



# Community Acquired Pneumonia: Enhancing Quality

The Kent Surrey Sussex Academic Health Science Network Respiratory Network was formed in 2010 to improve the quality, availability and accessibility of respiratory services, and reducing unwarranted variation in the management of pathways, such as community acquired pneumonia (CAP) and chronic obstructive pulmonary disease (COPD).

## The issue

Kent Surrey Sussex (KSS) has a population of 4.2 million served by 11 acute hospital trusts. Kent Surrey Sussex Academic Health Science Network (KSS AHSN) Respiratory Programme ran a project focussed on improving care for patients admitted with community acquired pneumonia (CAP) from 2010 to 2015.

CAP is a common reason for unplanned admissions with significant mortality. Around 10,000 patients per year are admitted with CAP in KSS, with a modal length of stay of 5 days, and a mortality rate of between 5 and 30%, depending on age and severity of the episode.

It was recognised that care was often not in accordance with national guidelines. The UK 'North West Advancing Quality' project had shown it was possible to improve compliance in five 5 'quality markers' over a 30 month period of quality improvement. (doi:10.1136/thoraxjnl-2012-202678.155.) The KSS AHSN CAP Enhancing Quality (EQ) project aimed to improve compliance with an agreed CAP care bundle, with the aim of improving patient outcomes.

## Assessment of problem and analysis of its causes:

KSS AHSN engaged with acute trusts who appointed clinicians as pneumonia lead (PL) in a funded role. Meetings held with the PLs explained the rationale and listened to their concerns. Two 'Respiratory Collaborative' events a year were run based on the Institute of Healthcare Improvement (IHI) 'Breakthrough Series: Collaborative Model for Improvement' methodology.

The events were multi-disciplinary, taking a collaborative approach with teams able to express problems, share solutions and celebrate successes in a peer support network environment. Feedback from these events was used to shape the direction of the programme.

## Intervention:

Trusts set systems in place to deliver the CAP care bundle. Key people in the trusts were the PLs and the quality teams.

There was a continuous audit of practice against the bundle measures. Results were initially collated using Data Clarity software solutions. Results were fed back to teams allowing tracking of progress.

## Strategy for change:

The improvement process was by continuous audit and comparison to other trusts.

There was opportunity for feedback at the Respiratory Collaborative events. Those who attended were encouraged to circulate information to other members of the team and to liaise with other departments (e.g elderly medicine) within their organisations. This method sustained change and helped the care bundle delivery within a supportive network.

## Measurement of improvement:

Using the software package (Data Clarity) KSS AHSN tracked compliance with the CAP Care Bundle elements.

In 2014 the BTS published a CAP care bundle, collaborative members discussed the differences and refined the KSS Care Bundle. Hospital Episode Statistics (HES) data was used to track outcome measures.

## Problems encountered

Collecting data was a very large amount of work for the teams. High level support at trust level was key, there was often requirement for overtime payment for data collection.

## Sustainability

In 2015 with support from the Respiratory Collaborative the decision was made to stop collecting data as results had plateaued in terms of delivering the CAP Care Bundle. However, it was agreed that the Respiratory Programme would continue to monitor CAP hospital mortality rates and report back at the ongoing Respiratory Collaborative events which now have a focus on the COPD discharge bundle. The downward trend for inpatient CAP mortality continues to date.

## Lessons learnt

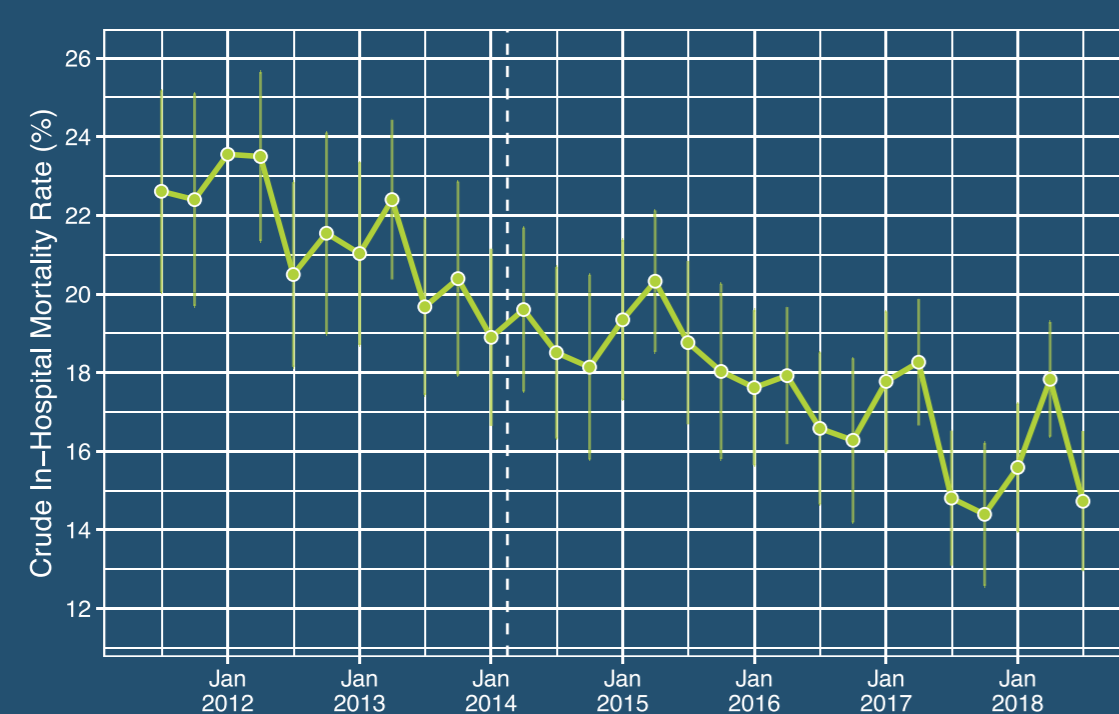
- Appointing local Clinical Leads was key to effecting change, clinical leadership and engagement from QI Leads was vital to this work
- The amount of work involved in auditing the patient records was great, there was a huge data workload and dataset
- The use of in-house data software at KSS AHSN at the time would have been more cost effective and would have allowed more control to handle the data in a way we wanted

## Messages for others:

Lessons learned at KSS AHSN show that by data sharing, data reporting and a strong collaborative approach as a region means it is possible to achieve large scale changes in patient care associated with improved outcomes.

Enabling Trusts to compare their performance with other organisations in the region is motivating and also helps to identify successes and areas which may need improvement. There have been many vibrant CAP discussions at our Respiratory Collaborative events which led to continued engagement with the work.

## Effects of changes



Compliance with the 4 core CAP bundle elements improved over time. By 2015 the pooled regional compliance of the bundle elements which remained unchanged over the 5 years was:

- 56%** CURB-65 calculated (a measure of CAP severity which guides treatment decisions)
- 93%** Appropriate antibiotic prescribed
- 79%** Antibiotic administered within 6 hours
- 80%** Oxygen saturation assessed in 1 hour



Over **66,000** patients were audited from July 2010 to November 2015

Average length of stay fell from **9.74** days to **8.74** days.



Crude mortality fell from **22.2%** to **18%** (P<0.0001 for trend).