Nurses’ Expectations, Experiences and Attitudes towards the Intervention of a ‘No Lifting Policy’

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Abstract: Nurses’ Expectations, Experiences and Attitudes towards the Intervention of a ‘No Lifting Policy’: Inga-Lill ENGKVIST, Department of Medicine and Health, Faculty of Health Sciences, Linköping University, Sweden—The aim of the study was to evaluate expectations and attitudes towards a No Lifting Policy programme, the “No Lift system”, among nurses at hospitals where an introduction of the intervention was planned (PreNLS hospitals), and to make a comparison with nurses’ experiences and attitudes at one hospital where the intervention had already been implemented (NLS hospital). A cross-sectional study of nurses at two PreNLS hospitals and one NLS hospital was performed. Most nurses at both the PreNLS hospitals and the NLS hospital were positive or very positive to the intervention. The expected and experienced obstacles differed between nurses at the PreNLS hospitals and the NLS hospital; however, there was more agreement concerning benefits. The most frequently expected obstacles at the PreNLS hospitals were organisational issues and obstacles related to the facilities, while most obstacles identified at the NLS hospital concerned specific transfers or were patient-related. A decrease in the number of injuries was the most often considered benefit among most nurses. Nurses at the NLS hospital rated their physical exertion as lower in seven out of nine specific patient transfers compared with nurses at the PreNLS hospitals. They also reported increased well-being at work and an improved ability to manage their daily work. The comprehensive approach and participatory design, including all levels of staff and extensive support from the nurses’ own union and management, is probably one important explanation for the positive attitudes and successful introduction of the intervention.

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Key words: Accident, Back, Injury, Intervention, Nursing, Manual handling, Patient transfer, Prevention, Training

When an intervention has been introduced, it is often expected that all employees involved will follow the new routines. But for this to occur, acceptance must be gained for changes in the workplace, alternative methods of working and different ways of behaving. Whether or not this is successfully achieved depends on how much those involved recognise that there is an issue, and how well they have been encouraged to accept the change, a process affected by their knowledge, attitudes and beliefs.

It has long been known that back pain and back injuries are very common among nurses, and that they most often occur during patient transfers. The incidence is in fact even higher than previously reported, as it is known that underreporting is high. In order to avoid or decrease the manual lifting of patients, and thereby reduce back pain and back injuries, many different prevention programmes have been introduced around the world. A decrease in the number of injuries has also been shown as a result of some interventions, while others have reported a less successful outcome.

With the goal of decreasing the number of injuries among nursing personnel, the Victorian branch of the Australian Nursing Federation (ANF) adopted a No Lifting Policy in 1998, based on the U.K. Royal College of Nursing Policy. The policy states that: 1) Manual lifting must be eliminated, excluding exceptional or life-threatening circumstances. 2) Patients are to be encouraged to assist. 3) Manual lifting is permitted, only if it means not lifting most or all of a patient’s weight.

Several No Lifting Programmes have been implemented in the state of Victoria on a consultancy basis. In the present study, the introduction of the O’Shea “No Lift System” has been followed. The No Lift System takes organisation, work environment, nurse and patient into consideration.
No lift system

The O’Shea No Lift System is a people-/materials-handling programme that uses formal policies, procedures and protocols to implement and maintain the system within the organisation. Roles of executive management, unit managers and hospital staff are clearly defined prior to commencement, and appropriate time frames and outcomes are identified.

The implementation is carried out in three steps:

Pre-implementation includes risk assessment of the area, which incorporates sufficient room for safe patient transfers, equipment audit, modifying the patient assessment tools and programme to suit the area, marketing the programme to appropriate stakeholders, identifying trainers and preparing training rosters, organising equipment trials, choosing equipment in cooperation with the nurses on the ward, purchasing the required equipment, developing associated policy as well as procedures and evaluation tools to support and maintain the system, and setting up committees at the local and management levels to manage the system.

Implementation includes training trainers, training the rest of the staff, competency assessment, patient assessment and problem-solving in connection with workplace scenarios. Trainers (4 nurses/ward) receive 8 h of training and become helpers when the rest of the nurses on the ward are trained, which takes 3 h. Each nurse must pass tests to verify that they can perform the patient transfers they have practised. Each patient is assessed regarding how the transfer should be performed and what equipment should be used. Such information should be easily found and used by all nursing personnel. The transfer should be performed in cooperation with the patient, who participates as much as possible based on the nurse’s instructions.

Post-implementation includes ongoing problem-solving, monitoring compliance with policy and procedures, and regular reporting by middle management on set indicators.

Attitudes

Attitudes have been postulated to motivate behaviour. Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour. A cognitive learning process is assumed to occur when people gain information about the attitude object (in this case the No Lift System) and thereby form beliefs. Information is gained by direct experience of attitude objects and/or by indirect experience of them, e.g. written or oral information. Whether beliefs are acquired by direct or indirect experience of the attitude object is one determinant of the extent to which people’s attitudes predict their behaviour. Wysall criticised consultants for focusing on physical aspects of the work environment, and not taking explicit account of employees’ attitudes. It has been pointed out that it would be valuable to have insight into participants’ attitudes at the outset of a project. There are some published studies concerning participants’ attitudes in the occupational setting, but additional studies attempting to access the attitude and belief status of intervention groups in occupational settings have been requested.

The aim of the study was to evaluate expectations and attitudes towards a No Lifting Policy programme, the “No Lift system”, among nurses at hospitals where an introduction of the intervention was planned, and to make a comparison with nurses’ experiences and attitudes at one hospital where the intervention had already been implemented.

Methods

This intervention study had a cross-sectional design. Three hospitals took part in the study. At one hospital (NLS hospital) where a No Lifting Policy programme, the “No Lift System”, had been introduced 6–14 months earlier (median 11 months), 8 wards participated; and at two hospitals where an introduction of the No Lift System was planned (PreNLS hospitals), 11 corresponding wards took part. Dates for the coming introduction were not set at the time of the study. Participating wards consisted of medical, surgical, orthopaedic, intensive care, emergency and obstetrics and gynaecology. As there was no obstetrics and gynaecology ward at the first PreNLS hospital, two such wards were included at a second hospital. The emergency ward at the PreNLS hospital withdrew from the study before the data collection, citing lack of time.

The source population consisted of all nursing personnel (level-one nurses (Registered General Nurse), level-two nurses (State Enrolled Nurse) and service assistants/clinical assistants (auxiliary nurses)) who were employed at the studied wards, in total 587 persons. Questionnaires were distributed by the head nurses of the wards to all nursing personnel, individually, together with a prepaid envelope addressed to the researcher. The questionnaire was to be filled in anonymously.

The questionnaire

The questionnaire included a total of 107 questions covering background factors, attitudes to the No Lifting Policy, expectations, experiences, patient transfer and use of transfer equipment. Most questions had fixed-answer alternatives, a few being followed by an open question to obtain additional information. Questions about obstacles and benefits of the No Lift System were open questions. The questionnaire ended with an open question where the nurse was given an opportunity to add his/her own comments.
Background factors: Background factors covered occupation, age, height, weight, and number of years in the nursing profession, as well as at the specific ward where the nurse worked at the time of the study. Body mass index (BMI) was calculated as kg/m².

Attitudes, expectations and experiences: The nurse was asked about his/her own attitude towards the No Lift System, as well as his/her opinion about the attitudes of co-workers, patients, relatives and managers towards the No Lift System. In all these questions a five-grade scale was used, ranging from 1, “very negative”, to 5, “very positive”. The same questions, except for a few of them, were used at all the hospitals. The nurses were asked if they thought that the introduction of the No Lift system would improve or had improved their abilities to manage their daily work, at the PreNLS hospitals and the NLS hospital respectively. Similarly, nurses were asked if they thought that the introduction of the No Lift system would increase had increased their well-being at work. Further, if the nurse had ongoing musculoskeletal symptoms/disorders, did she think the No Lift System would decrease these symptoms (PreNLS hospitals). Likewise, if the nurse had symptoms/disorders before the introduction, whether these symptoms/disorders had decreased (NLS hospital). Nurses at the NLS hospital were also asked about their expectations before the introduction of the No Lift System, and also whether it had lived up to their expectations. In all these questions a five-grade scale was used ranging from 1, “very negative expectations”, to 5, “very positive expectations”.

Two open questions were also asked. The first was if there were any obstacles/situations which would make the introduction of the No Lift System difficult (for the PreNLS hospital), or any situations where the No Lift System could not be followed (for the NLS hospital). The second question concerned the nurses’ opinions with regard to benefits of the No Lift System.

Patient transfer and perceived physical exertion: There were questions about how often nine specific patient transfers were performed per shift, using six fixed answer alternatives ranging from 0 to >16. Further, nurses were asked about their perceived physical exertion during these transfers, using a modified rating of the physical exertion (RPE) scale. The range was from 0, “resting”; to 14, “maximal exertion”.

Data treatment and statistical analyses

When analysing dichotomous variables, Chi-square analyses were used to perform a comparison between the PreNLS hospitals and NLS hospital. For continuous scales, t-tests for independent groups were used. As this was an explorative study, t-tests were also used for ordinal scales concerning attitudes, since they are stricter than the Mann-Whitney U-test. When comparing attitudes among nurses who rated low (1 or 2 on the five degree scale) these were dichotomised, and the Chi square test was used. When comparing nurses who rated high (4 or 5) the same procedure was used. Total numbers of patient transfers per shift were calculated as the sum of each median value for the nine patient transfers studied. The analyses were performed with SPSS. The open questions were categorised depending on type of obstacles and benefits given (Table 4 and 5).

Ethics approval

The study was approved by The Royal Melbourne Hospital Research Foundation, Clinical Research and Ethics Committee, Melbourne CREC 2000.079, 10th July 2000. The study was performed in accordance with the Declaration of Helsinki of the World Medical Association.

Results

Response rate

The response rate for the questionnaire was high: 73% at the NLS hospital (201 nursing personnel) and 82% at the PreNLS hospitals (256 nursing personnel). A reminder about filling in the questionnaires was given to the PreNLS hospitals, but since the NLS hospital had its own follow-up to the intervention with several questionnaires, and the management was afraid that the nurses would be tired of responding, the researcher was not allowed to issue a reminder to the NLS wards. It is not known how this has influenced the results, as it was not possible to analyse the dropout.

Background factors

At the NLS hospital, 90% worked as level-one nurses, 3% as level-two nurses and 7% as service assistants/clinical assistants. At PreNLS hospitals, 92% worked as level-one nurses, 5% as level-two nurses and 3% as service assistants/clinical assistants. As there were no differences in the reported number of patient transfers performed per day between the occupational groups, in the following text all are treated as one group, and referred to as “nurses”. On average, those at the PreNLS hospitals had been working 5 yr (1 wk-35 yr) at the specific ward where they were at the time of the study, and those at the NLS hospital had worked for 7 yr (2 wk-33 yr) (Table 1).

Attitudes concerning the No Lift System

The nurses’ own attitudes: Most nurses at both PreNLS and NLS hospitals were positive to the No Lift System. The nurses’ own attitudes were rated to be positive or very positive by 75% of the nurses at the PreNLS hospitals, and by 74% of the nurses at the NLS hospital (Table 2). There were no differences in how the nurses rated their attitudes to the No Lift System based on gender or whether they had any symptoms/disorders or not, either
Few nurses rated their own attitude towards the No Lift System as negative or very negative (7% at the PreNLS hospitals and 4% at the NLS hospital (Table 2)). Of the nurses at the PreNLS hospitals who rated their own attitudes as low, nearly half worked in surgical wards, and of those at the NLS hospital one third worked in intensive care.

The nurses’ opinion about others’ attitudes: At the PreNLS hospitals, 39% of the nurses expected that the patients would be positive or very positive to the No Lift System, while 45% of the nurses at the NLS hospital reported the same. There were no significant differences

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**Table 1.** Background factors of the nurses at Pre No Lift System hospitals (PreNLS) and at the No Lift System hospital (NLS)

<table>
<thead>
<tr>
<th></th>
<th>PreNLS hospitals (n=254)</th>
<th>NLS hospital (n=201)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr), Mean</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>(Range)</td>
<td>(21–60)</td>
<td>(20–62)</td>
</tr>
<tr>
<td>Years in nursing profession Mean (yr)</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Years in nursing profession (%)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>&lt;1 yr</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1–5 yr</td>
<td>39</td>
<td>26</td>
</tr>
<tr>
<td>≥6 yr</td>
<td>59</td>
<td>71</td>
</tr>
<tr>
<td>Working full-time (%)</td>
<td>59</td>
<td>29</td>
</tr>
<tr>
<td>Working on rolling schedule (%)</td>
<td>79</td>
<td>74</td>
</tr>
<tr>
<td>Gender female/male (%)</td>
<td>84/16</td>
<td>90/10</td>
</tr>
<tr>
<td>BMI, mean</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>(Range)</td>
<td>(17–38)</td>
<td>(17–42)</td>
</tr>
</tbody>
</table>

**Table 2.** Comparison between nurses at the PreNLS hospitals nurses at the NLS hospital concerning the nurses’ own attitudes towards the No Lift System and his/her opinion about the attitudes of co-workers, patients, relatives and managers towards the No Lift System

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>PreNLS</th>
<th>NLS</th>
<th>t-test</th>
<th>χ²</th>
<th>PreNLS</th>
<th>NLS</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=247</td>
<td>n=200</td>
<td></td>
<td></td>
<td>n=18</td>
<td>n=9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean (Std)</td>
<td>Mean (Std)</td>
<td>p-value</td>
<td></td>
<td>Mean (Std)</td>
<td>Mean (Std)</td>
<td>p-value</td>
</tr>
<tr>
<td>Their own attitudes</td>
<td>4.21</td>
<td>4.09</td>
<td>0.15</td>
<td>0.05*</td>
<td>4.74</td>
<td>4.53</td>
<td>0.00*</td>
</tr>
<tr>
<td>Co-workers’ attitudes</td>
<td>3.96</td>
<td>3.80</td>
<td>0.07</td>
<td>0.14</td>
<td>4.30</td>
<td>4.12</td>
<td>0.03*</td>
</tr>
<tr>
<td>Patients’ attitudes</td>
<td>3.33</td>
<td>3.48</td>
<td>0.18</td>
<td>0.71</td>
<td>3.55</td>
<td>3.67</td>
<td>0.08</td>
</tr>
<tr>
<td>Relatives’ attitudes</td>
<td>3.27</td>
<td>3.30</td>
<td>0.82</td>
<td>0.40</td>
<td>3.47</td>
<td>3.49</td>
<td>0.05*</td>
</tr>
<tr>
<td>Managers’ attitudes</td>
<td>4.23</td>
<td>4.53</td>
<td>0.00*</td>
<td>0.29</td>
<td>4.47</td>
<td>4.68</td>
<td>0.02*</td>
</tr>
</tbody>
</table>

The five-grade scale ranged from 1, “very negative”, to 5, “very positive”. *: p-value ≤0.05.
in the nurses’ opinions about the others’ requested attitudes except about the attitudes of their managers, where the PreNLS hospitals rated it lower (Table 2). Nurses who rated their own attitudes as low, rated the co-workers’, patients’, relatives’ and managers’ attitudes as lower than the mean value for the whole group, while nurses who rated their own attitudes as high rated it higher than the mean value (Table 2). Nurses who rated their own attitude high, rated their managers’ attitudes lower than their own at the PreNLS hospital \((p=0.00)\), while they rated it higher at the NLS hospital \((p=0.01)\). Several nurses at the PreNLS hospitals expressed their disappointment at being rated as “low prioritised wards”; they felt that the introduction took far too long and expressed that they wanted more support from the management in this matter.

There were no differences between nurses who rated their own attitudes as low compared with nurses who rated high, in age, sex, BMI, number of years in the occupation, number of years at the specific ward, number of patient transfers per shift, use of transfer equipment, ongoing symptoms from any body part, and their rating of general physical demand, physical or mental tiredness.

Table 3. Number of patient transfers during a work shift, median and range

<table>
<thead>
<tr>
<th>Type of transfer</th>
<th>PreNLS</th>
<th>NLS</th>
<th>PreNLS</th>
<th>NLS</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median (Range)</td>
<td>Median (Range)</td>
<td>Mean (Std)</td>
<td>Mean (Std)</td>
<td></td>
</tr>
<tr>
<td>Moving up in the bed</td>
<td>3–5 (0– &gt;16)</td>
<td>3–5 (0– &gt;16)</td>
<td>7.0 (2.35)</td>
<td>6.0 (2.21)</td>
<td>0.00*</td>
</tr>
<tr>
<td>Turning or rolling over in bed</td>
<td>3–5 (0– &gt;16)</td>
<td>3–5 (0– &gt;16)</td>
<td>6.2 (2.26)</td>
<td>5.9 (1.90)</td>
<td>0.08</td>
</tr>
<tr>
<td>From lying to sitting in bed</td>
<td>3–5 (0– &gt;16)</td>
<td>3–5 (0– &gt;16)</td>
<td>5.8 (2.43)</td>
<td>5.1 (2.09)</td>
<td>0.00*</td>
</tr>
<tr>
<td>Between chair/wheelchair and bed</td>
<td>1–2 (0– &gt;16)</td>
<td>1–2 (0– &gt;16)</td>
<td>7.6 (2.34)</td>
<td>7.2 (2.28)</td>
<td>0.12</td>
</tr>
<tr>
<td>Between wheelchair and toilet</td>
<td>1–2 (0– &gt;16)</td>
<td>1–2 (0– &gt;16)</td>
<td>6.8 (2.36)</td>
<td>6.8 (2.44)</td>
<td>0.00*</td>
</tr>
<tr>
<td>To/from toilet with a non-wheelchair-confined patient</td>
<td>1–2 (0– 11–15)</td>
<td>1–2 (0– 11–15)</td>
<td>5.8 (2.57)</td>
<td>5.2 (2.50)</td>
<td>0.02*</td>
</tr>
<tr>
<td>To/from shower</td>
<td>1–2 (0– 11–15)</td>
<td>1–2 (0– 11–15)</td>
<td>5.5 (2.20)</td>
<td>4.9 (2.00)</td>
<td>0.01*</td>
</tr>
<tr>
<td>Up from floor</td>
<td>0 (0– 6–10)</td>
<td>0 (0– 11–15)</td>
<td>11.2 (2.78)</td>
<td>9.6 (3.08)</td>
<td>0.00*</td>
</tr>
<tr>
<td>Walking with patient</td>
<td>1–2 (0– &gt;16)</td>
<td>1–2 (0– &gt;16)</td>
<td>4.5 (2.25)</td>
<td>3.9 (1.91)</td>
<td>0.00*</td>
</tr>
</tbody>
</table>

Table 3. Number of patient transfers during a work shift, median and range

Perceived physical exertion in mean and standard deviation (StD) during patient transfers among nurses at Pre No Lift System hospitals (PreNLS) and at the No Lift System hospital (NLS). *: \(p\)-value<0.05.

Expectations and experiences

Ability to manage daily work and increased well-being: At the NLS hospital, 60% of the nurses reported that the NLS had improved their ability to manage their daily work to a high or very high degree, while 44% at the PreNLS expected this \((p=0.00)\). Increased well-being at work was rated to a high or very high degree by 63% of the nurses at the NLS hospital, and was expected by 55% of nurses at the PreNLS hospitals \((p=0.01)\).

Expectations and attitudes pre- and post-intervention at the NLS hospital

At the NLS hospital, 44% of the nurses reported that they had high or very high expectations before the introduction of the No Lift System, and 64% that the No Lift System lived up to their expectations to a high or very high degree. The higher expectations the nurses had before the introduction of the NLS, the higher they rated their own attitudes, their abilities to manage their daily work and their well-being at work since the
introduction of the NLS. Also, nurses who rated their own expectations as low (1 or 2 on the five-grade scale) before the introduction of the No Lift system, had become more positive and rated their present attitude as 3.8 in the mean.

Musculoskeletal symptoms/disorders

There were no statistical differences in reported musculoskeletal symptoms/disorders before the introduction of the No Lift System (44% at the NLS hospital) and ongoing symptoms/disorders at the PreNLS hospital (50%). Of these, 28% of the nurses at the NLS hospital reported that the NLS had decreased their symptoms/disorders to a high or very high degree, while 65% of the nurses at PreNLS hospitals expected this to the same degree (p=0.00).

Patient transfers

The median value for requested transfer was similar at the hospitals (Table 3). Most frequently performed patient transfers per shift were transfers in bed. No patient transfers at all were reported by 8 nurses at the NLS hospital and 8 nurses at the PreNLS hospitals. Nearly all of these nurses were working in obstetrics and gynaecology wards.

Nurses at the NLS hospital rated their physical exertion as lower for all patient transfers except for turning or rolling over in bed and between chair/wheelchair and bed (Table 3).

Obstacles

One or more obstacles or situations that will make the introduction of the No Lift System difficult were reported by 71% of the nurses at the PreNLS hospitals. Numbers of reported situations varied between 1–5 per nurse, and in total 223 obstacles/situations were reported (Table 4). Ten percent of the nurses reported that they could not see any obstacles/situations which would impede the introduction of the No Lift System.

Obstacles for following the No Lift System were reported by 47% of the nurses at the NLS hospital. Numbers of reported situations varied between 1–4 per nurse, in total 152 situations (Table 4). Fourteen percent of the nurses reported that they could not see any obstacles/situations where the No Lift System could not be used.

The most frequently described situation/obstacle reported at the NLS hospital concerned transfers with specific patients who were heavy (some even too heavy for the lift), stiff, aggressive, uncooperative or suffered from dementia. Specific transfers were also mentioned, e.g. up from the floor (when unable to use the lift). Different emergency situations were identified as being difficult at the NLS hospital, which some nurses at the PreNLS hospitals also feared could be a problem.

Benefits

Nurses at all three hospitals reported a higher number of benefits than obstacles in connection with the No Lift System. At the PreNLS hospitals, 67% of the nurses reported expected benefits of the No Lift System. The number of benefits varied from 1 to 5 per nurse, and 325 benefits in total were reported. Six nurses said they did not know enough about the No Lift System to give a true comment. Five nurses did not expect that the No Lift System would provide any benefits.

At the NLS hospital, 61% of the nurses reported benefits. Numbers of reported benefits varied from 1 to 5 per nurse and 236 benefits were reported in total (Table 5). Two nurses reported that the No Lift System did not provide any benefits.

The benefit most often stated by nurses at both the NLS hospital and the PreNLS hospitals was that of fewer injuries, especially back injuries. The second most reported benefit at the NLS hospital was that the No Lift System made the patient more independent. The second most reported benefit at the PreNLS hospitals, and the third most reported at the NLS hospital, was that it was safer and more comfortable for the patient.

Discussion

Most nurses at both the PreNLS hospitals and the NLS hospital had positive attitudes towards the No Lift System. The expectations were high at the hospitals where an introduction of the No Lift System was planned, and the intervention was found to be successful at the NLS hospital.

Attitudes

The more positive the nurses were before the introduction of the No Lift System, the higher they rated their attitudes after the introduction. In addition, nurses who were less positive to the introduction had a more positive attitude after the introduction, which might be an indicator of the successful implementation of the No Lift System. Both safety climate and culture have an influence on how an intervention will be accepted and used in daily work, and whether it is possible to achieve the goals of the intervention. Persons who have a positive attitude to the intervention are probably more willing to adopt the proposed changes. Although a general attitude is only a weak predictor of a single behaviour (e.g., how to perform a specific patient transfer on a specific day), such an attitude is a relatively good predictor of the specific patient transfer object, in this case the No Lift System. Nurses at the NLS hospital also responded that their abilities to manage their daily work, as well as their well-being at work, had increased since the introduction of the No Lift System, which indicates that they had adopted the intervention and had found it useful.
High-rating nurses at the PreNLS hospitals rated their own and their co-workers’ attitudes more positively compared with nurses at the NLS hospitals, which shows that they had high expectations of the No Lift System. It is possible that publicity from the employer and the nurses’ own union had influenced the nurses and increased their expectations. It might also be that where the intervention was implemented the nurses had identified defectiveness in the intervention (discussed below under obstacles) and thereby rated it somewhat lower. Nevertheless, it should not be forgotten that most of the nurses were positive or very positive to the No Lift System.

Most of the nurses who rated their attitude as low worked in intensive care or surgical wards, where patients who may be unconscious, perhaps with a catheter and tubes, or other factors limiting their cooperation, are treated; this complicates the transfer and may be one explanation for their less positive attitude.

Managers are very important for the outcome of an intervention, and good communication between employer

<table>
<thead>
<tr>
<th>Type of obstacle/situation</th>
<th>PreNLS Hospitals n=152</th>
<th>NLS Hospital n=108</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
</tbody>
</table>

### Patient-related obstacles
- Specific type of patient
  - 15 9%
  - 42 38%
- Specific type of transfer
  - 4 2%
  - 26 24%
- Emergency situations
  - 9 5%
  - 26 24%
- Patient’s or relative’s attitude
  - 5 3%
  - 0 0%
- Rehabilitation / Relying on a machine can decrease the patient’s own improvement
  - 3 1%
  - 1 0%
- Language, patient cannot speak or understand English
  - 0 0%
  - 8 7%
- Assessment of patients to see if they can bear their weight or walk
  - 1 0%
  - 2 1%
- Patient cannot be left in soiled beds / awkward positions for lengthy periods
  - 2 1%
  - 2 1%
- Total number
  - 39 25%
  - 107 99%

### Obstacles related to facilities
- Lack of equipment, shared with other ward and/or hard to locate
  - 42 27%
  - 4 3%
- Specific type of equipment or old equipment
  - 2 1%
  - 14 12%
- Storage of equipment / Cleaning of slide sheets
  - 7 4%
  - 0 0%
- Lack of space, narrow rooms or doors
  - 24 15%
  - 1 0%
- Specific places / rooms
  - 1 0%
  - 4 3%
- Specific ward
  - 2 1%
  - 1 0%
- Total number
  - 78 51%
  - 24 22%

### Organisational obstacles
- Lack of time
  - 31 20%
  - 9 8%
- Lack of money
  - 15 9%
  - 0 0%
- Lack of staff
  - 7 4%
  - 9 8%
- Lack of staff / Co-workers trained in the NLS
  - 19 12%
  - 1 0%
- Attitude of other staff / hard to change the culture
  - 18 11%
  - 0 0%
- Less staff on night shift, often less trained
  - 3 1%
  - 1 0%
- Waiting time for the introduction of the programme
  - 5 3%
  - 0 0%
- Management not supportive enough for the introduction of NLS
  - 6 3%
  - 0 0%
- Total number
  - 104 68%
  - 20 18%
- Other
  - 2 1%
  - 1 0%
- Total number of all obstacles
  - 223 152
- I do not know enough about what NLS entails
  - 6 3%
  - 0 0%
- No, there are no obstacles / situations where the NLS cannot be used
  - 25 16%
  - 14 12%

Percentages of nurses who had reported type of obstacles/situations.
It has been found that when the management has shown no clear interest or commitment, the intervention has been less successful. Nurses at the PreNLS hospitals had very high expectations that their musculoskeletal symptoms/disorders would decrease compared with what was experienced at the NLS hospital. It is not known today how long it takes for unspecific musculoskeletal symptoms/disorders to disappear; it is therefore difficult to say whether their expectations are unrealistic or not over time. Nurses at the NLS hospital rated their physical exertion as lower for all patient transfers except for turning or rolling over in bed, and between chair/wheelchair and bed. Both transfers are frequently performed and have also been identified as causing a high spinal load and risk of low back injuries when performed manually. A relation between the transfer skill of nurses and the perception of safety and comfort has been identified. A follow-up training session should be planned in advance, to provide an opportunity to discuss problems that are identified and train specific patient transfers. This was also requested by some nurses.

**Obstacles**

A higher percentage of nurses at the PreNLS hospitals,
compared with the NLS hospital, expected that there would be obstacles to the introduction of the No Lift System. Also, the described obstacles differed between the hospitals. Obstacles that were expected to make the introduction of the No Lift System difficult at the PreNLS hospitals were: lack of equipment, time, space and trained staff. However, these obstacles were not often identified at the NLS hospital. This might indicate that despite the positive attitude among nurses at the PreNLS hospitals, there was some doubt concerning a successful intervention due to different limitations. There was also some hesitation concerning co-workers’ willingness to accept the new policy and the management’s ability to change the existing culture, which no one reported at the NLS hospital. A poor relationship with co-workers has been shown to constitute a risk for back pain\textsuperscript{38}; it is therefore important to get all nurses to work towards the same goal and in cooperation.

Experienced obstacles at the NLS hospital: The most common obstacle to using the No Lift System was related to the patient, most often that patients were heavy or even too heavy for the lift. It is important to have lifts that can take really heavy patients. Nurses at the NLS hospital also identified the problem of when the patient could not understand English or suffered from dementia. One important part of the No Lift System is to communicate with the patient and give instruction on how to cooperate during the transfer. There could be additional training in how to guide the patient’s movements by using specific holds.

Several nurses mentioned lack of time as an issue, since it took time to fetch the equipment, and also that the transfer took longer when using the equipment, which has also been seen in other studies\textsuperscript{4, 39). It is important that the implemented culture is strongly supported by the management so that the nurse does not feel that she has to decide in each patient transfer whether or not she should follow the intervention, due to time pressure or due to lack of support.

Benefits

The most frequently described benefits at both the NLS hospital and the PreNLS hospitals were fewer back injuries, no heavy lifts and reduced costs. This was also the main purpose of the No Lift System, which was well known among the nurses, and which presumably influenced their answers, even if it was an open question.

The second most often reported benefits were that it was safer and more comfortable for the patients. Nurses at the NLS hospital reported that it also made the patients more independent. This might be one of the essential bases for the No Lift System to be maintained in the organisation, as nurses often have great empathy and perform the task in the way they think is best for the patient.

The intervention

This intervention included both a top-down and a bottom-up approach, as all levels in the hospital were engaged. The intervention programme was both expert-guided and based on a participatory process\textsuperscript{40). A participatory design of an intervention has been found to prevent back pain and injuries\textsuperscript{41). All employees engaged in the intervention were able to exert influence, and all nurses were given their own responsibility to maintain the programme, such as responsibility for loading the lift etc. Multifactorial interventions have proved to be successful in other studies\textsuperscript{42, 43). The comprehensive approach and participatory design, including all levels of staff and extensive support from the nurses’ own union and management, is probably one explanation for the nurses’ positive attitudes and the successful introduction of the programme. To maintain the intervention it is probably important to have repeated training sessions and enough transfer equipment so that nurses do not fall back into old habits.

Methodological aspects

There was a high response rate, which may ensure that collected data is of rather good quality. It may also indicate a great interest in the intervention.

No other organisational changes were performed at the NLS hospital during the introduction of the No Lift System or when the study was performed. Other changes in an organisation during an intervention can have a detrimental effect on a programme and its goal\textsuperscript{39).

Conclusion

Most nurses were positive to the No Lifting Policy, both at hospitals where it had been implemented and where implementation was planned. Expected and experienced obstacles differed between nurses at hospitals where the policy was about to be implemented and at hospitals where it was in operation. A higher percentages of nurses at the PreNLS hospital reported expected obstacles, than was experienced by nurses at the NLS hospital. Expected obstacles among nurses at PreNLS hospitals were organisational factors such as lack of time, staff and money, and difficulties in changing the culture, or related to the facility, such as lack of equipment or space. Whereas at hospitals where the policy was implemented nurses reported specific patients or transfers to be obstacles. Nurses at all hospitals were largely in agreement that the main benefit would be fewer injuries. No Lift Policy nurses reported increased well-being at work and improved ability to manage their daily work. No Lift Policy nurses found the policy to be beneficial for both nurses and patients, which might be a good basis for maintaining the policy. The comprehensive approach, including risk assessment, introduction of equipment and training, and the participatory design, including all levels
of staff and the extensive support from the nurses’ own union and management, is probably one important explanation for the positive attitudes and successful introduction of the intervention.

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