

The Safer Patients Initiative: using new methods to tackle old problems

Pharmacists and technicians at four acute hospital trusts in the UK have been developing methods to improve patient safety through their participation in the first wave of the Safer Patients Initiative. Dawn Connelly finds out more about the initiative and why it is yielding tangible improvements

Patient safety is an issue that has been at the forefront of practice for hospital pharmacists for decades. But statistics show that levels of drug-related adverse events are still high. The Safer Patients Initiative (SPI), developed by the Institute of Health Improvement (IHI) in Boston, Massachusetts, and the Health Foundation in the UK, uses new methods to tackle old problems, and it seems to be working.

Four acute trusts — Luton and Dunstable NHS Foundation Trust in England, NHS Tayside in Scotland, Conwy and Denbighshire NHS Trust in Wales and Down Lisburn Health and Social Services Trust (now South Eastern Health and Social Care Trust) in Northern Ireland — were chosen to take part in the SPI, which started towards the end of 2004.

SPI is a four-year programme, the first phase of which has been spent building effective leadership and expertise in patient safety via a tailored programme designed by the IHI. Phase 2 will involve developing these four trusts as exemplars to 20 additional acute trusts that have now been selected to take part in the initiative (*PJ*, 25 November 2006, p630). During this time the exemplars will formulate their own methods designed to spread their learning and help others to improve patient safety. Financial support is provided for trusts to help build capability and capacity for improving patient safety.

The vision of the SPI is that no patient should experience unnecessary harm, pain or suffering as a result of an error or planned

medical intervention. It supports leaders at the highest level in the trust so that patient safety can be made an organisational priority. The SPI uses a “model for improvement”, which it describes as a simple yet powerful tool for accelerating improvement (see Panel).

The initiative involves several teams in each trust working simultaneously on four priority areas: medicines management; intensive care; general wards; and peri-operative care. Each trust also has a leadership team.

Pharmacists from the trusts play a key part in the multidisciplinary medicines management teams. Through the initiative, the teams have focused on three areas of medicines management: medicines reconciliation; high-risk medicines, such as anticoagulants; and medication systems, such as prescribing, ordering, dispensing and administering.

Medicines reconciliation

Medicines reconciliation is defined by the IHI as “the process of identifying the most accurate list of a patient’s current medicines — including name, dosage, frequency and route — and comparing it to the current list in use, recognising any discrepancies and documenting any changes, thus resulting in a complete list of medicines, accurately communicated”.

The list should be compared with doctors’ prescribing on admission, transfer and discharge, with reasons for any omissions or dose changes being documented.

“For many years pharmacy staff in the UK have focused attention on obtaining accurate



drug histories when patients are admitted to hospital, so the process of identifying the most accurate list of a patient’s medicines is nothing new to us, whereas this use of staff is relatively rare in the US. There is a substantial evidence base for this practice, but unfortunately the ‘reconciliation’ is not always undertaken in a timely manner due to staffing limitations,” explains Don Hughes, director of pharmacy at Conwy and Denbighshire NHS Trust.

The target set by the IHI was to reduce the percentage of unreconciled medicines to less than 10 per cent, and preferably to zero.

Alison Campbell, clinical pharmacy coordinator and patient safety pharmacist at Lagan Valley Hospital, South Eastern Health and Social Care Trust, explains that the medicines management team at her trust developed a new multidisciplinary form on which to record medicines on admission using the plan-do-study-act (PDSA) cycle (see Panel).

“The IHI taught us to develop a form and to give it to one nurse and one doctor and test it on one patient,” she explains. Feedback is gathered and the form is improved and retested. This process is then repeated on three patients, then on five patients and then extended to a pilot unit.

“The process of testing and obtaining feedback allows you to get people on board and willing to work with you because they are involved in developing the form,” she explains. “Before being involved in the initiative, we would have launched the new form to the whole unit straight away without testing.”

The IHI believes that processes should not be person-dependent; they must be reliable and happen 95 per cent of the time. Because the medicines on admission form developed in Northern Ireland was a stand alone form it was often not included in the admission pack,

Model for improvement used in the Safer Patients Initiative

The model for improvement — published in 1996 in ‘The improvement guide: a practical approach to enhancing organisational performance’ by Gerald Langley and others — is key to the Safer Patients Initiative and consists of two parts. The first part involves asking three fundamental questions:

- What are we trying to accomplish? Answering this first question involves setting aims. The aims should be time specific and measurable. They should also define the specific population of patients that will be affected.
- How will we know if the change is an improvement? Answering the second question involves establishing measures. Quantitative measures through monthly audits are used to determine if a specific change leads to improvement.
- What changes can we make that will result in an improvement? Answering the third question involves selecting changes. All improvement requires making changes but not all changes result in improvement. Organisations must therefore identify the changes that are most likely to result in improvement.

The second part involves using the plan-do-study-act (PDSA) cycle to test and implement changes in real work settings. The PDSA cycle guides the test of change to see if the change is an improvement. After testing a change on a small scale, learning from each test and refining the change through several PDSA cycles, the team can implement the change on a broader scale, for example, a whole ward. If this is successful, the change can then spread further to the whole organisation.

therefore the process was unreliable. To cut out this person-dependent step the form was printed on the reverse side of the clinical history sheet so that it appeared at the right point in the admission procedure.

"The IHI were keen to point out that pharmacists should be what it calls 'a redundancy'. They are not there 24/7, 365 days a year. Therefore there needs to be processes in place that work when pharmacists are not around," explains Ms Campbell.

The PDSA cycle sounds time-consuming, but Debbie Corner, senior clinical pharmacist at NHS Tayside, emphasises that, after the first few, it becomes easier and quicker. The tool saves time by identifying problems with a single test before making changes. By using PDSA and a consultant physician champion, NHS Tayside reduced unreconciled medicines from a baseline figure of 70 per cent to less than 10 per cent in six months.

At Luton and Dunstable, developing and introducing a new form using the PDSA cycle has also resulted in improvements: less than 9 per cent of medicines are now unreconciled, compared with about 30 per cent before the new form was introduced, explains Mary Evans, chief pharmacist at the trust.

However, Mr Hughes has not seen positive results in Wales when trying to improve medicines reconciliation with junior medical staff. He explains that whatever form the medicines management team produced it did not appear to make any significant difference to the rate of unreconciled medicines, which varied between 15 and 20 per cent. He puts this down to a number of contributory factors: the quality of information received from primary care; pharmacy-led drug history taking being well established within the trust; and the medical staff's primary focus being on patients' acute illnesses rather than medicines previously prescribed for other chronic conditions.

"We measured the rate of unreconciled medicines on admission before the pharmacy staff undertook their normal duties and again after the pharmacy contribution, and consistently got the rate down to 1–2 per cent," he explains. "Sadly we were unable to achieve the target rate without pharmacy input, although we recognise the deficiencies that result from a lack of consistent 24/7 pharmacy input," he added. He believes that the medicines reconciliation process has to be aided by the electronic transfer of information from primary care.

High-risk drugs

The IHI also wanted the trusts to look at high-risk drugs and all four decided to start with anticoagulants. The aim was to reduce the percentage of adverse events due to anticoagulants by 50 per cent using IHI trigger tool methodology.

The use of "triggers" or clues to identify adverse drug events is a method for measuring the overall level of harm from medications in an organisation.

Some of the triggers used for anticoagulants were: low haemoglobin; low or high INR; antibiotic prescribing; vitamin K administration;

fresh frozen plasma administration; and non-steroidal anti-inflammatory prescribing.

"Whenever we saw a trigger in a patient's chart, we drilled down deeper to see if there was an adverse event caused by the anticoagulant. Sometimes it was quite tricky to confirm this," Ms Campbell explains.

She admits that the trust did not achieve its target of reducing adverse events using this method since the problems were not only in secondary care. The audits did, however, identify a lot of problems associated with anticoagulants, for example, poor documentation of the indication, the target INR and the duration of treatment. "There was also a lack of evidence of GP referral information and patient counselling in the notes, and a lack of guidance for junior doctors on the dosing schedule," she says. To address these problems, the trust introduced a new warfarin initiation and GP referral chart using the model for improvement method and PDSA cycles.

In Wales, the medicines team undertook a similar process. "Our warfarin chart went through 11 evolutions. We have also put a large amount of effort into training the doctors in how to use the chart properly," explains Mr Hughes. Measures for anticoagulation evolved during the programme and the rates of high INRs are now being used as an effective measurement of adverse events. Thirty months into the initiative, the trust is starting to see a significant reduction in INRs greater than 6. "We feel a key message is perseverance with tests of change. It is probably a combination of factors which affects outcome measures," he explains.

Medication systems

Another task that the IHI set for the trusts was to do a failure modes and effects analysis (FMEA) on a core process. FMEA is a technique that has been adapted from the aerospace industry. It is a systematic, proactive method for evaluating a process to identify where and how it might fail, and to assess the relative impact of different failures in order to identify the parts of the process that are most in need of change. It allows areas of high risk to be prioritised.

"We feel it is a superb technique in identifying process deficiencies and fully utilising staff who work within systems to help design new ways of working," explains Mr Hughes. "When we looked at dispensing we identified 12 stages in the process." A risk score is assigned to each thing that could go wrong based on likelihood of occurrence, likelihood of detection and severity of outcome.

The analysis in Wales identified a lack of training for pharmacists on the clinical check. "We put a training package together for clinical pharmacy checking and when we risk scored the process independently again it had come down significantly," says Mr Hughes.

Luton and Dunstable used the method to improve safety in its anticoagulation referral process. "We identified two high-risk steps — doses being written in the yellow book and patients being given an outpatient appointment," says Dr Evans. The team came up with

Lessons learnt

- Not every change leads to an improvement
- Changes must be measured to see if there is an improvement
- There is a lack of awareness of patient safety and of improvement methodology
- Culture cannot be changed overnight
- It is essential to have senior management working closely with the teams
- Strong leadership is important

a simple discharge checklist designed to be attached to take home medicine bags. It establishes whether a dose has been prescribed, whether an outpatient appointment has been made and whether the patient has been counselled. Each stage must be signed by the nurse in charge of discharging the patient.

"It sounds ridiculously simple. But it has made a huge difference. The plan was to reduce the FMEA score of the process by 50 per cent but we have reduced it by over 60 per cent," says Dr Evans.

Finding the time

So how do the trusts manage to fit this work into their daily routines? "One of the benefits of the SPI is that you have to find the time. Audit reports have to be submitted to SPI on a monthly basis therefore it becomes a priority," says Dr Evans. Before Luton and Dunstable joined the SPI, the pharmacy department appointed a senior technician in charge of patient safety, who has been heavily involved in the trusts response and facilitated a lot of the work.

Mr Hughes explains that having the trust's executive on board helps. "It is hard to fit everything in, but we had the authority of the project board behind us and the project was supported at an executive level."

One of the key parts of the initiative is that all information and learning is electronically shared between the trusts and the IHI facilitators via an extranet. The trusts also attend residential teaching sessions and participate in monthly conference calls as well as going on site visits to learn from each other.

The future

The four trusts are now in the exemplar phase of the initiative and have started sharing their experiences with others.

Debbie Corner believes patient safety and the SPI methodology, particularly the FMEA tool, should be included in the pharmacy undergraduate curriculum. She explains that within Tayside, the medicines management team is involved in teaching fifth-year medical students about the SPI tools. "It would be good to get patient safety on the agenda within the pharmacy undergraduate and postgraduate curriculum. Our junior pharmacists have enjoyed the emphasis on process redesign that SPI has brought. This experience will be particularly useful as they develop professionally into future roles, such as independent prescribing," says Ms Corner.