Looking out for Little Lungs

Improving antibiotic prescribing in Community Acquired Pneumonia

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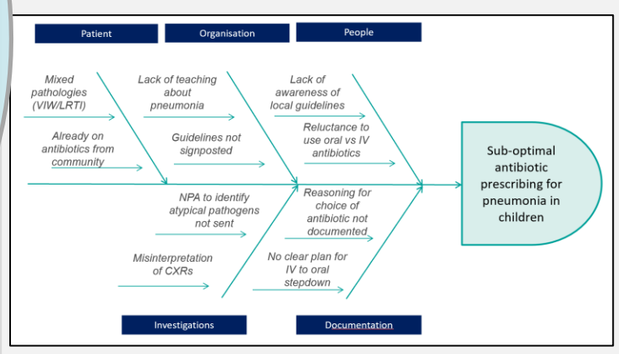
PROBLEM

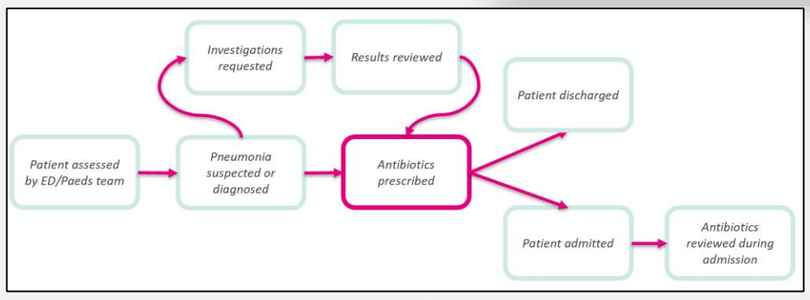
Children with **chest infections** are often given the **incorrect antibiotics**, and for longer than needed. This results in increased antibiotic **resistance**, more **side effects** and **wastes NHS money**.

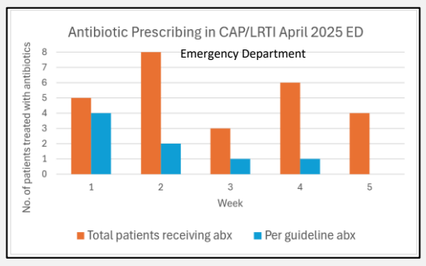
BACKGROUND

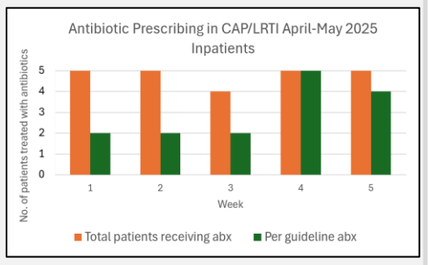
There are local and national guidelines available for antibiotic prescribing for Community Acquired Pneumonia (CAP) or Lower Respiratory Tract Infection (LRTI) in Paediatric patients. However, prescribing practices on the Paediatric ward and in the Emergency Department (ED) our department are highly variable.

DIAGNOSTICS









AIM

By 1st August 2025, 9 out of 10 children diagnosed with CAP or LRTI (admitted to the ward AND discharged from ED) should receive antibiotics which follow the local guidelines.

MEASUREMENT DEFINITION

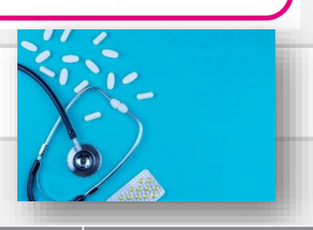
Each patient assigned a composite score out of 3, one point for each of the following which follow local guidelines:

- Correct type of antibiotic
- Correct form of antibiotic
- Correct duration of antibiotic

Inclusions: Paediatric patients diagnosed with community acquired pneumonia or a lower respiratory tract infection; inpatients and patients discharged from ED.
Exclusions: Oncology patients and babies under the age of 1 month (they each have separate prescribing guidelines).
Sampling method and frequency: Weekly sampling of inpatients/patients discharged from ED.

CHANGE IDEAS

1. Running a teaching session every rotation on pneumonia and antibiotic prescribing
2. Create a 'Pneumonia' prescribing 'care-set' on our IT system (CRS)
3. Create a pop-up alert when trying to prescribe certain antibiotics
4. Create a shortcut link to the prescribing guidelines on CRS
5. Put up posters in ED/doctors office
6. Have 'antibiotic prescribing champions' in ED/ward to check prescriptions
7. Put a reminder at the top of the handover list to check antibiotic prescriptions
8. Ward pharmacist to review all antibiotic prescriptions and speak to ward doctors if any issues
9. Have an 'antimicrobial' huddle weekly on the ward
10. Send out reminders about good prescribing practice on the departmental WhatsApp group
11. Include a section on prescribing in the monthly Paediatric teaching newsletter

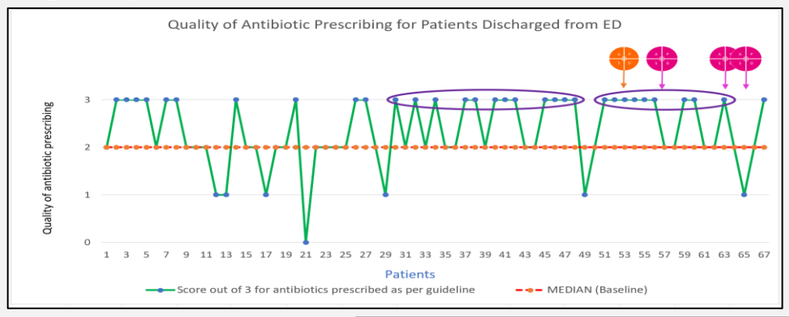


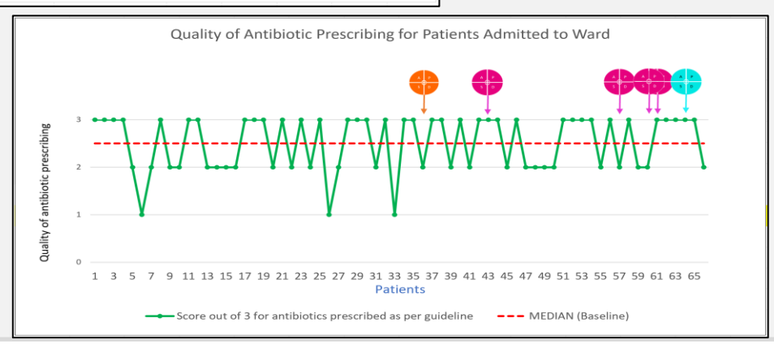
PDSA cycles

PDSA Test #	PLAN	Do	STUDY	ACT
1.0	Share and learn	Share my baseline bar chart data with my educational supervisor	Supervisor was very supportive of the project, provided suggestions for change ideas, and identified key contacts within the pharmacy team.	1. Share my QI project with the wider Paediatric team 2. Contact pharmacy team to discuss change ideas.
2.1	Grand Round teaching presentation	Deliver a teaching session during weekly Grand Round meeting, engage attendees through Mentimeter poll to suggest change ideas.	Session attended by 7 consultants and 10 other staff (trainees, ANPs, medical students). This generated rich discussion, reflection on current practice, and overuse of certain antibiotics. There were multiple suggestions—particularly around education and guideline accessibility.	1. Deliver adapted teaching session to ED colleagues 2. Integrate antibiotic prescribing into regular teaching 3. Include summary in the education newsletter
2.2	Teaching summary poster in doctor's office	Create A4 sized summary poster of QI project and display in doctors' office.	Attempted to use the poster to spark conversations with colleagues, but it had limited impact. Reflected that it was likely too wordy and not visually engaging.	Abandon poster in current format.

PDSA Test #	PLAN	Do	STUDY	ACT
2.3	Follow up Grand Round update	Give a 5-minute project update with latest data during Grand Round meeting.	Generated discussion around antibiotic choices and suggestions of how to include Microbiology team. One college reported changing their prescribing practice since the first Grand Round session.	Use future Grand Round slots to give short, regular updates to the team about the project and latest data.
2.4	Teaching summary in education newsletter	Share summary of the QI project and links to external guidelines through the Paediatric education newsletter.	Newsletter reached a wider audience, including those who missed Grand Rounds; awaiting feedback.	Abandon due to variable newsletter timings and limited control over feedback collection.
3.1	Discuss a new ward antimicrobial huddle	Educational supervisor to propose the idea of a weekly antimicrobial huddle during the weekly Paediatric Consultant meeting.	Positive consultant feedback received, with agreement on the value of the huddle and selection of a suitable day/time.	Co-ordinate with pharmacy and microbiology team to establish a weekly antimicrobial huddle.

RUN CHART





CONCLUSIONS

- I have not yet met my ambitious aim for this project for 9 out of 10 children to receive antibiotics as per the guideline. However there have been some small improvements, with ward prescribing improving from 5.4/10 to 5.8/10, and ED improving from 4.6/10 to 5.3/10 patients receiving antibiotics as per local guidelines. Variation has also decreased, with less deviation from guidelines (less scores of 0 or 1).
- There were no statistically significant runs in the ward patients' run chart. Interestingly, I noted a significant run in the ED patients (12 consecutive points above the median line) before I had even started my first PDSA; the cause of which is unclear. However, there was also a second run of 9 consecutive data points above the median after I had started the project.

REFLECTIONS & LEARNING

- The model for improvement helped me to break down the problem and identify potential points in the process at which a change can be implemented. In hindsight, the problem was perhaps bigger than I had expected, and change will take longer to be seen.
- Making changes that are sustainable has been challenging but change ideas that actually engage people and include them in the process appear to be more effective. Starting with the smaller change ideas (teaching session) allowed me to get the rest of the team to agree to implementing the more challenging, but more sustainable interventions (weekly antimicrobial huddle).

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