The diagnosis and management of community acquired pneumonia: a quality improvement project

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Introduction

- Community acquired pneumonia (CAP) is a diagnosis made frequently in Acute Medical Units (AMU) with an annual incidence of between 5 and 11 per thousand adult population.\(^1\) It is associated with a significant mortality varying between 5.7% and 14% in the UK.\(^2\)
- The average cost for managing pneumonia in the community is estimated at £100 per episode compared with £1700–5100 when hospitalisation is required.\(^3\)
- It is diagnosed in patients with symptoms and signs consistent with an acute lower respiratory tract infection associated with new radiographic shadowing for which there is no other explanation.\(^4\)
- In unstable patients treatment must be initiated promptly. However, in the stable patient, confirmatory investigations should be carried out prior to treatment with antibiotic therapy.
- From experience, we felt that there was a delay in diagnosis and therefore appropriate treatment and possible discharge due to a delay in patients having chest x-rays (CXR) performed.

Aim

To improve the time taken for a radiological diagnosis of community acquired pneumonia in patients presenting to the ambulatory area of the acute medical unit at New Cross Hospital, Wolverhampton.

Method

- A process map was devised of the patient journey from arrival to initiation of treatment.
- Initial data was then collected to identify which stages created the biggest delays.
- It soon became apparent that the largest delay in the process was obtaining a chest x-ray to aid diagnosis.
- This stage in the process was then broken down further to see where changes could be made to streamline diagnosis.
- The following interventions were made
  1. Prioritisation of CXR requests by the radiology department.
  2. Prioritisation of patient transfer by porters from AMU to the radiology department.
- Post-intervention data was then collected over a period of 2 weeks and compared to the pre-intervention data.
- A total of 36 patient journeys were evaluated

Results

![Bar chart showing duration of patient journey and same day discharges](image)

- 33% improvement in door to CXR time
- 43% improvement in door to antibiotic time
- 10.7% more discharges

Conclusion

The British Thoracic guidelines for management of CAP suggest that CXR should be performed in time for antibiotics to be administered within four hours of presentation to hospital.

Although the patient journey from hospital arrival to antibiotic administration is complex, we have demonstrated that addressing individual processes in that journey can have a significant impact in reducing delays in diagnosis and management of CAP in an AMU as well as enabling timely same-day discharges.

References