A competency-based education project for secondary care nurses

Amanda Veall, Kim Bull

Inadequate diabetes knowledge among secondary care staff may lead to poor delivery of inpatient diabetes care. To counter this situation in their institution, the authors developed a competency-based education project to improve the knowledge and skills of secondary care staff. This article describes how the project was set up, and how it improved the self-reported knowledge of secondary care staff.

There is an emphasis and drive to ensure that nursing care is clinically effective (Dawson, 2001). Within diabetes care, an inadequate knowledge base among secondary care nursing staff has been identified, which has the potential to affect the standard of diabetes care delivery (Wamae and DaCosta, 1999). The implication of this is that diabetes care within the secondary care setting may not be clinically effective.

Houghton (2004) highlighted that diabetes knowledge among registered staff was poor, and when questioned about diabetes less than 50% were able to answer correctly. To improve the knowledge base of secondary care nursing staff within the field of inpatient diabetes care in their institution, the authors designed a competency-based educational project using self-directed learning packages (SDLPs).

Aims

The aim of this project was to assess the diabetes knowledge of the ward nursing staff and, via an educational package, improve their diabetes-related knowledge and skills. The authors also assessed whether the teaching sessions were suitable and appropriately structured, and whether the educational approach was a valuable method for improving knowledge.

Expected outcomes

The authors hoped that the education project would achieve the following:

- Competent nurses able to function to a defined level in diabetes care.
- Consistent evidence-based diabetes care in the clinical setting.
- Empowerment of nurses at all clinical levels.

Meeting these outcomes would reflect improvements in care for people with diabetes from the wards involved. This would be representative of the project being successful, as due to time constraints it was decided that these outcomes could not be formally audited.

Background

Diabetes UK (2009) estimates that there are now 2.5 million people in England with diabetes, with this figure predicted to increase to 4 million by the 2025. Worldwide, the incidence of diabetes is predicted to reach 377 million by 2030 (World Health Organization, 2008).

Diabetes UK (2008) also identified that the cost implications for the NHS are enormous. Up to 10% of total NHS resources are spent on diabetes care, with an average daily cost to the acute Trust of £215 per bed stay for a person with the condition. Furthermore, length of stay for people with diabetes can be

Article points

1. Literature suggests that inadequate diabetes knowledge in secondary care can affect the standard of care given.
2. A competency-based educational project using self-directed learning was designed to improve the knowledge of secondary care nursing staff within the field of diabetes inpatient care.
3. Competency-based learning can deliver improvements in diabetes knowledge and diabetes care given within the secondary care setting.
4. Self-directed learning is a valuable educational approach for improving knowledge.

Key words

- Competency-based learning
- Education
- Self-directed learning
- Inpatient diabetes care

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Page points

1. A competency-based educational project using self-directed learning was considered an appropriate approach to enhance and increase the diabetes knowledge base of secondary care nursing staff, and to have a positive impact on the quality of diabetes care.
2. Defining competency was important in describing what staff needed to do, what they needed to know, and the skills they required to carry out effective diabetes care.
3. The self-directed learning packages were arranged into four topic areas to reflect the competency descriptors (diet and lifestyle, medication, monitoring and complications), and comprised a variety of questions styles, including multiple choice, tick boxes and questions that required free text answers.

up to 1.8 bed days longer than people without the condition (National Diabetes Support Team, 2008); therefore, the impact of diabetes on NHS resources, both at a national and local level, is considerable.

The National Service Framework (NSF) for diabetes (Department of Health [DH], 2001) states that "during admission to hospital people with diabetes will receive effective care of their diabetes", while previous work within diabetes education (Wamae and Da Costa, 1999) effectively demonstrated that a lack of basic diabetes knowledge among non-specialist nursing staff had a negative effect on the diabetes care received. It was therefore decided that an educational project to improve the diabetes knowledge base of nursing staff would be an appropriate approach to help address Standard 8 of the NSF for diabetes (DH, 2001) at a local level, within the authors' NHS Trust.

Previous research

McDonald et al (1999) showed that nurses perceive that they need further education to improve the quality of care that they deliver to people with diabetes. Speight and Bradley (2001) considered that deficits in basic diabetes knowledge among healthcare professionals could lead to deficits in people with diabetes' knowledge of how to manage their condition.

Previous research into methods of education for staff involved in caring for people in high-risk groups suggests that there may be limited evidence to guide staff education schemes (Bee et al, 2005). Supported learning in the workplace, however, needs to be integrated into clinical practice (McCormack and Slater, 2002).

Self-directed learning is a flexible method of learning, and is essential in assisting nurses to meet the challenges in today's healthcare environment (O'Shea, 2003). However, the downside can be isolation and it may not be suitable for all (Wilkinson et al, 2004).

Due to a demanding workload, financial constraints and staffing shortages in the authors' Trust, it was difficult for staff to attend study days. The methods of supported self-directed and work-based learning were, however, viewed by the Trust as accessible alternatives to formally taught study days for improving diabetes knowledge. A competency-based educational project using self-directed learning was therefore considered an appropriate approach to enhance and increase the diabetes knowledge base of secondary care nursing staff, and to have a positive impact on the quality of diabetes care.

Delivery of the project

Protected time was allocated to the authors for the implementation of the project. Collaborative working over a period of 4 months within the diabetes team and the practice development department resulted in the definition of four competency levels (1–4). These defined the level of competency expected for healthcare support workers, registered nurses, experienced registered nursing staff and specialist nurses (*Table 1*). These are similar to competency levels in the career and competency framework for diabetes nursing (Diabetes Nursing Strategy Group and Royal College of Nursing, 2005).

In turn, competency descriptors (*Table 2*) based on the four topics of diet, medication, monitoring and complications of diabetes were written for each of the four competency definition levels. Defining competency was important in describing what staff needed to do, what they needed to know, and the skills they required to carry out effective diabetes care. Competency frameworks are advocated by Skills for Health (2009) as tools to aid individuals and organisations in improving performance and identifying individual professional development needs.

Diabetes care SDLPs were subsequently devised to achieve competency attainment according to the competency descriptors (SDLPs levels 1–4). The packages were arranged into four topic areas to reflect the competency descriptors (diet and lifestyle, medication, monitoring and complications), and comprised a variety of questions styles, including multiple choice, tick boxes and questions that required free text answers. All SDLPs are evidence-based and are planned to be reviewed on an annual basis. References

to books, literature and websites are listed in the package to assist with completion and knowledge improvement.

Four wards were identified within the secondary care Trust to implement the project. These wards cared for a high percentage of people with diabetes: an endocrine ward, the vascular surgery ward, the cardiology ward and the medical admissions ward. Meetings were arranged with the ward managers to discuss the SDLPs and facilitate the aims of the project. Agreement was sought from the ward managers to allow staff to take part in the project, and the timescale for completion for their individual ward area. Educational resource requirements for each project area were agreed as:

- Ward-based teaching sessions to support the SDLPs.
- Current diabetes literature.
- The diabetes inpatient specialist nurse (DISN) to work with the nurses on the wards to help facilitate learning, free-up their time, and identify individual learning needs.

The current knowledge base of the staff on the first project ward was assessed using a self-assessment tool. This established individual staff members' perceived knowledge base, and the final competency level they wished to achieve.

On completion of this initial self-assessment, either individual teaching sessions or small group teaching sessions within the ward environment were delivered. These sessions involved each area of the SDLPs. This allowed specific individual learning requirements for individual members of the ward staff to be met.

Having completed the initial assessment and teaching sessions, the ward nursing staff were encouraged to complete the SDLPs. All staff members were encouraged to commence at level 1, despite their own initial competency assessment, as the packages had been designed as stepping stones, with each level building on the previous one until the desired competency level has been reached.

The completed SDLPs were returned to the DISN team for assessment, marking and comments. These were benchmarked against agreed collaboratively written and referenced answer packs to maintain standards and consistency with marking. Correctly completed SDLPs with answers corresponding to the answer packs were returned to staff members for inclusion in professional portfolios. Any incorrectly completed packs were returned with comments directing the person to further educational resources such as websites, journals, books and allied healthcare professionals. This enabled staff to review and update their answers using these resources to facilitate successful completion. They were then asked to resubmit the amended packs for further assessment and marking. An electronic database of completed SDLPs was compiled for the DISN and ward managers' reference, and for future audit.

Table 1. Competencies expected of healthcare support workers, registered nurses, experienced registered nursing staff and specialist nurses.

Competency is usually perceived to require both skills and knowledge. The Nursing and Midwifery Council (2004) state that: "To practise competently, you must possess the knowledge, skills and abilities required for lawful, safe and effective practice without direct supervision."

Level 0:

- Not in possession of specific knowledge related to the skill.

Level 1:

- Expected of a healthcare support worker, technician or other support staff who have undertaken training in the skill.

Level 2:

- Expected from any registered nurse that has acquired competency through experience.
- Able to provide guidance for colleagues developing knowledge.

Level 3:

- Expected of a nurse who is experienced in caring for people with diabetes and has undertaken an advanced educational programme.
- Able to provide education and assessment for colleagues.

Level 4:

- Expected of a clinical nurse specialist or specialist practitioner working in the field of diabetes care.
- Able to provide support for treatment regimens, education and training to people with diabetes and colleagues.

All levels are expected to maintain equipment safety, minimalise patient risk and adhere to local/national policies and procedures (such as infection control and blood transfusion).

Table 2. An example of a competency descriptor (monitoring) for the self-directed learning packages.

Level 1

Staff will demonstrate that they have:
- An understanding of the Trust's blood glucose monitoring policy (including sharps disposal)
- An understanding of normal parameters of blood glucose and the importance of reporting results to the person's named nurse.
- An understanding of urine results pertinent to diabetes, for example ketone or proteinuria levels.

Staff will be able to:
- Demonstrate their skill through regular use of blood glucose monitoring equipment.
- Demonstrate their ability to test urine using strips and to accurately record results.

Level 2

Staff will demonstrate that they have:
- A knowledge of normal parameters of blood glucose and diagnostic criteria.
- A knowledge of sharps disposal policies.
- The ability to compose individual monitoring plans for people with diabetes.

Level 3

Staff will demonstrate that they have:
- A basic knowledge of various blood glucose meters and be able to demonstrate their use.
- Knowledge of which products are available on prescription.
- Knowledge of target levels for blood pressure and lipids.
- Knowledge of HbA_{1c} ranges and their implications for control and complications.
- The ability to interpret trends in blood glucose levels.

Level 3

Staff will demonstrate that they have:
- A working knowledge of all available meters and test strips.
- The ability to advise monitoring regimens for special situations, for example illness.
- The ability to interpret HbA_{1c} results in relation to diabetes control.

Project outcomes

Thirty-six staff (25 registered staff and 11 healthcare support workers) completed the initial self assessment from the first project ward. A total of 43 SDLPs were completed from both staff groups (*Figure 1*), with some staff completing more than one competency level pack. Thirty-five SDLPs were returned from registered staff and eight from healthcare support workers.

Having undertaken the competency-based educational project and completed the SDLPs, the staff on the first project ward were asked to reassess their knowledge base using the individual self-assessment competency tool that they had completed at the outset of the education project.

Analysis

Registered staff

- Eleven staff increased their competency by one level.
- Three increased their competency by two levels.
- Eight continued on the same competency level but consolidated knowledge.
- Six did not complete.

Healthcare support workers

- Seven increased their competency by one level (to the level expected for support workers).

- One continued on the same competency level but consolidated knowledge.
- Three did not complete.

These returned self-assessments demonstrate that there had been an improvement in diabetes knowledge among the staff. Additionally, staff were requested to complete an anonymous questionnaire following the teaching sessions to evaluate them. These questions were based on a Likert-scale format and included rating of the teaching method, presentation and delivery and staff confidence.

Analysis of the results (*Table 3*) showed that:

- The teaching method was highly rated.
- The information was clear and well presented.
- The method of delivery enabled engagement and participation.
- The teaching and education programme was appropriate and suitably structured.
- SDLPs were considered an appropriate educational tool to build knowledge.
- Staff considered that they were more confident in their work.

There were no negative comments noted in the feedback questionnaire.

Unplanned outcomes

During the education project it became apparent that there was a growing interest from other clinical departments in improving diabetes knowledge, so it was decided to make the tool widely available in the authors' Trust. The SDLPs were made available to download and print via the healthcare community intranet and the diabetes centre website, opening the educational project to all areas of the Trust's healthcare community. Regular diabetes awareness education sessions were initiated as a rolling programme, held within the practice development department to support the SDLPs. These sessions were delivered by the DISN. Two levels of sessions were delivered:

- Diabetes awareness level one – supported the knowledge base to successfully complete SDLP levels 1–2.
- Diabetes awareness level two – supported the knowledge base to complete SDLP levels 3–4.

Within the first year of the increased availability of the SDLPs and the educational sessions, 171 packages were completed. Once the project period had come to an end, the DISN team continued with this educational approach as it was recognised as a valuable educational strategy by both the DISN team and attendees. This was then incorporated into the DISN role.

Protected time for this activity ceased, however, meaning the DSN could not work with staff on the wards and was required to return to their previous clinical role. As a result, the response rate of completed SDLPs in subsequent years was initially reduced, but to-date remains constant (*Figure 2*).

Page points

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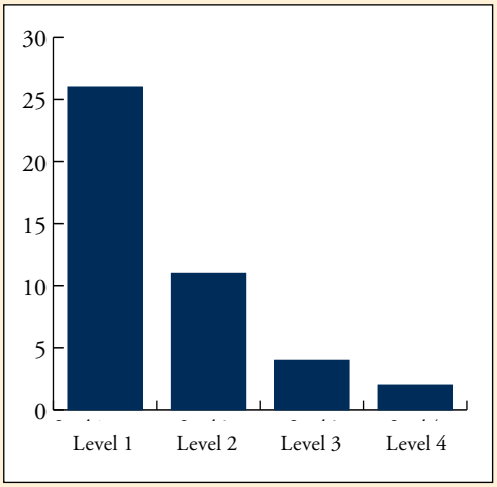

Figure 1. Number of self-directed learning packages returned by registered staff at each level.

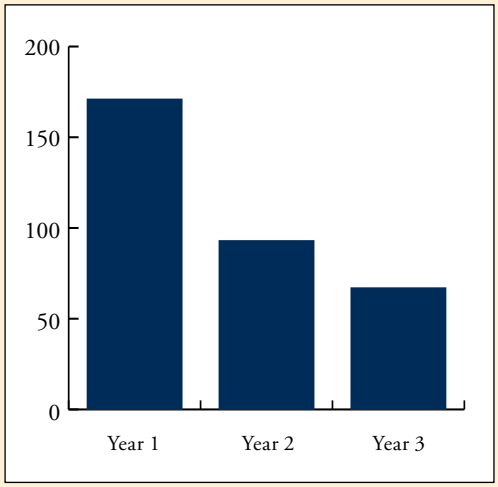

Figure 2. Number of self-directed learning packages completed.

Limitations

The limitations of this project are:

- The use of the self-assessment tools to assess and then reassess knowledge base. These can be subjective and it may have been advantageous to have used objective data collection tools.
- The use of non-validated questionnaires, which may have introduced bias to support the evaluation of the project.

Table 3. Results of the questionnaire evaluation.

How would you rate the teaching method on a scale of 1–10?
- 70% rated the teaching method at level 10.
- 10% rated the teaching method at level 9.
- 30% rated the teaching method at level 8.
- 0% rated the teaching method at level 7 or less.

Information given was well presented and clearly laid out.
- 90% strongly agreed.
- 10% agreed.
- 0% disagreed.
- 0% strongly disagreed.

The method of delivery enables me to engage and participate.
- 90% strongly agreed.
- 10% agreed.
- 0% disagreed.
- 0% strongly disagreed.

The teaching session was appropriate to my work and suitably structured.
- 100% strongly agreed.
- 0% agreed.
- 0% unsure.
- 0% disagree.
- 0% strongly disagree.

I found the SDLP a useful tool to build on my knowledge base.
- 60% strongly agreed.
- 40% agreed.
- 0% unsure.
- 0% disagree.
- 0% strongly disagree.

Following the educational programme I am more confident in my work.
- 80% strongly agree.
- 20% agreed.
- 0% unsure.
- 0% disagree.
- 0% strongly disagree.

Discussion

The results of the diabetes education project demonstrated an improvement in self-assessed diabetes knowledge and that the teaching sessions were appropriate and suitably structured. In addition, supported self-directed learning and teaching sessions were shown to be effective methods of education for improving staff knowledge. There is, however, still a requirement to demonstrate improved patient outcomes due to the increased knowledge of the nursing staff. Future work will need to focus on:

- Assessing the quality of diabetes care.
- Using information technology to update the self-directed packs to an e-learning format.
- Continuation of the updating and marking of the SDLPs.

Conclusion

Using a competency-based education project such as this may go some way to meet the recommendations of the NHS "Think Glucose" campaign (NHS Institution for Innovation and Improvement, 2008).

Improvements in the diabetes knowledge base of staff should lead to improvements in patient care (Deakin and Littley, 2001); however, to ensure this there is a continuing need for the project work to continue, which will have financial implications for the Trust. ■

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