

## The Respiratory Infections Team – a novel paradigm in the treatment of community-acquired pneumonia

**20**  
YEARS OF  
**NICE**  
1999-2019

Guideline concordance and antimicrobial stewardship for patients admitted with community-acquired pneumonia (CAP) remain poor in the UK.

A Respiratory Infections Team was developed at the Royal Derby Hospital, and consecutive patients admitted to hospital with CAP were identified and prospectively reviewed by three specialist respiratory nurses.

*“The new Respiratory Infections Team has led to improvements in care quality, antimicrobial stewardship and reduction in length of hospital stay.”*

**Dr Tom Bewick**, Consultant Respiratory Physician,  
University Hospitals of Derby and Burton



### What we did and why

The problems with the current approach to CAP management are threefold:

1. NICE Guideline concordance, care quality and patient outcomes are poor.
2. Patients of low severity are managed in hospital rather than as outpatients.
3. Antibiotic stewardship - and the potential for streamlining treatment based on rapid microbiological testing, with earlier decision making and discharge - is limited.

Following a pilot, a successful bid was entered for NHS England funding in January 2017: £252,000 was awarded to set up a team comprising three specialist nurses with consultant and pharmacist support, reviewing consecutive patients admitted to the trust with CAP.

The objectives of the team were to:

1. Implement the NICE pneumonia guidelines, leading to  $\geq 70\%$  concordance in year 1, and 80% in subsequent years.
2. Identify patients with low severity CAP for outpatient management, implementing early telephone-supported discharge and follow-up, reducing their length of stay.
3. Streamline antibiotic treatment using point-of-care microbiological tests within 48 hours of admission, reducing total amount of antibiotics prescribed both in route and spectrum.

### Outcomes and impact

Over two years the team has reviewed 947 patients with suspected CAP; 153 had a chest radiograph reported as clear and were excluded, leaving 794 for analysis. A comparison was made with a pre-intervention CAP cohort.

Length of stay was reduced when compared with pre-intervention after adjustment for disease severity (low severity, 3.4 vs 4.4 days; moderate severity, 4.9 vs 7.6 days; high severity, 7.4 vs 8.9 days), and readmission rate at 30 days was unchanged. Early supported discharge was appropriate in around 1/3 of patients; in this group length of stay was even shorter at 3.4 days and readmission rate lower.

A positive microbiological diagnosis was made in 210 (26.4%) patients compared with 16 (4.9%) pre-intervention. Broad spectrum antibiotic regimens were streamlined in 107 (13.5%) patients.

To date, 100% of patients have been happy with the care they received. Clinicians have found this novel service both challenging to their current practice, but also helpful from an educational perspective.

### What we learnt

A dedicated respiratory infections team can significantly reduce length of stay for patients admitted to hospital with CAP, and a robust microbiological diagnosis early in the admission episode results in an improvement in antibiotic stewardship.

Based on these positive results, the service has now been recurrently funded by the Trust. Future developments planned include:

- Streaming patients directly from acute admitting areas to a cohorted respiratory infections unit.
- Expanding the range of point-of-care microbiology tests including routine HIV testing.
- Introducing virtual nurse-led pneumonia follow up clinics.

Engagement from the Trust transformation team from the outset has made turning a clinical idea into reality a much more viable prospect. Strong leadership from the senior medical and nursing team and a clear idea of “what good looks like” has contributed to the success of the service, and a good partnership with the private sector (in this case, the company making the point-of-care microbiological test kits) has benefited both parties.