Aintree University Hospital NHS Foundation Trust - Countess of Chester Hospital NHS Foundation Trust - East Lancashire Hospitals NHS Trust - Lancashire Teaching Hospitals NHS Foundation Trust - Mid Cheshire Hospitals NHS Foundation Trust – Pennine Acute Hospitals NHS Trust - Royal Liverpool and Broadgreen University Hospitals NHS Trust - Southport and Ormskirk NHS Trust - St Helens and Knowsley Teaching Hospitals NHS Trust - Stockport NHS -Tameside Hospital NHS Foundation Trust - University Hospitals of Morecambe Bay NHS Foundation Trust - Warrington and Halton Hospitals NHS Foundation Trust - Wirral University Teaching Hospital NHS Foundation Trust - NHS Blackburn with Darwen CCG - NHS Bury CCG - NHS Chorley and South Ribble CCG - NHS East Lancashire CCG - NHS Greater Preston CCG - NHS Halton CCG - NHS Heywood Middleton and Rochdale CCG NHS Knowsley CCG - NHS Lancashire North CCG - NHS Liverpool CCG - NHS Oldham CCG - NHS South Sefton CCG - NHS South Cheshire CCG - NHS Southport and Formby CCG - NHS St Helens CCG - NHS Stockport CCG - NHS Tameside and Glossop CCG - NHS Vale Royal CCG – NHS Warrington CCG - NHS West Cheshire CCG - NHS Wirral CCG—Aintree University Hospital NHS Foundation Trust - Countess of Chester Hospital NHS Foundation Trust - East Lancashire Hospitals NHS Trust - Lancashire Teaching Hospitals NHS Foundation Trust - Mid Cheshire Hospitals NHS Foundation Trust - Pennine

Advancing Quality in sepsis management:
A largescale programme for improving sepsis recognition and management in the North West region of England

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Introduction

Advancing Quality (AQ) is an established approach to reducing variation and improving outcomes for patients in the North West of England. It aims to improve clinical care by producing and implementing evidence-based bundles of care across a collaborative network of hospitals.

There are approximately 150,000 cases of sepsis in the UK each year. Sepsis is a significant cause of morbidity and mortality – estimated 30% mortality in the North West of England. It is responsible for about 13,500 admissions and 3,800 deaths per annum.

The AQ sepsis programme aims to improve sepsis care and clinical coding within the region. In the first 12 months the care of over 9,500 patients with infection was examined.

The measure set is consistent with recommendations from the International Surviving Sepsis Campaign (2012) and was devised by a clinical expert group with support from a literature review produced by the British Medical Journal.

AQ Sepsis measure set

SEPS-01	Early Warning Score recorded within 60 minutes of hospital arrival
SEPS-02	Evidence of sepsis screen performed
SEPS-03	Blood cultures taken within 3 hours of hospital arrival
SEPS-04	Antibiotics administered within 3 hours of hospital arrival
SEPS-05	Serum lactate taken within 3 hours of hospital arrival
SEPS-06	Second litre of IV fluids commenced within 4 hours of hospital arrival if hypotensive, SBP < 90 mmHg
SEPS-07	Oxygen therapy administered within 4 hours of hospital arrival if SpO2 < 94%
SEPS-08	Fluid Balance Chart commenced within 4 hours of hospital arrival if IV commenced
SEPS-09	Senior Review or assessment by Critical Care within 4 hours of hospital arrival if serum lactate > 4 mmol/l

Measurement

Sepsis care is assessed by using performance on an Appropriate Care Score (ACS) – the percentage of patients who received all eligible measures.

Performance for individual measures can also be monitored, giving clarity on problem areas.

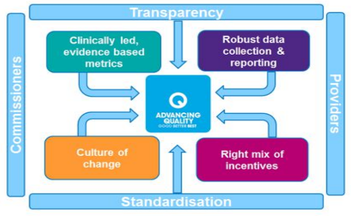
Performance results were published on a monthly basis and shared with collaborating hospitals.

Method

The AQ sepsis measures and monitoring were devised using an established AQ framework.

- A local Clinical Expert Group reviews evidence base to determine a small number of condition specific interventions, known to improve patient outcomes - known as 'AQ measures'.
- Avoid over-complexity in measures.

- Shared values & positive culture of change.
- Teams share ideas and best practice.
- Regular pan-region learning and networking events.
- Virtual networks and learning sessions.



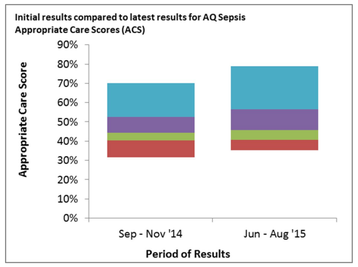
- Data for every patient with sepsis code admitted to an AQ North West hospital is captured.
- Transparent reporting - teams see how others are performing, benchmark their own practice & identify opportunities to improve.

- Incentive framework designed to appeal to different audiences
- Pay for Performance and CQUINs.
- Public reporting.
- Improvement targets.

ICD10 codes were used to identify patients with sepsis. A standard data collection tool was used to assess management of patients with sepsis on a monthly basis. Patients without a documented suspected infection within the first 48 hours of hospital arrival, pregnant and terminally ill palliative care patients were excluded.

Results

Fig 1. ACS results



- Performance of all Trusts participating with full census populations for the initial three months from the launch of AQ Sepsis & the latest three months of results.
- Each colour block represents two acute Trusts.
- The bottom of each block represents the lower performing Trust and the top the higher performing.
- Since AQ Sepsis started a higher proportion of patients are now receiving "appropriate care" - an increase of 34.7% patients.

Fig 2. Percentage of patients receiving antibiotics within 1hr

- In Trusts participating in AQ Sepsis the performance against antibiotics within 1 hour has increased over the duration of the focus area.
- The proportion of patients with Sepsis receiving their antibiotic within 1 hour has increased by 14.6% over the period.
- There has been an increase of 16.9% of patients with Septic shock receiving their antibiotics within 1 hour.
- The proportion of patients with severe sepsis or septic shock, receiving their antibiotic within 1 hour, has increased by 8.8% over the period.

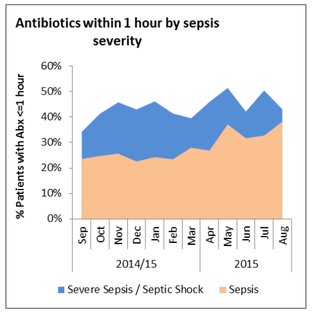
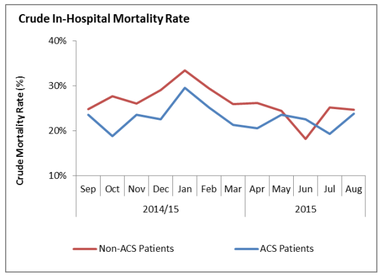


Fig 3. Mortality rate



- Patients who achieve appropriate care have a lower in-hospital mortality rate than those that do not.
- Over the period there was a crude mortality rate of 26.3% for patients that did not pass their ACS.
- This is 2.5% higher than patients who did achieve ACS (rate = 22.8%).

Conclusion

The use of an evidence based sepsis bundle of care across a regional collaborative network of hospitals, appears to have improved management of sepsis and outcomes.

Many Trusts have established their own sepsis pathways to include the AQ measures, making data collection easier.

The process of data collection has now become routine in many organisations and the programme has also seen an increase in coding of this clinical condition due to heightened awareness and recognition.

AQ Website: www.advancingqualitynw.nhs.uk **AQ Email: advancing.quality@nhs.net** **AQuA Website: www.advancingqualityalliance.nhs.uk**

References and Acknowledgements

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