

An Evaluation of the Newfoundland and Labrador Injury Prevention Pilot Program in Long-Term Care

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Submitted To: Department of Health and Community Services, Government of Newfoundland and Labrador

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Disclaimer

This project relied on administrative data that were not collected by the research team. Thus, the reliability and accuracy of these data are reliant on the quality assurance processes at WHSCC and each of the four RHAs in NL and cannot be verified by the authors of this report.

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Executive Summary

Musculoskeletal injury, or damage to muscular or skeletal systems, is typically caused by physical activity such as lifting or pulling. Caring for residents of long-term care (LTC) facilities – many of whom have serious physical and/or cognitive limitations – routinely involves strenuous physical exertion, and consequently health care personnel in those settings face a high risk of injury. Reported injury rates among health care workers commonly exceed rates in other hazardous industries; according to the Workplace, Health, Safety, and Compensation Commission (WHSCC), NL's health care and social services sector reported higher lost-time injury rates in 2013 (2.6 for every 100 employees) than the province's agriculture, construction, fish harvesting, mining, oil & gas, service, transportation & storage, and wholesale & retail trade industries. In that year, \$25,441,000 in claim payments were made to health care and social services personnel in NL. Nursing staff accounts for nearly half of all lost-time injury claims from that sector over the period 2009-2013, and accidents involving lifting, bending, reaching, twisting, and/or bodily exertion were among the most frequently reported.¹

In an effort to address this situation, the Department of Health and Community Services in conjunction with Central Health, Western Health, Labrador-Grenfell Health and Eastern Health proposed to pilot an Injury Prevention Program (IPP) designed to reduce lost-time musculoskeletal injuries (MSIs) among nursing staff in LTC. This evaluation was designed to assess the program's success in (a) reducing lost-time MSIs related to resident handling and associated costs, and (b) improving the quality of both the workplace and resident care. The program consisted of the following components:

- the appointment of Program Coordinators, one for each of the regional health authorities (RHAs), and Lift Champions or Co-leaders at each of the participating LTC facilities;
- the development and delivery of education and training for nursing staff;
- the identification, purchase and implementation of resident handling equipment and repositioning devices; and
- the development of policies, assessment procedures, and programming for safe resident handling (SRH).

There were a total of ten pilot facilities involved in the IPP – three in Eastern and Central Health and two each in Labrador-Grenfell Health and Western Health. The principal participants in the program were Personal Care Attendants (PCAs), Registered Nurses (RNs), and Licensed Practical Nurses (LPNs), although some management and allied

¹ <u>http://www.whscc.nl.ca/prevention/PREV_IndustryFactSheets.whscc</u>

health personnel were included in the evaluation process. The IPP was implemented across all four RHAs by February 2014.

Our review of the available scholarly literature on similar kinds of SRH programs in LTC demonstrates that they can yield significant health and economic benefits. The review includes 14 studies that evaluated the effect of SRH interventions involving mechanical lifts on either injury rates or time lost due to injury. Without exception, all 14 reported significant post-intervention reductions. Eleven of these studies conducted an economic analysis, and all but one concluded that SRH interventions involving mechanical lifts were associated with significant net savings. Eight studies estimated a payback period, ranging from less than one year to 9.6 years. The overall implication of the literature

The overall implication of the literature review is clear: when implemented successfully, SRH programs pay for themselves. review is clear: when implemented successfully, SRH programs pay for themselves. The literature further specifies a number of determinants of SRH program success. One of these is program comprehensiveness; to be maximally effective, SRH interventions must include not only mechanical lifting equipment, but also policies and procedures specifying how equipment should be used, training for staff, and

mechanisms for assessing SRH in formal employee performance evaluations. Organizational determinants of successful implementation include adequate staffing levels, management support for safety initiatives, and workplace climates characterized by collaboration, communication, and mutual respect.

This evaluation employed a mixed-methods approach involving the collection of quantitative and qualitative data from a variety of sources, including injury rates and associated costs for a period of 12 months prior to and 12 months following IPP implementation; questionnaire data on nursing staff's perceptions of workplace safety and satisfaction with the IPP; and focus groups and interviews with key informants at all

"We definitely see the value of this safe patient handling prevention program for the safety of our clients and for the safety of ourselves." - Resident Care Manager

ten pilot facilities. The results of the evaluation were mixed. On the one hand, the qualitative results from the focus groups, interviews, and questionnaires suggest that the IPP is a highly regarded program. The training was universally lauded by nursing staff, the majority of whom found that it provided them with the information and confidence necessary to engage in SRH. The majority of staff also reported that SRH is important to them, that the IPP has provided them with the necessary equipment, and that they use the new equipment and engage in SRH practices.

On the other hand, the IPP demonstrated no statistically significant impact on the number of injuries or injury rates when data from all ten pilot facilities were combined. However, a visual inspection of the data points to a downward trend in the injury rate following program implementation. Several characteristics of injuries were examined

further to determine if the IPP had a differential impact according to injury type or occupational category. Injuries were categorized as (a) involving or not involving resident aggression, (b) recurrent or non-recurrent, and c) sustained by a PCA, RN, or LPN. The IPP did not demonstrate a statistically significant effect within any of these categories. However, individual facility injury data reveal considerable variability in program impact. A visual inspection of the total number of injuries in the pre-IPP and post-implementation periods points to a decrease in injuries in three facilities, no or little change (+/- 1 injury) in five facilities, and an increase in injuries in two facilities.

An examination of temporary earnings lost (TEL) data supplied by the payroll departments of each RHA points to an overall reduction in costs from the pre- to post-implementation period of 26%. However, the median and mean cost per injury did not change from the pre- to post-period. Similarly, the median duration of lost time due to injury in the pre- and post-periods did not differ significantly. If the cost and duration of lost time are used as proxy measures of the seriousness of an injury, these results suggest that the IPP did not affect injury severity.

The most commonly cited barrier to the use of the safe handling equipment/techniques was the frequency with which units were short-staffed. A closer examination of the qualitative data points to several potential reasons why the IPP failed to result in a reduction in injury rates or number of injuries in all pilot facilities. Nursing staff and key informants identified a set of closely interrelated barriers to proper and consistent use of SRH equipment and techniques including: 1) shortages of regular staff, 2) a tendency to rush and take short-cuts, 3) problems

accessing needed equipment, and 4) a rigid, task-oriented approach to resident care. The most commonly cited barrier was the frequency with which units were working short-staffed. Both nursing staff and key informants noted that this situation tends to result in staff rushing, taking short-cuts to get their work done, and potentially working alone. Casual staff members were also identified as being less likely to conduct point-ofcare assessments, which has been implicated as a factor in several injuries. Participants in some facilities also cited lack of management support and buy-in as barriers to successful program implementation and SRH adherence.

Despite these barriers, most staff noted that the use of safe handling practices was

increasing. The most commonly cited facilitator of this increase was the consistent presence of lift champions who inspect and manage the equipment, answer staff's SRH questions, and correct improper resident handling behaviors. Consistent use of SRH practices likely also requires a broader commitment to organizational safety culture. In some facilities, this will require greater

"Without the lift champions, this program will fall apart." - Program Coordinator "...I think staff were ready for it, so, you know, I would hate to see the momentum die...I'm hoping that we can continue to support it."

- Lift Champion

management buy-in and support of staff, mechanisms for ensuring staff accountability, more clearly-defined roles and responsibilities, and a shift away from the task-oriented approach to providing care.

Intervention programs, particularly those in healthcare, require sufficient time to be fully adopted before positive results will be seen. Indeed, most of

the studies in the current evaluation's literature review that demonstrated beneficial effects of SRH interventions employed longer evaluation periods than the current project. Thus, it will be important to continue to examine injury data over the longer term to determine the true potential of the IPP to decrease injuries among nursing staff.

"I do think it [the IPP] can prevent new injuries, but we've got to remember we had a long history." - Nursing staff member

The authors of the report identified a number of recommendations stemming from the results of the evaluation:

IPP Recommendations

- Continue the IPP in the pilot facilities Given the substantial qualitative evidence of program effectiveness, the potential for success, and the need to continue to evaluate the program over the longer term, it is recommended that the IPP continue to be supported and funded in the pilot facilities.
- 2. Fund lift champions/co-leaders positions Lift champions/co-leaders should be funded in every participating pilot facility. In addition, in order to ensure that lift champions/co-leaders are available to carry out the duties required of them, they should not be assigned regular nursing duties or reassigned when units are short staffed.
- **3.** Fund program coordinator positions Program coordinators should be funded in each of the RHAs. The level of funding (e.g., part-time or full-time) should take into account the unique needs of each RHA (e.g., number of nursing staff, number of healthcare facilities and distance between them, etc.).
- 4. Train all LTC nursing staff and resident care managers prior to them beginning work Nursing staff and resident care managers must receive IPP training prior to beginning their work in a LTC facility. Additionally, nursing staff should attend the training when returning to work following a prolonged absence.

- 5. Offer refresher sessions on a yearly basis Nursing staff should attend yearly core competency and mandatory refresher sessions that incorporate the latest evidence on SRH techniques and any changes to SRH policies or procedures.
- 6. Include a more in-depth discussion of resident assessments in training IPP training should place greater emphasis on the importance of conducting point-of-care resident assessments. This training component should describe why, how, and by whom these assessments are conducted.
- Address family pressures in training IPP training should equip staff and managers with communication strategies for helping residents and their families understand the importance of SRH.
- 8. Provide training to nursing staff on dealing effectively with resident aggression or agitation Training on managing resident aggression should also be provided to nursing staff so that they have the information and skills necessary to engage in safe resident handling with residents who are agitated or aggressive.
- **9.** Hold nursing staff accountable Performance evaluations should include the assessment of nursing staff's compliance with SRH procedures and adherence to SRH policies.
- 10. Increase manager involvement The role of the resident care manager in the IPP should be clearly defined, and managers should promote and support the program and staff in their delivery of SRH. This includes reviewing all injuries with staff with an emphasis on prevention, correcting unsafe practices, reinforcing appropriate SRH behaviors, and communicating the importance of SRH to staff, residents, and families.
- **11. Hold managers accountable** Performance evaluations should include the assessment of the resident care managers' commitment to supporting and promoting the IPP as per recommendation #10.
- 12. Offer education sessions on SRH for the families of residents Education sessions, in addition to printed material on SRH, should be offered to family members so that they have a better appreciation of the importance of SRH for resident and staff safety. This education would ideally be offered during an orientation to the facility for family members.
- **13. Eliminate environmental factors that prevent SRH** Limits should be placed on the quantity of furniture in residents' rooms so as to ensure that staff can operate equipment safely. In cases where rooms are too small to accommodate the equipment, facilities should make every reasonable effort to address this problem.

- 14. Ensure adequate staffing levels Leadership should maintain staffing levels so as to allow for the appropriate utilization of SRH and, in particular, to ensure that each nursing staff member has a readily available partner with whom they can perform 2-person assists.
- **15. Install ceiling lifts where possible** Ceiling lifts should be installed wherever possible.
- 16. Increase availability of anti-friction sheets An adequate supply of anti-friction sheets should be available so that every resident for whom they are deemed necessary has them. These sheets must also be laundered in a timely fashion to improve availability; in some cases this may require augmented laundry facilities.
- 17. Provide regular preventative maintenance, calibration, updating and replacement of SRH equipment – To ensure that the SRH equipment is available when needed and in operating order, the equipment must be maintained, calibrated, and updated regularly and/or replaced when needed.
- **18. Store equipment in residents' rooms** When possible, equipment such as slings and anti-friction sheets should be stored in residents' rooms to assist with equipment accessibility and equipment tracking.

Data Collection Recommendation

19. Develop a standardized injury form for use by all RHAs – An electronic incident/accident reporting and investigation form(s), procedures, and information management plan should be developed, with input from the research team and relevant provincial stakeholders. This would serve to support and enhance the investigation process, provincial reporting, research, and ongoing improvement by all four RHAs. Standardization of an injury form would facilitate comparisons of injuries among the RHAs. This form should include mandatory fields of information to ensure that a complete account of each injury is recorded.

Evaluation Recommendation

20. Continue to evaluate the IPP – The evaluation of the pilot project should continue, insofar as all injuries associated with resident handling (lost time, no lost time and near miss) should be tracked and analyzed over a longer period of time. Additional factors that have been suggested in the current evaluation as

potentially impacting injury rates (e.g., working short staffed; staffing models) could be explored formally in a future evaluation.

Injury Prevention Program

IPP Background

In 2010, approximately \$11.7 million of the \$25 million in assessment fees paid to the WHSCC were associated with long-term care (LTC). Although long-term nursing staff represent only 20% of regional health authority (RHA) employees, they account for 36% of all long-time incidents. The resulting rate of 7.2 lost-time incidents per every 100 long-term care employees is almost twice the overall RHA rate of 3.9/100.

Nursing staff (RNs, LPNs, and PCAs) account for 73% of all lost-time incidents in longterm care with the majority related to resident handing tasks (lifting, repositioning residents, etc.). Musculoskeletal injuries (MSIs) are the most common type of injury resulting in lost-time in long-term care. In 2009, stricter legislative requirements under the Occupational Health and Safety Act in relation to MSI prevention added urgency to the need to address lost-time incidents. As such, the Department of Health and Community Services in conjunction with Central Health, Western Health, Labrador-Grenfell Health and Eastern Health proposed a Provincial Injury Prevention Program (IPP) pilot designed to address the issue of lost-time MSIs among nursing staff in longterm care. The pilot project was intended to "test the approach through concentrated effort in selected sites, with a strong evaluation component providing the necessary evidence to continue to move forward, or not." (Proposal for a Provincial Injury Prevention Pilot Program in Long Term Care, November 23, 2011, p.8).

IPP Objectives

The main objective of the pilot project is to reduce lost time incidents due to resident handling among nursing staff. However, given that this is a multifaceted prevention program approach, additional outcomes are expected. The objectives of the pilot project, as stated in the final provincial proposal dated November 23, 2011, were as follows:

- 1. Reduce lost-time incidents related to resident handling among nursing staff
- 2. Reduce costs associated with lost-time incidents
- 3. Improve quality of the workplace
- 4. Improve resident care
- 5. Meet legislative requirements

The current evaluation was designed to examine objectives one through four. A statement prepared by Linda Sagmeister, Certified Ergonomist with the Occupational Health and Safety Division of the Government of Newfoundland and Labrador addresses Objective 5 and can be found in Appendix A.

IPP Components

The IPP consists of the appointment of Program Coordinators, one for each of the RHAs, and Lift Champions or Co-leaders at each facility; the development and delivery of education and training for nursing staff; the identification, purchase and implementation of resident handling equipment and repositioning devices; and the development of policies, assessment procedures, and programming for safe resident handling (SRH). Each of these components will be discussed in turn.

Program Coordinators: The Program Coordinators were hired or re-assigned to facilitate the implementation of the IPP in each of the facilities in their respective RHAs. Eastern Health reassigned the Regional Ergonomics Program Coordinator to take on this role and make the pilot a priority. Central Health reassigned the OH&S Prevention Coordinator to take on the required duties of the Program Coordinator. Labrador-Grenfell Health hired a Program Coordinator for a period of 6 months, at which point the funding for the position ended. Western Health hired a Program Coordinator from September 2012-December 2013. While this position is no longer in place it has been divided amongst three Occupational Therapists.

The Coordinators were required to assist in the development of training, deliver all or some of the four-hour education training sessions to nursing staff, assess the need for equipment and supplies, and order the necessary intervention equipment and supplies. They were also responsible for training and liaising with the lift champions or co-leaders. The role also involves participating as part of the CORE team, a multidisciplinary group of health care providers working in each of the pilot facilities, and communicating with key players across all aspects of the intervention implementation. Finally, the Program Coordinators were asked to supply injury data to the research team.

Lift Champions or Co-leaders: The Lift Champions/Co-leaders were appointed to encourage and promote SRH practices among nursing staff in their facility. They are also responsible for maintaining and inspecting the SRH equipment to ensure that the equipment is readily available and safe to use. These individuals are located on-site with the intention that they will observe nursing staff in action with the goal of correcting unsafe practices and reinforcing safe practices. The Lift Champions/Co-leaders are also available to answer nursing staff members' questions and help them use the SRH equipment appropriately in the event that they have forgotten or have yet to be trained.

Training: The 4-hour training session was developed by the four RHA Program Coordinators in consultation with the Provincial Healthcare Ergonomics Committee members. Although the training differed slightly among the four RHAs, the primary components were consistent and included a training video, hands-on practice with the equipment, and instruction on the assessment of residents and safe work practices. The specific components of the training curriculum are outlined by RHA in Appendix B. In addition, the training is now offered to all new nursing staff during their orientation.

Equipment: The equipment purchased as part of the IPP varied based on the needs and infrastructure of each facility. For example, some facilities or units within facilities were unable to install ceiling lifts due to inadequate infrastructure. Generally, however, all facilities purchased anti-friction sheets, mechanical lifts, and slings. A detailed account of the equipment purchased at each facility is provided in Appendix B and photos of some of the equipment purchases as part of the IPP are contained in Figure 1.



Ceiling lift



Ceiling lift



Breeze sheet



Ceiling lift

Floor lift





Floor lift



Floor lift





Sling



Tub stretcher



Policies and Assessment Procedures: Policies that were created as part of the IPP are provided in Appendix C. In addition, the IPP included the development of transfer status assessment procedures. Residents are required to be assessed upon admission and every three months thereafter unless there is a change in the residents'

health. Point-of-care assessments are also encouraged as residents' mobility can change throughout the course of the day. Copies of assessment forms are provided in Appendix D.

Participating Facilities

There are a total of ten pilot facilities involved in the IPP – three in Eastern and Central Health and two each in Labrador-Grenfell Health and Western Health. The following report contains the results collapsed across all 10 facilities. Where appropriate, however, data specific to individual facilities are reported. All nursing staff – Personal Care Attendants (PCAs), Registered Nurses (RNs), and Licensed Practical Nurses (LPNs) – are participants in the IPP with the exception of permanent staff who work on Protective Care Units (PCUs) exclusively, as PCUs were excluded from the IPP pilot. The numbers of nursing staff who participated in the pilot project, just prior to the implementation of the IPP or at baseline, are provided in Table 1. These numbers are approximate and include permanent and casual staff. Refer to the first date of the pre-implementation evaluation period dates, provided in Table 3, as an indication of the baseline dates for each facility.

RHA	Long Term Care Facility	Number of nursing staff			
		PCAs	RNs	LPNs	Total
	Agnes Pratt Home	38	19	56	113
Eastern Health	Golden Heights Manor	22	10	31	63
Central Health	Hoyles Escasoni Complex	131	66	154	351
	Carmelite House	34	10	41	85
	North Haven Manor	23	14	26	63
	Bonnews Lodge	17	12	26	55
	Corner Brook Long Term Care	184	28	202	414
Western Health Labrador-Grenfell Health	Bay St. George Long Term Care	40	24	72	136
	Long Term Care Happy Valley Goose Bay	15	15	24	54
	John M. Gray Centre	20	8	19	47
	All Facilities Total	524	206	651	1381

Table 1.	IPP	pilot facilities an	nd approximate	number of	f nursing st	aff bv	occur	oation
Table I.		phot facilities an	iu appi osimau	mumber of	i nursing su	un by	occup	Jacion

A brief description of each of the 10 pilot facilities is provided below.

Eastern Health



The Hoyles Escasoni Complex was the major long-term care facility in the St. John's area, housing 375 beds during its operation; it has now been replaced by the St. John's Long-Term Care Facility.

The Agnes Pratt Home is a relatively large facility located in St. John's, with 134 beds spanning across 4 units.





Golden Heights Manor is a level 3 care facility situated in Bonavista. Servicing the nearly 3,600 residents of the community, Golden Heights Manor houses 70 beds in addition to overseeing the operation of 20 cottages.

Central Health

North Haven Manor is a moderately-sized long term care facility offering a full range of services to the nearly 4,000 residents of Lewisporte and its environs. This centre houses supportive services to 59 long-term care clients in addition to operating 98 cottages that promote independent community living for seniors.





Carmelite House is a small long-term care facility with 64 beds located in Grand Falls–Windsor, a town in central Newfoundland with a population of approximately 15,000 residents.

Bonnews Lodge is a part of the Bonnews Health Care Centre and is situated in the town of New-Wes-Valley. Consisting of 45 beds, this nursing home provides long-term care services to the 2,900 residents of the area.



Western Health

The Corner Brook Long Term Care Home is a large facility housing 250 beds. Located in the largest city in Western Newfoundland, the CBLTC serves the 20,083 residents of Corner Brook with a combination of long stay beds, protective care, and restorative care.





The Bay St. George Long Term Care Home is located in Stephenville Crossing and houses 114 beds. Servicing the 1,875 residents of Stephenville Crossing and nearby 6,719 residents of Stephenville (with an approximate catchment area of 25,000 people), the Bay St. George Long Term Care Centre provides both long-stay and protective care to its residents.

Labrador-Grenfell Health

The John M. Gray Centre and Complex provides long-term care to the 2,500 residents (and 25,000 regional residents) of St. Anthony. With a 47-bed capacity, and 32 cottages for seniors, this centre provides both continuing care and other services, including day care and palliative care, to the Great Northern Peninsula.





The Happy Valley-Goose Bay Long Term Care Home provides services to the 7,552 residents of the community. Housing 50 beds and providing levels three and four of nursing care, this facility has also implemented a 13-bed protective care unit.

IPP Implementation

The IPP implementation consisted of the delivery of the training, implementation of the equipment, and introduction of the assessment forms and policies to all nursing staff. For the purpose of the evaluation, the beginning of the implementation phase was defined as the date on which IPP training began and completion was defined as the date by which approximately 80% of the nursing staff was trained and the majority of the IPP equipment was available for use by staff. Table 2 provides the dates associated with IPP implementation for each of the 10 pilot facilities. It is important to note that Bay St. George participated in a pilot project in 2007-08 and again in 2010 involving the implementation of an injury prevention program similar to the current IPP.

RHA	Facility	Impleme	Total Duration		
	,	Start Date*	End Date**	(in days)	
	Agnes Pratt Home	Apr 20, 2012	Feb 20, 2013	306	
Eastern Health	Golden Heights Manor	Sep 1, 2012	Jul 30, 2013	332	
	Hoyles Escasoni Complex	Mar 22, 2013	Feb 28, 2014	343	
	Carmelite House	June 12, 2012	Jul 18, 2012	36	
Central Health	North Haven Manor	Oct 1, 2012	May 29, 2013	240	
	Bonnews Lodge	Nov 12, 2012	Jan 23, 2013	72	
Western Health	Corner Brook Long Term Care	Sep 17, 2012	Apr 15, 2013	210	
western Health	Bay St. George Long Term Care***	Dec 3, 2012	May 30, 2013	178	
Labrador-	Long Term Care Happy Valley Goose Bay	Oct 2, 2012	Jan 30, 2013	120	
Grenfell Health	John M. Gray Centre	Nov 19, 2012	Mar 13, 2013	114	

Table 2. IPP implementation dates for pilot facilities

*date on which training began

**date by which a minimum of 80% of the nursing staff were trained and the majority of the IPP equipment was available for use

***A similar injury prevention program was implemented at Bay St. George in 2007-08 and 2010. Thus, the dates for implementation represent dates associated with the current IPP training only; the vast majority of the resident handling equipment had been available to staff since the first injury prevention program was introduced.

Literature Review

This review examines the available scholarly research literature on SRH programs in long-term care facilities. Though modest in size, this literature clearly indicates that such programs can yield significant health and economic benefits. Interventions involving the introduction of mechanical lifts have consistently been found to reduce injury-related staff absenteeism and associated costs. Indeed, most of the studies that assessed the economics of SRH programs found that they ultimately paid for themselves, typically within one to four years. Moreover, the available studies report that these programs are readily accepted by staff and residents alike, as they have been shown to reduce the pain and discomfort associated with manual resident handling.

We also consider the factors associated with the success of SRH programs. The importance of mechanical lifting equipment is obvious, but the literature also clearly indicates that equipment alone is not enough. SRH programs attain maximal effectiveness when they involve a comprehensive set of policies and procedures governing resident handling. With respect to organizational and environmental factors, staffing, management support, workplace climate, and access to equipment all emerged as important predictors of SRH program success.

Overview of the Literature

This literature review encompasses 25 English-language scholarly journal articles on SRH programs in LTC settings. Roughly two-thirds of them were published within the last ten years and one-third was published within the last five years. The majority of studies were conducted in the United States, although ten were conducted in British Columbia. The list of interventions evaluated includes:

- staff training in ergonomics and SRH;
- introduction of mechanical lifts, repositioning aids, and other specialized equipment;
- designation of peer leaders and coaches;
- implementation of formal resident handling policies and protocols; and
- multi-component programs comprising some combination of two or more of the above elements.

There were two broad types of research design used in the studies under review. A small group of studies analyzed survey and/or administrative data from a wide range of facilities at different stages of SRH program implementation in an effort to identify organizational and environmental factors associated with resident handling outcomes like staff injury rates or lift use. However, most of the studies in this review conducted a

longitudinal or before-and-after evaluation of specific SRH interventions. Among this larger group of studies there were a small number of controlled trials, but the majority used pre-post intervention designs. Although most did not randomly assign participants into intervention and control groups, some did employ statistical controls; that is, they used multivariate analysis to isolate the effect of the intervention from other, possibly confounding variables.

Studies used various outcome measures to gauge the effectiveness of SRH interventions, although staff injury rates and time lost due to injury were the most common. Some studies collected self-reported data from staff on outcomes such as job satisfaction, pain and discomfort, and/or knowledge of SRH. Of particular interest to this literature review are the 11 studies that evaluated costs and benefits generated by SRH programs. Only four studies measured effects on resident care quality measures and/or self-reported resident outcomes. We will examine each set of outcomes in turn and conclude with a discussion of factors associated with successful SRH program implementation.

Effectiveness of SRH Interventions

Staff injuries

15 studies measured the effect of various kinds of SRH interventions on staff injury outcomes, and all but one observed significant post-intervention reductions in either injury rates or time lost due to injury. As mentioned earlier, 11 of these studies also conducted some kind of economic analysis, and we discuss these studies in greater detail below. Of the remaining four, Best (1997) evaluated the effectiveness of staff training based on the "Manutention" method for manually handling people, and Evanoff et al. (2003), Garg and Owen (1992), and Ronald et al. (2002) evaluated intervention packages involving mechanical lifts and staff training in lift use. The Manutention method comprises a series of manual lifting techniques designed to reduce back strain and effort. Training in these techniques had no observable effect on administrative injury data, but the three studies that incorporated mechanical lifting equipment did observe positive effects. Evanoff et al. (2003) reported that the lost-day injury rate fell from 3.13 lost-day injuries per 100 full-time equivalents² in the pre-intervention period to 0.89 post-intervention (RR = 0.34, 95% CI: 0.13-0.6). Garg and Owen (1992) found that the number of lost and restricted work days went from 786 per 200,000 work hours in the pre-intervention period to zero during the last four months of the intervention. And finally, Ronald et al. (2002) observed a decline in rates of musculoskeletal injury due to lifting and transferring residents from 16.3 per 100,000 work hours pre- to 8.1 postintervention. No such decline was noted for injuries resulting from repositioning tasks.

² One full-time equivalent is defined as 2,000 work hours per year.

Costs and benefits

Mechanical lifts and accompanying staff training were evaluated in all 11 of the studies that conducted some kind of economic analysis of SRH. Staff training in these studies focused exclusively on proper equipment use and did not address other aspects of SRH, such as team functioning or communication with families. In some cases lifts were installed as part of a multi-component intervention involving ergonomic assessments, policy change, and/or peer leaders. Ten of these studies concluded that SRH interventions were associated with significant net savings to long term care facilities, and one found that SRH program costs were slightly larger than post-intervention reductions in claim costs. Eight studies estimated a "payback period", which is the length of time needed to recover the expenditures involved in implementing the intervention, ranging from less than one year to 9.6 years, depending on the study and the particular assumptions it employed. The salient point is that *most of these studies found that SRH programs involving mechanical lifting equipment paid for themselves*, given a long enough time span.

Alamgir et al. (2008) evaluated the effectiveness and cost benefit of overhead ceiling lifts in three BC long term care facilities over a six-year pre-intervention period and a four-year post-intervention period. Poisson regression models were used to test the effect of the intervention on injury rates. Savings associated with the lifts were estimated according to two methods. The first assumed that the musculoskeletal injury rate in the year immediately before the intervention was representative of how the rate would have continued in the absence of intervention, whereas the second assumed that the average rate for the six-year pre-intervention period would have continued through the post-intervention period in the absence of intervention. The cost benefit of intervention was calculated with and without indirect savings associated with preventing a musculoskeletal injury. Indirect savings are commonly assumed to be either equal to or double the size of direct savings, and include benefits such as less overtime, reduced employee turnover, reduced sick leave, reductions in recruiting and training costs, and improved employee morale. The total cost of the intervention was then divided by the mean estimated savings per year to determine the payback period. Separate payback periods were estimated using the two assumptions described above; these varied from 6.3 to 6.2 years if only direct claim-cost savings were included and from 2.06 to 3.2 years when indirect savings were added. These researchers conclude that the significant reductions in injury rates and compensation claims support interventions with overhead ceiling lifts.

A separate study of ceiling lifts in a BC extended care facility – Chhokar et al. (2005) – reached similar conclusions. Like Alamgir et al. (2008), these authors calculated payback periods using two different methods for extrapolating pre-intervention workers' compensation claims costs: the first assumed the pre-intervention costs in the year immediately prior to the intervention would have continued in the absence of the intervention, and the second used the rising trend in pre-intervention costs to estimate

post-intervention savings. The researchers used linear regression to test the significance of observed changes. Unlike Alamgir et al. (2008), Chhokar et al. considered only direct savings; nevertheless, their analysis of injury trends spanning three years pre-intervention and three years post-intervention revealed a significant and sustained decrease in days lost, workers' compensation claims, and direct costs associated with resident handling injuries. Depending on which method was used to extrapolate pre-intervention costs, the estimated payback period ranged from 0.82 to 2.5 years. Overall the authors conclude that "The rapid economic gains and sustained reduction in the frequency and cost of resident handling injuries beyond the first year strongly advocate for ceiling lift programs as an intervention strategy" (p. 223).

Collins et al. (2004) compared injury rates, severity, and associated costs and benefits three years before and three years after implementation of a multi-component injury prevention program in six American nursing homes. The program consisted of mechanical lifts and repositioning aids, a zero lift policy, and employee training on lift usage. The training session required nursing personnel to identify the type of transfer and procedures required for each resident, and to demonstrate hands-on competency for each type of lifting equipment on actual residents with a range of disabilities. Training was conducted during new employee orientation, when there was a change in job assignment, and annually as part of continuing education. Using Poisson regression, these authors discerned a significant reduction in resident handling injury incidents, workers' compensation costs, and lost workday injuries after the intervention. The reduction in workers' compensation costs during the post-intervention period enabled the nursing homes to recover their initial investment in lifting equipment and worker training in less than three years, and this payback period would have been even shorter had indirect savings been considered. Moreover, the researchers observed reduced rates of post-intervention assaults on caregivers. They conclude that there is strong evidence to support multi-component programs that include mechanical resident lifting equipment, worker training, and a zero lift policy, and that "the effect of the mechanical lifting equipment intervention was beneficial for all nursing homes, for workers in all age groups, lengths of tenure, and for full time, part time, and per diem staff" (p. 210).

Engst et al. (2005) assessed the effectiveness of an overhead ceiling lift program in a BC extended care unit by comparing injury data 21 months before and 21 months after implementation of the program. The program included a one-hour training session that introduced staff to the ceiling lift unit, covered the basic housekeeping requirements and different sling types, and provided hands-on practice for patient handling techniques using the ceiling lifts. Direct savings were estimated from the difference between pre- and post-intervention workers' compensation claims costs, and indirect savings were assumed to be double that amount. Interestingly, these researchers found that ceiling lifts improved outcomes specific to lifting and transferring tasks, but not to repositioning; as such, the payback period was estimated to be 9.6 years when including claims related to all types of resident handling and 6.5 years when including only lifting and transferring claims.

Garg and Kappellusch (2012) evaluated the long-term efficacy of a comprehensive ergonomics program in six American long-term care facilities and one chronic care hospital. The program included a no-manual lifting policy, nursing assessments of residents' transferring needs, resident-handling equipment and explicit protocols for use of the equipment, hands-on staff training – including written instructions, pictures, and videos showing proper and improper uses of these devices – and designation of program 'champions' to monitor use of the equipment and provide feedback to personnel in need of guidance. The kinds of equipment used varied from site to site, but each site had access to some kind of mechanical lift, whether ceiling-mounted or portable. The authors used Poisson regression to compare post- and pre-intervention rates for resident-handling injuries, lost workdays, modified-duty days, and workers' compensation costs. Pre- and post-intervention injury data from the seven participating facilities were available for an average of 38.9 months and 51.2 months, respectively. According to the authors' calculations, the payback periods for the six LTC facilities ranged from 5 to 31 months, with an average of 15 months. On this basis, they conclude that "the implementation of patient-handling devices along with a comprehensive ergonomics program was effective in reducing patient-handling injuries, lost workdays, modified-duty days, and workers' compensation costs," though "[t]he impact was greater on lost workdays and workers' compensation cost than on number of injuries" (p. 623).

Lahiri et al. (2013) conducted a six-year economic analysis of an SRH program in a large chain of skilled nursing facilities in the United States. The program included resident assessment, portable whole-body and sit-to-stand lift devices, friction-reducing slide boards, staff training, and maintenance and use protocols. The authors estimated program savings by subtracting injury-related costs (i.e., from medical care, productivity loss, and employee turnover) in the post-intervention period from pre-intervention injury costs. Overall, they found that the SRH program had a 50.5% annual rate of return on investment and a payback period of approximately 2 years. Moreover, their sensitivity analysis demonstrated that net savings were robust with regard to different assumptions about the working life of the lifting devices as well as interest rates. On the other hand, they noted considerable inter-facility variability in net costs and found that costs outweighed benefits in a fairly large minority of the participating facilities. The authors did not attempt to explain this variability, but they did find that facilities with longer observation time post-intervention had higher total avoided costs of worker compensation claims. Overall, they conclude that "our results show a favorable economic outcome with respect to avoided costs of workers compensation and turnover and provide an economic rationale for the corporation's investment in the SRHP. The payback period reported here falls within the range of other economic analyses of lift programs, that is, 0.83–4 years" (pp. 476-7).

Miller et al. (2006) assessed the effectiveness of portable ceiling lifts in a long-term care facility in BC. Data were collected over a three-year pre-intervention period and a one-

year post-intervention period. Though these researchers did not calculate a payback period, they observed a 70% decrease in workers' compensation claims costs. Based on these results, they conclude that "proactively installing ceiling lifts in newly built longterm care facilities should be considered as an effective method to decrease patient handling injuries and their associated costs" (p383).

Nelson et al. (2006) evaluated the impact of a multi-faceted ergonomics program on injury rate, lost and modified work days, costs, and return on investment in 23 high-risk units – including 19 nursing home care units – within seven facilities in the southeastern United States. The program elements included an ergonomic assessment, peer safety leaders, resident handling equipment, after-action review, and a no-lift policy. A Wilcoxon signed-rank test was conducted to assess differences in the number of lost and modified work days over two nine-month intervention periods, pre and post. The authors found that the ergonomics program resulted in a statistically significant decrease in the rate of musculoskeletal injuries as well as the number of modified duty days taken per injury; interestingly, however, they discerned no statistically significant difference in the total number of lost workdays. Nevertheless, once annual postintervention savings in workers' compensation expenses and costs associated with lost and modified work days were taken into account, the initial capital investment for resident handling equipment and training was recovered in approximately 3.75 years – a payback period that would have been shorter had indirect cost savings been considered. The authors also computed an internal rate of return of close to 19%, which they describe as a "very high return on investment" (p. 728). They note that the study follow-up period of nine months was adequate to address immediate impacts of the program, though a minimum of 2-3 years of post-intervention data collection is typically necessary to capture longer-term program benefits.

Park et al. (2009) weighed the impact of a series of interventions on back injury claim rates from all Ohio nursing homes over a ten-year period. The interventions included training, consultation, and grants for equipment purchases. Injury rates were modeled using Poisson regression, with such predictor variables as intervention metrics, employer size, calendar time, and facility-specific factors. The authors found that a \$500 equipment purchase per nursing home worker was associated with a 21% reduction in back injury claim rate and a net cost of 50 cents per worker per year. On the other hand, interventions not involving equipment – i.e., ergonomics training courses and consultation – were equivocal. Overall, they conclude that "Expenditures for ergonomic equipment in nursing homes by the Ohio [Bureau of Workers' Compensation] were associated with fewer worker injuries and reductions in claim costs that were similar in magnitude to expenditures" (p. 695).

Restrepo et al. (2013) linked information from a survey of nursing directors to data supplied by the National Council on Compensation Insurance as a means of testing the association between safe lift programs and workers' compensation claims. The survey captured data from 271 American long-term care facilities over a three-year time

interval, enabling the researchers to track the effect of successively implemented program elements over time. The primary focus of the study was powered mechanical lifts, though other surveyed features of safe lift programs included lift policies, staff training, and injury reporting procedures. According to the researchers' models, an increase of one lift per 100 residents was associated with a 5% decrease in claims frequency and an 11% decrease in total costs on average. Notwithstanding the centrality of powered lifts to safe lift programs, they found that the lifts attained maximal effectiveness only when embedded within comprehensive safe lift programs:

[What] is required to ensure workplace safety during resident lifting? Not surprisingly, one of the most critical components is that the institutions have a comprehensive set of policies and procedures regarding mechanical lift use. These include having procedures specifying that lifts should be used for residents not able to move around independently and specifying lift use in the residents' care plans. Training newly hired certified nursing assistants in the use of lifts and incorporating lift use in performance evaluations are other important factors (pp. 34-5).

Finally, Spiegel et al. (2002) measured all costs and benefits associated with installation of mechanical lifting equipment in a BC extended care hospital. These authors compared all permanent and casual employees' musculoskeletal injury-related time loss and subsequent compensation claims over two 12-month periods, one preceding and one following the intervention. They estimated that the payback period for the investment was between 2 and 3.85 years, depending on how pre-intervention costs were extrapolated. Furthermore, they point out that this measure "tends to understate the full economic value of a capital cost investment, such as the installed ceiling lifts, which will continue to produce benefits for a much longer period" (p. 131). The internal rate of return to the facility was estimated to be 17.9%.

Self-reported staff outcomes

Eight studies collected subjective data from staff on such outcomes as pain and discomfort, job satisfaction, and/or knowledge of SRH. Pain was assessed in six studies; five of these have already been described. Although Best (1997) discerned no effect of Manutention training on administrative injury data, this author did observe declining incidence of back pain among the nurses that received the intervention. As previously mentioned, Engst et al. (2005), Garg and Kapellusch (2012), Miller et al. (2006), and Ronald et al. (2002) found that injury rates and/or lost work days declined significantly after an intervention involving mechanical lifts and accompanying staff training. Like Best (1997), these four studies also noted decreases in reported pain, stress, or discomfort in the back, shoulders, and extremities of staff persons engaged in lifting or transferring tasks. By contrast, Peterson et al. (2004) assessed the effect of a training intervention on back pain experienced by nursing assistants in a U.S. veteran's home and detected no significant reductions. Quizzes administered by the researchers before
and after training did, however, indicate a significant improvement in nursing assistants' understanding of ergonomics and resident handling techniques.

With respect to other subjective outcomes, Engst et al. (2005), Miller et al. (2006), and Nelson et al. (2006) reported high levels of staff satisfaction with SRH interventions involving ceiling lifts, and Alamgir et al. (2011) found that a peer coaching and mentoring program significantly increased staff's knowledge of SRH and use of ceiling lifts in the BC long-term care subsector.

Resident outcomes

Resident outcomes were not a major focus of the literature reviewed here, but four studies did assess the impact of SRH interventions involving mechanical lifts on resident care quality measures. One found that lift use may increase the risk of falls among residents, but on all other outcomes interventions were found to have either neutral or positive effects. Alamgir et al. (2009a) examined the relationship between ceiling lift coverage rates in 12 extended care facilities in BC and measures like pressure ulcers, falls, urinary infections, and urinary incontinence. Though the lifts did not produce any harmful effects, the authors found that the majority of resident outcome indicators seemed to be unaffected by the rate of ceiling lift coverage. On the other hand, they noted that residents generally approved of the lifts and appreciated their benefits.

Alamgir et al. (2009b) compared ceiling and floor lifts in three BC long-term care facilities by timing resident transfers and using a behavioral scale to rate resident comfort while the transfers were taking place. Researchers assessed residents across five domains: alertness, calmness/agitation, physical movement, muscle tone, and facial tension. They found that transfers performed with ceiling lifts required on average less time and were more comfortable for residents when compared to floor lift transfers.

Like Restrepo et al. (2013), Gucer et al. (2013) surveyed long-term care nursing directors and linked their survey responses to resident outcome data supplied by the Centers for Medicare & Medicaid Services. The goal of this study was to explore the relationship between availability of mechanical lifts and mobility-related resident outcomes. After adjusting for potentially confounding variables, these authors found that lift use was associated with statistically significant declines in pressure ulcers, restraint use, bedfastness (i.e., spending most of the time in bed), and receipt of antipsychotic drugs. They did find that resident fractures and falls were modestly associated with lift use, but they attributed this in part to the risk inherent in encouraging mobility among the mobility-impaired; furthermore, they found that the risk of falls can be mitigated by implementing a comprehensive set of policies and procedures governing lift use.

Nelson et al. (2008) examined the relationship between SRH and quality-of-care measures in six American nursing homes. Using a retrospective observational design, these researchers compared ten quality domains before and after implementation of a

comprehensive ergonomics program with six elements: assessment, peer safety leaders, resident handling equipment, after-action review, and a no-lift policy. After implementation, these researchers found that "the physical functioning of residents increased, the number of those reporting little or no activity during the day declined, the number of those reporting a deterioration in activities of daily living declined, the number of falls among residents decreased, and residents were more awake in the morning that they were before the intervention" (p38).

Factors Associated with Successful SRH Program Implementation

As mentioned earlier, this review includes a small group of studies that analyzed survey and/or administrative data from a wide range of facilities at different stages of SRH program implementation. The goal of these studies was to identify organizational and environmental factors associated with resident handling outcomes like staff injury rates or lift use. Below we discuss the four most prominent predictors of SRH program success: staffing, management support, workplace climate, and access to equipment.

Staffing

Indicators of inadequate staffing were associated with negative SRH outcomes in four studies. Park et al. (2009), described earlier, found that higher resident-to-staff ratios increased the risk of musculoskeletal injury for staff in Ohio nursing homes. Using data from the 2004 U.S. National Nursing Assistant Survey, D'Arcy et al. (2011) found that the odds of injury increase by 35% among long-term care nursing assistants when they report having insufficient time to assist residents with activities of daily living. Furthermore, these researchers also found that nursing assistants with less than one year of experience are nearly twice as likely to report an injury in the past year as those with six or more years of experience. Based on these results, these researchers conclude that "greater reductions in absolute rates of injury among nursing assistants in the US may be possible with increased focus... on the time available to give help with activities of daily living" and that "reducing turnover among nursing assistants could result in fewer injuries" (p. 843).

Kurowski et al. (2012) evaluated the efficacy of an SRH program implemented by a large U.S. nursing home corporation over a two-year period by examining differences among individual facilities in program outcomes and potential predictors of those differences. Results from this study suggest that understaffed shifts may lead to suboptimal equipment use, largely because workers either do not have the time or cannot get the assistance required to transfer residents properly. These authors also found that casual staffing creates knowledge gaps that regular employees must then address by briefing fill-ins on care procedures, thus reducing the amount of time available for proper equipment use. Moreover, turnover can lead to gaps in training and may result in less frequent use of handling equipment and a higher physical workload for staff.

Finally, Yassi et al. (2004) studied variations in staff injury rates across eight intermediate care facilities in BC. They conducted a telephone survey of staff and an ergonomic study, both of which revealed that physical workload and resident-to-staff ratio were strongly correlated with time loss injury rates and self-reported pain, burnout, health, and job satisfaction. The daily number of tasks performed by staff was strongly related to both time loss injury rates and pain, and moderately related to burnout and poorer self-rated health.

Management support

Three articles observed that positive SRH outcomes were more likely in care environments where management demonstrated a strong commitment to occupational safety. Kurowski et al. (2012) and Yassi et al. (2004) have already been described; Koppelaar (2013) evaluated the influence of individual and organizational factors on mechanical lift use in 19 Dutch nursing homes. These researchers found that managerial decisions to reserve and spend money on maintenance of ergonomic devices were positively associated with the rate of lift use among nurses. Senior management's commitment to health and safety also percolated down through other levels of the organization. Safety-conscious managerial decisions were positively associated with ward-level procedures for ensuring the availability and proper maintenance of ergonomic devices, which in turn encouraged the inclusion of lift use guidance in residents' care plans. Likewise, Yassi et al. (2004) concluded that workers in facilities with low staff injury rates

were more likely to agree that their facility invested time and money to improve staff safety, that senior managers were active on the Health and Safety Committee, that managers would deal promptly with unsafe working conditions, and that their supervisors talked to them about working safely.... Overall, workers who had a positive perception of these factors reported less pain and burnout, better health, and more job satisfaction (p. 94).

Workplace climate

Yassi et al. (2004) detected several major differences in workplace climate between facilities with low staff injury rates and those with high rates:

- Facilities with low injury rates were more successful in encouraging worker initiative with respect to the scheduling and organization of meetings. By contrast, workers in facilities with high rates seemed to be treated in a more paternalistic fashion.
- Care aides and licensed practical nurses in facilities with lower rates regularly attended care conferences for residents, and in some cases also attended

meetings with family members and preconference planning meetings with registered nurses.

- Workers in facilities with high rates of injury tended to take a cynical attitude toward management's claims about quality of care and respect for residents' preferences. Their counterparts in facilities with low rates of injury were more likely to reflect on problems in the long-term care sector than to express doubts about management's sincerity.
- Workers in facilities with low injury rates showed greater identification with their organization's core values and philosophy of care. Questions about philosophy of care tended to elicit defensive responses from workers in facilities with high injury rates.
- Workers at facilities with low rates of injury reported better relationships with their director of care, and generally considered him/her to be approachable, knowledgeable about workplace demands, a good communicator, and amenable to positive change. Their counterparts in facilities with high rates of injury reported dysfunctional relationships with their director of care.
- Overall, workers in the facilities with the lower injury rates "were more likely to agree that they could make choices about how they did their work, that their supervisor acted fairly in conflict situations... that their facility had enough staff to provide good quality care and did indeed provide good to excellent care, that management did not show favoritism toward individual residents, that cooperation existed between care aides and LPNs and their supervisors, and that their supervisors listened to what they had to say" (p. 93).

Likewise, Kurowski et al. (2012) reported that "Better staff-to-staff communication and quality of teamwork could also result in more supportive work environments, more effective use of available equipment, and reduced physical workload" (p. 48).

Access to equipment

Perhaps not surprisingly, all of the aforementioned studies on predictors of SRH program success found that staff's ability to access lifting equipment when needed was strongly associated with greater lift use and/or lower injury rates.

Conclusion

Though modest in size, the body of research reviewed here clearly indicates that comprehensive SRH programs can yield significant health and economic benefits to long-term care facilities. The review includes 14 studies that evaluated the effect of SRH interventions involving mechanical lifts on either injury rates or time lost due to injury. Without exception, all 14 reported significant post-intervention reductions. Eleven of these studies conducted an economic analysis, and all but one concluded that SRH interventions involving mechanical lifts were associated with significant net savings to long term care facilities. Eight of these studies estimated a payback period, and these estimates ranged from less than one year to 9.6 years. In other words, most of the studies that assessed the economics of SRH programs found that these programs ultimately paid for themselves, typically within one to four years.

With respect to other outcomes, decreases in pain, stress, or discomfort in the back, shoulders, and/or extremities of staff persons were observed in five of the six studies that measured this outcome. Significantly, in the lone study that did not report a positive finding, researchers evaluated an intervention that did not include mechanical lifts. Only a few articles assessed the impact of SRH interventions involving lifts on resident outcomes. For the most part, long-term care residents seem to approve of mechanical lifts and prefer them to manual transfers, but effects on objective resident care quality measure like pressure ulcers, urinary problems, and immobility were inconsistent. It is worth noting that one study reported a modest association between resident falls and lift use, which may be attributable to the risks involved in encouraging mobility among the mobility-impaired. However, these researchers also found that fall risk can be mitigated by implementing a comprehensive set of policies and procedures governing lift use.

This leads us into an examination of the different determinants of success for SRH programs. There is very little evidence to support programs that do not involve mechanical lifting equipment, but the literature also clearly indicates that equipment alone is not enough. To be maximally effective, SRH interventions must also include policies and procedures specifying how equipment should be used, training for newly-hired staff, and mechanisms for assessing SRH in formal employee performance evaluations. With respect to organizational and environmental factors, adequate staffing levels, management support for safety initiatives, and workplace climates characterized by collaboration, communication, and mutual respect are all associated with positive SRH program outcomes.

Evaluation

In October 2011, the Applied Health Research Division of the Department of Research, Eastern Health was engaged to examine the implementation and impact of the IPP in each of the 10 pilot sites. The research team designed an evaluation framework that would examine two primary components of the intervention — the intervention *process* and short and intermediate intervention *outcomes*. The process evaluation involved an examination of factors that have been shown in the research literature to influence the impact of injury prevention programs, including nurse-related factors, resident-related factors, training-related factors, and equipment-related factors. Barriers and facilitators to the implementation, use of SRH equipment and techniques, and sustainability of the IPP were also examined. The outcome evaluation included an examination of the number of injuries, injury rates, and cost and duration of lost time associated with injuries both prior to and after the implementation of the IPP. The number and rate of injuries were examined using an interrupted time series design, which is considered the strongest quasi-experimental design used to evaluate longitudinal effects of timedelimited interventions (Wagner, Soumerai, Zhang, & Ross-Degnan, 2002).

Evaluation Objectives

The specific objectives of the evaluation are as follows:

- 1. Determine if the rates of staff injury due to resident handling and resulting in lost time changed significantly in the post-intervention time period compared to the pre-intervention time period;
- 2. Determine if the cost and duration of injuries due to resident handling and resulting in lost time changed significantly in the post-intervention time period compared to the pre-intervention time period;
- 3. Examine the availability of the safe handling equipment and the nursing staff members' use of the safe handling equipment and techniques;
- 4. Examine the staff members' satisfaction with the IPP and safe handling equipment;
- 5. Examine the staff members' attendance at and satisfaction with the training;
- 6. Examine the impact of the IPP on the culture of safety and perception of risk in the workplace;
- 7. Examine the impact of the IPP on resident safety and quality of care;
- 8. Examine the residents' comfort and satisfaction with the safe handling equipment;
- 9. Examine the implementation process to determine barriers and facilitators to implementation and safe handling.

Evaluation Method

To meet the objectives outlined above, the evaluation employed a mixed-methods approach involving the collection of quantitative and qualitative data from a variety of sources. The types and sources of data required to address each of the objectives are outlined below:

Objective 1

Number of Injuries

To examine the possible impact of the IPP on lost time injuries among nursing staff, information on injuries incurred by nursing staff was collected by the IPP Project Coordinators and provided to the research team. Details provided included the: 1) date of the injury, 2) injured staff member's occupational group, 3) circumstances surrounding the injury, 4) whether or not the incident involved resident aggression, and 5) whether or not the injury.

The criteria for inclusion of an injury in the evaluation³ were determined by the research team in consultation with the IPP working group and are as follows:

1) the injury was sustained by a nursing staff member (RN, LPN, or PCA) at one of the pilot facilities; and

2) the injury was sustained *during* a resident handling task involving one of the following handling activities:

- a) repositioning a resident in his/her bed or chair/wheelchair,
- b) lifting/transferring from bed to bed/stretcher and vice versa,
- c) lifting/transferring from bed to chair/wheelchair and vice versa,

d) lifting/transferring from floor to bed/chair,

e) lifting/transferring from bed/chair/wheelchair to commode/toilet and vice versa,

f) lifting/transferring from wheelchair to car/taxi and vice versa,

g) walking with a resident,

- h) bathing a resident, or
- i) dressing/changing a resident; and
- 3) the injury had to be musculoskeletal in nature; and
- 4) the injury had to have resulted in lost time for the employee.

³ Injuries included in the cost analysis had a further requirement that they had to have resulted in an accepted WHSCC claim and, thus, have an associated WHSCC cost. Therefore, if an injury resulted in lost time but was not an accepted WHSCC claim, it was excluded from the cost analysis but included in the injury rate analysis and lost days analyses.

A recurrence of an injury would also be included provided it met the four criteria above, regardless of the circumstances under which the original injury occurred. Three members of the research team reviewed each injury, applied the inclusion/exclusion criteria, and determined which of the injuries would be included in the pilot evaluation.

The information recorded on several injuries did not include sufficient detail on the potential source of the injury to allow for inclusion in the project. For example, injuries described as "throughout the course of work day felt pain in the middle of lower back while walking up the hall" and "recurrence of previous injury" were excluded as they could not be attributed to resident handling activities with any certainty. In addition, the record of several injuries contained no additional details and were, therefore, excluded. Thirty injuries (or 23.8%) were excluded in the pre-IPP period for these reasons and 18 (or 18.9%) were excluded in the post-implementation period. To examine the possibility that the percentage of injuries excluded might differ in the pre and post period due to a possible change in reporting diligence, a chi-square analysis was conducted. No significant difference was found (p > .05).

Number of Hours Worked and Injury Rates

The number of hours worked per occupational group per pay period was supplied to the research team by personnel in the Human Resource (HR) Departments in each of the RHAs. These data were required to calculate injury *rates*. To calculate injury rates, the total number of recorded injuries per pay period (approximately 2 weeks) for each of the three nursing occupational groups was divided by the total number of hours worked by employees in each occupational group within that timeframe. A total injury rate collapsed across all three occupational groups was also calculated for each pay period. The formula used to calculate injury rates is:

7692.31 is a constant that represents the number of hours that would be worked by 100 full-time employees (FTEs) during a single two week pay period. It is derived from dividing 200, 000 hours worked in a year, a standard numeric used in the calculation of annual rates, by the number of pay periods in a year (26). Therefore, the injury rates represent the number of injuries that would occur in a 2 week period in 100 employees working full-time.

The injury and hours worked data were obtained for a period of 12 months prior to the implementation of the IPP, during the implementation, and 12 months following the implementation of the IPP. Data supplied for the Hoyles Escasoni Complex spanned a period of 12 months prior to and 6 months following the implementation of the IPP

due to a move into a new facility in September 2014, 6 months following the completion of the IPP implementation.

Objective 2

Cost of Injuries and Duration of Lost Time

The RHAs' HR departments provided the lost time benefits or temporary earnings loss (TEL) paid by WHSCC for each of the eligible injuries identified by the research team. In addition, the research team was also supplied with the date that the injured individual was off, the date he/she returned on easeback, if applicable, and the date he/she returned to regular duties, if applicable. Those individuals who were not yet back to work were identified as such. Three measures of time lost were produced: 1) total number of days off from work, 2) total number of modified duty days, and 3) total number of days from the first day off to a return to regular work.

The cost and duration of lost time data were obtained for a period of 12 months prior to and 12 months following the implementation of the IPP at each of the facilities, with the exception of HEC for which the pre- and post-implementation periods were only 6 months in length.

The research team also obtained data from WHSCC staff, who supplied the number of injuries, cost of injuries, which included lost wages and medical expenses, and duration of lost time. The research team chose to rely primarily on RHA data due to discrepancies between the data sources and the aggregate nature of the WHSCC data. Thus, the results section of the report contains data obtained from the RHAs and Appendix E contains data from the WHSCC.

Objectives 3 through 9

To address the remaining objectives, focus groups and one-on-one interviews were conducted with nursing staff, resident care managers, clinical nurse educators, lift champions, and administrators. In addition, in those facilities with family/resident councils in place, questionnaire data were obtained from council members (see Appendix F). Further, the nursing staff was provided with evaluation questionnaires, developed by the research team and designed to examine the safety culture of the workplace, perceptions of risk and safety, nursing staff's use of the equipment and techniques and barriers to use, and nursing staff's satisfaction with the IPP equipment and training. These questionnaires included a Baseline IPP Evaluation Questionnaire, 10-month IPP Evaluation Follow-up Questionnaire, and 5-month Equipment and Training Questionnaire (see Appendices G, H and I, respectively). The nursing staff questionnaires required that the respondent supply a unique subject code. This code

did not identify the respondent to the research team, but allowed for the data from all three questionnaires to be linked. Provided there were sufficient sample sizes, responses on some of the questionnaire items were compared statistically in an attempt to examine possible changes over time. The questionnaires are described in further detail below. In addition, data collection and questionnaire administration timelines are outlined in Figure 2.

IPP Evaluation Questionnaire (at Baseline and 10 months; See Appendices G and H, respectively)

The IPP Baseline Evaluation Questionnaire was mailed to nine of the ten pilot facilities prior to the beginning of the IPP training. The 10-month Follow-up Evaluation Questionnaire was mailed to eight pilot facilities. Bay St. George was excluded from both administrations due to its prior involvement in an SRH pilot project. Hoyles Escasoni Complex was excluded from the 10-month follow-up due to a shortened post-IPP period of 6 months. Both the baseline and 10-month questionnaire contain questions designed to assess workplace safety culture including compliance with procedures, perceived risk of injury, and communication regarding safety and resident handling. The questionnaire contains several items adapted, with permission, from questionnaires developed by Kay and Glass (2011), Lee et al., (2010), Felknor et al., (2000), the AHRQ (2012), and Western Health (2008).

Equipment and Training Questionnaire (See Appendix I)

The Equipment and Training Questionnaire was developed by the research team in an effort to examine nursing staff's satisfaction with the equipment and training, frequency of use of the equipment and barriers to use, and perceptions' of residents' comfort with the equipment. The questionnaire was administered to all nursing staff members approximately 5 months following the implementation of the IPP.

Family/Resident Council Questionnaire (See Appendix F)

The Family/Resident Council Questionnaire was developed by the research team to assess the family members' and residents' perceptions of and experiences with the IPP and safe handling equipment. The questionnaire was mailed or hand delivered to members of the Councils approximately 10 months after the implementation of the IPP.

Evaluation Periods and Data Collection Timelines

The evaluation periods are captured in Table 3 for each of the facilities. The dates for the pre-IPP and post-implementation evaluation periods are calculated as 12 months prior to the beginning of the implementation and 12 months following the completion of the implementation, respectively, with the exception of Hoyles Escasoni Complex.

The pre- and post-implementation periods for Hoyles Escasoni are each 6 months in length. The pre-implementation period was chosen to be the first 6 months of the 1-year pre-implementation period so that the calendar months would be comparable to those in the post-implementation period.

RHA	Facility	Evaluation Periods			
		Pre-IPP	Post-Implementation		
Eastern	Agnes Pratt Home	Apr 20, 2011-Apr 19, 2012	Feb 21, 2013-Feb 20, 2014		
пеанн	Golden Heights Manor	Sep 1, 2011-Aug 31-2012	Jul 31, 2013-Jul 30, 2014		
	Hoyles Escasoni Complex	Mar 22, 2012-Sep 22, 2012*	Mar 1, 2014-Aug 31, 2014*		
Central	Carmelite House	Jun 12, 2011-Jun 11, 2012	Jul 19, 2012-Jul 18, 2013		
Health	North Haven Manor	Oct 1, 2011-Sep 30, 2012	May 30, 2013-May 29, 2014		
	Bonnews Lodge	Nov 12, 2011-Nov 11, 2013	Jan 24, 2013-Jan 23, 2014		
Western Health	Corner Brook Long Term Care	Sep 17, 2011-Sep 16, 2012	Apr 16, 2013-Apr 15, 2014		
	Bay St. George Long Term Care**	Dec 3, 2011-Dec 2, 2012	May 21, 2013-May 20, 2014		
Labrador- Grenfell Health	Long Term Care Happy Valley Goose Bay	Oct 2, 2011-Oct 1, 2012	Jan 31, 2013-Jan 30, 2014		
	John M. Gray Centre	Nov 19, 2011-Nov 18, 2012	Mar 14, 2013-Mar 13, 2014		

	Table 3. Dates for the	pre-IPP and p	oost-implementation	evaluation periods
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*The pre- and post-implementation periods for Hoyles Escasoni are each 6 months in length. The pre-implementation period was chosen to be the first 6 months of the 1-year preimplementation period so that the calendar months would be comparable to those in the postimplementation period.

**Bay St. George Long Term Care implemented a similar injury prevention program in 2007-2008 and again in 2010.



Figure 2. Timeline for the RHA data collection and questionnaire administration

The research team conducted 13 focus groups and 12 one-on-one interviews with key informants (i.e., resident care managers, lift champions, administrators) and nursing staff at all pilot facilities in Labrador-Grenfell Health and Western Health in November 2013, in Central Health⁴ in July 2014, and in Eastern Health in October-November 2014.

Results: Injury, Cost, and Duration of Lost Time Data

Objective 1: Number of Injuries and Injury Rates

The total number of resident handling/lost time injuries in the pre-implementation, during implementation, and post-implementation periods are presented in Table 4. It is important to note that the pre- and post-implementation period is 6 months in length for Hoyles Escasoni Complex. In addition, the implementation period differed in length in each facility from a minimum of just over 1 month to just under 1 year (see Table 1). The injury rates in each of the 10 pilot facilities are presented graphically in Appendix J.

Overall, the total number of injuries was 84 in the pre-IPP period and 77 in the postimplementation period, representing a reduction in injuries of approximately 8%. Although the overall change was modest, it is important to note the differential impact of the IPP by facility. For example, Agnes Pratt and Golden Heights Manor in Eastern Health and Bay St. George in Western Health experienced a reduction in the total number of injuries from the pre-IPP to the post-implementation period of approximately 58%, 67%, and 56%, respectively. Conversely, John M. Gray in Labrador-

⁴ The focus group and interviews at Bonnews Lodge were conducted in December 2014 due to scheduling difficulties.

Grenfell Health and Corner Brook Long Term Care in Western Health showed an increase in injuries of approximately 167% and 19%, respectively. The remaining pilot facilities experienced little or no change in the number of injuries sustained by nursing staff over the evaluation periods.

RHA	Facility	12-months pre-IPP	During implementation **	12-months post- implementation	Facility Total
	Agnes Pratt Home	12	5	5	22
Eastern	Golden Heights Manor	3	1	1	5
Health	Hoyles Escasoni Complex*	12*	28	13*	53*
	Eastern Health Total	27*	34	19*	80*
	Carmelite House	6	1	5	12
Central Health	North Haven Manor	6	8	7	21
	Bonnews Lodge	2	0	2	4
	Central Health Total	14	9	14	37
	Corner Brook Long Term Care	21	8	25	54
Western Health	Bay St. George Long Term Care*	16	2	7	25
	Western Health Total	37	10	32	79
Labrador-	Happy Valley Goose Bay	3	1	4	8
Grenfell	John M. Gray Centre	3	0	8	11
Health	Labrador-Grenfell Health Total	6	1	12	19
	All Facilities Total	84	54	77	215

Table 4. Total number of injuries by facility and RHA

* The pre- and post-IPP periods for Hoyles Escasoni Complex represent injuries that were sustained in the first 6 months of the 12-month pre-IPP period and the 6 months immediately following IPP implementation, respectively.

**The length of the implementation period differed for each facility.

Impact of the IPP on Number of Injuries and Injury Rates (with consultation from Rafiqul Chowdhury, Ph.D.)

The injury data consist of the injury rate and total number of injuries occurring in every pay period. These data are available for the 26 pay periods prior to the IPP in all 10 facilities and 26 pay periods following the implementation of the IPP in 9 facilities, with the exception of Hoyles Escasoni Complex, for which data from only 13 pay periods following the implementation are available. Analyses were conducted on data collapsed over the 9 facilities (26 pays periods pre and post) and 10 facilities (26 pay periods pre and 13 post), and the results were the same. Thus, in an effort to be concise and to include all 10 facilities, the following section presents the results of analyses conducted on data from all 10 facilities only.

Poisson Regression

Because we do not have data from all participants, only those who were injured, the data (i.e., the number of injuries) are regarded to be count data. The most appropriate statistical model for these count data was determined to be the Poisson regression model (Cameron & Trivedi, 1998). Thus, for the total number of injuries segmented Poisson log-linear model options from the Generalized Linear Models module of SPSS were used to model the total number of injuries on the following three covariates:

- D a dummy variable for the pre and post intervention coded as 0 for preintervention and 1 for post-intervention.
- T the time from the start of the observation period beginning at 1.
- P the time since the intervention coded 0 for pre-intervention and integer after post-intervention starting at 1.

The interpretation of these covariates is illustrated further in Figure 3.

Figure 3. Sample graph illustrating the interpretation of the regression coefficients T, D, and P.



The segmented Poisson regression model output from SPSS is presented in Table 5.

Table 5. Poisson regression model output for total num	ber of injuries
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Parameter	В	Standard Error	95% Wald Confidence Interval		Hypothesis Test		Exp(B)	95% Confi Interval f	Wald dence or Exp(<i>B</i>)	
			Lower	Upper	Wald	df	Significance		Lower	Upper
					Square					
Intercept	1.241	0.2135	0.822	1.659	33.779	1	0.000	3.458	2.276	5.254
D	-0.242	0.3861	-0.998	0.515	0.392	1	0.531	0.785	0.368	1.674
Т	0.005	0.0136	-0.022	0.031	0.125	1	0.724	1.005	0.978	1.032
Р	-0.001	0.0439	-0.087	0.085	0.001	1	0.976	0.999	0.916	1.088

Interpretation of the Poisson Regression Results

The number of injuries per pay period is presented in Figure 4. These graphs include data from the 26 pay periods leading up to the IPP and the 13 pay periods after the program had been fully implemented. Data collected during the span of time in which the IPP was being implemented are *not* included here. The vertical line separates the pre-intervention and post-implementation periods. Thus, although the pay periods are presented as being consecutive from 1 to 39, in actual fact pay period 26 marks the end of the pre-IPP phase and the beginning of the program implementation phase. Likewise, pay period 27 marks the end of the implementation phase and the beginning of the post-implementation phase. The length of time between pay periods 26 and 27 varied by facility based on the amount of time each facility took to implement the IPP.

Although the total number of injuries does not follow a specific pattern, a visual inspection of Figure 4 reveals a slightly upward trend in injuries prior to the intervention and subsequent flattening of the slope after the intervention. Although this visual trend is suggestive of a reduction in injuries from the pre-IPP to the post-implementation period, the Poisson regression model was not statistically significant nor were the regression coefficients (*ps* > .05). Thus, the IPP intervention did not have a statistically significant impact on the number of injuries when data were collapsed over 10 facilities.





Segmented Linear Regression Model for Total Injury Rates

A segmented linear regression model was used to analyze the total injury *rates* using the same covariates D, T and P as described previously. The SPSS linear regression option was used to generate the results in Table 6. As with the Poisson regression, the segmented regression model was not found to be statistically significant nor were its regression coefficients. Therefore, notwithstanding the fact that Figure 5 reveals the same pattern as that found in Figure 4, the IPP intervention did not appear to have a statistically significant impact on the injury rates collapsed over 10 facilities.

14010 01 01 00 00	Sinemeea miear reg	i ession output	in total injuly it	ares us the aspe	
Model	Unstandardized		Standardized	t	Significance
	Coefficients		Coefficients		
	В	Std. Error	Beta		
Constant	0.386	0.074		4.956	0.000
D	-0.085	0.129	-0.227	-0.661	0.513
Т	0.002	0.005	0.115	0.374	0.711
Р	-0.001	0.014	-0.30	-0.093	0.927

Table 6. SPSS segmented linear regression output with total injury rates as the dependent variable





Impact of the IPP on Injuries Involving Resident Aggression or No Aggression

The total number of injuries involving either resident aggression or no aggression in each of the pilot facilities is presented in Table 7.

		12-Months Pre IPP		Dui Impleme	ring entation	12-Months Post IPP	
RHA	Facility	Aggression	Non- Aggression	Aggression	Non- Aggression	Aggression	Non- Aggression
Eastern Health	Agnes Pratt Home	1	11	0	5	1	4
	Golden Heights Manor	1	2	0	1	0	1
	Hoyles- Escasoni Complex	1*	11*	10	18	4*	9*
	Eastern Health Total	3*	24*	10	24	5*	14*
	Carmelite House	2	4	0	1	0	5
	North Haven Manor	1	5	3	8	1	6
Health	Bonnews Lodge	1	1	0	0	1	1
	Central Health Total	4	10	3	6	2	12
Western Health	Corner Brook Long Term Care	7	14	2	6	6	19
	Bay St. George Long Term Care	4	12	0	2	1	6
	Western Health Total	11	26	2	8	7	25
Labrador- Grenfell Health	Long Term Care Happy Valley Goose Bay	1	2	0	1	0	4

Table 7. Total number of aggression related and non-aggression injuries by facility and evaluation period

		12-Months Pre IPP		During Implementation		12-Months Post IPP	
RHA	Facility	Aggression	Non- Aggression	Aggression	Non- Aggression	Aggression	Non- Aggression
	John M. Gray Centre	0	3	0	0	1	7
	Labrador- Grenfell Health Total	1	5	0	1	1	11
	All Facilities Total	19	65	15	39	15	62

*The pre-IPP and the post-IPP periods for Hoyles-Escasoni are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

The potential impact of the IPP on injuries involving resident aggression and those not involving resident aggression was examined to determine if the IPP had a differential impact based on injury type. Segmented Poisson regressions using the number of 'aggression' injuries and 'non-aggression' injuries as dependent variables were conducted and segmented linear regressions were used to analyze the injury rates. The results were largely the same so that only the output from the segmented linear regressions is included here (see Table 8 and 9). Neither of the models was statistically significant nor were the model parameters (ps > .05). Therefore, notwithstanding the fact that Figure 6 shows a slightly decreasing trend in the number of non-aggression injuries over time, the IPP did not appear to have a statistically significant impact on either type of injury. The segmented linear regression estimates using SPSS for aggression and non-aggression injuries are outlined in Table 8 and 9, respectively. The injury rates for aggression and non-aggression injuries are depicted graphically in Figure 6 and 7, respectively.

Model	Unstanda	ardized	Standardized	t	Significance
	Coefficients		Coefficients		
	В	Std. Error	Beta		
Constant	0.041	0.034		1.187	0.243
D	-0.054	0.060	-0.305	-0.902	0.373
Т	0.003	0.002	0.411	1.362	0.182
Р	0.000	0.007	0.014	0.043	0.966

 Table 8. SPSS segmented linear regression output with aggression related injury rates as the dependent variable

R-square value (0.059)

Table 9.	SPSS segmented linea	ar regression output	t with non-aggression	injury rates as the	he dependent
variable	2				

Model	Unstanda	ardized	Standardized	t	Significance
	Coefficients		Coefficients		
	В	Std. Error	Beta		
Constant	0.328	0.069		4.737	0.000
D	-0.031	0.120	-0.089	-0.261	0.796
Т	-0.001	0.004	-0.084	-0.276	0.784
Р	-0.002	0.013	-0.039	-0.121	0.905

R-square value (0.040)





Figure 7. Rates of injuries not involving aggression collapsed across 10 LTC facilities prior to and following the implementation of the IPP



Impact of the IPP on Recurrent and Non-Recurrent Injuries

The total number of recurrent and non-recurrent injuries for each of the nursing occupations is presented in Table 10. Additionally, the recurrence injury rates per pay period by nursing staff occupation are presented in Figures 8 and 9.

		12-Montl	ns Pre IPP	During Implementation		12-Months Post IPP	
RHA	Facility	Recurrence	Non- Recurrence	Recurrence	Non- Recurrence	Recurrence	Non- Recurrence
	Agnes Pratt Home	0	12	0	5	3	2
Eastern Health	Golden Heights Manor	0	3	0	1	0	1
	Hoyles- Escasoni Complex	1*	11*	3	25	2*	11*
	Eastern Health Total	1	26	3	31	5	14
	Carmelite House	1	5	0	1	1	4
	North Haven Manor	1	5	1	7	2	5
Central Health	Bonnews Lodge	0	2	0	0	1	1
	Central Health Total	2	12	1	8	4	10
	Corner Brook Long Term Care	0	21	0	8	7	18
Western Health	Bay St. George Long Term Care	0	16	1	1	0	7

Table 10. Total number of recurrent and non-recurrent injuries by facility by evaluation period

	Facility	12-Month	ns Pre IPP	Dui Impleme	ring entation	12-Months Post IPP		
RHA		Recurrence	Non- Recurrence	Recurrence	Non- Recurrence	Recurrence	Non- Recurrence	
	Western Health Total	0	37	1	9	7	25	
	Long Term Care Happy Valley Goose Bay	0	3	0	1	0	4	
Labrador -Grenfell	John M. Gray Centre	0	3	0	0	0	8	
Health	Labrador- Grenfell Health Total	0	6	0	1	0	12	
	All Facilities Total	3	81	5	49	16	61	

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

The impact of the IPP on recurrent injuries and non-recurrent injuries was examined to determine if the IPP had a differential impact based on injury type. The segmented Poisson regression using number of injuries as the dependent variable and the segmented linear regression using injury rates yielded similar results. Thus, only the results of the segmented linear regression are included here. The segmented linear regression estimates using SPSS for recurrence injury rates and non-recurrence injury rates are presented in Tables 11 and 12 respectively. Neither of the regression models are statistically significant, nor are the model parameters. Thus, notwithstanding the fact that Figure 8 shows a decreasing trend in non-recurrent injury rates after the intervention, the IPP did not appear to have a statistically significant impact on either type of injury. Figure 9 depicts the rate of recurrent injuries over time.

Model	del Unstandardized Coefficients B Std. Error		Standardized Coefficients	t	Significance
			Beta		
Constant	-0.002	0.022		-0.099	0.922
D	-0.029	0.038	-0.229	-0.767	0.448
Т	0.001	0.001	0.260	0.976	0.336
Р	0.007	0.004	0.481	1.717	0.095

 Table 11. SPSS segmented linear regression output with recurrent injury rates as the dependent variable

R-square value (0.267)

Table 12. SPSS segmented linear	regression output with non-recu	rrent injury rates as the dependent
variable		

Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	В	Std. Error	Beta		
Constant	0.371	0.076		4.852	0.000
D	-0.056	0.133	-0.142	-0.426	0.673
Т	0.000	0.005	0.026	0.088	0.931
Р	-0.009	0.015	-0.181	-0.577	0.568

R-square value (0.083)





Figure 9. Rates of recurrent injuries collapsed across 10 LTC facilities prior to and following the implementation of the IPP



Impact of the IPP on Injuries Sustained by Nursing Occupation

The total number of injuries for each of the nursing occupations and evaluation periods is presented in Table 13.

RHA	Facility	12-Months Pre		Imple	During Implementation			12- Months Post		
		LPN	PCA	RN	LPN	PCA	RN	LPN	PCA	RN
Eastern Health	Agnes Pratt Home	5	7	0	0	3	2	1	4	0
	Golden Heights Manor	1	2	0	0	1	0	0	1	0
	Hoyles Escasoni Complex*	1*	10*	1*	11	16	1	6*	7*	0*
	Eastern Health Total	7	19	1	11	20	3	7	12	0
Central Health	Carmelite House	3	3	0	1	0	0	1	4	0
	North Haven Manor	2	3	1	6	1	1	5	2	0
	Bonnews Lodge	2	0	0	0	0	0	0	2	0
	Central Health Total	7	6	1	7	1	1	6	8	0
Western Health	Corner Brook Long Term Care	8	13	0	3	5	0	13	11	1
	Bay St. George Long Term Care	10	6	0	0	2	0	4	2	1
	Western Health Total	18	19	0	3	7	0	17	13	2
Labrador- Grenfell	Happy Valley Goose Bay	2	1	0	0	0	1	2	2	0
Health	John M. Gray Centre	0	3	0	0	0	0	5	3	0
	Labrador- Grenfell Health Total	2	4	0	0	0	1	7	5	0

Table 13. Total number of injuries by nursing occupation by facility by evaluation period

RHA	Facility	12-Months Pre IPP		During Implementation			12- Months Post IPP			
		LPN	PCA	RN	LPN	PCA	RN	LPN	PCA	RN
	All Facilities Total	34	48	2	21	28	5	37	38	2

*The pre-IPP and the post-IPP periods for Hoyles Escasoni are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

The potential impact of the IPP on injuries sustained by the different nursing occupational groups was examined. Because the number of injuries among RNs was so low (see Figure 10), these data were not analyzed. However, the analysis of LPN injuries and PCA injuries are outlined below. Again, because the results of the Poisson regression and segmented regression yielded the same results, only the findings from the segmented regression using injury rates as the dependent variable are included here. The segmented regression models for LPN and PCA injuries are not statistically significant; therefore, the IPP intervention did not appear to have a differential impact based on occupational category (see Table 14 and 15 and Figures 11 and 12).





The segmented linear regression estimates using SPSS for LPN injury rates are presented in Table 14.

Model	Model Unstandardized Coefficients B Std. Error		Standardized Coefficients	t	Significance
			Beta		
Constant	0.175	0.110		1.589	0.121
D	-0.225	0.192	-0.392	-1.174	0.248
Т	0.012	0.007	0.492	1.653	0.107
Р	0.001	0.021	0.020	0.065	0.949

Table 14. SPSS segmented linear regression output with LPN injury rates as the dependent variable

R-square value (0.083)





The segmented linear regression estimates using SPSS for PCA injury rates are presented in Table 15.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	В	Std. Error	Beta		
Constant	0.704	0.149		4.722	0.000
D	0.109	0.259	0.141	0.420	0.677
Т	-0.011	0.010	-0.349	-1.169	0.250
Р	-0.004	0.029	-0.046	-0.146	0.884

Table 15. SPSS segmented linear regression output with PCA injury rates as the dependent variable

R-square value (0.078)

Figure 12. Rates of PCA injuries collapsed across 10 LTC facilities prior to and following the implementation of the IPP



Objective 2: Cost of Injuries and Duration of Lost Time

Cost of Injuries

The costs associated with MSIs in nursing staff were provided by the RHAs' payroll departments. The cost was defined as the lost time benefits or temporary earnings lost (TEL) paid by WHSCC. Two employees who were injured in the post-implementation period remained off of work at the time of data collection. Therefore, it is important to note that the cost in the post-implementation period may be an underestimate of the true cost. Four injuries were identified as incurring no TEL cost (2 in the pre-IPP period; 2 in the post period), as the claims were not accepted by WHSCC. These injuries were removed for the purpose of calculating means and medians. The total TEL cost for injuries in the pre-IPP and post-IPP periods and percent change are outlined in Table 16. The costs associated with injuries in the pre-IPP and post-IPP periods decreased overall by 26%.

The mean and median costs are presented in Table 17. Both measures of central tendency are reported; medians are more appropriate when data are skewed or contain outliers or extreme values, as is often the case with injury cost data and means are more appropriate when the number of observations is low (e.g., three injuries at Golden Heights Manor).

RHA	Facility	Pre-IPP Total	Post-IPP Total	Change	% Change
	Agnes Pratt Home	\$43,322	\$49,455**	+\$6,133	14% increase
	Golden Heights Manor	\$31, 215	\$1,668	-\$29,547	95% decrease
Health	Hoyles Escasoni Complex*	\$67,094	\$58,024	-\$9,070	14% decrease
	Eastern Health Total	\$141,631	\$109,147	-\$32,484	23% decrease
Central Health	Carmelite House	\$14,506	\$10,514	-\$3,992	28% decrease
	North Haven Manor	\$108,800	\$23,190	-\$85,610	79% decrease
	Bonnews Lodge	\$24,645	\$1,187	-\$23,458	95% decrease
	Central Health Total	\$147,951	\$34,891	-\$113,060	76% decrease
	Corner Brook Long Term Care	\$69,351	\$115,326**	+\$45,975	66% increase
Western Health	Bay St. George Long Term Care	\$137,087	\$41,512	-\$95,575	70% decrease
	Western Health Total	\$206,438	\$156,838	-\$49,600	24% decrease
Labuadau	Long Term Care Happy Valley Goose Bay	\$3,912	\$23,649	+\$19,737	505% increase
Grenfell	John M. Gray Centre	\$2,829	\$46,372	+\$43,543	1,539% increase
nealth	Labrador-Grenfell Health Total	\$6,741	\$70,021	+\$63,280	939% increase
	All Facilities Total	\$502,761	\$370,897	-\$131,864	26% decrease

Table 16. Total TEL costs, change, and percent change associated with injuries sustained during the pre-IPP and post-implementation periods

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

**One employee each at Agnes Pratt and Corner Brook LTC had not yet returned to work in the post implementation period.

вна	Facility		Pre-IPP Cost	Post-IPP Cost		
MIA	raciiity	N	Mean (SD) Median	N	Mean (SD) Median	
	Agnes Pratt Home	12	\$3,610 (\$3,403) \$2,992		\$12,364 (\$11,233) \$9,989	
Eastern	Golden Heights Manor	3	\$10,405 (\$16,474) \$918	1	\$1,668	
Health	Hoyles Escasoni Complex*	12	\$5,591 (\$6,473) \$1,709.38		\$4,463 (\$3,923) \$3,632	
	Eastern Health Total	27	\$5,246 (\$6,919) \$1,644	18	\$6,064 (\$6,750) \$3,723	
Central Health	Carmelite House	6	\$2,418 (\$2,437) \$1,136	5	\$2,103 (\$,428) \$585	
	North Haven Manor	6	\$18,133 (\$20,347) \$12,161	7	\$3,313 (\$3,307) \$1,430	
	Bonnews Lodge	2	\$12,322 (\$17,002)	2	\$594 (\$575)	
	Central Health Total	14	\$10,568 (\$15,534) \$3,444	14	\$2,492 (\$3,109) \$912	
	Corner Brook Long Term Care	20	\$3,468 (\$6,618) \$537	24	\$4,805 (\$8,696) \$1,451	
Western Health	Bay St. George Long Term Care	15	\$9,139 (\$13,682) \$4,461		\$5,930 (\$3,895) \$4,813	
	Western Health Total	35	\$5,898 (\$10,473) \$1,084	31	\$5,059 (\$7,826) \$2,618	
	Long Term Care Happy Valley Goose Bay	3	\$1,304 (\$548) \$1,112	4	\$5,912 (\$4,887) \$5,046	
Labrador- Grenfell	John M. Gray Centre	3	\$943 (\$1,002) \$439	8	\$4,817 (\$6,797) \$2,343	
neditii	Labrador-Grenfell Health Total	6	\$1,124 (\$749) \$995	12	\$5,835 (\$7,446) \$2,094	
	All Facilities Total	82	\$6,131 (\$10,281) \$1,259	75	\$4,945 (\$6,842) \$2,388	

Table 17. Mean and median TEL costs of injuries sustained in the pre-IPP and post-implementation periods

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

The Mann Whitney U test revealed no significant difference in the distribution of the cost data in the pre-IPP and post-implementation periods. Similarly, there was no significant difference in the median cost (Mood's test) or mean cost (independent samples t-test) between time periods (*ps*>.05).

Duration of Lost Time

The research team provided the HR Department of each RHA with the date and employee number associated with each of the injuries identified as eligible. The employees' first day off of work, the date that the employee returned on modified duties or easeback, if applicable, and the date that the employee returned to regular duties, if applicable, were obtained. These dates allowed us to create three indicators of lost time: 1) *number of lost days*, which was calculated by subtracting the date of the employee's first day off from the date that the employee returned to work in some capacity (either on easeback or regular duties); 2) *number of days on modified duties*, which was calculated by subtracting the date the employee returned on easeback from the date that the employee returned to regular duties; and 3) *number of days until back on regular duties*, which was calculated by subtracting the date of the employee's first day off from the date that the employee was back on regular duties.

These indicators are approximate measures, as the employees' time off may have included annual leave or sick leave that was related or unrelated to the injuries sustained. Those individuals who had not yet returned to work (n=3) were excluded from the analysis. Table 18 contains the mean and median duration of lost time in the pre-IPP and post-implementation periods for each facility.

	Facility		Pre-IPP		Post-IPP			
RHA		Number of Days Lost	Number of Days on Modified Duties	Number of Days until Back on Regular	Number of Days Lost	Number of Days on Modified Duties	Number of Days until Back on Regular	
		Mean(SD) Median	Mean(SD) Median	Mean(SD) Median	Mean (SD) Median	Mean (SD) Median	Mean (SD) Median	
Eastern Health	Agnes Pratt Home	59 (25) 64	112 (135) 60	97 (116) 84	51 (57) 51	60 (18) 60	110 (97) 111	
	Golden Heights Manor	4 4	23 23	262 (422) 27	19 19	15 15	34 33	
	Hoyles Escasoni Complex*	127 (84) 143	59 (17) 60	113 (114) 70	89 (70) 54	95 (45) 91	67 (68) 59	
	Eastern Health	87 (71) 65	79 (90) 60	123 (167) 67	73 (64) 42	73 (45) 69	76 (74) 59	
	Carmelite House	137 (18) 145	43 (8) 41	102 (94) 87	110 (139) 110	29 (9) 29	131 (163) 46	
Central	North Haven Manor	404 (279) 403	34 (2) 34	200 (259) 108	67 (2) 67	59 (15) 59	67 (68) 59	
Health	Bonnews Lodge	268 268	61 61	166 (231) 166	-	-	192 (250) 191.5	
	Central Health	248 (181) 178	43 (11) 39	148 (181) 108	88 (84) 67	44 (20) 42	103 (130) 37	
Western Health	Corner Brook Long Term Care	84 (110) 52	211 (228) 142	125 (222) 14	69 (82) 36	90 (121) 52	82 (123) 27	

Table 18. Mean and median duration of lost time (in days) associated with injuries sustained in the pre-IPP and post-implementation periods

	Facility		Pre-IPP		Post-IPP			
RHA		Number of Days Lost	Number of Days on Modified Duties	Number of Days until Back on Regular	Number of Days Lost	Number of Days on Modified Duties	Number of Days until Back on Regular	
		Mean(SD) Median	Mean(SD) Median	Mean(SD) Median	Mean (SD) Median	Mean (SD) Median	Mean (SD) Median	
	Bay St. George Long Term Care*	101 (86) 75	211 (330) 63	109 (204) 29	89 (75) 60	61 (32) 68	121 (64) 125	
	Western Health	89 (99) 63	211 (251) 112	118 (211) 15	74 (78) 51	82 (102) 54	91 (112) 45	
Labrador	Long Term Care Happy Valley Goose Bay	-	-	14 (3) 14	46 (35) 46	96 (58) 96	113 (75) 106	
-Grenfell Health	John M. Gray Centre	-	-	5 (2) 6	91 (12) 91	177 (52) 177	76 (121) 16	
	Labrador- Grenfell Health	-	-	10 (5) 9	68 (34) 76	136 (65) 139	88 (106) 29	
	All Facilities Total	117 (121) 79	122 (176) 60	116 (185) 21	75 (69) 61	82 (83) 58	89 (106) 40	

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

There were no significant differences in the distribution of the three lost time data variables between evaluation periods nor were there significant differences in the median or mean number of lost days, number of modified duty days, or number of days until the employee was back to regular duties from the pre-IPP to post-implementation periods (ps > .05). Thus, the IPP appeared to have no statistically significant impact on the amount of time injured employees lost. However, the difference between the mean number of days lost from the pre-IPP (M=117.12) to post-implementation period (M=74.68) approached significance (t (66) = 1.79, p=0.78) and may warrant further attention in future research.
Results: Questionnaire, Interview, and Focus Group Data

Questionnaire Response Rates

The response rates for each of the three questionnaires are provided by facility and nursing occupation in Table 19. These response rates represent the percentage of nursing staff members who responded to the questionnaires.

	Survey Response Rates				
Facility	PCAs	RNs	LPNs	Total	
Agnes Pratt Home					
Baseline	28.95%	10.53%	14.29%	20.35%	
5-month	55.00%	30.44%	82.69%	62.96%	
10-month	23.33%	8.70%	23.08%	21.48%	
Golden Heights Manor					
Baseline	45.46%	40.00%	45.16%	46.03%	
5-month	25.81%	20.00%	44.83%	34.29%	
10-month	54.84%	30.00%	48.28%	50.00%	
Hoyles Escasoni Complex					
Baseline	82.44%	57.58%	85.71%	80.91%	
5-month	45.58%	17.65%	33.33%	37.16%	
10-month		N/A	N N		
Carmelite House					
Baseline	52.94%	100.00%	87.81%	80.00%	
5-month	20.5%	71.43%	34.15%	31.71%	
10-month	41.18%	85.71%	73.17%	63.42%	
North Haven Manor					
Baseline	60.87%	21.43%	73.08%	58.73%	

Table 19. Facility response rates by occupation for each evaluation questionnaire

	Survey Response Rates				
Facility	PCAs	RNs	LPNs	Total	
5-month	28.00%	7.14%	33.33%	25.76%	
10-month	16.00%	28.57%	18.52%	19.70%	
Bonnews Lodge					
Baseline	94.12%	75.00%	76.92%	83.64%	
5-month	63.16%	33.33%	53.85%	52.63%	
10-month	42.11%	25.00%	19.23%	29.82%	
Corner Brook Long Term Care					
Baseline	21.74%	32.14%	22.77%	23.19%	
5-month	38.25%	83.33%	35.32%	43.87%	
10-month	27.87%	50.00%	27.36%	31.37%	
Bay St. George Long Term Care					
Baseline		N/A	L Contraction of the second seco		
5-month	65%	43.48%	60.87%	60.61%	
10-month		N/A	L Contraction of the second seco		
Long Term Care Happy Valley Goose Bay					
Baseline	66.67%	46.67%	75%	66.67%	
5-month	43.75%	36.36%	59.26%	53.70%	
10-month	18.75%	63.64%	29.63%	38.89%	
John M. Gray Centre					
Baseline	65%	50%	73.68%	76.60%	
5-month	63.16%	50%	100%	79.55%	
10-month	52.63%	83.33%	100%	79.55%	

Questionnaire Respondents

For all facilities combined, the majority of questionnaire respondents at baseline, 5-months, and 10-months was LPNs (48.75%, 45.94%, and 47.59%, respectively) followed closely by PCAs (37.74%, 43.65%, and 38.91%, respectively) and finally by RNs (13.52%, 10.41%, and 13.51%, respectively). Therefore, the majority of questionnaire data at each time point was supplied by LPNs and PCAs.

For each of the three questionnaires, the number of respondents and the corresponding percentage that each facilities' respondents represent in the entire 10 facility sample are presented in Table 20. The demographic and work-related characteristics of questionnaire respondents at all facilities collapsed are presented in Table 21.

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Facility	Baseline Questionnaire	Equipment and Training Questionnaire	10-Month Follow-Up Questionnaire
	n (%)	n (%)	n (%)
Agnes Pratt Home	23 (3.5%)	85 (12.5%)	29 (8.8%)
Golden Heights Manor	29 (4.4%)	24 (3.5%)	35 (10.6%)
Hoyles Escasoni Complex	284 (43.4%)	175 (25.7%)	N/A
Carmelite House	68 (10.4%)	26 (3.8%)	52 (15.8%)
North Haven Manor	37 (5.6%)	17 (2.5%)	13 (3.9%)
Bonnews Lodge	46 (7%)	30 (4.4%)	17 (5.2%)
Corner Brook Long Term Care	96 (14.7%)	179 (38.8%)	128 (38.8%)
Bay St. George Long Term Care	N/A	80 (11.8%)	N/A
Long term Care Happy Valley Goose Bay	36 (5.5%)	29 (4.3%)	21 (6.4%)
John M. Gray Centre	36 (5.5%)	35 (5.1%)	35 (10.6%)
TOTAL	655	680	330*

Table 20. Distribution of questionnaire respondents by facility

*The number of surveys returned at 10-months is lower than the two previous questionnaire administrations due, in part, to Hoyles Escasoni nursing staff not receiving the 10 month questionnaire.

	Baseline Questionnaire	Equipment and Training Questionnaire	10-Month Follow- Up Questionnaire
	n (%)	n (%)	n (%)
Occupational			
Group			
LPN	310 (47.3%)	300 (44.1%)	148 (44.8%)
RN	86 (13.1%)	68 (10%)	42 (12.7%)
PCA	240 (36.6%)	285 (41.9%)	121 (36.7%)
Other	10 (1.5%)	0 (0%)	4 (1.2%)
Employment			
Status			
FT	411 (62.7%)	401 (59%)	176 (53.3%)
РТ	82 (12.5%)	73 (10.7%)	30 (9.1%)
Temporary	30 (4.6%)	36 (5.3%)	15 (4.5%)
Casual/Floater	114 (17.4%)	130 (19.1%)	84 (25.5%)
Other	6(0.9%)	6(0.9%)	2(0.6%)
Sex			
Female	589(89.9%)	613(90.1%)	294(89.1%)
Male	57(8.7%)	51(7.5%)	19(6.1%)
Length of Employ			
< 1 yr	41(6.3%)	74(10.9%)	32(10.3%)
1-10 yrs	371(56.6%)	387(56.9%)	208(67.1%)
11-19 yrs	106(16.2%)	105(15.8%)	48(14.5%)
> 20 yrs	128(19.5%)	98(14.4%)	22(6.7%)

Table 21. Demographic and work-related characteristics of questionnaire respondents

Note: Due to missing data, not all of the percentage values equal 100.

Objective 3: Availability and Use of Safe-Handling Equipment and Techniques by Nursing Staff

Availability of Equipment

An item on the 5-month and 10-month questionnaires asked respondents about the availability of safe-handling equipment. The responses at both time periods indicated that the equipment was available when needed (see table 22).

Table	22.	Response	s to '']	Is the	resident	handling	equip	ment avai	ilable for	use when	vou i	need it?"
							- 1P				J	

Response	Ν	N (%)			
	5 month (n=657)	10 month (n=326)			
Yes	568 (86.5%)	287 (88%)			
No	89 (13.5%)	39 (12%)			

Six of ten staff focus groups also offered a positive assessment of equipment availability under the IPP. The focus groups specifically noted the benefits of providing each resident with lift slings for his/her own exclusive use. In those groups where equipment availability was found to be insufficient, this was generally due the logistical difficulties involved in laundering the newlypurchased lift slings and anti-friction sheets. The necessity of sending the supplies to a central laundry for cleaning resulted in items going missing. Additionally, a number of groups observed that their facility's laundry service has been unable to process the extra equipment in a timely manner, and this has resulted in frequent shortages.

Use of Equipment and Techniques

The results at 5 and 10 months indicate that the vast majority of nursing staff are using the resident handling equipment, with only one respondent at 10 months noting that he/she did not use it (see table 23).

Response	5 month(n=665) n %		10 month(n=325)		
			n	%	
Yes	637	95.8%	324	99.7%	
No	28	4.2%	1	0.3%	

Table 23. Responses to "Are you using the new resident handling equipment?"

Similarly, when asked if they use safe-handling practices and techniques, the vast majority of nursing staff (almost 100%) respondents replied in the affirmative (see table 24).

Response	5 month	n(n=674)	10 month(n=323)		
	N	%	n	%	
Yes	658	97.6%	320	99.1%	
No	16	2.4%	3	0.9%	

Table 24. Responses to "Do you routinely use safe resident handling practices and techniques?"

However, data from key informant interviews and focus groups suggest that nursing staff may in some instances attempt to save time by bypassing the equipment and/or safe-handling practices altogether. All ten of the staff focus groups reported that some of their co-workers were in the habit of taking short cuts or rushing to perform tasks, and eight of the ten cited chronic shortages of regular staff as a factor that encourages rushing. Statements from both the key informant interviews and the focus groups clearly indicate that when units are "working short," nursing staff members are often reluctant to take the extra time needed to properly execute safe handling techniques:

"Well, everybody knows we're working short and stuff like that. We are just running, just trying to get things done on a regular daily basis. To do extra stuff like that, it just seems like you just don't have the time." [Focus Group K, p23]

"Yeah, we were short this morning. But, I mean, most of these procedures are for two people... to do it properly, and you can't always find a second person, not if you want to get your work done." [Focus Group D, p12]

"Well, rather than waiting for the staff, you're inclined to go ahead and do it [twoperson lift] with one person." [Focus Group J, pp7-8]

The negative effect of staff shortages on use of SRH equipment and techniques was also addressed in interviews with resident care managers. As one manager explained, if it has been determined that two people are required to safely assist a given resident with walking or getting out of bed, then workers are discouraged from attempting to assist the resident by themselves. However, it often happens that "someone is working alone" because:

"Lots of time we are short staffed. But we do make every attempt to get people in on overtime and sometimes there could be like maybe an hour or two where we are down, right? So someone could be potentially working alone. That has happened a lot.... But definitely I think our hours of care could probably be increased so we do have more staff on site each day." [Interview F, pp 12-3]

Respondents agreed that situations like these occur "every day" and noted that "it wouldn't be if we had staff." But even when units have a full staff contingent, the presence of new or casual staff can create other kinds of time pressures. Although IPP training is included in the orientation of new staff, newly-hired or fill-in workers may not have received training in SRH, and may not know anything about the organization of work on the floor or the particular care needs of its residents. As a result, the overall functioning of care teams is rendered less efficient and there is less time available for resident care. According to some of the focus group participants, this can reduce compliance with SRH policies and heighten the risk of injury:

"...everyone has the same mentality. They all have the same thoughts. What kind of day are we going to have? When are we going to get our cares done? And then when your day starts with... one regular staff member and then you've got a bunch of casuals coming in [asking], 'What about this one? What about that one?' [Regular staff] feel slowed down and they're like, 'We're working with a bunch of people that don't even know the floor,' you know." [Focus Group H, p26]

"Because we do have very, very heavy care here, like heavy residents. And like then you're all of a sudden, you're on for the next three days with someone that just started like two weeks ago. Then that makes a difference on us – all of us, for injury" [Focus Group F, p41]

This focus group exchange between resident care managers at one of the province's larger long-term care facilities further illustrates the problems that can occur when new recruits do not receive adequate training before starting work:

RCM #1: "And the other thing is our turnover rate, the number of new staff that come here every single year. I don't have the stat but -"

RCM #2: "Very high turnover"

RCM #1: "Without providing the new people with education – I guess it's already moved to the orientation process – and without providing that education it would be so much worse."

RCM #2: "It would be, absolutely."

RCM #1: "Because people would use their own devices, their own limited problem solving skills to move patients in a dangerous manner, both for themselves and for the patients. They would do all the things – they would relearn all the things that were done back in the 80s and 90s – hook and grasp and all that stuff." [Focus Group A, p26].

Pressure from families can also affect staff's readiness to use resident-handling equipment and techniques. Even under normal circumstances staff will often find that a co-worker is not immediately available to assist with a resident handling task designated as a 'two-person assist.' For this reason, residents cannot always get out of bed and ambulate as promptly as they did before implementation of the program. Family members often take a dim view of these kinds of delays and, for a variety of other reasons, can find it difficult to accept the fact that their loved one requires special assistance to walk or simply get out of bed:

"I mean, like if you say to someone, 'Well, actually I've got to wait 15 or 20 minutes because my partner is doing something else,' I mean some family members do not take that lightly and they'll...bite your head off. So then what are you going to do? They [the nursing staff] just go on and do it." [Focus Group J, p69]

"Sometimes it is a little difficult for the families to connect that mom is not doing as well and it's end stage and that type of thing. It's a little harder for them sometimes to adjust to that...So it takes time sometimes to get it through to them that she really can't walk any more. This particular lady we were talking about, they literally dragged her up and down, but the lady wasn't well enough to be doing that. She passed away, like, shortly after that. So she really – it was a sin that they were doing that, kind of thing. And sometimes they override what we know is not best for the resident. But that's the thing, a family thing, different families, some accept it easier, more readily..." [Focus Group D, pp26-7]

However, key informants and focus group participants also noted that, on the whole, use of resident handling equipment and techniques is increasing, due in large part to the reminders and hands-on assistance offered by Lift Champions. We discuss the many positive impacts of the Lift Champions' work in a later section on facilitators of the IPP.

Nursing Staff's Perceptions of their Knowledge of SRH Practices

On both the baseline and 10 month questionnaires, respondents were asked a series of questions about their knowledge of how to assess or move residents safely (see Tables 25 -27). Almost every respondent replied either "agreed" or "strongly agreed" that they had the necessary knowledge to move residents safely. Respondents of both questionnaires were also asked if they "feel safe with the way I move residents in bed." (see Table 28). Again, almost every respondent either "agreed" or "strongly agreed" with this statement. A visual inspection of these items suggested an increase in agreement from baseline to 10 months. A Wilcoxon signed ranks test revealed there was a significant increase in agreement from baseline to 10 months for the following items: *I feel I have the knowledge needed to move a resident safely in bed* (z=-1.985, p<0.05), *I feel I have the knowledge needed to move a resident safely in bed* (z=-2.043, p<0.05) and *I feel safe with the way I move residents in bed* (z=-1.715, p<0.05). However, when respondents were asked whether they "had the knowledge needed to move resident to move resident from bed to chair/commode/toilet, etc.," there was no significant change in agreement (p>0.05).

Response	Baseline	e (n=652)	10 month (n=329)		
	n %		n	%	
Strongly disagree	0	0%	2	0.6%	
Disagree	10	1.5%	4	1.2%	
Neither	22	3.4%	3	0.9%	
Agree	427	65.5%	167	50.8%	
Strongly Agree	193	29.6%	153	46.5%	

Table 25. Responses to "I feel I have the knowledge to assess how to move a resident safely."

Table 26. Responses to "I feel I have the knowledge needed to move a resident safely in bed."

Response	Baseline	e (n=651)	10 month (n=329)		
	n	%	n	%	
Strongly disagree	0	0%	2	0.6%	
Disagree	6	0.9%	2	0.6%	
Neither	16	2.5%	2	0.6%	
Agree	424	65.1%	161	48.9%	
Strongly Agree	205	31.5%	162	49.2%	

Table 27. Responses to "I feel I have the knowledge needed to move a resident safely from	bed to
chair/commode/toilet, etc.''	

Response	Baseli	ne (n=)	10 month (n=329)		
	n	%	n	%	
Strongly disagree	0	0%	2	0.6%	
Disagree	17	2.6%	3	0.9%	
Neither	21	3.2%	3	0.9%	
Agree	423	64.9%	161	48.9%	
Strongly Agree	191	29.3%	160	48.6%	

Response	Baseline (n=649)		10 month (n=329)	
	n	%	n	%
Strongly disagree	5	0.8%	1	0.3%
Disagree	34	5.2%	7	2.1%
Neither	37	5.7%	8	2.4%
Agree	373	57.5%	164	50.2%
Strongly Agree	200	30.8%	148	45.0%

Table 28. Responses to "I feel safe with the way I move residents in bed."

Objective 4: Nursing Staff's Satisfaction with the IPP and SRH Equipment

On both the baseline and 10 month questionnaires, respondents were asked if they felt the equipment they had was adequate for moving residents safely (see tables 29 and 30). While the majority of respondents both prior to and after the implementation of the IPP "agreed" or "strongly agreed" that they did, there were notable increases in agreement from baseline to 10 months. A Wilcoxon signed ranks test confirmed there was a significant increase in agreement from baseline to 10 months for the following items: *I feel I have the equipment needed to move residents safely in bed* (z=-4.979, p<0.05), *I feel I have the equipment needed to move resident safely from bed to chair/commode/ toilet, etc.* (z=-4.483, p=0.000). At both 5 and 10 months respondents were asked if they were satisfied with the equipment that was implemented (see table 31). The vast majority responded in the affirmative.

Response	Baseline (n=648)		10 month (n=328)		
	n	%	N	%	
Strongly disagree	21	3.2%	3	0.9%	
Disagree	111	17.1%	9	2.7%	
Neither	64	9.9%	8	2.4%	
Agree	333	51.4%	170	51.8%	
Strongly Agree	119	18.4%	138	42.1%	

Table 29. Responses to "I feel I have the equipment needed to move residents safely in bed."

 Table 30. Responses to ''I feel I have the equipment needed to move residents safely from bed to chair/commode/toilet, etc.''

Response	Baseline (n=648)		10 month (n=)	
	n	%	n	%
Strongly disagree	21	3.2%	3	0.9%
Disagree	111	17.1%	10	3%
Neither	64	9.9%	10	3%
Agree	333	51.4%	179	54.6%
Strongly Agree	119	18.4%	126	38.6%

Response	5 month(n=667)		10 month(n=324	
	n %		n	%
Yes	608	91.2%	293	90.4%
No	59	8.8%	31	9.6%

Table 31. Responses to "Are you satisfied with the new resident handling equipment that has been implemented?"

Likewise, the responses of focus group participants to questions about their satisfaction with the new equipment were overwhelmingly positive. Nine out of ten staff focus groups gave an overall positive assessment of the ceiling lifts and the anti-friction sheets. A sampling of participants' responses gives some sense of the enthusiasm with which they embraced the new equipment:

"If you're talking ceiling lifts specifically, the ease of the ceiling lift – there is no tugging, pulling.... [I]t certainly makes our care a lot easier physically when we're using the ceiling lifts, right?" [Focus Group K, p34]

"I just love the ceiling lifts." [Focus Group B, p92]

"They're flying, my dear, in the [ceiling] lifts now. You put them in and then it's like they're flying, it's so smooth of a move." [Focus Group C, p38]

"[Breeze sheets] are like a God send. I've been here for 18 years – my back appreciates them" [Focus Group E, p4]

"I find the breeze sheets, the ones that we have, they're wonderful for residents." [Focus Group B, p9]

"I think the breeze sheets are awesome. They're excellent." [Focus Group H, p3]

The following exchange from one of the staff focus groups sums up the general attitude of front-line workers:

PARTICIPANT #1: "Yeah, breeze sheets are a breeze."

PARTICIPANT #2: "Oh, are they ever."

PARTICIPANT #1: "And them new ceiling lifts are – "

PARTICIPANT #2: "Phenomenal."

PARTICIPANT #1: "Yeah, they are. I never heard anyone complain about those." [Focus Group D, p19]

Notwithstanding the near-universal satisfaction with the ceiling lifts and the anti-friction sheets, the interviewees and focus group participants did identify a few drawbacks. Some respondents found that anti-friction sheets tend to slide down or bunch up underneath the residents, and at times residents themselves slide down the bed. A few respondents also noted that the sheets appeared to cause skin breakdown on some residents' heels. They noted further, however, that this issue had seemed to rectify itself for reasons unknown. Some respondents claimed that the ceiling lifts do not always work properly, are hard to maneuver when lifting heavy patients, and are slow to operate. Lift slings were occasionally found to be too big for some smaller-sized residents. Some respondents also had difficulty using the ceiling lifts to transfer residents to their chairs.

Objective 5: Nursing Staff's Attendance at and Satisfaction with the IPP Training

Attendance at Training

About 10 months to 1 year following the implementation of the IPP, key informant interviews and focus groups were conducted with nursing staff, program coordinators, resident care managers and lift champions. Questions were posed regarding the implementation process and how well attended the training sessions were. There was a general perception among those who participated that the 4 hour training session delivered by the IPP Program Coordinator was well-received. Staff replacement issues were noted at a few facilities despite the availability of funding for this purpose

Satisfaction with Training

Five months following the completion of the implementation phase of the IPP, nursing staff were provided with the 5-month Training and Equipment Questionnaire. As illustrated in Table 32, the majority of respondents agreed (63.3%) or strongly agreed (34.4%) that the IPP education/training provided them with the knowledge to use the safe-handling equipment appropriately. Further, almost all participants (97.9%) either agreed or strongly agreed that they felt confident they could use the SRH equipment safely, while 96.7% respondents agreed or strongly agreed that the SRH resources and materials were useful.

Responses were more mixed when asked if they required further training. Although the majority either disagreed (18.3%) or strongly disagreed (52.4%) that this was the case, approximately 1/5 of respondents felt that they could benefit from further training. When asked about the presenter of IPP training/education, the feedback was overwhelmingly positive. Almost all respondents (96.9%) agreed or strongly agreed that the presenter was well prepared, while the majority of respondents felt the presenter answered questions to help improve their understanding (97.1%) and demonstrated a good knowledge of the subject area (97.4%).

Table 32.	Nursing	staff's	satisfaction	with IPP	[,] training
I ubic 02.	- tur bing	bran b	Satisfaction		ti uning

Item	Strongly Disagree n (%)	Disagree n (%)	Neither n (%)	Agree n (%)	Strongly Agree n (%)
IPP training provided me with the knowledge to use the safe- handling equipment appropriately. (n=581)	2(0.3%)	2(0.3%)	9(1.5%)	368(63.3%)	200(34.4%)
I am confident that I can use the resident handling equipment. (n=581)	2(0.3%)	5(0.9%)	5(0.9%)	329(56.6%)	240(41.3%)
The safe resident handling resources and materials were useful. (n=577)	3(0.5%)	5(0.9%)	11(1.9%)	366(63.4%)	192(33.3%)
I require further training to use the safe-handling equipment appropriately. (n=573)	105(18.3%)	300(52.4%)	62(10.8%)	75(13.1%)	31(5.4%)
The education session presenter or trainer answered questions to help improve my understanding.(n=579)	3(0.5%)	1(0.2%)	13(2.2%)	377(65.1%)	185(32%)
The education session presenter or trainer was well prepared. (n=578)	3(0.5%)	3(0.5%)	12(2.1%)	362(62.6%)	198(34.3%)
The presenter or trainer demonstrated a good knowledge of the subject area.(n=580)	5(0.9%)	2(0.3%)	8(1.4%)	359(61.9%)	206(35.5%)

Similarly, from a qualitative perspective, comments generated from the focus groups with nursing staff also indicated that the staff were satisfied with the training – nine of the ten staff focus groups gave the training an overall positive assessment. Participants felt that the IPP training provided them with the knowledge to use the safe-handling equipment and the opportunity for hands-on practice:

"I found that most people here were satisfied with the training that they had, that they didn't think they required any more actual training other than what they did..." [Focus Group K, p1]

"I did find [the training] helpful, absolutely." [Focus Group D, p5]

"It was the best training or educational thing, whatever you want to call it, that I was ever to." [Focus Group C, p3]

Focus group participants also indicated that periodic training 'refreshers' may be required to reinforce and remind staff of lessons learned in the IPP training. As one participant noted, "It's easy to slip back into the old way you used to do things." A few participants also mentioned that the training didn't adequately equip them to perform resident assessments, which is an important component of the program. Additionally, several participants noted the importance of providing the training to new staff or staff returning from extended periods of absence due to injury or maternity leave:

"[I]n terms of staff returning to work, I think we need to build this in a little more in terms of the running through SRH each time someone is off for any period of time. Meaning not a day or two but, you know, off for a few weeks or whatever, that when they come back, there is some kind of refresher or whatever and someone sits down with them and goes through the whole SRH bit..." [Focus Group A, p19]

Objective 6: Culture of Safety and Perceptions of Risk in the Workplace

Culture of Safety

Several items on the baseline and 10 month follow-up questionnaires addressed the issue of workplace safety culture as well as nursing staff's perceptions of risk of injury in the workplace (see tables 33-40). The majority of respondents at both the baseline and 10 months endorsed "agree" or "strongly agree" for these items. A visual inspection of response patterns points to similarities in responses from baseline to 10 months post implementation. However, two items did suggest an increase in agreement from baseline to 10 months: *Staff use shortcuts to get work done faster* and *Unsafe work practices are corrected by co-workers*. A Wilcoxon signed ranks test was performed and the level of agreement for both items did not significantly change (p>0.05).

Response	Baseline (n=651)		10 month (n=329)	
	n	%	n	%
Strongly disagree	7	1.1%	1	0.3%
Disagree	42	6.5%	9	2.7%
Neither	15	2.3%	6	1.8%
Agree	436	67%	220	66.9%
Strongly Agree	150	23%	93	28.3%

Table 33. Responses to "Staff follow standard procedures."

Response	Baseline (n=651)		10 month (n=329)	
	n %		n	%
Strongly disagree	47	7.2%	47	14.3%
Disagree	184	28.3%	112	34%
Neither	64	9.8%	36	10.9%
Agree	301	46.2%	100	30.4%
Strongly Agree	55	8.4%	34	10.3%

Table 34. Responses to "Staff use shortcuts to get their work done faster."

Table 35. Responses to "Staff safety is considered when decisions are made."

Response	Baseline (n=648)		10 month (n=326)	
	n	%	n	%
Strongly disagree	22	3.4%	18	5.5%
Disagree	117	18.1%	53	16.3%
Neither	59	9.1%	41	12.6%
Agree	317	48.9%	172	52.8%
Strongly Agree	133	20.5%	42	12.9%

Table 36. Responses to "Unsafe work practices are corrected by co-workers."

Response	Baseline (n=654)		10 month (n=327)	
	n	%	n	%
Strongly disagree	6	0.9%	0	0%
Disagree	99	15.1%	23	7%
Neither	89	13.6%	27	8.3%
Agree	399	61%	221	67.6%
Strongly Agree	61	9.3%	56	17.1%

Table 37. Responses to "Safety is emphasized in the way work is conducted on the unit."

Response	Baseline (n=651)		10 month (n=326)	
	n	%	n	%
Strongly disagree	5	0.8%	6	1.8%
Disagree	68	10.4%	25	7.7%
Neither	68	10.4%	33	10.1%
Agree	431	66.2%	209	64.1%
Strongly Agree	79	12.1%	53	16.3%

Response	Baseline (n=655)		10 month (n=330)	
	n	%	n	%
Strongly disagree	3	0.5%	3	0.9%
Disagree	45	6.9%	13	3.9%
Neither	27	4.1%	8	2.4%
Agree	408	62.3%	207	62.7%
Strongly Agree	172	26.3%	99	30%

Table 38. Responses to "Staff talk about ways to keep incidents from happening again."

Table 39. Responses to "Safe resident handling is important to me."

Response	Baseline (n=653)		eline (n=653) 10 month (n=329)	
	n	%	n	%
Strongly disagree	1	0.2%	2	0.6%
Disagree	0	0%	0	0%
Neither	2	0.3%	0	0%
Agree	150	23%	92	28%
Strongly Agree	500	76.6%	235	71.4%

Table 40. Responses to "Management	nt listens to staff ideas and suggestion	s about employee safety."
Dochonco	Bacalina (n=640)	10 month (n-220)

Response	Baseline (n=649)		10 mont	h (n=328)
	n	%	n	%
Strongly disagree	46	7.1%	20	6.1%
Disagree	164	25.3%	51	15.5%
Neither	120	18.5%	50	15.2%
Agree	294	45.5%	178	54.3%
Strongly Agree	24	3.7%	29	8.8%

However, responses were mixed for the statements: Staff use short-cuts to get work done faster and Management listens to staff ideas and suggestions about employee safety. At baseline 54.6% of respondents either "agreed" or "strongly agreed" they did use shortcuts compared to 40.7% at 10 months. Though these results speak to a generally high emphasis on staff safety, they do also indicate that some workers still have a tendency to use "shortcuts to get their work done faster." The need for a broader and more consistent embrace of safety culture was expressed by participants in six of ten staff focus groups, two of the three Lift Champions, and all of the resident care managers approached for this project. The issue is complex and involves a number of dimensions. Some focus group participants called for a greater commitment to teamwork:

PARTICIPANT #1: "I'm telling you I've worked days where my partner has gone on and done whatever and you're left to do a two-person care on your own and if you don't do it, what are you going to do, you know? You know it's really rough, right?"

PARTICIPANT #2: "You got a lot of different personalities, right?"

PARTICIPANT #1: "But it's almost like you got to leave a little bit of yourself at home and be here saying, 'I'm here for these people. I'm here to care about people and I care about my partner.' My partner may not be my best friend."

PARTICIPANT #2: "Right."

PARTICIPANT #1: "We may not go shopping together and hang out every weekend or whatever the case may be... but we're here as a team."

PARTICIPANT #2: "Yeah, but you expect her to be there for you 100 percent in this building and your shift."

PARTICIPANT #1: "Yeah." [Focus Group H, p44]

Other participants highlighted the difficulty of insisting on SRH practices in situations where these might entail some delay for residents or other staff members. For these participants, speaking up is one of the thornier aspects of cultural change:

"You're encouraging staff to work in pairs, and then if someone is not following SRH, you're asking the other staff member to say, 'Well, I'm not prepared to move the resident.' That's very difficult for one staff member to say to the other, especially if you've got a junior staff member saying it to a senior staff member" [Focus Group A, p9].

"If you've got a demanding resident that wants to be potted and whatnot and the LPN is doing her medication, you can't interrupt her doing her medications because that's important. Just finding the time and letting the resident know, 'Well, I got to wait for my partner.' Sometimes you just can't wait to do what's safe. Like, maybe I should've waited for my partner, but you know, the resident is not waiting, is not accepting the answer, 'I have to wait,' so sometimes you do things that you shouldn't do" [Focus Group I, p11].

Handling residents safely also requires critical thinking skills, insofar as workers must independently evaluate each situation they encounter, identify potential safety hazards, and creatively apply their training to real-world challenges. As mentioned previously, point-of-care assessment by nursing staff is encouraged under the IPP, but discussions with program coordinators, Lift Champions, and resident care managers indicate that compliance with this program element may be inconsistent across LTC sites. In many instances, care providers – casual staff in particular – appear to be relying on previous assessments instead of conducting their own. Perhaps not surprisingly, some interview and focus group participants identified rote thinking and routinized behavior as obstacles to the spread of safety culture within their organizations:

"We have a resident who gets on the floor quite a bit. And the staff obviously have to get her up off the floor quite a bit.... So people, some individuals continued to pick her up, who were always picking her up off the floor, even though that is not the practice. And it's like, well, I know some people had a problem with that and identified that as [un]SRH – 'There's got to be a better way, we need to do something, that's what we're supposed to do' – and brought it forward. But other people were doing it without thinking there's a better way" [Interview B, p15].

"I've heard people say, 'The breeze sheets, they're easy for sliding the residents up in bed, but they're also easy for residents to slide down in bed.' So from their perspective they say they'll be pulling people up more often because of the breeze sheets. As opposed to repositioning or adjusting the bed [according to] a process behind that that's been educated into people where you lift the legs of the bed up a little higher and then you can't slide down because you'd have to slide uphill. So there are ways around that, but again, that takes critical thinking and a little bit of extra assessment" [Focus Group A, pp11-2].

"Lots of days I'll make a check and make sure [residents] have got [breeze sheets] in their beds. And I'll make sure they got their own slings. But you – like you should be able to judge that your own self. Like if a resident is heavy, you should think, 'Now does she need a breeze sheet?' People don't do it.... When it gets taken out to get washed and the bed gets clean, you've got some staff that didn't go and look to see... is she a breeze sheet or not?" [Focus Group F, pp54-5].

Among all the various cognitive and behavioral obstacles to the further spread of safety culture, one merits special mention. According to our interview and focus group participants, there is still a mindset within LTC that resident care consists of a sequence of tasks that must be performed within a set and unvarying schedule. Though not everyone shares this mindset, participants returned to the theme of time – the perceived lack of it and entrenched norms on how it ought to be used – on multiple occasions throughout the focus group sessions:

"I think everyone has in their minds that, 'Okay, all of the baths have to be done before lunch.' So then it's a rush to get that done" [Interview F, p10].

"There's nobody that tells you that everybody has to be up by such-and-such a time. Or has to be changed out by such-and-such a time. That's pressure that people put on themselves. Five minutes here or there to wait for somebody is not going to make any difference. Too task-oriented, like things got to be done by a certain time" [Focus Group G, pp31-2].

In many instances, this "task-oriented" mindset is reinforced by pressures from other staff. For instance, housekeeping personnel often like to have bathing facilities cleaned by a certain point in the day, and will expect care workers to have all their residents bathed in advance of this. If housekeepers are prevented from cleaning these facilities because a resident has not yet had

his/her bath, the perception among nursing staff is that they may view this as an annoying disruption:

"But upstairs I finds, like, 'Oh yes, everyone *got* to be up by 12:00.' Like, they gets in kind of a panic mode if their bath is not done at 12.... I mean, you goes in to a resident and then you washes them, changes them, and cleans them – I mean, that's the main thing. If they get their bath after lunch, well, so be it. I think that comes from both sides too. Like... they wants to get their tubs and everything cleaned after lunch, kind of thing like. So you know, you gets a little bit of pressure from everything, like, from management side, from the cleaning crowd. I mean, they all got their stuff that they have to get done" [Interview A, p14].

In sum, our participants felt that greater commitment to the following aspects of workplace safety culture could potentially enhance the impact of the IPP: teamwork, communication, critical thinking, and flexibility with respect to the scheduling of tasks.

Perceptions of Risk of Injury

The nursing staff were asked how likely they were to experience a musculoskeletal injury within a year related to four different events: 1) work in general, 2) work tasks not related to resident handling, 3) work tasks related to resident handling (e.g., lifting, transferring, repositioning) that are performed manually, and 4) resident handling that is performed using an assisted/mechanical lift device (see tables 41-44). Perceptions of risk among the nursing staff are high at both baseline and 10 months following the implementation of the IPP for all tasks except those not related to resident handling. For example, 61.5% of respondents at baseline and 55.7% at 10 months post implementation reported that they were "somewhat" to "extremely likely" to experience an injury even when using an assisted/mechanical lift device. A visual inspection of the response patterns reveals similarities between baseline and 10 months post implementation, suggesting that the IPP may not have impacted the respondents' perceptions of their risk of injury.

Response	Baseline (n=648)		10 month (n=326)	
	n	%	n	%
Extremely unlikely	18	2.8%	7	2.1%
Moderately unlikely	39	6%	27	8.3%
Somewhat unlikely	63	9.7%	38	11.7%
Somewhat likely	245	37.8%	118	36.2%
Moderately likely	152	23.5%	62	19%
Extremely likely	131	20.2%	74	22.7%

Table 41. Responses to "How likely is it that you will experience a musculoskeletal injury within a year related to nursing work in general?"

Response	Baseline (n=649)		10 month (n=323)	
	n	%	n	%
Extremely unlikely	69	10.6%	44	13.6%
Moderately unlikely	126	19.4%	69	21.4%
Somewhat unlikely	192	29.6%	91	28.2%
Somewhat likely	186	28.7%	89	27.6%
Moderately likely	53	8.2%	22	6.8%
Extremely likely	23	3.5%	8	2.5%

Table 42. Responses to "How likely is it that you will experience a musculoskeletal injury within a year related to work tasks not related to resident handling?"

Table 43. Responses to "How likely is it that you will experience a musculoskeletal injury within a year related to resident handling tasks (e.g., lifting, transferring, repositioning) that you perform manually?"

Response	Baseline (n=651)		10 month (n=324)	
	n	%	n	%
Extremely unlikely	15	2.3%	6	1.9%
Moderately unlikely	29	4.5%	21	6.5%
Somewhat unlikely	50	7.7%	28	8.6%
Somewhat likely	208	32%	103	31.8%
Moderately likely	158	24.3%	68	21%
Extremely likely	191	29.3%	98	30.2%

Table 44. Responses to "How likely is it that you will experience a musculoskeletal injury within a year
related to resident handling tasks (e.g., lifting, transferring, repositioning) that you perform using an
assisted/mechanical lift device?"

Response	Baseline (n=649)		10 month (n=325)	
	n	%	n	%
Extremely unlikely	40	6.2%	19	5.8%
Moderately unlikely	84	12.9%	56	17.2%
Somewhat unlikely	126	19.4%	69	21.2%
Somewhat likely	230	35.4%	115	35.4%
Moderately likely	99	15.3%	45	13.8%
Extremely likely	70	10.8%	21	6.5%

Nursing staff respondents were also asked to provide an overall rating of their respective facility with regard to employee safety (see table 45). After the implementation of the IPP, response ratings ranging from "good" to "excellent" increased 19.5%. A Wilcoxon signed ranked test revealed this increase in agreement from baseline to 10 months was significant (z=-2.597, p<0.05).

Response	Baseline (n=577)		10 month (n=328)	
	n	%	n	%
Poor	48	8.3%	19	5.8%
Fair	198	34.3%	57	17.4%
Good	199	34.5%	118	36%
Very good	115	19.9%	106	32.3%
Excellent	17	2.9%	28	8.5%

Table 45. Responses to "Please give this LTC facility an overall rating of employee safety."

Objective 7: Resident Safety and Quality of Care

Nursing Staff's Perceptions

Several items on the 10 month follow-up questionnaire were designed to assess the staff's perceptions of resident safety and quality of care (see table 46). The vast majority of respondents answered in the affirmative when presented with the following items: 1) *Staff tell someone if they see something that might harm a resident* (96.3%), 2) *When staff report something that could harm a resident, someone takes care of it* (86.6%) *and* 3) *Staff discuss ways to keep residents safe from harm* (94.2%). The nursing staff's responses were more varied, however, when asked about managements' involvement in resident safety. For example, only 48% of respondents agreed that "Management often walks around the LTC site to check on resident care" and 60.6% felt that "Management asks how the LTC site can improve resident safety."

ltem	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	n(%)	n(%)	n(%)	n(%)	n(%)
Staff tell someone if they see something that might harm a resident. (n=326)	3(0.9%)	4(2.1%)	4(2.1%)	183(56.1%)	131(40.2%)
When staff report something that could harm a resident, someone takes care of it. (n=328)	7(2.1%)	21(6.4%)	16(13.4%)	196(59.8%)	88(26.8%)
Staff discuss ways to keep residents safe from harm. (n=329)	3(0.9%)	9(2.7%)	7(2.1%)	187(56.8%)	123(37.4%)
Management asks staff how the LTC site can improve resident safety. (n=327)	13(4%)	63(19.3%)	52(15.9%)	166(50.8%)	32(9.8%)
Management often walks around the LTC site to check on resident care. (n=327)	35(10.7%)	85(26%)	50(15.3%)	126(38.5%)	31(9.5%)

Table 46. Nursing staff's responses on resident safety items on the 10-month evaluation questionnaire

On both the baseline and 10 month questionnaires, respondents were asked whether management listens to staff ideas and suggestions about resident safety (see table 47). While the majority of respondents both prior to and after the implementation of the IPP "agreed" or "strongly agreed" with this statement, there was a notable increase of agreement from baseline (58%) to 10 months (64.1%).

Response	Baseline (n=650)		10 mont	h (n=326)
	n	%	n	%
Strongly disagree	55	8.5%	16	4.9%
Disagree	126	19.4%	48	14.7%
Neither	92	14.2%	53	16.3%
Agree	342	52.6%	172	52.8%
Strongly Agree	35	5.4%	37	11.3%

Table 47. Responses to "Management listens to staff ideas and suggestions about resident safety."

On both the 5 month and 10 month questionnaires, when nursing staff were asked if the new resident handling equipment had impacted the residents' quality of life and care, the responses were mixed (see tables 48 -49). Indeed, approximately 30-40% of respondents answered "no". Further explanation was provided by many respondents, some of whom felt that the anti-

friction sheets could aggravate skin integrity issues and may result in heel ulcers. In addition, some staff members noted that use of the equipment is time-consuming, taking more time to use especially when transferring heavier residents. It was also noted that because residents slide down in bed more often on the anti-friction sheets, more time is spent hauling the residents up in bed. Those who felt that the equipment had positively impacted residents noted the improved mobility, the ease with which residents can be moved, decreased wait times for residents wanting to get up due to improved equipment availability, the decreased risk for resident and staff injury, decreased physical strain on residents and staff, increased compliance of residents, decreased fear and agitation in residents, and the impact of the equipment on residents' ability to "stay up longer" participating in activities and socializing with friends. One staff member wrote, "No matter your size or shape they can be easily washed, lifted and placed in any furniture or chair without strain or injury."

The focus group data on resident quality of life and care were similarly equivocal; four of the ten staff focus groups felt that the IPP had a positive overall effect on this outcome, though only one spoke to the kinds of negative impacts identified in the questionnaire responses.

Response	5 month(n=569)		10 mont	h(n=315)
	n %		n	%
Yes	377	66.3%	220	69.8%
No	192	33.7%	95	30.2%

 Table 48. Responses to "Has the new resident handling equipment impacted upon your residents' quality of care?"

life?''	Table 49. Responses to '	las the new resident handling	g equipment impact	ed upon your residents'	quality of
	life?''				

Response	5 month(n=547)		10 month(n=301)	
	n	%	n	%
Yes	325	59.4%	192	63.8%
No	222	40.6%	109	36.2%

Although staff were mixed about the impact that the new equipment had on the residents' quality of life and care, the vast majority provided a positive rating of the facility on overall resident safety (see table 50). A Wilcoxon signed ranks test confirmed there was no significant change in agreement from baseline to 10 months (p>0.05). Approximately 81% of respondents indicated that they would tell friends that the facility where they work is a safe facility for their family (see table 51).

Response	Baseline (n=573)		10 month (n=327)		
	n	%	n	%	
Poor	13	2.3%	3	0.9%	
Fair	102	17.8%	23	7%	
Good	215	37.5%	90	27.5%	
Very good	196	34.2%	158	48.3%	
Excellent	47	8.2%	53	16.2%	

Table 50. Responses to "Please give this LTC facility an overall rating of resident safety."

Table 51. Responses to "I would tell friends that this is a safe LTC facility for their family member."

Response	10 month (n=316)		
	n	%	
Yes	256	81%	
No	5	1.6%	
Maybe	55	17.4%	

Objective 8: Residents' Comfort and Satisfaction with the Safe-Handling Equipment

Family Member and Resident Feedback

A questionnaire providing an opportunity for both qualitative and quantitative feedback was administered to the members of the Family/Resident Council 10 months post implementation to assess perceptions of and satisfaction with the equipment and IPP (See appendix F). A total of 16 residents and 32 family members completed the questionnaire. As illustrated in Table 52, the majority of the family members (77.42%) felt that their loved ones were comfortable with the new equipment; however, responses obtained from the residents indicated more variability in responses, with 37.5% reporting that they were not comfortable with the new equipment. The reasons provided for why residents do not feel comfortable with the new resident handling equipment included complaints that the anti-friction sheets are "too warm" and "slippery" and, as a result, interfered with sleep. They also noted that the lifts can cause pain to the ribs and under the arms.

Fifty percent of residents and family members responded in the affirmative when asked if the new resident handling equipment had impacted on their/their loved ones' quality of care. Family members were divided in their opinion when asked if the new resident handling equipment had impacted their loved ones' quality of life. Those who felt that it had an impact (31.25%) noted that the equipment allowed residents to get out of bed for visits, increased their mobility, and prevented injury. In contrast, only 25% of the residents felt that the equipment had impacted their quality of life. It is possible that the residents on the Council are relatively mobile and do not require the frequent use of the resident handling equipment. Residents and family members were mixed in their opinion when asked if the IPP had impacted

their safety. Approximately 47% of residents believed that it had while an equal percentage of family members believed that it had not.

Several respondents provided additional comments regarding the new resident handling equipment and the IPP. Most comments were positive; however, one explained that the lack of staff in the facility is a concern and that it prevents the residents from receiving the quality of care they need and deserve. For example one family member stated, "If there were enough staff here to handle the amount of residents here it would make it so much better. There is not enough staff here to handle the residents here and give them the quality care they need."

theme	Ye	S	No		Unsure	
item	Residents n(%) Family Members n(%)		Residents n(%)	Family Member n(%)s	Residents n(%)	Family Members n(%)
Do you feel that you are/your family member is comfortable with the new resident handling equipment? (n=47)	9(56.25%)	24(77.42%)	6(37.5%)	5(16.13%)	1(6.25%)	2(6.45%)
Has the new resident handling equipment impacted upon you/your family members' quality of care?(n=48)	8(50%)	16(50%)	6(37.5%)	12(37.5%)	2(12.5%)	4(12.5%)
Has the new resident handling equipment impacted upon you/your family members' quality of life?(n=48)	4(25%)	10(31.25%)	9(56.25%)	14(43.75%)	3(18.75%)	8(25%)
Has the implementation of the injury prevention program at (facility name) affected your/your family members' safety?(n=47)	7(46.67%)	13(40.63%)	6(40%)	15(46.87%)	2(13.33%)	4(12.5%)

Table 52. Residents' and family members' perceptions of the IPP equipment

Nursing Staff Feedback

Nursing staff members were also asked to assess residents' comfort with the resident handling equipment 5 months and 10 months after the implementation of the IPP (see table 53). The majority of respondents felt that the residents were comfortable at both time points.

Response	5 month(n=580)		10 mont	h(n=316)
	n	%	n	%
Yes	519	89.5%	277	87.7%
No	61	10.5%	39	12.3%

Table 53. Responses to "Do you feel residents are comfortable with the new resident handling equipment?"

Reasons provided on the questionnaire for residents' discomfort included complaints about the anti-friction sheets and Sara Lift. Respondents indicated that residents frequently complain about the anti-friction sheets being uncomfortable, and noted that the sheets had caused sore heels and the tendency for residents to slide down in the bed. For example, one respondent noted that, "Family members get upset because residents are constantly down in the bed and look uncomfortable and we may have just pulled them up 5 minutes prior." Complaints about the Sara lift included physical discomfort under the arms from the slings and fear and nervousness form residents about being in the lifts.

As with resident quality of life and care, the focus group data on residents' perceptions of the IPP equipment was equivocal. Only three of the ten staff groups found that these perceptions were generally positive, and six of the ten observed that at least some residents have on occasion exhibited some fear or reservations concerning the ceiling lifts, though in at least some cases these reservations diminish as residents become more accustomed to the new equipment. Some focus group participants also fielded occasional complaints about the anti-friction sheets, especially if these were not tucked in properly, causing the resident to slide down in bed.

Objective 9: Barriers and Facilitators to the Implementation of the IPP and SRH among Nursing Staff

The nursing staff questionnaires contained several close- and open-ended items requiring the respondents to identify barriers and facilitators to safe-handling practices and to provide suggestions for the improvement of safety practices in their facility. In addition, in an attempt to verify the questionnaire data, similar questions were asked of the focus group respondents and key informants.

On both the baseline and 10 month questionnaires, nursing staff were asked if they feel that there are barriers that prevent them from using SRH practices (see table 54) and to identify what those barriers are. Compared to the baseline responses, at 10 months there was a slight increase in the percentage of respondents who endorsed "no" when asked if there are barriers

(40.7% vs. 64.3%). The majority of respondents on the baseline and 10 month questionnaire explained that a shortage of staff was the most significant barrier. For example one respondent wrote, "The workload is heavy for the number of employees assigned to handle it." Another noted, "There are times when we use shortcuts, due to the lack of time and lack of staff." Other barriers identified at baseline were 1) inadequate time allotted for safe-handling, 2) cluttered rooms/inadequate space to perform safe-handling tasks, 3) inadequate levels of safety knowledge amongst staff, in particular amongst new and causal staff, 4)difficult families and/or a lack of understanding among family members, 5) lack of communication between residents and staff, 6) inadequate amount of equipment and/or working equipment 7) aggressive and/or non-compliant residents, 8) the reluctance among staff to use the new equipment and safe handing techniques, and 9) lack of support from management.

Table 54. Responses to	"Do you feel	that there are	barriers that	prevent y	ou from using	the safe resident
handling practices?"						

Response	Baseline(n=622)		10 month(n=319)	
	n	%	n	%
Yes	369	59.3%	114	35.7%
No	253	40.7%	205	64.3%

The themes identified from the focus groups with nursing staff mirror those found in the questionnaires. As previously discussed, the shortage of regular staff was identified as the primary barrier to the use of safe-handling equipment and techniques. Pressure from families, rushing to complete tasks, inadequate amount of equipment, and the increasing complexity of residents were also cited as barriers. The nursing staff participants also felt that in many facilities the residents' cluttered rooms do not allow them adequate space to perform resident handling tasks properly. Key informants also reported having seen staff revert back to old practices and habits because they either forgot what they had learned or because "it's hard to break old habits." To help prevent this tendency, the key informants suggested providing staff with "constant reminders" and stressed the importance of correcting inappropriate practices. Both key informants and staff agreed that training refreshers are needed going forward in order to keep staff update and prevent them from reverting back to old habits.

In the 10 month questionnaire, respondents were also asked if there were things that support them in their application of SRH techniques (see table 55). The majority of respondents replied "yes" (87.2%). Identified supports include 1) the new resident handling equipment and its ready availability, 2) support from management, 3) coworkers reminding each other to use safe-handling practices, 4) the IPP training and resources, and 5) the presence of a Lift Champion onsite.

Response	10 month (n=296)		
	N	%	
Yes	258	87.2%	
No	38	12.8%	

Table 55. Responses to "Do you feel that there are things that help or support you to use safe resident handling practices in your LTC facility?"

Key informants and focus group participants offered several additional suggestions for improvement. The importance of support/buy-in from senior managers was noted as important for the success of the implementation of the program and continued sustainability. For example, the provision of relief so that staff can attend the training was noted as essential. Additionally, a number of participants in the staff focus groups emphasized the need for their managers' support when dealing with pressure from families. In the absence of such support, workers often find themselves compelled to move residents in inappropriate and unsafe ways:

"I tried [explaining the need for SRH practices] once with a family member in our unit since we've been here, on using the stand aid on her mom. Because I was always taught that every day is an assessment and, you know, it could be you'd lift – the stand aid – or they could do it on their own, independent with the walker. This one particular morning [the resident] just didn't – she just couldn't do it. I mean she's got a bad knee and she just couldn't do it. So I went on and I went to get the stand aid and put Mom in the stand aid and everything, and Mom was fine. Brought her into the bathroom, did her full care. Now the daughter was lingering outside. And everything was fine, and then all of a sudden that afternoon I got called in and I was like, 'Okay, you know, what did I do now?' I mean like you know? So anyway I went onto a meeting and such, and apparently the daughter was really upset that we used a mechanical lift on her mom. I said, 'No, it wasn't a mechanical lift, it was the stand aid.' And I said, 'Mom was well aware of what I was doing. Mom was really comfortable. There was no pressure on Mom's knee, and everything worked out fine.' I said, 'Nobody was upset or anything else, so I don't know what this is all about.' And then apparently I was told [by management] that under no circumstances am I ever to use a lift like that again on their Mom unless family approves" [Focus Group B, pp68-70].

However, the single most important facilitator of IPP success identified by our key informants and our focus group participants was the steady presence of an on-site Lift Champion or Co-Leader. The role of the Lift Champion is complex and varied, encompassing hands-on demonstration and assistance; one-on-one evaluation of transfer techniques and equipment use; regular reinforcement of appropriate handling practices; and overall coordination of resident assessments. Lift Champions also inspect slings on a monthly basis and remind staff to do the same every time they use one. Because of their critical role, focus group participants were insistent that Lift Champions must have dedicated time in order to perform his/her many tasks: "I think we need to ensure this is on the recording. Having a go-to, a champion, somebody on site that you have in case you have questions – you know, somebody that's a little bit more advanced – and I'd have a bit of a better understanding" [Focus Group K, p32].

"The people see her [the Lift Champion] so they know it's important. But when they don't see her anymore, like, my fear is... is the staff going to slowly revert back." [Focus Group I, p9].

"Now there's someone to make sure the slings are there and the lifts, and you have someone to ask 'What slings do I need to use? Is it the large, medium, or the small? Or what do you think – do I need to do this or should we do this?'" [Focus Group G, pp 38-9].

"She [the Lift Champion] provided the leadership to make sure that staff were engaged in the process. Like I say, she didn't go in and fill out the 30 [resident] assessments and say this is what you have to do. She would make sure that staff would have the input and do the assessments. So again, you know. And she ensured that they are reevaluated at the appropriate time – 30 days, right? Every thirty days. And like you say, she conducted huddles independently. Like, if a manager wasn't there, she would continue on and she'd follow up. There was a sheet there, basically a table that would say, 'These are the issues: Mrs. [redacted] is a medium lift, really should be large or..." You know, all these issues. And she has gone down to the laundry to find where the slings have gone. And it wouldn't sustain without her" [Focus Group A, pp 15-6].

As discussed earlier, a number of focus group participants called for a broader and more consistent embrace of workplace safety culture. Taking all the various data collected for this project into account, it seems reasonable to conclude that ongoing support for the role of Lift Champions is likely one of the most important measures for ensuring a sustained commitment to workplace safety in long-term care settings.

Overall, the focus group participants and key informants agreed that the "[IPP] is a good program." The focus group participants were in agreement that the training provided them with the knowledge and skills necessary to use the equipment. Several participants felt that the training could be improved by incorporating a component on how to deal with resident aggression and how to speak to family members who are asking that their loved ones be moved right away or who do not understand the importance of staff complying with safe-handling practices.

Discussion

The NL Department of Health and Community Services in conjunction with Central Health, Western Health, Labrador-Grenfell Health and Eastern Health implemented the IPP in an effort to reduce the number of MSIs sustained by LTC nursing staff during resident handling activities. The principal components of the program included staff training, the purchase of resident handling equipment and supplies, and the development of resident assessment procedures and safe handling policies. In consultation with the Provincial Healthcare Ergonomics Committee, the four RHA Program Coordinators modeled the IPP after similar evidence-based programs, such as the one implemented at Bay St. George in Western Health several years ago. The scholarly literature reviewed in this report found that these kinds of programs have been successful in reducing injury rates and time lost due to injury in LTC facilities. The literature review also identified several organizational determinants of SRH program success, including adequate staffing levels, management support for safety initiatives, and workplace climates characterized by collaboration, communication, and mutual respect. It also emphasized the importance of a comprehensive set of policies and procedures governing resident handling.

The IPP was implemented in ten LTC facilities throughout the province of NL: three each in Eastern Health and Central Health and two each in Labrador-Grenfell Health and Western Health. Program implementation was staggered over two years, beginning with Agnes Pratt Home in April 2012 and ending with Hoyles Escasoni Complex in August 2014. The primary objectives of the program included a reduction in the number and duration of lost-time MSIs in nursing staff and associated costs. However, due to the multifaceted nature of the intervention, several additional objectives were identified including improved workplace quality, improved resident care quality, and the satisfaction of legislative requirements.

The research team utilized a mixed-method approach to evaluate a range of program processes and outcomes. Questionnaires were administered to nursing staff (PCAs, LPNs, and RNs) at all ten facilities at baseline – just prior to the implementation of the IPP – and at five and ten months following implementation. The baseline and ten-month questionnaires contained the same questions and were designed by the research team to measure changes in respondents' perceptions of various factors including risk of injury, organizational safety culture, quality of resident care, and staff knowledge of SRH. The five-month questionnaire assessed nursing staff's perceptions of the IPP training and SRH equipment availability and use. In addition, focus groups with nursing staff and interviews with resident care managers, program coordinators, and other key informants were conducted at all ten facilities following the implementation of the IPP.

The current evaluation used an interrupted time series design to evaluate the impact of the IPP on total number of injuries and injury rates. The RHAs supplied injury data for each of the pilot facilities for the 12-month period prior to the implementation and 12 months after

implementation, with the exception of Hoyles Escasoni Complex for which only six months of post-implementation data were available. Similarly, the cost of each injury (measured as total temporary earnings lost) and duration of lost time (measured in days) were provided for each of the eligible injuries sustained in the 12-months prior to and after the implementation of the IPP, again with the exception of Hoyles Escasoni. In addition to the RHA data, aggregated injury and cost data were obtained from the WHCSS.

Impact of the IPP on Injuries

The total number of injuries and injury rates were analysed using Poisson regression and segmented linear regression, respectively. None of the regression models nor the regression coefficients were significant; thus, *the IPP did not appear to have a statistically significant effect on injuries when data from the ten pilot facilities were combined*. However, a visual inspection of the trends over time suggests that the injury rate decreased after program implementation although, again, this change was not found to be statistically significant. This does not preclude the possibility that the program was successful in individual facilities. For example, the total number of injuries in the pre- and post-periods at Bay St. George in Western Health decreased from 16 to 7. Similarly, injuries at Agnes Pratt Home in Eastern Health decreased from 12 to 5. Other facilities experienced no change or an increase in injuries from the pre-IPP to the post periods.

To explore the possibility that the IPP may have had a differential impact based on injury type, injuries were further categorized as 1) involving or not involving resident aggression, 2) recurrent or non-recurrent, 3) sustained by PCAs, LPNs, or RNs. Regression and contingency analyses yielded no significant results. Thus, the impact of the IPP was independent of injury type and nursing occupation.

Impact of the IPP on Costs and Duration of Lost Time

Based on data received from the payroll departments of each RHA, the TEL cost for injuries sustained in all ten facilities decreased by 26% from the pre- to the post-implementation period. There was a great deal of variability in cost changes among the RHAs; Eastern Health experienced a 23% decrease, Central Health a 76% decrease, Western Health a 24% decrease, and Labrador-Grenfell Health a 939% increase. When data from all ten facilities were combined, there was no change in average cost or median cost of injuries. Cost data supplied by WHSCC, which included not only lost wages but expenses related to injured employees' medical needs, point to a 4% decrease in cost from the pre- to the post-implementation period, but, again, there was a great deal of variability among the RHAs. According to the WHSCC data, Eastern Health and Western Health saw a reduction in total costs of 37% and 3%, respectively, whereas the remaining RHAs experienced an increase in costs (Central Health; 46% and Labrador-Grenfell Health; 420%). Like the RHA cost data, there was no difference in the average cost of

injuries from the pre- to the post-implementation period when data from all pilot facilities were combined.

According to data supplied by the RHAs and by the WHSCC, the median number of days lost did not change significantly from the pre- to the post-period⁵, nor did the mean number of weeks lost. If we regard the cost and duration of time lost as proxy measures of injury severity, the results suggest that there was no discernible change in the seriousness of the injuries sustained prior to and after program implementation. Interpreting the cost and days lost data involved several challenges. First, because several facilities had very few injuries overall, results from these facilities may be unduly influenced by extreme values or outliers. Second, the RHA data do not include the costs associated with injuries outside of the temporary earnings lost, such as medical expenses. Finally, the WHSCC provided the researchers with aggregate data, which precluded the possibility of examining medians. Given that the data are highly variable, medians rather than means may be a more accurate indicator of costs and days lost.

Perceptions of the IPP and Availability and Utilization of the SRH Equipment and Practices

The evidence provided by the questionnaire, focus group, and interview data is much less ambiguous. Overall, the information obtained from these sources clearly reveals that the program was highly regarded by nursing staff and managers, who saw it as a step in the right direction. Statements like "there is a lot of positive coming out of it", "it's the most positive program I've ever seen introduced", and "...we're better for it" were common among focus group participants. The vast majority of nursing staff reported high levels of satisfaction with the IPP training, and noted that it provided them with the information necessary to engage in SRH. In fact, ten months after program implementation there was a significant improvement in respondents' perceptions of their knowledge of SRH, and 98% felt confident that they could use the equipment properly. However, one fifth of the nursing staff felt that they could benefit from additional training. Several focus group participants similarly suggested that "refresher" sessions be offered to prevent staff from reverting back to old habits. Focus group participants and key informants also noted the importance of providing the training to new staff or staff returning from extended periods of absence. In response, and in an effort to increase the sustainability of the program, the general orientation for new staff in several RHAs now includes training on SRH. Additionally, several RHAs have begun to offer refreshers sessions to existing staff. For example, Western Health is proposing that staff alternate yearly between receiving a one-hour hands-on refresher and a webinar-based refresher course.

All of the questionnaire respondents identified that SRH is important to them, and 99% reported that they used the appropriate equipment and practices/techniques. In addition, the majority of staff felt that they had the necessary equipment to engage in SRH. Indeed, when

⁵ The reduction in the mean number of days lost from the pre- to the post-period approached significance (p=0.7) and warrants further investigation.

nursing staff's responses at ten months post-implementation were compared to baseline, significant increases were observed in the percentage of staff who "strongly agreed" when asked if the necessary equipment was consistently available. Additionally, the vast majority of respondents were satisfied with the new resident handling equipment. The responses on the questionnaires were mirrored by those in the focus groups. Nursing staff expressed high levels of satisfaction with the ceiling lifts and anti-friction sheets in particular. The only complaint about the anti-friction sheets was that they "bunched up" or caused residents to slide down in their beds, resulting in the staff having to reposition the residents more frequently. Most staff regarded this as a minor problem, and, in fact, several staff noted that this may be due, not to the anti-friction sheets themselves, but to a failure to tuck them in. The bed design in some facilities was reported to result in pinched fingers when tucking in sheets. Staff in some facilities also noted that they required additional ceiling lifts, slings, and anti-friction sheets. The installation of ceiling lifts in several facilities was hampered by the facilities' infrastructure or a lack of sufficient funds. In addition, the laundering of anti-friction sheets and slings in central laundries posed a challenge, such that the supplies went missing or failed to return to the appropriate residents' rooms.

Impact of the IPP on Safety Culture and Risk of Injury

An examination of the questionnaire items designed to measure organizational safety culture point to little change from the pre-IPP to post-implementation period. A positive assessment of the safety culture was found on several items at both baseline and ten months post-implementation. For example, all of respondents replied in the affirmative when asked if "safe resident handling is important to me" and over 90% agreed that "staff talk about ways to keep incidents from happening again." In contrast, less favorable responses were found when asked if "staff use shortcuts to get their work done faster." In fact, ten months after the implementation of the IPP, 41% of staff agreed or strongly agreed that this was the case.

The questionnaire results also indicate that the IPP had little impact on staff's perceptions of workplace injury risk. For example, the percentage of employees at baseline and ten months who felt that it is "moderately" to "extremely" likely that they will experience an MSI related to manual resident handling tasks is 54% and 51%, respectively. Ten months after the implementation of the IPP, one fifth of respondents felt that it was "moderately" to "extremely" likely that they would experience an MSI when using an assisted/mechanical device. This is surprising given their perceived knowledge of and confidence in the use of the safe handling equipment. However, when asked to provide an overall rating of employee safety within their facility, responses ranging from "good" to "excellent" increased 20% following the implementation of the IPP – a result that was statistically significant.

Managers' Involvement in the IPP and SRH

Greater variability and negativity were observed in responses to questionnaire items on nursing staff's perceptions of managers' commitment to workplace safety. For example, approximately 22% of staff disagreed or strongly disagreed that "staff safety is considered when decisions are made" and "management listens to staff ideas and suggestions about employee safety." The nursing staff respondents were split when asked about managements' involvement in resident safety. Only 48% agreed that "Management often walks around the LTC to check on resident care" and 61% felt that "Management asks staff how the LTC site can improve resident safety."

When focus group participants were asked to speak about the role of their manager(s) in the IPP, the responses differed by facility. Some focus group participants described managers as supportive and highly involved, while others expressed the opposite opinion. Several participants complained that managers failed to support staff when faced with family pressures, whereas others noted that managers helped them talk to families about the importance of using the safe handling equipment. Program coordinators observed that buy-in from some managers was less than ideal. Getting managers to participate in "huddles" during which incidents were reviewed and discussed with staff, for example, was described as difficult. When the research team asked resident care managers what they felt their role is in the IPP, some managers were left grappling for an answer. Thus, there seems to be varying levels of support for and involvement in SRH among managers, and this could affect program success. As one participant said, "I do think it is important that the manager have that very positive approach and a supportive role."

Resident Safety and Quality of Care

The ten month post-implementation questionnaire contained several items designed to assess staff's perceptions of resident safety and quality of care. The vast majority of respondents answered in the affirmative when asked questions about nursing staff's safety practices. For example, the vast majority agreed that "staff discuss ways to keep residents safe from harm." In addition, the majority of questionnaire respondents (66-70%) felt that the new resident handling equipment had positively affected residents' quality of care. For example, nursing staff felt that the equipment had improved residents' mobility, reduced the risk of injury to residents and staff, and decreased the physical strain on residents' bodies. This is reflected in the following statement from a nursing staff member: "you're not hauling and dragging on them [the residents] like we used to." However, the current evaluation did not include an objective measurement of the impact of the IPP on residents' quality of care, such as pressure ulcers or activities of daily living.

In those facilities that had Family/Resident Councils, members were asked to provide feedback on the IPP and SRH equipment. Although the majority of family members felt that their loved ones were comfortable with the new equipment, 38% of residents expressed some discomfort, noting that the anti-friction sheets could be "too warm" or "slippery," and that the lifts could cause pain to the ribs and under the arms. The respondents were split equally in their perception of whether or not the IPP affected the quality of resident care, such that 50% of both residents and family members felt that it had. However, only 25% of residents and 31% of family members felt that the program affected residents' quality of life. Positive effects of the program included the increased likelihood of residents getting out of bed and increased resident mobility. Surprisingly, only 47% of residents and 53% of family members felt that the IPP affected residents' safety. This poses an opportunity to increase awareness among family members of the IPP's impact on staff and resident safety. Although family members are provided with a pamphlet explaining SRH when their loved one is first admitted, they may benefit from additional information or education. This may have the added benefit of decreasing the pressure placed on nursing staff by family members who insist that their loved ones be moved in potentially unsafe ways.

Barriers to Use

The focus group and interview data offer several possible reasons why the quantitative analysis failed to detect a significant effect of the IPP on staff injuries. When asked if they use the new equipment and engage in SRH practices, the vast majority of nursing staff replied in the affirmative. However, further probing revealed contradictory information, as nursing staff referred to "short-cuts" and suggested that their coworkers failed to use the safe handling equipment and/or practices consistently. Several reasons for this were cited, including: 1) rushing to get work done, 2) not having a team member available to help with a 2-person assist, 3) differences in staff members' skill level/knowledge of safe handling, 4) pressure placed on staff from family members to move their loved ones right away and/or in an unsafe manner, and 5) working short-staffed.

Several of the resident care managers also noted the negative impact of working short-staffed on equipment use, and raised the possibility that nursing staff members may often be working alone. In fact, in one facility it was noted that this happens "every day". Staff shortages often mean that nursing staff cannot find a partner to help them with two-person assists. Although some staff members indicated that they would wait for their partner to arrive before transferring the resident, others admitted to attempting the transfer on their own. This may occur due to time pressures, a task-oriented approach, and/or a lack of appreciation for the importance of SRH. Kurowski et al. (2012) found that shifts that were short-staffed resulted in higher rates of injury. A similar analysis in the pilot facilities could shed light on the potential relationship between working "short" and injuries among nursing staff.

Additionally, varying levels of knowledge and/or buy-in among the nursing staff were also identified as barriers to SRH. Several participants expressed frustration that some new and/or casual staff lacked the necessary skills to handle residents safely, which placed both them and their partners at risk of injury. This observation is consistent with the safe handling literature; Kurowski et al. (2012) found that causal staffing and high turnover creates knowledge gaps and

results in less frequent use of SRH techniques. Further, several program coordinators noted that casual staff were more likely to rely on other nurses' assessments than on their own, due, in part, to a lack of confidence in their assessment skills. Given the failure of some staff to conduct point-of-care assessments, the IPP training could place a greater emphasis on how, why, and by whom assessments should be conducted. Indeed, in some facilities staff felt that the responsibility for conducting assessments rests solely with the lift champions or physiotherapists. The lack of appropriate point-of-care assessments have reportedly caused post-IPP injuries and warrants further attention.

Additionally, equipment breakdowns and failure to return ceiling lifts to their bases for recharging resulted in equipment being unavailable when needed. Availability of equipment was also hampered by long wait times for maintenance. In some cases, these delays are exacerbated by staff failing to fill our maintenance requisition orders. Finally, participants at some facilities noted that residents' rooms were too small or cluttered to accommodate the floor lifts.

Facilitators of Use

Despite the barriers, many participants noted that the use of resident handling equipment and techniques is increasing over time, due in large part to the reminders and hands-on assistance offered by the lift champions. In fact, the lift champions were identified in the focus groups and several interviews as key to the success of the IPP. The duties of the lift champions include counting and inspecting the equipment, ensuring that slings are available in the right size for each of the residents, answering staff's questions, providing hands-on training, correcting the nursing staff's inappropriate resident handling behaviors, and reinforcing appropriate ones. This oversight and vigilance is critical. In fact, the available scholarly literature suggests that facilitators or champions are particularly effective in encouraging organizational change (Kauth et al., 2010).

Several staff also emphasized the importance of storing slings and anti-friction sheets in residents' rooms. They noted that the extra time required to retrieve these items from locations outside the resident's room may decrease the likelihood that they will be used. Nursing staff respondents also cited the importance of manager support and reminders from fellow co-workers. Key informants also stressed the importance of providing staffing relief so that staff members could attend training and lift champions could engage in the duties required by that role.

Differences among the Facilities and RHAs

Several facilities experienced a reduction in the number of injuries while others showed no change or a slight increase. Although further exploration of these individual facility-level

differences is necessary, the data collected thus far suggest several possible reasons for the variation in the success of the program. Bay St. George first implemented a SRH program in 2007-2008 and again in 2010. Thus, in effect, the current IPP represents the third implementation of this type of program. As a result, the staff's familiarity with and consequent uptake of the safe handling practices may have been enhanced. Indeed, Bay St. George may have more readily embraced the program and, over the longer term, experienced a discernible cultural safety shift. Agnes Pratt Home in Eastern Health also experienced a marked decrease in injuries following the implementation of the IPP. Although we cannot determine with certainty why that facility experienced greater success than others, the qualitative evidence points to high levels of employee engagement and buy-in, as well as high levels of manager/administrator involvement.

The two pilot facilities in Labrador-Grenfell experienced little success, which may be attributed, in part, to the relative lack of dedicated human resources. For example, the program coordinator in LGH was employed for a six-month period, whereas the same position in the other RHAs was minimally one year in length. One key informant noted that the departure of the program coordinator in his/her facility reduced staff's motivation to continue safe handling practices because "no one was there to encourage and remind them." In addition, the program coordinator was based out of St. Anthony and had to travel back and forth to the facility in HVGB. Finally, it appears that inclement weather delayed the shipping of some equipment, and consequently there was a gap between staff training and the opportunity to actually use the equipment in the clinical setting.

Two of the largest facilities in the pilot project, Hoyles Escasoni Complex and Corner Brook LTC, experienced the least success. The reasons for this are unknown and warrant further exploration. For example, do the larger facilities experience higher turnover, greater reliance on casual staff, diminished team functioning, and/or a greater disconnect between management and nursing staff? Do cultural shifts and changes in practice take longer to achieve in larger facilities? Indeed, as one key informant said of the Hoyles Escasoni Complex, "this ship is harder to turn around."

Limitations

Much of the data obtained for the purpose of this evaluation was administrative in nature and was collected by individuals outside of the research team. There are several disadvantages involved in using administrative data for research purposes, and most of them result from the researchers' lack of control over the data collection process. They include missing or erroneous data, changes to administrative procedures that make comparison over time problematic, and the absence of background or contextual information that could be important to the researcher.

The data provided by the WHSCC and the RHAs were inconsistent. This inconsistency may have stemmed from differential coding of injuries. For example, injuries that were coded by the
WHSCC under the RHA rather than the individual facility in which the injury was sustained were irretrievable using the inclusion criteria established by the research team. In addition, several injury claims that resulted in lost time were not accepted by the WHSCC. These discrepancies made it difficult to determine which database to use. Ultimately, the research team chose to rely primarily on the RHA data because they contained additional details about each injury, whereas the WHSCC data were aggregated. Nevertheless, the WHSCC data were analyzed and the results are presented in Appendix E. Despite the differences in the number of injuries identified by the RHAs and WHSCC, the direction of the change from pre- to post-IPP was consistent.

In addition, the lost-time information from the WHSCC was calculated in terms of number of weeks, regardless of the work status of an individual (e.g., full-time vs. part time). The RHA lost-time data were also difficult to interpret, in that records of some injured employees' absences included annual leave, sick leave associated with another issue, and/or or unpaid leave. Thus, the ability to tease apart the type of leave and identify only injury-related leave was impossible.

There were further challenges in obtaining reliable and detailed information from the RHAs. A sizable minority of the injury data contained missing or inaccurate information. Indeed, 24% of injuries occurring in the pre-implementation period were excluded due to inadequate information about the circumstances surrounding the injuries. It became apparent through the course of the evaluation that the processes in place for recording injuries are not standardized across all four RHAs nor are they systematically applied. In addition, injured employees may not provide timely, complete, and accurate information about the circumstances surrounding their injury. This requires that the managers and OH&S teams follow-up to ensure that all of the information has been recorded, but this follow-up does not always occur.

Finally, the implementation of the IPP and its increased focus on staff safety and MSIs, together with the data requirements of the evaluation, may have resulted in increased reporting of injuries in the post-implementation period. Although this seems unlikely given that the injuries all resulted in lost time, which necessitates documentation for the receipt of WHSCC compensation, it remains a possibility.

The nursing staff in some facilities sustained very few injuries during the evaluation periods. For example, Bonnews Lodge had two injuries in the pre-IPP period and none in the post. These low numbers limit, or prevent altogether, the ability to analyze the data for statistical significance. In addition, the potential for positive change when the number of injuries is so low to begin with is diminished.

Despite the efforts made to increase the questionnaire response rates, including resending the questionnaires and offering incentives and reminders, the response rates were low in some facilities. Although these rates are not unusual among health care providers, they do limit our confidence in the representativeness of the samples. Also, the family members and residents who participated in this evaluation are not representative of the entire population, as they

were all members of the Family/Resident councils. Those residents who are well enough to attend Family/Council Meetings may be relatively mobile and less reliant on the SRH equipment. The family members may also be more likely than others to be highly involved in their loved ones' care.

The responses on the questionnaire items asking whether or not the respondent uses the safe handling equipment were very positive. In addition, the focus group participants noted that their co-workers may not use safe handling practices, but very few admitted to not doing so themselves. In fact, following one of the focus groups, a nursing staff member lingered behind to let the moderators know that staff in his/her unit tend to rush and, consequently, do not apply SRH techniques consistently. This nursing staff member felt uncomfortable raising this in front of his/her colleagues. Although this was not a common occurrence it does raise the possibility that the data reflect a social desirability bias that overinflates the estimates of safe handling utilization among staff.

Because implementation of the IPP at Hoyles Escasoni Complex occurred at such a late date and the facility moved to a new building six months after implementation, the post-implementation period for the facility was only six months in length. Not only did this shorten the post-implementation period, it also precluded the possibility of administering the ten-month post-implementation survey at HEC, limiting the comparability of baseline and ten-month data. In addition, Bay St. George, in which a SRH program had been implemented twice before in 2007-2008 and 2010, was a poor choice for inclusion in this pilot project, as it is possible that the number of injuries in the pre-IPP period was lower than it otherwise would have been, given the history of safe handling programs in the facility.

Conclusion

The objectives of the IPP were to: 1) reduce lost-time incidents related to resident handling, 2) reduce costs and duration of lost time, 3) improve quality of the workplace, 4) improve resident care, and 5) meet legislative requirements. The first four objectives were examined whereas the final objective was not under the purview of this evaluation. Overall, when data from all 10 pilot sites were combined, there was a decrease in the number of lost-time injuries from 84 to 77. Although the trend in injury rates moved in the desired direction following the implementation of the IPP (i.e., decreased), the change in injury rates was not statistically significant. The TEL costs associated with these injuries also decreased by 26%. However, mean and median costs and duration of lost time per injury did not change significantly, potentially suggesting that the severity of injuries did not change. It is important to note that there was a great deal of variability among the pilot facilities in the impact of the IPP. Despite the modest impact of the IPP on injuries and costs overall, the vast majority of nursing staff was highly satisfied with the program and equipment; they felt that they had the necessary equipment and training to engage in SRH. Additionally, there was a significant positive increase following the implementation of the IPP in the nursing staff's rating of employee safety in their respective facilities. The staff was less certain that the IPP had resulted in improved resident care. However, several nursing staff members felt that the increased ease with which residents could get out of bed allowed them to engage in activities and visits with family and friends. In sum, the evaluation provided little quantitative evidence that objectives 1, 2, and 4 were met. However, the questionnaire, interview, and focus group data demonstrate that the IPP was regarded by staff as an effective program that improves workplace quality and holds considerable potential for reducing injuries and associated costs.

Facilitators and barriers to the implementation of an intervention can be categorized as attributes of the (1) intervention or new practice, (2) system or health care setting, or (3) health care providers who are expected to adopt the new practice (Rogers, 2003; cited in Sahin, 2006). This framework is helpful for understanding the determinants of program success identified by the current evaluation. The IPP is an evidence-based program that, by and large, provided the staff with what they needed to engage in SRH practices. Many of the barriers to the successful uptake of the new safe handling practices are intrinsic to the healthcare system itself; these include chronic shortages of regular staff and a rigid task-oriented approach to resident care. In addition, the physical layout of some facilities constitutes a barrier, insofar as some rooms are too small or cluttered to accommodate the equipment. Nursing staff and managers also help to determine the impact of the IPP. The failure of some managers and administrators to champion the program and support their staff may have limited the program's impact. For their part, nursing staff must challenge the old ways of doing things, engage in critical thinking, and take responsibility for conducting assessments and using the equipment and SHR techniques. These barriers notwithstanding, it is clear that a number of IPP program components worked well and must be maintained. These include the designation of lift champions in every facility and

program coordinators in every RHA, readily available and well-maintained resident handling equipment, and the provision of timely training and refresher sessions.

Effective change has been characterized as "unfreezing old behaviors, introducing new ones, and re-freezing them" (Al-Abri, 2007, p. 9). This process takes time and requires leadership to remain vigilant, challenge the habits and norms of established behaviours, and positively reinforce new behaviours. Although the absence of a quantifiable effect of the IPP on injury rates is surprising, it remains possible that the duration of the post-implementation evaluation period (12 months in nine facilities and six months in Hoyles Escasoni Complex) was insufficient to see significant results in all pilot facilities. In fact, most of the studies demonstrating positive effects of SRH interventions employ longer evaluation periods. Nelson et al. (2006) suggest that a minimum of 2-3 years is necessary to see longer-term program benefits. Thus, it will be important to continue to evaluate the impact of the IPP and to track resident handling injuries over the longer term to determine the true potential of the IPP to decrease injuries among nursing staff.

Recommendations

IPP Recommendations

- Continue the IPP in the pilot facilities Given the substantial qualitative evidence of program effectiveness, the potential for success, and the need to continue to evaluate the program over the longer term, it is recommended that the IPP continue to be supported and funded in the pilot facilities.
- 2. Fund lift champions/co-leaders positions Lift champions/co-leaders should be funded in every participating pilot facility. In addition, in order to ensure that lift champions/co-leaders are available to carry out the duties required of them, they should not be assigned regular nursing duties or reassigned when units are short staffed.
- **3.** Fund program coordinator positions Program coordinators should be funded in each of the RHAs. The level of funding (e.g., part-time or full-time) should take into account the unique needs of each RHA (e.g., number of nursing staff, number of healthcare facilities and distance between them, etc.).
- 4. Train all LTC nursing staff and resident care managers prior to them beginning work Nursing staff and resident care managers must receive IPP training prior to beginning their work in a LTC facility. Additionally, nursing staff should attend the training when returning to work following a prolonged absence.
- 5. Offer refresher sessions on a yearly basis Nursing staff should attend yearly core competency and mandatory refresher sessions that incorporate the latest evidence on SRH techniques and any changes to SRH policies or procedures.
- 6. Include a more in-depth discussion of resident assessments in training IPP training should place greater emphasis on the importance of conducting point-of-care resident assessments. This training component should describe why, how, and by whom these assessments are conducted.
- Address family pressures in training IPP training should equip staff and managers with communication strategies for helping residents and their families understand the importance of SRH.
- 8. Provide training to nursing staff on dealing effectively with resident aggression or agitation Training on managing resident aggression should also be provided to nursing staff so that they have the information and skills necessary to engage in safe resident handling with residents who are agitated or aggressive.

- Hold nursing staff accountable Performance evaluations should include the assessment of nursing staff's compliance with SRH procedures and adherence to SRH policies.
- 10. Increase manager involvement The role of the resident care manager in the IPP should be clearly defined, and managers should promote and support the program and staff in their delivery of SRH. This includes reviewing all injuries with staff with an emphasis on prevention, correcting unsafe practices, reinforcing appropriate SRH behaviors, and communicating the importance of SRH to staff, residents, and families.
- **11. Hold managers accountable –** Performance evaluations should include the assessment of the resident care managers' commitment to supporting and promoting the IPP as per recommendation #10.
- 12. Offer education sessions on SRH for the families of residents Education sessions, in addition to printed material on SRH, should be offered to family members so that they have a better appreciation of the importance of SRH for resident and staff safety. This education would ideally be offered during an orientation to the facility for family members.
- **13. Eliminate environmental factors that prevent SRH** Limits should be placed on the quantity of furniture in residents' rooms so as to ensure that staff can operate equipment safely. In cases where rooms are too small to accommodate the equipment, facilities should make every reasonable effort to address this problem.
- 14. Ensure adequate staffing levels Leadership should maintain staffing levels so as to allow for the appropriate utilization of SRH and, in particular, to ensure that each nursing staff member has a readily available partner with whom they can perform 2-person assists.
- **15.** Install ceiling lifts where possible Ceiling lifts should be installed wherever possible.
- **16. Increase availability of anti-friction sheets** An adequate supply of anti-friction sheets should be available so that every resident for whom they are deemed necessary has them. These sheets must also be laundered in a timely fashion to improve availability; in some cases this may require augmented laundry facilities.
- 17. Provide regular preventative maintenance, calibration, updating and replacement of SRH equipment – To ensure that the SRH equipment is available when needed and in operating order, the equipment must be maintained, calibrated, and updated regularly and/or replaced when needed.

18. Store equipment in residents' rooms – When possible, equipment such as slings and anti-friction sheets should be stored in residents' rooms to assist with equipment accessibility and equipment tracking.

Data Collection Recommendation

19. Develop a standardized injury form for use by all RHAs – An electronic incident/accident reporting and investigation form(s), procedures, and information management plan should be developed, with input from the research team and relevant provincial stakeholders. This would serve to support and enhance the investigation process, provincial reporting, research, and ongoing improvement by all four RHAs. Standardization of an injury form would facilitate comparisons of injuries among the RHAs. This form should include mandatory fields of information to ensure that a complete account of each injury is recorded.

Evaluation Recommendation

20. Continue to evaluate the IPP – The evaluation of the pilot project should continue, insofar as all injuries associated with resident handling (lost time, no lost time and near miss) should be tracked and analyzed over a longer period of time. Additional factors that have been suggested in the current evaluation as potentially impacting injury rates (e.g., working short staffed; staffing models) could be explored formally in a future evaluation.

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Appendix A: OHS Service NL Input to HCS Pilot Project Report

The following report was submitted on January 26, 2015 by L. Sagmeister, CCPE, CRSP, Certified Ergonomist, Occupational Health and Safety Division of the Government of Newfoundland and Labrador.

The OHS Division of Service NL is mandated to enforce the Occupational Health and Safety Act and Regulations in Newfoundland and Labrador. The Act and Regulations set out the minimum requirements for workplaces and places a responsibility on employers to provide a healthy and safe work environment and take measures to identify and mitigate hazards.

The OHS Division has been enforcing the prevention of musculoskeletal injuries in the workplace for many years under general duties provisions of the Act and Regulations. In 2009, several sections were added to the Regulations clarifying requirement to provide a healthy and safe workplace specifically with regards to the prevention of musculoskeletal injuries (MSI).

The OHS Division, Service NL, recognizes that healthcare is continuously an industry with a very high MSI experience. The Workplace Health, Safety and Compensation Commission (WHSCC) in Newfoundland and Labrador has produced industry 'fact sheets' confirming the consistently high rate of MSI based claims in healthcare in the last number of years. A more detailed review of the data suggests that the healthcare occupations routinely experiencing the highest numbers of MSI are in long term care and are comprised of nursing and other positions engaged in resident handling (i.e. RN, LPN, PCA).

The "proposal for a Provincial Injury Prevention Pilot Program in Long Term Care" (November 23, 2011), notes that "currently RHAs are not meeting legislative requirements" of the Occupational Health and Safety Regulations with regards to the prevention of MSIs. (pg ii). Sections 50 – 56 of the OHS Regulations (together with other relevant Sections of the Regulations and the Act) require the organization to develop systems to identify, evaluate and control MSI hazards in the workplace.

The Provincial Injury Prevention Pilot Program in Long Term Care (Program) uses a similar approach to injury prevention as is required by the OHS Act and Regulations, including the identification of mobility needs, evaluation of how they will be addressed and implementation of controls (e.g. lifting equipment or Safe Work Practices). The Program presents a system that clearly defines the responsibilities of key stakeholders in the system. It establishes rules, responsibilities and work practices which contribute to the overall work towards compliance with the Occupational Health and Safety Act and Regulations. Examples include the provision of appropriate equipment for resident handling tasks, education to staff on how to use equipment or how to perform certain tasks safely, monitoring for effectiveness of the program and use of a "Champion" on the floors that serves to help to enforce and reinforce safe work practices. If well implemented, the Program helps to support a foundation of internal

enforcement strategies in RHAs (e.g. supervisor accountability and enforcement of safe work practices, preventative maintenance activities, inventory management).

The full implementation and maintenance of the Program would serve to fulfill parts of a healthcare authority's regulatory obligation. It is also likely to be a more manageable, cost effective and sustainable method of working towards regulatory compliance. In addition, based upon the statistical review performed by the Department of Health and Community Services (see Proposal for a Provincial Injury Prevention Pilot Program in Long Term Care), the fulfillment of this obligation would also serve to improve human and financial costs.

The requirement for the employer to meet Occupational Health and Safety Regulatory requirements is not optional, and the OHS Division of Service NL will continue to enforce the Act and Regulations as required by their mandate. Compliance with the requirements to prevent MSIs is not waived if the healthcare authorities do not have a full Program in place.

Appendix B: IPP Training Curricula and List of Equipment

Eastern Health

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Safe Patient/Resident Handling Program Overview

Eastern Health values its employees and wants to ensure that employees have a safe, sustainable career. With this commitment to employee and patient/resident safety, Eastern Health supports the Safe Patient/Resident Handling Program.

The Safe Patient/Resident Handling Program promotes employee and patient/resident handling safety through the use of proper patient/resident handling and movement techniques and use of equipment specific for patient/resident's abilities. Core program elements include ensuring appropriate equipment is available and employees are trained to safely use the available equipment.

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Break down of equipment by site:

APH

50 slings for mechanical lifts
8 ceiling lifts
27 sets of Breeze sheets.
12 transfer belts
2 positioning slings
2 sets of slider sheets.
2 slings for stand-assist lifts
Approx. \$53000 spent on equipment.

GHM

3 stand assist lifts
36 slings for mechanical lifts
2 positioning slings
42 sets of breeze sheets.
20 ceiling lifts
Approx. \$175,000 spent on equipment.

SJLTC

74 sets of breeze sheets.
200slings for mechanical lifts.
50 slider tubes
4 mechanical total body lifts.
2 stand-assist lifts.
5 sets of slider sheets.
1 smooth mover.
Approx.\$60,000 spent on equipment.

Western Health

Western Health has a training **video** and a **booklet outlining the safe resident handling program**. As a brief outline, a background of nursing injury rates is reviewed, the safe resident handling assessment is reviewed, bed/chair repositioning techniques are reviewed as well as transfers with a stretcher, mechanical floor lift, SARA lift, ceiling lift, and standing and walking using a transfer belt. This is just a brief overview of the main topics.

List of equipment purchased for the program at Western Health:

- Breeze fitted sheet system
- Inventory of slings
- Custom slings
- Repositioning in chair aids
- Lateral transfer boards with straps
- Ceiling track weight scales with quick release hooks
- Transfer belts
- Tub chair

Central Health

The 4 hour training session for the safe resident handling pilot project was delivered by the Program Coordinator in Central Health and consisted of the following components:

- Overview of injury rates in LTC
- Roles and responsibilities in the program (i.e. the role of nurse manager, lift champion, frontline staff, and program coordinator)
- Formal assessment (techniques and Meditech documentation)
- Informal assessment (techniques)
- Developing a care plan (use of decision trees)
- Overview of equipment
- Practical transfer and repositioning techniques (utilizing the equipment and body mechanics prescribed by the decision trees and safe work practices and procedures)

The review of injury rates and roles and responsibilities in the program was like a 30 minute introduction into what this program is all about and why it is important. The formal and informal assessment components and the care plan took approx. 1.5 hours. The overview of equipment and practical transfer and repositioning components took approx. 2 hours, making up the 4 hour training.

At Carmelite House most of the equipment was ordered through the facility's own capital equipment funds prior to this pilot being approved. However, there were some additional purchases that were made under this pilot project funding:

- 6 sets of Breeze sheets (fitted sheet plus draw sheet)
- 1 set of Maxislide straps
- Blue board (lateral transfer board)

North Haven Manor ordered:

- 161 sets of Breeze sheets (fitted sheet plus draw sheet)
- 7 transfer belts
- 12 Maxislides
- 2 sets of Maxislide straps
- 1 Maxi Move floor lift
- 15 Maxi Move full body slings
- 2 Sara lifts (sit to stand)
- 11 Sara lift slings
- 5 THE slings (ceiling lift)
- 1 Air Pal
- 12 orange tubes

As they had moved into a new facility they also received 50 slings and ceiling lifts. This facility did not have them before, but they were not purchased through this pilot project funding.

Bonnews Lodge ordered:

- 135 sets of Breeze sheets (fitted sheet plus draw sheet)
- 12 transfer belts
- 5 Maxislides
- 1 set of Maxislide straps
- 1 Maxi Move floor lift
- 58 Maxi Move full body slings
- 2 Sara lifts (sit to stand)
- 31 Sara lift slings
- 1 Air Pal

Labrador-Grenfell Health

Labrador-Grenfell Health has a training **video** and a **booklet outlining the safe resident handling program** which was a revised version of the one used in Western Health. The 4 hour training session for the safe resident handling pilot project was delivered by the Program Coordinator and consisted of the following components:

- Background of nursing injury rates
- Roles and responsibilities in the program (i.e. the role of nurse manager, lift champion, frontline staff, and program coordinator)
- Review of the safe resident handling assessment and how to determine transfer techniques
- Overview of safe client handling movement techniques
- Overview of equipment
- Developing a care plan (use of decision trees)
- Practical transfer and repositioning techniques (utilizing the equipment and body mechanics prescribed by the decision trees and safe work practices and procedures)
- Post study test

Breakdown of equipment by site:

	 k #	Description	Price per	Taxes &	Sub-Total	Quantity	ltom 1
		Description	\$2,767,00	5111pp111g	500-101al	Quantity	¢7.10
Mechanical Lifts	NFL430-2 Clings	Power IIII, Iow base, 450 lbs	\$2,707.00	\$450.00	\$3,337.10	2	\$7,13 \$2.00
		Sings for hit, various sizes.	\$1,300.00	\$430.00	S1,930.00	2	\$3,90 ¢11.00
					Mechanical Lifts Budge	at	\$11,0
					Mechanical Lifts Duuge	l Indor	د,درد در در د
						Under	,Ζ,Ζ
			Price per	Taxes &			
	ltem #	Description	Unit	Shipping	Sub-Total	Quantity	Item
Drow Choote	PTD-45	Breeze Patient Positioner	\$17.95	\$5.39	\$23.34	139	\$3,2
Draw Sheets	PTD-LS/S	Ultra Slide Bottom Sheet	\$23.95	\$7.19	\$31.14	139	\$4,3
					Draw Sheets Total		\$7,5
					Draw Sheets Budget		\$7,5
					Draw Sheets Over/Und	ler	
			Price per	Taxes &	Cub Tatal	Quantita.	u
	Item #	Description		Snipping	SUD-IOTAI	Quantity	Item
	RPL600-2	Power lift, Power Open Base, 600 lbs	\$2,861.00	\$858.30	\$3,/19.30	1	\$3,7
	Slings	Slings for lift, various sizes.	\$1,500.00	\$450.00	\$1,950.00	1	\$1,9
	SPUZ-PPB1/50	Bed, Bariatric Rated	\$3,224.38	\$967.31	\$4,191.69	1	\$4,1
	SPUZ-PPBAHD	Headboard	\$81.31	\$24.39	\$105.70	1	\$1 ¢1
	SPUZ-PPBAFT	Footboard	\$81.31	\$24.39	\$105.70	1	\$1
Bariatric Equipment	SPU2-PSDX3948-1	Prime Span Expandable Mattress	\$642.06	\$192.62	\$834.68	1	\$8
		Breeze Bariatric Patient Positioner	\$18.95	\$5.69	\$24.64	4	ې د ک
	PTD-LS/S/BAI	Ultra Silde Barlatric Bottom Sneet	\$44.95	\$13.49	\$58.44	4	\$2. ¢c
		Mhaalahair 0000 Tanaz (700 lha)	\$500.00	\$150.00 ¢5.42.70	\$050.00 ¢2.251.70	1	,0¢ , ch a
		Commodo, Extro Wide (700 lbs)	\$1,809.00	ې۲۲.70 دم דדغ	۶۲,۵۵۱.70 د درمی	1	،2ړي دع
		Continuoue, Extra Wide (700 lbs)	\$230.73 \$077.00	\$77.05 \$202.10	\$333.70 ¢1 270.10	1	ېې در د 1 ک
			\$977.00	\$295.10	\$1,270.10 Pariatric Equipment To	tal	¢۱۲,۷ ¢۱۲ ٥
					Pariatric Equipment P	Idaot	\$10.0
					Bariatric Equipment O	uget vor/Linder	\$40,00
							,724,1
					Goose Bay Equipment	Total	\$34,5

				Taxes &			
	Item #	Description	Price	Shipping	Sub-Total	Quantity	Item To
Mechanical Lifts	RPL450-2	Power lift, low base, "Reliant 450"	\$2,767.00	\$830.10	\$3,597.10	5	\$17,98
	Slings	Slings for lift, various sizes.	\$1,500.00	\$450.00	\$1,950.00	5	\$9,750
					Mechanical Lifts Tota	al	\$27,73
					Mechanical Lifts Bud	lget	\$26,66
				l	Mechanical Lifts Ove	er/Under	-\$1,06
			Price per	Taxes &			
	Item #	Description	Unit	Shipping	Sub-Total	Quantity	Item To
Draw Sheets	PTD-45	Breeze Patient Positioner	\$17.95	\$5.39	\$23.34	139	\$3,243
	PTD-LS/S	Ultra Slide Bottom Sheet	\$23.95	\$7.19	\$31.14	139	\$4,32
					Draw Sheets Total		\$7,57
					Draw Sheets Budget		\$7,57
				l	Draw Sheets Over/U	nder	Ş:
	ltem #	Description	Price per Unit	Taxes & Shipping	Sub-Total	Quantity	ltem To
	RPL600-2	Power lift, Power Open Base, 600 lbs	\$2,861.00	\$858.30	\$3,719.30	1	\$3,71
	Slings	Slings for lift, various sizes.	\$1,500.00	\$450.00	\$1,950.00	1	\$1,950
	SP02-PPB1750	Bed, Bariatric Rated	\$3,224.38	\$967.31	\$4,191.69	1	\$4,19
	SP02-PPBAHD	Headboard	\$81.31	\$24.39	\$105.70	1	\$10
	SP02-PPBAFT	Footboard	\$81.31	\$24.39	\$105.70	1	\$10
	SP02-PSDX3948-1	Prime Span Expandable Mattress	\$642.06	\$192.62	\$834.68	1	\$834
	PTD-BA	Breeze Bariatric Patient Positioner	\$18.95	\$5.69	\$24.64	4	\$98
Bariatric Equipment	PTD-LS/S/BA1	Ultra Slide Bariatric Bottom Sheet	\$44.95	\$13.49	\$58.44	4	\$23
		Toilet Support, Bariatric Rated	\$500.00	\$150.00	\$650.00	1	\$650
	9TPZ	Wheelchair, 9000 Topaz (700 lbs)	\$1,809.00	\$542.70	\$2,351.70	1	\$2,35
	6500-BHD	Commode, Extra Wide (700 lbs)	\$256.75	\$77.03	\$333.78	1	\$33
	IH6065A-IH61	Recliner Clinical Wide (400 lbs)	\$977.00	\$293.10	\$1,270.10	1	\$1,27
					Bariatric Equipment Total		\$15,84
					Bariatric Equipment Budget		\$40,000
					Bariatric Equipment	Over/Under	\$24,15
			Price per	Taxes &			
	Item #	Description	Unit	Shipping	Sub-Total	Quantity	ltem To
ng Lift Assessment			\$0.00	\$0.00	\$0.00	0	\$(
					Ceiling Lift Assessme	ent Total	\$40,000
					Ceiling Lift Assessme	ent Budget	\$40,000
				l	Ceiling Lift Assessme	ent <mark>Over/Under</mark>	\$I
				[John M Gray Equipm	nent Total	\$91,15
					John M Gray Equipm	nent Budget	\$114,242
					John M Grav Equipn	nent Over/Under	\$23.09

Appendix C: IPP Policies

Eastern Health



Overview

Health care workers involved with direct patient/resident care are at risk of developing a worker's Musculoskeletal Injury (MSI). A MSI can result from overexertion due to manual lifting, pushing/pulling, and/or working in awkward and sustained postures.

During patient/resident handling activities the physical environment and/or patient/resident characteristics may place weight loads on health care workers that exceed the permissible limit set by National Institute of Occupational Safety and Health (NIOSH). Cumulative loading and peak forces during a single event are identified as causative factors leading to chronic or acute MSI conditions. Lack of use of Safe Patient/Resident Handling equipment/procedures contribute to cumulative loading and increase the risk of employee injury.

Eastern Health's Safe Patient/Resident Handling program supports a culture of safety by integrating evidence-based practice and technology with management commitment and support to minimize injuries to health care workers caused by patient/resident handling and movement. Priority areas will be identified based on the results of an environmental scan, the rate of injury, and the available

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resources.

Policy

Eastern Health is committed to providing and maintaining a healthy and safe workplace and believes that prevention is fundamental to minimizing the frequency and severity of work-related musculoskeletal injuries associated with patient/resident handling. Eastern Health supports safe patient/resident handling and commits to the provision of required controls to the extent supported by the organization's infrastructure (building and equipment) now and in the future.

Employees have a shared responsibility for safety in the work environment and a duty to take reasonable care of their own health and safety as well as that of their co-workers and patients/residents during patient/resident handling activities. As such, safe patient/resident handling equipment/aids and training/techniques provided by the Employer must be utilized and followed by employees.

Scope

This policy applies to all Eastern Health employees, students, and agents involved with patient/resident handling.

This policy/program will be implemented across Eastern Health in stages with full application on inpatient units for the Surgery, Medicine and Cardiac/Critical Care programs and staged implementation within long term care homes and elsewhere as equipment becomes available and program implementation is achievable. Managers and staff will be advised of implementation within their areas.

Purpose

- To decrease injuries while improving the quality of patient/resident care.
- To increase use of patient handling assistive devices for patient/resident handling and movement.
- To increase compliance with safe work practices and procedures for safe patient/resident handling and movement.
- To provide evidence based practice for safe patient/resident handling and movement.
- To enhance patient/resident safety during patient/resident handling and movement.
- To increase job satisfaction and improve quality of work life.

Procedure

1. New hires for positions involving patient/resident handling must receive safe THIS IS A CONTROLLED DOCUMENT. IF YOU ARE VIEWING A PAPER COPY, PLEASE CHECK THE INTRANET TO ENSURE YOU ARE READING THE MOST RECENT VERSION.



patient/resident handling training as part of their orientation. This training must be undertaken prior to the commencement of work.

- 2. New hires, and others, trained in safe patient/resident handling must apply their training in all patient/resident handling situations/activities.
- 3. As a means of advancing a culture of safety, health care workers trained in safe patient/resident handling (new hires and others) are responsible for taking the lead in guiding safe patient/resident handling practice of those who have not received training or do not feel proficient.
- 4. All health care workers with patient/resident handling responsibilities are accountable for remaining current in their practice through continuous application of safe patient/resident handling tools and techniques in their day to day work.
- 5. The assigned Health Care Worker shall assess the patient/resident to determine patient/resident handling requirements within 24 hours of admission or transfer from another facility or unit and the patient/resident chart/record shall be documented accordingly.
- Assessments for safe patient/resident handling shall be conducted in accordance with the patient/resident handling program assessment criteria. (Linkage: Patient/Resident Handling Assessment).
- Updated and current safe patient/resident handling intervention shall be documented/confirmed on the patient/resident chart/file at the end of the every shift by the assigned caregiver.
- 8. For personal safety, and the safety of patients/residents, health care workers must remain vigilant in observing and monitoring patients/residents at the point of care for changes to their status. The patient/resident intervention cardex and chart/file must be updated when substantial changes are observed as well as at the end of the shift as noted above. (Linkage: Safe Patient/Resident Handling Status)
- 9. Program Management is responsible for maintaining the minimum level of required safe patient/resident equipment/aids for patient/resident population, as prescribed by Occupational Health, Safety and Rehabilitation department for a service area. Reductions/changes to the prescribed equipment/aids levels shall require prior approval of Occupational Health, Safety and Rehabilitation department. (Linkage: Patient/Resident Handling Recommended & Minimum Required Equipment)
- 10. Equipment/aids must undergo regular preventative maintenance and/or replacement in accordance with manufacturer requirements. An up to date inventory of all equipment/aids including last maintenance date, manufacturer required replacement dates etc. must be maintained and submitted to



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Occupational Health, Safety and Rehabilitation department on a quarterly basis: June 30th, September 30th, December 31st, and March 31st (Linkage: Quarterly Equipment Inventory Report, Quarterly Visual Sling Inspection, Quarterly Stand Assistance and Floor Based Lift Inspection). This responsibility is shared by Division Managers, health care workers, Infrastructure Support and Biomedical Services.

- 11. Manager or designate to ensure that damaged equipment/aids must be repaired/replaced on a timely basis to ensure maintenance of minimum required levels.
- 12. Divisional manager or Designate to ensure that cleaning and disinfection of equipment/aids complies with Infection Prevention and Control's (Medical Device Reprocessing) policy Cleaning and Disinfection (Reprocessing) of Non-critical Patient/Resident/Client Care and Equipment (policy # MDR-050).
- 13. Managers to ensure that appropriate storage for safe patient/resident handling equipment/aids is identified and maintained within service areas.
- 14. Project Manager or designate from Infrastructure support shall ensure that Occupational Health, Safety and Rehabilitation department is consulted and involved from the early stages of all new construction and/or redesign of space to be used for clinical purposes whether owned, leased or operated by Eastern Health.
- 15. Materials Support department to ensure that Occupational Health, Safety and Rehabilitation department is consulted and involved in the early stages of all tendering/purchasing and the placement/installation of all safe patient/resident handling equipment/aids.

Roles and Responsibilities:

- 1. Occupational Health, Safety, and Rehabilitation
 - Ensure compliance with and oversee implementation of the Occupational Health and Safety Act and Regulations and reporting on same.
 - Function in an internal consulting capacity and assigns responsibilities and directs the work of managers and staff of Eastern Health with respect to all occupational health and safety matters.
 - Prescribe minimum required level of patient/resident handling equipment/aids for all patient/resident populations.
 - · Prescribe Safe Patient/Resident Assessment Criteria.
 - Prescribe safe work practices for patient/resident handling.
 - Prescribe inventory control and reporting procedures.
 - Review equipment inventory and injury reports and follow up with departments/programs as required.
 - Facilitate provision of safe patient/resident handling training for new employees during orientation to ensure training <u>prior to</u> the



commencement of work, and/or any follow up training required.

- Undertake assessment of departments/programs/units/groups, as appropriate, for safe patient/resident handling proficiency among staff. Determine remedial action required, if any, and facilitate the provision/implementation of such remedial action.
- Provide consultation on a case-by-case bases as required (i.e. bariatric equipment purchases, etc.)
- Track, analyze, and monitor incidents and, evaluate the appropriateness and effectiveness of practices and procedures with respect to safe patient/resident handling program within Eastern Health. Bring forward recommendations as necessary/needed.

2. Vice Presidents

- Provide leadership sponsorship for the creation and maintenance of a culture of safety throughout Eastern Health particularly with respect to reduction of musculoskeletal injuries.
- Support safe patient/resident handling goals and objectives and all components of the policy and program.
- Ensure Directors, Managers and Supervisors are accountable for their responsibilities with respect to safe patient/resident handling program.
- Ensure management of programs with a supportive role, including those with roles related to construction/redesign of workspaces and tendering/purchasing the required equipment/aids are accountable for their responsibilities under this policy.
- Ensure the provision of preventative measures and resources, including required equipment/aids, education and training.

3. Directors

- Provide leadership sponsorship for safe patient/resident handling for their program.
- Support safe patient/resident handling goals and objectives and all components of the policy and program.
- Work with Infrastructure Support to identify and designate appropriate storage to make availability of equipment/aids as convenient for staff as possible.
- Ensure Managers and Supervisors are accountable for their responsibilities with respect to safe patient/resident handling.
- On a quarterly basis review patient/resident related incident/injury data for the purposes of continuous improvement.

4. Program/Departmental Managers

- Ensure all new health care workers, students, and agents whose job responsibilities involve movement and transfer of Patients and Residents are oriented to safe work practices and procedures prior to the commencement of work.
- Ensure patient/resident handling tasks are assessed prior to completion and are completed safely.



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- Ensure health care workers consistently use patient/resident handling and movement equipment/aids and appropriate techniques and comply with established safe work practices and procedures as outlined in the Safe Patient/Resident Handling Program.
- Support health care workers trained in safe patient/resident handling in guiding safe patient/resident handling practice of those who have not received training or do not feel proficient.
- With respect to equipment/aids, oversee development of a schedule for cleaning/disinfection of all patient/resident handling equipment/aids. Designate staff responsible for completing cleaning/disinfection tasks and documentation of same. (Linkage: Cleaning and Disinfection (Reprocessing) of Non-critical Patient/Resident/Client Care Equipment Policy (MDR-050).
- Designate staff responsibility for tracking inventory and ensure equipment/aid inventory levels do not fall below prescribed minimum levels as established by the Occupational Health, Safety and Rehabilitation.
- Ensure equipment/aids are serviced as required to ensure proper working order and/or repaired or replaced as necessary.
- Submit up to date quarterly inventory report of all equipment/aids including last maintenance date, manufacturer required replacement dates etc. This must be maintained and submitted to the Regional Ergonomics Program Coordinator on a quarterly basis: June 30th, September 30th, December 31st, and March 31st.
- Investigate all incidents in accordance with Eastern Health's Employee Incident/Accident Investigation policy (HR-OH(o)-070).

5. Employees, Students and Agents

Health care workers (accountable for patient/resident admission, including those transferred from other facilities or units)

- Conduct, or facilitate assessment, for safe patient/resident handling within the first 24 hours of admission/transfer.
- Document safe patient/resident handling assessment on patient/resident/record upon completion.

Health Care Worker (accountable for documentation of patient/resident chart/record)

 Ensure patient/resident chart/record is updated/confirmed as part of required documentation before the end of the shift.

Health care workers (involved in patients/resident handling)

- Conduct safe patient/resident handling assessments on an ongoing basis with each and every interaction with the patient/resident.
- Notify Health Care Worker responsible for chart/record documentation of changes in safe patient/resident handling assessment.
- Select/use appropriate equipment/aids and procedure, for safe patient/resident handling in keeping with knowledge of patient/resident and that obtained through training.
- Conduct visual inspection of all equipment/aids prior to its use.



 Coach and support those not so proficient in safe Patient/Resident handling safe work practices.

All Employees, Students and Agents

 Report all incidents/accidents in accordance with Eastern Health's Employee Incident/Accident Reporting policy (HR-OH(o)-080).

6. Materials Support Department

- Ensure ergonomic implications for the end user is considered in the request for proposal (RFP) and purchasing process for new equipment/aids and technology.
- Ensure Regional Ergonomic Program Coordinator is involved with the evaluation of any equipment through tendering process whereby ergonomic issues may need to be considered.

7. Health Care Technology and Data Management

Maintain or facilitate maintenance of safe patient/resident handling equipment/aids as appropriate.

8. Infrastructure Support Department

- Maintain or facilitate maintenance of safe patient/resident handling equipment/aids as appropriate.
- Ensure ergonomic implications for the end user is considered in the design phase of renovations or construction of new facilities and approved by the Occupational Health, Safety and Rehabilitation.
- 9. <u>Occupational Health and Safety Committees and Worker Health and</u> <u>Safety Representatives</u>
 - Monitor implementation and compliance to safe patient/resident handling policy and program through workplace inspections and review of employee incident/accidents statistics.

Supporting Documents (References, Industry Best Practice, Legislation, etc.)

- Reference Guidelines for Safe Patient Handling, Occupational Health and Safety Agency for Healthcare (OHSAH) in British Columbia
- NIOSH guidelines from U.S Department of Health and Human Services.

Linkages

- MSI Patient/Resident Assessment
- MSI –Patient/Resident Handling Status Report
- MSI Patient/Resident Handling Recommended & Minimum Required Equipment
- MSI –Quarterly Patient/Resident Handling Equipment Inventory Report
- MSI –Quarterly Visual Sling Inspection Report



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- MSI –Quarterly Stand Assist and Floor Based Lift Inspection Report .
- Cleaning Disinfection and (Reprocessing) of Non-critical Patient/Resident/Client Care and Equipment (policy # MDR-050). .
- Safe Patient/Resident Handling Safe Work Practices

Key Words

Patient Handling; Injury Prevention; Resident Handling; Musculoskeletal injury Prevention; Assistive Devices for Patient/resident movement; Safe Patient Handling

Definitions & Acronyms

Musculoskeletal injury	Injuries to muscles, tendons, joints, cartilage or spinal disc. These injuries may be cumulative or acute in nature.
Safe Patient/resident Handling	Safe work practices to move or transfer a patient or a resident from one surface to another.

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*Eastern Health supplied additional safe patient/resident handling policies on safe work practice/procedures, bariatric transfers and repositioning, evacuation assists, bathing/showering practices, and sling washing instructions that are available upon request.

Western Health

CATEGORY:	MULTIPLE CLINICAL BRANCH
SUB-CATEGORY:	
GROUP:	
DISTRIBUTION:	STAFF IN SECONDARY SERVICES, LTC & RURAL HEALTH AND MEDICAL SERVICES
TITLE:	USE OF MECHANICAL PAITENT/RESIDENT LIFT DEVICES IN ACUTE AND LONG TERM CARE

PURPOSE

To prevent injuries to clinical staff when moving patients/residents in acute and long term care.

POLICY

A mechanical patient lift is required for lifting patients/residents at all healthcare facilities within Western Health. At least two staff members are required when operating a total body mechanical lift to move a patient/resident.

Patients/residents are manually lifted only if there is an emergency i.e. Cardiac arrest or unless moving the patient/resident in the lift could cause harm i.e. fractured hip. If a patient/resident must be manually lifted, a blanket, flannel sheet or spinal board and a minimum of four people, are required.

All of Western Health's institutional sites have patient lift devices available. Clinical staff must follow manufacturer's guidelines for other mechanical patient/resident handling devices not outlined in this policy. At least two staff members are required when operating a total body mechanical lift to move a patient/resident.

If a clinical staff person is unsure of how and when to use the patient lifting device, the individual must:

- 1. refer to the written practical safe work procedure or contact the Lift Champion, Patient Care Coordinator (PCC), or
- 2. borrow the video available in the library at Western Memorial Regional Hospital, or on your unit, or at your site.

DEFINITIONS

Lift: A lift is a procedure by which the entire or a large part of weight of the patient/resident is lifted or carried against gravity, often from one surface to another, i.e. floor to bed.

Transfer: During a transfer, or repositioning, the patient/resident bears either a large part or all of the weight, which is different than a lift.

PROCEDURE

- 1. If a patient/resident needs to be lifted from one surface to another, use a patient lifting device (i.e. total body mechanical lifts and/or standing and raising aids).
- 2. When using a lift, clinical staff:
 - a) explains the lift to the patient/resident,
 - b) inspects the lifting device for broken parts (attachments, straps, brakes, etc.) and ensures that the lift's battery is charged,
 - c) ensures sufficient space for equipment and staff.
- 3. When using the standing and raising aid, ensure patient/resident safety when deciding to use one or two staff members to operate the device.

Follow instructions in the appropriate operational manual attached to lifts to operate a Portable Total Body Lift, Ceiling Track Lift and Standing and Raising Aids.

Approved By:	Maintained By:
COO - Secondary Services COO - LTC & Rural Health	Clinical Leader - Occupational Rehabilitation & Ergonomic Services
Effective Date:	
April 26, 2007	□ Revised
Review Date:	
	√New

CATEGORY:	MULTIPLE CLINICAL BRANCH
SUB-CATEGORY:	
GROUP:	
DISTRIBUTION:	STAFF IN SECONDARY SERVICES, LTC & RURAL HEALTH AND MEDICAL SERVICES
TITLE:	SAFE PATIENT/RESIDENT HANDLING IN ACUTE AND LONG TERM CARE

PURPOSE

This policy describes ways to ensure that clinical staff use safe patient/resident handling and movement techniques on all units, designated as high-risk for safe patient handling and movement.

POLICY

Clinical Staff of Western Health are required to take shared responsibility for safety in their work environments and by doing so, provide a safe environment for themselves as well as patients/residents and co-workers during patient/resident handling activities. Failure to comply with the policy can result in disciplinary action.

During safe patient/resident handling and movement:

1. Clinical staff are required to:

- Complete Safe Patient/Resident Handling and Movement training initially during orientation to the nursing unit, annually as identified in the nursing competencies.
- Self-assessment, as part of the Employee Performance Appraisal, or as required to correct improper use/understanding of safe patient/resident handling and movement. Supervisors document the training has occurred and sends it to Organizational Development for retention of records.
- Complete the safe patient/resident handling and movement assessment with each patient/resident prior to movement.
- Avoid hazardous patient/resident handling and movement tasks whenever possible. If unavoidable, assess the patient/resident carefully prior to movement.

- Use proper techniques, mechanical lifting devices and other approved equipment/aids during performance of patient/resident handling tasks as per policy # 14 160, Use of Mechanical Patient/Resident Lift Devices in Acute and Long-Term Care.
- Notify the supervisor of any injury sustained while performing patient/resident handling tasks and complete an incident report as per the "Employee Report of Incident" policy # HR I 200. Employee Wellness, Health and Safety Department maintains incident reports and supplemental injury statistics as required by the facility.
- Notify the supervisor and complete an *Occurrence Report* form (policy # 4-800) for any incidents or near misses regarding patient safety.
- Notify the supervisor of the need for re-training in use of mechanical lifting devices, other equipment/aids and patient/resident movement techniques.
- Notify the supervisor of all mechanical patient/resident devices in need of repair.

2. Managers and Supervisors are required to:

- Ensure patient/resident handling tasks are assessed prior to completion and are completed safely using mechanical lifting devices and other approved patient/resident handling aids and appropriate techniques, as in policy 14 160 Use of Mechanical Patient/Resident Lift Devices in Acute and Long-Term Care.
- Ensure mechanical lifting devices and other equipment/aids are available on all nursing units, maintained regularly, in proper working order, and stored conveniently and safely on the nursing unit.
- Ensure employees complete initial training during orientation to the unit and ongoing training as identified by the employee's Performance Appraisal.
- Ensure staff report all incidents due to patient/resident handling tasks by completing an Employee's Report of Incident Form and forwarding it to Employee Wellness, Health and Safety Department.
- Ensure all staff report patient safety occurrences due to patient/resident handling tasks by completing an Occurrence Report Form and forwarding it to Risk Manager/Patient Safety Advisor at Quality Management and Research Branch.
- Complete incident and occurrence report forms and investigations that identify an action plan to minimize and/or control risks to patients/residents and staff.

3. Facilities Management are required to:

• Maintain all mechanical patient/resident lifting devices in proper working order through a preventative maintenance program.

DEFINITIONS

High-Risk Patient/Resident Handling Tasks: Patient/resident handling tasks that have a highrisk of musculoskeletal injury for staff performing the tasks. These include but are not limited to: transferring tasks, lifting tasks, repositioning tasks, bathing patients/residents in bed, making occupied beds, dressing patients/residents, turning patients/residents in bed, and tasks with long durations and sustained postures.

High-Risk Patient/Resident Care Areas: Inpatient health care units and long term care facilities with dependent patients/residents, requiring full assistance with patient/resident handling tasks and activities of daily living. Designation is based on the dependency level of patients/residents and the frequency with which patients/residents are encouraged to be out of bed. These areas include, for example, Acute Medicine Units, Long Term Care Facilities, Rural Facilities and others.

Manual Lifting: Lifting, transferring, repositioning and moving patients/residents using a clinical staff's body strength without the use of lifting equipment/aids to reduce forces on the clinical staff's musculoskeletal structure.

Mechanical Patient/Resident Lifting Equipment: Equipment used to lift, transfer, reposition and move patients/residents. Examples include portable base with full body sling lifts and ceiling track lift systems.

Patient/Resident Handling Aids: Equipment used to assist in the lift or transfer process. Examples include transfer belts with handles, stand assist aids, sliding boards, and surface friction-reducing devices.

REFERENCES

Nelson, A. (1996). Identification of patient handling tasks that contribute to musculoskeletal injuries in SCI nursing practice. JAHVAH Study

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Patient Safety Center of Inquiry, Veterans Health Administration and Department of Defense (2001). Safe Patient Handling and Movement.

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Approved By:	Maintained By:
COO - Secondary Services	Clinical Leader - Occupational Rehabilitation and
COO - LTC & Rural Health	Ergonomic Services
Effective Date:	
May 3, 2007	Revised
Review Date:	□ Replaces
	√ New
Central Health

	Name of Manual:	Number:
	REGIONAL NURSING MANUAL	
Central Health	SAFE RESIDENT HANDLING – SAFE WORK PRACTICE/PROCEDURE (SRH SWPP)	5-0-220
	Name:	Page:
	STANDING FROM SITTING ON SIDE	1 of 2
	OF BED – METHOD 2	

SAFE WORK PRACTICE

- This task requires a minimum of 1 caregiver.
- This task is suitable only for residents requiring minimal assistance to stand.
- This is a guiding motion. Do not lift or pull the resident into standing position. \Box

Equipment:

o Transfer belt

SAFE WORK PROCEDURE

- 1. Explain to the resident in a gentle tone what you are doing at this time.
- 2. Ensure the resident is wearing footwear that is properly fitted, fastened securely, and has a non skid sole.
- 3. Position resident so that he/she is sitting on side of bed refer to SRH SWPP 5-o-130 (Sitting Resident on Side of Bed).
- 4. Adjust the height of the bed so that the resident's feet are touching the floor and his/her hips are higher than the knees. This position will decrease the amount of effort required for the resident to stand.
- 5. Place a transfer belt around the resident's waist and tighten.
- 6. If the resident regularly uses an ambulatory aide, this should be placed directly in front of them.
- 7. Position yourself on the weakest/affected side of the resident if applicable, and face the resident's weakest side.
- 8. Using the cane grasp link your hand and the resident's hand which are closet to each other. Ensure the palms and thumbs are interlocked.

- 9. Lower your arm to allow the resident to place weight though the cane grasp for support/stability.
- 10. Place your knee which is closest to the bed on the bed and place your free hand around the resident's back grasping the closest loop on the transfer belt.
- 11. Ask the resident to place his/her stronger leg closest to the bed.

Regional Nursing Manual	5-n-220
Standing from Sitting on Side of Bed – Method 2	Page 2 of 2

- 12. Using clear commands instruct the resident to place his/her stronger arm on the bed and push up, or to reach for their ambulatory aide to assist in the movement.
- 13. Guide the resident to standing. No physical force should be exerted.

APPROVED BY:

Senior Nursing Team VP – Professional Standards/ Chief Nursing Officer APPROVAL DATE: NOV/2011

Indy Stukens

	Name of Manual:	Number:
	REGIONAL NURSING MANUAL	
Control	Section:	
Hoalth	SAFE RESIDENT HANDLING –	5-0-230
Health	SAFE WORK PRACTICE/PROCEDURE	0 0 200
	(SRH SWPP)	
	Name: WALKING WITH RESIDENT	Page:
		1 of 1

SAFE WORK PRACTICE

- This task requires a minimum of 1 caregiver.
- This task is suitable only for residents requiring **minimal** assistance to walk.
- This is a guiding motion. Do not lift or pull the resident into standing position.
- If the resident becomes unsteady bring the resident closer to your body using the transfer belt.
- If the resident begins to fall guide the resident to the floor by bending at the knees and keeping your back straight. **NEVER** try to hold the resident up.

SAFE WORK PROCEDURE

- 1. Explain to the resident in a gentle tone what you are doing at this time.
- 2. Ensure the resident is wearing footwear that is properly fitted, fastened securely, and has a non skid sole.
- Assist resident from sitting to standing refer to SRH SWPP 5-o-210 (Standing from Sitting on Side of Bed – Method 1) or 5-o-220 (Standing from Sitting on Side of Bed -Method 2).
- 4. Ensure a transfer belt has been secured around the resident's waist.
- 5. If the resident regularly uses an ambulatory aide, ensure this is placed directly in front of them.
- 6. Position yourself on the weakest/affected side of the resident if applicable.
- 7. Hold the resident close to your body by grasping the transfer belt near the hip of the stronger side.
- 8. Link your hand which is furthest from the resident with the residents' hand which is closest to you in the form of a cane grasp. Palms and thumbs are to be interlocked.
- 9. Lower your arm to allow the resident to place weight though the cane grasp for support/stability. With their other hand/arm they may use their ambulatory aide to assist in the movement, if applicable.
- 10. Using clear commands instruct the resident to step forward with the weakest leg first. Move your leg which is next to the resident's weakest leg forward in sync with the resident.

APPROVED BY: Senior Nursing Team VP – Professional Standards/ Chief Nursing Officer APPROVAL DATE: NOV/2011

Tudy Stukens

	Name of Manual:	Number:
	REGIONAL NURSING MANUAL	
Control	Section:	
Hoolth	SAFE RESIDENT HANDLING -	5-0-240
Health	SAFE WORK PRACTICE/PROCEDURE	0 0 240
	(SRH SWPP)	
	Name:	Page:
	LATERAL TRANSFER FROM BED TO	1 of 3
	STRETCHER USING AIR PAL	

SAFE WORK PRACTICE

- This task requires 2 caregivers.
- This task is suitable for transfer between bed, stretcher, and exam table. \Box

Equipment:

o AirPal

SAFE WORK PROCEDURE

- 1. Explain to the resident in a gentle tone what you are doing at this time.
- 2. Clip the sanitary liner to the transfer pad.
- Position the AirPal beneath the resident by turning the resident to one side refer to SRH SWPP 5-o-110 (Turning Resident in Bed - 1 Caregiver) or 5-o-120 (Turning Resident in Bed - 2 Caregivers).
- 4. Caregiver 1 positions him/herself to the side of the bed facing the resident's back and lowers the side rail.
- 5. Caregiver 1 folds the transfer pad in half (length wise) and positions with the folded crease flush against the back of the resident. Ensure that the resident's feet are at the end labeled "feet", which also contains the hose connection The transfer pad should cover from the top of the resident's head to their feet.
- 6. Both caregivers return the resident to supine position.
- Turn the resident to the opposite side so that the resident is facing Caregiver 1 refer to SRH SWPP 5-o-110 (Turning Resident in Bed - 1 Caregiver) or 5-o-120 (Turning Resident in Bed - 2 caregivers) as above.
- 8. Caregiver 2 unfolds the sling. The sling should now be laying flat on the bed.
- 9. Both caregivers return the resident to supine position.

- 10. Clip the two safety straps around the resident at the waist and thigh level. Leave these straps slack at this step.
- 11. Line up stretcher with bed and ensure both surfaces are at the same height and have the brakes engaged.

Regional Nursing Manual

Lateral Transfer from Bed to Stretcher Using AirPal

- 12. Raise the side rail the receiving side of stretcher for the safety of the resident due to the ease of this transfer.
- 13. Plug the Air Pal into an electrical outlet.
- 14. Attach the hose from the air supply to either end of the AirPal (there is a connection sleeve at either end of the "feet" end of the transfer pad. For best inflation, insert and snap the hose into the sleeve of the transfer pad, and wrap the sleeve snugly and snap shut.
- 15. Switch air supply on.
- 16. AirPal will gently inflate.
- 17. Once inflated, adjust the safety straps to fit snugly around the resident's waist and thighs.
- **18**. Each caregiver will grasp one of the transfer straps in an underhand grip to perform movement.
- 19. Caregivers should stand in a split stance with feet approximately hip width apart and verbally coordinate the move as they shift their body weight from the foot closest to the bed to the foot furthest from the bed.
- 20. Once move is complete, turn off the air supply.

Removing the AirPal transfer pad from beneath a resident in bed

- 1. Explain to the resident in a gentle tone what task you will be doing at this time.
- 2. Adjust the bed to a safe working height. The bed should be positioned at waist height of the shortest caregiver. The taller caregiver should bend at the knees to ensure proper body mechanics.
- 3. Disconnect the power supply from the AirPal and remove the air supply hose from the transfer pad.
- 4. Remove safety straps.

5-n-240

Page 2 of 3

- 5. Turn the resident to one side refer to SRH SWPP 5-o-110 (Turning Resident in Bed 1 Caregiver) or 5-o-120 (Turning Resident in Bed - 2 Caregivers).
- 6. Caregiver 1 positions him/herself to the side of the bed facing the resident's back and lowers the side rail.
- 7. Caregiver 1 pushes/bunches the transfer pad flush against the back of the resident.
- 8. Both caregivers return the resident to supine position.
- 9. Turn the resident to the opposite side so that the resident is facing caregiver 1 side refer to SRH SWPP 5-o-110 (Turning Resident in bed - 1 Caregiver) or 5-o-120 (Turning Resident in Bed - 2 Caregivers).

Regional Nursing Manual	5-n-240
Lateral Transfer from Bed to Stretcher Using AirPal	Page 3 of 3

- 10. Caregiver 2 removes the transfer pad from beneath the resident.
- 11. Both caregivers return the resident to supine position.

NOTE: Same procedure for transfer from stretcher to bed.

APPROVED BY:

Senior Nursing Team VP - Professional Standards/ **Chief Nursing Officer**

APPROVAL DATE: NOV/2011

Tudy Stukes

Labrador-Grenfell Health



Nursing - Long Term Care Policy and Procedure Manual LTC - S-40

SUBJECT: APPROVED BY: EFFECTIVE DATE: DATE:

SAFE RESIDENT HANDLING

VP - Long Term Care Signature: ______ 2013 04 REVIEW/REVISED

Purpose:

To provide guidelines for clinical employees regarding the use of safe resident handling and movement techniques on all units designated as high-risk for safe resident handling and movement.

Policy/Standard:

Clinical Employees of Labrador-Grenfell Health are required to take shared responsibility for safety in their work environments and by doing so, provide a safe environment for themselves as well as residents and co-workers during resident handling activities. Failure to comply with the policy can result in disciplinary action.

During safe resident handling and movement:

1. Clinical Employees are required to:

- Complete Safe Client /Patient/Resident Handling and Movement training initially during orientation to the nursing unit. Supervisors document the training has occurred and send it to Employee Development, Training, and Health (EDTH) for retention of records.
- Perform a yearly self-assessment Refresher Checklist, as part of the Education Matrix, or as required to correct improper use/understanding of safe resident handling and movement.
- Complete the safe resident handling and movement assessment with each resident prior to movement.

- Use proper techniques, mechanical lifting devices and other approved equipment/aids during performance of resident handling tasks as per the policy termed "Use of Mechanical Patient/Resident Lift Devices in Long-Term Care".
- Notify the supervisor of any injury sustained while performing resident handling tasks and complete an incident report as per the "Employee/Volunteer Incident Reporting" policy # B-4-10. The Employee Development, Training & Health (EDTH) Department maintains incident reports and supplemental injury statistics as required by the facility.
- Notify the supervisor and complete an Occurrence Report in the Clinical Safety Reporting System (CSRS) as per policy # PSQ-5-020 for any occurrences or close calls regarding resident safety.
- Notify the supervisor of the need for re-training in use of mechanical lifting devices, other equipment/aids and resident movement techniques.
- Notify the supervisor of all mechanical resident devices in need of repair.

2. Managers and Supervisors are required to:

- Ensure mechanical lifting devices and other equipment/aids are available on all nursing units, maintained regularly, in proper working order, and stored conveniently and safely on the nursing unit.
- Ensure employees complete initial training during orientation to the unit and ongoing training as identified by the Education Matrix and Refresher Checklist.
- Ensure all employees report all occurrences or close calls due to resident handling tasks by completing an Occurrence Report within the CSRS.
- Review incident and occurrence report forms and investigations and identify an action plan to minimize and/or control risks to residents and employees in the future.

3. Facilities Management are required to:

• Maintain all mechanical resident lifting devices in proper working order through a preventative maintenance program.

DEFINITIONS

High-Risk Client/Patient/Resident Handling Tasks: Resident handling tasks that have a high-risk of musculoskeletal injury for employees performing the tasks. These include but are not limited to: transferring tasks, lifting tasks, repositioning tasks, bathing residents in bed, making occupied beds, dressing residents, turning residents in bed, and tasks with long durations and sustained postures.

High-Risk Client/Patient/Resident Care Areas: Inpatient health care units and long term care facilities with dependent residents, requiring full assistance with resident handling tasks and activities of daily living. Designation is based on the dependency level of residents and the frequency with which residents are encouraged to be out of bed. These areas include, for example, Acute Medicine Units, Long Term Care Facilities, Rural Facilities and others.

Manual Lifting: Lifting, transferring, repositioning and moving residents using a clinical employee's body strength without the use of lifting equipment/aids to reduce forces on the clinical employee's musculoskeletal structure.

Mechanical Resident Lifting Equipment: Equipment used to lift, transfer, reposition and move residents. Examples include portable base with full body sling lifts and ceiling track lift systems.

Client/Patient/Resident Handling Aids: Equipment used to assist in the lift or transfer process. Examples include transfer belts with handles, stand assist aids, sliding boards, and surface friction-reducing devices.

Appendix D: IPP Assessment Forms

Eastern Health



Safe Patient/Resident Handling Patient/Resident Assessment

- Each Patient/Resident must be assessed within the first 24 hrs of admission or transfer for Safe Patient/Resident Handling.
- Safe Patient/Resident Handling assessment must be signed and placed in the Patient/Resident's chart and appropriate intervention should be documented on the Safe Patient/Resident Handling process intervention screen and on administrative data screen in Meditech.
- Ongoing assessment is recommended at point of care by each caregiver but once a shift during day and night shift Safe Patient/Resident Handling intervention check list must be completed by the assigned caregiver.





Occupational Health, Safety & Rehabilitation

Musculoskeletal Injury Prevention – Safe Patient/Resident Handling Patient/Resident Handling Assessment Acute Care & Long Term Care

Name:

HCN:

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Date of Birth:

Observation		No	Yes
a , 1	Patient/Resident able to bridge while lying in bed with feet held		
Strength	Able to raise either leg with knee straight while lying in bed or sitting in chair		
Balance Able to maintain sitting position on the side of bed without help			
Cooperation&	Able to follow instructions/cueing		
Comprehension	Willing to participate		



Note: Assessment might not be applicable to ambulatory patient/resident with/without dementia and postoperative orthopedic patients. Please refer to site/unit specific protocols

Ch-0048 2014/03

Eastern Health Occupational Health, Safety & Rehabilitation

Musculoskeletal Injury Prevention – Safe Patient/Resident Handling Patient/Resident Handling Status Acute Care & Long Term Care (Part I)



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Name:

Date of Birth:

CRMS Number:	Ĩ	e Numb	er:		Unit:					Month:			Year:	
	Date:		Date:		Date:		Date:		Date:		Date:		Date:	
	11:00	22:00	11:00	22:00	11:00	22:00	11:00	22:00	11:00	22:00	11:00	22:00	11:00	22:00
Bed Mobility													-	
Independent														
2 person, draw sheet and orange tube														
2 person, maxislide														
Sitting to Edge of Bed														
Independent														
2 person with transfer belt														
Transfer: Bed/chair														
Independent														
1 person with transfer belt														
Transfer Board														
Stand Assist Lift														
Sling size: Small														
Sling size: Medium														
Sling size: Large														
Mechanical Lift														
Sling type: Quick Fit														
Sling type: Hammock														
Sling type: Hygiene														
Sling size: Small														
Sling size: Medium														
Sling size: Large														
Sling size: Ex-Large														
Ceiling Lift														

Ch-0078 2014/03

Date: JOACONT - NYYYY

Name:

Signature:

	Health
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Occupational Health, Safety & Rehabilitation

Musculoskeletal Injury Prevention – Safe Patient/Resident Handling Patient/Resident Handling Status Acute Care & Long Term Care (Part II)



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	HCN:	24	Date of
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Western Health



Safe Patient/Resident Handling and Movement Assessment

This incorporates the caregiver assessment, environmental assessment and patient/resident assessment.

Caregiver Assessment

- Wear loose clothing
- Keep hair away from face
- Remove jewelry and dangling things from the neck
- Wear supportive, non-skid/closed toe and non-heal shoes
- Use appropriate body mechanics: wrists up/straight, tighten stomach muscles, bend knees and weight shift (occurs by shifting your weight front/back or side to side), keep elbows/arms close to body, nose/toes pointing in same direction, back straight and upright, do not reach forward or sideways.
- Always explain in a gentle tone what you will be doing with the patient/resident.

Environmental Assessment

- Remove clutter/obstacles to decrease risk of trips and maximize mobility
- Ensure equipment is maintained and in good working order.
- Make sure you know how to safely use all equipment and assistive devices including walkers, etc.
- Adjust bed between waist and hip height of the shortest staff member and apply bed brakes.

Patient/Resident Assessment – Be sure to use simple commands. If the patient/resident's status fluctuates make sure to assess each time!!

1. Always determine **weight bearing ability** by assessing changes in pain, dizziness or condition. 2. **Physical Testing:** -Ask the patient/resident to move independently from lying to sitting on the

edge of the bed. If unsure check:

(i) **Bridging -** Ask the patient/resident to lift their bottom off the bed/chair. This tests pelvic stability for standing/walking.

(ii) Straight Leg Raise (for transferring) -

Ask the patient/resident to straighten knee and lift leg 5 times each side. Check that the knee doesn't begin to bend. This tests strength of legs for standing/walking. **For Walking** - Ask the patient/resident to make a figure 8 movement with their foot to ensure appropriate ankle movements needed to walk.

(iii) **Balance -** (lower both side rails). Ask patient/resident to sit on the side of the bed (without help), with feet on the floor, or sit upright in chair. Stand directly in front with your feet outside of his/hers, your knees hugging his/her thighs just above the knees and hands at his/her shoulders. Gently push the patient/resident to each side as well as backwards and forwards to see if they can recover balance in all four directions without falling to any direction. Use your hands and knees to block the movement should the patient/resident overbalance. Tests ability to stand/walk without overbalancing.

3. Risk Identification:

Note the weight/height/general physical condition of the patient/resident. Could any of these increase risk of injury? Will attachments interfere such as catheter, I.V.?

4. Patient/Resident Understanding:

- (i) Does the patient/resident follow simple one step instructions?
- (ii) Do visual, hearing, language problems affect their understanding?

(iii)Does the patient/resident have any condition that may impair understanding (i.e. dementia, stroke)?

5. **Patient/Resident Cooperation:** (does the patient/resident ever refuse to cooperate?)

(i) Does the patient/resident have pain with movement or is he/she resistant, fearful/negative about moving?

- (ii) Does the patient/resident appear hostile, disoriented, withdrawn?
- (iv) Does the patient/resident have perceptual or sensory problems (i.e. neglect for arm/ leg, or visual/hearing impairment)?

The assessment should always be completed by the staff members who are moving the patient/resident.

DO YOUR OWN ASSESSMENT!!

Determine Transfer Technique

Transfer Technique	Criteria
Minimal assistance to stand and transfer using transfer/walking belt.	 Patient/resident understands instructions. Patient/resident is cooperative. Patient/resident must be able to position/reposition feet on floor. Able to achieve independent sitting balance. Patient/resident able to stand with minimal assistance or requires no more then stand-by, cueing or coaxing to complete the transfer.
Standing and Raising Aid replaces pivot transfers or 2-3 caregiver assistance for transfers. Used to transfer patient/resident from one seated position to another seated position.	 Patient/resident understands instructions. Patient/resident is cooperative. Patient/resident must be able to weight bear through at least one leg. Patient/resident must be able to hold at least one handle, and have some upper body strength. If patient/resident has one flaccid arm it will need to be supported by a staff member. Patient/resident will need good trunk control. To size for the sling ensure sling is placed slightly below the angles of the shoulder blades and to the coccyx. Ensure the belt buckles are secured around the waist.
Full body mechanical lift or overhead ceiling lift.	 Patient/resident does not need to be able to follow instructions or be cooperative. If the patient/resident is aggressive, attempt the transfer at another time. Patient/resident will not be able to weight bear through their legs. Patient/resident may or may not have upper extremity strength or trunk control. To size for sling ensure the sling reaches from the top of the head to the coccyx and cups the shoulders.
Breeze fitted slider sheets used for bed repositioning	 Patient/resident unable to assist with bed mobility. Use Breeze fitted slider sheet in place of cotton fitted sheet. Place drawsheet over fitted sheet with blue section facing blue section of fitted sheet. When drawsheet is not being used, tuck ends under the mattress. For all

clients/pat	ients/residents weighing up to 200
lbs two sta	ff members are required.
 For clients 	/patients/residents weighing greater
than 200 ll	os use three to four staff members.
 For clients 	/patients/residents weighing greater
than 200 ll	os and for clients/patients/residents
staff have	difficulty repositioning use overhead
ceiling lift	with a repositioning sling.
Reposition	ing slings are able to stay under the
patient/res	ident in bed.
• There are	other friction reducing sheets for bed
repositioni	ng that can be evaluated if required.
1	

Please note the needs of the residents will be met however staff will wait for a more appropriate

and safer time to complete the transfer if patient/resident is displaying aggressive behavior prior to transfer.



SAFE PATIENT/RESIDENT HANDLING AND MOVEMENT

ASSESSMENT CRITERIA AND CARE PLAN FOR:

I.	Patient/Resident's Level of Assistance
	Independent ~ Patient/resident performs task safely with or with assistive devices.
	Partial Assist ~ Patient/resident requires no more help than stand-by, cueing, or coaxing, or no more than 50% physical assistance by the nurse.
	Dependant ~ Patient/resident requires more than 50% assistance by nurse, or is unpredictable in the amount of assistance offered.
An ass to ass patien	sessment should be made prior to each task if the patient/resident has varying level of ability sist due to medical reasons, fatigue, medications etc. When in doubt, assume the t/resident cannot assist with the transfer/repositioning and use a lift.

II.	Weight Bearing	III.	Upper Extremity
	Capability		Strength

____Full ____Partial ____None

___Yes ___No

IV. Patient/resident's Level of Cooperation and Comprehension

Cooperative ~ May need prompting – Able to follow simple commands.

_____ **Unpredictable** ~ or varies, not cooperative, or unable to follow simple commands. (Client whose behaviour changes frequently should be considered as "unpredictable").

The presence of the following conditions are likely to affect the transfer/repositioning process and should be considered when identifying equipment and technique needed to move the patient/resident.

V. Check Applicable Conditions Likely To Affect Transfer/Repositioning Techniques.

Hip/Knee Replacement	ts 🗆	Postural Hypotension	Amputation		
History of Falls		Severe Osteoporosis		Urinary/Fecal	
Paralysis/Paresis		Splints/Traction		Tubes/	a) 🗆
Unstable Spine		Fractures		(Iv, Chest, et	c.) 🗆
Severe Edema		Respiratory		Severe Pain/ Discomfort	
Wounds Affecting Transfer/Positioning		Contractures/ Spasms		Other	
Comments:					

VI. Care Plan (Complete on admission and/or review of patient/resident's level of dependency. Update as required)

Decision	Task	Equipment/Assistive	#
Iree		Device	Staff
1	Transfer to/from bed-chair, chair-		
	toilet, chair-chair.		
2	Lateral transfer to/from bed to		
	stretcher.		
3	Transfer to/from chair to stretcher		
	or exam table.		
4	Reposition in bed; up in bed, side to		
	side.		
5	Reposition in wheelchair, chair or		
	Geri-chair.		
Bariatric 1	Bariatric transfer bed-chair, chair-		
	toilet, chair-chair.		
Bariatric 2	Bariatric lateral transfer to/from		
	stretcher.		
Bariatric 3	Bariatric reposition in bed, up in		
	bed, side to side.		
Bariatric 4	Bariatric reposition in chair,		
	wheelchair, Geri-chair.		
Bariatric 5	Handling tasks requiring sustained		
	holding of a limb.		

Bariatric 6	Bariatric transporting via stretcher		
	or bed.		
Sling Type:	Standard Amputee	Sling Size:	

To Be Placed On Patient/resident Cardex.

Signature:

Update as Patient/resident's Function Changes

Date:

References

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Waverly Glen (2006). C450/C625 Owner's Manual. Vaughan, ON: Waverly Glen.

Central Health

NUR.CNF (D/TEST.5.66.MIS/365/CML) - TEMPLATE NURSE		
Process Interventions	an a	1
Curr <u>ent Date/Time NT</u>	Int: 07 of 70	X
01 Add Document Document Edit Change Interv Interv's Now Text Directio	<u>C</u> hange <u>P</u> atient ≥More ns Status Notes	1 M
Patient C10000002/14 POSTAL,CODE	Status ADM IN Room CB03	
	Admit 06/06/14 Bed A	57
Attend Dr ROUEL ROUTLSTO ELIZOBETH		*
24/11 1445 NT	C1000002/14 POSTAL, CODE	
		-
Weight Ib O2 Kg Height Ft In *If recident is \ or - to 350 lbs, bas a PMI of \ or	- 40 or standard bospital equipment is	-
not appropriate due to weight distribution or safe w	orking load refer to bariatric decision	1
trees and contact Occupational Therapy at CNRHC or J	PM*	1±
	xChift [0 for Deceription*	1
Patient/Resident's Level of Assistance:		I ₹
Weight Bearing Capacity: *	Touch-Toe Weightbearing Considered 'No'*	3
Deec the Decident hour Upper Extremity Eurotian to O	crict During Transfor/Dongsitioning!	
DUES THE RESTUENT HAVE OPPER EXTREMITY FUNCTION TO H	*Shift F8 for Description*	
Patient/Resident's Level of Cooperation and Comprehe	NSION: *Shift E& for Description*	
Applicable Conditions Likely to affect Transfer or R	eposition:	

Labrador-Grenfell Health



SAFE CLIENT HANDLING AND MOVEMENT

ASSESSMENT CRITERIA AND CARE PLAN FOR:

I. Client/Patient/Resident's Level of Assistance

_____ Independent ~ Client/patient/resident performs task safely with or with assistive devices.

- Partial Assist ~ Client/patient/resident requires no more help than stand-by, cueing, or coaxing, or no more than 50% physical assistance by the nurse.
 Dependent ~ Client/patient/resident requires more than 50% assistance by nurse,
 - or is unpredictable in the amount of assistance offered.

An assessment should be made prior to each task if the client/patient/resident has varying level of ability to assist due to medical reasons, fatigue, medications etc. When in doubt, assume the client/patient/resident cannot assist with the transfer/repositioning and use a lift.

II. Weight Bearing Capability III. Upper Extremity Strength

____Full ___Partial ____None ____Yes ____No

IV. Client/Patient/Resident's Level of Cooperation and Comprehension

- **Cooperative** ~ May need prompting Able to follow simple commands.
- **Unpredictable** ~ or varies, not cooperative, or unable to follow simple commands. (Client whose behaviour changes frequently should be considered as "unpredictable").

The presence of the following conditions are likely to affect the transfer/repositioning process and should be considered when identifying equipment and technique needed to move the client/patient/resident.

To Be Placed In Resident Mobility Binder at Nursing Station. Update as Client/Patient/Resident's Function Changes.

V. Check Applicable Conditions Likely To Affect Transfer/Repositioning Techniques.



Comments:

VI. Care Plan (Complete on admission and/or review of client/patient/resident's level of dependency. Update as required)

Decision Tree	Task	Equipment/Assistive Device	# Employees
1	Transfer to/from bed-chair, chair-toilet, chair-chair.		
2	Lateral transfer to/from bed to stretcher.		
3	Transfer to/from chair to stretcher or exam table.		
4	Reposition in bed; up in bed, side to side.		
5	Reposition in wheelchair, chair or Geri-chair.		
Bariatric 1	Bariatric transfer bed-chair, chair- toilet, chair-chair.		
Bariatric 2	Bariatric lateral transfer to/from stretcher.		
Bariatric 3	Bariatric reposition in bed, up in bed, side to side.		
Bariatric 4	Bariatric reposition in chair, wheelchair, Geri-chair.		
Bariatric 5	Handling tasks requiring sustained holding of a limb.		
Bariatric 6	Bariatric transporting via stretcher or bed.		

Sling Type:	Standard	Amputee	Sling Size:
8			

Signature:

Date:

To Be Placed In Resident Mobility Binder at Nursing Station Update as Client/Patient/Resident's Function Changes.

Appendix E: Number of Injuries, Cost of Injuries, and Duration of Lost Time using Workplace Health, Safety and Compensation Commission (WHSCC) of NL Data

The total number of injuries, cost of injuries, and duration of lost time for each of the three nursing occupational groups was obtained from the Workplace Health, Safety and Compensation Commission of NL (WHSCC)⁶. The injury inclusion criteria established by the research team in consultation with WHSCC are as follows:

- 1) the injury claim was accepted by WHSCC,
- 2) the injury resulted in lost time,
- 3) the injury was sustained by a nursing staff member at one of the 10 pilot sites,
- 4) the injury involved a health care patient or resident, and
- 5) the injury was the result of "bodily reaction and exertion".

The number of injuries, cost and duration of lost time were supplied per month per occupational group. Thus, the data were aggregated⁷. The duration of lost time is measured as number of weeks, regardless of the part-time, full-time or casual status of the injured employee. Costs included lost wages as well as costs associated with medical treatment.

WHSCC Data

Number of Injuries

The WHSCC provided the number of injuries per month per occupation in the three years prior to the implementation of the intervention at each facility and 12 months after the implementation end date, with the exception of Hoyles Escasoni Complex for which only 6 months post-implementation data were provided and Corner Brook Long-term Care for which only 2 years pre-IPP data were provided. Corner Brook Long Term Care moved to a new facility in September 2012 and Hoyles Escasoni Complex moved in September 2014. The total number of injuries per year are provided in Table 56. The implementation period has been excluded. The number of injuries in the six month pre-IPP period in Hoyles Escasoni Complex was 9. Thus, a more appropriate comparison of the injuries before and after the implementation of the IPP is 54 in the 12-month pre-IPP period and 43 in the post, representing a reduction in injuries of 20.4%.

⁶ All injury, cost, and duration data were de-identified. Further, WHSCC supplied data to the research team only after having obtained written permission to do so by a senior individual in the Occupational Health and Safety Department of each of the RHAs involved in the study.

⁷ Individual level data were unavailable to the research team.

RHA	Facility	Year -3	Year -2	Year -1 pre	1 year post- IPP
	,	Ν	Ν	Ν	Ν
	Agnes Pratt Home	3	3	11	5
	Golden Heights Manor	3	6	3	2
Eastern Health	Hoyles Escasoni Complex	22	22 19		4*
	Eastern Health	28	28	30 (23*)	11*
	Total				
	Carmelite House	4	4 3		2
	North Haven Manor	3	2	5	4
Central Health	Bonnews Lodge	2	1	1	2
	Central Health	9	6	8	8
	Total				
	Corner Brook Long Term Care	**	13	14	15
Western Health	Bay St. George Long Term Care	12	8	5	1
	Western Health Total	12	21	19	16
Labrador-	Long Term Care Happy Valley Goose Bay	1	0	2	4
Grenfell Health	John M. Gray Centre	1	0	2	4
	Labrador-Grenfell Health Total	2	0	4	8
	All Facilities Total	51**	55	61 (54*)	43*

Table 56. Total number of injuries identified by WHSCC during the 36 months pre-IPP and 12 months post-implementation

*The pre-IPP and post-IPP evaluation periods for Hoyles Escasoni Complex were each 6 months in length. Nine injuries were sustained in the first 6 months of the 12-month period immediately prior to the implementation and four injuries were sustained in the 6 months immediately following the implementation of the IPP. **missing data due to move to new facility

Impact of the IPP on Number of Injuries

A segmented Poisson regression was used to analyze the number of injuries per month in the 24 months prior to the intervention and 6 months post-implementation. The SPSS output is presented in Table 57 and Figure 13 outlines the trend in injuries.

Parameter	В	Standard	95% Wald		Hy	pothe	sis Test	Exp(B)	95%	Wald
		Error	Confi	dence	ce l				Confi	dence
			Inte	rval					Interval f	or Exp(<i>B</i>)
			Lower	Upper	Wald	df	Significance		Lower	Upper
					Chi-					
					Square					
Intercept	1.555	0.1926	1.178	1.933	65.224	1	0.000	4.736	3.247	6.908
D	-0.574	0.5582	-1.668	0.520	1.058	1	0.304	0.563	0.189	1.682
Т	0.002	0.0134	-0.025	0.028	0.015	1	0.904	1.002	0.976	1.028
Р	0.050	0.1319	-0.209	0.308	0.143	1	0.705	1.051	0.812	1.361

 Table 57. Poisson linear regression model output for total number of injuries





The Poisson regression model is not statistically significant nor are the regression coefficients (ps > 0.5). Thus, the IPP had no statistically significant impact on the number of injuries when data from all 10 facilities are combined. This analysis is limited by the short post-IPP period, which contains only 6 observations (i.e., months).

Cost Associated with Injuries

The WHSCC cost for injuries that occurred during the pre-implementation periods was calculated from the date of the injury (or first payment) to the end of the pre-implementation period or the date that the payments stopped, whichever came first. The cost of injuries that occurred during the 12 month post-implementation period was calculated from the date of the injury (or first payment) to the end of the post-implementation period or the date that the payments stopped, whichever came first. Thus, costs that continued beyond the 12 month pre-or post-periods were not included, and, as a result, the total and mean costs presented in Table 58 and 59 below underestimate the true cost of injuries. This adjustment was necessary due to the timing of data collection; the WHSCC data were provided shortly after the completion of each facility's post-implementation period so that costs that continued beyond the 12 month post-implementation period were not available. To ensure that the periods of time over which costs could accrue were equivalent, the pre-implementation cost period was also limited to 12 months in total.

RHA	Facility	Pre-IPP Total	Post-IPP Total	Change	% Change
	Agnes Pratt Home	\$61,737	\$54,334	-\$7,403	12% decrease
Eastern	Golden Heights Manor	\$17,830	\$1,767	-\$16,063	90% decrease
Health	Hoyles Escasoni Complex*	\$28,032	\$12,029	-\$16,003	57% decrease
	Eastern Health Total	\$107,600	\$68,130	-\$39,470	37% decrease
	Carmelite House	\$10,559	\$11,916	+\$1,357	13% increase
Control	North Haven Manor	\$24,198	\$38,606	+\$14,408	60% increase
Health	Bonnews Lodge	\$432	\$2,095	+\$1,663	385% increase
	FacilityPre-IPP TotalPost-IPP TotalCrAgnes Pratt Home\$61,737\$54,334-\$7,4Golden Heights Manor\$17,830\$1,767\$16,Hoyles Escasoni Complex*\$28,032\$12,029-\$16,Hoyles Escasoni Complex*\$107,600\$68,130-\$39,Carmelite House\$10,559\$11,916+\$14,North Haven Manor\$24,198\$38,606+\$14,Bonnews Lodge\$432\$2,095+\$16,Central Health Total\$35,189\$51,393+\$16,Corner Brook Long Term Care\$32,798\$3,769-\$29,Term Care\$80,226\$77,799+\$2,4Western Health Total\$80,226\$77,799+\$2,4John M. Gray Centre\$1,171\$4,389+\$3,2Health Total\$3,855\$20,055+\$16,Health Total\$3,855\$20,055+\$16,Health Total\$226,870\$217,377-\$9,4	+\$16,204	46% increase		
	Corner Brook Long Term Care	\$47,428	\$74,029	+\$26,601	56% increase
Health	Bay St. George Long Term Care	\$32,798	\$3,769	-\$29,029	89% decrease
	Western Health Total	\$80,226	\$77,799	+\$2,427	3% decrease
	Long Term Care Happy Valley Goose Bay	\$2,684	\$15,666	+\$12,982	484% increase
Labrador- Grenfell	John M. Gray Centre	\$1,171	\$4,389	+\$3,218	275% increase
Health	Labrador-Grenfell	\$3,855	\$20,055	+\$16,200	420% increase
	Health Total				
	All Facilities Total	\$226,870	\$217,377	-\$9,493	4% decrease

Table 58. Total costs, change, and percent change associated with injuries sustained during the pre-IPP and post-implementation periods

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

RHA	Facility		Pre-IPP Cost	Post-IPP Cost		
RHA Eastern Health Central Health Western Health Labrador- Grenfell Health	,	N	Mean (SD)	N	Mean (SD)	
	Agnes Pratt Home	11	\$5,612 (6,454)	5	\$10,867 (11,689)	
	Golden Heights Manor	3	\$5,943 (7,498)	2	\$884 (1,249)	
Eastern Health	Hoyles Escasoni Complex*	9	\$3,114 (3,843)	4	\$3,007 (2,629)	
	Eastern Health Total	23	\$4,678 (5,574)	11	\$6,194 (8,803)	
	Carmelite House	2	\$5,280 (4,891)	2	\$5,884 (8,321)	
Central	North Haven Manor	5	\$4,840 (6,655)	4	\$9,383 (13,430)	
Health	Bonnews Lodge	1	\$432	2	\$1,047 (683)	
	Central Health Total	8	\$4,399 (5,598)	8	\$6,424 (10,030)	
	Corner Brook Long Term Care	14	\$3,388 (4,569)	15	\$4,935 (6,100)	
Western Health	Bay St. George Long Term Care	5	\$6,560 (8,918)	1	\$3,769	
	Western Health Total	19	\$4,222 (5,900)	16	\$4,862 (5,900)	
Labrador-	Long Term Care Happy Valley Goose Bay	2	\$1,342 (419)	4	\$3,9167 (3,872)	
Grenfell	John M. Gray Centre	2	\$586 (828)	4	\$1,097 (253)	
Health	Labrador-Grenfell	4	\$964 (691)	8	\$2,507 (2,954)	
	Health Total					
	All Facilities Total	54	\$4,201 (5,457)	43	\$5,055 (7,145)	

Table 59. Number of injuries and mean costs for injuries sustained during the pre-IPP and post-implementation periods

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

An independent samples t-test was conducted on the cost of injuries collapsed across facilities to determine if the change in cost from the pre- to the post-period was significant. No significant difference was found, t(95)=-.67, p>.05. Thus, there was no statistically significant change in the mean cost of injuries in the pre- and post-period.

Duration of Lost Time Associated with Injuries

Table 60. Mean duration of lost time (in weeks) for injuries sustained during the pre-IPP and postimplementation periods

RHA	Facility	Pre	-IPP Duration (in weeks)	Post-IPP Duration (in weeks)		
	,	Ν	Mean (SD)	N	Mean (SD)	
	Agnes Pratt Home	11	10.93 (14.38)	5	16.60 (17.63)	
- ·	Golden Heights Manor	3	8.33 (8.76)	2	2.30 (3.25)	
Eastern Health	Hoyles Escasoni Complex*	9	5.36 (6.80)	4	4.75 (3.60)	
	Eastern Health Total	23	8.41 (11.17)	11	9.69 (13.18)	
	Carmelite House	2	9.10 (6.93)	2	7.40 (12.48)	
Central	North Haven Manor	5	7.28 (10.25)	4	13.92 (23.65)	
Health	Bonnews Lodge	1	0.60	2	1.55 (0.92)	
	Central Health Total	8	6.90 (8.60)	8	11.64 (19.28)	
	Corner Brook Long Term Care	14	5.31 (8.59)	15	8.53 (9.48)	
Western Health	Bay St. George Long Term Care	5	9.16 (13.68)	1	2.60	
	Western Health Total	19	6.32 (9.89)	16	8.16 (9.28)	
	Long Term Care Happy	2	1.70 (0.71)	4	6.45 (5.00)	
Labrador-	Valley Goose Bay					
Grenfell	John M. Gray Centre	2	0.50 (0.71)	4	1.33 (0.59)	
Health	Labrador-Grenfell	4	1.10 (0.90)	8	3.88 (4.28)	
	Health Total					
	All Facilities Total	54	6.91 (9.92)	43	8.40 (11.98)	

*The pre-IPP and the post-IPP periods for HEC are each 6 months in length. The pre- and post-IPP periods represent injuries that were sustained in the first 6 months of the pre-IPP period and the 6 months immediately after implementation, respectively.

An independent samples t-test was conducted on the duration of lost time collapsed across facilities to determine if the change in duration from the pre- and post-periods was significant. No significant difference was found, t (95)=-.67, p>.05. Thus, there was no change in the mean duration of lost time associated with injuries from the pre- to the post-period.

Appendix F: Family/Resident Council Survey

Are you a:	\bigcirc reside	nt of this care facility	or	\bigcirc family member of a resident
1. Do you fee handling equ	el that you a uipment?	are / your family membe	er is c e	omfortable with the new resident
Oyes	O NO		If NO	, please explain.
2. Has the n <i>quality of c</i>	ew resident are ?	handling equipment im	ipacte	d upon your / your family members'
\bigcirc yes	\bigcirc NO		lf Y I	E S , please explain.
3. Has the ne <i>quality of li</i> O YES	ew resident fe ? ◯ NO	handling equipment im	pacte	d upon your / your <i>family members'</i> S , please explain.
O YES	ONO		If YE	S , please explain.
4. Has the in the quality o	nplementati f your / you	on of the injury preventi r family members' safe t	ion pro t y ?	ogram at <u>Carmelite House</u> affected
\bigcirc yes	\bigcirc NO		If YES	s, please explain.

5.Do you have any additional comments regarding the new safe handling equipment?

Appendix G: Baseline IPP Evaluation Questionnaire

In order to ensure confidentiality and to protect the anonymity of your responses, please create a questionnaire code based on the first three letters of your mother's maiden name and the last three digits of your home phone number. Write this code in the space provided below. An example has been provided. This code will allow us to match your current responses with later questionnaire responses without using identifying information.

EXAMPLE: If your mother's maiden name is Smith and your home phone number is765-4321 your code would be Smi321.

Code: _____

INSTRUCTIONS: This questionnaire asks for your opinions about employee and resident safety in your Long Term Care (LTC facility). When completing this questionnaire, think of the unit or clinical area in this LTC facility where you spend <u>most of your work time or provide most of your clinical service.</u>

SECTION 1:

Please indicate your level of agreement with the following statements about your work area/unit by checking ($\sqrt{}$) the appropriate circle.

		Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1.	Staff follow standard procedures to care for residents.	1	2	3	4	5
2.	Staff use shortcuts to get their work done faster.	1	2	3	4	5
3.	Staff talk about ways to keep incidents from happening again.	1	2	3	4	5
4.	Staff discuss ways to keep residents safe from harm.	1	2	3	4	5
5.	Staff safety is considered when decisions are made.	1	2	3	4	5

		Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
6.	Unsafe work practices are corrected by co-workers.	1	2	3	4	5
7.	Safety is emphasized in the way work is conducted on the unit.	1	2	3	4	5
8.	Management listens to staff ideas and suggestions about resident safety.	1	2	3	4	5
9.	Management listens to staff ideas and suggestions about employee safety.	1	2	3	4	5

		Poor ▼	Fair ▼	Good ▼	Very Good ▼	Excellent ▼
10.	Please give this LTC facility an overall rating on resident safety.	1	2	3	4	5
11.	Please give this LTC facility an overall rating on employee safety.	1	2	3	4	5

SECTION 2:

Please indicate your level of agreement with the following statements about resident handling by checking (\checkmark) the appropriate circle.

		Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
12.	Safe resident handling is important to me.	1	2	3	4	5
13.	I feel safe with the way I move residents in bed.	1	2	3	4	5
14.	I feel I have the equipment needed to move residents safely in bed.	1	2	3	4	5
15.	I feel I have the equipment needed to move residents safely from bed to chair/commode/toilet, etc.	1	2	3	4	5
16.	I feel I have the knowledge to assess how to move a resident safely.	1	2	3	4	5
17.	I feel I have the knowledge needed to move residents safely in bed.	1	2	3	4	5

 I feel I have the knowledge needed to move residents safely from bed to chair/commode/toilet, etc. 	1	2	3	4	5
19. Do you feel there are barriers that prevent you f \bigcirc Yes \bigcirc No	rom using	safe res	ident har	ndling pra	actices?
If Yes , what are these barriers?					
	:1:4 . 4				

20. What do you believe is needed in your LTC facility to reduce the number and/or severity of workplace injuries due to resident handling?

SECTION 3:

INSTRUCTIONS: For the following questions, please estimate the likelihood of experiencing a musculoskeletal injury from your work <u>within a year</u>. Musculoskeletal injuries refer to musculoskeletal pain or discomfort that limits your movement or interferes with your work on the job or at home.

How likely it is that YOU will experience a musculoskeletal injury within a year related to:

	Extremely Unlikely ▼	Moderately Unlikely ▼	Somewhat Unlikely ▼	Somewhat Likely ▼	Moderately Likely ▼	Extremely Likely ▼
1. Nursing work in general.	1	2	3	4	5	6
2. Work tasks not related to resident handling.	1	2	3	4	5	6
 Resident handling tasks (e.g., lifting, transferring, repositioning) that <u>you</u> perform <u>manually.</u> 	1	2	3	4	5	6

4.	Resident handling tasks (e.g., lifting, transferring, repositioning) that you perform <u>using an</u> <u>assisted/mechanical lift device.</u>	1)	2	3	4	\$	6			
<u>SE</u>	CTION 4:									
1.	What is your position in this Long	Term Car	e facility?							
0	\odot License Practical Nurse (LPN) \odot Personal Care Attendant (PCA) \odot Registered Nurse									
0	Other:									
2.	What is your gender? $ \bigcirc $ Male	⊖ Fema	le							
3.	What is your age?									
0	○ < 30 ○ 30-39 ○ 40-49 ○ 50-59 ○ 60 or over									
4.	How long have you worked in this	Long Ter	m Care fac	ility?						
0	< 1 yr 0 1-10 yrs 0 11-19 yrs 0	○ 20 or m	ore yrs							
5.	What is your employment status?									
0	Full-Time O Part-Time O Tem	porary C	Casual/Fl	oat O C	Other:		_			
6.	Do you work on a Protective Care	Unit?) Yes O	No						
lf <u>Y</u>	<u>es, what percentage of your work </u>	time is sp	ent on the	Protective	e Care Uni	t?				
0	0-25%	○ 76-10	0%							
7. site	Have you recently attended an Injue?	ıry Prevei	ntion Prog	ram educa	tion sessi	on at your				
0	Yes ONo									
Ada	ditional Comments:						_			

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.
Appendix H: IPP Evaluation 10-month Follow-up Questionnaire

In order to ensure confidentiality and to protect the anonymity of your responses, please create a questionnaire code based on the first three letters of your mother's maiden name and the last three digits of your home phone number. Write this code in the space provided below. An example has been provided. This code will allow us to match your current responses with later questionnaire responses without using identifying information.

EXAMPLE: If your mother's maiden name is Smith and your home phone number is 765-4321 your code would be Smi321.

Code: _____

INSTRUCTIONS: This questionnaire asks for your opinions about employee and resident safety in your Long Term Care (LTC facility). When completing this questionnaire, think of the unit or clinical area in this LTC facility where you spend <u>most of your work time or provide most of your clinical service.</u>

SECTION 1:

Please indicate your level of agreement with the following statements about your work area/unit by checking ($\sqrt{}$) the appropriate circle.

		Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1.	Staff follow standard procedures to care for residents.	1	2	3	4	5
2.	Staff use shortcuts to get their work done faster.	1	2	3	4	5
3.	Staff talk about ways to keep incidents from happening again.	1	2	3	4	5
4.	Staff discuss ways to keep residents safe from harm.	1	2	3	4	5
5.	Staff safety is considered when decisions are made.	1	2	3	4	5
6.	Unsafe work practices are corrected by co-workers.	1	2	3	4	5

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
7. Safety is emphasized in the way work is conducted on the unit.	1	2	3	4	5
 Management listens to staff ideas and suggestions about resident safety. 	1	2	3	4	5
9. Management listens to staff ideas and suggestions about employee safety.	1	2	3	4	5
	Poor ▼	Fair ▼	Good ▼	Very Good ▼	Excellent ▼
10. Please give this LTC facility an overall rating on resident safety.	1	2	3	4	5
 Please give this LTC facility an overall rating on employee safety. 	1	2	3	4	5

<u>SECTION 2:</u> Please indicate your level of agreement with the following statements about resident handling by checking (\checkmark) the appropriate circle.

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
12. Safe resident handling is important to me.	1	2	3	4	5
 I feel safe with the way I move residents in bed. 	1	2	3	4	(5)
14. I feel I have the equipment needed to move residents safely in bed.	1	2	3	4	5
 I feel I have the equipment needed to move residents safely from bed to chair/commode/toilet, etc. 	1	2	3	4	5
 I feel I have the knowledge to assess how to move a resident safely. 	1	2	3	4	5
17. I feel I have the knowledge needed to move residents safely in bed.	1	2	3	4	5
 I feel I have the knowledge needed to move residents safely from bed to chair/commode/toilet, etc. 	1	2	3	4	5

SECTION 3:

INSTRUCTIONS: For the following questions, please estimate the likelihood of experiencing a musculoskeletal injury from your work <u>within a year</u>. Musculoskeletal injuries refer to musculoskeletal pain or discomfort that limits your movement or interferes with your work on the job or at home.

How likely it is that YOU will experience a musculoskeletal injury within a year related to:

	Extremely Unlikely ▼	Moderately Unlikely ▼	Somewhat Unlikely ▼	Somewhat Likely ▼	Moderately Likely ▼	Extremely Likely ▼
1. Nursing work in general.	1	2	3	4	5	6
2. Work tasks not related to resident handling.	1	2	3	4	5	6
 Resident handling tasks (e.g., lifting, transferring, repositioning) that <u>you</u> perform <u>manually.</u> 	0	2	3	4	5	6
4. Resident handling tasks (e.g., lifting, transferring, repositioning) that you perform <u>using an</u> assisted/mechanical lift device	1	2	3	4	5	6

In the following questions, the term resident handling equipment refers to the <u>(list of all</u> equipment in that particular LTC facility) that have been installed in your LTC facility/unit.

Section 4: Residents' Perceptions of the Equipment

1. Do you feel the residents are comfortable with the new resident handling equipment?

 \bigcirc Yes \bigcirc No If **No**, please explain.

2.	Has the new re	esiden	nt handling	g equipment impacted upon your residents'	quality of care or
qı	ality of life? \bigcirc	Yes	\bigcirc No	If yes, please explain.	

SECTION 5: Equipment

1. Are you	satisfied	with the new resident handling equipment that has been implemented?
⊖ Yes	\bigcirc No	If No , please explain.

2. Is the resident handling equipment available for use when	it?	\bigcirc Yes	\bigcirc No	
If No , please explain.				
 Are you using the new resident handling equipment? explain. 	Yes O	No	○ If No ,	please
4. Do you <u>routinely</u> use safe resident handling practices and	d technique	s?	O Yes	

If No, please explain.

SECTION 6:

1. What is your position in this Long Term Care facility?

Ο	License Practical Nurse (LPN)	\bigcirc Personal Care Attendant (PCA)	○ Registered Nurse
0	Other:		

2. Are you? \bigcirc Male \bigcirc Female

3. What is your age?

○ < 30 ○ 30-39 ○ 40-49 ○ 50-59 ○ 60 or over

4. How long have you worked in this Long Term Care facility?

 \bigcirc < 1 yr \bigcirc 1-10 yrs \bigcirc 11-19 yrs \bigcirc 20 or more yrs

- 5. What is your employment status?
- Full-Time Part-Time Temporary Casual/Float Other:
- 6. Do you work on a Protective Care Unit? \bigcirc Yes \bigcirc No
- If Yes, what percentage of your work time is spent on the Protective Care Unit?
- 0-25% 26-50% 51-75% 76-100%

7. Have attended an Injury Prevention Program education session at your site?

 \bigcirc Yes \bigcirc No

Additional Comments:

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

Appendix I: Equipment and Training Questionnaire

In order to ensure confidentiality and to protect the anonymity of your responses, please create a questionnaire code based on the first three letters of your mother's maiden name and the last three digits of your home phone number. Write this code in the space provided below. An example has been provided. This code will allow us to match your current responses with later questionnaire responses without using identifying information.

EXAMPLE: If your mother's maiden name is Smith and your home phone number is 765-4321 your code would be Smi321.

Code:_____

This questionnaire asks for your opinions of the equipment, education, and training associated with the **Injury Prevention Program** that has been implemented in your LTC facility.

Section 1:

Have you attended an Injury Prevention Program (IPP) education/training session(s)?

 \bigcirc Yes \bigcirc No If **No**, skip to section 2

Please indicate your level of agreement with the following statements by checking (J) the appropriate circle.

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
The IPP education/training has provided me with the knowledge to use the safe handling equipment appropriately.	1	2	3	4	5
I feel confident that I can use the resident handling equipment safely.	1	2	3	4	5
The safe handling training resources and support materials were useful.	1	2	3	4	5
I need further education/training to use the safe handling equipment appropriately.	1	2	3	4	5
The education session presenter or trainer answered questions to help improve my understanding.	1	2	3	4	5
The education session presenter or trainer was well prepared.	1	2	3	4	5
The education session presenter or trainer demonstrated a good knowledge of the subject area.	1	2	3	4	5

In the following questions, the term **resident handling equipment** refers to the <u>(list of all</u> <u>equipment in that particular LTC facility)</u> that have been purchased for your LTC facility/unit.

Section 2:

1. Are you satisfied with the new resident handling equipment that has been implemented? \bigcirc Yes \bigcirc No If **No**, please explain.

2. Is the resident handling equipment available for use when you need it? O Yes O No If No, please explain.
3. Are you using the new resident handling equipment? O Yes O No If No, please explain.

4. Do you have the knowledge and skills to use the resident handling equipment appropriately?

Ο	Yes	\bigcirc No	lf No , please explain.
			, , , , , , , , , , , , , , , , , , , ,

5. Do you <u>routinely</u> use safe resident handling practices and techniques?	\bigcirc Yes	\bigcirc No
If No , please explain.		

SECTION 3:

1. What is your position in this LTC facility?

Additional Comments:

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

Appendix J: Injury Rates in Each of the 10 Pilot Facilities

Eastern Health

Figure 14. Injury rates at Agnes Pratt home per pay period in the pre-IPP, during implementation, and post-implementation periods





Figure 15. Injury rates at Golden Heights Manor per pay period in the pre-IPP, during implementation, and post-implementation periods

Figure 16. Injury rates at Hoyles Escasoni Complex per pay period in the pre-IPP, during implementation, and post-implementation periods



Central Health



Figure 17. Injury rates at Carmelite House per pay period in the pre-IPP, during implementation, and post-implementation periods



Figure 18. Injury rates at North Haven Manor per pay period in the pre-IPP, during implementation, and post-implementation periods

Figure 19. Injury rates at Bonnews Lodge per pay period in the pre-IPP, during implementation, and post-implementation periods



Western Health



Figure 20. Injury rates at Corner Brook LTC Home per pay period in the pre-IPP, during implementation, and post-implementation periods

Figure 21. Injury rates at Bay St. George LTC Home per pay period in the pre-IPP, during implementation, and post-implementation periods



Labrador-Grenfell Health





Figure 23. Injury rates at John M. Gray Centre per pay period in the pre-IPP, during implementation, and post-implementation periods

