Diabetes inpatient care: ThinkGlucose programme

Provided by: NHS Institute for Innovation and Improvement

Publication type: Quality and productivity example

Sharing QIPP practice: What are ‘Proven Quality and Productivity’ case studies?

The QIPP collection provides users with practical case studies that address the quality and productivity challenge in health and social care. All examples submitted are evaluated by NICE. This evaluation is based on the degree to which the initiative meets the QIPP criteria: savings, quality, evidence and implementability. The first three criteria are given a score which are then combined to give an overall score. The overall score is used to identify case studies that are designated as ‘recommended’ on NICE Evidence. The assessment of the degree to which this particular case study meets the criteria is represented in the summary graphic below.

Proven quality and productivity examples are case studies that show evidence of implementation and can demonstrate efficiency savings and improvements in quality.
### Details of initiative

<table>
<thead>
<tr>
<th>Purpose</th>
<th>To reduce variation in care, improve quality of care and patient safety and achieve a reduction in length of stay for inpatients with a secondary diagnosis of diabetes.</th>
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</table>
| Description (including scope) | ThinkGlucose is designed to improve the care of people with diabetes when they are admitted to hospital. Patients with a secondary diagnosis of diabetes who receive the right care for their diabetes are able to return home fitter, more safely and with a positive patient experience.  
The National Diabetes Inpatient Audit (2012) showed that 66% (n=11,866 inpatients with diabetes) of patients included in the audit were admitted for medical reasons other than diabetes with only 9% of patients admitted specifically for the management of their diabetes.  
The median length of stay for inpatients with diabetes at the time of the audit was 8 nights compared to 5 for all inpatients in England. The audit highlighted a trend that diabetes patients admitted to hospital have a longer median length of stay. (Health and Social Care Information Centre, 2012).  
ThinkGlucose provides a structured development programme for developing and improving the care of people with diabetes who are admitted to hospital. It brings together hospital diabetes specialist teams with colleagues in patient safety, clinical governance, commissioning, surgical and medical specialties across the hospital to deliver improved effective efficient and patient friendly care to people with diabetes  
The programme aims to:  
- increase the awareness of diabetes in inpatients and educate staff  
- introduce early specialist involvement with an early discharge/follow-up plan to reduce the average length of stay  
- reduce prescription errors and improve patient care through publicising updated guidelines from local and national guideline producers, for example NICE.  
The ThinkGlucose safe use of insulin tool provides education materials and guidance on managing self-administration, which reinforces the importance of self-administration if the patient has the appropriate skills and capabilities.  
The programme provides a package of products within the toolkit, such as a patient assessment tool and self-administration decision tree. It also raises awareness of other NHS Institute tools from other work programmes, such as experience-based design and the sustainability model. This learning and support aims to improve awareness and remove the obstacles to the treatment of patients with diabetes as a secondary diagnosis. Obstacles could be in the form of low awareness, lack of confidence and |
knowledge about diabetes and how diabetes can complicate the primary reason for admission.

ThinkGlucose provides a comprehensive package of service improvement, leading to a clinical pathway that will help to ensure that all staff are better equipped to care for inpatients with diabetes. By improving staff knowledge, patient assessment, management of patient medication and meals, patients will have fewer complications, get better quicker and be discharged earlier.

The original scope for ThinkGlucose did not include:

- community settings
- mental health
- paediatrics.

However, ThinkGlucose has some applicability within these settings.

Dudley group of Hospitals launched the ThinkGlucose project across the organisation in August 2010; information relating to their experience is documented throughout this case study.

**Topic**

Acute/urgent care, planned care, long-term conditions, right care, safer care, medicines management and productive care.

**Other information**

The prevalence of diabetes is increasing. The 2012 Quality and Outcomes Framework (QOF) statistics show the prevalence of diabetes in the UK is 5%.

By 2020, the prevalence of diabetes in the population is estimated to reach 9%. This increase will place a tremendous demand on NHS expenditure and hospital beds. Evidence including the Health and Social Care Information Centre (2012) National Diabetes Inpatient Audit Diabetes confirms that 15–22% of hospital beds are taken up by adults with diabetes. People are twice as likely to be admitted for any condition if they have diabetes, than those without diabetes. Once admitted people with diabetes stay in hospital on average 2.6 days longer than those without diabetes.

Research, data resources and observations including Focus on: inpatient care for people with diabetes (NHS Institute for Innovation and Improvement 2008) have shown that there is wide variation between acute hospital trusts in patient safety, staff knowledge of diabetes and its management, length of stay, patient satisfaction, and availability and accuracy of data.

**Savings delivered**

| Amount of savings delivered | Savings are approximately £411,000 for Dudley hospitals or £103,000 per 100,000 population. |
### Quality and Productivity: Proven Case Study

<table>
<thead>
<tr>
<th>Type of saving</th>
<th>Savings are through a shorter length of stay in hospital as a result of a comprehensive package of service improvement, leading to a clinical pathway that will help to ensure that staff are better equipped to care for inpatients with diabetes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any costs required to achieve the savings</td>
<td>Trust-level non-recurrent implementation costs approximately £38,000 for staff lead and programme support (including training) for Dudley hospitals.</td>
</tr>
<tr>
<td>Programme budget</td>
<td>Endocrine, nutritional and metabolic.</td>
</tr>
<tr>
<td>Supporting evidence</td>
<td>No further information provided.</td>
</tr>
</tbody>
</table>

### Quality outcomes delivered

<table>
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<tr>
<th>Impact on quality of care or population health</th>
<th>Significant improvements have been demonstrated, for example in York Teaching Hospital NHS Foundation Trust, through providing electronic monitoring of glucose control that leads to efficient, consistent warning of poor glucose control. This in turn enables responsive glycaemia management, with prompt medication review, food requirement review and increased awareness of diabetes.</th>
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<tbody>
<tr>
<td>Impact on patients, people who use services and/or population safety</td>
<td>Improved patient safety. This was achieved through face-to-face and e-learning training for staff in diabetes prescribing, which resulted in reduced prescription errors. Insulin prescription errors reduced from 24.6% (before) to 6.4% (after) in Dudley Group of Hospitals NHS Trust.</td>
</tr>
</tbody>
</table>
| Impact on patients, people who use services, carers, public and/or population experience | Significant improvements in patient and carer experience are demonstrated, through patients’ reduced length of stay in secondary care. Dudley Group of Hospitals NHS Trust report:  
  - a reduction in average length of stay of 0.61 days, generating efficiencies for the trust of £422,000, in the first 8 months of the project  
  - a reduction in average length of stay of 0.41 days, generating efficiencies for the trust of £400,000, in the next 10 months of the project and patients being supported to self-administer insulin.  
Worcestershire Acute Hospitals NHS Trust reported no additional incidents as a result of self-administration. |
| Supporting evidence | No further information provided. |
# Evidence of effectiveness

**Evidence base for case study**  
This initiative is underpinned by:  
- [NICE clinical guideline 15: Type 1 diabetes](http://www.nice.org.uk/guidance/cg15)  
- The National Diabetes Audit (2009)  

**Evidence of deliverables from implementation**  
Dudley Group of Hospitals carried out baseline audits on inpatient diabetes care across the hospital. The process included:  
- forming a dedicated consultant-led diabetes outreach team  
- introducing a rolling teaching programme for nurses and doctors, including evening teaching  
- introducing a 6-day ThinkGlucose service, including dedicated consultant sessions  
- advertising the service to all staff and patients  
- introducing protocols, guidelines and proformas, in accordance with national guidelines.

Results showed:  
- average length of stay reduced by 0.61 days, generating efficiencies for the trust of £422,000 in the first 8 months of the project (which equates to 2200 beds days being released at an average unit cost per bed day of £192).  
- more than 70% of staff caring for inpatients were educated through ThinkGlucose  
- HbA1c reduced by 1.71% and 0.47% for new-onset and known diabetes patients respectively  
- insulin prescription errors reduced from 24.6% to 6.4%  
- appropriate hypoglycaemia management improved from 26.1% to 65%  
- inappropriate referral to the specialist team dropped from 23.3% to 13.8%.

**Worcestershire Acute Hospitals Trust:**  
A baseline of 5% self-administration of insulin was seen in the pilot wards. This increased to 25% after 12 weeks of implementing ThinkGlucose. No adverse incidents have been observed as a result of the introduction of self-administration of insulin (January 2013). A reduction in inappropriate referrals was observed from 64 per cent to 39% following 12 weeks of testing on pilot wards. The introduction of the ThinkGlucose Link Nurse scheme was a contributory factor to inappropriate referrals remaining low; in 2011 this was approximately 3% on average. The Link Nurses have additional responsibility for a clinical condition. The nature of the additional responsibility depends on the needs of the organisation. It may be anything from increased knowledge to having to carry out specific tasks. For example, in...
Worcestershire Acute Hospitals: their Link Nurses audited the use of patient assessment stickers in clinical notes.

**University Hospitals Leicester:**
A 25% reduction in inappropriate referrals to diabetes specialist team has been observed after 12 weeks of using the referral criteria of the Patient Assessment tool. This reduction has continued, with a total 51% reduction after a further 12 weeks. The reduction in length of stay was 2 days.

**Sheffield Teaching Hospitals Foundation Trust:**
There was a 25% increase in appropriate clinical coding for people with diabetes on the ThinkGlucose pilot wards. This could equate to £53,000 in income for the trust. There was a 10-fold increase in patient satisfaction from 3% to 30%. Diabetes knowledge and confidence increased among non-diabetes specialist staff. There was increased accuracy in their knowledge of when to refer to the specialist team from 3% to 47%.

**Portsmouth Hospitals:**
Intravenous insulin-related savings:
- 30% of patients stopped inappropriate intravenous insulin use
- 75% reduction in delayed discharges secondary to diabetes hypoglycaemic reduction.

**Cambridge University Hospitals NHS Foundation Trust:**
Report success with drug errors across the trust, including the ThinkGlucose wards. Within the National Inpatient Audit 2010, fewer inpatients with diabetes had a prescription error (14% compared with 26% across the whole audit) and fewer patients experienced management error (8.7% compared with 20.0% across all participating units nationally; these figures are a combination of ThinkGlucose and non-ThinkGlucose wards).

**Where implemented**
NHS, England. The ThinkGlucose project was launched in Dudley Group of Hospitals across the Trust in August 2010. The ThinkGlucose initiative has also been implemented in Worcestershire Acute Hospitals Trust, University Hospitals Leicester, Sheffield Teaching Hospitals Foundation trust, Portsmouth Hospitals and Cambridge University Hospitals NHS Foundation Trust.

**Degree to which the actual benefits matched assumptions**
Same as expected.

**If initiative has been replicated how frequently/widely has it been replicated**
The initiative has been replicated in NHS Scotland (NHS Dumfries and Galloway).
76% of trusts in NHS England have registered for ThinkGlucose. The extent to which there is spread across trusts is variable.
Supporting evidence
NHS Dumfries and Galloway have involved a range of patients from the outset of the ThinkGlucose Support Programme. Patients have filmed their own patient story, which is integral to the ThinkGlucose training. They have been invited to attend each stakeholder event, launch, training day and project implementation meeting, as an equal partner with any healthcare professional or implementation team member. Their practical advice about the patient survey questionnaires has been regarded as a great asset.

Details of implementation

Implementation details
ThinkGlucose enables acute hospital trusts to develop a campaign to improve the optimal pathway for people admitted to hospital with a secondary diagnosis of diabetes. The ThinkGlucose tool kit and the ThinkGlucose resource box provide an approach to develop local solutions, and practice to improve the clinical pathway for patients who come into hospital for a reason other than their diabetes.

The toolkit consists of:
- a welcome card
- ThinkGlucose promotional guide and pack
- ThinkGlucose implementation guide: What can ThinkGlucose do for you?
- ThinkGlucose executive guide: What can it do for your organisation?
- measures for improvement: How are we doing?
- making a case for improvement tool: Service transformation – the next level
- patient stories: Understanding the patient experience
- top tips for coding tool: Easy ways to ensure more accurate coding of diabetes
- safe use of insulin tool: Supporting safety and choice
- ThinkGlucose patient assessment tool: Fast effective, safer care
- a different view DVD
- ThinkGlucose resource CD

The resource box contains promotional items designed to raise awareness and support the ThinkGlucose campaign.

The ThinkGlucose Programme Planning Tool
The ThinkGlucose Programme Planning Tool is an additional resource that has been developed by programme managers and implementatin leads to help them with their planning and implementation of ThinkGlucose. It describes a step-by-step process of programme and change management. It could be used at any point in implementing ThinkGlucose.
This tool contains interlinked pages that lead to other resources to aid the campaign:

**Programme overview** – provides an overview of the key events and milestones along with the prerequisites for getting started.

**Programme tasks** – considers the key actions required for each section of the programme together with helpful tips and links to useful resources.

**Programme timeline** – provides a sample timeline that can be edited according to individual organisation needs.

The ThinkGlucose Programme Planning Tool is available on request; please contact the QIPP team (qipp@nice.org.uk) for further details.

The ThinkGlucose tools can be adapted to meet local practices and protocols if required. Patients and staff have reported that this flexibility has been very useful in helping them to engage key stakeholders in the implementation of ThinkGlucose.

The Dudley Group of Hospitals identified the following objectives:

- increase the awareness of diabetes in in-patients and educate staff
- early specialist involvement with early discharge/follow up plan to reduce the average length of stay
- reduce prescription errors and improve patient care through updated guidelines.

They achieved this through:

- baseline audits on inpatient diabetes care across the hospital
- setting up a dedicated Consultant-led diabetes outreach team
- introducing a rolling teaching programme for nurses and doctors including night-time teaching
- introducing a 6 day ThinkGlucose service with dedicated consultant sessions
- advertising the service to all staff and patients and
- introducing protocols, guidelines, proformas in accordance with national guidelines.
Time taken to implement
Implementation of the initiative can be achieved within 1–3 years. This includes the time taken to identify areas of need, develop a business case and realising benefits.

Ease of implementation
Affects a whole organisation across a number of teams or departments.

Level of support and commitment
All stakeholders are committed to the initiative and it is likely to achieve good buy-in.

Barriers to implementation
Barriers to implementation include:
- associated training and capacity
- waiting for approval for self-medication policies, for example governance arrangements in organisations may mean that self-administration is not recommended until the provision and agreement of a self-medication policy. It is usual for self-administration to go to a Medicines Management Committee for approval before use in hospitals.
- 1 in 3 hospitals do not have an inpatient diabetes specialist team. This impacts on the resource to champion ThinkGlucose.

Risks
Where there is lack of executive support, difficulties with implementation and spread occur. The ThinkGlucose team provided a range of information and preparatory calls with trusts to minimise risks.

Supporting evidence
No further information provided.

Further evidence

Dependencies
The following key factors help the success of the initiative:
- visible, active executive support
- strong clinical leadership
- programme implementation leadership
- successful implementation of lean methodologies such as Productive Ward.

Contacts and resources
If you require any further information please email: qipp@nice.org.uk and we will forward your enquiry and contact details to the provider of this case study. Please quote QIPP reference 11/0023 in your email.

Department of Health (2011) The ‘never events’ list 2011/12
NHS Diabetes (2010) *The hospital management of hypoglycaemia in adults with diabetes mellitus*


NHS Institute for Innovation and Improvement (2008) *Focus on: inpatient care for people with diabetes*

NHS Institute for Innovation and Improvement ThinkGlucose™ Inpatient care for people with diabetes *Case study: Implementing ThinkGlucose at Nottingham University Hospitals NHS Trust*

NICE (2011) *Diabetes in adults quality standard*

The Health and Social Care Information Centre (2009) *National Diabetes Audit*

The Health and Social Care Information Centre (2010) *National Diabetes Inpatient Audit*

The Health and Social Care Information Centre (2011) *National Diabetes Inpatient Audit*

The Health and Social Care Information Centre (2012) *National Diabetes Inpatient Audit*

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