CASE STUDY

Royal Cornwall Hospital

Improving sepsis screening and treatment

The Royal Cornwall Hospital was a significant negative outlier with sepsis mortality in 2014. Timeliness and completeness of Sepsis-6 delivery was low. A cross-specialty panel representing surgery, medicine, emergency department (ED), intensive treatment unit (ITU) and the CCG was formed to monitor progress and implement change between 2014-2017. A dedicated sepsis nurse was employed for training and audit. Frontline admission areas were targeted for special attention.

Objective

The trust recognised the need for sepsis improvement through national mortality figures and emergency medicine audits. The establishment of a national CQUIN which sampled sepsis screening and treatment from across the hospital population helped to provide impetus towards a trust-wide co-ordinated approach.

We recognised that sepsis affected patients at all stages of the patient journey in hospital; from day of admission to awaiting discharge, from clinic visit to post-operative recovery, and therefore a range of specialties had to be represented in drawing up the quality improvement plan.

Approach

As well as health professionals, commissioners were invited to oversee the improvement process and enable links to the wider healthcare community. The main impacts were likely to be in admission areas (emergency department, medical and surgical admission units) where sepsis cases had highest prevalence, but as patients could deteriorate into sepsis on any ward, improvements had to be made throughout the organisation.

Actions taken

A trust lead for sepsis was identified to chair a multi-disciplinary, multi-agency panel with responsibility for implementing change within specific areas. Using an iterative process of audit, reflection and action, the panel developed interventions to impact visibility and awareness, training, documentation, resource, staff empowerment, performance feedback and culture change. This included:

Visibility and awareness – Screensavers, posters, badges, lanyards, reference cards, stalls and displays in the entrance lobby and at fairs, and regular bulletin updates were all employed to keep sepsis in mind and a priority for frontline staff.

Training – A mandatory toolkit talk, e-learning materials, face-to-face and simulation training were delivered by the specialist nurse – over 900 staff were trained in workshops. A study of time to treatment by staff attending the simulation workshop demonstrated an improved response to identification and treatment.

Documentation – Screening of sepsis was tied to National Early Warning Score (NEWS) scores and the sepsis diagnostic and treatment algorithm was displayed on the trust observation charts with reminders.
ED nurses bundled documentation together to make it easier for clinicians to complete.
The ED computer system was reconfigured to print out the sepsis audit tool onto the clinical documentation for patients meeting sepsis criteria.

Resource – A part-time specialist nurse was employed to provide guidance, audit and training. Admission areas implemented sepsis boxes, sepsis trollies, ready-drawn antibiotics and point-of-care lactate testing.

Staff empowerment – ED nursing staff were trained in patient group directives for prescription of a commonly-used broad spectrum antibiotic, and doctors were trained in drawing it up.
Frontline staff were also engaged in improvement cycles and development of new ideas.

Performance feedback – As well as providing audit data by specialty, the ED provided regular feedback to all clinicians involved in the audited patients' care to encourage reflection on performance.
Sepsis performance figures were presented monthly to trust executive and governance meetings, and reported to our CCG as a national CQUIN.

Culture change – There was commitment to culture change towards awareness and recognition of sepsis as an emergency condition. Local patients and relatives of sepsis victims provided videos and seminars of their personal stories; sharing their experiences and illustrating the need for early recognition and aggressive management.
The ED ruled that all patients with potential sepsis be moved to the resuscitation room until it was excluded or treated.

Challenges and enabling factors

- Investment in, and retention of, a specialist nurse(s) is costly but brings benefits of expert in-house, in-situ training and guidance. We were unable to afford to place the nurse in a clinical role but this probably would be even better: learning at the point of delivery for frontline staff is most powerful.
- Building clinical information systems that are 'sepsis ready' is important: electronic observation records, ED information or e-notes systems should be built to screen for sepsis and prompt staff. However, this can take a lot of time and money and must be done alongside the other interventions. We managed to deliver it for ED with real improvement in performance but it still depended on clinical staff acting on the prompts. We have also spent a long time introducing an e-obs system throughout the trust with this capability.
- Staff turnover is a challenge for the admission areas – doctors will be trained on arrival but deep learning takes experience, repetition and reflection. This process has to be repeated 5 times a year as junior doctor cohorts change. Placing as much resource as possible into training and retaining substantive staff (including band 3/4 healthcare assistants and assistant practitioners) gives a better chance of long-term culture change.
- Reflection on personal experience and performance was rated highly as an engine for change by clinical staff. Rapid post-hoc identification of patients with severe sepsis for audit purposes allows early feedback to the staff involved.

- Staff coding of sepsis is unreliable so we developed an online RADAR tool which pulled audit information from multiple electronic datasets to find patients with sepsis criteria, allowing more frequent audits.
- Audit methodology in a long-term, longitudinal quality improvement programme such as this was hard to keep consistent due to audit staff turnover and even a changing clinical understanding of the underlying condition. Over the audit period our definition of sepsis has gone from Sepsis-2 international consensus, through Sepsis-3, to UK Sepsis Trust and NICE guidance. We have found that transparency around changes to methodology, maintaining a sense of the wider picture and an acceptance that audit should always reflect performance against best practice helped to keep us on track.

The best results have come from regular, personal updates to frontline staff and engaging them in the quality improvement project design and delivery.

Outcomes and impact

The multi-agency focus on sepsis allowed us to benefit from developments in the ambulance service where the prompt, 'consider sepsis' was being generated for patients where observations met sepsis criteria. Primary care engagement was less successful due to the lack of a single coordinating governance structure.

A future development objective is to share learning with community providers and try to treat suspected sepsis at its first point of recognition.

We raised trust mortality to national average and saw an increase in emergency department assessment for sepsis from 52% to 89% from April 2015 to Dec 2017. Timely treatment increased from 49% to 76% in the same period.

In-patient assessment for sepsis increased from 62% to 70% from April 2016 to Dec 2017 and timely treatment increased from 58% to 80% for these patients. This has contributed to the improvement in patient outcomes.

Comments from a parent

"I was pleased to see the sepsis literature on the walls, the information in A&E was good, in paed's A&E and also on the ward. I was also pleased to receive a 'spotting sepsis....' leaflet upon discharge.

"There was a consultant walking up the ward fairly speedily, having a conversation with a nurse about a little girl who met sepsis criteria and was to be relayed to the high dependency unit (HDU) as a matter of urgency. I was pleased to hear the urgency and response sepsis is being treated with."

For more information please contact

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