

Distance learning for patients with diabetes

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Introduction

Diabetes education should increase knowledge, enhance skills and attitudes, improve quality of life and prevent complications associated with the disease (Hicks, 1999). However, with around 3% of the UK population having diabetes, (Audit Commission, 2000) this presents an enormous task for the educators. The National Service Framework (NSF) for Diabetes delivery strategy (2002) clearly indicates the need for a structured approach to education of people with diabetes to facilitate self-care. Indeed, Standard 3 of the NSF is aimed specifically at empowering people with diabetes to take control of their own lives. Distance or 'open' learning may provide the answer to reaching such a large audience with relatively few educators.

A substantial number of diabetes patients receive little or no education on diabetes – this is a popular argument heard today. Similarly, many patients are given confusing or conflicting advice by professionals, leaving them disillusioned and unsure of the way forward. One-to-one education is time-consuming and impossible to carry out with every person with diabetes. Group education sessions are helpful (if there are rooms available), but not all patients are able, or want, to attend the sessions on a regular basis. Rankin and Stallings (1990) state that:

'Feeling powerless is perhaps the most devastating aspect of illness for a patient. Patient education is the most effective means of returning control to the patient by reducing feelings of helplessness and enhancing the ability to be the chief decision maker in the management of one's health and illness problems.'

So what is the answer? How can healthcare professionals provide a comprehensive programme of education to as many people as possible, with limited resources and manpower? How can we ensure that all patients are given the same access to information and understand it? A possible answer lies in distance learning.

What is distance learning?

Distance learning has long been recognised as an effective and flexible way of delivering education to those who are unable to attend a learning centre on a regular basis, allowing individuals to take more responsibility for their own learning (Murphy, 1995). However, the use of distance learning in relation to patient teaching has been limited.

Robinson and Clarke (1992) argue that 'open' learning provides the learner with some degree of control over the learning content, with technology providing the primary teaching medium, thereby allowing the learning to take place away from the education centre.

In contrast, Rumble (1989) suggests that 'open' learning is where the learner sets his own objectives, determines the learning content and negotiates the provision of services to help.

The terms 'distance' and 'open' learning, have tended to be used interchangeably. For the purposes of this article we have chosen to use the term 'distance learning' in keeping with Murphy's definition (Murphy, 1995). With regard to the use of such a system to educate patients with diabetes, we suggest that it needs to have all of the following qualities:

- Flexibility – so that patients may choose to study whichever parts of the

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1 Distance learning delivers education to those who are unable to attend a learning centre, and allows individuals to take more responsibility for their own learning.

2 Baseline understanding and assessment of learning can be built into open learning packages for patients to monitor their own learning and for health professionals to check patients' understanding and progress.

3 The system should be flexible and objectives should be negotiated and set by patients.

4 Feedback on learning is an important part of the learning process, enabling patients to check their progress and revisit areas where they may need additional help.

KEY WORDS

- Distance learning
- Flexibility
- Self-management
- Patient empowerment

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Table 1. Modules for the learning package

Diabetes – what I need to know	Content of programme
What is diabetes?	Causes, types, symptoms, who is at risk? Treatments
Healthy eating Healthy eating Tablets for diabetes and others Insulin treatment	Principles of healthy eating. Balancing carbohydrates, guidelines, celebration, obesity Oral hypoglycaemic agents, metformin, other associated drugs, obesity drugs a) Insulins: types, regimens, function of insulin, storage, pen devices, safe disposal of sharps b) Adjusting: how to adjust doses, when, why insulin?
Monitoring my diabetes	Blood glucose testing, urine testing, laboratory tests, interpreting and acting on test results
Hypoglycaemia: low blood glucose Hyperglycaemia: high blood glucose and illness Pregnancy	Causes, signs, symptoms, treatment, prevention, when to seek help Causes, signs, symptoms, treatment, prevention, when to seek help Preconceptual care, diabetes control, hospital appointments, antenatal, perinatal and postnatal care
Illness/surgery	Effects on the body/blood glucose control, what to do, when and why, how to avoid problems
The long-term complications of diabetes Living with diabetes	What are they, why do they occur? Prevention, when to seek help Work/school, exercise, driving, insurance, holidays, smoking, preventing problems, self-help groups, Diabetes UK

curriculum they wish, and in whichever order they wish.

- Objectives that are negotiated or set by the patients themselves.
- A learning environment in which the patient feels most comfortable.

Why change from existing methods?

A survey by Raleigh and Clifford (2002) has clearly demonstrated that significant numbers of people are not well informed about their diabetes and many are not receiving any education. To some extent this may be due to lack of organisation or shortage of resources on the part of health professionals, resulting in a failure to deliver education to those in need.

However, Raleigh and Clifford (2002) found that while patients want more information, many are reluctant to attend group education sessions. This is supported by Cooper et al (2002) who found that only 40% of patients who were asked to participate in educational workshops were willing to take part. The reasons for non-participation included lack of time and lack of interest.

Fletcher (1987) points out that increasing knowledge does not necessarily lead to a change in behaviour, and Hampson (1997) suggests that people need to be convinced

of the personal benefits of change. Developing a package that enables people to tailor learning to their individual need may be one way of going beyond simply enhancing knowledge and helping people to recognise the significance of learning about diabetes in relation to their own lives.

As an alternative to simple information giving, Goodall and Halford (1991) found that behavioural interventions with patients with type 2 diabetes failed because supervision and reinforcement were necessary to maintain change, which is time-consuming for health professionals. Additionally, Brown (1992) found that changes brought about by education fall off after about 6 months, and suggested that we need to be more creative in the way we teach patients.

When patients are newly diagnosed with diabetes, time for education is often limited and a variety of information is 'given' to the patient on the 'need to know' basis from a safety point of view. However, one could ask who this is designed to protect. Having 'given' the information, can it then be deemed the patient's responsibility if something goes wrong? Furthermore, patients' perceptions of diabetes based on personal experiences and understanding of the imparted facts are rarely checked out.

Baseline understanding and assessment

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1 Increasing knowledge does not necessarily lead to a change in behaviour. People need to be convinced of the personal benefits of change.

2 Supervision and reinforcement are necessary to maintain change.

3 Time for education of newly diagnosed patients is often limited and safety oriented.

4 Patients' perceptions of diabetes based on personal experience and understanding of the imparted facts are rarely checked out.

Think back to the last time you experienced a 'hypo' attack:

- How did you feel at the time?
- How did you treat your 'hypo'?
- Did you need help from anyone else?
- How long did it take you to recover fully?
- What were you doing/what was happening in the time leading up to your 'hypo'?
- Looking back, could you or should you have done anything differently?

KEY MESSAGES

What have you learned from this experience?

List the key points that may help you to prevent hypoglycaemia in the future.

Figure. 1. Self-reflection exercise on hypoglycaemia.

of learning can easily be built into distance learning packages, both for patients to monitor their own learning and for healthcare professionals to check understanding and progress.

Self-assessment questionnaires (SAQs) could be used to achieve this. For example, the module on hypoglycaemia could open with SAQs asking patients to write down what they think a 'hypo' is, how they might recognise one and what they would do in the event of experiencing an attack. Each question could contain a reference indicating where in the module they would find the answers. This would be a useful baseline for patients as they would then know whether to work through the package as a whole or just refer to specific sections.

Assuming that patients are working through the package with the support of a health professional, this would also provide a useful check on what patients already know and whether their understanding is accurate.

Finally, distance learning packages promote the idea that patients are responsible for their own learning. This ties in with the notion of increased self-management and the need for patient empowerment suggested by Coates and

Boore (1995) and endorsed by the recent Audit Commission Report (2000).

The proposal: how can distance learning be put into practice?

In order to be useful to both patients and professionals, education needs to be delivered systematically, but in a flexible, meaningful way that suits the busy schedules of the patient and healthcare professional.

A flexible system

This can be achieved by developing discrete units of learning relating to key aspects of diabetes self-management (Table 1), which can then be offered to the patient as a 'learning package'. Patients can then decide in which order they wish to work through the units and work at their own pace, when and where they choose.

Objectives need to be negotiated and set by patients themselves

When dealing with adults we need to consider what motivates them and how they learn. Knowles (1984) suggests that adult learners:

- Have experience that is relevant to new learning.
- Have the motivation to learn, which is internal and based in a need for self-esteem.
- Have a readiness to learn, which is related to their perception of a need to learn.
- Are capable of self-direction and have the ability to take responsibility for their own learning.
- Have learning experiences that are life-centred and based around problem solving.

Units of learning can be designed to be flexible enough to be tailored to individual users in a number of ways:

- People can negotiate the level at which they wish to learn. For example, a unit about 'hypoglycaemia' may include information on what it is, the causes and the effects on the body, how to recognise warning signs, and what to do in the short and long term to deal with 'hypos'. The package can allow both simple and in-depth needs and concerns to be addressed.
- The method of learning can also be

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1 We need to consider what motivates adults and how they learn.

2 Adults have an internal motivation to learn, based in a need for self-esteem.

3 Adults will have learning experiences that are life-centred and based around problem solving.

4 The level at which patients wish to learn and the method of learning can be negotiated.

Read the case history below, and then attempt to answer the questions:

Jack is 63 years old and has had type 2 diabetes for 10 years. He has recently been transferred from tablets to insulin therapy to improve his diabetic control. At the moment Jack's blood glucose levels are usually between 4.5 and 8mmol/l on 48 units of Mixtard 30 insulin taken before breakfast and 26 units of Mixtard 30 taken before his evening meal. Last weekend the weather was very warm so Jack decided to do some work in the garden. He got up earlier than usual, around 7am, checked his blood glucose level, which was 6.3mmol/l, took his normal insulin and had breakfast which consisted of bran flakes and one slice of toast. He then set to work in the garden. Jack worked hard all morning, mowing the lawn, digging the borders and packing the rubbish into sacks. He then started on the hedges. He was about half-way through when his wife called him to say it was about time he had something to eat as it was getting rather late. Jack was amazed to see that the time was almost 2.30pm. He downed tools immediately and went in for his lunch. He was halfway through his sandwiches when he started to sweat profusely and shake uncontrollably. He had difficulty in checking his blood glucose level, but found it to be 2.1 mmol/l.

QUESTIONS

1. What should Jack do now?
2. What factors led to Jack's blood glucose dropping so low?
3. Could Jack have prevented this particular hypo happening?
4. If so, how?

1. What is hypoglycaemia or a 'hypo'?
 2. How would you recognise a 'hypo' starting?
 3. What causes hypoglycaemia?
 4. How would you treat a 'hypo'?
 5. How can you prevent 'hypos' occurring in the first place?
 6. What might happen if you had a severe 'hypo'?
 7. How can a severe 'hypo' be treated?
 8. What should you do when you have recovered from a 'hypo'?
- (Answers would be provided at the back of the hypoglycaemia module)

Figure 3. Example of self-assessed questionnaire on hypoglycaemia

Figure 2. Problem-solving exercise on hypoglycaemia.

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1 Feedback on learning is an important part of the learning process.

2 Opportunities for patients to discuss daily problems, issues and difficulties can be offered in 'open forum' sessions or in a more confidential setting.

3 Developing personal action plans check patients' understanding while working towards common goals for treatment.

negotiated within a distance learning package. Using the example of hypoglycaemia again, some people may be satisfied with basic information, while others may prefer to read further or search the internet for information. Useful contacts and websites can also be suggested.

- Linking knowledge to the patient's own experience may be another useful strategy. Some patients may find it useful to reflect on their own experiences. They can then be encouraged to consider either what they need to learn, or how to use the knowledge they have gained to prevent or deal with similar circumstances in the future (Figure 1).
- For those who have not experienced hypoglycaemia, their understanding of the concept can be checked by giving them hypothetical scenarios to work through. Patients can then choose to 'problem solve' situations that are most appropriate to their own life circumstances (Figure 2).
- Feedback on learning is an important part of the learning process (Quinn, 1997). Quizzes and self-assessment questionnaires

(Figure 3) may be useful additions to distance learning packages, enabling patients to check their progress and revisit areas where they may need to further their understanding or seek help.

- Opportunities for patients to discuss how they have dealt with day-to-day problems, and any issues or difficulties arising from the distance learning packages, can be offered on a group basis with regular 'open forum' sessions. Alternatively, concerns raised by patients can be discussed in a more confidential setting, e.g. at regular follow-up appointments with the practice nurse or by arrangement with other appropriate professionals.
- Developing personal action plans may be another way of checking understanding while working with patients towards common goals for treatment in accordance with Standard 3 of the National Service Framework (NSF) for Diabetes (Department of Health, 2001). This could be used as a basis for negotiation with the health professional and kept as part of the patient record to demonstrate how a plan of care has been decided.

Evaluation

Evaluation of the package has two elements: evaluation of learning by the patient and evaluation of the package itself.

Evaluation of learning

This can be achieved by encouraging patients to:

- Return SAQs by post, or discuss their answers with a named individual responsible for coordinating their education.
- Attend open forum/discussion groups to share learning.
- Develop and keep their own management plan based on learning from the package in partnership with health professionals.

All of these methods enable health professionals to monitor progress and identify potential gaps in learning.

Evaluation of the package

Evaluation of the package can include:

- Taking the package to local self-help groups and the local diabetes advisory group for comment and feedback from potential users.
- Piloting the package with a small number of patients to identify any problems with its use.

A questionnaire (and self-addressed envelope) would be enclosed asking people for suggestions and comments on what they found most or least helpful.

Resource Issues

Writing distance learning packages is time-consuming. Apart from producing information that is already available from a variety of sources, there is the added dimension of packaging it in a comprehensive fashion and developing SAQs, quizzes, reflective exercises and problem-solving scenarios to aid self-directed learning for a wide range of people.

Pilot packages can be developed in-house at a relatively low cost, but to be taken seriously the final version needs to have a 'professional' appearance. The expense that this entails could be offset to some extent by the likely reduction in time spent by health professionals dealing with daily issues that could be managed

by appropriately educated patients. Also, money to support the development of the package could be sought from commercial companies who currently supply patient education leaflets.

Conclusion

There is no doubt that, with the predicted increase in numbers of people with diabetes and the shortfall in healthcare resources and manpower, a change in the way we educate people has to take place. We believe that distance learning may provide a successful workable alternative. ■

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2 Money to support the development of the package could be sought from commercial companies who currently supply patient leaflets.