Swarm: a quick and efficient response to patient safety incidents

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Abstract Two years ago, a patient safety incident at North Bristol Trust led to the introduction of Swarm – a step change in how the trust responds to safety incidents. Swarm is a form of safety incident huddle that takes place as close as possible in time and place to the incident, allows blame-free investigation and leads to prompt action. This article describes how Swarm works, its advantages over root cause analysis, and how it is being embedded in the safety culture of North Bristol Trust.


FOLLOWING a safety incident at North Bristol Trust in May 2015 (Box 1), the patient involved met members of the trust board. He was dissatisfied with the trust’s response, believing assumptions had been made instead of staff meeting immediately to establish the causes of the incident. His experience in the radio-nuclear industry told him there were ways of investigating incidents that the NHS could learn from. He told the board about Swarm, a form of ‘post-incident huddle’ that allows rapid investigation and learning, and we decided to try it.

Root cause analysis

When patient safety incidents happen, it is crucial to learn from them to prevent them recurring. Like many others, we use root cause analysis (RCA) to investigate serious incidents and make improvements. However, this is long-winded and retrospective, and can be seen as being more about compliance reporting than real improvement (Li et al, 2015). Staff may be reluctant to open up for fear of blame, and when outcomes are released they can fail to address the underlying issues and are ignored (Li et al, 2015).

What is Swarm?

Swarm is based on the concept of ‘swarm intelligence’ in social insects such as bees, where the collective intelligence is greater than that of individuals. It has been used for problem-solving in the aerospace industry, and more recently in US hospitals to improve RCA after patient safety incidents. There is little literature on its use in healthcare, apart from Jing Li et al’s seminal work (Li et al, 2015). In healthcare settings, a Swarm is held as soon as possible after a patient safety incident. Like bees, staff ‘swarm’ to the site of the incident to determine its causes and how to prevent it recurring. The Swarm is carried out in a blame-free environment and while the incident is still fresh in everyone’s mind. This helps build a more accurate picture of the organisational and human factors involved, and allows staff to suggest improvements that can be made immediately (Li et al, 2015). Swarms are
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overseen by senior managers, who can influence change trust-wide.

After introducing Swarm, one US hospital saw a 52% increase in incident reporting (from 608 a month in June-December 2011 to 923 in January-May 2014) and a 37% fall in the observed-to-expected mortality ratio (from 1.17 in October 2010 to 0.74 in April 2015) (Li et al, 2015).

How Swarm works

Immediately after a patient safety incident:

- Staff give assistance to those involved and ensure the area is safe;
- Frontline staff create an incident report;
- Managers evaluate the incident report and a Swarm is held as soon after the incident as possible;
- Staff ‘swarm’ to work out what has happened, why and what to do to prevent it recurring.

Box 1. A mistake in theatre

In May 2015, a patient complained of acute stomach pain the day after an exploratory operation for bowel cancer. Computed tomography showed that a disposable wound protector had been left in his stomach. Swarm was introduced after the patient met with the trust board. Following his suggestions, staff involved in the incident ‘swarmed’ to establish what happened. Complications during the laparoscopy meant the surgeon had to alter the procedure in the middle, causing the wound protector to fall into the patient’s stomach. This went unnoticed as the disposables count did not include the wound protector and there had been a change of scrub personnel during the operation.

A patient safety alert was issued to surgical teams, advising:

- Clinical coordinators to discuss this never event at safety briefings to raise teams’ awareness;
- Theatre clinical matron and clinical care service managers to review and update safety briefing documentation;
- Managers to ensure all staff have read the updated policy and signed an acknowledgement sheet kept in the department;
- That any change of scrub personnel during a procedure must be done in accordance with the updated policy. The success of this process led to the introduction of Swarm across the trust.

Swarm introduces participants to each other to create familiarity and respect

An effective Swarm:

- Encourages candour by reassuring participants that they are in a blame-free environment with legal protection from personal liability;
- Introduces participants to each other to create familiarity and respect;
- Reviews the facts;
- Discusses what happened, as well as how and why it happened;
- Proposes actions and assigns task leaders with specific duties and deadlines.

Participants choose a representative (usually the ward manager) to lead the Swarm, with the senior trust lead overseeing the process. Staff aim to complete follow-up actions within 30 days. Suggested interventions are tested on a small scale and then reviewed before we decide how to proceed.

As a step change in organisational safety culture, the Swarm process must be agreed with commissioners and stakeholders. The goal is learning in a blame-free environment, raising care quality, achieving positive outcomes for patients and optimal staff performance and wellbeing (Li et al, 2015).

Swarm at North Bristol Trust

We introduced Swarm in 2015 as part of the RCA process. The Great Western Hospitals Foundation Trust, which already used Swarm, sent us its terms of reference, which provided a useful starting point. We worked with the clinical risk patient safety team to ensure the process was clear and Swarm is now explained to staff at induction and in multiprofessional quality improvement (QI) workshops.

The process

A Swarm is triggered by a serious patient safety incident; within 48 hours, the staff meet on the ward or department concerned to work out why and what actions are needed. Swarms last no longer than 30 minutes and are chaired by the QI patient safety lead or deputy director of nursing; if neither can attend other senior leads do so.

Participants are members of the multidisciplinary team providing the patient’s care – including staff involved in the incident. Clinical leads and heads of services may also be invited to the Swarm. Participants review the incident report then address a series of questions (Box 2). The aims are that:

- Staff identify the key lessons and a list of actions that can be implemented immediately under the leadership of the ward sister/department manager;
- Senior managers ensure learning is shared across the trust, for example, by issuing a safety alert;
- A review of the 72-hour incident report (the initial report shared with commissioners to let them know a serious incident has occurred) is sent to the clinical risk team the same day.

Most Swarms relate to falls, which are our biggest patient safety issue. We also held them for three ‘never events’ in theatre in the last year and for grade 3 pressure ulcers and bacteraemia.

Quality improvement

Each month the trust has, on average, 200 patient falls, two of which result in serious injury such as a fractured hip or cerebral bleed. Swarm is currently being tested as part of a QI programme for falls prevention. For most serious safety incidents, the Swarm is automatically followed by an RCA, but after a fall, Swarm participants decide whether improvements can be made to the trust’s falls prevention plan as part of a QI investigation, or if an RCA is warranted. A QI investigation is quicker than an RCA, as it consists of a list to be checked against the falls prevention plan. This allows staff to focus on the actions identified by the Swarm, rather than on lengthy form-filling associated with an RCA. Results of the Swarm and QI investigation are fed back to the falls prevention group so managers and commissioners can evaluate the process and improvements.
Support for staff
We thought staff might feel threatened by the presence of senior managers at Swarms, but once people understand they are about learning, not blaming, the opposite is true. “Staff feel listened to” (Emerline Albano, ward manager, complex care). “It helps staff feel supported because they know [the incident] is being taken seriously by managers” (George Duffield, ward manager, acute medical admissions).

Swarms are also a chance to offer staff support when emotions are running high. Staff may learn that there was nothing they could have done to prevent an incident, and it is helpful for them to hear this from someone outside the department.

“It can stop you from feeling the guilt by telling you [the incident] was unavoidable” (Yvonne Iles, ward manager, trauma).

Talking the incident through as a team and ironing out any inconsistencies also helps staff fulfil their duty of candour, as well as reassure patients and relatives that action is being taken immediately.

Challenges
At first we had to work hard to get everyone on board. We had to persuade our risk management department that not all falls incidents needed an RCA. Doctors needed convincing that a Swarm was not the same as a departmental debriefing.

Ideally, a Swarm has input from staff who were directly involved, but they may not be on duty that day, be nervous about the process, or too upset to talk about the incident in a group situation. In these cases we might suggest a one-to-one meeting with the ward sister, or drop in on the ward to reassure staff on what the Swarm will involve. We always explain it and prepare people for it at the start.

Moving forward
Swarm has led to a range of safety improvements (Box 3), enhancing our response to serious safety incidents by allowing us to disseminate learning quickly. Meeting staff soon after the incident – especially those directly involved, whose accounts can be very powerful – gives a more accurate picture of what went wrong.

“Staff are more likely to get behind the changes because it feels more real, rather than coming two months down the line. They see it as something of value rather just a management process” (Yvonne Iles).

Along with Schwartz Rounds, Swarm is helping us improve our safety culture and ensure staff feel supported. We are working to improve human safety factors after the three never events in theatre in the last year, and will continue to empower staff to hold local Swarms in their areas.

So far, we have carried out 12 QI investigations for falls, and are looking to extend them to pressure ulcers and bacteraemia. After testing them for falls, we hope to introduce QI investigations – including Swarm – across the trust, with the agreement of commissioners, transforming our response to patient safety incidents.

References

Local Swarm
As staff become more familiar with the process they are initiating contact when there is a major incident instead of waiting for us to contact them. Some ward managers are so convinced of the benefits that they are introducing local Swarm for less serious incidents at ward level, without the senior trust lead present. For example, in acute medical admissions, Swarms are now used after every fall, not just major falls.

“We have a five-minute template we are trying. It is helping us embed preventative measures, like making the environment safe and ensuring patients with delirium are regularly toileted” (George Duffield).

Local Swarms are also used on trauma and rehabilitation wards. For example, a change in specialty on one ward led to a big increase in pressure injuries, which local Swarms have helped reduce.

“Swarm lets us get onto it straight away, and gets everyone on board. It has made a massive impact in reducing pressure ulcers.” (Yvonne Iles)

Local Swarms are also being introduced on complex care wards for grade 2 pressure ulcers and medication errors.

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