

Injury Rates and Costs for Direct and Non-direct Care Employees in Four Public Sector Healthcare Facilities

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Running Head Title: Injury Rates and Costs for Healthcare Employees

Abstract

Objective

This study examines injuries among clinical personnel and understudied staff roles (i.e., dietary, cleaning, security).

Methods

Workers' compensation claims from 2017-2019 were analyzed for two state Department of Mental Health Services (DMHS) and two Veteran Care (VC) facilities, including workforce size and demographics, injury/illness claims, and costs. Incident rates and costs were compared by job category and facility type.

Results

At DMHS, the highest claim rates were from mental health workers (71/100 full-time equivalents (FTEs)), with assaults, surface wounds, and person-related injuries most common. At VCs, nursing aides had the highest rates (45/100 FTEs), primarily due to patient handling injuries, musculoskeletal disorders, and bodily motion. Some non-direct care workers (e.g., dietary) had similar rates to nurses.

Conclusions

These findings suggest that targeted prevention interventions should address injury risks and include non-clinical workers.

Keywords (5-7): Healthcare workers; Work-related injuries; Public Sector; Workers'

Compensation; Non-clinical staff safety

Learning Outcomes

By the end of this article, the readers will be able to:

- Identify and compare the common events, natures and sources of work-related injuries among clinical and non-clinical healthcare workers in mental health and veteran care facilities.
- Differentiate injury rates and workers compensation costs across job categories and identify highest-cost injuries.
- Discuss prevention strategies for direct care staff as well as non-direct care staff to reduce work-place injuries and related costs.

1. Introduction

Health care and social assistance is one of the fastest-growing sectors in the U.S. economy [1]. From 2022 to 2032, healthcare employment is expected to grow 15 percent, higher than the average of all other occupations [2]. This sector includes direct care jobs such as registered nurses (RNs), licensed practical nurses (LPNs), physiotherapists, and nursing aides or assistants. Non-direct care jobs include dietary, laundry, housekeeping/maintenance, parking, and security personnel.

Healthcare workers face many hazards on the job including exposure to sharps, exposure to hazardous chemicals, bloodborne pathogens, slips/trips/falls, patient handling events, allergies to substances such as latex gloves, workplace violence, terrorism, equipment hazards, and stress [3]. They experience a higher incidence of work-related injury and illness than those in construction and manufacturing, which are traditionally recognized as dangerous occupations [4]. Injuries are commonly related to physical interaction with patients, such as lifting and moving [5,6]. More than half of healthcare workers' "days away from work" (DAFW) injuries are classified as sprains or strains by nature. Nearly half of all DAFW are overexertion events, and one-third result from interactions with patients as the source of injury [7].

Occupational injuries can vary by job role and healthcare setting. Some patient populations pose unique injury risks to direct care workers, such as bariatric patients, patients with disabilities, and patients with acute psychiatric conditions. A 2021 study reported on the impact that direct care employees' roles (nurses and nursing assistants) and occupational settings (long term care and hospitals) had on workers' compensation claims (WCCs). A higher percentage of overexertion injuries were experienced by nurses in long-term care facilities compared to those in hospitals. In

both settings, nursing assistants were more likely to experience overexertion than nurses, who had more fall injuries [8].

A direct care occupation specific to mental health facilities settings is the mental health worker (MHW) or psychiatric aide. According to the U.S. Department of Justice, in 2005 to 2009, MHWs had the second-highest risk of violence at work, after law enforcement officers [9]. In mental health facilities, seventy percent of team members are physically assaulted each year, and for psychiatric aides, the figure is 69 times the nationwide figure of assault at the workplace [10].

Few studies have reported injury and illness statistics for non-direct care employees; those that do have mainly focused on a single injury type or a single facility setting. For example, a slips, trips, and falls (STF) study of hospital employees reported the highest WCC rates in food services and kitchen workers as well as elevated rates for emergency medical care, parking, transport, and housekeeping workers [11]. Another study noted that cleaning personnel in a Texas hospital had higher rates of STF incidents than all other employees combined [12]. Furthermore, a national survey of Veterans Affairs medical centers and freestanding clinics found the highest rate of assaults were among security personnel (73.7/1,000) [13].

While injuries to healthcare workers in the private sector occur frequently, they are even more prevalent among their public sector counterparts [14]. Sectoral differences between public and private healthcare facilities may play a part in differences in injury and illness rates. For example, the public sector workforce is more likely to be diverse and unionized, and organizations' structures and policies tend to be more bureaucratic than the private sector. In 2015, the BLS reported higher incidence rates for nonfatal occupational injury and illness with DAFW for nursing assistants in the public sector compared to the private sector [15]. Additionally, psychiatric aides'

illness and injury rates were 1,327.2 cases per 10,000 full-time equivalents (FTEs) in state government - more than three times higher than the rates in the private sector [10].

Healthcare worker injuries account for a substantial financial burden. According to the Aon barometer survey of WCCs, 2,500 hospital workers' injury claims over a ten-year period (2008-2017) cost over \$203 million. Among types of events, patient or resident handling claims have the highest average value - a loss of \$14,100 per claim. [16]. Moreover, no study, to our knowledge, has specifically looked into cost-burden patterns among non-direct care staff in healthcare such as housekeeping staff, office administration, maintenance facilities, dietary staff, and lab technicians within public-sector mental health and veteran care facilities.

The aims of this study were to identify high-cost, high-risk occupational groups by public sector healthcare setting and to improve understanding of the impact of work-related injuries and illnesses on non-direct care personnel. This study contributes new insights by integrating injury rates with workers' compensation costs, including those for non-direct care workers, whose burdens are often overlooked in prevention planning.

2. Materials and Methods

2.1. Study population

As part of a larger intervention study, six public sector healthcare facilities were recruited to receive coaching in a participatory program for joint labor-management health and safety committees. Facilities were enrolled in pairs, by services provided so intervention effectiveness could be compared across immediate and delayed intervention sites by service provided [17]. Of six sites that agreed to participate in the intervention study, four were recruited through the Massachusetts Executive Office of Health and Human Services (EOHHS) and administrative data were provided. We investigated WCCs filed by employees at these four facilities prior to

intervention implementation.; Two were residential Veteran Care facilities and two were behavioral and mental health facilities. The facilities differed by services provided (Table 1). Of the two residential Veteran Care facilities, one housed a large proportion of assisted living residential beds, and some long-term care (Site 1). The other Veteran Care facility (Site 2) primarily provided long-term care services, resulting in higher patient handling demands due to the population's higher need for assistance with activities of daily living. The primary function of the behavioral and mental health facilities (Sites 3 and 4) was inpatient residential services to ambulatory patients (Table 1). Most employees at all four facilities were members of a union bargaining unit. This study was approved by the Institutional Review Board of the University of Massachusetts Lowell (IRB Protocol # 21-140-KUR-XPD).

< **Table 1 about here**>

De-identified workforce data, injury and illness claims, and claim costs from 2015 to 2017, inclusive, were provided by the Massachusetts EOHHS. The workforce datasets included birthdate, hire date, sex, job title, and percent FTE for each employee. Injury/illness datasets included the variables “injury event category,” “source of injury,” “nature of injury,” and “body part affected” (missing 2016 data), along with various demographic and facility-related variables. Cost datasets included variables for payments for medical services, lost workdays (lost time), lump-sum settlements and rehabilitation/investment. Datasets were all linked by the variable “Employee ID” to produce a complete record for each incident.

2.2.Data Management

In the injury/illness datasets, categories for the variables “job title,” “nature of injury,” “source of injury,” and “body part affected” were condensed for analysis. Patient handling was not a standard reporting category for the “injury event category” variable in the injury/illness datasets,

so free text from the variables, "how the injury occurred," and "what employee doing" (missing in 2016 dataset) were reviewed to identify and code patient handling injuries. The data from one of the sites had different variable labels; these variables were recoded to use labels and response categories that matched the other sites.

2.3.Data Analysis

Descriptive statistics were calculated by gender, age, and job title. Total number of claims by shift, event, nature, and source were calculated, along with body part affected (for 2015 and 2017). Injury and illness rates were calculated per 100 FTEs for the pooled three-year period, using workforce (FTE) data to estimate denominators. Rates of injury and illness claims were calculated overall, by job type and by site. Since the "body part affected" variable was not provided for incidents in the year 2016, frequencies of affected body parts were compared for 2015 and 2017. The frequencies of injured body parts differed in these years, so percentages, rather than rates, were calculated for this variable.

For analysis of workers' compensation costs, claims with no payments were removed from the datasets. Total payments, total paid claims filed, average total per paid claim, and proportion of total payments were calculated over three years for each of the four sites. Injury/illness and cost datasets were merged to compare, by site, the average costs for injuries and illnesses by injury events, nature of injury, source of injury, and job title. All data analyses were conducted using SAS software version 9.4.

3. Results

The Veteran Care facilities (Sites 1 and 2) had similar workforce sizes, both decreasing 12-13% over the 3-year period (Table 2). One of the behavioral and mental health facilities (Site 3) had approximately twice the workforce of the Veteran Care facilities, while the other (Site 4) was

about half the workforce. The most injuries occurred at Site 3, which had the largest workforce among the facilities (Table 2).

< **Table 2 about here** >

The mean age of the combined population was about 49 years. At Sites 2 and 3, injury and illness claimants were about 4 years younger than the total workforce (Table 3). Overall, about 60% of the population was female, although this proportion was a bit lower for the mental care facilities. In each site, proportions of women and men injured were similar to their representation in the facility's workforce. For all sites combined, about 57% of the population worked first shift, 31% worked second shift and 12% worked third shift.

Overall, facilities/housekeeping workers, nursing aides, and RNs were large segments of the workforce and of the injury/illness claims. At Sites 3 and 4, Mental Health Workers (MHWs) represented the largest portion of the workforce and a disproportionately large fraction of injuries (Table 3). In the total population, a disproportionate number of injuries affected the lowest wage direct care workers, i.e., MHWs and nursing aides.

< **Table 3 about here** >

3.1. Claim Incident Characteristics of Sites

Assaults were the most common injuries, and person was the most common injury source (Table 4), primarily driven by the rates at Sites 3 and 4. Surface wounds and bruises were the most frequent nature of injury at these sites. Injuries to the head and multiple parts together accounted for over one-half of all incidents (Table 4). Rates of patient handling claims were highest at sites 1 and 2, where MSDs were the most frequent nature of injury. At Site 2, low back claims were most prevalent (Table 4) and at Site 1, where patient handling claim rates were second to assault rates, lower extremity and hand/wrist claims predominated.

< Table 4 about here >

Low-wage direct care jobs had the highest risk of all incidents combined. The highest rates of injury were to Mental Health Workers (MHWs), who were only employed at Sites 3 and 4 (Figure 1). At the Veteran Care facilities (Sites 1 and 2), nursing aides had the highest rates. Overall, dietary staff had similar claim rates to Registered Nurses (RNs) and Licensed Practical Nurses (LPNs).

< Figure 1 about here >

3.2. Claim Incident Characteristics by Job Title

Rates of assault, followed by patient handling, were highest among direct care workers (Table 5). Although assaults were also common at the Veteran Care facilities (sites 1 and 2), the high rates were mostly driven by the injuries at the mental care facilities (sites 3 and 4). Among housekeepers, lifting/moving/walking and equipment related injuries were most common. The highest rates among dietary workers were for burns and falls.

< Table 5 about here >

MHWs had the highest rates of surface wounds and bruises followed by RNs (Figure 2). Rates of MSDs were highest among aides, followed by LPNs and MHWs. Among non-direct care workers, rates of both MSDs and surface wounds bruises were similar (Figure 2).

< Figure 2 about here >

3.3. Injury and Illness Costs

Total payments were highest at Site 3, which had the most injuries (especially assaults). The mean paid cost per claim was highest at Site 4 (Table 6). The proportions of total payments for lost time (wages), medical care expenses and lump sum payments varied by site. Site 3 had the highest proportion of total payments towards lost time (wages), whereas Site 2 had the highest

proportions allocated to both medical care and lump sum payments/rehabilitation investments. It is possible that some assault injuries may not require extended medical care in the same way back injuries do, for example.

Average injury and illness costs were highest due to falls; payments at Site 4 were the main contributor (Table 7). Assaults were the second highest average cost per claim. For sources of injury, the greatest mean costs were for claims related to bodily motion, also driven by Site 4. Traumatic injuries were the most expensive nature of injury, driven by payments at Site 2. There were very few of these claims, but they were expensive. The costliest body parts injured, on average, were upper extremities and the back. These costs were also most prominent at Site 4. Average costs for injuries to LPNs and RNs were highest. Since most costs at all sites resulted from lost time compensation (Table 6), injuries to higher-wage workers will naturally be more expensive on average.

The costliest injuries at Site 1 were assaults, the source was bodily motion, the injury nature was surface wounds and bruises, the body part was upper extremity and those injured were LPNs (Table 7). At Site 2, the costliest injuries were falls, the source was machinery/tools, the injury nature was traumatic injuries, the body part was multiple, and those injured were RNs. The costliest injury profile at Site 3 was fall injuries, the source was structures/surfaces, the injury nature was traumatic injuries, the injured body part was multiple parts, and those injured were RNs. Finally, at Site 4, the costliest injuries were falls, the source was bodily motion, the injury nature was MSDs, the body parts were upper extremity and back, and those injured were RNs.

< Table 6 about here >

< Table 7 about here >

4. Discussion

This study is among the few to describe injury and illness rates and their associated costs for non-direct healthcare workers in addition to direct care. Some similar injury and illness rates were observed in the two job categories. At most sites, dietary staff suffered more burns and cuts than other workers. Lifting/moving/walking and falls were the most common injury events for non-direct care workers, especially housekeeping/facilities staff. Among direct care workers, patient handling was more common in the Veteran Care facilities, particularly amongst nursing aides, while assaults were most common at the mental care facilities, especially for MHWs. High rates of patient handling and assault injuries were consistent with other studies of injuries to the direct care workforce [18].

Generally, the rates of MSDs among direct care staff are likely due to the heavy physical nature of patient care work, especially patient transfers and risk of back injury [14,19,20]. In our study, we found many back injuries in the Veteran Care facility with high rates of patient handling injuries

Surface wounds and bruises were common at the mental care facilities, particularly for MHWs, dietary, and housekeeping staff. This suggests that workplace violence is a primary driver of injury risk in mental health settings, for both direct and non-direct care workers. In these facilities, non-direct care workers may be mandated to work as MHWs on occasion due to staffing challenges. Additionally, these staff may be pulled in to help during emergency situations or simply be in the wrong place at the wrong time. These situations may result in some assault injuries. These findings underscore that occupational risk is shaped not only by job title but also by workplace dynamics, staffing levels, and safety culture.

Difference in injury patterns across facilities may also reflect variations in patient populations and care environments. For example, assaults were also the most common injury at one of the Veteran Care facilities, but it is possible that the patient population may have impacted injury locations. Patients at the mental care facilities are likely younger and more mobile than patients at Veteran Care facilities, so the lower extremity and hand/wrist may have been more accessible during assault injuries at the Veteran Care facility. These patterns suggest that injury mechanisms are closely linked to the functional demand and patient characteristics within each care setting.

The cost data showed that lost time compensation at all sites was higher than medical, lump sum and rehabilitation costs combined. Injury frequency and cost did not always align across job groups. While some occupations experienced higher rates, others generated disproportionately higher costs, potentially due to greater injury severity, longer recovery periods, or higher wage replacement costs. This is particularly true at the mental care facilities, likely due to assault injuries being compensated at a higher rate than other injuries. Additionally, average cost per claim for RNs and LPNs is higher, driven by their higher salaries compared to other occupations. Therefore, these findings suggest that cost patterns should be interpreted not solely as indicators of injury severity, but as measures of financial burden on the workers' compensation system and employers. Even after accounting for wage differences conceptually, non-direct care occupations still generated substantial average costs. The average cost per claim for first responders, facilities/housekeeping, and dietary workers were all similar to average costs for MHW's injuries, evidence that injury prevention interventions would be beneficial for job groups beyond direct care.

In this study, certain injury types, such as falls, occurred less frequently but resulted in disproportionately higher costs, indicating greater severity and/or longer recovery periods. Injuries related to bodily motion as well as the upper extremities and back were also associated with high costs. Cost data can identify high impact injury types that may warrant prioritization in prevention efforts, even if their frequency is lower, to reduce economic burden.

From an occupational medicine perspective, these findings highlight the need for facility-specific and job-specific injury prevention strategies. In mental health facilities, interventions should prioritize workplace violence prevention, including staff training in de-escalation techniques, environmental modifications, and adequate staffing models. In contrast, Veteran Care facilities may benefit more from enhanced patient handling programs, and ergonomics interventions to reduce musculoskeletal injuries. Additionally, the findings of substantial injury burden among non-direct workers underscores the importance of extending occupational health prevention programs beyond clinical staff to include dietary, housekeeping and laundry workers. Additionally, routine use of FTE-adjusted injury rates provide a more accurate framework for comparing occupation risk across facilities and should be incorporated into occupational health surveillance systems to support evidence-based decision-making.

Strengths and Limitations

This study reported multiple years of claims data from a large sample of workers to illustrate rates and costs of work-related incidents. Many studies have reported comparable data and intervention recommendations for healthcare workers providing direct services [19-21], but very few have included non-direct care workers in the same healthcare facilities [12], as we did. Another strength of this study is the use of injury-related variables (source, nature and event) to provide direction on developing targeted interventions.

One limitation of the study is the potential for underreporting of occupational injuries [22-25]. This phenomenon is common across all industries and not specific to healthcare. There are many reasons for underreporting of injuries and especially for not filing compensation claims, including lack of time during the work shift, concern about reprisals, and a “part of the job” mentality regarding less severe injuries. On the other hand, union membership and its effect on job security might have improved completeness of reporting in these facilities. While underreporting would likely reduce the observed injury rates and costs, it may not be uniform across job groups or facilities and may be influenced by factors such as workplace culture, perceived injury severity, reporting practices, and organizational policies. Additionally, findings should be interpreted cautiously since reliance on workers' compensation claims data may capture more severe injuries, as less severe injuries are less likely to be reported or result in claims.

It is also possible that misclassification of claim types occurred, based on variations in training among the individual's inputting injury and illness claims into the WCC system. A prior study reviewed free text fields to help properly classify resident handling-related claims of nursing home workers and found additional claims that would otherwise have been overlooked or misclassified [22]. In our study, all patient handling claims were identified through open text fields, but the full set of free text entries was not reviewed for coding. If there was any misclassification of claim source, nature and/or event, we assume that it was equally likely to occur among sites and job groups.

While the results may be generalizable to other public sector healthcare facilities of similar types (mental care facilities and Veteran Care facilities), they may not be generalizable to private sector settings due to differences in organizational structure and work practices. Although generalizability is limited, analyzing injury and cost patterns within public-sector facility types

provides valuable operational insight. Such findings enable comparable institutions to benchmark their own injury burdens, even when absolute rates may vary across regions. In addition, this study included a limited number of facilities, which may affect the broader applicability of findings. Also, the study used de-identified workforce data from 2015–2017, which represents a limited time frame and may not fully capture long-term trends or changes over time.

Finally, some data elements were incomplete, including missing information on affected body part for 2016, which limited certain analysis to report counts rather than rates. While these limitations may affect the precision of specific findings, the overall patterns observed meaningful insights into injury risk and cost distribution across job groups within similar healthcare settings.

5. Conclusion

For direct care workers, assaults and patient handling injuries were the most common injuries in this population. There are many resources available that address these topics. For example, there are various methods for de-escalation training, a common component of workplace violence prevention programs at many healthcare sites. The Occupational Safety and Health Administration (OSHA) has produced a roadmap [26] focused on workplace violence prevention which addresses management commitment, employee participation, worksite hazard identification, examples of hazard prevention and control, safety and health training, and recordkeeping. The position statement on workplace violence of the American Nurses Association provides recommendations for primary, secondary, and tertiary prevention [27]. To address patient handling injuries among nurses and nursing aides, numerous training and intervention plans have been described and evaluated [18,21]. The Massachusetts Hospital Ergonomics Task Force published a report highlighting the essential components of safe patient handling (SPH) programs as guidance for healthcare facilities. Components include SPH

policies, SPH committees, injury surveillance, mobility assessments, training, providing equipment, worker participation, and continuous quality improvement [28].

Our findings show the importance of evaluating data for work-related injuries and cost separately for direct and non-direct care workers. Very few studies have examined injury and illness rates of non-direct care workers such as housekeeping/facilities and dietary staff. We identified high rates of acute events such as falls, burns, cuts, and contusions. Targeted interventions should address slips, trips and falls for staff in facilities/housekeeping departments, especially considering that falls were the costliest injuries on average. Interventions to prevent cuts and burns should also be prioritized for dietary workers. OSHA has published e-Tools for hospital food service employees, laundry workers, and housekeepers which should be used as starting points for interventions to prevent these incidents [29]. Occupational health professionals should adopt targeted, data-driven strategies that address both higher-frequency and higher-cost injuries, ensuring that prevention efforts are aligned with specific risks in different types of worker groups. Such approaches are essential to improving workforce safety, reducing economic burden, and enhancing the overall effectiveness of occupational health programs.

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Figure Legends

Figure 1: Rates of Injury and Illness by Job Group: Direct and Non-Direct Care Workers

Figure 2: Rates of Musculoskeletal Disorders (MSDs) and Surface Wounds and Bruises, by Job

Title

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Table 1: Four Public Sector Healthcare Facilities: Patient Population and Facility Characteristics

	Site 1	Site 2	Site 3	Site 4
Patient population	Veteran Care facility	Veteran Care facility	Behavioral and mental health facility	Behavioral and mental health facility
Hospital beds	--	--	320 beds (including 50 forensic beds and 60 adolescent beds)	45 beds (includes units for geri-psych and level 3 sex offenders)
Long-Term Care beds	150 beds (including Alzheimer's unit)	269 beds (includes units for hospice & enhanced care)	--	--
Residential/Assisted Living beds	305 beds	30 beds	--	--
Outpatient Services	Multiple services	Multiple services, including dental and pharmacy	Includes child, youth, and family services	--
Compensated Work Opportunities as Therapy	Yes	Yes	--	Yes

Table 2: Full-Time Equivalent Workforce Size and Number of Injury/Illness Claims for Participating Sites: Four Public Sector Healthcare Facilities

	2015	2016	2017	3-Year Total
Site 1 (Veteran Care)				
FTEs	362.2	323.2	315.0	1,000.4
Total Claims	102	123	72	297
Claim Rate	28.1	38.0	22.8	29.7
Site 2 (Veteran Care)				
FTEs	329.1	320.5	290.3	939.8
Total Claims	91	84	75	250
Claim Rate	27.6	26.2	25.8	26.6
Site 3 (Mental health)				
FTEs	756.4	742.6	765.9	2,264.8
Total Claims	380	267	244	891
Claim Rate	50.2	35.9	31.8	39.3
Site 4 (Mental health)				
FTEs	189.4	185.2	196.6	571.2
Total Claims	43	63	67	173
Claim Rate	34.3	55.6	54.4	30.2

Table 3: Public Sector Healthcare Facilities (2015–2017): Workforce Demographics and Employees with Workers’ Compensation Claims

Demographic Information	Overall		Site 1		Site 2		Site 3		Site 4	
	Workforce	Injury Claimants	Workforce	Injury Claimants	Workforce	Injury Claimants	Workforce	Injury Claimants	Workforce	Injury Claimants
Mean Age (S.D.)	49.6(11.8)	44.6(12.4)	50.5(11.3)	49.0(11.7)	48.4(12.3)	44.7(12.9)	46.8(12)	41.8(12.1)	52.2(10)	50.1(9.7)
Sex (%)										
Male	39.2%	42.7%	36.0%	36.0%	22.7%	23.6%	47.7%	48.2%	42.3%	43.3%
Female	60.8%	57.3%	64.0%	64.0%	77.3%	76.4%	52.3%	51.8%	57.6%	56.6%
Occupation (%)										
MHW	18.6%	41.6%	--	--	--	--	35.7%	65.9%	22.4%	49.1%
Nursing Aide	13.9%	18.1%	28.4%	41.4%	39.7%	67.2%	--	--	--	--
RN	14.6%	16.0%	10.9%	10.4%	10.4%	8.0%	18.3%	20.2%	17.4%	15.7%
Facilities/ Housekeeping	20.0%	10.5%	28.9%	24.3%	14.6%	4.8%	17.6%	7.1%	24.9%	10.5%

LPN	7.1%	5.9%	11.6%	10.8 %	17.3%	14.4 %	1.5%	0.4%	4.3%	11.1 %
*Others	22.8%	4.7%	15.8%	8.7%	14.4%	3.2%	24.5%	3.9%	27.3%	7.0%
Dietary	3.1%	3.1%	4.4%	4.4%	3.6%	2.4%	2.4%	2.4%	3.6%	5.8%

*Others: Orderlies, lab technicians, First Responder, office admin, Rehab, social work, medical doctors/staff

Table 4: Workers' Compensation Claims: Injury Events, Sources, Natures, Body Parts

	Overall	Site 1	Site 2	Site 3	Site 4
Workers' Compensation Claim Rates per 100 FTEs (2015-2017)					
Injury Events					
Assault/Restraint	21	9	7	31	20
Patient Handling	4	5	10	1	2
Falls	3	5	3	2	3
Lifting/Moving/Walking	2	3	3	1	2
*Other	2	1	2	2	3
Exposure to Harmful Substance	1	2	1	1	1
Equipment	1	2	1	1	1
Injury Source					
Person	21	9	8	32	20
Bodily Motion	3	4	10	0	2
Structures and Surfaces	3	4	2	3	3
Machinery, Tools, Instruments	2	3	3	1	1
Equipment, Containers, Furniture, Fixtures	1	3	1	2	2
**Other	2	2	1	1	4
Injury Nature					
Surface Wounds and Bruises	16	11	6	23	12
Musculoskeletal Disorders (MSDs)	11	12	15	8	12
Exposure to Bodily Fluids/communicable disease	2	2	1	2	2
***Others	0.2	0.2	0.1	0.1	0.5
Burns and Corrosion	1	1	0.4	1	1.2
Proportions of Workers' Compensation Claims by Body Part Affected (2015, 2017)					

Head	22.2%	13.1%	7.8%	28.6%	26.2%
Multiple parts	21.5%	17.8%	15.1%	24.3%	28.6%
Lower extremities	15.5%	20.8%	13.8%	14.4%	10.1%
Hand/Wrist	12.8%	19.1%	13.9%	10.8%	10.1%
Upper extremities	11.3%	12.5%	16.9%	9.5%	10.7%
Back	9.9%	11.3%	24.7%	5.6%	8.9%
Trunk/Organs	4.5%	4.8%	4.8%	4.3%	0.6%
Neck	1.4%	0.6%	1.8%	1.6%	1.8%
Other	0.8%	0.0%	1.2%	0.9%	2.4%

*Others: (Burn/Cut, Stress/Heart Attack, Repetitive use)

**Others: (Chemical, Environment, Parts and Materials)

***Others: (Fractures, traumatic injuries, mental disorders, Poisonous, Toxic, Allergic effects, Pain-NOC)

Table 5: Workers' Compensation Claim Rates (2015–2017): Type of Incident by Job

title

Injury Event Rates per 100 FTEs					
	Overall	Site 1	Site 2	Site 3	Site 4
Injury Events					
MHW					
Assault	63	-	-	64	54
Aide					
Assault	17	23	12	-	-
Patient Handling	15	12	18	-	-
LPN					
Assault	13	14	6	9	60
Patient Handling	5	9	4	0	4
RN					
Assault	25	10	2	37	18
Patient Handling	3	5	7	1	3
Housekeeping/Facilities					
Lift/Move/Walk	2	2	5	0	3
Equipment	2	3	1	1	3
Dietary					
Fall	6	16	3	4	0
Burn/cut	9	9	13	11	0

Table 6: Workers' Compensation Claim Costs (2015 – 2017): Four Public Sector**Healthcare Facilities**

	Overall	Site 1	Site 2	Site 3	Site 4
Total FTEs	4776.14	1000.37	939.79	2264.78	571.2
Total paid claims	1061	143	147	615	156
Total payments	\$8,024,801.49	\$1,429,472.37	\$815,465.99	\$4,093,384.61	\$1,686,478.52
Mean cost per paid claim	\$7,563.43	\$9,996.31	\$5,547.39	\$6,655.91	\$10,810.76
Mean cost per FTE	\$1,680.19	\$1,428.94	\$867.71	\$1,807.41	\$2,952.52
Proportions of total payments					
Lost time compensation	70%	65%	64%	72%	72%
Medical treatment	22%	21%	29%	22%	18%
Lump sum/rehab investment	8%	14%	7%	6%	10%

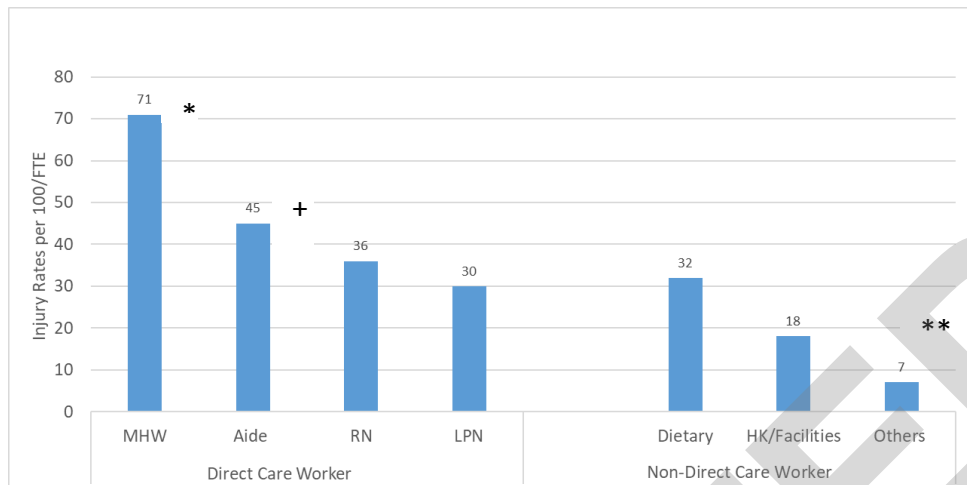
Table 7: Workers' Compensation Claims (2015-2017): Mean costs per Incident by Selected Event Type, Nature, Source, Body Part, and Job Title

	Overall	Site 1	Site 2	Site 3	Site 4
Mean cost per Injury event					
Fall	\$7,017.07	\$5,869.91	\$10,589.51	\$2,236.81	\$35,611.74
Assault	\$6,922.89	\$7,554.35	\$1,471.38	\$1,440.89	\$7,055.25
Patient Handling	\$2,598.70	\$5,623.36	\$2,013.83	\$622.53	\$15,563.29
Mean cost per source of Injury					
Bodily Motion	\$22,899.13	\$8,102.34	\$2,140.23	\$1,037.84	\$26,715.65
Persons	\$4,340.89	\$7,210.10	\$1,624.96	\$1,405.58	\$7,723.03
Machinery, tools etc.	\$2,464.45	\$977.07	\$11,813.40	\$225.28	\$503.72
Mean cost per nature of injury					
Traumatic injuries	\$7,303.49		\$29,471.00	\$3,183.44	\$2,600.67
MSDs	\$3,458.47	\$5,808.92	\$1,998.60	\$1,870.33	\$11,544.74
Surface wounds and bruises	\$1,430.27	\$7,018.19	\$1,673.63	\$1,221.30	\$2,576.19
Mean cost per body part					
Upper Extremities	\$12,294.51	\$9,118.88	\$1,278.60	\$423.22	\$38,357.34
Back	\$5,140.68	\$4,927.60	\$1,702.24	\$406.20	\$28,939.62
Multiple parts	\$2,555.62	\$1,891.53	\$10,126.52	\$1,814.35	\$5,029.53
Mean cost per job title					
LPN	\$5,618.70	\$12,470.21	\$2,627.36	\$1,548.73	\$5,341.21
RN	\$4,988.04	\$2,184.11	\$13,499.60	\$2,487.11	\$37,318.48
Aide	\$2,811.88	\$4,928.79	\$1,561.19	\$ -	\$ -

First Responder	\$2,657.42	\$5,724.99	\$ -	\$44.98	\$5,685.57
Housekeeping/Facilities	\$2,084.43	\$4,116.41	\$258.94	\$1,449.55	\$862.53
MHW	\$1,313.08	\$ -	\$ -	\$1,054.93	\$5,179.20
Dietary	\$1,055.44	\$1,196.36	\$203.38	\$352.18	\$4,334.02

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Figure 1

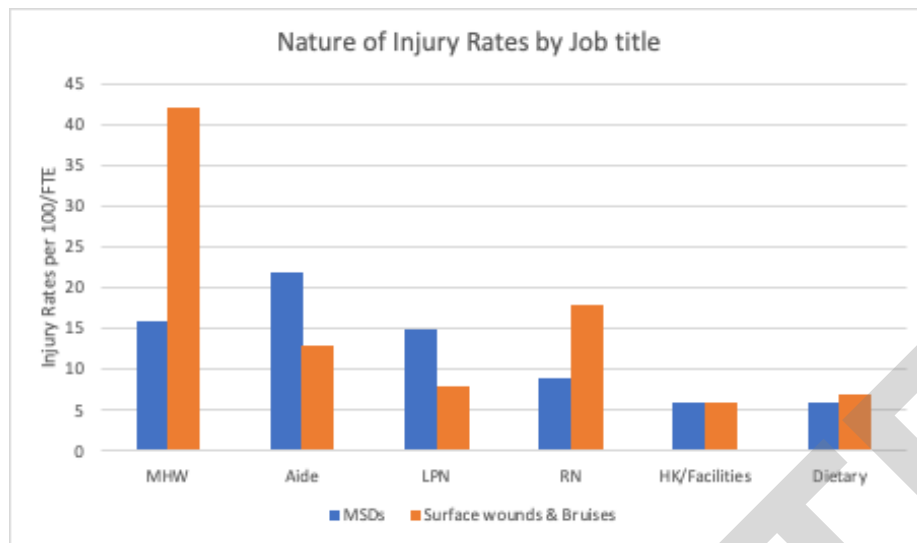


* MHW's only at Sites 3 and 4.

+ Nursing aides only at Sites 1 and 2.

**Others: Orderlies, lab technicians, First Responder, office admin, Rehab, social work, medical doctors/staff

Figure 2



Graphical abstract

