Managing and Monitoring Ergonomic Changes in Health Care in The Netherlands

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Abstract

Occupational back pain among nurses still leads to high costs for health care facilities and personal suffering for nurses. In order to reduce this problem a national approach was undertaken in the Netherlands by means of so-called convenants. In each health care sector agreements supported by signed commitment by all relevant parties led to the development of guidelines for practice and considerable support for the implementation process. This process was monitored on a national scale for four years in a row.

It was obvious that data collection on such a large scale has problems of its own, but is also tempting and unique given the scale. The results from four different and partly independent sources demonstrate improvement and therefore converge in their conclusions. They also indicate that full compliance is not met, not even after four years. In addition to this it becomes clear that the implementation process is very slow. On top of this it is obvious that the care load is steadily increasing over the years, increasing the exposure level for nurses.

The results of this study have paved the way for more in depth research and hopefully contribute to our knowledge of complex implementation processes and our understanding of the effect of ergonomic interventions. As one of the results interactive businesscases were developed and validated and 17 ergonomic innovations reducing the exposure level are now being implemented in order to further reduce the exposure level for nurses.

In 2010 a fifth national monitoring is scheduled.

Keywords: ergonomic, patient handling, nurse, back pain, prevention

1. Introduction

1.1. Ergonomic approach

In the Netherlands the ergonomic approach is advocated as the most effective way to prevent musculoskeletal disorders among health care workers. In the literature this is also referred to as a 'non-lifting' or minimal lifting approach and there is some evidence of the effect of such an approach [1,2,3]. The primary objective is to eliminate or substitute all potentially harmful actions. For this purpose guidelines were developed based on the NIOSH guidelines for manual handling of loads.

This approach has been boosted for four years in a row by the Dutch so-called Working Environment Convenants: signed agreements. In nearly all health care sectors (hospitals, nursing homes, home care, psychiatric care and care for the handicapped) employers, workers (unions) and government have, on the basis of these convenants worked together to decrease the exposure of nurses to physical overload. The focus of the convenants is not restricted to a non-lifting approach, but all major sources of physical overload (lifting and transferring patients, pushing,

pulling, postural load, reaching, prolonged standing, etc.) are taken into account.

In this paper we will give a brief overview of the indications of effect of this national approach.

1.2. Guidelines for Practice

The core of the convenants is formed by the so-called 'Praktijkrichtlijnen' or, in English, 'Guidelines for Practice'. Although they are based on ergonomic standards, they are formulated in simple 'care language' and state the do's and don'ts for daily practice in health care [2]. Two examples will illustrate this.

'If a patient is not able to take support on one or two legs, a patient lifter must be used to transfer this patient from bed to the (wheel)chair/toilet and vice versa.'

'If a patient wears anti-embolism-stockings a special aid needs to be used to take them off and put them on again.'

The total set of guidelines comprises a maximum of two pages depending on the health care sector. There are marginal differences between health care sectors: ranging from home care, acute care to f.e. ambulance care. The guidelines can be found on the Internet (www.ergocoaches.nl, www.arbocatalogusvvt.nl). Similar developments can be seen in other countries, where for example similar guides or guidelines for practice or algorithms were developed [1,3].

The guidelines were developed with full participation of nurses themselves to ensure their commitment and to facilitate a complete and easy integration in normal day-to-day care routines. For each of the health care sectors groups of 15-20 representatives from practice were closely involved. They also piloted draft versions in a few stages in their own facility. After these phases the guidelines were officially supported by the convenant-parties: unions, employers and the government. Following this formal stage of official commitment considerable effort was made to implement the guidelines from management level to work floor.

2. Method

2.1. Data collection

This national approach is comprehensive and complicated and, in addition to this, not all health care sectors have started with the changes at the same moment in time. This makes monitoring and comparing and interpreting the results difficult. In spite of that an attempt was made to monitor the effects on a similar basis. For this purpose the so-called MAZ (Monitor Arboconvenanten Zorgsector, Monitor Convenants Health Care) was developed (www.arboconvenanten.szw.nl). In addition to the MAZ-data collection the percentage of health care workers going on sick leave was monitored (www.vernet.nl).

2.2.Instruments used

Monitoring took place on four levels:

1. exposure level (actual behaviour, frequency of lifting etc., use of equipment)
2. policy level (does the facility take appropriate measures)
3. musculoskeletal disorders, pain and sickleave.
4. sick leave

Ad 1.Assessment was performed by means of a registration form (self-assessment) on the wards and in the teams with the compulsory LiftThermometer, which is part of the MAZ [2].

Ad 2. Assessment was performed by means of surveys at facility level: the PolicyMirror, also an instrument that is part of the MAZ.

Ad 3.A standardised questionnaire was used based on the NORDIC questionnaire. It is also part of the MAZ.

Ad 4. Data on sick leave were collected on a national scale through Vernet (www.vernet.nl). These data are not part of the MAZ, but can serve as an external validation source.

2.3. Timing of datacollection

Monitoring took place at four points in time: baseline, midtime and at the end of the convenant period: after a total of on average 4 years and two years afterwards (2008)[5]. A fifth national monitoring is now scheduled for 2010.

3. Results

We will now present some results.

3.1. Exposure

These data come from the LiftThermometer used for the assessment of more than 50.000 patients per phase of data collection (response rate over 60%).

The use of patient lifters is presented as the percentage of use for patients for which such a device should be used [2]. As a rule these patients are passive and according to the guidelines they need to be

transferred with a patient lifting device. This percentage has steadily increased from 19% (1999), to 35% (2002), 46% (2004) and 82% in 2008. It is obvious that although there is significant progress, full compliance (100%) is not met.

Similar developments can be seen for special anti-embolism stocking aids. At first they were not used at all, in 2002 they were used for 70% of the patients wearing these stockings and finally in 2004 and 2008 they were used for 83% and 87% of these patients.

3.2 Preventive policy

These data come from the PolicyMirror used by more than 300 facilities per phase of datacollection (response rate over 60%).

Having explicit guidelines in the facility for transfers of patients is an important element of a preventive policy. In 2001 55% of the facilities answered affirmative, in 2003 85% and in 2005 91%, 92% (2008).

Assessments of patients and writing the conclusions and actions down in patient care plans is important for an effective preventive policy. In 2001 this was standard procedure in 57% of the facilities, in 2003 this increased to 70% and in 2005 this was 74% rising further in 2008 to 82%.

3.3. Back pain

These data come from national surveys with more than 40.000 workers involved in the datacollection (response rate over 40%). The 12-months back pain prevalence has dropped from 61,5% (2001) to 51,0 in 2003 and 50,0 in 2005 and 42% in 2008.

3.4. Sick leave

These data come from national monitoring by Vernet and include data of more than 90% of the workers. Sick leave (excluding pregnancy and maternity leave) dropped from 7.4% (2002), to 6.5% in 2003, 6.1% in 2004 and 5.7% by the end of 2008

3.5 Conclusion

The results show significant progress on all four levels. It is however also clear that full compliance with the guidelines has not been achieved. One of the further problems is the steady increase in the care load. The dependency level of the average patient is increasing over the years.

4. Discussion

4.1. Converging results

It is obvious that collecting data on such a large scale and interpreting the results is complicated and has serious limitations. Low response levels and differences in timing of the monitoring between health care sectors make the results sometimes very difficult if not impossible to interpret and compare. It is also evident that for example a reduction in sickleave will be influenced by a multitude of other factors as well.

We must take these problems into account by being prudent and careful with the interpretation. On the other hand data collection was performed on a large scale and on four different levels. The fact that the results point in a similar and positive direction do seem to indicate at least some effect of the effort made. This picture of converging results can be seen as a more valid indication of a step towards improvement than each of the separate sources does by itself.

4.2. Health and Safety Inspectorate

These results are in line with the results of the Health and Safety Inspectorate currently inspecting the facilities (2005, 2006, 2007, 2008). This direct inspection of facilities was agreed upon before the start of the convenants and can be seen as a fifth source of information from a totally different direction.

4.3. Implementation of guidelines: a slow process

The results shed an interesting light on the effects, positive and negative, of large scale implementation processes of ergonomic guidelines in health care. The results also demonstrate that in spite of the considerable effort made by all parties involved to implement this ergonomic approach it is obvious that this top-down process of national implementation is a difficult and also a very slow process.

First of all it is difficult to reach nurses and other workers in the workplace. Nurses and their managers need to be informed on, accept and become acquainted and familiar with the guidelines. Penetration of the guidelines to the actual work floor is a gradual process. After that commitment from managers has to set in and expensive changes in the workplace have to be made: equipment needs to be bought. Investment plans must be changed and this also has a timing of its own. After that training of workers needs to set in and the use of the new equipment must be integrated in daily care routines. It is not uncommon for this process to take 1-2 years of time.

Only after this will the actual exposure level be reduced. Even after this moment it will take time for

(cost)effectiveness to set in. Case studies in healthcare indicate that the process of exposure reduction to actual reduction of the prevalence of back pain and subsequent sick leave takes about 2-4 years time [4].

This results in a total period for the whole process lasting from an estimated 2-6 years time.

4.4. Businesscase development

With these aggregated data and with the analysis of data on facility level it was possible to develop businesscases and interactive calculating models to enable nurse managers to test, simulate and monitor their own progress and investments in equipment and training. This helps them to plan the most effective and efficient intervention policy and ensure long term changes in policy.

4.5. Innovations

These data also pinpointed to areas in which further reduction of exposure level could be obtained. As a direct results several innovations have (since 2004) been tested. They demonstrated considerable reduction in exposure of nurses to manual handling, static load and pushing and pulling without compromising the quality of care for our patients. Examples of this are 'washing-without-water', ergonomic design of incontinence pads, shower- and bathing equipment and special bed- and mattress designs [7].

4.5. Relevance of large scale monitoring

Research on this scale can, in spite of its obvious flaws, point to these difficulties and can pave the way for more in depth and more fundamental research into implementation processes. It will add to the body of knowledge of intervention research and ultimately hopefully also add to our understanding of why ergonomic interventions in the workplace will or will not be effective. More in depth research is currently being undertaken.

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