Collaborative working empowers staff to cut the number of cardiac arrests

A Breakthrough Series collaborative was used to engage staff to change their clinical area, which has resulted in cardiac arrests being viewed as never events

INTRODUCTION
Engaging and empowering frontline staff are known to be influential ways of generating long term improvement, and are promoted by Patient Safety First. This national campaign encourages change to happen in small steps, following a “plan, do, study, act” (PDSA) cycle (see Changing practice, page 13). This method minimises the risks associated with system change and allows weaknesses in a new system to be acknowledged and redesigned before widespread implementation. The aim is to reduce unintended harm and improve the reliability of the systems in which staff work.

Salford Royal Foundation Trust has used this method successfully, reducing the number of cardiac arrests in its patients.

Salford Royal is one of the 96% of acute trusts that has voluntarily signed up to Patient Safety First. It is using the reducing harm from deterioration intervention tools to support its work under way in this area.

At the trust, 179 patients suffered a cardiac arrest in the year March 2007-April 2008. Medical evidence indicates that many patients show signs of deterioration during the 24 hours before cardiac arrest (Hillman et al, 2001), with various factors contributing to suboptimal care (Box 1). With this in mind, the trust sought to improve the situation by focusing on these factors. The Department of Health (2000) report Comprehensive Critical Care addressed the recognition and management of acutely unwell patients. The report recommended establishing outreach teams whose remit would include avoiding critical care admissions by “identifying patients who are deteriorating and either helping to prevent admission or ensuring that admission to a critical care bed happens in a timely manner to ensure best outcome” (DH, 2000).

This has resulted in the widespread implementation of rapid response teams, critical care outreach teams and medical emergency teams in many organisations. The literature suggests that this approach can result in a 25-30% reduction in cardiac arrests (for example, Goldhill et al, 1999). However, Salford Royal approached the issue of improving recognition and management of deterioration in a different way. The acutely unwell adults (AUA) faculty decided to undertake organisational change before considering a specialist rapid response team. This approach makes the care of deteriorating patients everyone’s responsibility rather than devolving it to a specialist group of staff. This collaborative working and innovation has been successful in reducing cardiac arrests and, to date, Salford Royal does not have a specialist rapid response team.

The trust’s quality improvement strategy aims to reduce harm and save lives. The clinical area of care for acutely unwell adults was identified as a key area of work that would support this strategic vision. A faculty team, consisting of doctors, nurses, allied health professionals, a project manager and an improvement adviser, was set up in 2008. Together, they set a target of reducing cardiac arrests on wards by 50%.

DESIGN
The trust ran a Breakthrough Series collaborative (Institute for Healthcare Improvement, 2003), using a model in which teams were able to learn both from each other and from local experts around a focused set of objectives (Fig 1, page 19).

PRACTICE POINTS
- This project demonstrates that frontline staff can develop innovative solutions to organisational problems.
- Support, celebration and motivation are key to success.
- Senior leadership “permission” to undertake change is vital.
- Data can be a powerful way of driving change.
- Staff ownership of improvement is key to sustainability.
Internationally, this collaborative approach has been used successfully in decreasing Caesarean section rates (Flamm et al, 1998), and in improving diabetes and heart failure care (Glasgow et al, 2002).

Teams committed to working together over nine months (April 2008-January 2009) and to attend three one-day learning sessions.

The faculty team identified a project director and brought together a wider steering group of experts to include healthcare professionals from emergency medicine, critical care, anaesthetics, general medicine, surgery, elderly care and resuscitation training, as well as the executive sponsor of the collaborative (the executive director of nursing). The group met before the first learning session to review the evidence available on the care of acutely unwell patients.

As a result of this session, the steering group developed a number of key objectives for the programme of work.

The trust then identified the wards that had the highest numbers of cardiac arrests and invited them to participate in the collaborative. Eleven wards took part in the first phase. Representatives attended learning sessions and went on to coordinate ward improvement efforts. Teams were multiprofessional and included junior and senior nurses as well as healthcare support workers, physiotherapists, doctors and nurse practitioners.

As well as involving staff at many levels, the project was sponsored by the executive director of nursing, who attended the learning sessions to provide senior support and encouragement. Frontline staff were formally “liberated” to change systems in the pursuit of improved patient care and safety.

The first learning session focused on the theory and practice of improvement, and gave background information on the project aims and the local situation, including arrest data for individual wards as well as supporting evidence on best practice. Teams were introduced to the Model for Improvement (Langley et al, 1996). This is a simple, powerful tool for accelerating improvement and is the method advocated by Patient Safety First.

Using the Breakthrough Series collaborative approach, the trust set out to answer three questions for acutely unwell adult patients. These were:

- What is the aim? To reduce cardiac arrests by 50% in one year;
- How will you know a change is an improvement? The trust will undertake measurement to ensure that change is an improvement (see below);

What can be changed? To find out how the trust could change, participating wards were asked: “What can be done in your area to improve care for this group of patients?”

When wards identified an idea for system change they were then encouraged to test this idea on a small scale using multiple PDSA cycles. This technique allows an idea to be tested for efficacy before it is implemented more widely.

Further learning sessions took place, interspersed with action periods. During these periods, teams tested the changes and had the opportunity to communicate with project directors, an improvement adviser and each other. Teams were able to meet once a week for a half hour discussion to share their learning and develop new tests. This helped to maintain the pace of change, with teams undertaking several small tests every week.

In the second and third learning sessions, the trust followed an “all teach, all learn” philosophy, where each team reported on their methods and results, and discussed the lessons learnt. Teams discussed each others’ developments, suggested modifications and then decided whether the test had been successful. Tests were then adopted, adapted or abandoned.

Assessing improvement
To determine whether a change could be classified as an improvement, regular monthly measures were undertaken:

- **Outcome measures**: the measure of the aim’s success by cardiac arrest rate per 1,000 admissions (both by ward and for the organisation);
- **Process measures**: the processes involved in achieving the aim – these measures included completing the early warning score (a sample of charts was submitted);
- **Balancing measures**: looking at other factors that may be influenced unintentionally, for example, the percentage of intensive care unit admissions coming from individual wards.

**Box 1. Factors leading to suboptimal care**

- Chaotic systems
- Lack of knowledge/experience
- Inadequate supervision
- Failure to recognise the severity of a situation
- Reluctance to seek help

Source: Hillman et al (2001)

Each ward publicly displays “days between” cardiac arrest certificates and takes pride in these achievements: this is a way of using data to celebrate success and boost staff morale. Wards that previously had at least one cardiac arrest a month are now celebrating more than 100 days between arrests. Ward staff also report that patients like to see staff taking pride in achieving this as a measure and feel reassured that staff are constantly striving to improve care.

**Ward teams present their work to each other and to senior leadership at learning sessions, where their hard work is formally recognised**: senior leadership is a key factor in success. At the first learning session, the executive sponsor “liberates” staff to make changes. In a system with numerous committees and forms to complete, this is essential to ensure teams have the confidence to move forward. Presenting changes to ward teams and senior leadership provides an opportunity for staff to see the impact of the improvements they have made. This is a powerful justification of the opportunity they were given as part of the collaborative.

Regular newsletters celebrate the project achievements across the organisation.
internal support from other collaborative teams is important; however, a wider appreciation from the organisation is essential to sustain momentum. As part of this sustainability, a further 11 wards were invited to participate in phase two of the project, which started in January 2009. The aims and achievements of the project had become known throughout the trust and other wards wanted to be part of it and make their contribution.

Public acknowledgement
Teams have been encouraged to present their tests of change at conferences and submit articles for publication: there has been a great deal of pride in realising that the changes frontline teams have developed are of wider interest and can be presented to an interested audience. Teams are encouraged to attend conferences to present their own work and to take credit for their success.

This approach to reducing cardiac arrests has been presented to other trusts as part of Patient Safety First: the campaign is important nationally and teams are proud that other hospitals want to learn from their approach to improvement.

Denying the status quo
Each learning session starts with a patient story, to focus attention on the impact of deterioration on real patients: this is perhaps the most important part of the learning session. Staff no longer view cardiac arrests as unavoidable events but as tragedies that befall real people. This has enabled a patient-focused approach to be maintained at all times and to keep the collaborative on track.

Cardiac arrests are now viewed as never events with each arrest reviewed at clinical governance meetings to ensure learning is shared across the organisation.

Potential limitations
A number of quality improvement programmes are being developed at Salford Royal, such as Productive Ward, which began six months after the collaborative in the AUA faculty. All this work has the potential to improve the quality of patient care. However, the baseline data collected by the quality improvement directorate before Productive Ward began did show a significant fall in cardiac arrest calls over the duration of the AUA quality improvement programme, which was already under way. This change in cardiac arrest calls had not previously been seen before the AUA Breakthrough collaborative began, suggesting this had made a clear impact.

One other potential limitation is that there may have been some crossover between the collaborative and non collaborative sites. As non collaborative wards noticed improvements made by their colleagues, they adopted the changes before they officially became part of the programme. This results in additional improvement in some non collaborative wards and dilutes evidence showing the power of a collaborative approach.

This programme of work did not require any additional funding other than the time staff invested in the collaborative.

CONCLUSION
Preliminary data suggests positive outcomes for patients although evaluations are ongoing and a full research report is due to be published at a later date. The experience so far at Salford Royal would suggest that this method of empowering and engaging with staff, to develop and make changes in their areas, is both powerful and effective.

REFERENCES