Characteristics and management of febrile children with a lower respiratory tract infection presenting to a paediatric emergency department

B. Baas1,2, E. Lim3,4, M. Brodlie4,5,6, H.A. Moll2, M. Emonts1,4,6 on behalf of MOFICHE/PERFORM consortium

Introduction
30% all paediatric emergency department (PED) visits to the Great North Children's Hospital (GNCH) Newcastle upon Tyne, UK are for fever. GNCH has 30,000 PED visits per year. Lower respiratory tract infection (LRTI) is a common cause for admission. Differentiating between a self-limiting viral infection and a 2nd bacterial pneumonia can be challenging.

Study Aim:
To describe the characteristics of children presenting to a tertiary children’s hospital with fever and a LRTI.

Methods
A retrospective patient record review. Inclusion criteria were:
• Age 0-17 years;
• Visit between April – December 2017
• (History of) fever (≥ 38.0)
• Lower respiratory tract infection as discharge diagnosis

Results
• 14,797 children presented to ED.
• 2,851 (19.3%) with fever and
• 414 (14.5%) of these had LRTI.
Mean age was 33 months, 27% had co-morbidity, 43% sought prior medical attention and 14% already had antibiotics.

Diagnostics
116 (28.0%) children had chest X-rays (CXR)

CXR RESULTS

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>%</th>
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<tbody>
<tr>
<td>Normal</td>
<td>22%</td>
</tr>
<tr>
<td>Focal changes</td>
<td>46%</td>
</tr>
<tr>
<td>non specific</td>
<td>32%</td>
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</tbody>
</table>

Do diagnostic tests change management?
• 101(87.1%) children with CXR received antibiotics
• BUT 22 (78.6%) children with normal CXR still received antibiotics
• 64 (15.5%) had blood tests.
• 58 (92.1%) children with blood tests received antibiotics

Conclusion:
Children with fever and LRTI present a significant burden of care for PED.

• Too many children underwent unnecessary diagnostic tests
• CXR in particular did not alter the course of management
• Antibiotics were frequently prescribed

There is potential to reduce investigations and antibiotic prescribing in this group, thus improving antibiotic stewardship, reducing morbidity and making cost savings in community acquired lower respiratory tract infection.

Empiric antibiotic choice for LRTI in PED

Data presented as percentage of patients

Pneumonia Bronchiolitis Bronchiolitis superinfection Viral induced wheeze Asthma exacerbation

CXR performed Blood tests performed Antibiotics prescribed Bronchodilators

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