

# ERGO COACHES: PEER LEADERS PROMOTING ERGONOMIC CHANGES—EXPLORING THEIR PROFILE AND EFFECT

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In the Netherlands, ergonomic changes are stimulated by means of national guidelines for practice in health care. To facilitate the implementation of these guidelines in clinical practice, ErgoCoaches or peer leaders were appointed. These nurses or nursing aids received additional training on ergonomics and have, in addition to their normal nursing work (90-100% of their working hours), a special responsibility to stimulate safe work practices among their colleagues. Currently, over 13 000 ErgoCoaches are registered in the Netherlands, and their development has been studied over a period of 10 years by means of regular surveys and by 2 more in-depth studies. This paper presents the overall results of those studies and demonstrates the gradual change towards a more cost-efficient and potentially more effective model of peer leadership. In addition, the studies show a slow but steady shift from ErgoCoaches acting mainly as “change agents” with a short term focus toward a role as long term “guardians” to sustain and stabilize safe working routines. To date, ErgoCoaches have shown to be an effective and integral part of a comprehensive safe patient handling program, reinforcing and consolidating the positive effects of ergonomic programs, mainly by motivating nurses and promoting the use of protocols in patient care plans. Nonetheless, the yearly surveys among ErgoCoaches also point to a lack of training, expertise, and time for ErgoCoaches to perform the activities expected of them. The managerial challenge is to find an optimum model of ErgoCoaches that balances the costs of having and maintaining a competent group of ErgoCoaches and the effects they have on an ergonomic policy and outcome variables such as sick leave. A business case with this purpose was developed to assist managers in making these choices, as the optimum model of ErgoCoaches may differ between healthcare sectors.

*Key words: ErgoCoaches, peer leaders, role evaluation, safe patient handling*

## INTRODUCTION

Although various strategies to prevent occupational musculoskeletal disorders among nurses exist, evidence suggests that ergonomic changes can be effective in reducing exposure to physical overload and potential injury by introducing patient handling equipment along with stimulating patient mobility and independence.<sup>1-6</sup> In the Netherlands, this ergonomic approach has been boosted on a national level by working covenants. These covenants are signed agreements between national parties with the intention to reduce occupational health risks due to physical overload. In almost all healthcare sectors, employers, workers (unions), and government have worked together to set goals, produce national guidelines for practice, recommend interventions, and monitor and fund initiatives in order to reduce the exposure of nurses to physical overload. The drive for these covenants originates from the European Community's guidelines for promoting safe work practices.<sup>6</sup> More details of this approach can be found in the International Organization for Standardization's Technical Report No. 12296 of 2012 (ISO

TR 12296).<sup>5</sup>

An important element in the implementation process of the guidelines for practice is the peer leader, known in the Netherlands as an “ErgoCoach.” One or two nurses from every clinical unit are selected and trained to become an ErgoCoach and are responsible for keeping the ergonomic process going in their respective areas. These “ergonomic ambassadors” are available to their peers for questions, problem solving, new-hire training, equipment updates, problem-area identification, assessments, and specialist referrals. They are trained specialists in ergonomics. Because they work in the clinical areas, they are easily accessible to their colleagues. Theoretically, this is an advantage as they are nurses (“one of us”), speak the same “language,” “know what it's like,” and credible in their advice; most important, they interact frequently with their colleagues. This makes the ErgoCoach an essential and potentially effective driver of the ergonomic message. The covenants strongly advise facilities to appoint and train ErgoCoaches, but it is not mandated.



In spite of the potential advantages of ErgoCoaches, however, a lack of research studying the exact effect or contribution they make remains, including their impact on the amount of sick leave taken by clinical staff and the profile that is the most effective and efficient one.

A first mention of the contribution of peer leaders was made in 1994, in a controlled prospective study of home care that presented the positive effects of an ergonomic approach. ErgoCoaches were a crucial part of this intervention, but their effect was not independent of the other elements.<sup>2</sup> More recent studies point to the positive effects peer leaders have on outcomes such as back pain prevention, reduction of sick leave, and more frequent use of equipment, including ceiling hoists. The review of Hignett et al highlights the necessity of implementing a comprehensive policy and a limited, single intervention.<sup>1</sup> Peer leaders can be part of this implementation. Likewise, ISO TR 12296 emphasizes this role of peer leaders as part of an ergonomic program, not as a stand-alone intervention.<sup>5</sup> This is in line with the relevance of peer leaders as part of US large-scale ergonomic programs,<sup>7</sup> although no studies could be found from the United States or other countries that isolated the contribution of peer leaders from the total effect of ergonomic policies in health care. Multiple large-scale case studies performed in the Netherlands provide indirect evidence for the effectiveness of ErgoCoaches, though always as part of a comprehensive program and as an implementation tool.<sup>8,9</sup> Stenger et al state in their US program that the key factors to its success were involving employees, partnering with a key vendor, engaging change agents at the unit level, and applying persistence and re-education to staff.<sup>10</sup> The findings of Alamgir et al from Canada suggest that the peer leader model can increase the effect of interventions for occupational health.<sup>11</sup> They concluded that the greater awareness of the number of ceiling lifts was presumably due to the coaches advocating their use. In spite of these interesting studies, the exact, isolated contribution and costs of ErgoCoaches in relation to these outcomes remains to be determined.<sup>1,2,5,7-11</sup> Questions such as how many hours of training do my ErgoCoaches need to reach effectiveness? cannot be answered on the basis of the results of any of these studies but are crucial for making business plans for the future.

Generating more insight into the development of the ErgoCoach role is important. In a small country like the Netherlands (16 million people), there are more than 40000 ErgoCoaches of which currently 13000 are registered in the national database ([www.gezondenzeker.nl](http://www.gezondenzeker.nl)). Healthcare facilities invest considerable time, money, and effort both in the training of these peer leaders and in the time they need to perform their tasks as ErgoCoaches. If these 40000 ErgoCoaches receive 8 hours of training per year, this means

that 320000 hours are not fully spent at the bedside, costing health care around 10 million or more euros per year. In order to make this kind of investment, a demonstrated positive impact associated with the role must be established.

Based on the results of 3 studies, we will explore the effectiveness of ErgoCoaches, examine the costs associated with their work, and discuss the practical implications.

## TYPES OF PEER LEADERS OR ERGOCOACHES

In the Netherlands, the first ErgoCoaches started working more than 25 years ago.<sup>8</sup> Role titles exist in other countries for such specialists, including unit peer leaders, key-workers, transfer specialists, BIRN-nurses, and change agents. There are 2 basic models of ErgoCoaches.<sup>1-5,9,11</sup> The first is the ErgoCoach (a nurse at the bedside), a real peer leader, who has an extra responsibility and expertise for solving ergonomic problems and promoting safe behavior among his or her colleagues and is the model referred to in this article. The second model is the ErgoCoach having a responsibility for several teams of nurses or even one or more healthcare facilities. Sometimes, they are called ErgoCoaches, too, but are referred to as lifting champions or ergonomic coordinators, as well. Although this model is frequently used in other countries, such as the United Kingdom, and present in the Netherlands, this study refers to the first type: the classical peer leader.

In the international literature, a third model can be found: the lift team.<sup>12</sup> This team explicitly specializes in the actual assistance with transfers, works for several groups, and can be requested for assistance by any member of the clinical team. Although this lift team model has advantages, it is hardly used in the Netherlands, and this study does not refer to them.

ErgoCoaches in the Netherlands are supported on a national basis with government funding, which is used to run a help desk, develop websites, publish a magazine, register ErgoCoaches, offer free e-learning modules, and organize ErgoCoach seminars.<sup>7</sup>

## METHODS

The results presented are based on 3 sources of data.

### 1. Surveys

In 1994, the first surveys were performed among ErgoCoaches on a yearly basis. It was difficult to interpret these data sets because of differences in the content of the surveys and the collection process (eg, timing, group size, lack



of reminders). Subsequently, in 2004 a more standardized version of this survey was developed and then piloted in a convenience sample of 50 ErgoCoaches. Its purpose was to explore and monitor the activities and barriers ErgoCoaches experience during their daily work and trace indicators for their effectiveness. A few minor changes in the survey content and layout were made accordingly, although the basic format allowed for a general comparison with the more ad hoc surveys performed before 2004. Following these changes, the survey was distributed to all ErgoCoaches registered at that time. Two reminders were sent and a total of 2704 surveys were received, indicating a response rate of 72%. This survey is now repeated every year to monitor changes and distributed to at least 1000 ErgoCoaches, consistently receiving a response rate of over 60%. The last survey was performed in November 2011 and was based on 1322 ErgoCoaches and a response rate of 72% (Table 1).<sup>13</sup>

## 2. Secondary analysis

Besides the monitoring surveys mentioned above, indications of the effects of the ErgoCoaches on compliance with the guidelines, back pain, and sick leave were studied. A cross-sectional analysis was performed on data from facilities with and without ErgoCoaches. A total number of 5834 healthcare workers were involved in the study group (Table 2). Data on these facilities were available because of their participation in the national monitoring of the covenants.<sup>14</sup> This meant data were collected in a standardized way and with validated instruments now present in the ISO TR 12296.<sup>5,14</sup> First, surveys from workers were used; second, data from a survey on the preventive policy of each of these facilities (*BeleidsSpiegel* or "policy mirror") were collected; and third, data from the *TilThermometer* (LiftThermometer) from these same facilities were utilized.<sup>2,5,14</sup> These instruments partly overlap in their questions so that some indication of the reliability of the answers can be obtained by comparing them (eg, the answers of workers to the answers of their managers on the facility survey). This reliability was found to be sufficient.<sup>14</sup> Because of the potential selection effects that may result from a low response rate, only facilities with a response rate of the workers' survey of more than 50% were included.<sup>13,14</sup>

## 3. Cross-sectional study

Alongside and as a result of the studies mentioned above, a cross-sectional study was performed analyzing the organizational and individual determinants of the use of ergonomic devices in health care.<sup>15,16</sup> Direct observations, interviews, surveys, and a questionnaire based on the *BeleidsSpiegel*<sup>5</sup> and the monitoring survey<sup>13</sup> were used in 19 nursing homes and 19 hospitals, with a response rate of 45-46% (247 nurses

participated, 233 ErgoCoaches participated, and 670 patient handling activities were observed).

## RESULTS

### Survey results

Table 1 presents an overview of the monitoring results over the years, including a summary of the situation before 2004. The average age of ErgoCoaches is now 43.5 years; a slow but steady increase is present since 2004, which corresponds with the demographic trends in nursing. They now have the responsibility for a group of 24 colleagues on average, compared to a "span of control" that started out at 44-56, a steep decline but in line with the classical peer leader model that aims at a responsibility limited to the direct colleagues in the team. They remain to be experienced workers as the majority (72-85%) has more than 5 years of experience in health care as a nurse or nursing aid. Their experience as an ErgoCoach is much shorter and fluctuates between 2-3 years. This indicates that in general ErgoCoaches stay ErgoCoaches for relatively short periods. Given the time and money invested in their training, it is important to keep this short period in mind. They now spend on average 0.8 hours per week on their ErgoCoach work, which includes meeting with other ErgoCoaches or managers or both, training, and keeping their own expertise up to date. This is a rather profound difference with the situation in 2004 and 2005 (and previously), where the average was about 2 hours per week. ErgoCoaches themselves explain this by stating they can integrate their activities in their normal routines and do not need the extra time. Nevertheless, ErgoCoaches working in home care (2.1 hours a week) still spend significantly more time than ErgoCoaches working in general or academic hospitals (0.6 hours a week or less). This is probably due to the traveling time for the home care visits that take up considerably more time than just seeing a patient or colleague on the ward in a hospital.

Most ErgoCoaches (> 80%) have received special training. The length of this training has been reduced from 24 hours to 14 hours, which has obvious financial implications. Nevertheless, the percentage of ErgoCoaches stating they have had sufficient training was not reduced but remains stable around 40%. A high and rather stable percentage (68-77%) has a clear picture of what is expected of them. A fluctuating percentage (49%) states to have enough time available to work as an ErgoCoach and 32% states there is enough money to do "what is necessary" for safe working practices.

More than half (56%) feel secure about their own skills. Contrastingly, about one-third (35%) consider their own knowledge to be sufficient. One positive finding, especially



TABLE 1

OVERVIEW OF DEVELOPMENTS IN ERGO COACHES OVER THE YEARS BASED ON THE ANNUAL MONITORING									
	average 1994-2003	2004	2005	2006	2007	2008	2009	2010	2011
N	total N < 2004 = 5662	2704	1534	1407	1302	1105	1227	1402	1322
Response rate	55-89%	72	62	95	77	72	65	66	72
Age	40.8	40.9	41.1	42.2	42.8	43.2	42.7	43.4	43.2
Years of experience as EC	0.8	2.1	2.4	2.8	2.9	2.6	2.7	2.5	2.8
Hours/week spent on EC	1.8	2.0	2.1	1.2	1.1	0.9	0.8	1.0	0.8
N hours of training as EC	9	24.2	24.0	23.3	22.0	18.0	18.1	16.2	14.2
Number of workers responsible for	56	44	39	31	30	33	29	27	24
<b>% Yes Response</b>									
Sufficient training	11	22	38	44	43	44	41	39	40
Expectations clear	21	33	68	75	77	74	73	67	75
Sufficient time as EC	17	8	55	57	52	52	48	44	49
Sufficient skills as EC	8	6	59	65	55	56	54	53	56
Sufficient knowledge as EC	6	6	43	43	43	44	46	41	35
Sufficient money for policy	7	44	31	30	22	28	27	29	32
Sufficient back-up	56	67	57	64	54	34	39	43	56
Support management	66	68	66	67	66	61	55	52	51
Initiate change	89	96	90	89	74	72	66	61	51
Maintain change/policy	4	55	88	89	88	91	92	82	86
Colleagues know guidelines	-	4	18	18	19	22	25	28	28
Happy with guidelines	-	91	84	88	88	89	86	84	84
Resistance among colleagues	66	41	17	22	18	17	19	14	16
Appreciated by colleagues	55	57	63	70	77	78	71	66	58
Support for patients	65	61	65	51	55	54	51	63	69
Colleagues ask for advice	32	91	88	44	33	38	33	32	31
Solve problems as EC	44	48	62	61	45	56	58	64	65
Support protocols in care plans	8	7	46	50	57	67	66	64	61

given this apparent insecurity when it comes to knowledge, is that more than half state to have sufficient backup from an occupational therapist, physical therapist, or other professional that they can ask for advice. Half of the group (51%) also perceives sufficient support from their management.

We see a striking shift in focus of the main ErgoCoach responsibilities. In the beginning (2004 and earlier), the emphasis was on initiating change (96%) and on maintaining change (55%). In 2011, this has changed almost into the mirror image where 86% states their priority to be maintaining change and 51% to initiate change. Finally, more than half (61%) of the ErgoCoaches are active in promoting the use of individual transfer protocols in all care plans.

#### Results of the secondary analysis

The results suggest a lower sick leave among facilities with ErgoCoaches (8.3% versus 9.1%), but this difference was not significant (chi-square,  $P > .05$ ). Table 2 also shows that if we select the 34 facilities that not only have ErgoCoaches, but also Guidelines for Practice, a significantly lower sick leave is demonstrated than in the group without ErgoCoaches (7.1% versus 9.1%). The results suggest that there is no independent effect of ErgoCoaches. They do point, however, to a small, but significant, effect of ErgoCoaches as part of a comprehensive program including the implementation of guidelines. Therefore, they may act as catalysts of a program. This design is very limited to assess the actual contribution



of ErgoCoaches. It cannot be ruled out in this cross-sectional data set that the facilities may have already had low sick leave rates and a positive general working climate before they started working with ErgoCoaches and or guidelines. Therefore, the follow-up study mentioned below was performed.

TABLE 2

SURVEY ANALYSIS	
Percentage of healthcare workers on sick leave for low back pain in a 12-month period in facilities without ErgoCoaches (WE, n = 46), with ErgoCoaches (EC, n = 44), and facilities with ErgoCoaches and guidelines (EC-plus, n = 34). A total of 5834 workers surveyed.	
	Sick leave due to low back pain
Without ErgoCoaches or guidelines (n = 46)	9.1% <sup>*β</sup>
With ErgoCoaches (n = 44)	8.3% <sup>*</sup>
With ErgoCoaches and guidelines (n = 34)	7.1% <sup>β</sup>
* Chi-square not significant ( $P > .05$ ) between WE and EC β Chi-square significant ( $P < .05$ ) between WE and EC-plus	

**Results of the cross-sectional study**

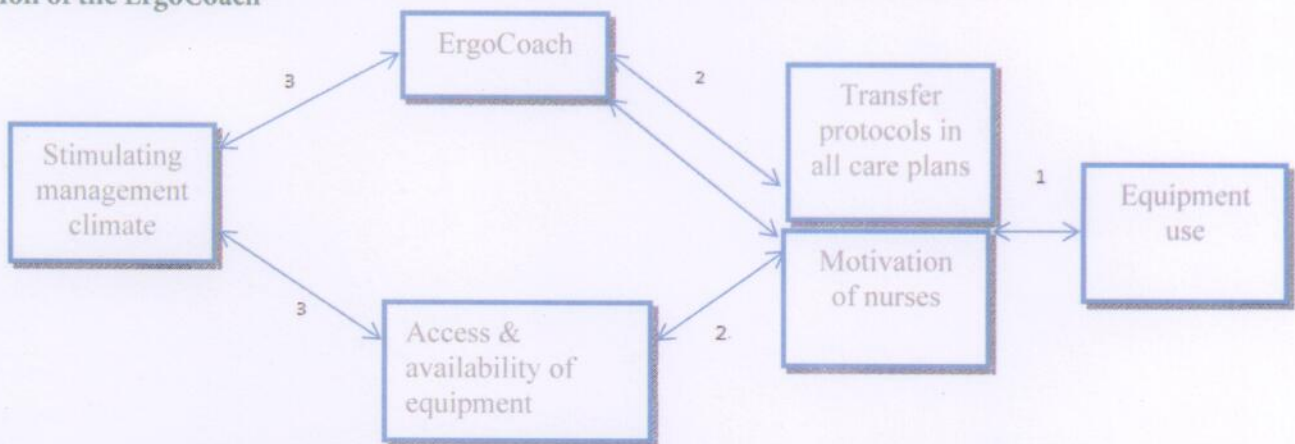
Multivariate logistic analysis was used to estimate the determinants of the use of ergonomic devices like lifters and sliding sheets in line with the Guidelines for Practice.<sup>15,16</sup> The most important determinant was the inclusion of transfer protocols in individual care plans of strict guidance on the use of ergonomic devices (OR = 2.49), followed by the

nurses' intrinsic motivation (OR = 1.96), and the presence of back complaints (OR = 1.77). The organizational factors of convenience and ease of access to the equipment, management support, and a supportive climate were, in turn, associated with these determinants. This leads to the indirect relationships with the activities of ErgoCoaches visualized in Figure 1. ErgoCoaches can stimulate the use of equipment (arrow 1) by promoting the use of transfer protocols in all care plans and by motivating their colleague nurses (arrows 2). The results of the permanent monitoring study presented above confirm that ErgoCoaches actually do that. Figure 1 also illustrates that managerial support is crucial for an effective ErgoCoach and the presence of adequate equipment (arrows 3). The monitoring study indicates that ErgoCoaches indeed do state that managerial support is important. Finally, Figure 1 illustrates that aspects other than ErgoCoaches also exert a strong influence on actual use of equipment, especially ease of access to equipment.<sup>15,16</sup> However, most important, there is no direct relationship or independent effect resulting from the presence of ErgoCoaches. It appears that ErgoCoaches mediate in a positive direction by stimulating nurses' motivation, the use of lifting protocols in the patients' care plans, and by making the managerial support for a prevention program visible.<sup>15,16</sup>

**DISCUSSION**

The results underline the fast development of the ErgoCoach phenomenon. What started out as a bottom-up development some 25 years ago is now considered to be an important key to implementation of ergonomic guidelines in health care. Given this rapid development and the apparent status of ErgoCoaches, it is relevant to know the exact contribution of ErgoCoaches to the effect of ergonomic interventions in health care and the cost-effectiveness. There is a lack of

**Figure 1: Scheme of the relationship between determinants of preventative behavior and the position of the ErgoCoach**



ErgoCoaches stimulate the use of equipment (arrow 1) by promoting the use of transfer protocols in all care plans and by motivating their colleague nurses (arrows 2). Managerial support is also crucial both for an effective ErgoCoach and the presence of adequate equipment (arrows 3).



evidence on this subject, which is in sharp and unwanted contrast with the apparent popularity of the phenomenon. Facilities invest considerable time, effort, and money both in training the ErgoCoaches and in the time they need to perform their job. Our studies show indications for an indirect, but nonetheless positive, effect and are in line with the results from other studies.<sup>10,11</sup> In short, an ErgoCoach is not effective as a stand-alone intervention. The results suggest no independent effect of the presence of ErgoCoaches alone on outcome variables like back pain or sick leave. This cannot come as a surprise since an ErgoCoach without proper lifting equipment for the nurses is like sending a boat out to sea without a sail.

The studies do point to the significant and positive influence of ErgoCoaches as important drivers or stimuli behind the implementation process of guidelines and ergonomic changes. This strong conclusion underlines the significance of ErgoCoaches as a relevant and proven part of a comprehensive ergonomic program and, in fact, as effective catalysts of such a program. The 2 most important factors they can influence are nurses' motivation and the inclusion of transfer protocols in patient care plans.

During the past decade, we saw that ErgoCoaches receive less training hours, spent less time per week performing their role, and were more influential in sustaining the program than in initiating change. When it comes to cost-effectiveness, this seems to be a positive development, especially since ErgoCoaches are not less satisfied than 10 years ago.

It is also obvious that ErgoCoaches change jobs every 2 years. From a cost perspective, it might be relevant to invest in their training in a more general way. Coaching and communication skills can be transferable to nursing fields other than ergonomics and are therefore not lost once an ErgoCoach stops his or her activities. An ErgoCoach that wants to adopt a peer leader role in the field of pressure sores or incontinence can certainly make use of those skills. So investing in skills that are more general seems to be a sound argument given the average of 2 years. Conversely, the fact that ErgoCoaches are not too confident about their knowledge underlines the necessity of having a good backup of expertise (eg, physical therapists) they can call in whenever necessary.

If the previous educational and professional support occurs a more limited, minimal, or "leaner" type of the classical peer leader will serve the purpose of motivating peers and stimulating the use of transfer protocols, acting as long-term guardians of the program and sustaining its effects. Our studies and the literature so far do not present clear-cut advice on the details of the most effective model, let alone

the most cost-effective model. This is not only due to a lack of research in this field, but also to inherent differences between settings that have cost implications, including the differences in time ErgoCoaches need in home care and acute care and the differences due to the phase of the program (initiating change takes more time than sustainment). Therefore, although a need exists, a solid basis for decision making by nurse managers on the relevance and cost-effectiveness of the "best" ErgoCoach model remains lacking. Subsequently, an interactive business case was developed to assist these managers and reduce their uncertainty based on the most up-to-date research and practice.<sup>17,18</sup> For example, the impact of reducing the number of training hours by using more e-learning options or replacing standard training by training based on a previous assessment of competencies can be calculated. This business case identifies and clarifies the variables involved and suggests, based on current experience and research, the size of costs and benefits depending on organizational characteristics of the facility involved.

Although our studies indicate the presence of a significant, relevant, and cost-effective contribution of ErgoCoaches to an effective ergonomic policy, it is obvious that more in-depth research remains necessary. This is important to unravel the contribution of ErgoCoaches as key, link, chip, or fuel in the injury-prevention chain.

#### Acknowledgements

These studies were financed by the Stichting RegioPlus and ZonMw (Care Research Netherlands). No conflict of interest is present.

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