided” costs due to “avoided” recurrence would be much greater than just this direct cost when considering turnover, hiring (cost of replacing lost employees), insurance, and training costs.

Strengths and Limitations

The unusual size of this study (in terms of number of work-places from a single industry, with similar exposures and associated WCCs) enabled investigation of relatively uncommon but important outcomes such as delayed RTW and disability recurrence and its associated costs. Much more complete WCC data were available than in prior studies. Since all study sites belonged to one corporation, consistent workplace practices, similarity of other ergonomic, safety and claims management practices across time and across centers minimizes risk of confounding by factors that have limited the ability of other studies to generate firm conclusions [29].

Although many studies have evaluated the effects of safe handling interventions by examining pre- and post-intervention injury data [30–35] there is little evidence to support the sustainability of these programs. With the exception of Garg and Kapellusch [32], most minimal lift intervention studies evaluated results using a relatively short length of follow-up. The range of follow-up for Garg and Kapellusch [32] was 36–60 months, and included six long-term care facilities. Our study evaluated the long-term (6 years) efficacy of a SRHP in 136 centers, and demonstrated a sustained impact even following important changes in program management. Our previous analysis of this population's WCC rates also support sustainability of this nursing home corporation's SRHP [15].

Potential weaknesses include absence of detailed information on the role of the SRHP on RTW and prevention of recurrence in individual cases—this has to be inferred from the study results. It is possible that unmeasured co-interventions might have affected the rate of injuries, but besides increased efforts to close long-term claims there were no known significant interventions that would likely affect the outcomes of interest in this study. The number of employees and patient census was quite stable over the entire duration of the study in the 136 centers, so the risk of confounding by varying exposures seems unlikely.

This study lacked a control group for comparing changes in length of first episode of disability and recurrence over time. The nursing home corporation instituted the SRHP in all of its centers so none were available for comparison, and availability of comprehensive data from a similar size corporation was not feasible, excluding the possibility of an external control group. However, comparing the RH-related injuries to a group of all other types of injury claims that wouldn't have been affected by the SRHP demonstrates that the reductions in recurrent disabling injuries and resulting "avoided" costs we estimated were plausibly linked to the SRHP. A previous analysis of this population's WCC rates utilized a similar method, examining as internal controls, changes in categories of claims likely to be unaffected by the SRHP [15]. Results indicated that compared to pre-SRHP, rates for incidents such as 'needlesticks' and 'struck by/against object' remained stable over 6 years of follow-up.

When comparing recurrent disabling injuries to single injuries, there is no way to determine whether the single claimants just leave work after their first injury. Lack of a SRHP pre-intervention would have resulted in fewer safe RTW opportunities, thus more people deciding to leave employment if they had difficulties performing their job after their first episode of back pain-related work absence. The effect of this is that our estimate of recurrence is likely conservative, since the pool of single claimants would plausibly be larger and more people would be at risk for recurrence.

It is possible that if recurrences were randomly distributed, claimants with recurrence would have shorter lengths of first episode of disability. However, with adequate follow-up this is not necessarily true. In fact, in this population the mean first episode of disability was significantly longer for those with recurrent disabling injuries, compared to those with single injuries.

In a small number of cases (less than 2% of recurrent disabling injuries) a first injury occurred pre-SRHP and recurred in the early part of the first post-SRHP period. Recurrence was assigned to the pre-SRHP category, a conservative assumption, which also biases the results towards the null.

It is possible that SRHPs have an effect of changing lost time cases to non-lost time cases, and this would be difficult to detect from this data, due to claims management initiatives occurring in the same time period. The impact would be to bias results towards a negative finding, as the effect would tend to leave more severe cases in the lost time group (our study population) after program implementation. It is also possible that non-participating centers represent places where SRHP was less effective, but exclusion of centers from the study occurred based on geographic and organizational factors, that would not have a relationship to SRHP implementation effectiveness. Implementation was not instantaneous—so the first few months post-introduction may be a ‘gray zone’ of sorts. However, an examination of injuries made in the first 3 months post-SRHP indicate less than 2% of injuries fall into this time period.

While investigating the dataset for misclassified RH claims, it was noted that many other categories of claims were misclassified. For example, it was observed that instances of ‘resident/employee aggression’ were sometimes coded as ‘struck by/against other persons,’ ‘struck by/against other objects,’ ‘struck by/against-NOC.’ Aside from claims identified as RH-related (2.8–4.2% of claims per time period), no other claims were recoded, so there is likely some misclassification of all types of claims throughout the dataset in each time period [15]. It is unlikely that claims were miscoded differently across time periods, so we expect the misclassification is non-differential with respect to time.

Finally, there may be a problem with low numbers of cases, especially for recurrent disabling back injuries. We were limited in the ability to demonstrate significant difference in RH-related back recurrence compared to non-RH related back recurrence, due to lack of power.

Despite these potential limitations, the current material adds to other evidence for the health and cost-effectiveness of this SRHP [11, 15–18]. These results might not apply equally to acute care environments, as the variety of tasks and day-to-day differences in patient acuity is greater in acute hospitals, and there may be more staff available to help with transfers. Replication of the research findings and wider dissemination of the program itself would of course be desirable, in principle. While this particular program was carried out by a commercial third-party company, many of the elements have been or could be incorporated into professional guidelines and public policy.

Conclusions

This study provided new data on the effectiveness of an ergonomic intervention in preventing recurrent disabling injury, and reducing the associated medical care and costs. Given the high costs of recurrence for employers, and significant impact on workers, this provides further reasons to consider ergonomic job modifications as not only a primary, but

also secondary prevention strategy for disability recurrence. Lower indemnity costs mean that workers spend less time away from work and lower medical costs indicate fewer services sought by employees and potentially less severe injuries. In the end, as healthcare employers invest in SRHPs, they are, in turn, investing in their employees' health, safety, and gainful employment, along with the employers' own retention of a stable and well-trained workforce.

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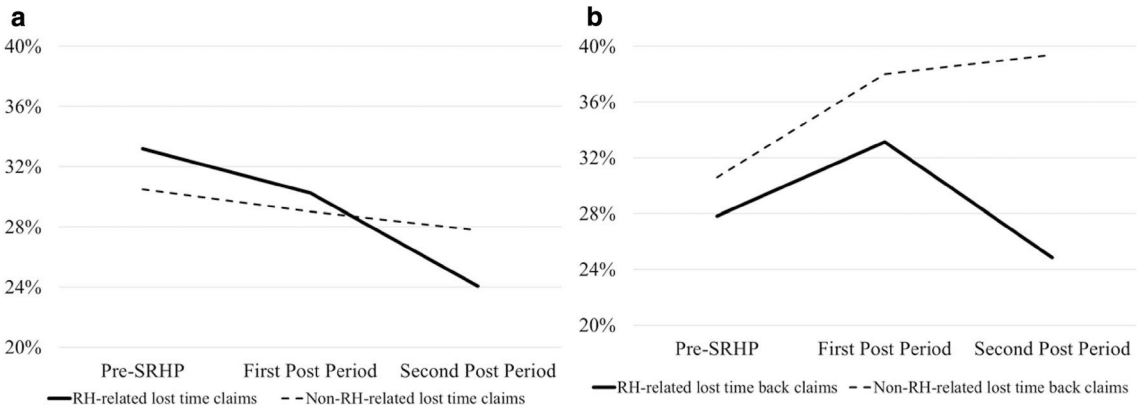

Fig. 1.

Percentage of incident recurrent disabling injuries over three time periods, for claimants with first episode of disability of 6 months or less; **a** RH versus non-RH-related lost time claims; **b** RH versus non-RH-related lost time back claims

Table 1

Variables used to estimate “avoided” costs over 6 years due to reductions in recurrent RH-related injuries

Mean total lost days for recurrent disabling injuries	Mean lost days for claimants with at least one RH-related recurrent disabling injury in any time period
Mean paid loss	Mean paid medical and indemnity costs abstracted from WCC database for recurrent and single RH-related disabling injuries experienced in any time period
“Avoided” recurrent disabling injuries	(pre-SRHP recurrent RH-related disabling (back) injuries × 3) − (first post period’s recurrent RH-related disabling (back) injuries + second post period’s recurrent RH-related disabling (back) injuries)
“Avoided” days of indemnity	“Avoided” recurrent disabling injuries × mean total lost days for recurrent disabling injuries
“Avoided” paid loss	“Avoided” recurrent disabling injuries × (mean paid loss for recurrent RH-related disabling (back) injuries − mean paid loss for single RH-related disabling (back) injuries)

Table 2

Number of injuries per time period (all lost time claims, n = 3263)

	Pre-SRHP	First post period	Second post period
RH-related lost time claims	559	386	363
Non-RH-related lost time claims	622	655	678
RH-related lost time back claims	286	185	185
Non-RH-related lost time back claims	104	115	123

Table 3

Length of first episode of disability (days) for lost-time injuries

	Pre-SRHP		First post period		Second post period	
	Mean	**CI**	**Mean**	**CI**	**Mean**	**CI**
(a) All lost-time injuries (n = 3263)						
RH-related lost time claims *	146.2	115.9–176.4	123.2	93.0–153.3	85.9	67.1–104.7
Non-RH-related lost time claims **	134.2	110.9–157.6	124.8	103.0–146.7	102.5	86.2–118.9
RH-related lost time back claims ***	138.8	92.9–184.7	123.7	77.5–169.9	83.6	57.4–109.7
Non-RH-related lost time back claims	178.7	107.9–249.4	149.9	84.5–215.2	126.8	81.3–172.2
(b) Lost-time injuries with disability of 6 months or less (n = 2811)						
RH-related lost time claims	29.2	26.1–32.2	29.6	26.0–33.2	32.7	28.7–36.6
Non-RH-related lost time claims	35.1	31.7–38.4	32.7	29.8–35.6	33.9	30.9–36.9
RH-related lost time back claims	28.6	24.1–33.0	28.7	23.3–34.0	30.5	25.3–35.7
Non-RH-related lost time back claims ****	38.3	28.5–48.1	35.2	27.2–43.3	25.8	20.2–31.4

GLM: negative binomial distribution, link = log

* $p < 0.0001$ (second post period vs. pre-SRHP)

** $p < 0.001$ (second post period vs. pre-SRHP)

*** $p < 0.0004$ (second post period vs. pre-SRHP)

**** $p < 0.0067$ (second post period vs. pre-SRHP)

Table 4

Incident recurrent disabling injuries for claimants with first episode of disability of 6 months or less (n = 824)

	Pre-SRHP			First post period			Second post period			
	Recurrent disabling injuries	**Total claims**	**%**	**Recurrent disabling injuries**	**Total claims**	**%**	**Recurrent disabling injuries**	**Total claims**	**%**	
RH-related lost time claims	157	473	33	101	334	30	78	324	24	p< 0.0001
Non-RH-related lost time claims	161	528	30	163	562	29	164	590	28	
RH-related lost time back claims	69	248	28	53	160	33	41	165	25	p<0.01
Non-RH-related lost time back claims	26	85	31	38	100	38	39	99	39	

Table 5

Estimated avoided recurrent disabling injuries, days of indemnity, and paid loss over 6 years

	Mean lost days for recurrent disabling injuries	Mean paid loss	Over 6 years		
			"Avoided" recurrent disabling injuries	"Avoided" days of indemnity	"Avoided" paid loss
Claimants with recurrent RH-related disabling injuries (n = 336)	216.1	$44,258	135	29,177.6	$3,829,451
Claimants with single RH-related injury (n = 720)		$15,892			
Claimants with recurrent RH-related disabling back injuries (n = 163)	234.1	$48,496	44	10,301.7	$1,334,341
Claimants with single RH-related back injury (n = 410)		$18,170			