

Improvement of inhaled corticosteroid prescription rates in children under 5 presenting with asthma or wheeze

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Introduction

Acute wheeze is one of the most common presentations to the paediatric Emergency Department in under 5s and it is associated with significant morbidity and mortality. Up to three-quarters of these presentations are thought to be avoidable. Inhaled corticosteroids are the first-line medication in the prevention of acute exacerbations of wheeze, with a significant body of evidence supporting their efficacy. Despite this, inhaled corticosteroids are often under-prescribed in this age group.

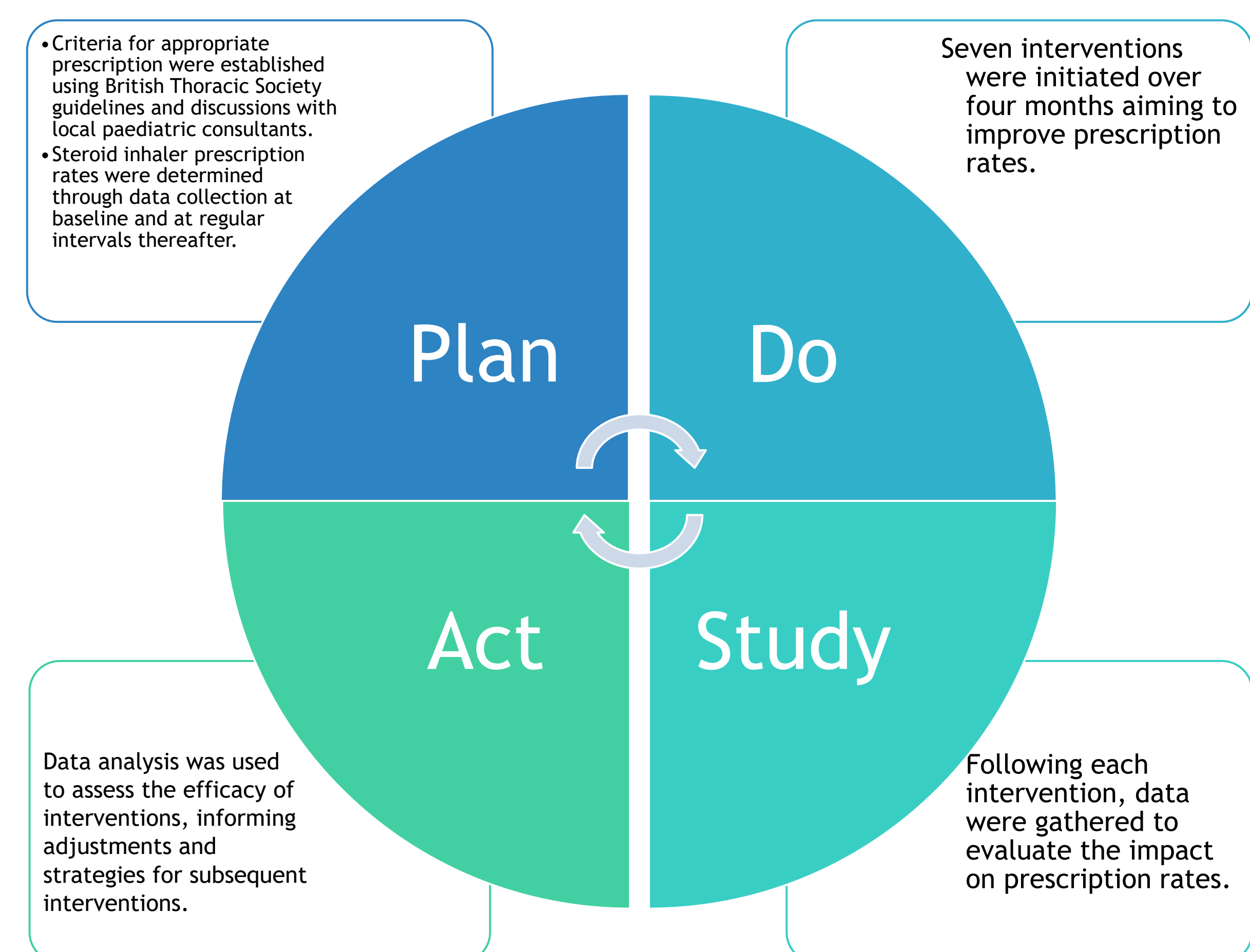
Aim: To improve the rate of appropriate inhaled corticosteroid inhaler prescriptions in children under 5 presenting with acute wheeze.

Methods

The project used a systematic quality improvement approach using the Plan-Do-Study-Act (PDSA) framework as detailed in the diagram below. A driver diagram was used to explore key root causes and brainstorm relevant intervention strategies. The percentage of eligible children receiving beclomethasone inhaler prescriptions that presented to the Emergency Department (ED) or the Paediatric Assessment Unit (PAU) was calculated at baseline and then every two weeks using retrospective analysis of the hospital database. Seven separate interventions were carried out over four months and their impact on prescription rates was assessed.

Interventions in chronological order:

- 1) Inclusion of prescription criteria on PAU referral forms
- 2) Prescription guidelines emailed to paediatric doctors
- 3) Prescription guidelines emailed to ED doctors
- 4) Patient information poster displayed in PAU
- 5) Teaching session for ED junior doctors
- 6) Teaching session for paediatric ED nurses
- 7) Presentation at paediatric Journal Club

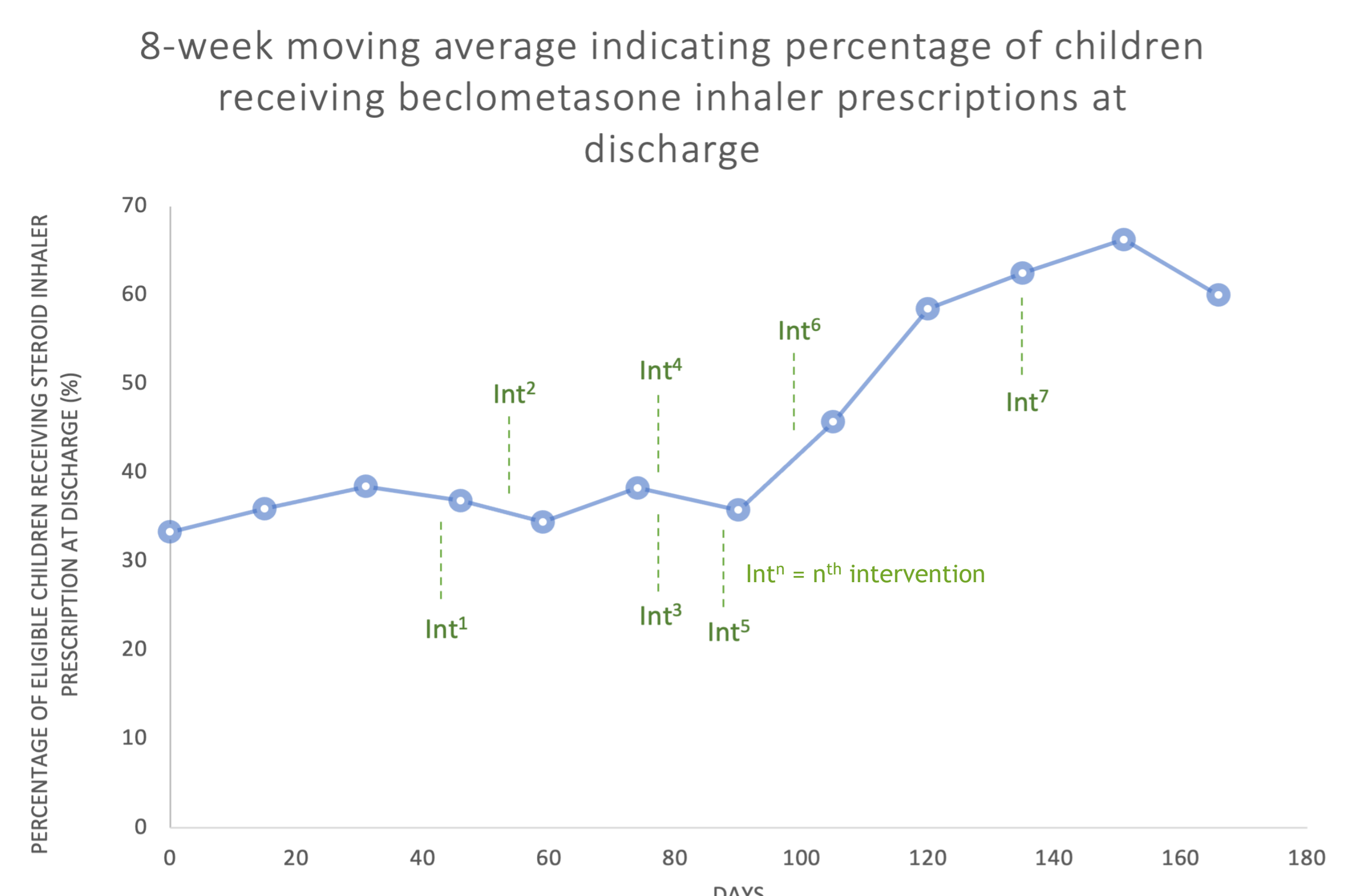


Results

Baseline data showed that only **33%** of eligible children under 5 presenting to the Emergency Department or Paediatric Assessment Unit were receiving new prescriptions of inhaled corticosteroids. This improved throughout the project, with the 8-week moving average after completion of all interventions rising to **60%**.

Limitations

Given the size of the hospital from which the data was collected, the sample size of children under 5 presenting with wheeze in each 2-week period was relatively low. This meant that small fluctuations in prescription rates could significantly alter the percentage value. To counter this, an 8-week moving average was calculated as it effectively increased sample size and reduced variance, giving a clearer picture of the overall trend.



Conclusions

This quality improvement project highlights the successful implementation of targeted interventions to enhance the rate of corticosteroid inhaler prescriptions for eligible young children with acute wheeze exacerbations. This has important implications for both the prevention of life-threatening emergencies and long-term child health.

What next?

This project has highlighted the merit of sustained intervention and opportunities for further improvement in prescription rates in the department through continued interventions such as further multidisciplinary teaching sessions and easily accessible protocols.

References

- British Thoracic Society. (2019). *British Thoracic Society guidelines for the management of asthma in children (revised edition)*.

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