



Victorian Nurses
Back Injury Prevention Project



Evaluation Report 2002

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Foreword



The Victorian Nurse Back Injury Prevention Project (VNBIPP) was established in October 1998 to provide funding for health care organisations to assist them to implement programs to prevent back injuries amongst nurses. An Advisory Committee, consisting of representatives from key industry stakeholders and organisations, was formed to oversee the project, which is administered by the Department of Human Services Nurse Policy Branch.

The project was established in response to growing concern amongst nurses and the industry regarding the unacceptably high rate of back injuries in the nursing profession and the enormous financial and human costs associated with such injuries. When the VNBIPP was initiated, nurses accounted for more than 54 per cent of compensation claims by health industry workers.

The aim of the VNBIPP is three-fold:

- To assist facilities to implement back injury prevention programs based on no lifting principles.
- To facilitate long term cultural change in health care organisations and among nursing staff. By encouraging new attitudes, the project aims to eliminate unsafe practices that have traditionally led to a high risk of injury amongst nurses.
- To assist health care organisations to implement effective procedures for risk identification, assessment and control of patient handling injuries among nurses.

This Report provides the results of the external evaluation, commissioned by the Department of Human Services, and undertaken by Healtharena and La Trobe University. The Report aims to determine nurses' perceptions of back injury prevention programs, effects of programs on their work practices and to determine the effect of these programs on workplace injuries.

This Government acknowledges the outstanding success of the VNBIPP that has been demonstrated in this Report. The evaluation indicates a reduction in WorkCover claims for injuries sustained by nurses by 48 per cent, a reduction in days lost due to injury by 74 per cent, and a reduction in the cost of claims by 54 per cent. These statistics represent an outstanding achievement in back injury prevention.

I would like to take this opportunity to thank all the Committee members for their hard work and dedication. In accepting the Report, I am confident that Victorian nurses will now feel that they can practice in a safer, better equipped work environment where they are valued for their crucial contribution to the health of all Victorians.

Hon John Thwaites MP
Minister for Health

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Executive Summary



Background

The Victorian Nurses Back Injury Prevention Project (VNBIPP) provided funding to Victorian public health care facilities to implement Back Injury Prevention Programs based on 'No Lifting' principles. These comprehensive programs addressed unacceptable and rising injury numbers in nurses, by eliminating and minimising manual handling when moving patients. This was achieved through the provision of patient handling aids and equipment, educating nurses to be aware that the health and safety of staff and patients are of equal importance, and encouraging nurses to be proactive in identifying hazards and reducing risks of injury in the workplace. This evaluation was commissioned to determine nurses' perceptions of programs, effects of programs on their work practices and to determine the effect of these programs on workplace injuries.

Methods

After programs had been in place for at least 12 months, nurses were surveyed to assess their perceptions of programs effects, attitudes towards program objectives and workplace practices. Data on injuries incurred by nurses working in 72 participating wards/units for the periods two years before and one year before program implementation were compared to injury data for the one-year period that followed implementation.

Key Findings

- The most important finding of this evaluation is that compared to either of the two preceding years, in the 12 months after program implementation there was a large (43 per cent and 48 per cent) and significant ($p < .003$) decrease in numbers of injury claims made by nurses in participating wards.
- Most of the reduction in claim numbers was due to a decrease in the number of claims for sprains and strains incurred during manual handling tasks.
- Compared to the year preceding implementation, in the 12 months after program implementation claims for back injuries fell by 40 per cent ($p = .01$).
- Compared to injuries incurred in the year preceding implementation, in the 12 months after program implementation, claim costs and days lost due to injury were significantly reduced. When sampled at 18.5 (SD 3) months after implementation, costs were reduced by 54 per cent and days lost by 74 per cent. Data for costs and days lost in the post-implementation period require verification at 30 months after program implementation, because the claims in the pre-implementation period had existed for up to 30 months at the time of sampling. This verification is necessary for confidence in the magnitude of the observed reduction, because cost and days lost data can accrue when injuries do not resolve.

- Nurses clearly welcomed programs and the effect of programs on their work conditions.
- Nurses reported strong support for the principles of 'No Lifting' and a proactive attitude to risk control and injury reduction.
- Nurses reported needing:
 - More patient handling equipment.
 - More space to store equipment.
 - More room to operate equipment.
 - Improved response time to their manual handling concerns.
 - Ongoing training in 'No Lifting' practices and ongoing education to keep them informed about advances in patient handling equipment.
 - More support for key staff who coordinate programs.

We predict that meeting these needs will enhance program effects.

- Inadequate or poorly accessible space for storing and operating patient handling equipment is an obstacle to successful program implementation. Methods used to deal with this included renovation, rearrangement of existing space and removal of beds to allow centrally located storage. Health facility managers need to be alerted to the importance of providing work environments that allow all nurses to utilise patient handling equipment. Alterations to workplace environments should occur with consideration of the recommendations in the WorkSafe publication 'Designing Workplaces for Safer Handling of Patients/Residents' (Victorian WorkCover Authority, 1999). Consideration should be given to space requirements to operate and store patient handling equipment when building new health care facilities.
- Consistent and valid assessment of patient handling requirements is a prerequisite for identifying hazards and reducing risks associated with patient handling. Inconsistent use of such instruments was observed in this evaluation, in part due to the variable quality of options available to participating nurses. Standardised instruments have been proposed in the WorkSafe Victoria (2002) publication 'Transferring people safely: a practical guide to managing risk—handling patients, residents and clients in health, aged care, rehabilitation and disability services' and should be tested for utility.
- Program coordinators reported needing more resources (staff, time and equipment) to successfully implement or sustain programs. Nurses reported that programs suffered when staff dedicated to program coordination left the ward/unit, or the position of program coordinator was discontinued. The importance of dedicated staff for sustaining programs that encourage nurses to comply with safe practices should not be underestimated. The allocation of resources that allow program coordinators and dedicated staff to implement and sustain programs is considered to be critical.
- Of claims for back injuries in the post-implementation period, 28 per cent were for nurses who had not received training in 'No Lifting' practices and procedures. The development of methods to ensure uniform training of all nurses is a priority. Uniformity of nursing practices is the most expedient path to maximising program effects. Standardised methods to assess competency in 'No Lifting' practices need to be developed and tested.

Conclusion

This evaluation found that the VNBIPP was effective in significantly reducing injuries incurred by nurses in participating wards. It is likely that these encouraging results are a consequence of the comprehensive approach taken by the VNBIPP to reducing the exposure of nurses to hazardous workplace practices. There are clear opportunities for program refinement. Ongoing funding is required for patient handling equipment, to achieve uniform competence in 'No Lifting' practices for all nurses and to ensure that resources are allocated to maintain programs. Sustained monitoring and evaluation of programs for at least 2 more years is advised to verify findings using data from more recently funded facilities, to facilitate estimates of cost benefits and, importantly, to assess program sustainability.

Project Background



In 1996, Elizabeth Langford from the Injured Nurses Support Group conducted a survey that examined the impact of injury on nurses, the industry and the community (Langford, 1997). Subsequent to this report, the Australian Nursing Federation (Victorian Branch) adopted a 'No Lifting' Policy. (Copies of the 'No Lifting' Policy can be obtained by telephoning the Australian Nurses Federation (Victorian Branch) on 03 9275 9333). This policy was based on the model developed by the Royal College of Nursing in the United Kingdom. When the Victorian Nurses Back Injury Prevention Project was initiated, nurses accounted for more than 54 per cent of compensation claims by health industry workers. The health industry paid around \$50 million per year in workers' compensation premiums and nurses' back injuries accounted for more than half of this amount (Department of Human Services 2000). The Injured Nurses Support Group approached the Minister for Health to tackle the unacceptably high injury rates amongst nurses. The Australian Nursing Federation (Victorian Branch) joined with the Injured Nurses Support Group and together these two groups successfully lobbied for support for a strategy to reduce injuries to nurses.

There is agreement that back injuries in nurses and other workers are related to exposure to high physical loads (Frymoyer et al. 1983, Engkvist et al. 1992, Chiou et al. 1994, Vasiliadou et al. 1995, Hignet 1996, Matsui et al. 1997, Smedley et al. 1997, Retsas and Pinikahna 2000, Wallner-Schlotfeldt and Stewart 2000, Engkvist et al. 2000). For nurses, exposure to high physical loads occurs during patient transfers (Engkvist et al. 1992, Ulin et al. 1997). Work intensity, static work postures, frequent bending and pushing, velocity of task performance and distance to an object being manipulated have also been identified as risk factors for back injuries (Caboor et al. 2000). The traditional approach to minimising the risk of injury to nurses due to patient handling has been to teach nurses "safe manual lifting techniques". There is laboratory-based evidence to suggest that training in "correct body mechanics" can be learned, but training is poorly transferred to the work environment (Carlton 1987, Wachs and Parker-Conrad 1989). In addition, there is strong evidence that these methods are not effective in reducing the risk of injuries related to patient handling (Linton and Tulder 2001, Hignet 1996, Daltroy et al. 1997). Nelson et al. (1997) argued that effective preventative interventions were critically needed to control the injuries and costs associated with patient handling.

If physical loads due to patient handling cause injuries to nurses, the risk of injury should decrease if nurses stop performing hazardous manual handling tasks. Charney (1997) reported a decrease in back injuries in each of ten facilities (mean reduction 69 per cent) that took part in a program where nurses ceased lifting patients. At the inception of the Victorian Nurses Back Injury Prevention Project, the Royal College of Nursing (RCN) in the United Kingdom had for some time been advocating the advantages of eliminating hazardous manual handling by nurses. The RCN reported cases where this had resulted in health care facilities reducing injuries to nurses in the order of 50 per cent. Princess Alexandra Hospital and Mt. Olivet Hospital in Queensland reported comparable results (Garrison 1998, Gorman 1998). Encouraged by these reports, the Department of Human Services implemented a project designed to reduce back injuries in nurses by, wherever possible, eliminating hazardous manual handling tasks.

Legislative Framework



The Occupational Health and Safety Act 1985 sets out general duties of care for employers and employees. The Act enables regulations to be made about health and safety of workers. The Occupational Health and Safety (Manual Handling) Regulations 1999 have been written to protect people at work against musculoskeletal disorders caused by manual handling. They set out specific duties for employers and employees. Under the Regulations, an employer must ensure that manual handling risks are eliminated wherever practicable. An employer must not rely on the use of 'information, training or instruction in manual handling techniques as the sole or primary means of controlling risk'. The Code of Practice for Manual Handling 2000 ('the Code' No 25, 20 April 2000), approved under Section 55 of the Occupational Health and Safety Act 1985 ([http://www.workcover.vic.gov.au/vwa/home.nsf/pages/so_manhand/\\$File/ManHandCode.pdf](http://www.workcover.vic.gov.au/vwa/home.nsf/pages/so_manhand/$File/ManHandCode.pdf)), or phone information Victoria 1300 366 356) provides guidance on compliance with the Regulations. The Code of Practice for Manual Handling states that manual handling risks should be eliminated through hazard identification, risk assessment and risk control. Actions to eliminate or reduce the risk of musculoskeletal disorders have the following hierarchy:

- Alter the workplace or environmental conditions where the manual handling task is carried out.
- Alter the systems of work used to carry out the manual handling task.
- Change the objects used in the manual handling task.
- Use mechanical aids to reduce the forces needed to perform manual handling tasks and improve the postures and movements required to do these tasks.

Information, training and instruction about the changes made to manual handling tasks may be provided to workers, but are not considered an acceptable substitute for reducing or eliminating forces acting on the body during manual handling tasks. Also stipulated in the Code of Practice for Manual Handling is that control measures that are implemented must be reviewed to determine if they are adhered to and effective. Under the Regulations, employees are required to cooperate with an employer's actions to identify and assess tasks that involve hazardous manual handling and to comply with risk control measures determined by the employer to be practicable (e.g. altered systems of work or the use of mechanical aids).

Although similar legislation has been in place in the United Kingdom since 1992 that should have resulted in widespread adoption of 'No Lifting' practices amongst nurses, nurses' patient handling practices have been slow to change. Financing of the purchase of equipment, deficiencies in the assessments of risk of injury, limitations of the physical work environment such as adequate space to operate equipment and training requirements for nurses have been implicated in delaying change in patient handling practices (Garg et al. 1992, Kneafsey 2000). Several authors have reported that nurses may be reluctant to use patient handling equipment (Moody et al 1996, Monaghan et al. 1998). Green (1996) reported that time constraints often determined whether patient transfer equipment was used, as manual handling methods were sometimes perceived to be less time consuming. Hence, when the Victorian Nurses Back Injury Prevention Project was initiated, it was acknowledged that policy change or provision of equipment alone was unlikely to adequately change nursing practices.

The Victorian Nurses Back Injury Prevention Project (VNBIPP)



The VNBIPP was established in 1998 by the Minister for Health to provide funding for health care organisations to assist them to implement programs to prevent injuries to nurses based on 'No Lifting' principles. This was under the auspices of the Department of Human Services. An Advisory Committee was established to oversee the Project; the composition of the Committee varied across time.

Key members were representatives from:

- Injured Nurses Support Group.
- Australian Nursing Federation (Victorian Branch).
- Victorian WorkCover Authority.
- Royal College of Nursing Australia.
- Victorian Healthcare Association.
- Occupational Health and Safety Consultants.
- Clinical nurses.

Project Aims



To assist health care facilities to implement back injury prevention programs based on 'No Lifting' principles. Funded programs were designed to eliminate or minimise manual handling associated with moving and transferring patients.

To facilitate long term cultural change in health care organisations and among nursing staff to eliminate workplace practices associated with high risk of injury. Manual methods of transferring patients have developed out of necessity over time and have become entrenched practices. Resistance to change in values, attitudes and skills of the nursing culture have been argued to impede attempts to change manual handling practices (Kneafsey, 2000).

To assist health care organisations to implement effective procedures for hazard identification, risk assessment and control of patient handling injuries based on the Victorian Manual Handling (1999) Regulations.

Back Injury Prevention Programs



Victorian public healthcare facilities were invited to apply to the Department of Human Services for funding to establish Back Injury Prevention Programs.

The Department of Human Services Advisory Committee had advised healthcare facility managers of its intention to provide funds to programs that:

- Were based on 'No Lifting' principles.
- Adhered to the Manual Handling Regulations (1999).
- Were based on an Occupational Health and Safety risk management approach to the prevention of back injuries. Programs that included teaching nurses that 'safe' manual lifting techniques, back care, and exercises were acceptable methods for reducing risks associated with transferring patients did not qualify for funding.
- Promoted that the health and safety of staff and patients/residents were equally important.
- Were committed to encouraging nurses to participate fully in implementing and sustaining programs. Proposed advantages of employee commitment include higher quality decisions due to greater knowledge of tasks (May and Schwoerer 1994, Shannon et al 1997).
- Incorporated consultative mechanisms through which nurses could report their concerns and convey their needs to program coordinators, managers and occupational health and safety staff.
- Determined the effectiveness of training nurses in the principles and practices of 'No Lifting' by assessing competency across a range of skills such as equipment operation, hazard identification, risk assessment and control, and patient care without performing hazardous manual handling.
- Included senior management commitment to adequately resource programs. Funding provided by the Department of Human Services was inadequate in most cases to cover the full cost of implementation.
- Provided resources for programs such as adequate patient transfer equipment, adequate space to store and operate equipment and a dedicated staff member to coordinate the program.

Desirable program principles included:

- Commitment to the elimination of manual lifting wherever possible and training in the use of patient transfer equipment.
- Commitment to achieving a change from a culture where lifting patients was accepted by nurses as part of the job, to a culture within which nurses no longer considered that the risks associated with these patient handling tasks were acceptable.
- Establishment of procedures that assisted nurses to identify manual handling hazards, assess the associated risk of injury and develop alternative work strategies to minimise the risk of injury.

A condition of funding was that funded facilities take part in ongoing monitoring and evaluation, to identify and solve problems and to meet accountability requirements for public expenditure at facility and project level.

Health care facilities were encouraged to engage the services of consultants who could provide them with the expertise needed to develop and implement back injury prevention programs and provide training to staff. Eighty-two per cent of facilities employed the services of the same provider. Hence, the composition of Back Injury Prevention Programs evaluated in this report was relatively consistent across facilities.

Programs typically adhered to the following structure:

- Management commitment to support the program was obtained.
- Risks associated with all patient handling tasks within the workplace were assessed.
- Type and amount of necessary equipment were determined.
- Equipment procurement was organised.
- An equipment maintenance program was developed.
- A budget for adequate equipment to meet future needs was devised.
- An adequate number of trainers or staff leaders were provided.
- Links between middle management and executive management were established, so that programs could be maintained.
- Methods for monitoring compliance with processes and practices were established.
- Methods for ongoing training and competency assessment of all staff, including new staff, were established.
- Regular meetings of trainers/staff leaders were established, to ensure ongoing problem solving.
- A structure was provided to ensure that, if patient handling concerns could not be resolved, they were resolved as an Occupational Health and Safety issue.
- Staff were trained in small groups.
- Staff and the consultant worked together in the wards with residents/patients, to tailor solutions dealing with specific needs

A dedicated program coordinator was appointed by each health care facility to oversee program implementation and management in participating wards. This person was trained to manage the program by the consultant. In addition, the consultant typically trained a number of staff members (who became the program 'trainers'). These trainers were responsible for the implementation and management of the 'No Lifting' system within their own specific work area.

Project Evaluation



Funding for public health care facilities to implement programs was offered in three rounds (Appendix A). This document reports program effects for the 51 facilities funded in Round 1 and the 28 facilities funded in Round 2. Round 1 and Round 2 funded facilities had implemented programs at the time this evaluation was commissioned. The specific aims of the evaluation were to assess how nurses felt about the programs, to gain insight into obstacles to program implementation, to determine the effects of programs on injuries to nurses and to advise the Department of Human Services about ongoing project management. We entered and analysed the data collected from Round 1 funded facilities, identified strengths and weaknesses of the data collection methods and developed revised methods to evaluate Round 2 funded facilities. Consequently, methods used to evaluate Round 1 and Round 2 funded facilities differed considerably and results are reported separately.

Evaluation of the Effects of Round 1 Funding



Participants

In total, 51 facilities received Round 1 funding to implement programs. Thirty-six facilities returned responses to the nurse survey; 46 of the 52 program coordinators returned completed coordinator surveys. Injury data were collected from 44 facilities.

Programs

Eighty-two per cent of facilities engaged the services of the same consultant to implement Back Injury Prevention Programs.

Outcome Measures

Round 1 funded facilities were evaluated using three survey instruments designed and distributed by the Department of Human Services Advisory Committee. These were a survey of participating nurses, a survey of the staff member at each facility responsible for coordinating Back Injury Prevention Programs and a survey of incident and injury data before and after program implementation. The nurse survey was a combination of multiple choice questions and questions



An example of an outdated lifting practice.

seeking free text responses about the effects of the programs conducted at their facility. The survey of program coordinators sought similar information, but in addition asked about obstacles to program implementation. Data on injuries to nurses at participating facilities were sought for the periods two years before, one year before and one year after program implementation.

Effects of Round 1 Funding

Survey of Nurses

In all, 807 nurses from 36 facilities responded to the nurse survey. A large volume of nurse responses were collected and analysed. For multiple choice responses, response frequency to each option was calculated. Two assessors independently grouped the free text responses to 25 questions into themes. Themes were typically uncomplicated and there were few disagreements in interpretation. All were resolved through discussion. Numbers of nurses and the numbers of facilities represented by these nurses were calculated for each theme that was concluded from the data. The fully themed document containing all responses was reviewed by the VNBIPP Advisory Committee.

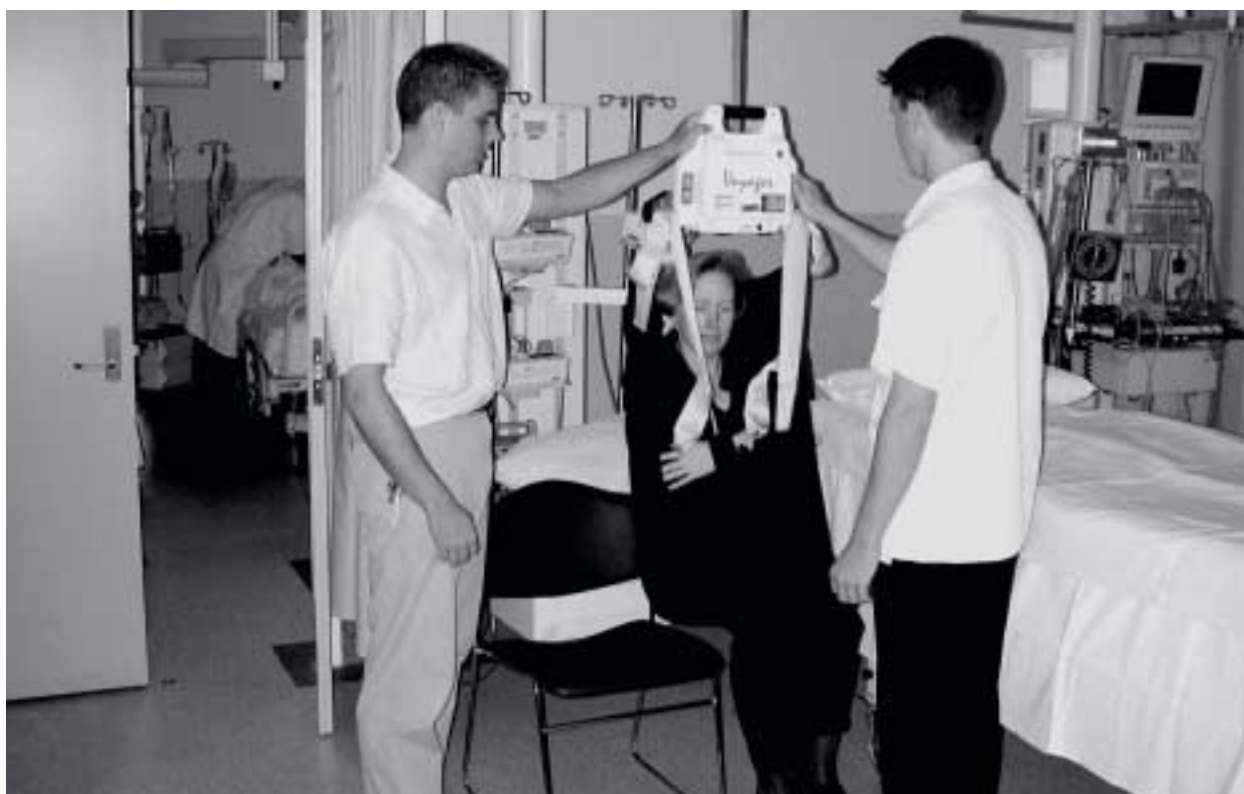
Key Findings

Nurses clearly accepted programs and welcomed improvements in their work conditions. Many nurses reported that they were very enthusiastic about the benefits of the 'No Lifting' programs, particularly with respect to reduction in injuries and fatigue.

"One of the best programs I've ever had implemented in over 25 years nursing."

"... feel less physically tired and patients and residents less traumatised than by manual lifting".

"I think it is one of the best things to happen in nursing. It has made a huge difference to how tired I feel after a busy shift."



There was clear acceptance of the change from hazardous manual handling of patients to the use of patient handling aids and equipment.

“...this is one of the best innovations to be introduced to the health industry—especially in the geriatric nursing sector where lifting residents ‘was’ one of the hardest parts of the job as it would happen 40–50 times a day”.

“Great system—you don’t realise how hard it was to physically lift patients until you use the No Lift system. I don’t think I could go back.”

“ Occurred 20 years too late.”

“Since commencement of the program with strict adherence to the policies and procedures, my previous back pain no longer exists following a hard day’s work.”

“This program has helped us to put into action ‘think before doing’.”

“Morale up amongst nursing staff. Patients comfortable and secure with lifting apparatus.”

“...it has made me more aware of how I am looking after myself”.

There was clear acceptance of the change from manual handling of patients to the use of patient handling aids and equipment. Eighty-eight per cent of nurses reported that they typically chose to use lifting devices and aids to move or transfer patients. The most commonly adopted patient handling aids and equipment were slide sheets, lifting machines, electric beds, pat slides, walk belts, standing machines and monkey bars. Programs appeared to have been effective in promoting a culture where nurses recognised the potential for injury and were aware of appropriate methods for risk control. Seventy per cent of nurses reported that procedures for hazard identification, risk assessment and risk control had been maintained throughout implementation of the programs. Seventy-five per cent of nurses reported that their programs encouraged early reporting of injuries. Resistance to change from traditional patient handling methods was not evident in responses. Most nurses (77 per cent) believed that programs would result in long term cultural change and a reduction in musculoskeletal injuries.

Indicators of Opportunities to Improve Programs

Nurses frequently reported concerns that facilities were not designed to accommodate the patient handling equipment. Nurses from 31 per cent of facilities reported inadequate space to store equipment. There appeared to be a widespread shortfall in the amount of equipment available to nurses. Nurses reported wanting to use equipment and not being able to either because they did not have enough equipment (30 per cent of nurses), or because they could not locate it when they wanted it (nurses from 22 per cent of facilities). Other researchers have observed that sharing of mechanical aids can result in disuse due to the inconvenience and time taken to locate them (Moody, 1996). Nurses reported that the following methods had improved equipment access: providing a slide sheet for each patient/resident by their bedside, labeling equipment and equipment parts, recording where equipment is taken, developing a system (e.g. hooks) so that all related equipment parts are stored on or with a mechanical aid, removing a bed so that equipment can be stored in a central/accessible location, designating specific storage areas to which equipment is returned after it is used and reallocating existing spaces to centralise equipment storage.

Nurses from 14 per cent of facilities reported that carpeted floors and building design made the task of moving equipment difficult, particularly when equipment is not stored in a central location.

A comprehensive patient/resident assessment instrument is the means by which risks associated with patient care are assessed and recommendations for safe handling methods are recorded. Moody (1996) argued that if a patient care plan is used and the method and equipment required for

patient handling are recorded in this care plan, nurses are more likely to adhere to low risk practices. The present evaluation found that such an instrument was utilised by 64 per cent of nurses and was frequently used on admission. Responses from some facilities indicated that plans were not updated as the patient's condition changed, not filled in correctly or considered too time consuming. The instrument used to assess patient handling needs were devised by individual facilities and varied in their ease of use. This may account for the variable utilisation of these instruments across facilities. In July 2002, WorkSafe Victoria in conjunction with the Health and Aged Care Industry released the report "Transferring people safely: a practical guide to managing risk-handling patients, residents and clients in health, aged care, rehabilitation and disability services". The report includes practical and comprehensive instruments for assessing patient handling requirements. These instruments, in offering a simple and standardised assessment method, may achieve widespread uptake and consistent utilisation.

Survey of Program Coordinators

Program coordinators also reported support for programs. They used the following methods to encourage nurse ownership of programs: emphasising the importance of programs to the health of staff, encouraging nurses to manage programs themselves, encouraging nurses to evaluate and decide on their equipment needs, demonstrating management support and encouraging feedback from nurses. Coordinators reported using an extensive list of methods for encouraging feedback about programs from nurses. These included regular program meetings, workshops, complaints and comments boxes, regular newsletters, staff meetings, appointing individuals with responsibility to liaise/report to occupational health and safety representatives or suitable management staff, risk assessment processes, compliance monitoring and equipment audits. These appear to be appropriate methods for providing nurses with the opportunity to convey concerns about the program or about their work practices to program coordinators. Dedicated staff were considered to be an important component in sustaining programs, however coordinators reported that they were not always available. They also reported that part time staffing disrupted the continuity needed for regular consultation about manual handling concerns and the development of risk reduction strategies.

The feedback from the nurses and coordinators indicated that programs were accepted and aligned with the Project aims. Almost all nurses who had attended 'No Lifting' training reported that the programs:

- Included training to nursing staff in hazard identification, risk assessment and risk control.
- Covered the effects of manual handling on the human body.
- Provided training to nursing staff on 'No Lifting' techniques aimed at eliminating/minimising manual handling of patients/residents.
- Encouraged maximum patient/resident mobility and independence, whilst maintaining patient dignity.
- Emphasised that patient/resident and staff needs are equally considered and important.

There were clearly obstacles to be overcome, in particular ensuring that nurses had adequate patient handling aids and equipment and enough room to store and operate equipment. A comprehensive and standardised patient assessment instrument able to be easily completed by nurses was required. Dedicated staff required to sustain programs were not uniformly available. Overall however, Round 1 survey data provided convincing evidence that nurses were willing to make the change to 'No Lifting' practices and that program content was typically aligned with Project objectives.

Summary of Injury Data

Injury data were collected from 44 of the 51 facilities participating in Round 1. Only 19 facilities returned relatively complete information for evaluation of the effects of programs on injuries to nurses. After implementation of programs, there appeared to be a decrease in patient handling injuries, back injuries, time lost claims, claims for low back injuries and injuries to Division 2 nurses. Injuries associated with moving objects appeared to have increased from pre-implementation (16 and 18) to post-implementation (35). Confidence in Round 1 injury data was limited due to missing data, ambiguous data, uncertainties about comparability of time periods that were designated as “pre-and post-implementation”, hospital-wide rather than ward-specific data, inconsistent methods for recording injury characteristics, and summary injury data for each time phase, rather than claimant-specific data. Each difficulty encountered in interpreting Round 1 injury data was tackled in the design of the methods that would be employed to collect data on injuries in Round 2 funded facilities.

Evaluation of the Effects of Round 2 Funding



Data Collection Methods

The design of the Round 2 data collection method began with consultation, with the Advisory Committee regarding the intended application of data obtained in future surveys of nurses and coordinators. The following objectives were identified:

- Monitor the content of Back Injury Prevention Programs.
- Monitor nurse opinions about programs.
- Track those issues identified as presenting obstacles to implementation, so that actions to overcome these obstacles could be developed.
- Determine the effect of programs on injuries to nurses.

The Round 1 nurse survey instrument was time consuming to complete. It was also unclear whether data were collected under conditions that allowed nurses the anonymity required for honesty. A nurse survey instrument was developed that was quick to complete; 35 multi choice questions that tracked program components and nurse perceptions about program effects were developed, tested and refined (Appendix C). In addition, comments on programs were sought as free text. Coordinators were advised about survey distribution and collection methods that facilitated anonymous responses from the maximum number of participating nurses. A survey instrument was also developed to capture coordinator feedback on variables affecting program implementation (Appendix D).

It was acknowledged that coordinators in Round 1 funded facilities had not been able to provide the data required to evaluate the effects of programs on injuries. City and rural focus groups were held with program coordinators, primarily to ascertain the parameters that would provide the best indicators of program success and how data on those parameters might be obtained. We also consulted individual Advisory Committee members, Victorian WorkCover Authority representatives, health care facility payroll staff and program coordinators, to develop methods for accessing useful information about numbers of injuries incurred by nurses before and after program implementation.

With committee review and input, survey instruments were developed and piloted for their capacity to capture the following injury data:

- Unambiguous, anonymous, claimant-specific, ward -specific data on injuries resulting in a WorkCover claim being lodged.
- Comprehensive information about minor and standard claims using Victorian WorkCover codes for mechanism, nature and bodily location of injury.
- Time phase-specific data. Date of implementation was defined as that period of time when program coordinators considered that nurses were able to comply with program objectives.

The process of retrieving the desired injury data was developed by working with health care facility payroll officers and documenting the steps required to extract relevant information from payroll systems. These steps were then tested at several facilities and refined prior to distribution to Round 2 facilities. As health facility insurance companies had to provide facilities with details about standard claims, methods to extract the desired data from insurance records were also developed, tested and refined in collaboration with insurance company personnel. Finally, a series of steps were written to direct program coordinators to check all individual claims data and de-identify them prior to returning data to us for entry and analysis. All data were sought in a format that facilitated entry into Microsoft Access. A pilot study involving 7 facilities was conducted to test and refine data collection methods.

Round 2 Participants

A total of 28 facilities (16 rural, 12 metropolitan) were funded in Round 2. Two facilities were not 12 months post implementation at the time of sampling. 25 of 26 eligible facilities (96 per cent) returned requested data. Facilities were, on average, 18.5 (SD 3) months post-implementation at the time of sampling. Complete data for analysis were subsequently available for 72 wards. Participating wards are described in Appendix B.

Programs

Ninety-two per cent of Round 2 funded facilities employed the services of the primary Round 1 provider for implementing Back Injury Prevention Programs.

Outcome Measures

The following injury data were collected for the one-year time periods commencing two years prior to implementation, one year prior to implementation and at implementation.

- Data on new minor claims for each time phase for nurses working in participating wards. Information on these was typically obtained from hospital payroll databases. The descriptions of the injury in the payroll records and the circumstances under which the injury occurred were used by the program coordinator to code the injury using the Victorian WorkCover Authority codes for mechanism, nature and location of injury.
- Data on the identity of nurses in each participating ward who registered a new standard claim within each time phase. These were obtained by the program coordinator, typically with the assistance of payroll staff. The names of claimants were sent to the health care facility insurer, with a request for details on costs associated with the claim, GST on the claim, days lost associated with the claim, codes for mechanism, nature and location of injuries and date of return to work.
- For each claim occurring in the post-implementation phase, information was sought on the number of months after training and after competency assessment that the injury occurred.
- Claimant's title (Registered Nurse 1; Registered Nurse 2; Nurse Assistant; Other).

The following data were collected on participating wards:

- Typical number of patient transfers per nurse per shift, in each time phase.
- Total staff hours in each time phase (obtained with the help of the payroll officer).
- Remuneration (obtained with the help of the payroll officer).

- Number of effective full time staff required on the ward in each time phase.
- Type of ward, for example, aged care or emergency. A comprehensive list of options was provided.

Coordinators assembled data on each claim in each time phase for each participating ward, but claimant identity was not included. This data was returned to the evaluators for entry and analysis.

Effects of Round 2 Funding

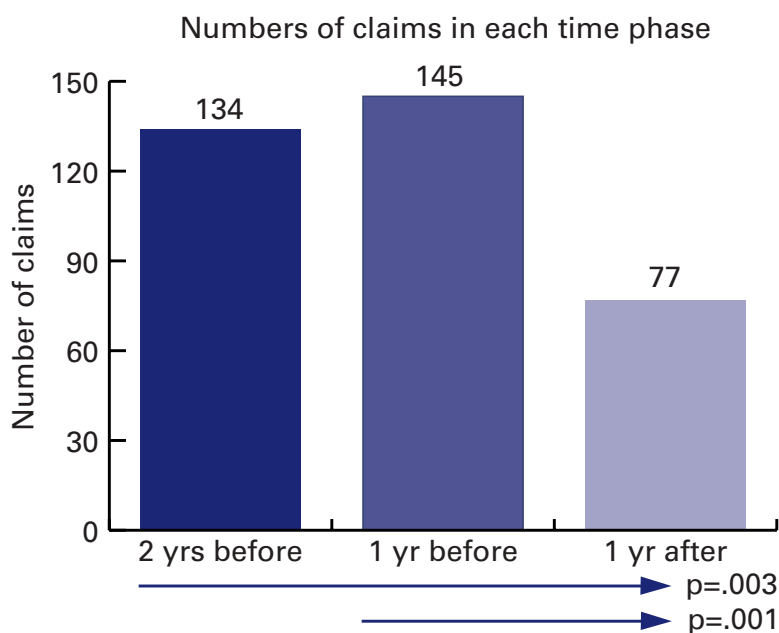
Effects of Programs on Injuries Incurred by Nurses

Analysis of injury data was conducted to determine the effect of the programs on

- 1) Numbers of minor and standard claims.
- 2) Numbers of claims for back injuries.
- 3) Numbers of claims for manual handling injuries.
- 4) Costs of claims.
- 5) Days lost due to claims.

For analysis of each effect, planned paired comparisons using Wilcoxon Signed Ranks test were used to compare ward-specific data for the year before to the year after implementation, and the data for two years before to the year after implementation. By limiting the number of paired comparisons to the degrees of freedom in an omnibus analysis of variance, power was retained at .05 for the two comparisons used to examine each effect of interest (Keppel, 1991). This strategy improves the power to see effects relative to the power available, with exhaustive post hoc pairwise (?) comparisons following omnibus analysis of variance. Since five related effects were examined, the alpha level for each two-tailed test was set at .01, to retain 95 per cent confidence in all significant findings.

Injury Numbers Were Substantially Reduced.

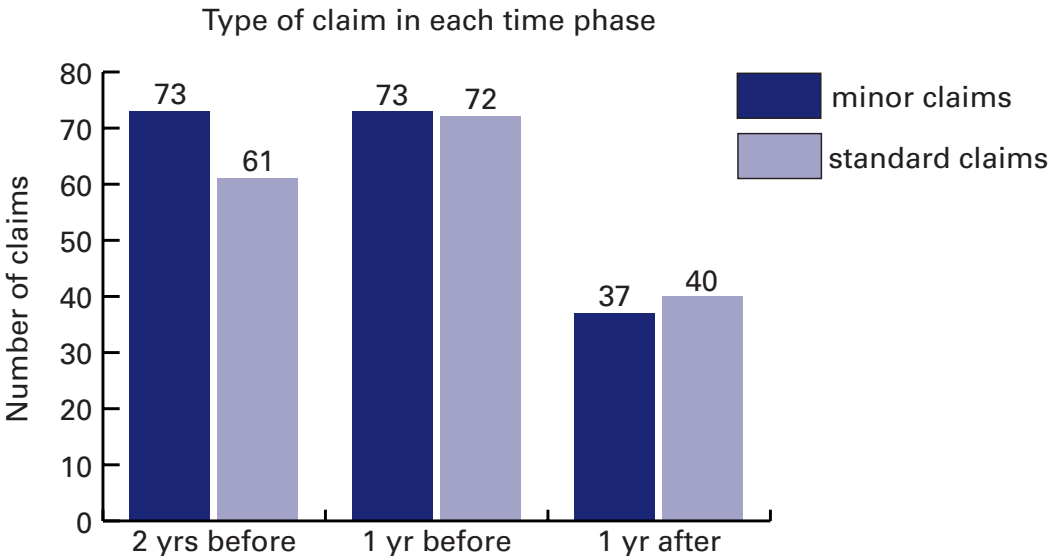


The VNBIPP significantly reduced claims made by nurses in participating wards. Across the 72 wards, claims were reduced by 43 per cent for the comparison two years before to one year after implementation and by 48 per cent for the comparison one year before to one year after implementation.

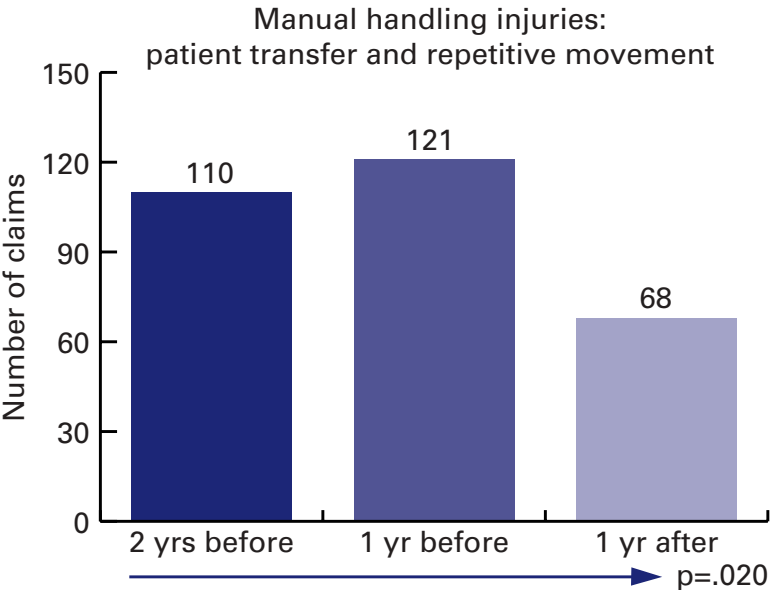
In practical terms, changes in injury numbers across wards occurred in the following way (comparing the year after to the year before implementation as an example):

- 34/72 wards reported a decreased number of claims.
- 15/72 wards reported an increase of 1 or 2 claims.
- 12/72 had unchanged claims numbers.
- 11/72 wards had no claims across the 3 time periods.

Minor and Standard Claims Were Similarly Reduced.



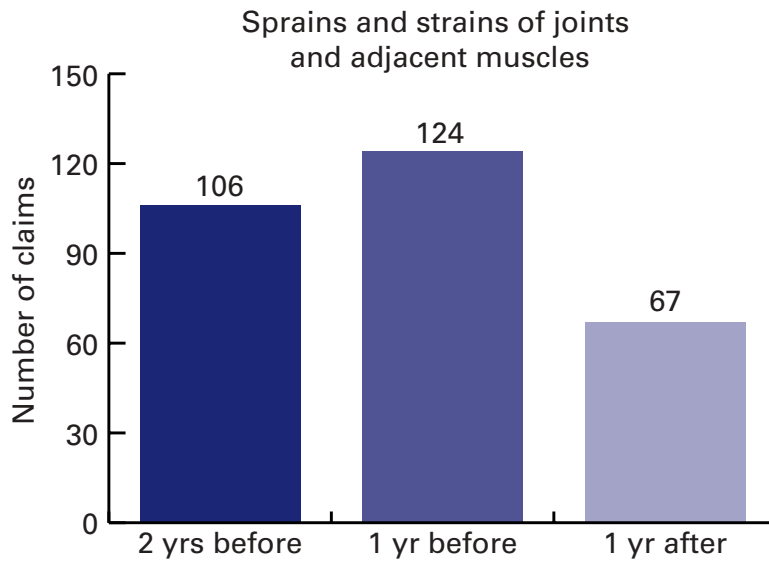
Most Injuries Occurred during Manual Handling tasks.



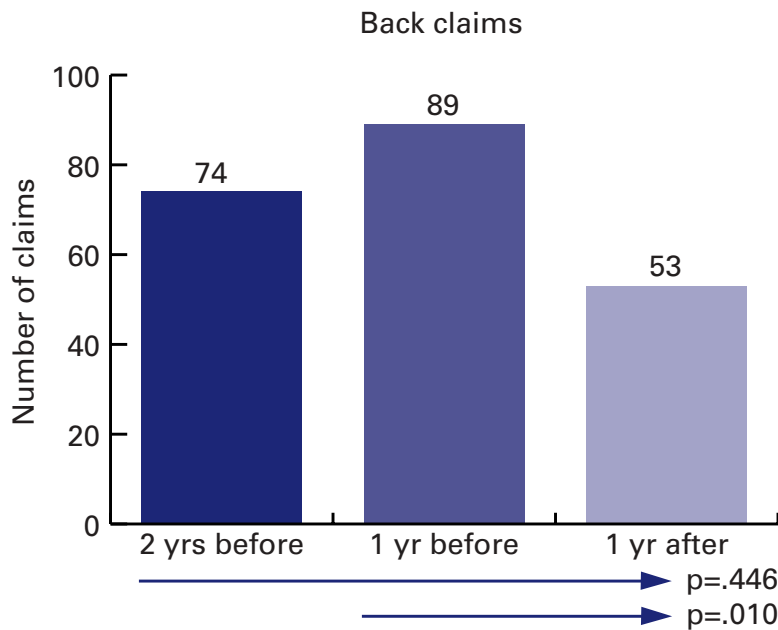
When the year before and the year after implementation were compared, the 44 per cent decrease in manual handling injuries was significant. Under the stringent alpha adjustments, for the comparison two years before to one year after implementation, a 39 per cent decrease in manual handling injuries can be concluded with 90 per cent confidence.

For comparable time phases, Victorian WorkCover Authority statistics across industries indicate rising claim numbers for injuries in manual handling categories (http://www.workcover.vic.gov.au/dir090/vwa/home.nsf/pages/statistics_tables_6a).

Injuries Were Most Commonly Classified as Sprains and Strains.



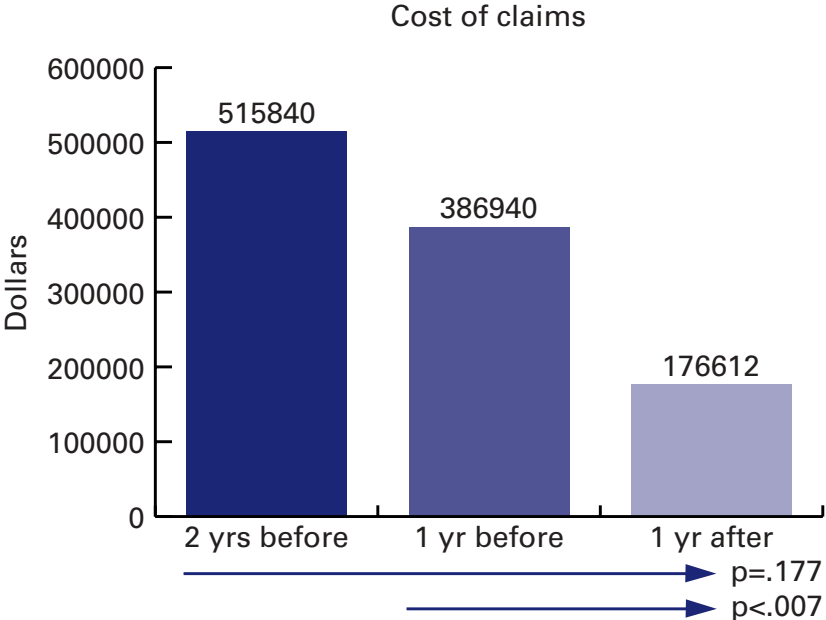
Back Injuries Reduced Following Program Implementation.



Back injuries accounted for 60 – 70 per cent of claims in each time period. The total number of back injuries after implementation was lower than for both the preceding time phases. The 40 per cent reduction in back injuries from one year before to one year after implementation achieved statistical

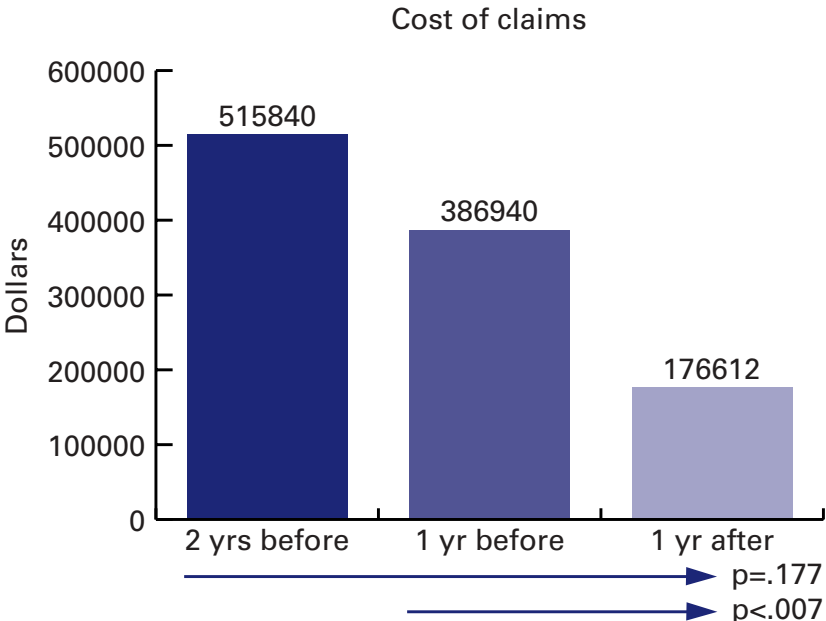
significance. The 28 per cent reduction in injuries for the comparison two years before to one year after implementation, although important, did not achieve statistical significance. The inherent variability in numbers of back injuries from ward to ward and year to year indicates that this variable is best studied for several years after program implementation.

Days Lost Due to Injuries Were Reduced.



A 74 per cent reduction in days lost comparing one year before to one year after program implementation was observed (p = .004). Because of the irregular distribution of lost days due to injuries across time phases, the 75 per cent decrease in days lost for the comparison one year before to one year after implementation can only be concluded with 78 per cent confidence.

Claims Costs Were Reduced.



For the comparison, one year before and one year after implementation, a significant 54 per cent reduction in the cost of claims was observed. Because of the irregular distribution of claims costs across time phases for participating wards, the costs for the period two years before

implementation, although considerably greater, were not significantly different from those in the post-implementation period.

Costs and days lost data require verification.

When sampled at 18.5 (SD 3) months after implementation, costs were reduced by 54 per cent and days lost by 74 per cent. Data for costs and days lost in the post-implementation period require verification at 30 months after program implementation, because the claims in the pre-implementation period had existed for up to 30 months at the time of sampling. This verification is necessary for confidence in the magnitude of the observed reduction, because cost and days lost data can accrue when injuries do not resolve.

The following data were collected but not tested for significant differences, because each related comparison that is made weakens confidence in all findings. Although important, they were not the primary effects of interest.

Claims for upper extremity injuries (neck, shoulder, and arm claims) appeared to decrease (35,35, and 16 for the three time phases, respectively) after program implementation. This challenges anecdotal reports that moving patient handling equipment was associated with an increase in upper body injuries. Claims for injuries other than sprains and strains, although few (28, 21, 10) also appeared to decrease. Claims for injuries incurred by patient assault, although few (7,11, and 1 for the three time phases respectively), also appeared to decrease.

Nurse Survey Results

A comprehensive sample of 1096 nurses evenly distributed across 26 facilities responded to the nurse survey. A summary of responses is presented in Appendix C

Key Findings

Nurse acceptance of programs was evident, reinforcing the Round 1 survey result that 91 per cent of nurses reported avoiding manual lifting whenever possible. They appeared proactive in identifying risks of injury—98 per cent of nurses stated awareness of the importance of early reporting of injuries and 77 per cent of nurses reported that they did not have reservations about early reporting of injuries. Seventy-five per cent reported that procedures for hazard identification, risk assessment and risk control were implemented in their workplace. Programs appeared to meet Project aims and met the needs of 72 per cent of nurses. Seventy-nine per cent of nurses reported that the equipment that they did have suited their needs. In the majority of circumstances, patient handling needs were assessed (85 per cent) and regularly reviewed (72 per cent). For most nurses (75 per cent) when manual handling concerns arose, there was a method for achieving a solution.

Indicators of Opportunities to Improve Programs

The problem of equipment storage and operating space identified by nurses participating in Round 1 funded programs was also identified as a problem for nurses in Round 2 funded programs. Few nurses (32 per cent) reported having adequate equipment storage space and 57 per cent said that they did not have adequate space to operate equipment. Of additional importance, only 54 per cent of nurses said that equipment was stored near to where it was to be used and access to equipment was a problem for 23 per cent of nurses. Sixty per cent of nurses reported needing more patient handling equipment. Although the percentage of nurses for whom response to manual handling concerns was not effective was relatively small (23 per cent), only 55 per cent said that the response was timely. This suggests that many nurses remain exposed to hazardous situations after they have reported their concerns. Comments volunteered reflected those reported for the Round 1 survey of nurses. In addition, nurses reported wanting follow-up training to stay informed of new developments in 'No Lifting' technology and practices. For some nurses, the purchase of equipment

occurred several months after their training, and they reported needing another round of training to refresh their skills in equipment use.

Difficulties moving equipment (especially trolleys) over carpeted floors were again reported by several nurses.

Coordinator Responses

All coordinators returned completed survey documents (Appendix D). There were no missing data. Only 47 per cent reported having adequate resources (time, funds and staff) to coordinate programs. All used a range of methods to evaluate program effectiveness that included reviewing injury statistics, performing competency assessment and surveying nurses and patients. Thirteen per cent reported that new staff were not formally trained in 'No Lifting' policies. Devices available to assist patient transfers are constantly evolving and improving the options available to nurses. Coordinator responses indicated that typically they are able to access and assess the advances in 'No Lifting' technology and best practice.

Refresher Training

In the Round 1 and 2 survey, nurses reported that they would like to have follow up training to reinforce newly acquired skills such as the operation of a range of patient transfer devices. In response to the Round 2 survey, 53 per cent of nurses said that formal refresher training in 'No Lifting' was conducted at their facility. Coordinators reported that refresher training was intended at

- 6 months post-implementation (12/72 wards).
- 12 months post-implementation (39/72 wards).
- 18 months or more post-implementation (7/72 wards).
- not planned (11/72 wards).
- no information provided (3/72).

Competency Assessment

The timing of competency assessment varied across wards. Competency assessment was intended at

- 6 months post-implementation (18/72 wards).
- 12 months post-implementation (31/72 wards).
- 18 months or more post-implementation (3/72 wards).
- Not planned (10/72 wards).
- No information provided (10/72).

Program Expansion

Almost all (23/25) program coordinators reported that their facility had funded the expansion of the program to one (usually) or two other wards. The Department of Human Services provided a total of \$1.2 million to Round 2 facilities. Program coordinators estimated that additional money injected into programs across the 25 facilities was in the order of \$1.5 million. This commitment by management to inject additional funds into program expansion implies management support for programs.

Discussion



Back Injury Prevention Programs implemented in Round 2 funded facilities were welcomed by nurses and substantially reduced the number of injuries incurred by nurses.

The magnitude of the reduction in low back injuries observed in the present study was similar to that reported by Brophy et al. (2001) following the implementation of a comprehensive program designed to eliminate manual handling by nurses in a 525 bed nursing home. Lynch and Freund (2000) also reported a 30 per cent decrease in low back injuries and Yassi et al. (2001) found that injury numbers decreased by 19 per cent when nurses stopped strenuous lifting, although in both these studies small numbers of study participants resulted in non-significant findings. We also observed large natural variation in the number of back injuries across wards when examining data for each of the two pre-implementation phases. These variations make it difficult to confidently capture the effects of an intervention designed to reduce numbers of back injuries. In future evaluations of this project, large numbers of participants and sustained evaluation are recommended, to optimise the view of program effects on lower back injuries.

In the present study, 28 per cent of the nurses who sustained back injuries in the post-implementation period had not been trained in 'No Lifting'. Love (1997), in a survey of injured nurses, reported that nurses considered that two factors contributing to their injuries were not being properly informed of the risks, and not receiving relevant training. There are several reasons why a nurse may have missed training, despite working on a 'No Lifting' ward. Moody (1996) found that nurses on day duty were more likely to be trained than those on night duty and were also more likely to use patient handling equipment than nurses on night duty. Nurses in Round 1 funded facilities reported that being on some rosters such as night shift, or away on leave when a program was conducted—prevented some staff from attending programs (54 nurses from 67 per cent of facilities). Strategies are required that ensure that all nurses are trained in 'No Lifting' practices and procedures. An advantage of all nurses receiving training is that 'No Lifting' practices will more efficiently and uniformly supercede traditional manual handling practices. The most expedient method to achieve uniform competency in 'No Lifting' procedures and practices would be to make competency a requirement of state registration for nurses.

In refining the Victorian Nurses Back Injury Prevention Project, consideration should be given to the reasons for each injury that occurred in the post-implementation period. This might be achieved if program coordinators administered a survey to nurses at the time of injury that sought de-identified, structured information about the injury. The information sought would need to be carefully considered, but might include details such as the activity that was being performed at the time of injury, the perceived reason for injury, history of prior injury, prior exposure to manual handling tasks and number of hours worked in the shift at the time of injury.

Nurses reported that they want refresher training to maintain the new skills acquired during 'No Lifting' training. Refresher training in the use of patient handling equipment may be important for program success. Moody (1996) reported that nurses are reluctant to use a mechanical aid if they have uncertainty about the process. Optimal content and timing of refresher training has not been identified. It would be sensible to have refresher training prior to deterioration of competency. Routine competency assessments, in the absence of refresher training, would provide the data for determining the typical rate of skill decay and the optimal scheduling of refresher training.

Implementation and expansion of programs would benefit from strategies that improve the space available for storage and operation of equipment. Moody (1996) reported that around half of the nurses participating in a 'No Lifting' program said that they had difficulty using mechanical aids because of space constraints—in particular in bathrooms and toilets. Engkvist et al. (1998) identified that the most frequent back injury to nurses occurred during patient transfer without the use of transfer devices,

when the patient suddenly lost balance or resisted during the transfer and the nurse had to make a sudden movement. It was environmental conditions however, such as lack of space to operate equipment, which caused nurses to choose not to use patient handling equipment. This evaluation clearly identified that program implementation is limited by the physical constraints of health care facilities. Innovative strategies to improve space to operate and store equipment are required. Such strategies should demonstrate consideration of the recommendations in the WorkSafe publication 'Designing Workplaces for Safer Handling of Patients/Residents' (Victorian WorkCover Authority, 1999). This document proposes a range of methods to overcome space constraints, such as the installation of overhead tracking systems for patient handling. Overhead tracking systems save on storage and operating space and overcome the burden of conveying patient handling equipment across surfaces that provide unacceptable resistance. It is considered that new health care facilities should be built with adequate storage and operating space for patient handling equipment.

Only 47 per cent of Round 2 program coordinators reported having adequate resources (staff, time and/or equipment) to effectively implement programs. Several Round 1 coordinators and participating nurses reported that programs suffer when coordinators or trainers leave the workplace. Effective program coordination and continuation requires dedicated staff with adequate resources. Monaghan et al. (1998) suggested that there are at least two trainers per ward. There are similar advantages to having more than one person who understands program coordination. This would help to relieve the burden on a single coordinator and provide a strategy for dealing with changing staff.



Nurses reported difficulty using mechanical aids because of space constraints.



Nurses reported inadequate storage space near to where equipment was to be used.

The Victorian Nurses Back Injury Prevention Project appears to have had a substantial effect on numbers of injuries incurred by nurses. The challenge inherent in evaluations of interventions of this nature is to conduct studies that remain credible where rigorous experimental research conditions are not feasible. Only a randomised controlled trial that showed the effects observed in this evaluation would confer complete confidence in our findings. Studies where historical data are used as control data are open to criticism because influences other than the intervention can cause observed effects. We are confident that manual handling injuries across other industries in the State of Victoria did not decrease over those time periods included in this study (http://www.workcover.vic.gov.au/dir090/vwa/home.nsf/pages/statistics_tables6a). In addition, neither changes in actual or desirable staffing, nor changes in the number of patient transfers per nurse per shift, explained the observed changes in injury numbers. Ongoing project evaluation will establish the stability of the post-implementation decrease in injury numbers and whether the effects are replicated in other wards.

Claims costs at the time of survey were reduced in the post-implementation period by 66 per cent compared to two years before, and 54 per cent compared to the year before implementation. Accurate estimates of cost savings due to programs require data collected over a longer period, as costs can accrue if claims remain open beyond the period of data collection. Nevertheless, these figures resemble the 54 per cent reduction in costs associated with low back injuries following the implementation of a comparable back injury prevention program, reported by Brophy et al (2001). Although not an objective of this evaluation, a cost-benefit analysis of the programs would be of value. Such an analysis would require consideration of a range of factors in addition to the

reduction in claims costs. There are direct and indirect costs associated with injuries. Direct costs include the management of the injured employee, together with recruiting, training and managing replacement staff. Indirect costs include loss in 'productivity' from staff unfamiliar with work practices and routines or payments of some sick leave benefits. Not all employees correctly identify the cause of symptoms they may experience and may take sick leave rather than claim for a work-related injury. In the United Kingdom, it is estimated that only 42 per cent of nurses with legitimate work cover claims proceed to register them (<http://www.hse.gov.uk/statistics/overpic.htm>). There are also costs associated with expanding and sustaining programs. A comprehensive analysis of the costs and benefits of Back Injury Prevention Programs to health care costs in Victoria should be conducted. Early indicators suggest that in premium reductions alone, the health industry can anticipate substantial cost reductions if, as we predict, the effects of the programs are replicated across the industry. The costs and benefits of the programs on human suffering and quality of life cannot be estimated.

A desirable outcome of the Project would be improvement in work conditions and an increase in the number of nurses with injuries who are able to return to work. The numbers of nurses returning to work did show an improving trend across the three time phases, but there were few wards responsible for observed differences. It is nevertheless possible that in the future, if safer and less physically demanding working environments for nurses become commonplace, many nurses, currently off work because of the physical demands traditionally associated with patient handling, might return to work.

We did not assess the prior injury status of injured nurses, but this data should be collected in future surveys. Nurses with a previous history of back pain are thought to be at higher risk for re-injury (Stubbs et al., 1983). Smedley et al. (1997) found that the highest predictor of low back pain in nurses was previous pain. The majority of nurses who participated in this trial have a history of exposure to hazardous manual lifting tasks. It remains unknown what level of success might be achieved if programs were introduced to cohorts of nurses who had never been exposed to those risk factors.

Consistent and valid assessment of patient handling requirements is a prerequisite for identifying hazards and reducing risks associated with patient handling. Inconsistent use of such an instrument was observed in this evaluation, in part due to the variable quality of options available to participating nurses. Standardised instruments have been proposed in the WorkSafe Victoria (2002) publication 'Transferring people safely: a practical guide to managing risk-handling patients, residents and clients in health, aged care, rehabilitation and disability services' and should be tested for utility.

Back Injury Prevention Programs had many components. Patient handling aids and equipment were introduced, nurses were trained to identify hazards and reduce risks of injury in the workplace, nurses were educated to raise their awareness about the importance of being proactive to minimise workplace injuries, to name just a few. It would be of value to know which components, or combination of components of the programs, contributed to the reduction in injuries. This would help to refine the composition of such interventions, enhance the ability of facilities to tailor interventions to meet facility needs and optimise cost effectiveness.

This evaluation determined the immediate benefits associated with the introduction of programs, but can draw no conclusions about the sustainability of such programs. Clearly task modification is a sustainable intervention, but nurses must continue to avoid hazardous tasks and to choose methods of patient handling that minimise or eliminate loading of their bodies. Adequate staffing, adequate equipment availability, adequate space to store and to operate equipment, timely refresher

training schedules, well resourced program coordinators and uniform training of all nurses in 'No Lifting' practices are all likely to contribute to program sustainability. It is important to assess program sustainability across several years and to determine the components of programs that are essential for sustainability. Ultimately, the value of programs rests in their sustainability. The Royal College of Nursing (2000), reporting case studies of hospitals that introduced 'No Lifting' policies, document a case where back injuries, virtually eliminated, began to reappear when the policy was no longer enforced. Although anecdotal, it is likely that compliance with 'No Lifting' practices is reversible unless measures are put into place to ensure long term sustainability of programs.

Data collection methods utilised in this evaluation were arduous. Program effects on standard and minor claims were comparable, and there is considerable time cost associated with obtaining useful information on minor claims. Information has subsequently become available that indicates that data required to track program effects on standard claims might be accessed directly from the Victorian WorkCover Authority databases. A method for directly accessing data on injuries to nurses from the Victorian WorkCover Authority databases should be developed. Methods that allowed direct access to specific injury data would facilitate the assessment of the effects of interventions that aim to reduce injuries in other industries.

Nurses working in the community reported that they require portable lifting devices to take into homes (4 per cent of nurses surveyed in Round 1 from 11 per cent of facilities). This mounts a challenge for an initiative to help nurses who work in the community. Such an initiative might avail many who are caring for disabled people in the community. An approach similar to that taken in this project is recommended. Obstacles to 'No Lifting' implementation in the community need to be identified. A systematic method for addressing these problems needs to be sought and tested. In particular, suitable equipment needs to be identified or developed. Portable patient handling equipment may broaden options for rehabilitation at home, caring for people at home rather than in hospital and facilitating engagement in community activities by disabled people.

Green (1996) and Engkvist (2000) reported that time constraints often determined whether patient handling equipment was used, as manual handling methods were sometimes perceived to be less time consuming. It is of interest therefore that only 4 of the 807 nurses in Round 1 funded facilities commented that equipment made tasks more time consuming. In response to the Round 2 survey, one nurse volunteered that equipment use was time consuming, but this was because of space constraints impeding efforts to operate the equipment.

Complementing the Back Injury Prevention Programs conducted at participating facilities, the Australian Nursing Federation (Victorian Branch) continued their ongoing 'No Lifting' awareness raising and education campaigns. The ANF conducted biannual 'No Lifting' Expos and provided advice to members through the ANF (Victorian Branch) Newsletter. In addition, the ANF provided facilities with information about a range of issues that assisted program implementation. Information included the names of program experts, contacts at other facilities where programs had been implemented, contact details for equipment suppliers and regular updates on innovations in patient handling equipment and best practice. We did not evaluate the effect of the ANF activity on program uptake and success, but the contribution of this orchestrated support by the ANF to the Project's success should not be underestimated.

The Injured Nurses Support Group, the Australian Nursing Federation (Victorian Branch) and nurses participating in 'No Lifting' programs have been proactive and successful in developing and implementing programs to protect themselves from injury. Methods used to achieve this success have application to the work practices of other health care workers.

Conclusion



This evaluation found that the VNBIPP was effective in significantly reducing injuries incurred by nurses in participating wards and was welcomed by nurses. It is likely that these encouraging results are a consequence of the comprehensive approach taken by the VNBIPP to reducing the exposure of nurses to hazardous workplace practices. There are clear opportunities for program refinement. It is critical that consideration be given to allocating resources for patient handling equipment and to ensure that the positions of dedicated staff to drive programs are maintained. Sustained monitoring and evaluation of programs for at least two more years is advised, to verify findings using data from more recently funded facilities, to facilitate estimates of cost benefits and, importantly, to assess program sustainability.

Appendices



Appendix A: Project Time Frames

Evaluation of Round 2 funding	April 2002
Round 3 \$1.2 million, 32 facilities \$1.8 million, 72 previously funded facilities	June 2001
Re-evaluation of effects of round 1 completed	February 2001
Commenced external evaluation	December 2000
Evaluation of Round 1 funding	July 2000
Round 2 \$1.2 million, 28 facilities	July 1999
Round 1 \$2 million, 51 facilities	July 1999
Established project	October 1998

Appendix B: Description of Wards Funded in Round 2

Description of Ward	Number returning data in Round 2 Evaluation
Aged Care Rehabilitation	4
Aged Care Residential	16
Aged Care Sub-acute	8
District Nursing	2
General Medical	2
General Surgical	3
Intensive Care - Adult	4
Mixed - Acute	10
Mixed - Rehabilitation	1
Neurosurgery - Acute	2
Obstetrics and Gynaecology - General	3
Orthopaedics	6
Paediatrics	1
Palliative Care	4
Psychiatric	1
Renal	2
Theatre	3

Appendix C: Round 2. Nurse Survey Responses

Question	Percentage of respondents				
	Missing	Yes	No	Don't Know	N/A
Do you need more patient handling equipment?	2.6	59.8	31.9	5.1	.6
Is the patient handling equipment, that you have available, suited to your needs?	3.9	78.5	14.5	2.6	.6
Are patient handling equipment needs regularly evaluated?	2.2	55.1	23.0	18.9	.8
Is patient handling equipment maintained in working condition?	2.2	80.0	10.5	6.2	1.1
Is it difficult for you to access patient handling equipment?	3.4	26.9	66.1	2.6	.9
Is there adequate space to operate patient handling equipment?	4.4	35.5	57.3	1.7	1.0
Is there adequate storage space for patient handling equipment?	2.2	31.8	63.0	2.9	.8
Is the patient handling equipment storage area near the areas where equipment is used?	3.0	54.2	38.2	2.3	2.3
Do you avoid manual lifting wherever possible?	1.3	90.7	7.3	.5	.3
In your ward, do most nurses advocate no lifting?	.7	87.0	8.9	2.9	.5
Have you been trained in no lifting procedures?	.4	93.7	5.9	.1	
Have you been trained in minimal manual handling procedures?	.9	89.5	8.5	1.1	.2
Can you access information on advances in back injury prevention technology and best practice? (for example, through equipment trials, inservices, research reports, via No Lifting trainers and mentors)	1.6	71.7	12.8	13.9	.1
Are procedures for hazard identification, risk assessment and risk control implemented in your workplace?	3.2	75.2	8.0	13.3	.3
When manual handling concerns arise is there a method for achieving a solution?	1.8	74.6	7.4	16.0	.2
When manual handling concerns arise is the response timely?	5.8	54.9	19.3	19.3	.6
When manual handling concerns arise is the response effective?	7.5	57.5	11.7	22.5	.8
Are the handling needs of patients/residents assessed?	1.8	84.9	7.8	4.3	1.4
Are the handling needs of patients/residents documented?	2.6	78.1	13.9	4.0	1.5
Are the handling needs of patients/residents regularly reviewed?	2.3	71.8	15.1	9.1	1.6
Are the changes in handling needs of patients/residents documented?	3.0	73.4	14.4	7.2	2.1
Do you think the components of the program at your facility are relevant?	2.5	81.9	5.1	10.4	.7
Do you feel that this program meets your needs?	3.1	72.4	13.0	10.7	.9
Does this program emphasise eliminating or minimising manual handling of patients/residents?	3.4	85.5	4.4	5.8	.8
Does this program encourage patient dignity?	3.4	75.3	12.1	7.9	1.2
Does this program encourage patient mobility?	3.9	70.3	16.2	6.9	2.6
Does this program-encourage patient independence?	3.8	68.2	18.2	6.8	2.9
Does this program-emphasise that staff and patient/resident needs are equally important?	3.3	79.2	9.3	7.1	1.1
If you had concerns about no lifting policies and procedures would you know what to do?	3.5	80.8	7.1	7.6	1.0
Does this program have a designated officer or coordinator?	3.1	77.9	4.8	13.1	.9
Are you aware of the importance of early reporting of injuries?	.8	97.7	1.5	.3	
Are you aware of the reporting procedures?	.9	91.9	7.4	.7	
Do you have reservations about early reporting of injuries?	1.9	17.8	77.2	3.0	.1
Does your facility conduct formal refresher training some time after initial training in this program?	4.1	52.6	17.6	25.3	.4
Is there informal training as part of this program such as, inservices, informal sessions with colleagues and trainers/mentors, post incident follow-up, ward meetings and discussions, and training with new equipment?	7.1	64.8	15.1	12.8	.3

Appendix D: Round 2. Coordinator Survey Responses

Percentage of respondents

Question	Yes	No	Don't Know	N/A	
Do you access advances in "No Lifting" technology and best practice?	86.7	6.7	6.7		
Do you have the opportunity to assess the potential benefits of incorporating these advances into your program?	80.0	16.7	3.3		
Are new staff formally trained in the No Lifting policies?	86.7	13.3			
Do nurses have a method for providing you with feedback about concerns they have with the program or its implementation?	93.3	3.3	3.3		
Is there a designated program officer or coordinator?	86.7	13.3			
Does the program officer or coordinator have adequate resources (time, funds and staff) to coordinate the program?	46.7	36.7	10.0	6.7	
Does this program include informal refresher training?	93.3	6.7			
Question	6 mnths	12 mnths	18 mnths/ longer	Not held	Missing
At what intervals are formal refresher training programs held?	16.7	54.2	9.7	15.3	4.2
At what intervals are competency assessments conducted?	25.0	43.1	4.2	13.9	13.9

Tick any of the following methods used by your facility to evaluate the effectiveness of your program

Review of injury/incident statistics	96.7%
Competency assessment	86.7%
Review of incident reports	90.0%
Staff surveys	60.0%
Evaluating implementation of risk assessment	46.7%
Compliance monitoring	66.7%
Patient surveys	86.7%
None	0%

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