



Australian Government
National Health and
Medical Research Council

**EMERGENCY CARE
COMMUNITY OF PRACTICE**



N H M R C

National Institute of Clinical Studies

Delivering beta2 agonists to children with asthma

Department of Emergency Medicine, Nambour General Hospital (NGH), Queensland

Tanya Georgia, Project Coordinator; Meaghan Douglas, Project Officer; David McNamara, Project Support

Evidence-practice gap

Children presenting to the Emergency Department (ED) at NGH with mild to moderate asthma are treated with salbutamol and ipratropium bromide via wet nebulisation. The evidence states that for adults and children, using a metered dose inhaler (MDI) with spacer is as effective as using a nebuliser to deliver beta2 agonists (e.g. salbutamol). Additional benefits for children include shorter stays in the emergency department, less hypoxia and decreased pulse rate.

Project aim

The project aimed to improve outcomes for children presenting with mild to moderate asthma and to change nursing and medical staff attitudes, knowledge and skills, for the management of asthma.

Key findings

- Staff felt more confident to assess and treat asthma in children and to provide education to patients in the use and maintenance of spacers following attendance at education sessions.
- Improved knowledge of the National Asthma Council Australia (NAC) guidelines, the indications for use of corticosteroids, and the benefits of using an MDI plus spacer.
- The chart audits showed:
 - Significant increase in use of MDI plus spacer from 1 out of 106 (1%) patients in the pre-test to 41 out of 99 patients (44%)
 - No significant difference in length of stay or inpatient outcomes including oxygen saturation, pulse rate or respiratory rate
 - No significant difference in re-presentations within 30 days
 - Increased number of patients receiving documented spacer education and asthma action plans.

Implications for clinical practice

- Targeted interventions such as staff education, use of clinical guidelines and patient resources can contribute to improvements in the care of children presenting to a busy emergency department with mild to moderate asthma.
- It is important to secure the backing of senior clinicians and management before starting an implementation project. This ensures continued support when introducing changes, educating staff and gaining access to resources. Identification of both a nursing and medical 'champion' to maintain momentum and to ensure that nursing and medical teams remain fully engaged.

- It is essential to communicate with staff openly and continuously, using a range of face to face and online strategies. Those responsible for implementing change should take the time to listen to staff concerns and ideas to identify what they need to implement any changes effectively, and to identify any barriers and enablers to those changes.
- Existing resources may be relevant, and may help save time and money.
- Adequate funding is necessary to support implementing practice change requires time and resources.
- Seeking ethics approval and similar submissions should be factored into the project plan.

Planning and implementation

A combination of approaches to support evidence-based change in the ED was used:

1. A working group to plan, implement and analyse changes was established. This group included the Project Officer, Clinical Nurse, and the Respiratory Clinical Nurse Specialist. A medical officer was not available to take part in the working group.
2. Consultation was undertaken with staff to better understand the barriers and enablers to making changes in practice. The evidence was presented with a cost benefit analysis comparing spacer and nebuliser use, and the project plan to the ED Senior Management Group.
3. Email, staff meetings and informal opportunities were used to keep staff informed of changes.
4. Existing asthma clinical pathways from major children's hospitals (Royal Children's Hospital's in Melbourne and Queensland) and the National Asthma Council Australia (NAC) were reviewed. The NAC guidelines were selected for implementation and made available to all staff. The NAC assessment and management wall chart and laminated copies of the guidelines were displayed in work areas and the medication room.
5. A staff education program was developed after reviewing patient education and discharge planning information from the all the available guidelines.
6. The Royal Children's Hospital (Melbourne) asthma action plan generator was installed on the computers in the department and the patient was provided with the NAC patient advice sheets.

Pre and post implementation chart reviews for 6 months pre-implementation and 6 months post-implementation were conducted on patients aged 0 to <18 years who presented to the ED with asthma symptoms or diagnosis and a triage category of 2, 3 or 4. A staff survey was conducted before and after the education program to compare staff knowledge, clinical skills, beliefs and attitudes to asthma management, and work practice.

- Nambour General Hospital (NGH) has 287 beds.
- The Emergency Department sees around 35,000 presentations each year.

This project was undertaken with the support of a NICS Emergency Care – Closing Gaps grant, which was awarded in 2006.