

**Effectively Reducing Building Operations Custodial Services Injuries and Time Loss**

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# Effectively Reducing Building Operations Custodial Services Injuries and Time Loss

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Prepared for: UBC Custodial Services

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1/27/2014

## **Executive Summary**

This paper presents the findings from investigating incident rates at UBC Building Operations Custodial Services. It focuses on the behaviour of workers, safety culture, and recommendations for Custodial Services. Articles related to the cause of injuries in custodial workers and workplace culture were reviewed, and data collected by Risk Management Services were analyzed. The number of time loss incidents has been relatively constant throughout the past six years. The most common injured parts of body were the limbs and the back. Bodily reaction and a fall on the same level were the most common types of accidents. Based on these findings, the following recommendations were presented. 1) It is beneficial to devise a way to collect quality data to conduct better analysis in the future; 2) Incident descriptions and recommendations should be recorded in detail; and, 3) Behavioural incentives, wellness programs, and continuous peer training may be helpful in reducing injury rate.

## **Introduction**

Workers who perform cleaning in facilities are often thought as “behind the scene” people. According to Statistics Canada (2008), custodial workers are the fourth and tenth most common job for men and women respectively in 2006. Between 2002 and 2011, WorkSafeBC (the Workers’ Compensation Board of British Columbia) approved a total of 14,031 claims in the janitor and building caretaker occupational group, which was the seventh highest number of claims of all occupation groups (WorkSafeBC, 2011). In 2011, the rate of injuries for the janitor and building caretaker group was 5.1% (Statistics Canada, 2013). Given the high numbers of injuries in this occupational group, there is a need to improve safety perception and practices of workers and supervisors in order to reduce the burden of occupational injuries among custodians.

At the University of British Columbia (UBC), Building Operations Custodial Services (Custodial Services) manages a large team of more than 300 staff who works day,

evening, and graveyard shifts (The University of British Columbia). Studies in Australia, Europe, and Canada have found out that cleaning is labour intensive and that workers have a high risk of musculoskeletal pain and other injuries such as respiratory and cardiovascular problems (Woods & Buckle, 2006). Even though Custodial Services had invested in ergonomic cleaning equipment, safety and on job training, and implementing safety procedures, the time loss due to injuries decreased continually until 2009 but increased steadily since then. The main purpose of this paper is to identify approaches that may effectively decrease injury rate and time loss of UBC Custodial Services Department. First, I will describe my observations from literature articles and relate it to the data collected by Risk Management Services. Second, I will recommend approaches in order to effectively decrease the injury rate in Custodial Services.

## **Background**

Articles used in this paper are published in peer reviewed academic journals. The key articles were chosen based on the similarity of the work nature, workplace environment, and work culture to the Custodial Services.

Recently, Koehoorn et al. (2011) examined the relationship between physical task and environmental risks on musculoskeletal injuries among custodial workers in a school district in British Columbia, Canada. Incident reports were collected from 2003 to 2006 and were categorized by the nature of injury, task performed, and part of body injured. Over 4 years, observational ergonomic assessments were done and ergonomic risks scores were calculated. Koehoorn et al. (2011) discovered that musculoskeletal injuries (48%) were the most common type of injuries followed by slips and trips (22%). The most common task custodians were working on during their injury was cleaning floors (22%), followed by removing garbage (14%), and performing miscellaneous tasks (11%). Upper limbs (41%), such as shoulders, elbows, wrists, and hands, were the most frequently injured body parts, followed by the back (28%). Koehoorn et al. (2011) discovered that season and weather were factors. The injury rates were significantly

higher during the school year than in the summer. This may be a result of the higher workload due to the presence of students and teachers in the school year. Also, during the rainy winter months, floors required more intensive cleaning especially schools with mud or grass fields.

Workplace safety can be approached from two areas, behaviour and culture (DeJoy, 2005) Behaviour is an immediate analytic approach that focuses mostly on front line employees, such as custodial workers. Workers' behaviours are tracked and analyzed, then feedback is given and goals are set. Behaviour approach is done by collecting and analyzing data systematically, which is currently done by Risk Management Services, and hence is considered as an analytic approach. This approach focuses on immediate behavioural causes and may neglect underlying issues such as the environment or organizational system.

Safety culture of an organization as defined by the United Kingdom Health and Safety Commission (1993) is "the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of an organization's health and safety management". Culture can be approached from the top of the organization, the higher management leaders, and by reviewing values (what is important) and beliefs (how things work) (Choudhry et al., 2006). This approach expects the changes to be diffused down to the workers and throughout the organization by improving programs, training, and policies (DeJoy, 2005). Unlike behavioural change, cultural change is based on intuition, and thus may be the more difficult approach. This approach would allow for the proactive discussion and action on specific hazards, however, it does not focus on specific issues but rather create a responsive environment. Although both approaches are different in nature, behaviour change and culture change can complement each other's strengths and weaknesses. For example, workers should be aware of their safety while working, and if there is a problem, they should inform their supervisors. As a supervisor, he or she should make sure that workers are always mindful of their own safety while working. Since an organization

functions as a group to achieve common goals, workers from the bottom and leaders from the top must come together to change in order to solve the safety problems.

## **Summary of Findings**

The data analyzed in this project was collected by UBC Risk Management Services and pertained to Custodial Services injury records spanning 2002 to 2012. These findings were also based on the interviews and observations conducted with workers and managers.

In the Koehoorn et al study, they found that season and weather were contributing factors for custodial injuries. To see if these two factors were also causing injuries at Custodial Services, I analyzed the number of injuries by the month the incident happened (Appendix A). In 2002 to 2012, the highest number of injuries and time loss incidents were in January, and the lowest numbers were in December. The low number of incidents in December may be due to the holidays and time off of workers. There was a higher total count of injuries in spring term (January to April) than summer term (May to August), but the total count in winter term (September to December) was not higher than summer term. Nevertheless, the high number of injuries in January and February does suggest that this is a period of heightened risk and that may be due to weather or increased demands in cleaning. This finding is slightly different than what Koehoorn found in his study, hence I am not confident that season and weather are contributing factors.

Time loss due to accidents has been a burden to Custodial Services financially and operationally. From 2002 to 2008, the percentage of time loss incidents has been consistent (average of 38%) with a significant drop to 10% in 2009 (Appendix B). In 2010 and onwards, the time loss incidence rate returned to the rate of previous years (average of 36%).

Incidents were categorized by parts of body injured and types of accidents so as to relate the physical tasks with custodial injuries (Appendix C). The top 3 body parts of the total injuries were hand (16%), back (13%), and multiple parts (11%). Multiple parts is defined as injuries of more than one part of the body. For example, an employee may have fell and injured their back, left elbow, and right hand. However, the total injuries that were related to the limbs (48%), including hand, wrist, arm, elbow, foot, ankle, leg, and knee, were the highest among all body parts. Similarly, the top 2 injured body parts related to time loss were back (18%) and multiple parts (15%). Time loss incidents due to injuries to the limbs were also the highest among the other body parts (47%). These findings are similar to what Koehoorn had found in her study where limbs and back were the most frequent parts injured.

The types of injuries that happened were similar for the incidents in general and time loss incidents (Appendix D). The top injury was bodily reaction (23%). This could be related to ergonomic issues including repetitive motion, or when the injury could not be easily explained such as when the employee felt pain in the shoulder when lifting an empty cardboard box. The second most common type of injury was a fall on the same level (19%). Furthermore, the top 2 types of time loss injuries were the same as the total incidents, except a fall on the same level (30%) had a slightly higher percentage than bodily reaction (22%). Koehoorn also found that bodily reaction (musculoskeletal injuries) and fall on the same level (slips and trips) were the same most frequent type of incidents.

In addition, in many of the descriptions where incidents had a higher number of days of time loss, I discovered that quite a few were related to stairs, water, ice, and lifting heavy garbage containing water. Also, many incidents happened when there was a change in the environment, such as taking the garbage from the inside of the building to the back alley outside of the building. Workers may be too focused on their job and not attentive to the change of the environment.

## **Recommendations**

Based on the literature review, data research, interviews, and observations I conducted, I have the following recommendations.

1) The data collected by Risk Management Services should be expanded to provide information that could further identify risks, areas for improvement and track progress. Data currently collected could be improved in its quality and consistency. Fields not included, which could have more information in accident/injury, are: the location of the incident, task performed during the incident, or description of the multiple parts of the body injured. These fields can be added to the current Incident/Accident Report. Better accident descriptions and recommendations are also needed. While reading the descriptions and recommendations of the reports, some were quite unclear, such as ‘the worker tripped and fell on his back’. It would be beneficial to educate supervisors on filling the reports more consistently with better descriptions especially on the environment the incident happened and injured worker.

2) Improved recommendations can benefit the whole organization. In the recommendations section of many accident/incident reports, suggestions by supervisors lacked clarity and specificity. For example, the supervisor would write general recommendations such as ‘will tell the worker to be aware of surroundings’, ‘the worker should have done certain actions instead’, or ‘see a doctor if pain continues’. Instead, it is recommended to write action advice and corrective actions, for example, ‘will review the proper instructions of lifting heavy items in the next team meeting’, or ‘will add a visible line at the edge of the bottom step’. These detailed recommendations are easy to follow, practical, and does not put the responsibility on a certain party.

3) Expanded workplace health and wellness programs may also reduce the injury rate at Custodial Services. In 2009, a time-loss free challenge was launched to promote workplace safety. The department had one year free of time loss incidents. Behavioural incentives may be a useful way to assist lowering incident rates. In addition, wellness

programs may be a good way to keep workers healthy. As the tasks of custodial workers are physically demanding, they must keep their body in a healthy condition in order to reduce the chance of being injured. Risk Management Services is currently devising a program for Building Operations which will include a wellness center that has on site physical therapy, nutrition, and counseling services. When developing a wellness program, it is recommended to accommodate workers with different shifts and those who are located in buildings further away. Moreover, teamwork can raise the confidence of workers especially those who are new to the department. Continuous training with peers after the 4 days official training is highly recommended as this will allow new workers to have more time to absorb knowledge and raise their comfort level especially when they have questions or doubts.

### **Future Research**

As time was limited, I could not address all the challenges posed in this project. There are number of further areas of investigation. Each worker is not the same size and does not have the same body strength. I had the opportunity to observe afternoon shift custodial workers and met a few female workers with a smaller stature. I tried using Custodial Services' ergonomic cleaning equipments that were considered as less heavy. However, I did not feel the equipment was as light or easy to use. In the future, we could examine ways to prevent injuries for people with smaller stature. Second, during staff shortages, workload increases as workers need to cover the duties of other absent workers. Although supervisors can reduce less important duties, tasks still need to be done. Investigating how to improve management of staff shortages and increased workloads may reduce injury risk. Woods and Buckle (2006) recommended that workers should have a choice in varying work pace and activities depending on their own ability. This needs more discussion as it is difficult for supervisors and workers to agree on a suitable work pace. In addition, researchers could use the following research methods in the future for a more indepth analysis. Qualitative questionnaires could be used to collect front line worker's perspectives and further analyze the underlying causes of accidents.

Also observing and conducting assessments while the worker is on the job would assist in finding out the immediate causes that lead to accidents.

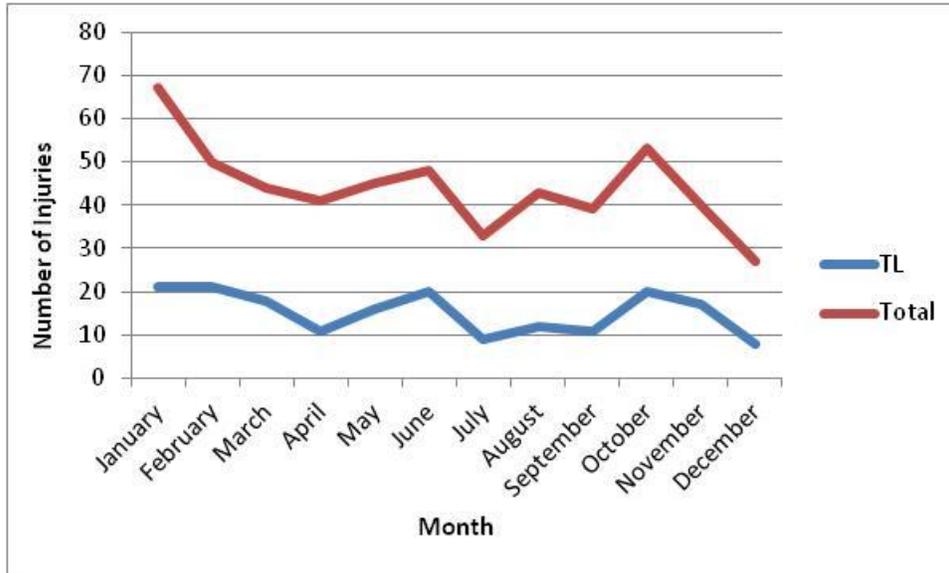
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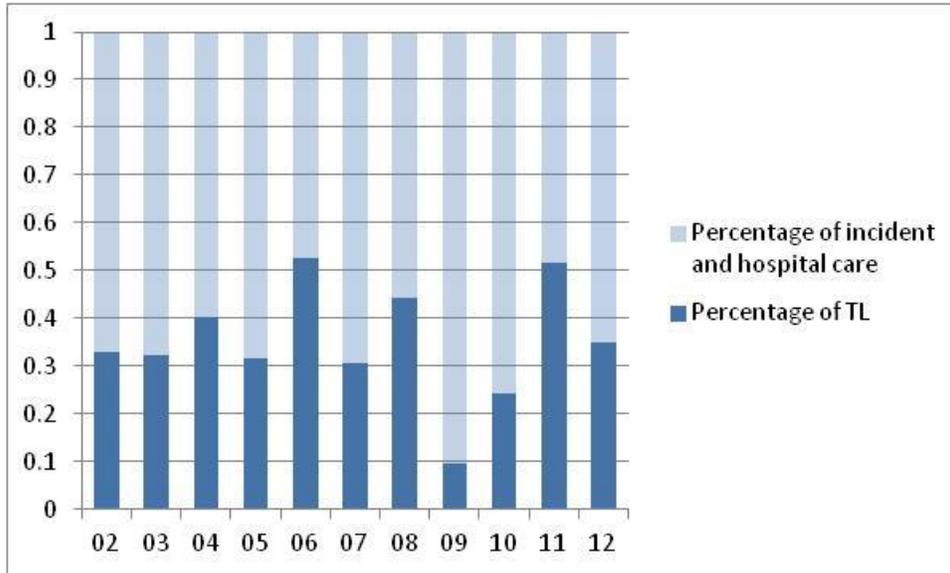
Woods, V., Buckle, P., & Haisman, M. (1999). *Musculoskeletal health of cleaners*. Guildford, Surrey: Crown Copyright.

WorkSafeBC. (2011). *Claim Counts by the 1991 Standard Occupational Classification (SOC) and Broad Group of Accident Type; Injury Years 2002-2011*. Vancouver: WorkSafeBC. Retrieved from [http://www.worksafebc.com/publications/reports/statistics\\_reports/occupational\\_injuries/2002-2011/Table8.pdf](http://www.worksafebc.com/publications/reports/statistics_reports/occupational_injuries/2002-2011/Table8.pdf)

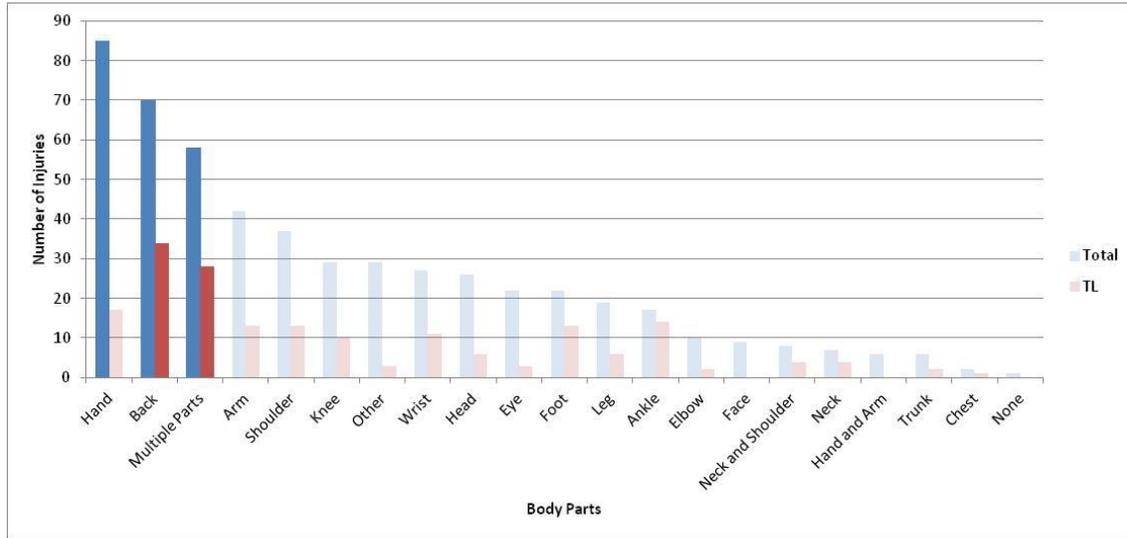
## Appendix A – Number of Time Loss Injuries by Month



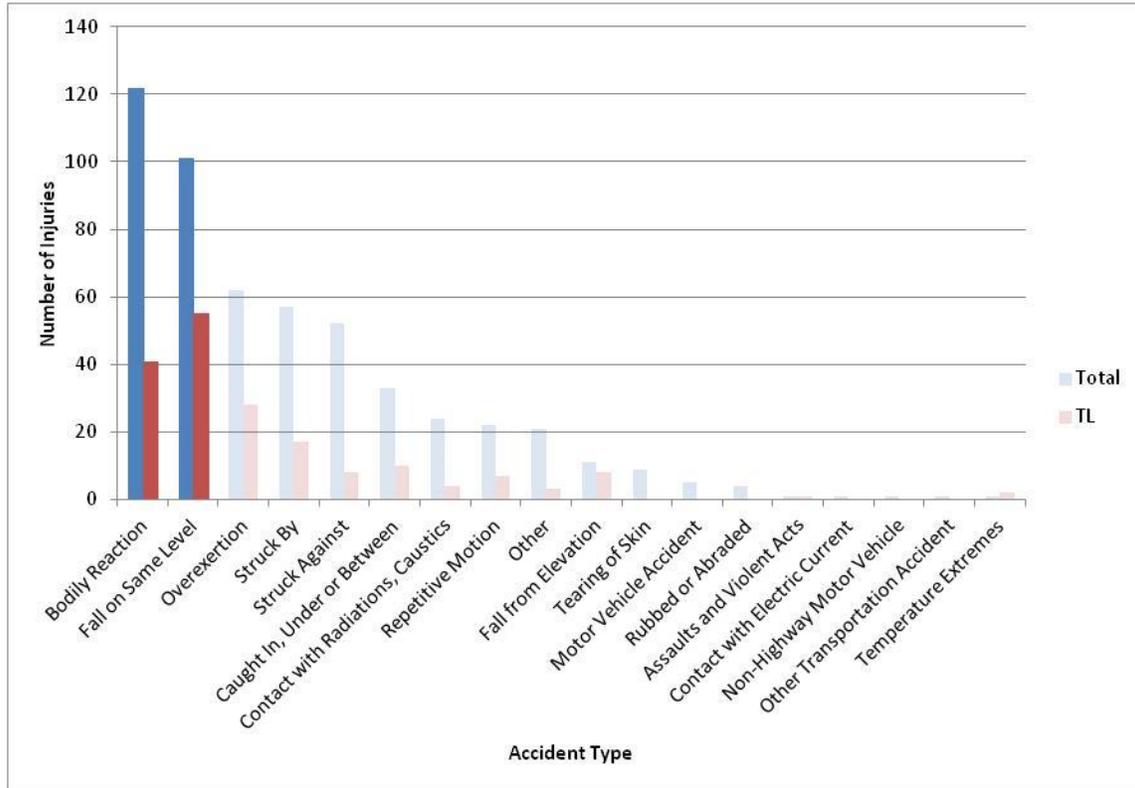
## Appendix B – Percentage of Time Loss Incidents



## Appendix C – Number of Incidents by Body Parts



## Appendix D – Number of Incidents by Accident Type



## Appendix E – Presentation Slides

# CUSTODIAL WORKPLACE INJURIES AND TIME LOSS



Vivian Luk

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## Agenda

- Our Goal
- Literature Research
- Data
- Recommendations
- Future Research
- Questions
- Discussion



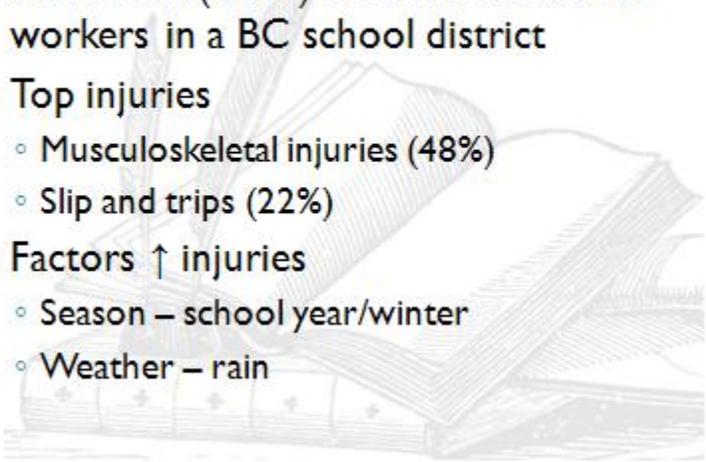
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## Goal

Identify approaches to effectively decrease injury rate and time loss of UBC Custodial Services

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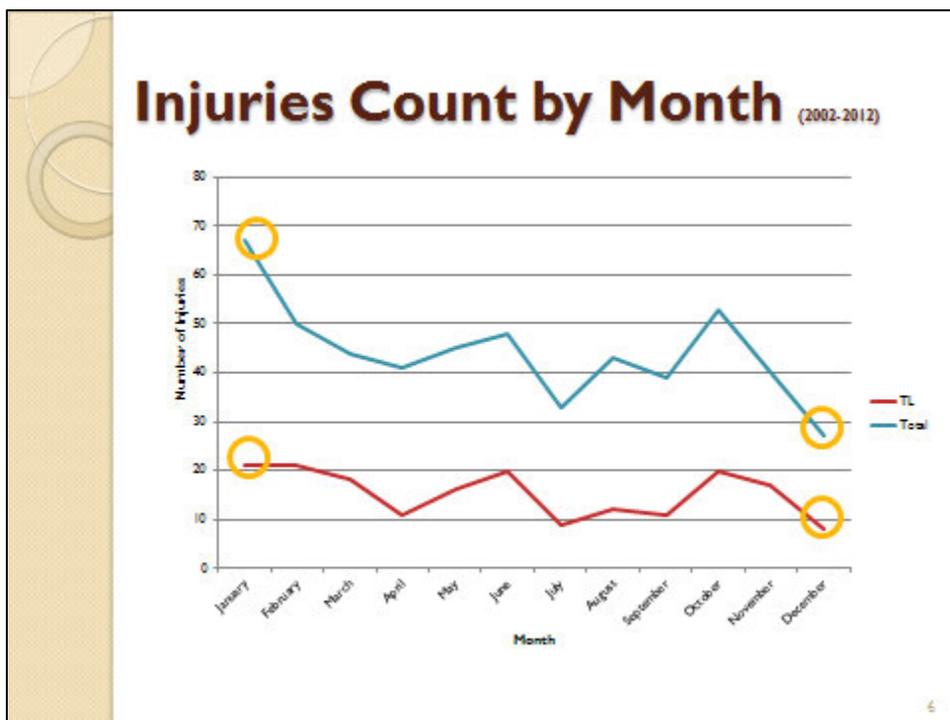
## Literature Research

- Koehoorn (2011) observed custodial workers in a BC school district
- Top injuries
  - Musculoskeletal injuries (48%)
  - Slip and trips (22%)
- Factors ↑ injuries
  - Season – school year/winter
  - Weather – rain

4

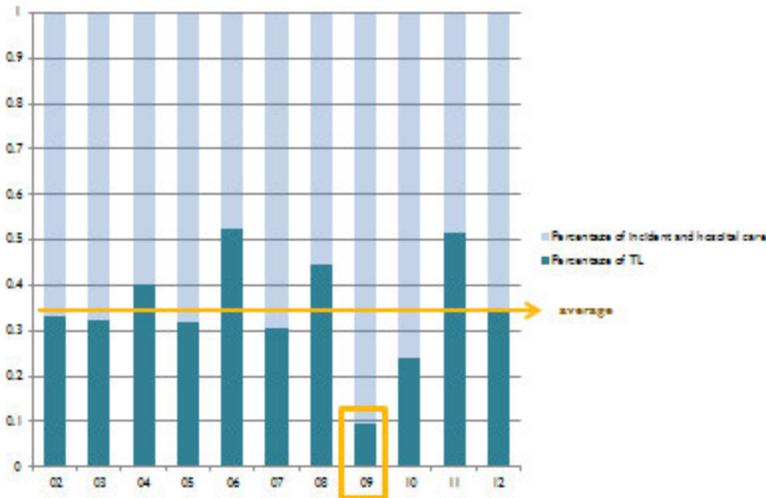
	Behaviour	Culture
Focus	Front line employees	Values and beliefs, higher management leaders
Issues	Employee behaviours	Environment and organizational system
Action	Collect data, observe	Interviews

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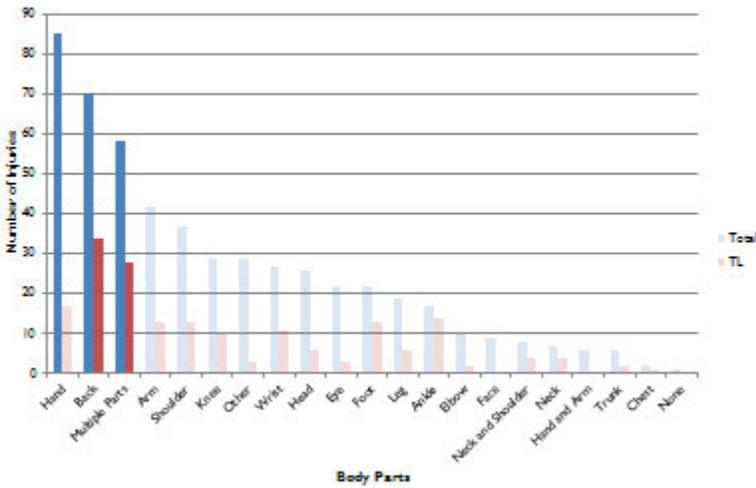
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# Percentage of TL



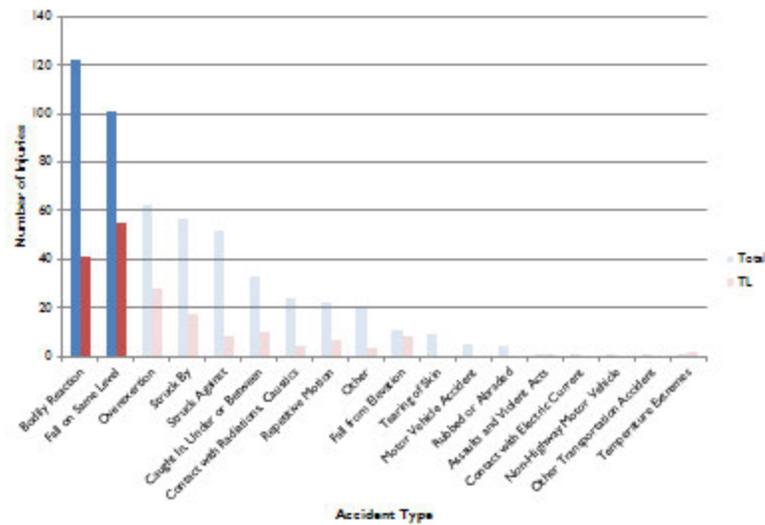
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# Injuries by Body Parts



8

## Injuries by Accident Type



9

### Recommendation

## - Tracking Data -

- Collect quality data
- Additional fields – for future research
- Fill in reports consistently
- Descriptive accidents – every detail helps

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Recommendation  
**- No Blaming -**

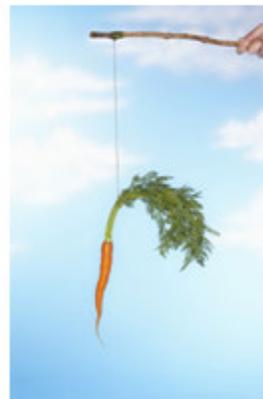
- Do not blame workers for accident
- Action advice
- Corrective actions



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Recommendation  
**- Programs -**

- Behavioural incentive programs
- Wellness programs
  - UBC Healthy Workplace Initiatives Program Fund
- Continuous training with peers



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## Future Research – Items –

- Workers with small stature
- Workload during staff shortage
- Work at safe pace according to own ability



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## Future Research – Actions –

- Qualitative questionnaires
- Observe worker
- Assessment checklists



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Thank you

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- Lori Takenaka – Health, Safety and Environment Coordinator
- Mandy Bains – Asst Supervisor Custodial Services
- Sindy Sohi – Manager Custodial Services
- Tariq Din – Manager of Risk Management, Building Operations

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## Questions and Discussion



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