ThinkGlucose at an acute hospital – a "roller-coaster" project

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Article points

1. The project adopted a multidisciplinary approach, encompassing all aspects of the national ThinkGlucose programme.
2. In order to assess the benefits of ThinkGlucose, a number of measures were selected using the toolkit as a guide.
3. There is now a network in place of more than 40 link nurses.
4. The project has been well received and improvements in inpatient care have been observed as a result.

Key words

- Inpatient care
- Multidisciplinary approach
- ThinkGlucose

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ThinkGlucose is a national programme, launched in 2009, designed to improve inpatient care for people with diabetes. Derby Hospitals NHS Foundation Trust has introduced and rolled out a ThinkGlucose project over a 2-year period. The project adopted a multidisciplinary team approach and encompassed all aspects of the ThinkGlucose national programme. In this article, the author identifies the challenges faced by the ThinkGlucose team and the improvements seen as a result.

The focus on inpatient care for people with diabetes was published by the NHS Institute for Innovation and Improvement as best practice guidance in March 2008 (NHS Institute for Innovation and Improvement, 2008). It was reported that at any one time, at least 10% of inpatients in the UK have been diagnosed with diabetes and, in some high-risk groups, this may be as high as 25%. Moreover, inpatients with diabetes stay in hospital for up to 2.6 days longer than inpatients without diabetes, despite being admitted for the same procedures, and a substantial minority encounter significant problems with their care (NHS Institute for Innovation and Improvement, 2008).

The Derby Hospital Foundation Trust (DHFT) is an acute foundation trust with approximately 1120 beds and currently has a 1.0 whole-time-equivalent (WTE) diabetes inpatient specialist nurse (DISN). The author was a senior sister on a medical ward specialising in diabetes. Through working closely with the diabetologists, it became apparent to the author that there were issues with inpatient care for people with diabetes across the hospital, including poor staff knowledge of diabetes, a lack of support for self-management of diabetes, medication errors and restricted menu choices. Within the diabetes department, the potential merits of the ThinkGlucose programme for the trust were discussed and one of the medical consultants agreed to champion a project. External funding was pursued and secured by the author for a 9-month secondment to the diabetes team, with a focus on leading the ThinkGlucose project. Together with the substantive DISN, the author attended a launch meeting for ThinkGlucose.

Forming the team

Equipped with the ThinkGlucose toolkit, the medical consultant and author gained trust executive level support for the project from the medical director and director of nursing. At this point, the project management office (PMO) was contacted and work on the ThinkGlucose project began.

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Weekly progress meetings were held with a core team comprising:

- Project lead (the author).
- Diabetologist.
- PMO team members.
- Senior pharmacist.
- DISNs.
- Diabetes specialist dietitian.

Whilst the author worked full–time as the project lead, other team members provided their specialist input as and when required for the project so as not to incur additional costs.

Starting out

The team believed there had to be a clear focus on patient experience to guide any plans to improve patient care. As part of the initial planning, people with diabetes were invited to attend a meeting and discuss their experiences of inpatient care. The feedback indicated a general feeling of loss of control, concerns that the staff did not have sufficient expertise in diabetes, and a lack of knowledge in regard to the care to expect whilst in hospital. There also appeared to be fear and anxiety at the prospect of visiting the hospital.

As a result of this meeting, an information leaflet was developed detailing what care people with diabetes should expect in Derby hospitals, reflecting the Diabetes UK document published in 2009 (Diabetes UK, 2009). This leaflet is now given to all inpatients with diabetes.

Additionally, it was decided that the staff should be encouraged to appreciate the anxiety amongst patients regarding hospital stays. Therefore, consent was obtained from a number of patients to participate in the creation of a patient experience DVD. The footage proved to be very powerful and is now used as a teaching tool.

Developing the ThinkGlucose project

The toolkit was used as a guide for developing the ThinkGlucose project. It was agreed that all aspects of the national project, involving all members of the core team, would be adapted to develop the local ThinkGlucose project. The project was planned using the concept of the progression through five phases of a project life-cycle, including: project launch; project planning; project development; project implementation; and project closure (Projelogic, 2008).

At weekly progress meetings, the pilot of ThinkGlucose was planned. Several different modes of communication were used to publicise the project, and education resources were designed and developed.

The initial pilot of the education was planned for two trauma and orthopaedic wards. The rationale for this was that, whilst the potential for improving quality of care was without question, to ensure ongoing support, the project had to also demonstrate financial savings. Thus, it was felt that trauma and orthopaedic wards were the ideal venue for determining whether improving staff knowledge of diabetes could reduce the length of stay (LOS) in hospital for people with diabetes.

The first education sessions took place in March 2010, approximately 3 months after the author took up the secondment.

Measures

In order to assess any benefits of the ThinkGlucose project, a number of audits were completed to provide baseline measures. The measures were selected to reflect local circumstances and included:

- Medication errors.
- Use of the self-administration policy in relation to diabetes medications.
- Staff knowledge of diabetes using pre- and post-education questionnaires.
- Audit of coding of diabetes as a co-morbidity.

See *Box 1* for the baseline data gathered for these measures.

Delivering the nursing education

It was decided that a multi-module approach to nursing education delivery would be most appropriate and, initially, six different 15-minute education sessions were developed, covering the basics of diabetes care (see *Table 1* for a list of the sessions).

After consultation with senior sisters and ward matrons, it was decided that the

For an article examining the launch of the ThinkGlucose national programme in more detail, see: JDN 16(2): 48–56

Table 1. Core nursing education sessions.

Module number	Module description
1	What is diabetes?
2	Monitoring
3	Oral hypoglycaemics
4	Insulins
5	Sliding scale
6	Hypoglycaemia

optimum time to gain access to staff was during their handover period (early to late shift). To maximise the use of this time, both the author and the DISN delivered the sessions. Support for the training was also received from the clinical educators assigned to the wards. The education was planned to run over a 6-week period with a different session each week. These were presented using a laptop computer and usually delivered in the ward or staff room. The short, sharp nature of the education sessions enabled repeats of each session several times, ensuring maximum uptake. The staff fed back that this method helped them retain the information and maintain their interest in the education. Furthermore, uptake for the sessions was high owing to the convenience of the sessions being held at the wards.

The plan was to train at least 75% of staff on each ward in the ThinkGlucose modules. This measure was to form one of the key performance indicators (KPIs) of the project. On the two pilot wards, 77% and 78% uptake was achieved, respectively. On completion of all six modules, the knowledge questionnaire was repeated and the results indicated a 55% improvement in staff knowledge following the sessions. A total of 17 members of staff completed an evaluation form, indicating that:

- Eighty-eight per cent felt that the education met their expectations.
- Eighty-two per cent felt the sessions were enjoyable.

Specific comments included that the sessions were "short and to the point" and "easy to take in." Overall, it was clear that the staff felt more confident in dealing with diabetes.

Alongside the education for nursing staff, the pharmacist developed and delivered diabetes training for all levels of pharmacy staff. The consultant developed and delivered diabetes training to form part of the induction of doctors and this was also measured using pre- and post-knowledge questionnaires.

The diabetes specialist dietitian assisted in educating fellow dietitians and supporting the author to deliver training in diabetes and dietary management to ward housekeepers, hostesses and nutrition assistants. This dietetic education was vital to removing the label of "diabetes" from the hospital menu and allowing people with diabetes to choose freely during their stay.

Box 1. Initial assessment prior to the roll-out of the ThinkGlucose project (baseline data).

Medication errors

Over a 4-week period during which there were 16 patients and 28 prescriptions for diabetes medication, the following data were recorded:

- 36 errors = 1.3 per script (33 were prescribing errors)
- 32% of the errors were classified by the pharmacist as significant

Self-administration of medication

- Assessment completed: Yes = 0%; No = 100%
- Evidence of self-administration: Yes = 30%; No = 70%

Nursing staff knowledge

On the basis of 40 questionnaires that were completed (80% of the total issued):

- 50% would omit insulin if the patient is not eating
- 25% would omit insulin if the patient is vomiting
- 25% thought insulin could be given orally
- 35% would proceed with an oral treatment for hypos to an unconscious patient
- 82.5% would discontinue variable rate intravenous insulin when the patient is eating and drinking but only 25% highlighted recommencing subcutaneous insulin infusions
- 62.5% thought that the diet of people with diabetes should be free of sugar

Coding

- 7 out of 60 of the patients with diabetes audited had not been coded for diabetes (this had a direct effect on the income generated for those particular patient stays)

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1. The ThinkGlucose team continued formal weekly meetings to assess the progress of the nursing education delivery and plan the next steps.
2. The length of stay for people with diabetes compared with that of people without diabetes was an important measure of the success of diabetes inpatient care.
3. A diabetes sticker, to be placed on patient notes, was designed and introduced in order to highlight diabetes diagnosis and aid accurate coding.

The roll-out

Following the pilot, a plan of the proposed roll-out across all 40 inpatient wards was produced. This was constructed in the form of phases, each of which would include between two and four wards, depending on staff numbers. A 10-week period was identified for each phase allowing for 2 weeks of planning, 6 weeks of education delivery and 2 weeks of post-education measures, as well as additional sessions to ensure maximum uptake. In total, the plan indicated that the initial roll-out would be complete by 31 March 2012.

Throughout the project, the ThinkGlucose core team continued formal weekly meetings assessing the progress of the nursing education delivery and planning the education for all the other staff involved in inpatient care. The method to be used for measuring the LOS for inpatients with diabetes was established and any improvements in factors, such as the LOS, resulting from staff education were identified.

The team pharmacist conducted pre- and post-education audits of medication errors, which proved very encouraging showing a 56% reduction in significant medication errors and an 83% increase in the number of prescriptions with no errors. These results reflected the multidisciplinary educational approach to the ThinkGlucose project in the DHFT. An issue highlighted in the pre-project measures was failure to code diabetes correctly, resulting in a loss of income to the trust.

Figure 1. Poster used to publicise the project within the hospital, with details of the first nursing education session.

A diabetes sticker, to be placed at the front of the patient's medical notes, was designed and introduced to highlight diabetes diagnosis and aid accurate coding, and education was provided for ward receptionists and coders.

In November 2010, the author coordinated the National Diabetes Inpatient Audit at the Royal Derby Hospital (part of the DHFT). This reflected the inpatient care that was being provided in the very early stages of ThinkGlucose. When the results of the audit were released nationally, the local press reported that the care given to inpatients with diabetes was in some areas below the national average. The diabetologist on the team was able to respond, informing the general public that the ThinkGlucose project was in progress at Derby hospitals. The results from the 2011 Inpatient Audit are now available, indicating significant improvements in inpatient care as a result of ThinkGlucose.

The education sessions for nurses continued through the different phases and, whilst the core sessions were promoted (see *Figure 1*) and delivered in all areas, the ThinkGlucose team produced individualised sessions for the following specific areas:

- Medical admissions unit and medical wards – diabetes emergencies, diabetic ketoacidosis and hyperosmolar hyperglycaemic state.
- Oncology and respiratory wards – the effect of steroids on diabetes.
- Surgical admissions unit and surgical wards – the use of variable rate intravenous insulin infusions pre-, peri- and post-operatively.

During the planning stage of each phase, the author liaised with the ward sisters, introducing them to the ThinkGlucose project and deciding on a tailored approach for each individual area.

At the end of the education delivery in each ward, a registered nurse was identified to act

as a link to the inpatient diabetes service. On some wards, it was felt that an unregistered member of staff (healthcare assistant) would act as an associate link. The role involves acting as a resource for the ward staff, identifying new starters or other members of staff who may require training, and setting up a hypo box for their ward area. More recently, to ensure consistency across all areas, an orange hypo box has been utilised. The link nurses were encouraged to set up a ThinkGlucose noticeboard on their ward to enable them to update their colleagues on diabetes issues. The author has provided a resource folder for each ward, which includes copies of all the education presentations.

A "contract" was drawn up with each link nurse, supported by the ward senior sister. Quarterly meetings with the link nurses are held, providing a forum for the discussion of diabetes-related issues, as well as the sharing of experiences and updates that can then be cascaded to colleagues.

Another aspect of the link nurse role specific to the DHFT involves monitoring the LOS for the wards. The team's data analyst developed a monthly review of LOS for each inpatient ward. This is delivered to the link nurses each month, providing information on the number of people discharged from the ward within that month, the percentage of those diagnosed with diabetes and the average LOS, with the trend for the ward represented in a graph. The link nurse is then required to comment on the trend, providing an action plan for achieving any improvements required in regard to the LOS. Owing to the numerous factors influencing the LOS on medical and surgical admissions units, an alternative method was used to monitor the complete experience for patients admitted via these routes.

Funding

Although funding was initially secured to support a 9-month secondment to the ThinkGlucose project, the roll-out to all inpatient wards could not be finished within this timeframe. Therefore, a request for funding was compiled, with involvement of the PMO and support of the executive sponsors. It is clear that whilst ThinkGlucose could make a substantial difference to the safety and quality of care offered to people with diabetes, it could also lead to financial savings by reducing the LOS and improving coding. The Royal Derby Hospital has 220 surgical beds, 15% of which are occupied by people diagnosed with diabetes. The potential income lost through the non-coding of diabetes was shown to be approximately £1000 per patient and a 1–2 day reduction in LOS on the surgical wards saves an average of approximately £270 per day per patient. This saving can simply be achieved by the additional cost to the trust of one WTE registered nurse, where the saving far exceeds the cost.

The initial outcome of the request was that funding was to be provided jointly by the service improvement team and the diabetes service until March 2012. In light of the unprecedented financial strain on the health service, it was vital to have a clearly defined project plan.

The future

The roll-out of initial nurse training was completed on schedule by the end of March 2012. Nurses in 40 inpatient wards (and several outpatient areas) have received diabetes education and there is a network in place of more than 40 link nurses. These nurses are invited to attend quarterly link nurse meetings and a biannual newsletter is produced and distributed. ThinkGlucose also has dedicated web pages on the trust intranet.

In terms of the project "life-cycle", some projects are complete after the fourth phase (project implementation), whilst others are finalised with the fifth phase (project closure), in which the final step is to undertake a post-implementation review to identify the level of project success and note any lessons learned (Projelogic, 2008).

However, Dempster and Deepwell suggest that when a project is of an educational development nature, as with ThinkGlucose, rather than a research or product development project, a different model applies (Dempster

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1. At the end of education delivery in each ward, a registered nurse was identified to act as a link to the inpatient diabetes service.
2. The link nurses were encouraged to act as a resource for ward staff, setting up hypo boxes and ThinkGlucose noticeboards, as well as identifying where training is needed.
3. Another specific aspect of the role of the link nurse is to monitor and review the length of stay for people with diabetes compared with those without diabetes, and develop action plans for where improvements are needed.

"To anyone starting out on the ThinkGlucose 'journey' it is imperative to take on a dedicated role to lead the project, together with consultant and executive level support, as well as a group of team members providing specialist input."

and Deepwell, 2003). This model plans for sustained impact or embedding of the teaching and learning developed. The author notes that, at DHFT, they are in the process of sustaining and embedding the information. The author has recently secured a substantive post to sustain the ThinkGlucose concept in the future by providing the following:

- Diabetes education upon induction for all nurses, medical staff and pharmacists.
- Biennial training updates, using an e-learning package developed by the ThinkGlucose team.
- Ongoing management of the use of a diabetes sticker for the patient notes to facilitate early identification of people with diabetes and aid accurate coding.
- An increase in inpatient resources.
- Ongoing monitoring of the LOS for people with diabetes compared with those without diabetes.

Conclusion

At the beginning of the project, the author was warned by a senior member of the project management team that running a project is a "roller-coaster ride" and indeed this appears to have been the case on many occasions. However, the author fundamentally believes that the benefits gained by implementing ThinkGlucose far outweigh the efforts that have been required to roll out the project. The key to the success of the ThinkGlucose project has been the multidisciplinary team approach. The ThinkGlucose team has won two awards at the trust's "Celebrating Success" event in 2010, one of which was voted for by the trust board members. The project has been received enthusiastically and improvements in inpatient care have been observed as a result, as confirmed by the National Inpatient Audit 2011 (see *Table 2*). One of the major improvements was patient experience, as 85% of the people with diabetes were completely satisfied with their inpatient care and it is hoped that this percentage will be shown to have increased in this year's audit. Many issues have been raised along the way and there is still a tremendous amount of work remaining in order to improve inpatient diabetes care.

To anyone starting out on the ThinkGlucose "journey", it is imperative to take on a dedicated role to lead the project, together with consultant and executive level support, as well as a group of team members providing specialist input. The author firmly believes that the team approach to the ThinkGlucose project is the only way to ensure success. ■

Table 2. National Diabetes Inpatient Audit results (NHS Diabetes, 2011).

2011 data	Comparison with 2010 data
15.2% of insulin prescriptions or management had errors	11 percentage points lower than 2010
57.5% of inpatients believed staff able to answer their questions	25 percentage points higher than 2010
68.4% of inpatients believed staff have enough diabetes knowledge	13 percentage points higher than 2010
37.5% of inpatients had foot review within 24 hours of admission	24 percentage points higher than 2010
65.9% of patients felt in control of diabetes whilst an inpatient	8 percentage points higher than 2010
84.2% of inpatients believed the meal choice is always suitable	25 percentage points higher than 2010

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