How effective would a new triage screening tool be to streamline antibiotic treatment for pneumonia?

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**BACKGROUND**

Community-acquired pneumonia (CAP) is inflammation of the lung parenchyma characterised by:

- The overwhelming of the immune system by an infective organism causing fluid leakage and mucous formation in the alveoli
- A resulting consolidation picture on chest X-ray
- A serious problem in the UK?
- UK adult population has a CAP incidence of between 5 and 11 per 1000
- The mortality rate for over 65s with pneumonia is 280.3/100,000 in the UK/year
- Up to 87% of the cost of managing one episode is spent on hospital admission and the cost of treatment is hospital compared to community treatment is significant (£1700-£5100 vs £1000)

**SCREENING TOOL**

Currently all patients with a suspected CAP must wait to see a doctor before being X-rayed

To eliminate this waiting a screening tool has been produced and modified in order to highlight 'at risk' patients and enable the triage nurse to send patients straight for X-rays

**AIMS OF THIS STUDY**

1. To retrospectively study patients with established CAP and explore the most common presentations
2. To calculate the time taken for each patient to pass through the current CAP pathway
3. To retrospectively apply the short-form screening tool to discover whether these patients could have been diagnosed earlier

**RESULTS – SIGNS & SYMPTOMS**

- 23 patients' data was collected in AMU from admission notes
- Commonest presenting symptoms were SOB and Cough (each 16/23 pts)
- Only 6 CAP patients presented with chest pain
- Tachycardia and tachypnoea were present in over half of the patients
- The most indicative sign was O2 saturation with 15/23 patients having a saturation <95%

**ANTIBIOTIC ADMINISTRATION**

- As almost half the time until antibiotics is waiting for CXR, a reduction in this may have a significant impact on the overall treatment time

<table>
<thead>
<tr>
<th>Time waited until Antibiotics</th>
<th>Average time from Triage to CXR</th>
<th>Average time from CXR to Antibiotics</th>
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<tbody>
<tr>
<td>53.80%</td>
<td>2 hours 42 mins</td>
<td>46.20%</td>
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- The Average transit time taken from triage until antibiotic administration was 5 hours and 1 minute (range – 30 mins to 16 hours 42 mins)
- This is currently 59 minutes under the BTS recommended target
- 73.7% (17/23) of patients were treated within this time
- Had the screening tool been used, 82.6% (19/23) of patients would have been "picked up" and sent for immediate CXR without the need to wait for a doctor

**CONCLUSIONS & RECOMMENDATIONS**

- The addition of confusion to the criteria would not have picked up any extra CAP cases
- This screening tool was shown to have a sensitivity of over 80% which could decrease treatment time by merging stages 2 & 3 thereby reducing mortality and costs to the NHS
- All the patients seen with pneumonia were over 65 so it may reduce false positives by adding this qualifier to the criteria
- A trial implementing this tool in an acute medical setting with large numbers of patients could provide further evidence of this small study

**REFERENCES**

2. NHS Information Centre for health and social care. Mortality from pneumonia: crude death rate, by age group, 3-year average, MFP 2012.
3. Guest JF, Morris A. Community-acquired pneumonia: the annual cost to the National

**CURRENT PATHWAY FOR SUSPECTED CAP PATIENT**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Admission to A&amp;E or AMU (Acute Medical Unit) in the Royal Liverpool University Hospital (RLUH)</th>
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<tbody>
<tr>
<td>Stage 2</td>
<td>Triage nurse suspects pneumonia so sends patient to waiting room until doctor is available</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Doctor examines pt. and sends for immediate CXR</td>
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<tr>
<td>Stage 4</td>
<td>Patient waits for CXR and waits after until he can see the doctor again</td>
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<tr>
<td>Stage 5</td>
<td>Doctor administers antibiotics to treat CAP</td>
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RLUH (BTS) guidelines state that all patients with suspected CAP must receive antibiotics within 6 hours of admission