Good/notable practice case study

Author: Dr John Caldwell	**Organisation / Site**: Urgent Care 24
Job title: Medical Lead, Research and Quality improvement	**PSC / Region**: North West Coast
Telephone: 07850339355	**Date**: 31 July 2018
Email: john.caldwell3@nhs.net	john.caldwell@uc24.nhs.uk
Project title: Improving Sepsis Management: Using NEWS in out of hours primary care	

Background description:

Sepsis is currently a major clinical priority for the NHS because it is hard for medical professionals to identify Sepsis and appropriate and timely treatment is very important for good patient outcomes.

Urgent Care 24 is a primary care provider in the north west of England.
Following an incident in which a young adult patient attending our out of hours primary care service died of sepsis, we reviewed the case as part of our continuous improvement programme. We conducted a root cause analysis and end to end case review involving the patient's family, our interim medical director and director of nursing. We realised that early identification of sepsis could have made a material difference, and that early recognition was made harder because our clinicians were not routinely recording physiological observations as part of their patient assessment.

Our baseline assessment showed that just 11% of adult patients referred to hospital with infections in summer 2016 had a full set of observations (AVPUC, Pulse, BP, Respirations, Temperature and Oxygen Saturation) that would have allowed for calculation of National Early Warning Score (NEWS).

Three doctors and a data analyst from our service took part in the Advancing Quality Alliance (AQuA) Sepsis Breakthrough Series from September 2016 to January 2017, working with secondary care colleagues from the Royal Liverpool & Broadgreen University Hospitals Trust (RL&BUHT).

Aims, objectives and scope:

We aimed to improve the treatment of patients presenting with severe infection and at risk of sepsis by improving the quality of clinical assessment using a validated clinical

tool. The ambition was that a focus on clinical assessment and communication using a common language would improve the quality of referral to hospital for patients with suspected sepsis.

Ensuring that all patients presenting with an infection severe enough to consider hospital admission had a full set of observations allowing for the calculation of NEWS2 was essential to achieve our ambition. NEWS2 has been shown to support early recognition of sepsis and also supports communication at the interface of care from primary to ambulance or acute settings and is endorsed by NHS England, NHS Improvement and the Royal College of Physicians.

Method and approach:
We initiated our project after the first meeting of the AQuA series having produced a driver diagram and identified an improvement target of recording a full set of observations for 75% of such patients by end of March 2017. We held a launch meeting with a talk from Dr Emmanuel Nsutebu, National Clinical Advisor on Sepsis to NHS England and NHS Improvement, who set out the problem and asked our clinicians for their help.

We fed back regularly to the clinicians on the progress of the project and listened to their feedback, identifying that a change to the clinical system could support the aims and requesting a technical update from the system supplier, Adastra. The technical changes took several months to implement and cost £3,500 but led to a step change in results and achievement of the original target by September 2017. The system change, and clinician and data analyst time costs over the first year of the project totalled £11,500. In December 2017 we moved immediately to NEWS2 following the RCP launch announcement.

We built capacity for change and demonstrated leadership using regular feedback (nudge methodology) sharing the analysed data on a regular basis through fortnightly clinical bulletins and giving updates at meetings as part of our monthly education sessions. We listened to feedback from clinicians on our clinical processes to encourage involvement with our safety culture and engage them in our continuous improvement programme.

We set parameters for consultations involving a diagnosis of infection and mined clinical data to identify them. Following clinician review, the identified consultations were analysed, and we constructed run charts which were shared with clinicians

demonstrating improvement over time. We identified that clinician buy-in was vital to success and overcame initial resistance to change by telling the patient story that had inspired us to do this work and involving an eminent speaker in our launch meeting, project lead clinicians answering objections on an individual basis and sharing the objections and replies openly and transparently with all clinicians.

We used regular feedback of results, a PDSA cycle approach and personal enthusiastic leadership from the medical director to keep clinicians on board with the project. We created a dataset of infection clinical codes and these were analysed through the Adastra system. The proportion of consultations with full, partial and no observations were measured monthly and the results shared with the clinicians working for the service.

AQuA were involved throughout and provided support and training in QI methodology to our project team. We have since shared this work with our local PSC and are collaborating with Greater Manchester PSC to disseminate the work regionally and the Royal College of General Practitioners (RCGP) sepsis programme nationally.

Measurement plan:
We identified the main evaluation metric to be: the proportion of patients referred to secondary care with an infection who had a full set of observations recorded sufficient to calculate NEWS.

Results and evaluation:
We saw an improvement from 11% to our target of 75% of all patients admitted to hospital with an infection having all baseline observations (AVPUC, Pulse, BP, Respirations, Temperature and Oxygen Saturation) recorded and NEWS calculated within 1 year of project start.

We are continuing to collect and analyse the data which continue to improve, reaching 82.6% in February 2018, demonstrating a real culture shift amongst clinicians. Doctors noted that always taking observations routinely had changed outcomes and caused them to request urgent admission when patients initially looked well and allowed them to manage others out of hospital with appropriate safety-netting advice.

Feedback from Ambulance and Emergency Department colleagues in local hospitals showed our work improved quality of information reaching decision makers, giving them for the first time, a community baseline and helping them to assess deterioration and treat patients with suspected sepsis more rapidly.

Friends and Family feedback from a patient who was admitted with sepsis said she was told by her consultant that she would not have survived if the GP assessing her had not recognised her suspected sepsis and informed the ambulance team and the hospital in advance.

Learning points:

1. Set clear, measurable aims and objectives
2. Identify barriers and develop strategy to meet challenges
3. Technological support is very helpful - system changes support cultural change and we would implement this earlier
4. Regular feedback vital to maintain clinician engagement
5. Learning QI methodology gave a theoretical framework allowing us to better understand and analyse the progress of the work.

Plans for spreading learning and encouraging adoption:

- Liverpool CCG have appointed a Sepsis Lead who invited us to collaborate on developing their Primary Care Sepsis strategy.
- Liverpool Community Health asked us to help implement NEWS2 for District Nursing Teams and Dr Fletcher is working with them to embed this in practice.
- We are working with Dr Nsutebu on outcomes for suspected sepsis patients we referred to RL&BUHT.
- Dr Ron Daniels from the UK Sepsis Trust asked us to partner with them in their April 2018 Sepsis Liverpool Public Awareness campaign at the Grand National Meeting at Aintree.
- Dr Fletcher and Dr Caldwell attended the Out of Hospital National Sepsis Summit, delivered RCGP training in three cities and participated in the RCP/NHSE/RCGP sepsis information sheet WebEx development.
- UC24 have joined the North West Coast (NWC) Clinical Research Network (CRN) and sent a team to their Strategic Summit meeting in June 2018.
- Dr Fletcher and Dr Caldwell are helping the Manchester Patient Safety Collaborative to support the use of NEWS2 in primary care and will be Keynote Speakers at their planned Primary Care NEWS2 event in January 2019.
- We will be speaking on the development of cross-community systems at the RCGP Sepsis Summit meeting in November 2018 at Anfield Stadium

Key contacts and further information:

Dr John Caldwell john.caldwell3@nhs.net Twitter: @drjohncaldwell
Dr Suzanne Fletcher s.fletcher72@gmail.com Twitter: @SuzFletch72