The Health Foundation
Inspiring Improvement

CASE STUDY

The Safer Patients Initiative

Medication management workstream in practice: Ninewells Hospital

1. INTRODUCTION

In late 2004, the Health Foundation funded the Institute for Healthcare Improvement (IHI) (based in Cambridge, Massachusetts) to begin an initiative aimed at making United Kingdom (UK) hospitals safer for patients. Called the Safer Patients Initiative, this four-year project (spread over two phases) was designed to reduce harm to patients receiving healthcare within inpatient settings.

Throughout the initiative, 24 hospitals across the UK worked collaboratively with the Health Foundation and IHI to test, implement, and spread the success of 29 different interventions. These interventions had an established and accepted evidence base in the UK and were in five workstream areas:

- medication management
- general ward
- perioperative care
- critical care
- leadership.

Interventions were implemented concurrently, along with improvements in hospital infrastructure, measurement systems, and leadership support. As a result of this work, the participating hospitals began working on reducing their adverse events and mortality rates.

The work of both phases of the Safer Patients Initiative helped spread patient safety principles and improvement throughout the UK – improvement that has continued following completion of the programme. Although phase two of the Safer Patients Initiative concluded on 30 September 2008, it has helped establish patient safety as a priority for the participating hospitals and set the stage for further work in improving the safety of patients.

2. BACKGROUND

Within the medication management workstream, organisations focused on a few critical initiatives, including improving medication reconciliation and reducing adverse events associated with anticoagulants. These efforts necessitated a collaborative effort between pharmacists, physicians, nurses, and other front line staff.

Although all the organisations involved in both phases of the Safer Patients Initiative worked on improvements within the medication management workstream, this case study focuses on the efforts of one specific organisation: Ninewells Hospital NHS Tayside.

About Ninewells Hospital NHS Tayside

Situated on the outskirts of Dundee, Ninewells Hospital is a 1,000-bed university hospital within

NHS Tayside – an integrated healthcare provider that serves more than 400,000 people along the east coast of Scotland. In 2004, Ninewells Hospital became the only hospital from Scotland to participate in the initial Safer Patients Initiative.

Before applying to participate in Safer Patients Initiative, Ninewells Hospital had started putting tentative structures in place to identify safety risks and implement initiatives to address them.

'We were at the very beginning of this work when we started hearing about the successes other organisations were having in uncovering risks and working to mitigate them,' said the lead clinical pharmacist for urgent care at Ninewells Hospital. 'Specifically, we were intrigued by the information coming from the United States and the IHI, and were keen to explore this work further. The Safer Patients Initiative offered us an opportunity to do that.'

3. WHAT WE DID

Improving medication reconciliation

Ninewells Hospital realised the greatest success in the medication management worsktream through its work on medication reconciliation.'

At the beginning of the Safer Patients Initiative, we thought we were quite good at medication reconciliation on admission,' said the lead clinical pharmacist for urgent care. 'But IHI had us look more closely at our processes and collect data on those processes. These efforts exposed some weaknesses in our system, and we realised we weren't nearly as good as we thought we were. Specifically, we were not consistent in performing medication reconciliation. When we did do it, we did it fairly well; we just didn't do it as often as we thought.'

Ninewells Hospital chose to begin its improvement efforts on one of its admissions units. This had strong interdisciplinary support for improvement, including engagement from senior and junior physicians.

'This was key to our success in launching the work, because we didn't have to spend much time convincing people there was a problem with medication reconciliation or that we needed to address the problem,' said the lead clinical pharmacist for urgent care. 'Although none of the clinical team members were initially familiar with IHI or the Model for Improvement, the team readily accepted the methodology and incorporated it into their daily work. A few members of the team, including a consultant physician, attended one of IHI's learning sessions, and they spread information and enthusiasm to the rest of the team when they returned from the session.'

Ninewells Hospital then started creating a medication reconciliation form that would drive and document the process. Initially, the hospital worked on creating its own form. However, they discovered during this process that one of its colleague organisations in the Safer Patients Initiative, Luton and Dunstable Hospital, had already developed a template and were using it successfully in their organisation.

'We decided to adopt and customise Luton and Dunstable Hospital's form for our own organisation,' said the lead clinical pharmacist for urgent care. 'This collaborative information sharing was a new experience for our hospital, and a true benefit of the Safer Patients Initiative.'

To test the form, Ninewells Hospital used the plan, do, study, act (PDSA) methodology, starting with one pharmacist and one senior clinician on the admissions unit. Once the initial pharmacist and senior clinician adapted the form and used it successfully with their patients, they began implementing the use of the form to their colleagues.

'The senior clinician took on the role of engaging with colleagues and getting them on board,' said the lead clinical pharmacist for urgent care. 'Hearing about the form and its benefits from a colleague gave a stronger impression to the other senior doctors than hearing about it from someone else, such as the pharmacist. The senior doctors began asking for the form and encouraging junior doctors to complete it as well. Once the senior doctors were on board, the junior doctors followed soon after.'

As more physicians began using the form, the workstream team embedded it into the unit's admissions booklet.

'By having it as part of the booklet, it became obvious to everyone involved with patient admission

that medication reconciliation was a core element of the process,' said the lead clinical pharmacist for urgent care.

By June 2006, Ninewells Hospital was beginning to spread the use of the form beyond the pilot unit.

'We would give each new unit a copy of the form and ask them to test it, modify it, and embed it in their normal processes,' said the lead clinical pharmacist for urgent care. 'Each unit used the PDSA process to alter and embed the form. For example, the orthopaedics unit made small modifications and then implemented the form into their care pathway for joint replacement. However, although each unit in the hospital had the freedom to customise the form, very few changes were made to it and the form is still quite similar across the organisation.'

Preventing anticoagulant adverse drug events

While medication reconciliation was a great success for Ninewells Hospital, reducing adverse events associated with anticoagulants presented more challenges.

'This was a more complex process that involved shifting the way we recognised and measured adverse events,' said the lead clinical pharmacist for urgent care. 'We had to educate ourselves on the IHI Trigger Tools[1] as a method of detecting harm and learn how to use them appropriately. This took some time.'

4. OUR LEARNINGS

Multidisciplinary engagement

In reviewing all the medication management workstream efforts, a key success factor for Ninewells Hospital was multidisciplinary engagement.

'One misperception about improving medication management is that pharmacists can make these improvements on their own,' said the lead clinical pharmacist for urgent care. 'This is not possible or desirable. To truly enhance medication management, organisations need to have the engagement of the entire clinical team. Within our organisation, the senior and junior medical staff were crucial in implementing changes and realising improvement.'

The medication management workstream also relied on the leadership of its executive sponsor, the director of nursing, to support improvements.

'The director of nursing worked diligently to unlock, remove, and minimise barriers to improvement,' said the lead clinical pharmacist for urgent care. 'She was particularly helpful in motivating clinical areas that weren't as eager to take on the improvement work. By mentioning the topic during walkarounds and starting conversations with people, the director of nursing was able to show that improving medication management was an expectation of senior leadership, and that was highly motivating.'

Improving medication reconciliation

Although the medication reconciliation work was successful, it was not without some challenges.

'Some clinical areas were more open to this work than others,' said the lead clinical pharmacist for urgent care. 'Sub-specialty areas in particular were not initially as enthusiastic.' To overcome hesitation within these areas, the workstream team had to sell the concept of medication reconciliation and describe how it could be of benefit.

'We did this by pointing out that procedures in the sub-specialty areas are often cancelled because a patient has not stopped taking certain medication (such as anticoagulants) before surgery. We explained that a strong and consistent medication reconciliation process could help avoid this problem and ensure procedures take place as planned,' said the lead clinical pharmacist for urgent care.

Preventing anticoagulant adverse drug events

Ninewells Hospitals struggled with sampling for the performance measures associated with preventing anticoagulant adverse drug events. This was because many of the patients with anticoagulant events would come from outside the hospital and yet were still included in the performance measures.

'Within this aspect of the workstream, it was very hard to isolate the benefits of improvement,' said the lead clinical pharmacist for urgent care. 'We were improving our internal processes, but they had no

effect on people who were harmed outside of the hospital. Since our sample included those individuals experiencing anticoagulant events at home, we found it difficult to link improvements to outcome data.'

Despite the challenges Ninewells Hospital faced with preventing adverse drug events associated with anticoagulants, the organisation did learn from this aspect of the workstream. For example, prior to the Safer Patients Initiative, the organisation would consider severe bruising or a longer hospital stay as a result of anticoagulant use as normal side effects of treatment. After working on the issue for several months, the organisation shifted its thinking and began considering these side effects as preventable issues that could be avoided. During this time, Ninewells Hospital also improved its processes with regards to documentation and communication at discharge.

Use of PDSA cycles

Ninewells Hospital identified that the PDSA methodology assisted them to effectively test and spread change across the organisation.

'The PDSA concept of testing things on a small scale was definitely new for us,' said the lead clinical pharmacist for urgent care. 'Up until this point we would implement initiatives by doing a large rollout across several units. This new approach allowed us to tweak improvements locally before spreading change to the rest of the organisation.'

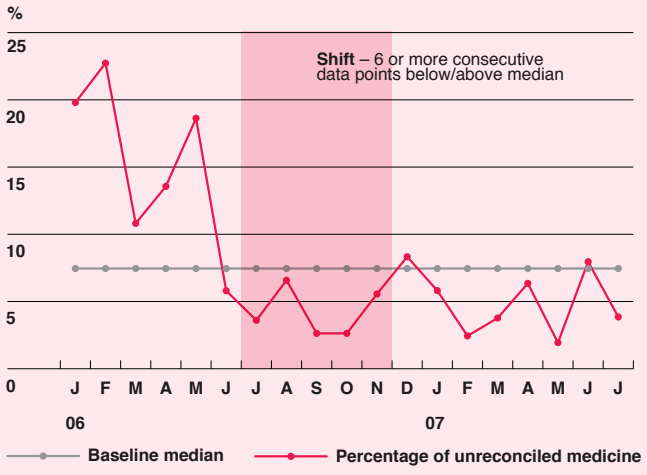

Figure 4.1: Medication management – percent of unreconciled medicines, Nine Wells Hospital

5. IMPACT

Once Ninewells Hospital began spreading the medication reconciliation change, their percent of unreconciled medications dropped dramatically.

Although the Safer Patients Initiative has ended, Ninewells Hospital is still maintaining the successes realised in the programme. By implementing change on a small scale, extending change throughout the organisation, and involving multiple disciplines in the change effort, Ninewells Hospital was able to achieve success and improve the safety of its patients.

1 IHI Trigger Tools: IHI Global Trigger Tool for Measuring Adverse Events: Griffin FA, Resar RK. IHI Global Trigger Tool for measuring adverse events (second edition). IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2009. Available from: www.ihi.org