Developing, implementing and evaluating diabetes care training for nurses and nursing aides in nursing homes and municipal home-based services

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Summary

The increasing prevalence of diabetes among older people challenges nurses and nursing aides in providing high-quality evidence-based care in nursing homes and municipal home-based services. Deficiencies in treatment and follow-up care, as well as significant need for educating personnel, are emphasised. Organisational challenges related to transferring tasks from specialist to primary health care services imply an urgent need for enhanced professional competence.

We aim to describe the development, implementation and evaluation of an educational training programme for nurses and nursing aides in nursing homes and municipal home-based services.

Sixteen registered nurses and four nursing aides participated (women, aged 32–59 years). Three main principles were emphasised in the development of the programme: enhancing professional authority; improving communication within professions and levels of care; and reflections based on experience with patients and perceived challenges in clinical practice. To evaluate the programme a questionnaire was used including both quantitative and qualitative data.

Participants described enhanced competence in relation to: professional updating, exchange of experience, professional confidence, sharing knowledge and personal development. Further, the participants reported confidence related to evidence-based practice skills and knowledge, and providing high-quality nursing care.

In conclusion, the elements of this programme seem adequate for inclusion in a programme designed to promote enhanced professional competence for nurses and nursing aides caring for older people with diabetes, and might be supplemented with annual follow-up sessions as a part of the services offered by specialist health care services on a regular basis.

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Key words

diabetes; educational programmes; home-based services; professional competence; nursing homes

Introduction

Large discrepancies have been shown in the United States between the American Diabetes Association standards of care recommendations and the actual treatment and care for institutionalised older people with diabetes.[1,2] In Europe, studies to monitor the quality of care of older people with diabetes also emphasise the deficiencies in treatment and follow-up care,[3,4] as well as significant need for educating personnel.[5,6] Dilemmas related to a lack of capacity to provide high-quality evidence-based chronic care in the future correspond to challenges related to a growing ageing population accompanied by an increasing prevalence of diabetes among older people, who have complex needs, comorbid conditions and multifaceted treatment regimens.[7] Significant nursing needs have been documented in nursing homes, with a mean of four comorbid conditions in addition to diabetes for each individual.[8] Thus, health care services not only face organisational challenges related to transferring tasks from specialist to primary health care services, but also need systematic expertise and knowledge transfer.[9] Adequate training and support are needed to provide enhanced professional competence and confidence in making care decisions based on clinical observations and standards of care.

Specialist health care services need to contribute to enhancing professional expertise in primary health care settings, and to provide appropriate education and training for registered nurses and nursing aides in nursing homes and municipal home-based services. In Norway, nursing home residents receive follow-up care from the nursing home doctor, while patients who live at home and are followed up by the district nursing service are treated by their primary care doctor. Registered nurses who have responsibility to provide care to older people with diabetes face a range of challenges in their clinical practice that appear to impinge on their capacity to deliver high-quality care. Some have more diabetes knowledge and others have less knowledge. This article describes a pilot study conducted in collaboration between the department of endocrinology at a university hospital in western Norway and one

nearby municipality. Health care workers in primary care regularly approach the endocrinology outpatient clinic with questions on the follow-up care of individual people with diabetes. Clinic nursing staff members respond by offering advice on patient problems over the phone, and by giving diabetes-specific lectures for primary health care workers at their workplace. The teaching is conducted casually, with nursing staff individually responsible for what they teach. This means that the approach to teaching registered nurses and nursing aides about diabetes is unsystematic, and whether the teaching affects the competence of the staff is difficult to determine.

Aims of the study

The aims of the study were: (1) to describe the development and implementation of an educational training programme in diabetes care and management for registered nurses and nursing aides in nursing homes and municipal home-based services; and (2) to report on the evaluation of the programme and experiences of those who participated.

Methods

Participants

The study was carried out in a municipality with 60 000 inhabitants. The municipality has five zones, all of which have a base for the home-based service and nursing homes.

The management or charge nurses of the municipality asked nurses and nursing aides considered to be significant players in their workplace to participate in the study. Some of the registered nurses and nursing aides recruited had previously been interested in diabetes care, and others participated as novices. None of the registered nurses had attended postgraduate courses in diabetes.

Developing the educational training programme

In the first phase of this project, registered nurses and nursing aides from all five zones were asked to participate in focus group interviews to explore their daily clinical experience in following up older people with diabetes.[10] The findings revealed a discrepancy between the level of expertise the participants described as important for delivering high-quality care to older people with diabetes and their capacity to deliver high-quality care because of the challenges they face in practice. These challenges were experienced in relation to the individual patients, the working environment and the organisation of health care. The findings from the qualitative study were used in developing the educational training programme. The programme was compiled based on three main principles.

- Enhancing professional authority will provide registered nurses and nursing aides with the confidence to take the lead in delivering high-quality, evidence-based health care to older people with diabetes.
- Improved communication within the multidisciplinary working environment and between specialist and primary health care services will encourage further collaboration and ensure that complex needs, comorbid conditions and multifaceted treatment regimens are individually addressed.
- Reflections based on the experience of patient cases and the perceived challenges nurses and nursing aides face in clinical practice will facilitate consensus on implementing evidence-based practice guidelines.

Implementing the programme

All participants were invited to attend an interdisciplinary diabetes conference (arranged locally every other year). This conference allowed the participants to be introduced to the wider professional network of diabetes clinicians and researchers in western Norway. Then they were invited to participate in the structured educational training programme carried out during the next 10 months. This programme included seven specialist nurse-led training sessions, five during the spring and two during the autumn, each lasting three hours. Physicians, diabetes nurse specialists, geriatric nurse specialists, clinical nutrition physiologists and chiropodists from the specialist health care services shared their competencies on selected topics and facilitated discussions on specific challenges the participants faced in their clinical practice. The themes for the seven educational training sessions were as follows.

- What is diabetes, and how is diabetes treated pharmaceutically?
- Quality of life aspects and recommended treatment goals: monitoring blood glucose and managing insulin treatment in relation to the needs of individual patients.
- Diabetes sequelae, with a special focus on diabetic foot ulcers.
- Dietary aspects for older people and psychological aspects of care.
- Reflections on real patient cases, sharing the thoughts about and experiences with patients' complex needs and treatment regimens and patient comorbidity.
- Annual reviews, assessment and treatment protocols.
- Specific challenges associated with dilemmas related to diabetes and dementia and quality of life aspects among older people with diabetes.

The recommended national evidence-based practice guidelines were used during all sessions to highlight aspects of evidence-based preventive care, treatment and follow-up practice.[11] The participants were encouraged to share thoughts and

'Participating at the educational training sessions had the following effects on me'
• Professional updating
– 'Being updated and understanding things in a new way'
– 'Perhaps finding good tools that provide improved practice'
• Exchange of experience
– 'The possibility of discussing and finding solutions and suggestions'
– 'Establishing new relationships with other people in the same district'
– 'That the specialised health services learn about the challenges in the counties'
• Professional confidence
– 'Seeing causes and effects in a better way'
– 'Easier to communicate about the problems'
– 'Has made me much more conscious about what the proper treatment is'
• Sharing knowledge
– 'Becoming more confident in my knowledge on diabetes, which can be useful for both colleagues and patients'
– 'Receiving input on how to handle challenges at the workplace'
• Personal development
– 'This is exciting and interesting and motivates me to learn more'
– 'The things we learn with joy are not easily forgotten'

Table 1. Participants' experiences with taking part in the sessions

experiences by working in groups with relevant examples and the challenges they faced in practice, and were encouraged to bring case studies formulated on behalf of the needs of the patients to the sessions.

Evaluation of the programme and the experiences of participants

Questionnaires constructed specifically for this study were used to evaluate the learning process at two different times: three months after the sessions had started and at the end of the project. Participant data were kept confidential at all times, as both qualitative and quantitative responses were anonymously reported. Questions were to be answered on a scale ranging from 1 to 10: 1 represented 'to a very low degree' and 10 represented 'to a very high degree'. The final numbers were calculated as the average of all answers from each participant. We performed descriptive statistics. In addition, open-ended questions in the questionnaire enabled the participants to fill in free text by using their own words to describe their experiences. Textual data were collected on perceived satisfaction with the programme by using a circle with several beams (a 'sun-figure') and categorised.

Ethics

The participants gave written consent for the study according to Norwegian requirements. The Norwegian Social Science Data Services (Ref: 20474-2) approved the study.

Results

Sixteen registered nurses and four nursing aides participated (women, aged 32–59 years). The municipality has no men employed in providing care services. All 20 participants responded to the questionnaires, although four participants failed to respond to questions on work experience and current work situation. The results showed that 16 of 20 participants had received higher level education for up to four years; three participants had attended upper-secondary school, and one participant responded 'other education'. Eight of 16 participants said that they were working full time, and the others worked part time. They had work experience ranging from 1.5–30 years (mean 15.7 years [n=16]).

Attendance at the educational training programme varied from 11 to 19 participants, with an average of 16. Several participants had young children, and their children being sick was usually the cause of absence. Further, busy workdays made it difficult for participants to attend the sessions in some cases.

Qualitative data

Quotations from the open-ended questions in the questionnaires illustrate the process for each participant and for the group, and the positive effects this process might have had for both patients and colleagues.

'The most important thing is to obtain direct knowledge from the updated health care workers in the specialist health care services [university hospital] *for the nurse/me. I feel less doubt and insecurity and make fewer errors, and nursing aides are less unhappy than they were with the insecure nurses. Clear guidelines make me feel secure; they lead to secure colleagues and they lead to a good environment and the best care.'*

'To continually develop so that I can contribute to the security of others in diabetes issues in my workplace. Important to update other colleagues with information and possibly have professional seminars; keep info for other colleagues. Further develop my knowledge, keep myself updated.'

'Be given time by the leader to update one's knowledge during work hours. An environment open to changing practice. I experience being listened to by colleagues when participating in this project, which has led to some changes in my workplace. With more knowledge gained through this project, I now have better arguments when discussing with physicians. This is

Items	T1* (n=17)	T2* (n=12)
To what extent has the course contributed to your self-confidence in:		
Knowing where to obtain or collect professional literature?	6.7	7.6
Critical appraisal of evidence obtained through literature or research?	5.9	7.0
Giving reasons for monitoring, intervention and treatment from literature and research?	5.9	7.3
To implement best practice (from research evidence)?	6.1	7.2
To what extent has participating in the project helped you to develop:		
Increased professional nurse competence in practice?	7.1	8.2
Increased confidence in professional assessments and priority-setting?	7.2	8.1
Increased confidence in professionally contributing to research and professional development?	5.5	6.8
Increased confidence in collaborating further with other professional groups?	6.7	7.7
Improved personal competence to carry out high-quality nursing?	7.4	8.4
To what extent has participating in the project helped you to develop:		
Reflection and critical sense?	7.1	7.7
The ability to ask critical questions about your own practice?	7.4	8.0
The ability to make professional arguments for the managers?	7.5	8.1
The ability to make professional arguments for other occupational groups (physicians etc)?	7.2	8.0
The ability to make professional arguments for colleagues?	7.8	8.5
The ability to make professional arguments for relatives?	7.7	8.7
The ability to speak up for the patients?	7.6	8.5

*Scale from 1 (to a very low degree) to 10 (to a very high degree); T1: 3 months after the sessions had started; T2: by the end of the project.

Table 2. The views of nurses and nursing aides on changes in personal and professional competence

often a problem, with [some] physicians not considering our opinions.'

The textual data collected on perceived satisfaction with the programme by using a circle with several beams ('sun-figure') were categorised and are presented in Table 1. The findings revealed that participants perceived that taking part in the educational training programme provided competence related to the following categories: professional updating, exchange of experience, professional confidence, sharing knowledge, and personal development.

Quantitative data

The response rates of participants completing the questionnaire three months after the sessions had started was 89% (17 of 19), and 86% (12 of 14) by the end of the project. Table 2 shows scale scores on all questions at T1 (three months after the sessions had started) and at T2 (end of the project). Lower scores on perceived confidence in contributing to research and professional development indicate that these aspects were not very evident in the sessions, whereas the participants perceived an obvious benefit in relation to perceived ability to speak up for patients and to make professional arguments in the multidisciplinary team and with relatives. Further, participants perceived that the programme contributed to confidence related to evidence-based practice skills and knowledge, and to confidence related to carrying out high-quality nursing care. The results seem to be clinically significant, since they show an increase in scores of 5–10 percentage points. In previous research, such improvements (5–10 points on a scale of 1–100) have been considered clinically significant.[12] Problems related to the limited time available to keep oneself professionally updated (data not shown) were the most important constraint at three months after the sessions had started and by the end of the project (65% and 58%, respectively, responded 'to a high degree').

Discussion

The study confirms that the elements making up this pilot programme are adequate to be included in a programme designed to promote enhanced professional competence for registered nurses and nursing aides caring for older people with diabetes in nursing homes and home-based nursing services. The programme is grounded on the empowerment approach to fostering communication and knowledge exchange among health professionals. Important reflections started during the sessions and gave opportunities for a new course of action and enhanced confidence when presenting arguments for colleagues in the multidisciplinary team and with managers and relatives. Multiple contextual factors influence decisions made by clinicians[13] and research is

suggested to be a powerful mediator for nurses in their discussions with others. They also experienced being more confident in speaking up for the patients. The perceived benefits were developing evidence-based skills as well as perceptions of enhanced professional confidence in nursing care.

The present study has limitations. One limitation was that data from registered nurses and nursing aides participating in the study were combined. Nurses and nursing aides might have different educational needs depending on previous education and clinical experience. However, low numbers of participants limited the potential for additional statistical analysis. Furthermore, all of the participants were female, which may have affected the results. A strength was that the participants reflected on actual patient situations they experienced as a team and on challenges they faced in similar settings. The four nursing aides had substantial unauthorised competence based on years of clinical experience (range 9–30 years). Further studies in larger samples might yield more insights into personal and professional competence gains among participants.

In this study, the participants commented that the educational training programme provided enhanced evidence-based practice skills and an opportunity to reflect on national evidence-based practice guidelines in relation to the complex needs of patients at their own workplace. An interest in further professional development among the participants was significant as well as the urge for more knowledge. Previous research also shows a need to focus on access to adequate training and a supportive organisation in the care for older people.[14,15] The present programme has some similarities with the International Diabetes Federation Curriculum for Diabetes Health Professional Education. However, the participants in our programme had a unique opportunity to seek guidance about exactly what signs and symptoms to look for with colleagues at their own workplace. They were encouraged to reflect on challenging clinical situations along with colleagues from all of the five zones. Improved team communication encourages collaboration and enhances participants' confidence in making appropriate care decisions based on clinical observations and evidence-based guidelines.

Organisational aspects

Support from the managers of the municipality and their willingness to encourage registered nurses and nursing aides to participate in the educational training programme seem to be profoundly important. Nurse managers are in a unique position to promote the delivery of high-quality, evidence-based care.[16] In the present study, the participants were trained to be able to take on responsibility in the treatment and care of older people with diabetes and to be able to take the lead in supporting other nurses and nursing aides. The management ensured that the educational training sessions were scheduled to consider late shifts, rush hour and bringing children home from kindergarten. This was practical for the workplaces, as they could use the personnel for parts of the day and personnel with late shifts could also participate. Most participants were pleased with this system, although some felt it stressful to attend the sessions after work and would rather have had the sessions for a full day.

Participants reported that having 20 people in the groups was appropriate and that they got to know each other quite well since they met several times. The use of case studies led to enthusiasm in the groups. Previous research on underlying rules and procedures for reasoning about whether, when and how to use research among nurses has shown that nurses need a wider range of skills than those of information management.[13] The challenge was to create an atmosphere in which participants felt comfortable in presenting their own cases and that they experienced having enough time to do the preliminary work before the sessions.

It was a challenge during all sessions to limit the theoretical components and to reserve enough time for group work and discussing participants' own experiences. To develop an evidence-based nursing practice, it is important to create clear and realistic goals for the workplace.[17] Many participants were eager to spend time in groups to work on concrete plans and procedures to be used at their workplace.

Transfer of responsibility also implies enhanced professional competence

Policy statements imply that, in the future, more of the responsibility for diabetes care and treatment in Norway will be transferred from specialist health care to community health care.[9] Thus, specialist health care will largely handle the most complex cases, and registered nurses and nursing aides in the community will have to take on new tasks and responsibilities to regularly meet the needs of older people who have diabetes. Lack of confidence among health workers may negatively affect the quality of the care they provide. It has been shown that patients' metabolic control and quality of life can be enhanced by improving the competence of health care workers responsible for monitoring the patients.[18] In Norway, the specialist health care

services are legally required to educate health care workers in primary care. However, this education is not further specified, nor are there specifications on how this should be done. Further, financial and time resources have not been reserved for this purpose. Education in municipalities is therefore haphazard and often a result of initiatives from those requesting support.

Implications for practice

Based on what was learned from this pilot study, we revised the educational training programme. To implement the revised programme in other municipalities we recommend five sessions (Appendix 1: available via *EDN* online at www.onlinelibrary.wiley.com); and, in addition, one follow-up session held locally with participants from several municipalities who have previously participated in such a programme. The revised programme needs to be evaluated in a larger sample to assess the effects on the quality of care. Further, using online learning applications primarily intended to supplement face-to-face instruction resources and web-based technology is an option.

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Declaration of interests

There are no conflicts of interest declared.

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Book review

Weight management: a practitioner's guide

By Dympna Pearson and Clare Grace
Published by Wiley-Blackwell, 2012
296 pages, price £39.99
ISBN: 978 1 4051 8559 2
Website: www.wiley.com

This book covers not only the causes, consequences and treatments of obesity but also provides practical ways of patients to make lifestyle changes. Although many of our patients have a heightened awareness of weight management diet and activity advice, they struggle to implement lifestyle changes to promote and/or maintain weight loss. This book guides you to help them identify barriers to change. It focuses on a patient-centred approach and has clinical and reflective scenarios to work through. These enable you to reflect on and question your own practice as well as look at your own beliefs about obesity and the impact this may have on the care you provide. The chapters guide you throughout your patient's journey, from the initial consultation, dealing with setbacks right through to weight maintenance. The book has helpful tips and works through numerous misconceptions that many of our patients hold. It is easy to read with key messages highlighted.

Emma Potter, Diabetes and Obesity Dietitian, Torbay Hospital, UK

Session	Topic	Material and methods	Who is responsible?
1	What is diabetes?	National guidelines	Physician
	Treating diabetes with medication	Educational session (slide presentation) Overview of medicaments	Physician
	Case studies	Introduction Presentation of examples	Physician and diabetes nurse specialist
	Treatment goals and quality of life	Norwegian Diabetes Association brochures (*What is diabetes?* and *Start* magazine) and the internet (www.diabetes.no)	Physician and diabetes nurse specialist
	Practical blood glucose assessments Quality of measurements Purpose and assessments	Educational session (slide presentation) Brochures on blood glucose measurements	Diabetes nurse specialist
	Case studies	Group work: discussions with suggestions for solutions	All
	Preparations for the next session: case studies (complications and foot ulcers) and reading (complications in the national guidelines)	Study at home	Participants
2	Case studies	Presentation without discussing solutions	Participants
	Diabetes and complications, with special focus on the diabetic foot	National guidelines	Physician
	Preventing diabetic foot ulcers Practical rehearsal with monofilament	Educational session (slide presentation) Monofilament	Chiropodist
	Practical treatment of diabetic foot ulcers	Educational session (slide presentation) Norwegian Diabetes Association fact sheet (complications, foot)	Diabetes nurse specialist
	Case studies	Group work: discussions with suggestions for solutions	All
	Preparations for the next session: case studies (nutrition and diabetes) and reading (nutrition in the national guidelines)	Work at home	Participants
3	Case studies	Presentation without discussing solutions	Participants
	Nutritional challenges • older people with diabetes • mentally ill people with diabetes • diabetes and dementia • older people living at home with diabetes	Educational session (slide presentation) • City of Oslo: www.oslo.kommune.no – nutrition and forms for nutrition registration • Norwegian Directorate of Health: www.helsedirektoratet.no – nutrition among older people and forms for nutrition history • Norwegian Diabetes Association: www.diabetes.no – fact sheet on nutrition • Norwegian Diabetes Association brochure (nutrition, type 1 and type 2 diabetes)	Clinical nutritional physiologist and diabetes nurse specialist
	Case studies Use of nutritional history forms	Group work: discussions with suggestions for solutions	All
	Preparations for the next session: case studies (insulin treatment) and reading (insulin treatment in the national guidelines	Study at home	Participants

(continued on next page)

Appendix 1. Topics, material, methods and responsibility for a programme comprising 5 educational training sessions

Session	Topic	Material and methods	Who is responsible?
4	Case studies	Presentation without discussing solutions	Participants
	Types of insulin Practical insulin treatment	• Norwegian Diabetes Association: www.diabetes.no – fact sheets, hypoglycaemia, hyperglycaemia • Educational session (slide presentation) • Insulin pens and needles for injection	Diabetes nurse specialist
	Insulin regimens	Brochures (practical insulin treatment with type 2 diabetes, Novo Nordisk)	Physician
	Briefly on hypo- and hyperglycaemia	Brochure on infiltrates (BD Medical)	Diabetes nurse specialist
	Case studies	Group work: discussions with suggestions for solutions	All
	Preparations for the next session: suggestions for local changes, views on improved collaboration (social services and the municipality)	Study at home	Participants
5	Challenges related to dementia and diabetes	Educational session (slide presentation)	Geriatric nurse
	Follow-up and collaboration – which tests are performed at the annual consultation and why?	Educational session (slide presentation)	Physician
	Nurse documentation	Presenting routines	Participants
	How can well-functioning multidisciplinary teamwork with physicians, social and health services, and other services be established?	Group work: discussions with suggestions for solutions	Participants

Appendix 1. Topics, material, methods and responsibility for a programme comprising 5 educational training sessions. *(Continued from previous page)*