Improving Childhood Asthma Management (ICAM) Community of Practice - When Spring Strikes: Asthma, Allergies and Thunderstorms

Wednesday 12th November 2025

The content in this session is valid at date of presentation

Acknowledgement of Country

In the spirit of reconciliation we acknowledge the Traditional Custodians of the lands on which we meet, the Wurundjeri people of the Kulin Nation.

We pay our respects to the Elders past and present, and extend that respect to all Aboriginal and Torres Strait Islander peoples today, for they are the safekeepers of memories, traditions and culture.

We recognise their connection to Country, land, sea and community, and the role in caring for and maintaining Country over thousands of years. May their strength and wisdom be with us today.

Photo credit: Koori Curriculum

Housekeeping – Zoom Meeting

All attendees are muted

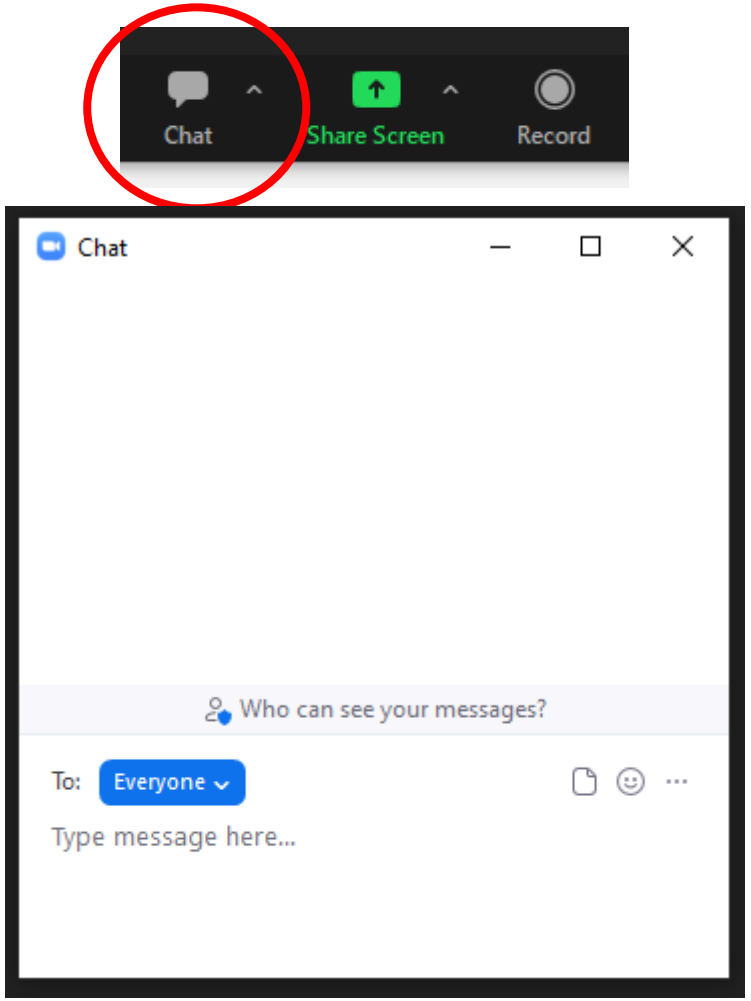
Please keep your microphone on mute

Please ask questions via the Chat box

This session is being recorded

Please ensure you join the session using the name you registered with so we can mark your attendance

Certificates and CPD will not be issued if we cannot confirm your attendance



How to change your name in Zoom Meeting

1. Click on **Participants**
2. If using
   App: click on your name
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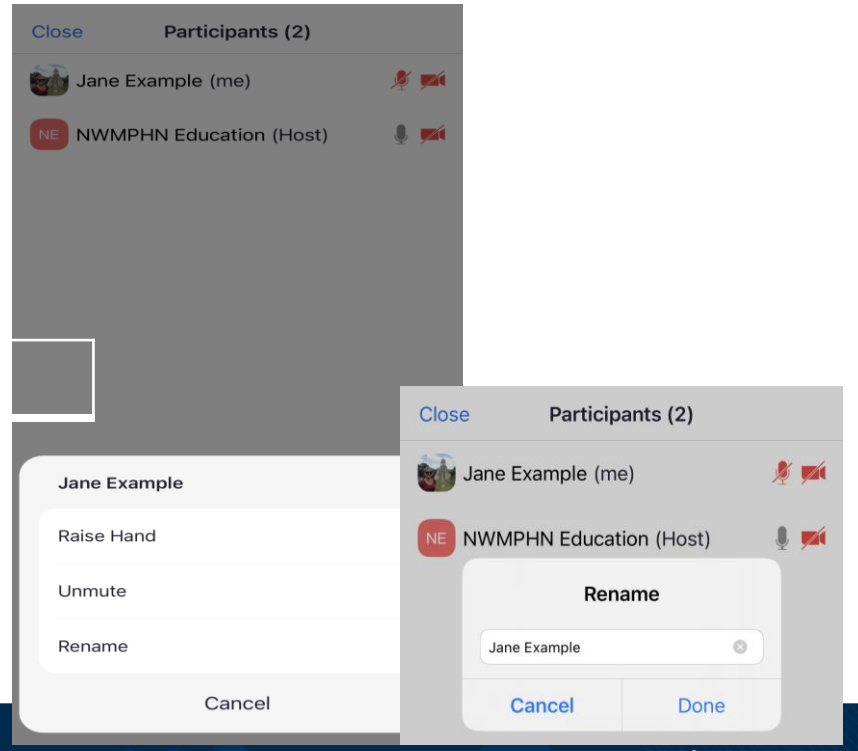
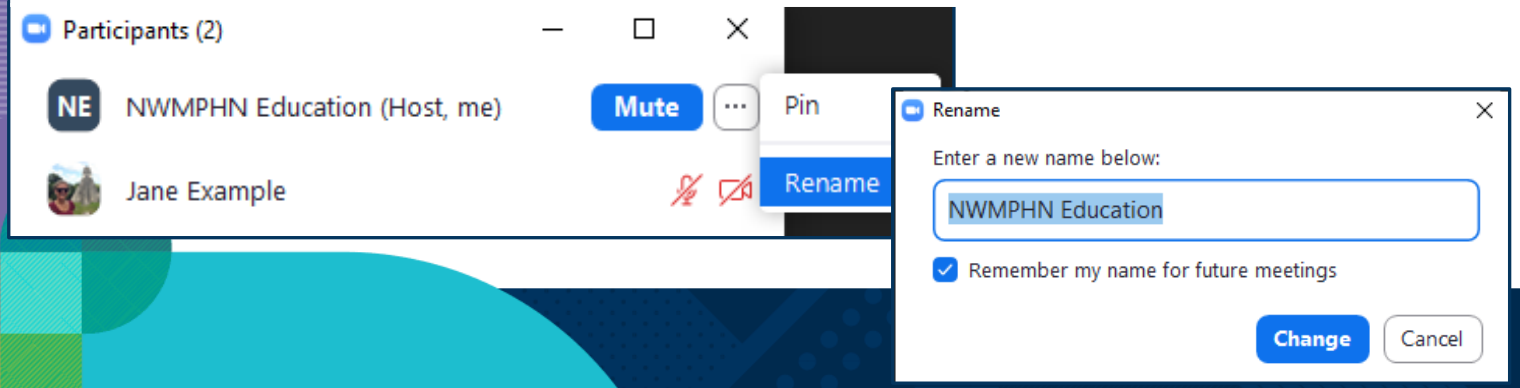
3. Click on **Rename**
4. Enter the name you registered with and click
   Done / Change / Rename

When using a phone or app



When using computer



Learning Outcomes

By the end of this session, you will be able to:

- Implement best practice management for asthma in children
- Describe resources and local services available for children living with asthma
- Identify collaborative, multidisciplinary opportunities to improve care for children living with asthma
- Interpret local data and identify potential solutions to improve asthma care locally

Introducing your Facilitators

Dr Katherine Chen
General Paediatrician
Royal Children's Hospital

Dr Kirsty Tamis
General Practitioner
Forsyth Park Medical Centre

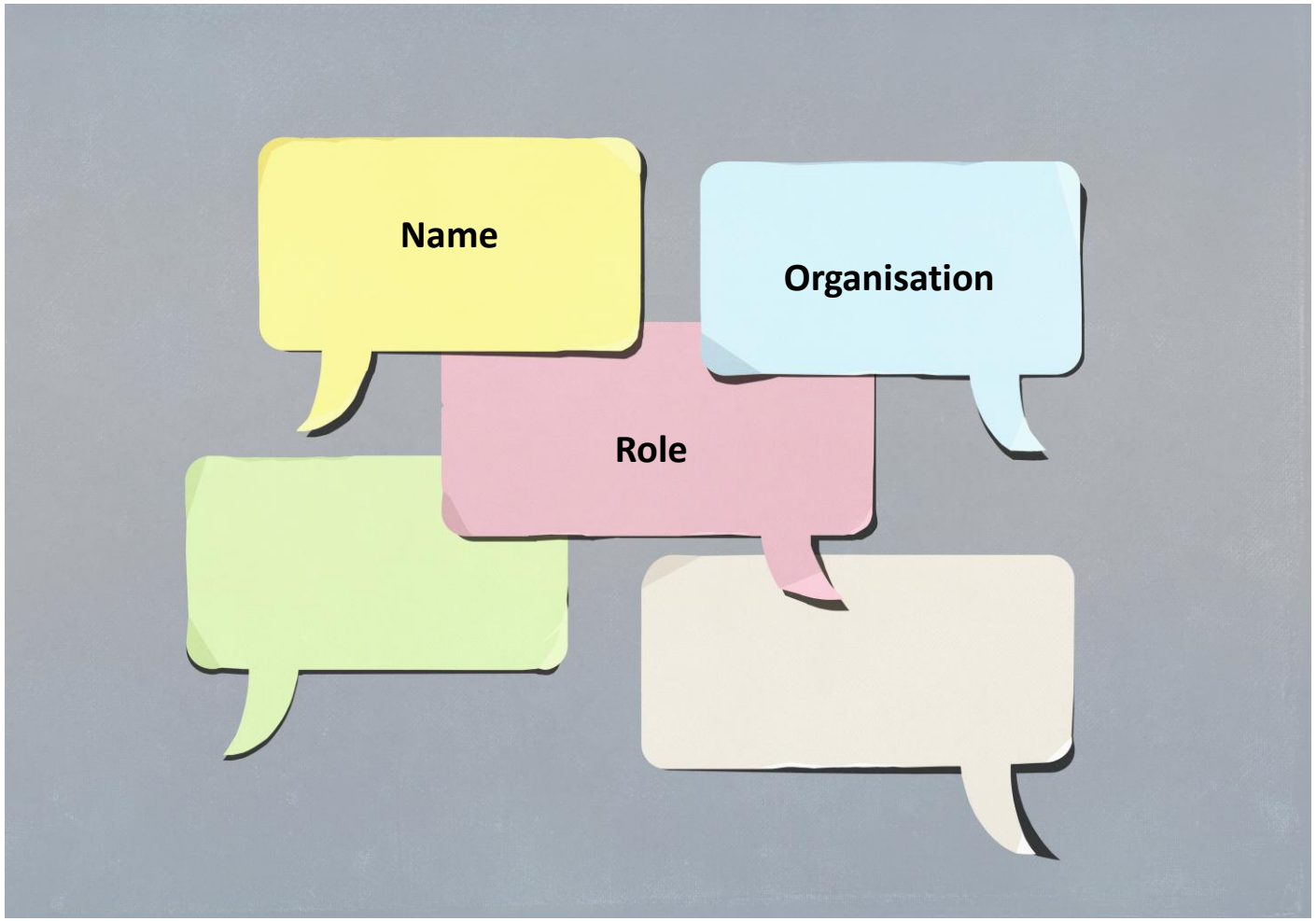
Guest Speakers

Debbie Rigby is an advanced practice pharmacists and asthma educator, and is the Clinical Executive Lead at National Asthma Council Australia. She is a member of the Lung Foundation Australia COPD Advisory Committee and Primary Care Committee, Thoracic Society of Australia and New Zealand, Primary Care Respirator Society UK, and the International Primary Care Respiratory Group. The Lung Foundation Australia honoured Debbie as the 2023 Lung Health Legend.

Dr Danny Csutoros is a public health physician working in environmental health at the Victorian Department of Health, where he has been deeply involved in thunderstorm asthma.

Dr Bella Shadur is a paediatric allergist and immunologist, practicing at both The Royal Children's Hospital and MACCS Medical Group. She has a PhD focusing on targeted therapy and bone marrow transplantation for rare inborn errors of immunity, and splits her practice between the care of patients with immune deficiency and those with allergic disease. She is passionate about research, and harnessing research to inform best practice.

Introduce yourself in the chat



Agenda

Topic	Speaker
Welcome and Introductions	Dr Kirsty Tamis
Allergic Rhinitis	Dr Bella Shadur
Thunderstorm Asthma	Dr Danny Csutoros
Australian Asthma Handbook Changes	Debbie Rigby
Lancet Paper: Budesonide-formoteroal vs salbutamol as a reliever therapy in children with mild asthma	Dr Katherine Chen
HealthPathways & CAP	Dr Kirsty Tamis
Wrap Up: Feedback and Next Community of Practice	Dr Kirsty Tamis

Allergic Rhinitis

Dr Bella Shandur

Paediatric Allergist and Immunologist (RCH, MACCS Medical Group)

MBBS, BMedSci, FRACP, PhD

Overview

- What is allergic rhinitis?
- The role of allergy testing
- Conventional treatment
- Allergen immunotherapy (SCIT vs SLIT)
- Questions

Allergic Rhinitis

- Inflammation of the nasal mucosa caused by exposure to allergens
  - C/f physical obstruction and recurrent infections
  - Rare in very young children!

- Perennial vs. seasonal vs. perennial with seasonal variation
  - Perennial allergic rhinitis: house dust mite (mite + droppings)
    - Nocturnal symptoms, poor sleep, daytime somnolence, waking congested
  - Seasonal allergic rhinitis (hayfever): mainly temperate grasses (ryegrass + friends)
    - Peak symptoms October - December
  - Perennial allergic rhinitis + seasonal exacerbation: house dust mite and grass pollen

Allergy Testing in Allergic Rhinitis

- Skin prick test or ssIgE (aka ‘RAST’)
  - SPT: house dust mite, temperate +/- tropical grasses
    - Trees? Weed pollen? Mould? Animal dander?
  - sIgE: grass mix, tree mix, dust mix, animal dander mix
- History is the most important diagnostic tool
- Positive test results don’t always mean allergy
- Size of the test result doesn’t correlate with symptom severity

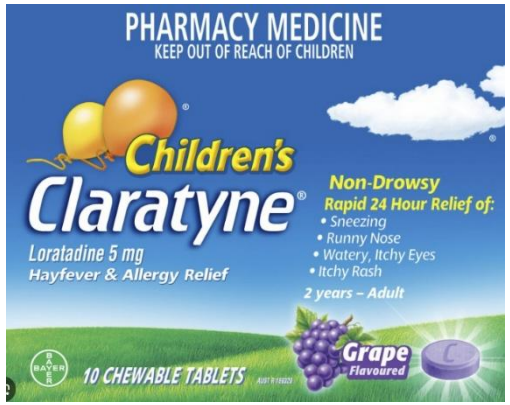
Minimising allergen exposure

- House dust mite
  - Washing bedding in hot water (at least 60C)
  - House dust mite bedding
  - Changing bedding weekly
  - Vacuuming carpets, fluffy toys, heating/AC vents

- Pollens
  - Monitoring the pollen count (Melbourne Pollen App)
  - Staying inside (not always practical)
  - Closing windows, doors, recycled air in the car
  - Thunderstorm asthma

Symptom management: conventional measures

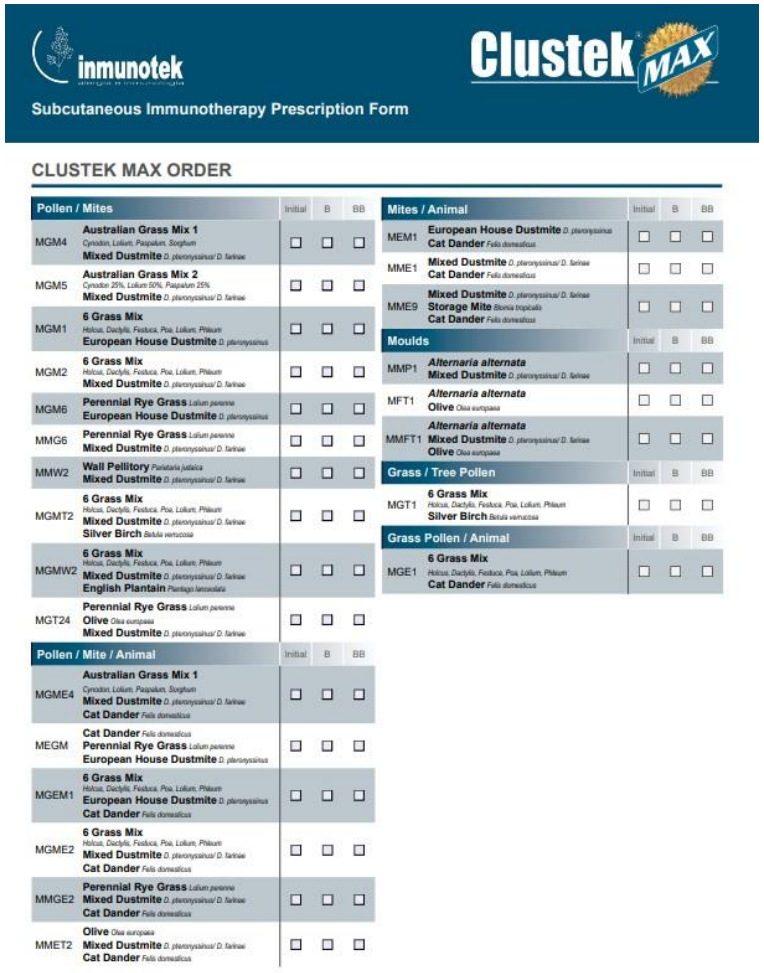
- High dose anti-histamines
- Intranasal steroids
- Nasal washout
- Eye washout



Allergen Immunotherapy

- Lots of options!
- Expensive ($650 - $1500 per year)
- Time consuming and 3-5 years treatment course
- First doses generally given by the allergist
- Native allergen vs allergoids + single allergen vs allergy mixes
  - Immunogenicity + efficacy vs allergenicity

Allergen Immunotherapy



inmunotek

Clustek MAX

Subcutaneous Immunotherapy Prescription Form

CLUSTEK MAX ORDER

	Pollen / Mites	Initial	B	BB
MGM4	**Australian Grass Mix 1** *Cynodon, Lolium, Paspalum, Sorghum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MGM5	**Australian Grass Mix 2** *Cynodon 25%, Lolium 50%, Paspalum 25%* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MGM1	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **European House Dustmite** *D. pteronyssinus*	☐	☐	☐
MGM2	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MGM6	**Perennial Rye Grass** *Lolium perenne* **European House Dustmite** *D. pteronyssinus*	☐	☐	☐
MMG6	**Perennial Rye Grass** *Lolium perenne* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MMW2	**Wall Pellitory** *Parietaria judaica* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MGMT2	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Silver Birch** *Betula verrucosa*	☐	☐	☐
MGMW2	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **English Plantain** *Plantago lanceolata*	☐	☐	☐
MGT24	**Perennial Rye Grass** *Lolium perenne* **Olive** *Olea europaea* **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
	Pollen / Mite / Animal	Initial	B	BB
MGME4	**Australian Grass Mix 1** *Cynodon, Lolium, Paspalum, Sorghum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Cat Dander** *Felis domesticus*	☐	☐	☐
MEGM	**Cat Dander** *Felis domesticus* **Perennial Rye Grass** *Lolium perenne* **European House Dustmite** *D. pteronyssinus*	☐	☐	☐
MGEM1	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **European House Dustmite** *D. pteronyssinus* **Cat Dander** *Felis domesticus*	☐	☐	☐
MGME2	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Cat Dander** *Felis domesticus*	☐	☐	☐
MMGE2	**Perennial Rye Grass** *Lolium perenne* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Cat Dander** *Felis domesticus*	☐	☐	☐
MMET2	**Olive** *Olea europaea* **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Cat Dander** *Felis domesticus*	☐	☐	☐

	Mites / Animal	Initial	B	BB
MEM1	**European House Dustmite** *D. pteronyssinus* **Cat Dander** *Felis domesticus*	☐	☐	☐
MME1	**Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Cat Dander** *Felis domesticus*	☐	☐	☐
MME9	**Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Storage Mite** *Blomia tropicalis* **Cat Dander** *Felis domesticus*	☐	☐	☐
	Moulds	Initial	B	BB
MMP1	***Alternaria alternata*** **Mixed Dustmite** *D. pteronyssinus/ D. farinae*	☐	☐	☐
MFT1	***Alternaria alternata*** **Olive** *Olea europaea*	☐	☐	☐
MMFT1	***Alternaria alternata*** **Mixed Dustmite** *D. pteronyssinus/ D. farinae* **Olive** *Olea europaea*	☐	☐	☐
	Grass / Tree Pollen	Initial	B	BB
MGT1	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Silver Birch** *Betula verrucosa*	☐	☐	☐
	Grass Pollen / Animal	Initial	B	BB
MGE1	**6 Grass Mix** *Holcus, Dactylis, Festuca, Poa, Lolium, Phleum* **Cat Dander** *Felis domesticus*	☐	☐	☐

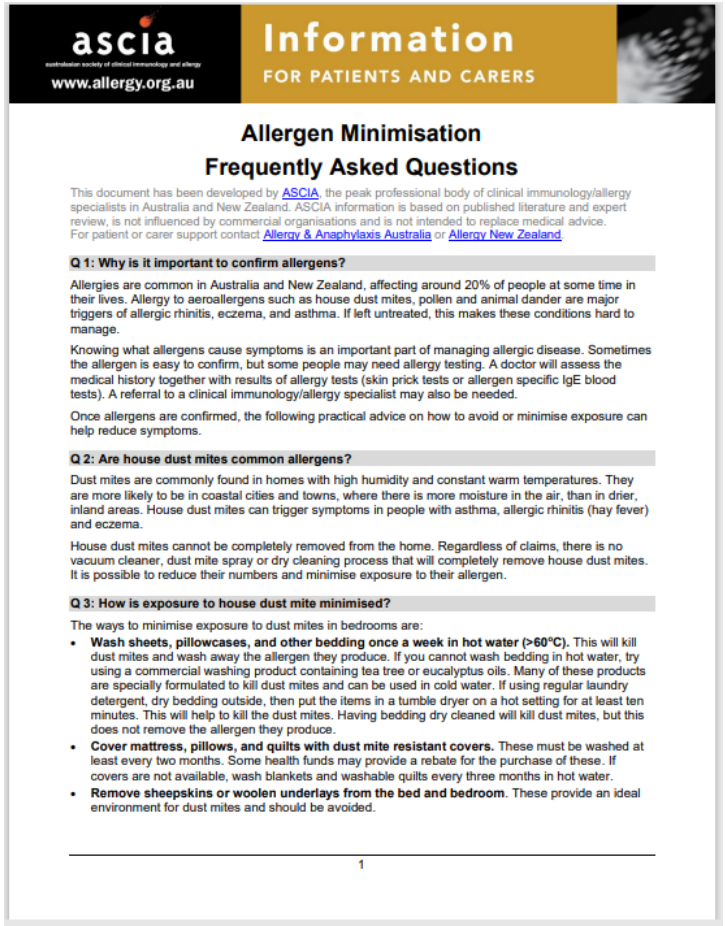
Alustal®

Allergen Immunotherapy

- Sublingual immunotherapy (SLIT) – daily, at home
  - Oralair – 5 grass mix
  - Actair, Acazirax
- Subcutaneous immunotherapy (SCIT)- monthly at the GP
  - Immunotek (Alutek, Clustek, ClustekMax)
  - Alustal
  - Gamma allergy
- Tailor the patient to the product
  - Compliance and side effects – can be an issue with SLIT
  - Needle phobia – native allergen SCIT requires several up-dosing needles
  - Anaphylaxis risk with native allergen
  - Asthma control

Useful resources

- www.melbournepollen.com.au
- ASCIA



ascia
australasian society of clinical immunology and allergy
www.allergy.org.au

Information
FOR PATIENTS AND CARERS

Allergen Minimisation
Frequently Asked Questions

This document has been developed by ASCIA, the peak professional body of clinical immunology/allergy specialists in Australia and New Zealand. ASCIA information is based on published literature and expert review, is not influenced by commercial organisations and is not intended to replace medical advice. For patient or carer support contact Allergy & Anaphylaxis Australia or Allergy New Zealand.

Q 1: Why is it important to confirm allergens?

Allergies are common in Australia and New Zealand, affecting around 20% of people at some time in their lives. Allergy to aeroallergens such as house dust mites, pollen and animal dander are major triggers of allergic rhinitis, eczema, and asthma. If left untreated, this makes these conditions hard to manage.

Knowing what allergens cause symptoms is an important part of managing allergic disease. Sometimes the allergen is easy to confirm, but some people may need allergy testing. A doctor will assess the medical history together with results of allergy tests (skin prick tests or allergen specific IgE blood tests). A referral to a clinical immunology/allergy specialist may also be needed.

Once allergens are confirmed, the following practical advice on how to avoid or minimise exposure can help reduce symptoms.

Q 2: Are house dust mites common allergens?

Dust mites are commonly found in homes with high humidity and constant warm temperatures. They are more likely to be in coastal cities and towns, where there is more moisture in the air, than in drier, inland areas. House dust mites can trigger symptoms in people with asthma, allergic rhinitis (hay fever) and eczema.

House dust mites cannot be completely removed from the home. Regardless of claims, there is no vacuum cleaner, dust mite spray or dry cleaning process that will completely remove house dust mites. It is possible to reduce their numbers and minimise exposure to their allergen.

Q 3: How is exposure to house dust mite minimised?

The ways to minimise exposure to dust mites in bedrooms are:

- **Wash sheets, pillowcases, and other bedding once a week in hot water (>60°C).** This will kill dust mites and wash away the allergen they produce. If you cannot wash bedding in hot water, try using a commercial washing product containing tea tree or eucalyptus oils. Many of these products are specially formulated to kill dust mites and can be used in cold water. If using regular laundry detergent, dry bedding outside, then put the items in a tumble dryer on a hot setting for at least ten minutes. This will help to kill the dust mites. Having bedding dry cleaned will kill dust mites, but this does not remove the allergen they produce.
- **Cover mattress, pillows, and quilts with dust mite resistant covers.** These must be washed at least every two months. Some health funds may provide a rebate for the purchase of these. If covers are not available, wash blankets and washable quilts every three months in hot water.
- **Remove sheepskins or woolen underlays from the bed and bedroom**. These provide an ideal environment for dust mites and should be avoided.

Thank you!

2

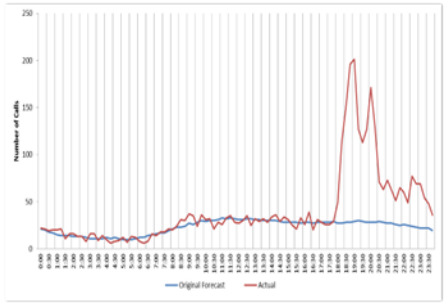
Epidemic Thunderstorm Asthma

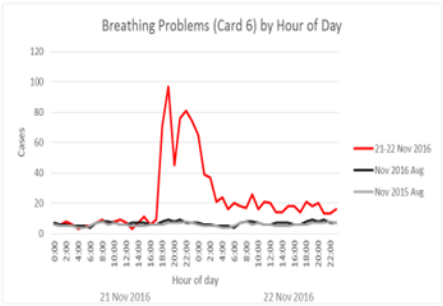
Dr Danny Csutoros

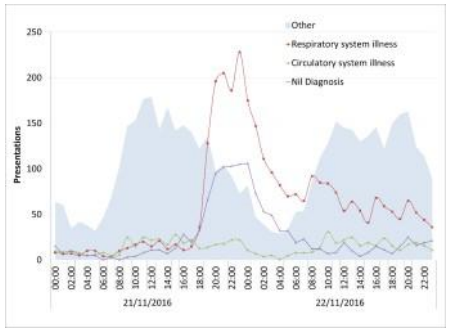
Improving the Epidemic Thunderstorm Asthma Risk Forecast

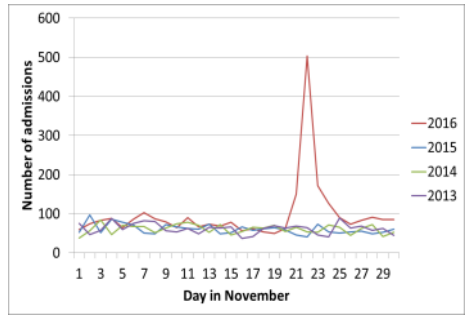
What happened on 21 Nov 2016 – Health Impacts

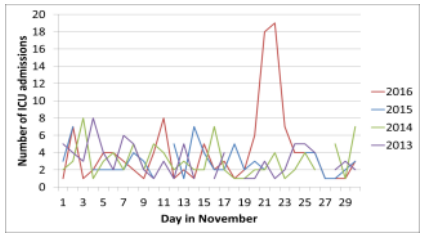
- Sudden rise in 000 calls, ambulance cases, ED presentations, admissions (incl. ICU)
  - 1626 more calls to ESTA
  - 814 ambulance cases generates in six hrs from 6pm (643 code 1)
- Compared to 3-year average in the 30 hrs from 6pm in Melb & Geelong (public hospitals)
  - 3365 excess reparatory related ED presentations
  - 476 excess asthma admissions
  - 30 excess ICU admission
  - 10 deaths
- General Practice
  - Estimated to have 10,000 extra asthma attendances between 21 – 23 November

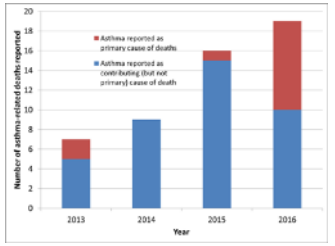












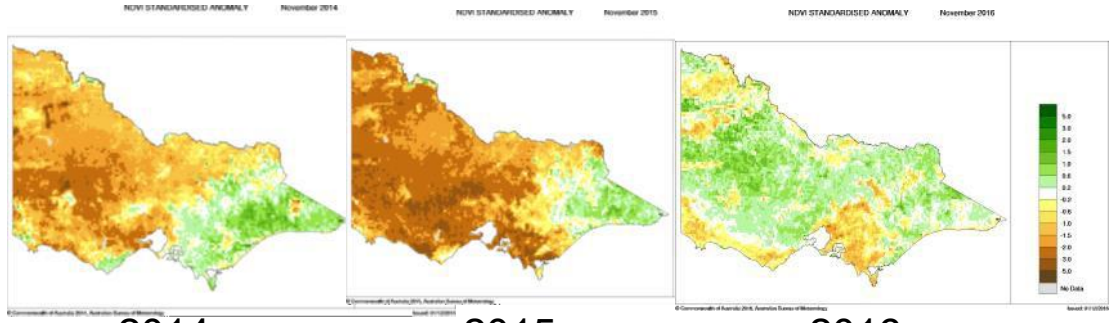
ICU admissions and deaths from 21 Nov 2016 ETSA event

- 35 patients were admitted to a Victorian ICU with asthma
- All had Dr diagnosed asthma
- Age
  - 2 children (9 and 12 yrs)
  - 33 adults (21 – 69 yrs, median 42, IQR 32 -53)
- Sex
  - 63% male
- Medication
  - 12 (34%) using inhaled corticosteroid
  - 34 using a reliever
- 26 patients required endotracheal intubation (74%), of whom 13 (50%) had a respiratory arrest.

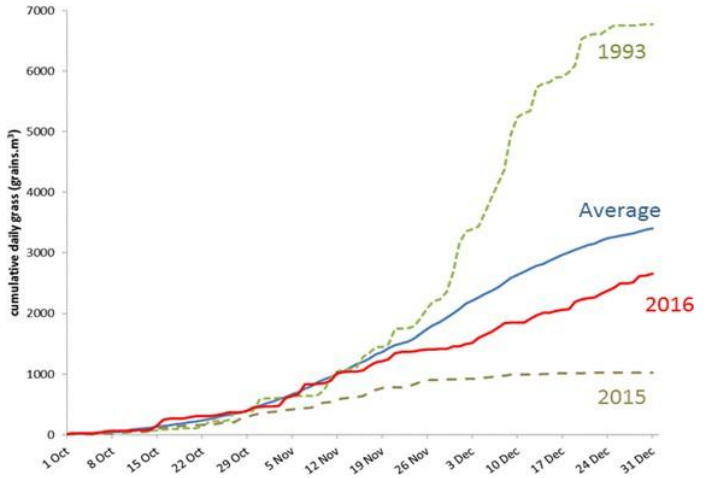
- Coroner attributed 10 deaths to ETSA event
- All had Dr diagnosed asthma
- Age
  - 18 – 57 yrs, median 41yrs, IQR (30 – 48)
- Sex
  - 70% male
- Past asthma admission - 2/10 (one ICU as a child)
- Medication
  - Reliever - all 10
- Preventer use - 4, 1 unknown
- Known allergic rhinitis - 8, 1 unknown
- Asthma action Plan -1
- Comorbidities – Nasal Polyp, IDDM, NIDDM/HPT/COPD, Obesity, HPT/Obesity

What happened on 21 Nov 2016 – Grass Pollen

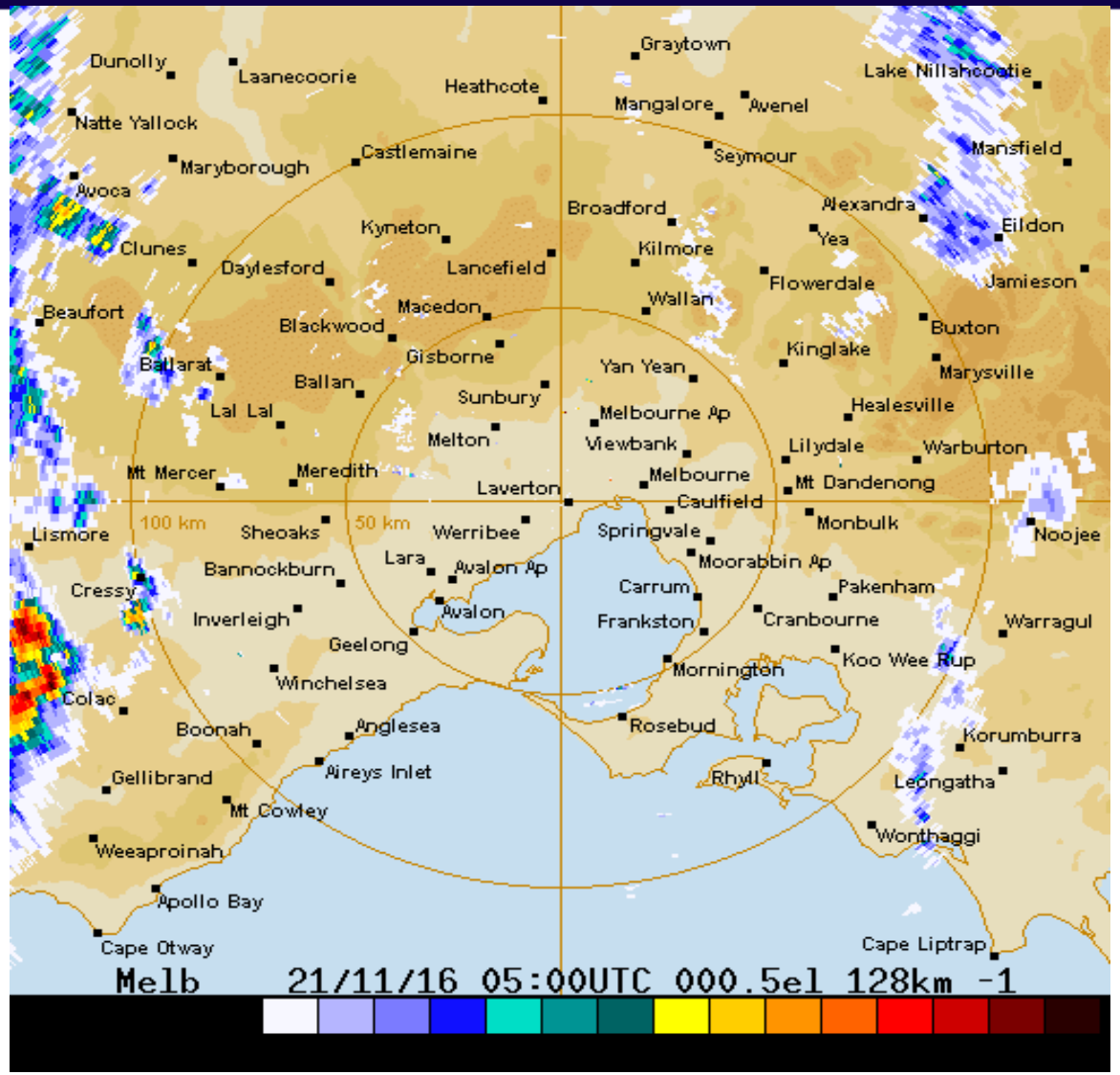
- European grazing animal ate the native grass, replaced with grass from the northern hemisphere - rye grass is largest fodder crop
- 2015 very low pollen season in but 2016 saw the wettest September on record and large grass growth in Spring
- 2016 seemed an average grass pollen season
- Admissions for asthma were a little elevated above average for the early parts November



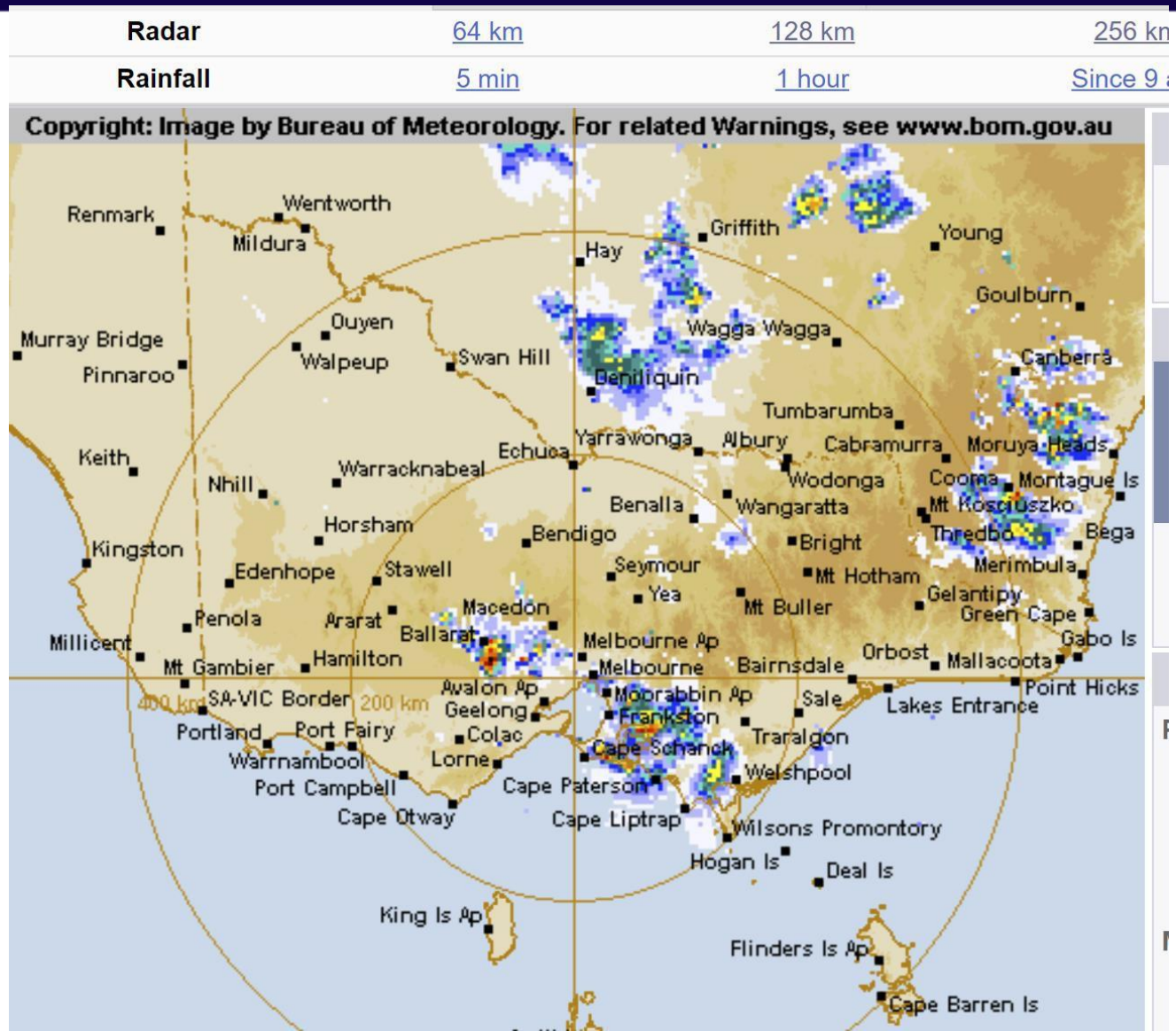
2014 2015 2016



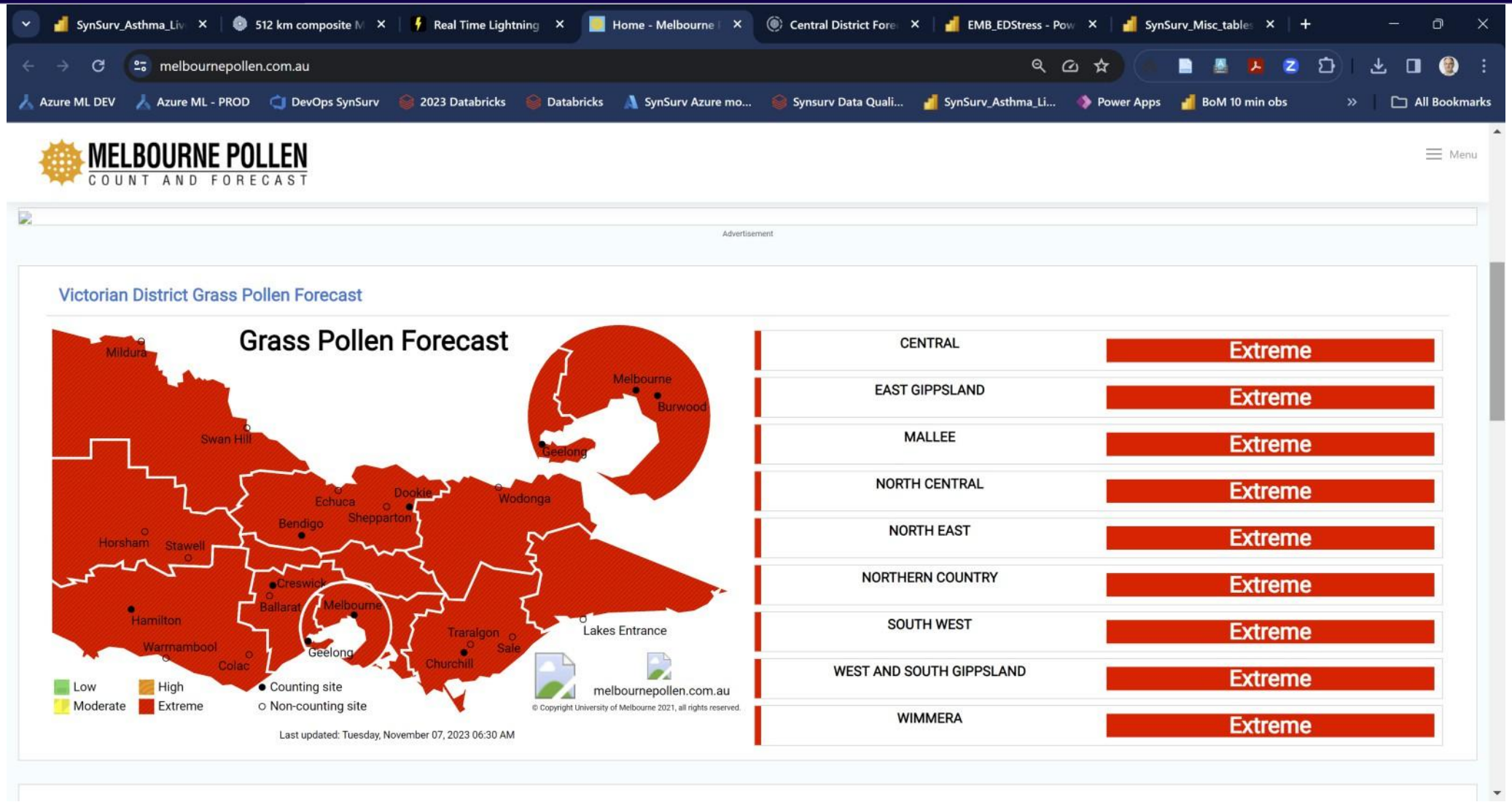
What happened on 21 Nov 2016 – the storm



On 7 November 2023 – Storm in evening



On November 7 – Pollen levels were high



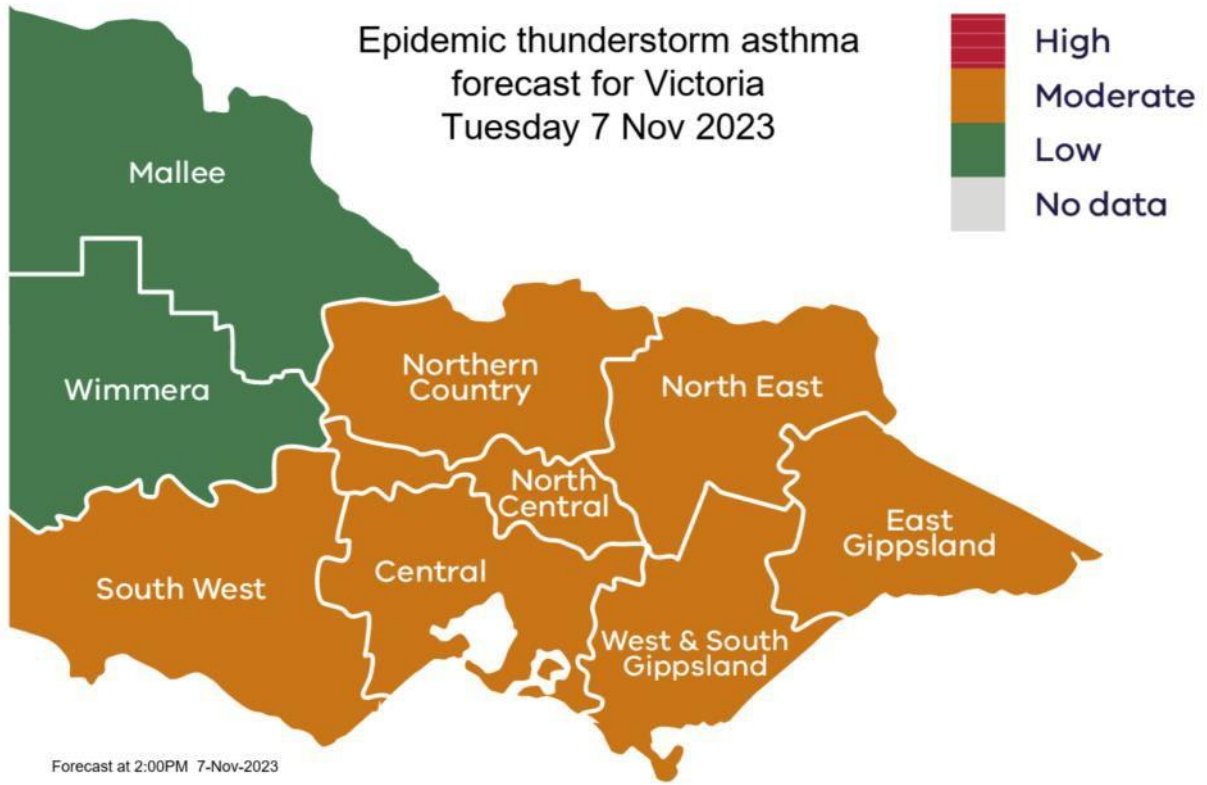
The ETSA forecast 7 Nov 2023 was (mostly) moderate risk:

MELBOURNE POLLEN
COUNT AND FORECAST

Thunderstorm Asthma Forecast

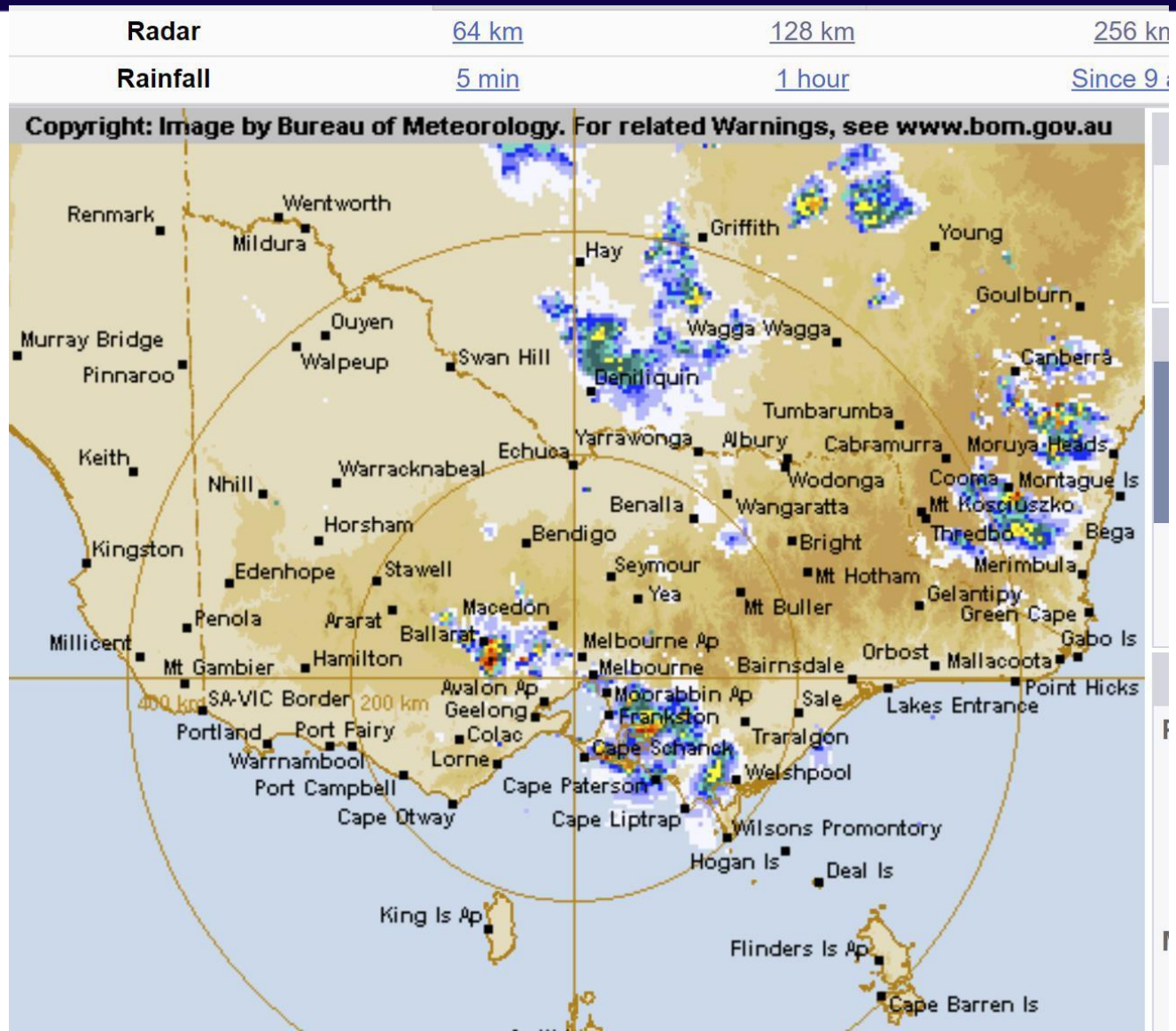
The epidemic thunderstorm asthma forecast combines the Bureau of Meteorology's forecast of a certain type of thunderstorm and the grass pollen forecast in each of the state's districts. More information about the forecast can here.

CENTRAL	Moderate
EAST GIPPSLAND	Moderate
MALLEE	Low
NORTH CENTRAL	Moderate
NORTH EAST	Moderate
NORTHERN COUNTRY	Moderate
SOUTH WEST	Low
WEST AND SOUTH GIPPSLAND	Moderate
WIMMERA	Low



Note: The above epidemic thunderstorm asthma forecast information was provided by the Victorian Department of Health and the Bureau of Meteorology. For more information pertaining to these forecasts visit this website.
Last updated: Monday, November 06, 2023 02:00 PM

On 7 November 2023 – Storm in evening



ETSA vs HAPD

- Epidemic Thunderstorm Asthma (ETSA)
  - 2016 magnitude event, worlds largest, strain on systems
  - Only 1 has occurred - may be 10-fold larger than HAPDs
- High Asthma Presentation Days (HAPDs)
  - More localised, fewer numbers of people affected, less severity, systems manage with surge (given all planning/ preparation)
  - About one a year – data used to take too long to measure impact so not well communicated but this will change
- Does the past predict the future anymore?
  - climate change may drive more of these events
- Things can happen on days of moderate risk of an ETSA event

ETSA Forecast and Warning System

Storm forecast affecting at least 30% of a district	Risk for ETSA		
>30% likelihood of thunderstorm causing gusts ≥ 50Kts (squall lines potential adds risk to cell below)	Low	Moderate	High
>30% likelihood of thunderstorms causing 35 < gusts < 50Kts or ICON (measure of convergence) ≥ 20	Low	Low	Moderate
<30% likelihood of thunderstorm causing 35< gusts<50Kts or ICON (measure of convergence) < 20	Low	Low	Low
District Pollen Forecast	Low pollen	Moderate pollen	High or Extreme pollen

ETSA forecast on Vic Emergency website /app

Forewarning of high-risk days

- Health & Emergency sector
- Community
- Education, Sports clubs, Workplaces etc

Monitoring and Early Detection System

- 000 and AV call out data
- ED presentations – Syn Surv
- Code Browns
- Social media monitoring

Health.vic website
Email notifications to subscribers
Melbourne Pollen website /app

Advice and Warnings

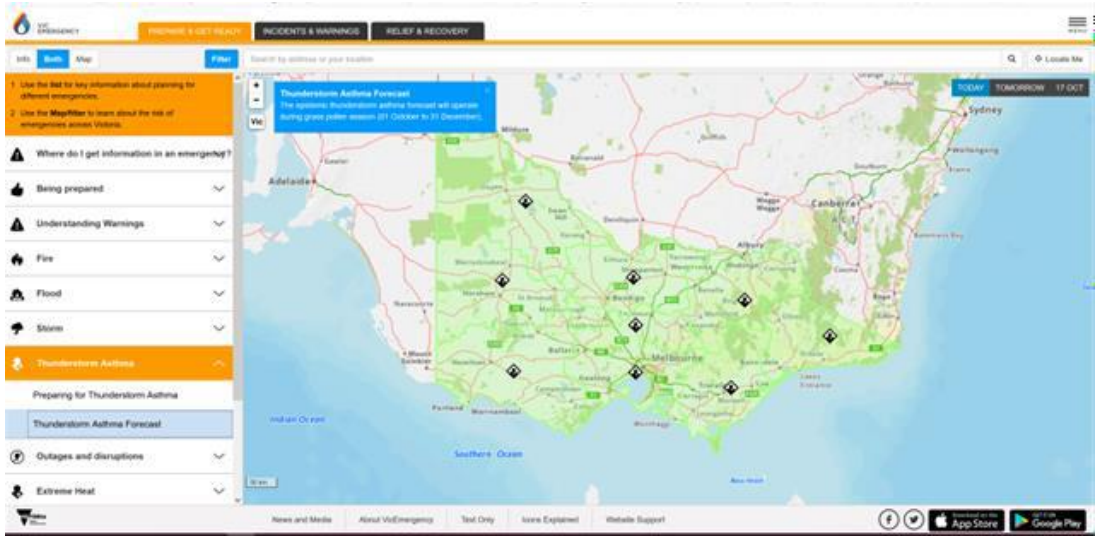
- Advice of risk for high risk day
- Warnings for detected rise
- Emergency warning for confirmed ETSA and strain on system

District	Wednesday 15th November, 2017	Thursday 16th November, 2017	Friday 17th November, 2017
Mallee	16 LOW	7 LOW	3 LOW
Wimmera	32 MODERATE	13 LOW	8 LOW
Northern Country	60 HIGH	25 MODERATE	18 LOW
North Central	76 HIGH	38 MODERATE	21 MODERATE
North East	65 HIGH	47 MODERATE	29 MODERATE
South West	104 EXTREME	25 MODERATE	27 MODERATE
Central	86 HIGH	36 MODERATE	27 MODERATE
West and South Gippsland	76 HIGH	53 HIGH	32 MODERATE
East Gippsland	23 MODERATE	26 MODERATE	17 LOW

Use Machine Learning computer models to generate grass pollen forecast for 9 BOM districts

VicEmergency website and app

Prepare and get ready tab



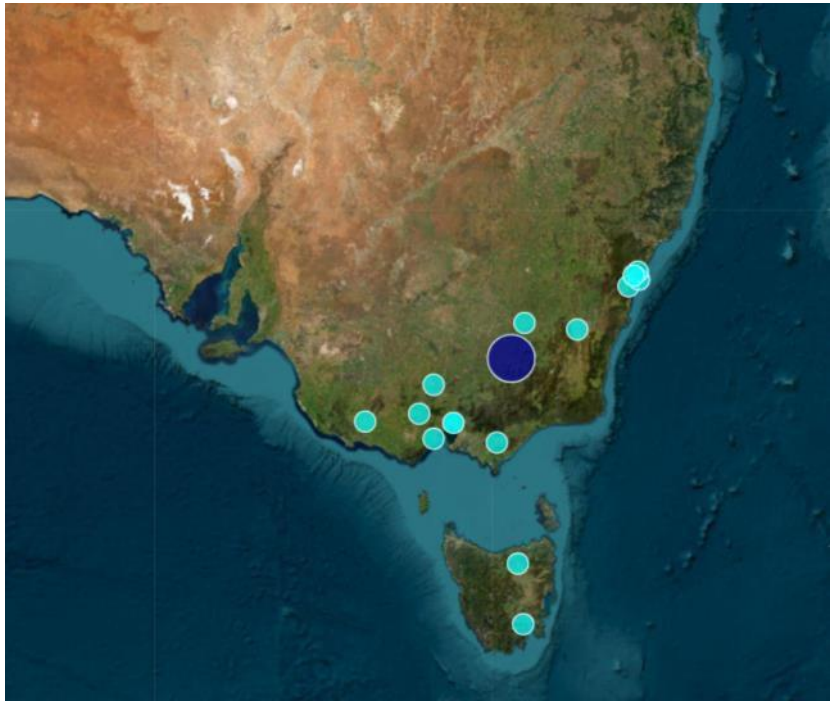
Incidents and warnings tab

- https://youtu.be/cLrzIt2IK3I

Modernised epidemic thunderstorm asthma (ETSA) risk forecasting system

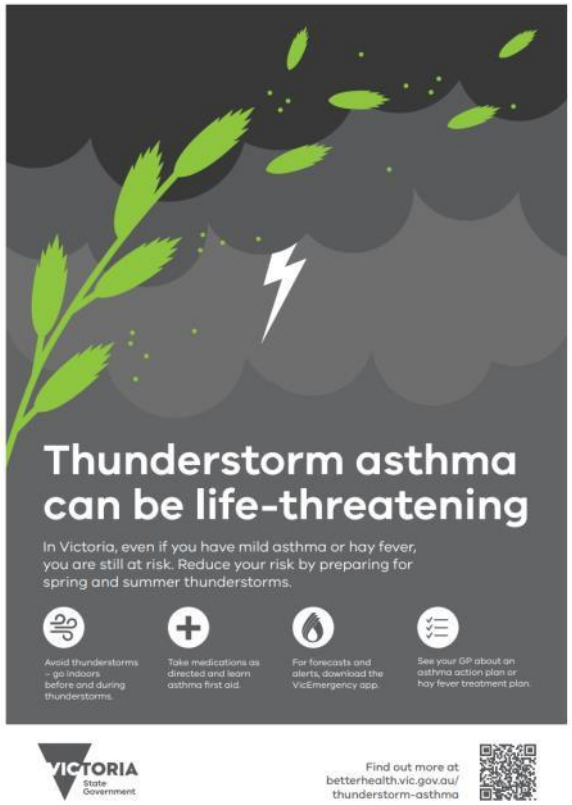
Combines grass pollen forecasts and weather information to forecast the risk of ETSA

- System has been modernised in 2025, with installation of 6 new automated pollen counters (APCs), replacing manual traps and counting.
- Victoria now has 7 APCs – largest network of any Australian jurisdiction
- APCs use advanced imaging to deliver faster and more accurate data, improving ETSA forecasts



Community and health professional resources

Community resources (available in 27 languages)



https://www.betterhealth.vic.gov.au/thunderstorm-asthma

Health professional resources

https://www.health.vic.gov.au/environmental-health/resources-for-health-professionals

https://www.nationalasthma.org.au/health-professionals

Take home messages for ETSA

Your Clinic

- Prepare your clinic every Spring and think through/ practice how, your team would manage 1 or 2 cases of **severe asthma** one evening, or lots of calls for an appointment regarding asthma in the day after an event
- Let your staff know about ETSA so they stay safe
- Watch the ETSA forecast between 1 October - end December **D0 after 1230, D1&2 after 3 pm**
- Posters in clinic
- Remember those with hay fever are at increased risk (pharmacists may refer people to you)
- Its asthmatics who are at greatest risk of severe exacerbation during a TSA event
- Can sent reminders to patients or mention in newsletters, other patient communications
- Tell everyone about **asthma first aid**

Asthma Patients

- Talk to patients about ETSA, mention it in WAAP
- Aim for good control (technique/ adherence/ adjustment – do the asthma control test!)
- ETSA may provide added motivation as it's a new angle
- They should watch the forecast (set up **watch zone**), avoid storms in grass pollen season, go indoor and turn off aircon that **brings outdoor air in**, carry reliever, known asthma first aid

People with Springtime Hay Fever

- Ask if they have any asthma symptoms
- Talk to them re ETSA
- They should watch forecast, avoid storms in grass pollen season, know asthma first aid and where to get a reliever if needed
- Reach out to your local pharmacist and ask them to send any hay fever sufferers with asthma-like symptoms to you

Thank you

3

What's new in the Australian Asthma Handbook 2025

Debbie Rigby

Clinical Executive Lead – National Asthma Council Australia

Australian Asthma Handbook

The National Guidelines for Health Professionals

Search the Australian Asthma Handbook...

Treatment levels for adults and adolescents

Diagnosing asthma in adults and adolescents

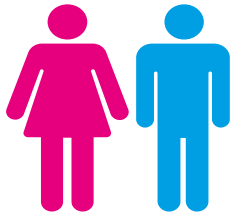
The Australian Asthma Handbook is Australia's national guidelines for asthma management. It provides evidence-based, practical guidance for health professionals diagnosing and managing asthma in adults and children in primary care.

Asthma in Australia

1 in 9 Australians report having asthma

2.8 million people

474 asthma deaths in Australia in 2023

69%  31%

Over 90% of asthma hospitalisations

potentially preventable with optimised care in the community

27%
of people aged 40 and under have **poor asthma control** based on use of reliever medication

31%
of people aged 50 and under have **good adherence** to their preventer medication

Rates have changed little since 2017-18

National Asthma Council | Australian Asthma Handbook

AIHW. Asthma. Nov 2024. https://www.aihw.gov.au/reports/chronic-respiratory-conditions/asthma

Goals of asthma therapy

Achieving long-term asthma control

- Few/no asthma symptoms
- Unimpaired physical activity
- No sleep disturbance due to asthma

Achieving long-term asthma risk minimisation

- No exacerbations
- No requirement for maintenance OCS
- No medication side-effects
- Improved or stable personal best lung function

National Asthma Council | Australian Asthma Handbook

Asthma control

Asthma treatment is adjusted to maintain good control of asthma symptoms and prevent exacerbations, while minimising side effects. The optimal treatment for an individual may change over time.

Table

Classification of recent asthma symptom control in adults and adolescents

Good control	Poor control
All of these over past 4 weeks:	Any of these over past 4 weeks:
Daytime symptoms ≤2 days per week	Daytime symptoms >2 days per week
No limitation of activities	Any limitation of activities
No symptoms during night or on waking	Any symptoms during night or on waking
Reliever use ≤2 days per week*	Reliever use >2 days per week*

Additional information

*Do not include short-acting beta$_2$ agonist (salbutamol or terbutaline) taken prophylactically before exercise. Do not include reliever use for patients using an anti-inflammatory reliever (budesonide-formoterol or beclometasone-formoterol) in an AIR-only or MART regimen.

National Asthma Council. Assessing and reviewing asthma in adults and adolescents. Australian Asthma Handbook. Updated September 16, 2025. Accessed September 17, 2025. https://www.asthmahandbook.org.au/management/adults-and-adolescents/principles-of-management/assessing-and-reviewing-asthma-in-adults-and-adolescents

Table

Classification of recent asthma symptom control in children 6–11 years

Good control	Poor control
Daytime symptoms (e.g. wheeze, difficult breathing, cough) ≤2 days per week	Daytime symptoms (e.g. wheeze, difficult breathing, cough) >2 days per week
Need for salbutamol ≤2 days per week*	Need for salbutamol >2 days per week*
Symptoms last only a few minutes and are rapidly relieved by salbutamol	Any limitation of activities due to asthma
No limitation of activities due to asthma	Any symptoms at night (including coughing during sleep)
No symptoms during night or when wakes up (including no coughing during sleep)	Waking with wheezing or breathing problems

Additional information

*Do not include doses given before exercise

National Asthma Council | Australian Asthma Handbook

https://www.asthmahandbook.org.au/management/children-6-11-years/principles-of-management/assessing-and-reviewing-asthma-in-children-6-11-years

Table

Classification of recent asthma symptom control in children 1–5 years

Good control	Poor control
Daytime symptoms (e.g. wheeze, difficult breathing, cough) ≤2 days per week	Daytime symptoms (e.g. wheeze, difficult breathing, cough) >2 days per week
Need for salbutamol ≤2 days per week*	Need for salbutamol >2 days per week*
Symptoms last only a few minutes and are rapidly relieved by salbutamol	Any limitation of activities due to asthma
No limitation of activities: child is active, plays without symptoms	Any symptoms at night (including coughing during sleep)
No symptoms during night or when wakes up (including no coughing during sleep)	Waking with wheezing or breathing problems

Additional information

*Do not include doses given before exercise

National Asthma Council | Australian Asthma Handbook

https://www.asthmahandbook.org.au/management/children-1-5-years/principles-of-management/assessing-and-reviewing-asthma-in-children-1-5-years

National Asthma Council AUSTRALIA

ASTHMA & COPD MEDICATIONS 2025

Symbicort Turbuhaler [a]
budesonide-formoterol
100/6 Ⓜ • 200/6 Ⓐ Ⓜ • 400/12 [c]
Additional brand: *Rilast Turbuhaler*

BIOLOGIC THERAPIES FOR SEVERE ASTHMA

Fasenra
benralizumab 30mg/mL

Dupixent
dupilumab
200mg/1.14mL • 300mg/2mL

Nucala
mepolizumab 100mg/mL

Xolair
omalizumab
150mg • 75mg/0.5mL • 150mg/mL

All the above are section 100 (Highly Specialised Drugs)

RESOURCES

TREATMENT GUIDELINES

Australian Asthma Handbook:
asthmahandbook.org.au

COPD-X Plan:
copdx.org.au

COPD Inhaler Device Chart Poster:
lungfoundation.com.au/resources/copd-inhaler-device-chart-poster/

INHALER TECHNIQUE

How-to videos, patient and practitioner information
nationalasthma.org.au

pMDIs should be used with a spacer (and face mask if needed)

HOW-TO VIDEOS

SCAN ME

SABA RELIEVERS

Ventolin Inhaler † ^
salbutamol 100mcg
Additional brands: Asmol, Zempreon

Airomir Autohaler ‡ #
salbutamol 100mcg

Bricanyl Turbuhaler [a c]
terbutaline 500mcg

SAMA MEDICATION

Atrovent Metered Aerosol † ^
ipratropium 21mcg

NON STEROIDAL PREVENTER

Montelukast Tablet
montelukast
4mg [a] • 5mg [a] • 10mg
Multiple generic brands

ICS PREVENTERS

Flixotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
**Flixotide Junior* [a]

Flixotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg • 500mcg
**Flixotide Junior*

Fluticasone Cipla Inhaler †
fluticasone propionate
125mcg • 250mcg

Pulmicort Turbuhaler †
budesonide
100mcg • 200mcg • 400mcg

QVAR Inhaler †
beclometasone
50mcg • 100mcg

QVAR Autohaler ‡
beclometasone
50mcg • 100mcg

Alvesco Inhaler †
ciclesonide
80mcg • 160mcg

Arnuity Ellipta †
fluticasone furoate
100mcg • 200mcg

Axotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
**Axotide Junior* [a]

Axotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg
**Axotide Junior*

LAMA MEDICATIONS

Spiriva Respimat # ‡ [a]
tiotropium 2.5mcg Ⓢ

Tiotropium Lupin #
tiotropium 18mcg

Spiriva Handihaler #
tiotropium 18mcg

Braltus Zonda #
tiotropium 13mcg

Bretaris Genuair #
aclidinium 322mcg

Seebri Breezhaler #
glycopyrronium 50mcg

Incruse Ellipta #
umeclidinium 62.5mcg

LAMA-LABA COMBINATIONS

Spiolto Respimat [c]
tiotropium-olodaterol
2.5/2.5mcg

Brimica Genuair [c]
aclidinium-formoterol
340/12mcg

Ultibro Breezhaler [c]
indacaterol-glycopyrronium
110/50mcg

Anoro Ellipta [c]
umeclidinium-vilanterol
62.5/25mcg

LABA MEDICATIONS

Oxis Turbuhaler ‡
formoterol 6mcg • 12mcg

Serevent Accuhaler ‡
salmeterol 50mcg

Onbrez Breezhaler #
indacaterol 150mcg • 300mcg

ICS-LABA COMBINATIONS

Seretide Inhaler [a]
fluticasone propionate-salmeterol
50/25 • 125/25 • 250/25 [c]
Additional brands: *Pavtide, Fluticasone + Salmeterol Cipla, SalplusF, Evocair*

Symbicort Turbuhaler [a]
budesonide-formoterol
100/6 Ⓜ • 200/6 Ⓐ Ⓜ • 400/12 [c]
Additional brand: *Rilast Turbuhaler*

Seretide Accuhaler [a]
fluticasone propionate-salmeterol
100/50 • 250/50 • 500/50 [c]
Additional brands: *Pavtide, Fluticasone + Salmeterol Cipla*

DuoResp Spiromax [a]
budesonide-formoterol
200/6 Ⓐ Ⓜ • 400/12 [c]

Salflumix Easyhaler [a]
fluticasone propionate-salmeterol
250/50 • 500/50 [c]

Flutiform Inhaler [a]
fluticasone propionate-formoterol
50/5 • 125/5 • 250/10

Bufomix Easyhaler [a]
budesonide-formoterol
200/6 Ⓐ Ⓜ • 400/12 [c]

Fostair Inhaler [a]
beclometasone-formoterol
100/6 Ⓜ • 200/6

Symbicort Rapihaler [a]
budesonide-formoterol
100/3 Ⓐ Ⓜ • 200/6 [c]
Additional brand: *Rilast Rapihaler*

Breo Ellipta [a]
fluticasone furoate-vilanterol
100/25 [c] • 200/25

Atectura Breezhaler [a]
mometasone-indacaterol
62.5/125 • 127.5/125 • 260/125
all units in mcg

ICS-LAMA-LABA COMBINATIONS

Trelegy Ellipta
fluticasone furoate-umeclidinium-vilanterol
100/62.5/25 [c] • 200/62.5/25 [a] Ⓢ

Enerzair Breezhaler [a]
mometasone-glycopyrronium-indacaterol
68/46/114 Ⓢ • 136/46/114 Ⓢ

Trimbow Inhaler [a]
beclometasone-glycopyrronium-formoterol
100/10/6 [c] Ⓢ • 200/10/6 Ⓢ

Breztri Aerosphere [c]
budesonide-glycopyrronium-formoterol
160/7.2/5
all units in mcg

ICS: inhaled corticosteroid | LABA: long-acting beta, agonist | LAMA: long-acting muscarinic antagonist | SABA: short-acting beta, agonist | SAMA: short-acting muscarinic antagonist

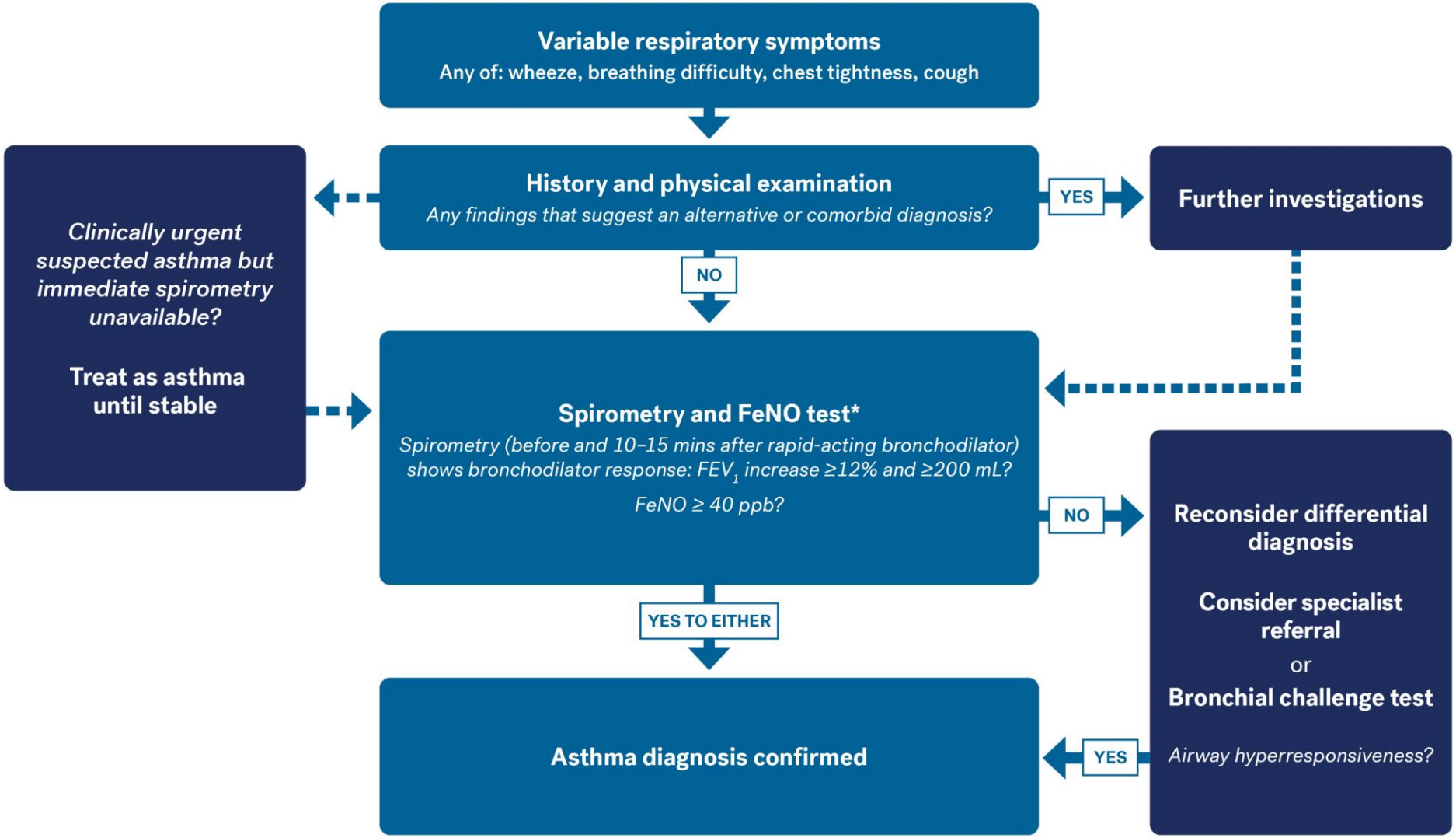
National Asthma Council | Australian Asthma Handbook

This chart was developed independently by the National Asthma Council Australia with support from AstraZeneca Australia, Chiesi Australia, GlaxoSmithKline (GSK Australia) and Orion Pharma.

PBS PRESCRIBERS † Asthma unrestricted benefit ‡ Asthma restricted benefit [a] Asthma authority required ^ COPD unrestricted benefit # COPD restricted benefit [c] COPD authority required
Ⓐ Anti-inflammatory reliever (AIR) therapy Ⓜ Maintenance-and-reliever therapy (MART) Ⓢ Severe asthma **Check TGA and PBS for current age and condition criteria.*
Improving asthma control can also reduce the environmental impact of asthma. For more information refer to the *Reducing the environmental impact of asthma treatment* information paper at nationalasthma.org.au.

Diagnosis of asthma in adults and adolescents

National Asthma Council | Australian Asthma Handbook



FeNO: fractional exhaled nitric oxide; FEV_1: forced expiratory volume in one second

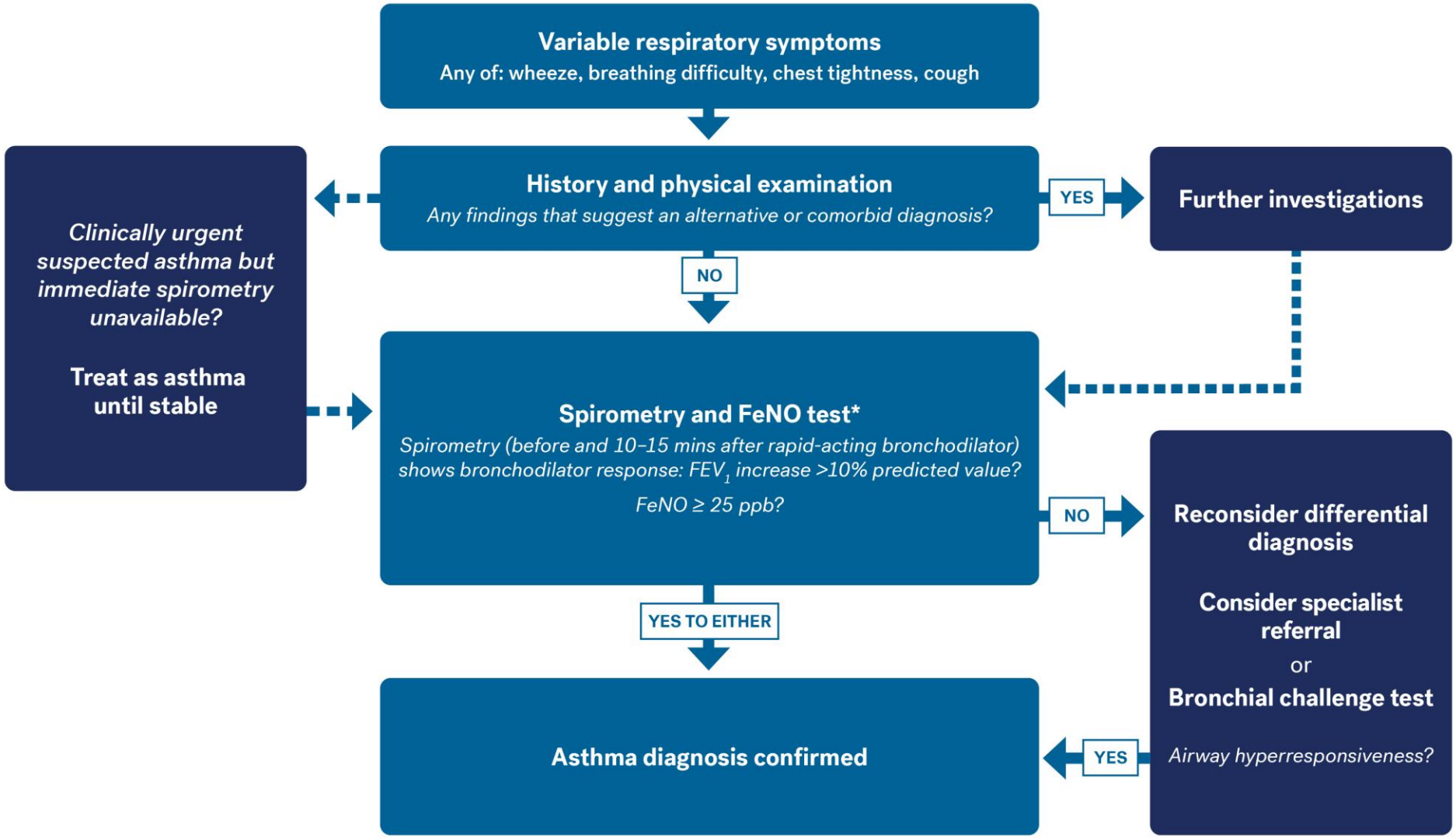
*If available when spirometry conducted in an accredited respiratory laboratory

National Asthma Council | Australian Asthma Handbook

This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

Diagnosis of asthma in children 6–11 years

National Asthma Council | Australian Asthma Handbook



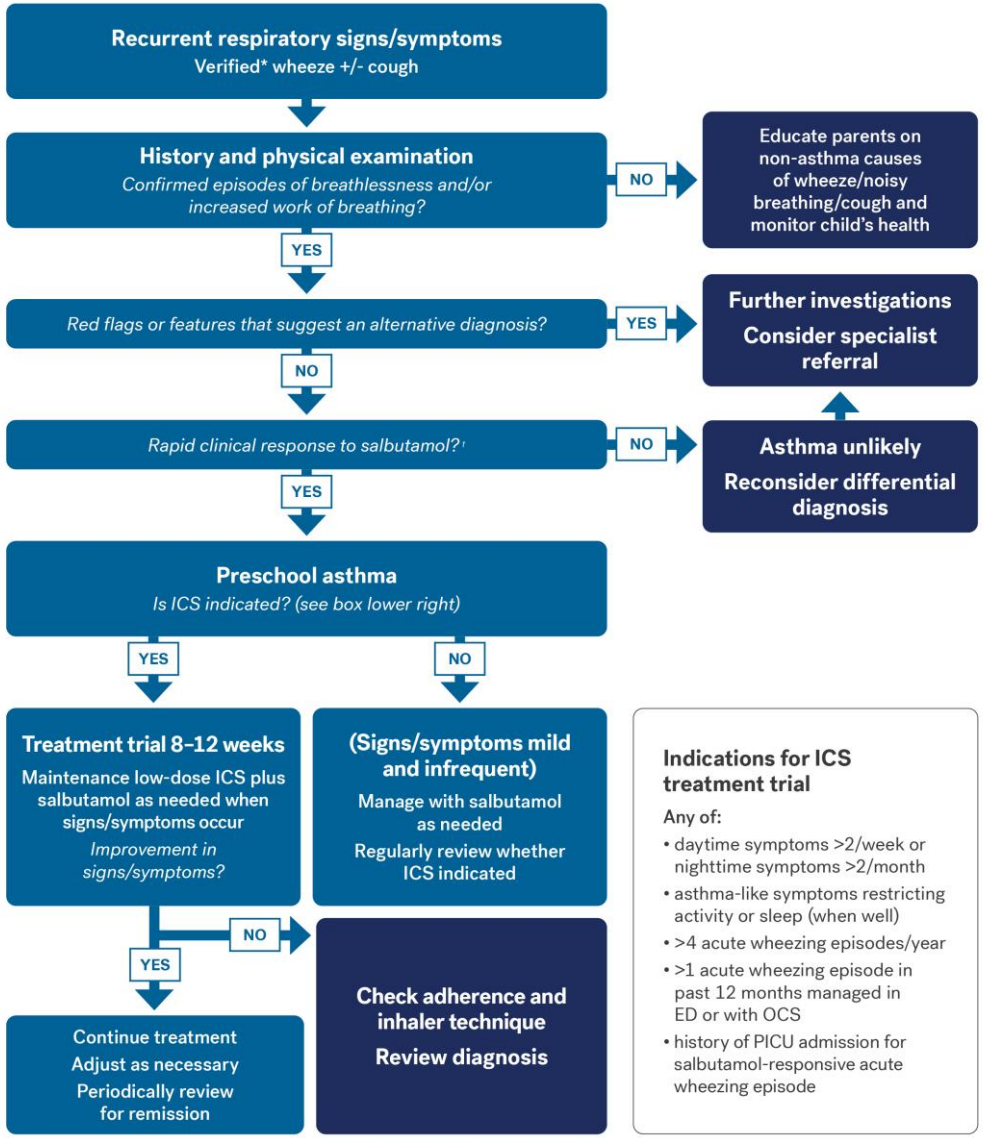
FeNO: fractional exhaled nitric oxide; FEV_1: forced expiratory volume in one second

*If available when spirometry conducted in an accredited respiratory laboratory

National Asthma Council | Australian Asthma Handbook

Diagnosis of asthma in children 1–5 years

National Asthma Council | Australian Asthma Handbook



ED: emergency department; ICS: inhaled corticosteroid; OCS: oral corticosteroid; PICU: paediatric intensive care unit; OCS: oral corticosteroid;

* Wheeze verified by direct observation/auscultation or by audio recording

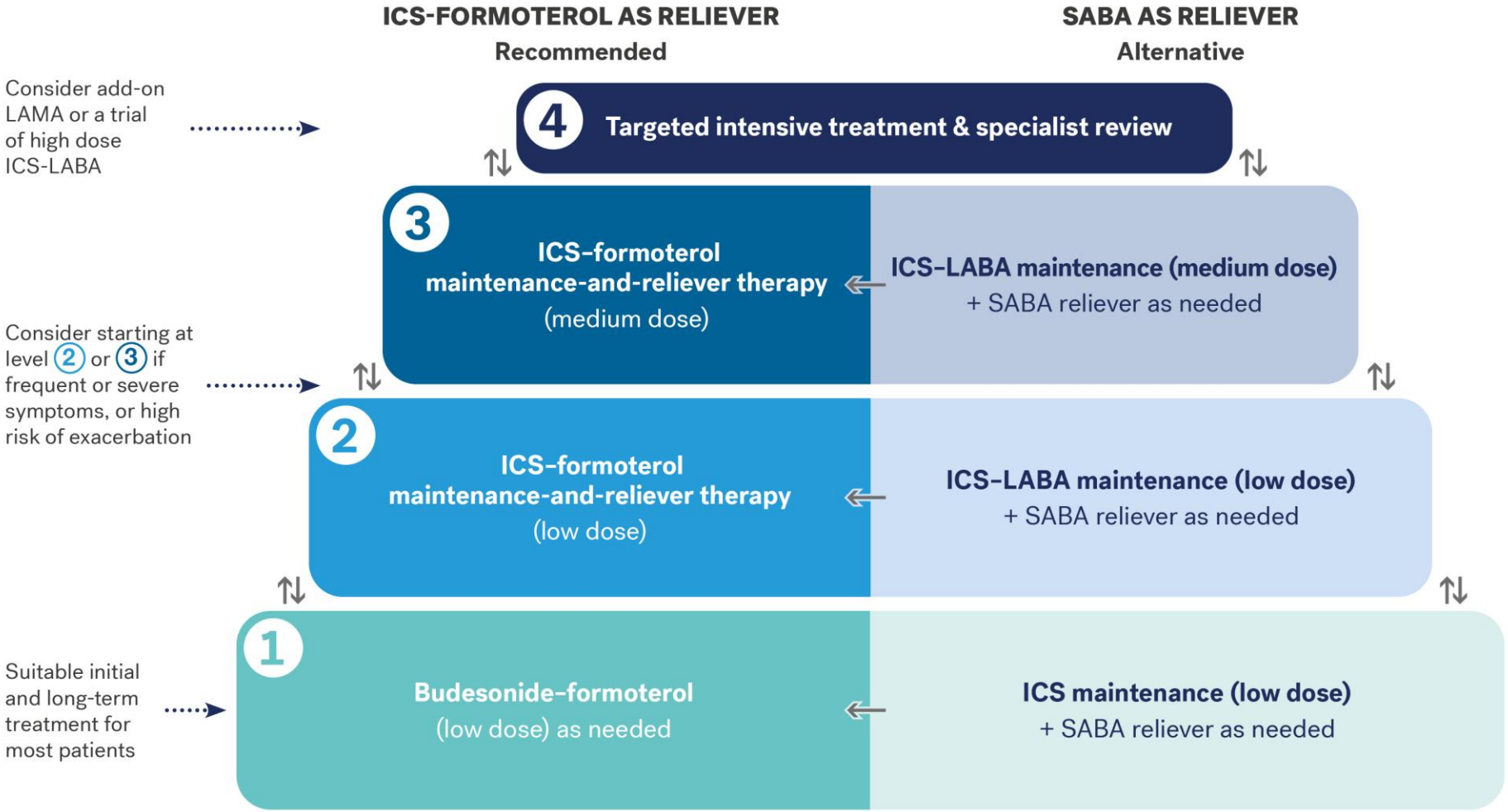
† Resolution of signs/symptoms within minutes after administration of salbutamol via pressurised metered-dose inhaler plus spacer (± facemask) at home/in primary care or documented resolution of acute episode in emergency department, consistent with expected response to bronchodilator treatment

This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

National Asthma Council | Australian Asthma Handbook

Asthma treatment levels for adults and adolescents

National Asthma Council | Australian Asthma Handbook



ICS: inhaled corticosteroids
LABA: long-acting beta$_2$ agonist
LAMA: long-acting muscarinic antagonist
SABA: short-acting beta$_2$ agonist

Before stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate

Consider stepping up if good symptom control is not achieved despite good adherence and correct inhaler technique

When asthma is stable and well controlled for 2–3 months, consider stepping down

Consider switching to reduce severe exacerbation risk

This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

asthmahandbook.org.au

National Asthma Council | Australian Asthma Handbook

Alert

All treatment levels include ICS. Treatment solely with as-needed SABA is not recommended for adults or adolescents with asthma, even if symptoms are infrequent.

National Asthma Council | Australian Asthma Handbook

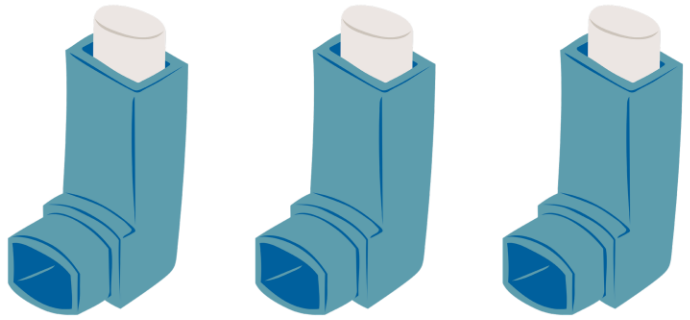
National Asthma Council. Treatment levels for adults and adolescents. Australian Asthma Handbook. Updated September 12, 2025. Accessed September 17, 2025. https://www.asthmahandbook.org.au/management/adults-and-adolescents/medication-management/treatment-levels-for-adults-and-adolescents

Check for SABA over-reliance

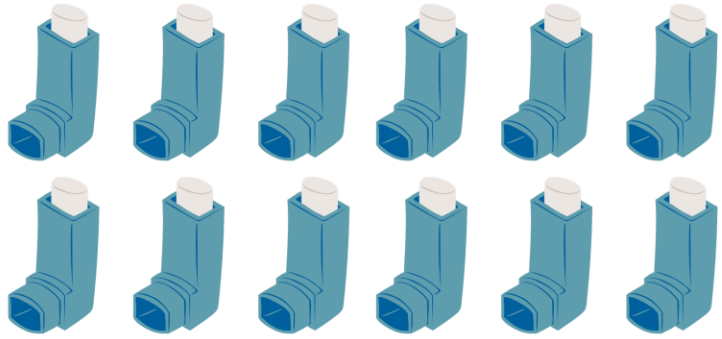
15 million SABA inhalers are dispensed in Australia per year for asthma and COPD

Ask patients: How many canisters are you using per year?

3 or more SABA reliever canisters per year increases risk of asthma-related exacerbations[1]



12 or more SABA reliever canisters per year is associated with increased risk of death[2]



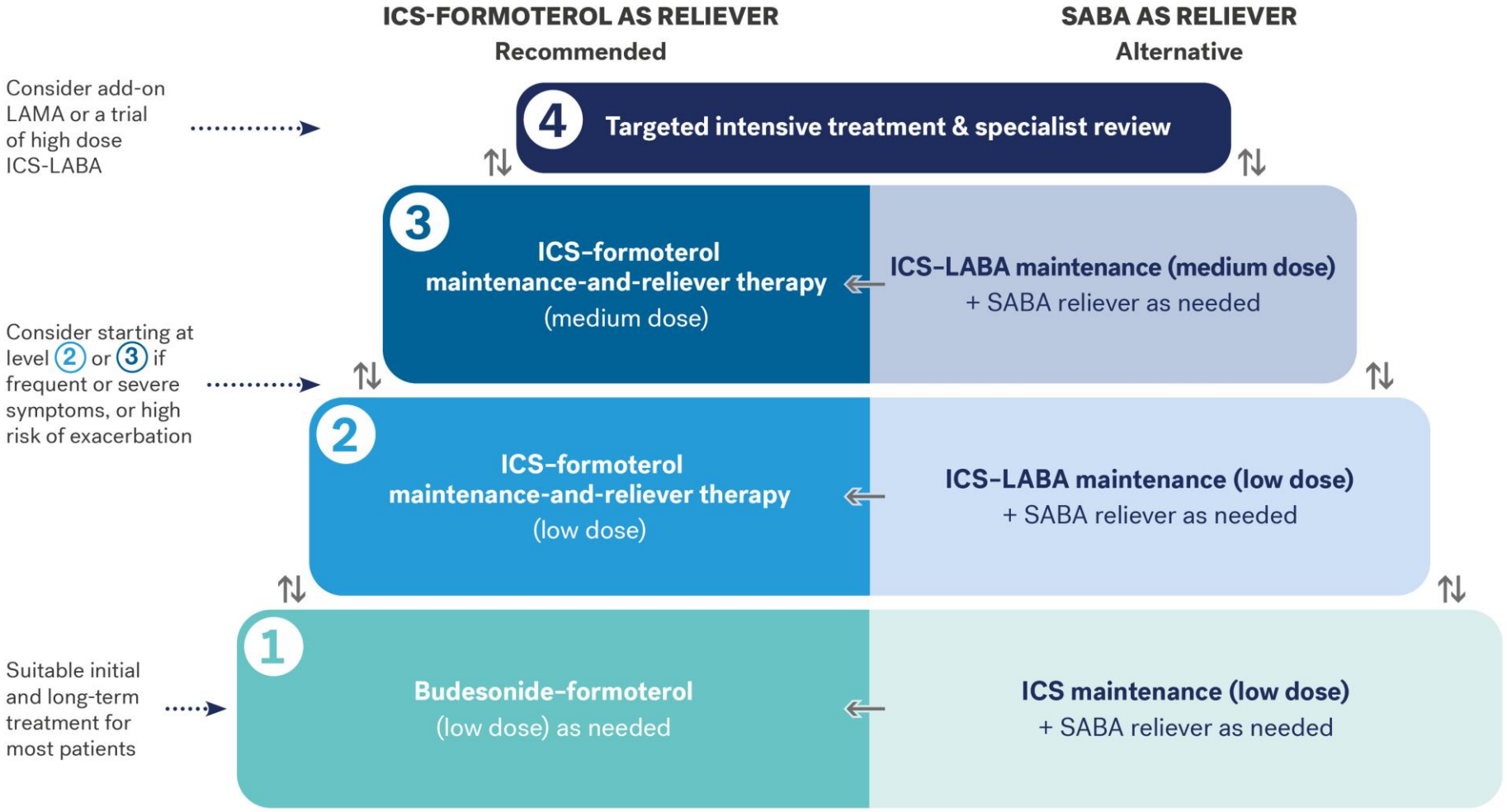
1 Stanford RH, et al. Ann Allergy Asthma Immunol 2012; 109(6): 403–7.
2 Nwaru BI, et al. Eur Respir J 2020; 55: 901872.

Asthma treatment levels for adults and adolescents

National Asthma Council | Australian Asthma Handbook

MART

MART



ICS: inhaled corticosteroids
LABA: long-acting beta$_2$ agonist
LAMA: long-acting muscarinic antagonist
SABA: short-acting beta$_2$ agonist

Before stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate

Consider stepping up if good symptom control is not achieved despite good adherence and correct inhaler technique

When asthma is stable and well controlled for 2–3 months, consider stepping down

Consider switching to reduce severe exacerbation risk

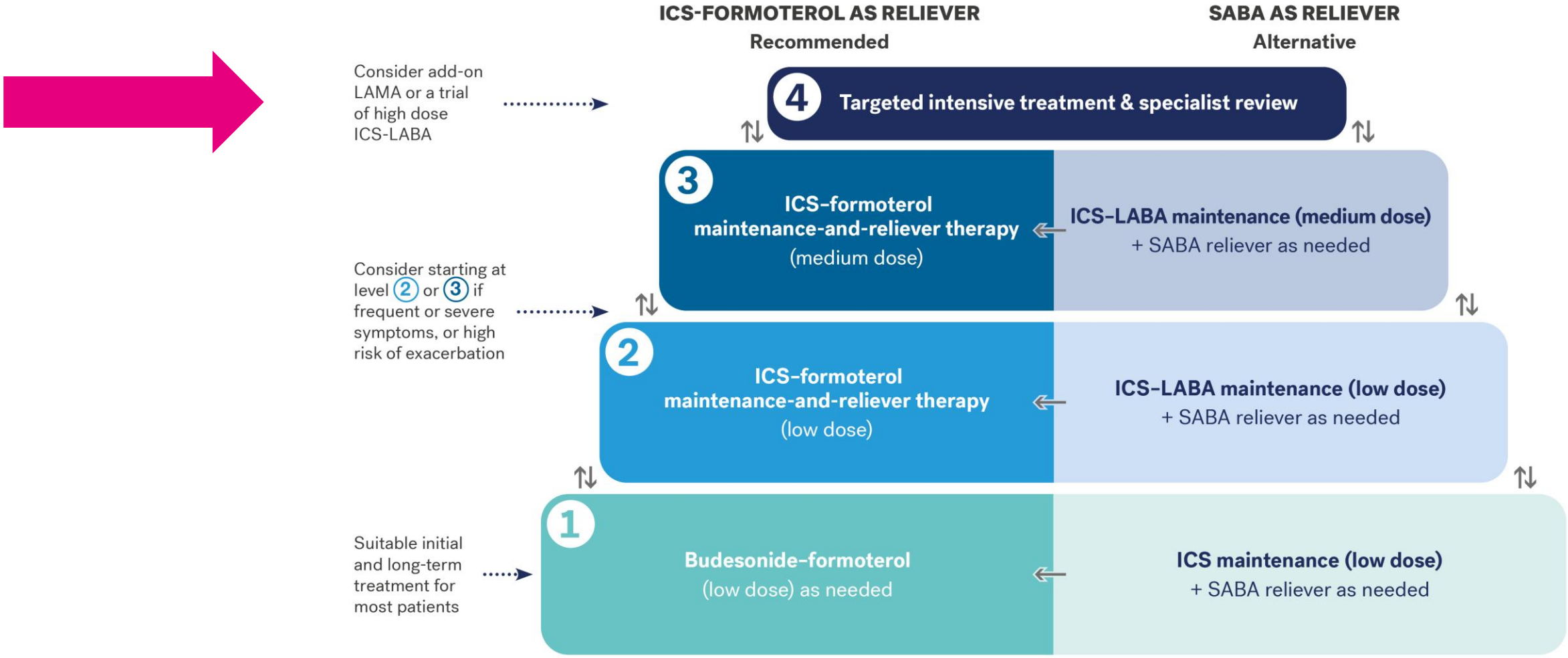
This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

asthmahandbook.org.au

National Asthma Council | Australian Asthma Handbook

Asthma treatment levels for adults and adolescents

National Asthma Council | Australian Asthma Handbook



ICS: inhaled corticosteroids
LABA: long-acting beta$_2$ agonist
LAMA: long-acting muscarinic antagonist
SABA: short-acting beta$_2$ agonist

Before stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate

Consider stepping up if good symptom control is not achieved despite good adherence and correct inhaler technique

When asthma is stable and well controlled for 2–3 months, consider stepping down

Consider switching to reduce severe exacerbation risk

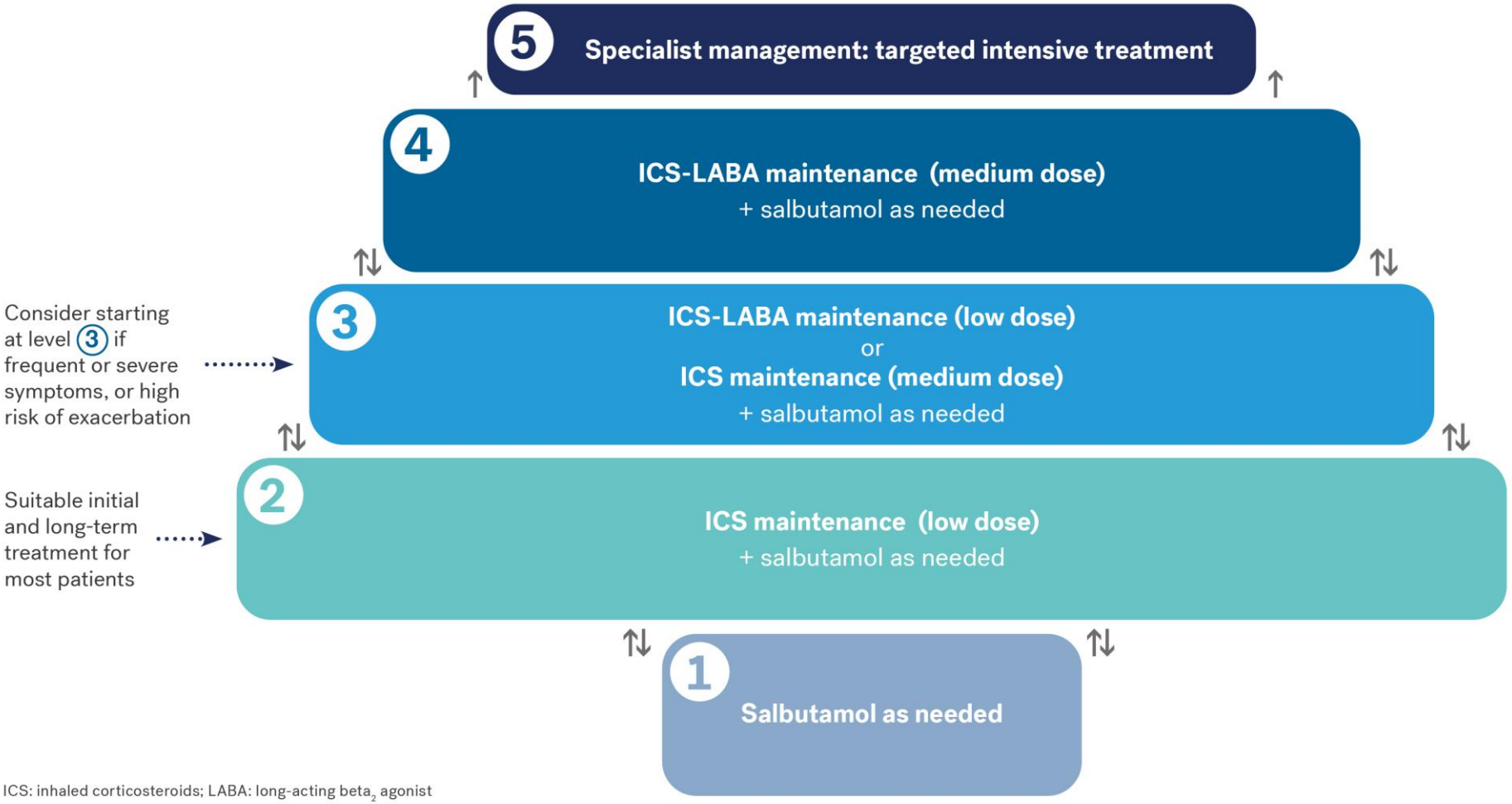
This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

asthmahandbook.org.au

National Asthma Council | Australian Asthma Handbook

Asthma treatment levels for children 6–11 years

National Asthma Council | Australian Asthma Handbook



ICS: inhaled corticosteroids; LABA: long-acting $beta_2$ agonist

Before stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate.

Consider stepping up if good symptom control is not achieved despite good adherence and correct inhaler technique.

If asthma is stable and well controlled for >3 months, consider stepping down when low risk of exacerbation.

Maintenance: ongoing once- or twice-daily treatment, according to product information

Specialist management: by paediatrician, paediatric respiratory physician or clinical immunologist

Montelukast can be considered as an alternative to ICS at level 2 if parents refuse ICS after discussing benefits and potential side-effects, or as add-on treatment at levels 2+.

Montelukast TGA-approved Product Information and Consumer Medicine Information carry a warning about potential neuropsychiatric adverse effects. Counsel parents about risks.

National Asthma Council | Australian Asthma Handbook

This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

asthmahandbook.org.au

Table

Indications for maintenance inhaled corticosteroid treatment in children 6–11 years

Severity of Exacerbations	Pattern of exacerbations and symptoms		
	Exacerbations less than once every 3 months, and no symptoms between exacerbations	Exacerbations more frequent than once every 3 months, and no symptoms or infrequent symptoms between exacerbations	Symptoms between exacerbations (any of): • Daytime symptoms more than once per week • Night-time symptoms more than twice per month • Symptoms restrict activity or sleep
Mild Exacerbations quickly resolve with salbutamol	Not indicated	Consider	Indicated
Moderate–severe ≥1 exacerbation in past year required ED or oral corticosteroids	Consider	Indicated	Indicated
Life-threatening ≥1 exacerbation required hospitalisation or PICU	Indicated	Indicated	Indicated

Additional information

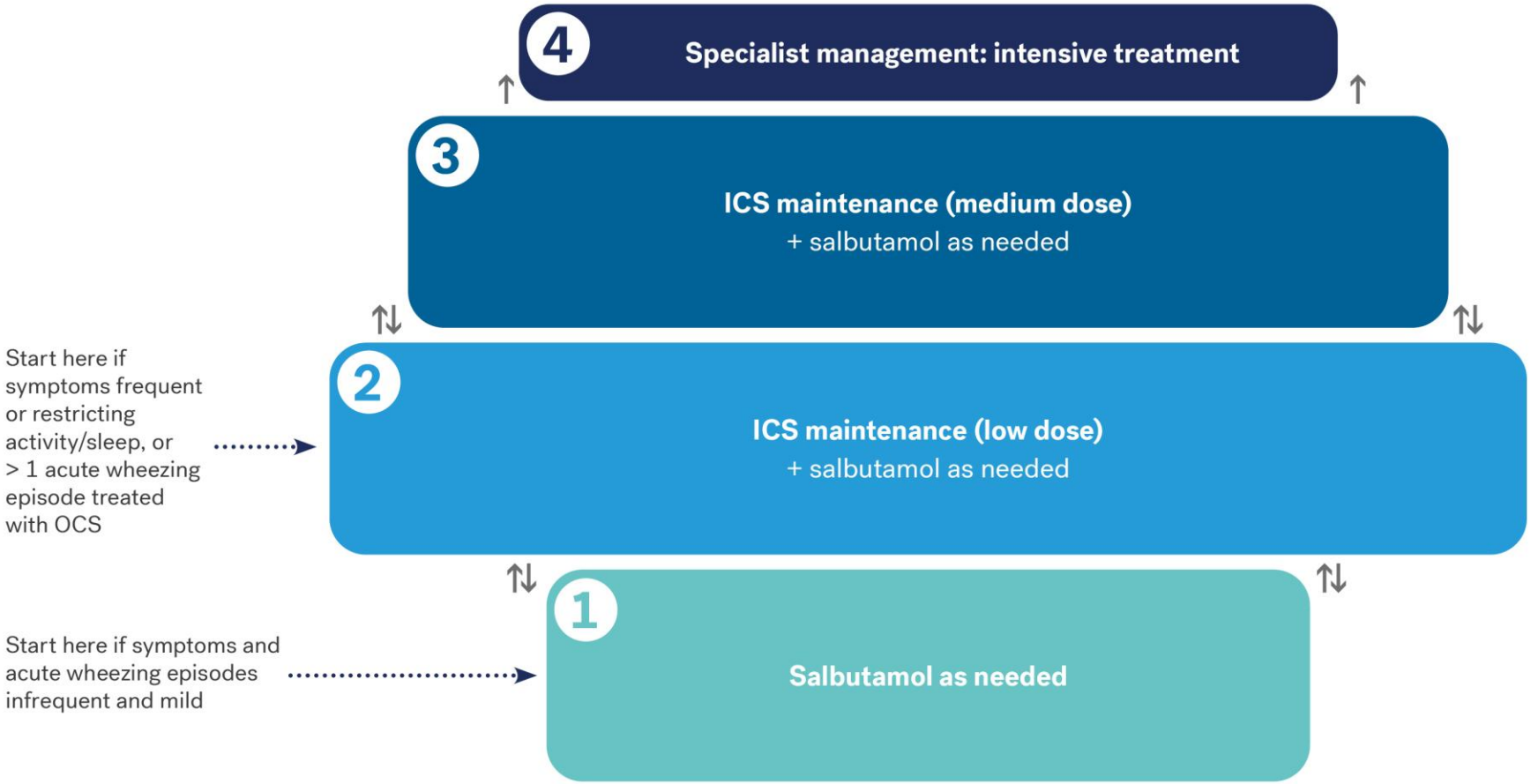
ED: emergency department; PICU: paediatric intensive care unit

National Asthma Council | Australian Asthma Handbook

National Asthma Council. Initial asthma treatment for children 6–11 years after diagnosis. Australian Asthma Handbook. Updated September 15, 2025. Accessed September 17, 2025. https://www.asthmahandbook.org.au/management/children-6-11-years/medication-management/initial-asthma-treatment-for-children-6-11-years-after-diagnosis

Asthma treatment levels for children 1–5 years

National Asthma Council | Australian Asthma Handbook



ICS: inhaled corticosteroids; OCS: oral corticosteroids

Before stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate
- alternative diagnoses excluded.

Consider stepping up if good symptom control is not achieved despite good adherence and correct inhaler technique.

Do not increase ICS dose unless at least partial response to low dose.

If asthma is stable and well controlled for >3 months, consider stepping down when low risk of exacerbation.

Maintenance: ongoing twice-daily treatment

Specialist management: by paediatrician, paediatric respiratory physician or clinical immunologist

Montelukast can be considered as an alternative to ICS at level 2 if parents refuse ICS after discussing benefits and potential side-effects, or as add-on treatment at levels 2+.

Montelukast TGA-approved Product Information and Consumer Medicine Information carry a warning about potential neuropsychiatric adverse effects. Counsel parents about risks.

This figure should be interpreted in context with relevant information from the Australian Asthma Handbook

asthmahandbook.org.au

National Asthma Council | Australian Asthma Handbook

Table

Indications for maintenance inhaled corticosteroid treatment in children 1–5 years

Severity of Exacerbations	Frequency of symptoms		
	Less often than once every 3 months	At least once every 3 months but not more than once per month	More than once per month
Mild Exacerbations quickly* resolve with salbutamol	Not indicated	Consider	Indicated
Moderate–severe ≥2 exacerbations required ED or oral corticosteroids in past 12 months	Indicated	Indicated	Indicated
Life-threatening ≥1 exacerbation required hospitalisation or PICU	Indicated	Indicated	Indicated

Additional information

ED: emergency department; PICU: paediatric intensive care unit; *within a few minutes

National Asthma Council | Australian Asthma Handbook

National Asthma Council. Initial asthma treatment for children 1–5 years after diagnosis of preschool asthma. Australian Asthma Handbook. Updated September 15, 2025. Accessed September 17, 2025. https://www.asthmahandbook.org.au/management/children-1-5-years/medication-management/initial-asthma-treatment-for-children-1-5-years-after-diagnosis

National Asthma Council AUSTRALIA

ASTHMA & COPD MEDICATIONS 2025

Symbicort Turbuhaler [a]
budesonide-formoterol
100/6 Ⓜ • 200/6 Ⓐ Ⓜ • 400/12 [c]
Additional brand: *Rilast Turbuhaler*

BIOLOGIC THERAPIES FOR SEVERE ASTHMA

Fasenra
benralizumab 30mg/mL

Dupixent
dupilumab
200mg/1.14mL • 300mg/2mL

Nucala
mepolizumab 100mg/mL

Xolair
omalizumab
150mg • 75mg/0.5mL • 150mg/mL

All the above are section 100 (Highly Specialised Drugs)

RESOURCES

TREATMENT GUIDELINES

Australian Asthma Handbook:
asthmahandbook.org.au

COPD-X Plan:
copdx.org.au

COPD Inhaler Device Chart Poster:
lungfoundation.com.au/resources/copd-inhaler-device-chart-poster/

INHALER TECHNIQUE

How-to videos, patient and practitioner information
nationalasthma.org.au

pMDIs should be used with a spacer (and face mask if needed)

HOW-TO VIDEOS

SCAN ME

SABA RELIEVERS

Ventolin Inhaler † ^
salbutamol 100mcg
Additional brands: Asmol, Zempreon

Airomir Autohaler ‡ #
salbutamol 100mcg

Bricanyl Turbuhaler [a c]
terbutaline 500mcg

SAMA MEDICATION

Atrovent Metered Aerosol † ^
ipratropium 21mcg

NON STEROIDAL PREVENTER

Montelukast Tablet
montelukast
4mg [a] • 5mg [a] • 10mg
Multiple generic brands

ICS PREVENTERS

Flixotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
**Flixotide Junior* [a]

Flixotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg • 500mcg
**Flixotide Junior*

Fluticasone Cipla Inhaler †
fluticasone propionate
125mcg • 250mcg

Pulmicort Turbuhaler †
budesonide
100mcg • 200mcg • 400mcg

QVAR Inhaler †
beclometasone
50mcg • 100mcg

QVAR Autohaler ‡
beclometasone
50mcg • 100mcg

Alvesco Inhaler †
ciclesonide
80mcg • 160mcg

Arnuity Ellipta †
fluticasone furoate
100mcg • 200mcg

Axotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
**Axotide Junior* [a]

Axotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg
**Axotide Junior*

LAMA MEDICATIONS

Spiriva Respimat # ‡ [a]
tiotropium 2.5mcg Ⓢ

Tiotropium Lupin #
tiotropium 18mcg

Spiriva Handihaler #
tiotropium 18mcg

Braltus Zonda #
tiotropium 13mcg

Bretaris Genuair #
aclidinium 322mcg

Seebri Breezhaler #
glycopyrronium 50mcg

Incruse Ellipta #
umeclidinium 62.5mcg

LAMA-LABA COMBINATIONS

Spiolto Respimat [c]
tiotropium-olodaterol
2.5/2.5mcg

Brimica Genuair [c]
aclidinium-formoterol
340/12mcg

Ultibro Breezhaler [c]
indacaterol-glycopyrronium
110/50mcg

Anoro Ellipta [c]
umeclidinium-vilanterol
62.5/25mcg

LABA MEDICATIONS

Oxis Turbuhaler ‡
formoterol 6mcg • 12mcg

Serevent Accuhaler ‡
salmeterol 50mcg

Onbrez Breezhaler #
indacaterol 150mcg • 300mcg

ICS-LABA COMBINATIONS

Seretide Inhaler [a]
fluticasone propionate-salmeterol
50/25 • 125/25 • 250/25 [c]
Additional brands: *Pavtide, Fluticasone + Salmeterol Cipla, SalplusF, Evocair*

Symbicort Turbuhaler [a]
budesonide-formoterol
100/6 Ⓜ • 200/6 Ⓐ Ⓜ • 400/12 [c]
Additional brand: *Rilast Turbuhaler*

Seretide Accuhaler [a]
fluticasone propionate-salmeterol
100/50 • 250/50 • 500/50 [c]
Additional brands: *Pavtide, Fluticasone + Salmeterol Cipla*

DuoResp Spiromax [a]
budesonide-formoterol
200/6 Ⓐ Ⓜ • 400/12 [c]

Salflumix Easyhaler [a]
fluticasone propionate-salmeterol
250/50 • 500/50 [c]

Flutiform Inhaler [a]
fluticasone propionate-formoterol
50/5 • 125/5 • 250/10

Bufomix Easyhaler [a]
budesonide-formoterol
200/6 Ⓐ Ⓜ • 400/12 [c]

Fostair Inhaler [a]
beclometasone-formoterol
100/6 Ⓜ • 200/6

Symbicort Rapihaler [a]
budesonide-formoterol
100/3 Ⓐ Ⓜ • 200/6 [c]
Additional brand: *Rilast Rapihaler*

Breo Ellipta [a]
fluticasone furoate-vilanterol
100/25 [c] • 200/25

Atectura Breezhaler [a]
mometasone-indacaterol
62.5/125 • 127.5/125 • 260/125
all units in mcg

ICS-LAMA-LABA COMBINATIONS

Trelegy Ellipta
fluticasone furoate-umeclidinium-vilanterol
100/62.5/25 [c] • 200/62.5/25 [a] Ⓢ

Enerzair Breezhaler [a]
mometasone-glycopyrronium-indacaterol
68/46/114 Ⓢ • 136/46/114 Ⓢ

Trimbow Inhaler [a]
beclometasone-glycopyrronium-formoterol
100/10/6 [c] Ⓢ • 200/10/6 Ⓢ

Breztri Aerosphere [c]
budesonide-glycopyrronium-formoterol
160/7.2/5
all units in mcg

ICS: inhaled corticosteroid | LABA: long-acting beta, agonist | LAMA: long-acting muscarinic antagonist | SABA: short-acting beta, agonist | SAMA: short-acting muscarinic antagonist

National Asthma Council | Australian Asthma Handbook

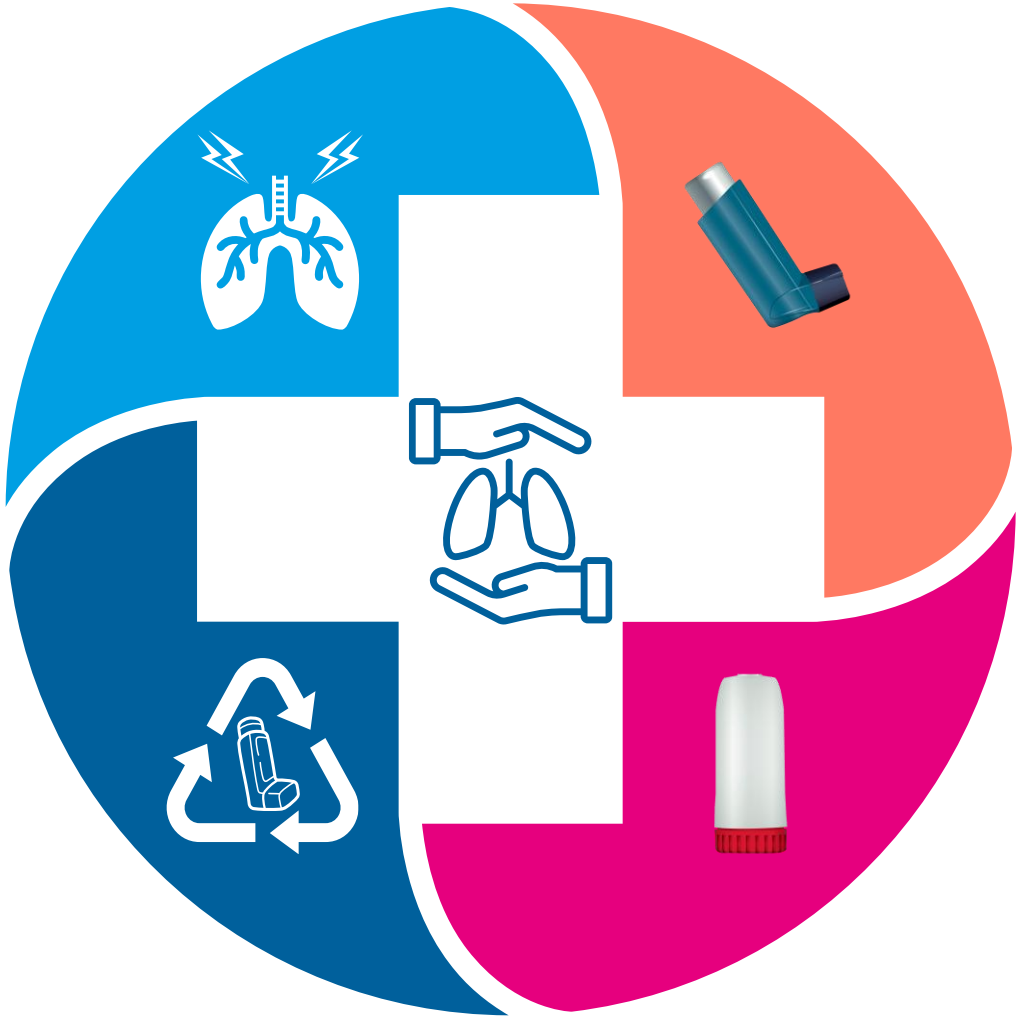
This chart was developed independently by the National Asthma Council Australia with support from AstraZeneca Australia, Chiesi Australia, GlaxoSmithKline (GSK Australia) and Orion Pharma.

PBS PRESCRIBERS † Asthma unrestricted benefit ‡ Asthma restricted benefit [a] Asthma authority required ^ COPD unrestricted benefit # COPD restricted benefit [c] COPD authority required
Ⓐ Anti-inflammatory reliever (AIR) therapy Ⓜ Maintenance-and-reliever therapy (MART) Ⓢ Severe asthma **Check TGA and PBS for current age and condition criteria.*
Improving asthma control can also reduce the environmental impact of asthma. For more information refer to the *Reducing the environmental impact of asthma treatment* information paper at nationalasthma.org.au.

Call to action

ASTHMA CONTROL

Guideline-directed therapy improves asthma control and reduces the burden of asthma



SABA OVER-RELIANCE

SABA over-reliance is common and increases the risk of severe exacerbations and asthma-related death

ENVIRONMENT

Better, safer, easier regimen with DPIs reduces greenhouse gas emissions by 97% compared to pMDIs

AIR & MART

ICS-formoterol as needed or as maintenance-and-reliever therapy reduces the risk of severe exacerbations

National Asthma Council | Australian Asthma Handbook

National Asthma Council | Australian Asthma Handbook

Thank you

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VIC 3205
Australia

03 9929 4333

nationalasthma.org.au
asthmahandbook.org.au
sensitivechoice.com

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@National Asthma Council Australia
@sensitivechoice

@sensitivechoice

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Lancet Paper: Budesonide-formoteroal vs salbutamol as a reliever therapy in children with mild asthma

Dr Katherine Chen

Budesonide–formoterol versus salbutamol as reliever therapy in children with mild asthma (CARE): a 52-week, open-label, multicentre, superiority, randomised controlled trial

*Lee Hatter, Mark Holliday, Karen Oldfield, Ciléin Kearns, Tasmin Barry, Melissa Black, Pepa Bruce, Atalie Colman, Emily Dickinson, Allie Eathorne, Matire Harwood, Thomas Hills, Rebekah Lamb, Kyley Kerse, Srinidhi Krishnamoorthy, John Martindale, Alex Semprini, Nick Shortt, David McNamara, Catherine A Byrnes, Stuart R Dalziel, Andrew Bush, Mark Weatherall, Richard Beasley, on behalf of the CARE study team**

Lancet, Sept 2025, **https://doi.org/10.1016/S0140-6736(25)00861-X**

Study Summary

- **Population:** 5-15 years, mild asthma
- **Intervention:** Budesonide 50 mcg-Formeterol 3 mcg MDI, 2 puffs as needed
- **Comparison:** Salbutamol 100 mcg 2 puffs as needed
- **Outcome:** Asthma attack as rate per participant per year
- (number of attack/ participant years)
- **Time:** 52 weeks

Results

	Budesonide–formoterol group (n=179)	Salbutamol group (n=181)
Asthma attacks		
Annualised rate*	0·23	0·41
Relative rate (95% CI)*	0·55 (0·35 to 0·86) p=0·012	..
Asthma attack count		
0	149 (83%)	123 (68%)
1	23 (13%)	40 (22%)
2	3 (2%)	14 (8%)
3	2 (1%)	4 (2%)
4	0	0
5	2 (1%)	0
≥1 asthma attack	30 (17%)	58 (32%)
Odds ratio (95% CI)	0·43 (0·24 to 0·75) p=0·0060	..
Time to first asthma attacks, days	329 (103)	295 (122)
Hazard ratio (95% CI)	0·48 (0·31 to 0·74) p=0·0010	..
Health-care encounters for asthma attacks		
After hours (urgent care)	9	11
Emergency department	3	11
General practice	34	66
Hospitalisation	3	1
Other	1	7

Asthma control and Respiratory function

	Budesonide–formoterol group (n=179)	Salbutamol group (n=181)
Asthma control and respiratory testing		
Treatment step at visit 5		
Step 1	145/167 (87%)	126/166 (76%)
Step 2	18/167 (11%)	28/166 (17%)
Step 3	1/167 (1%)	8/166 (5%)
Non-study	3/167 (2%)	4/166 (2%)
Treatment Step 1 *vs* other or non-treatment steps, odds ratio (95% CI)	1·86 (1·07 to 3·22) p=0·031	
ACQ-5 score		
Visit 3	0·81 (0·69)	0·75 (0·66)
Visit 5	0·77 (0·68)	0·79 (0·72)
Mean difference across all timepoints (95% CI)	–0·003 (–0·12 to 0·11) p=0–95	
FeNO, ppb	35·2 (13·5 to 65·5)	42·3 (11·7 to 70)
FEV_1 % predicted	99·3 (15·2)	100·2 (14·8)
Mean difference	0·36 (–2·46 to 3·17) p=0·80	..
Growth velocity		
Height, cm	148·09 (17·09)	146·63 (17·21)
Mean difference (95% CI)	–0·35 (–0·93 to 0·24) p=0·24	..
Time off due to asthma		
Days lost from school	1·62 (3·83)	2·11 (3·54)
Relative rate (95% CI)	0·68 (0·44 to 1·04) p=0·075	..
Days lost from work due to childcare	0·68 (2·78)	0·72 (1·96)
Relative rate (95% CI)	0·87 (0·49 to 1·56) p=0·64	..

Implications for clinical practice

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HealthPathways Melbourne and CAP

Dr Kirsty Tamis

HealthPathways – Improving Childhood Asthma Management

Childhood Asthma Management Pathways Resources and Referral pages

Relevant pathways

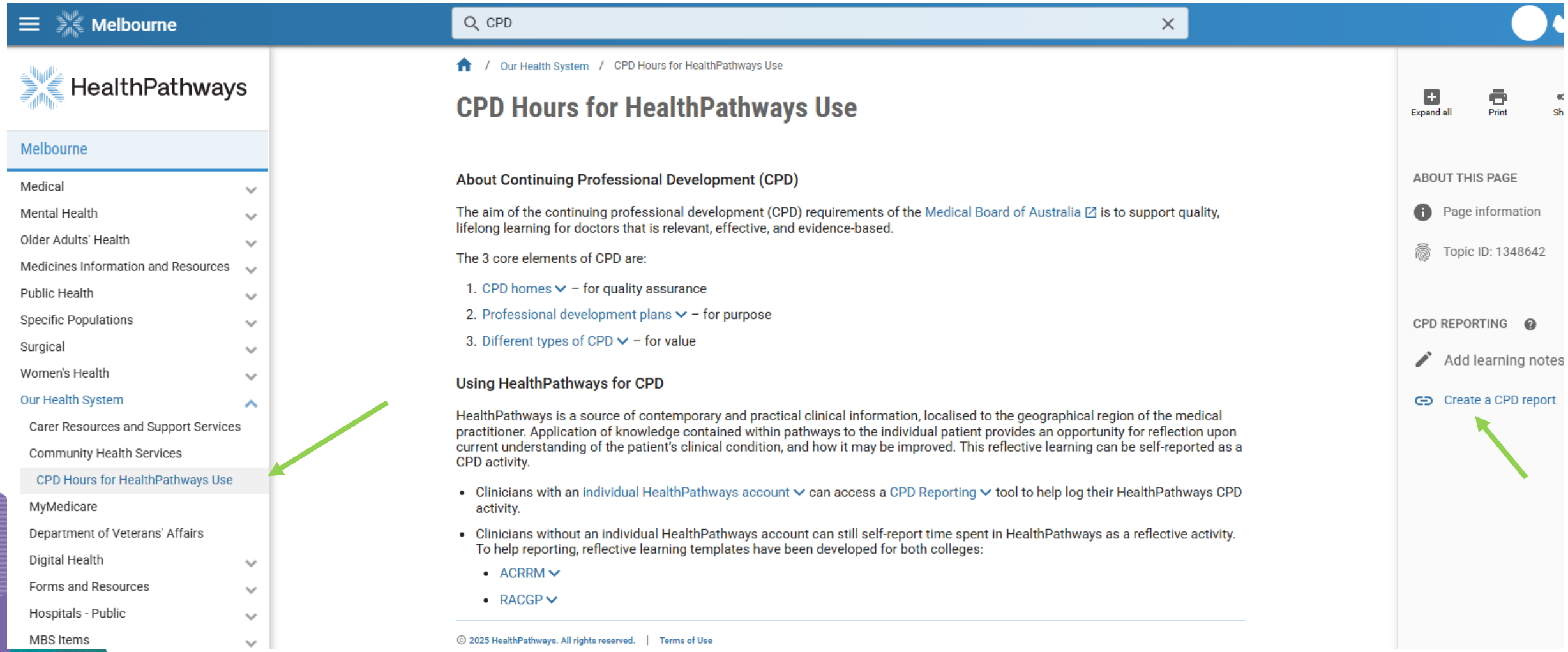
- Acute Respiratory Illness in Children
- Acute Asthma in Children
- Asthma in Adolescents (Aged 12 Years and Over)
- Asthma in Primary School-aged Children (Aged 6 to 11 Years)
- Wheeze and Asthma in Preschool Children (Aged 1 to 5 Years)
- Croup
- Chronic Cough in Children
- Influenza
- Community Asthma Education and Support
- Acute Paediatric Medicine Referral or Admission (Same-day)
- Non-acute Paediatric Medicine Referral (> 24 hours)

Related pathways

- Anaphylaxis
- Assessing Respiratory Presentations in General Practice
- Bronchiolitis in Infants
- Community Asthma Education and Support
- Non-acute Paediatric Immunology and Allergy referral
- Non-acute Paediatric Medicine Referral (> 24 hours)
- Pneumonia in Children
- Allergies and Allergy Testing
- Immunology
- Immunology Referrals
- Lung Function Testing
- Smoking and Vaping Cessation
- Skin Prick Testing
- Spirometry Interpretation
- Pertussis (Whooping Cough)

CPD Hours for HealthPathways Use

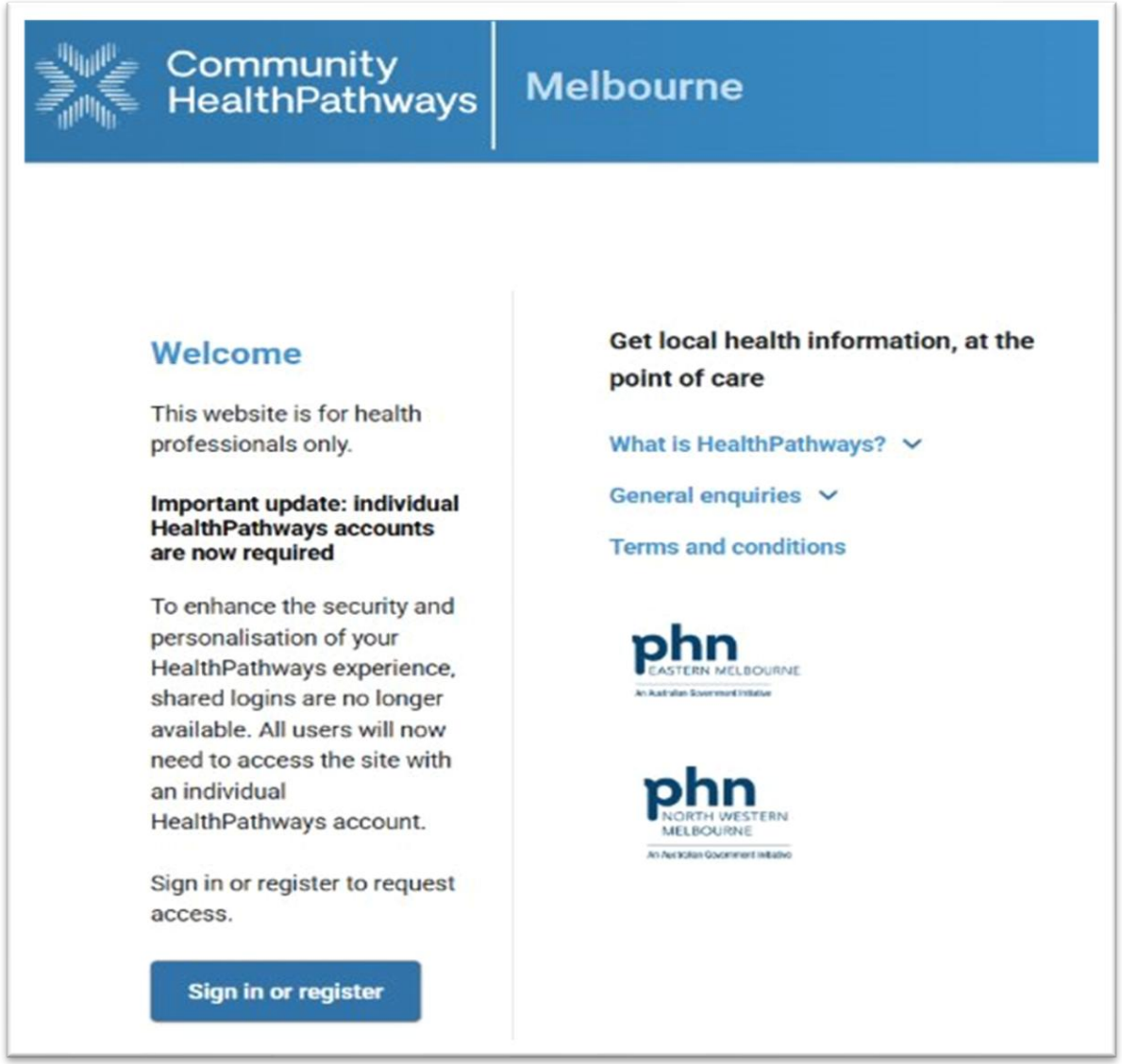
HealthPathways – CPD Hours for HealthPathways Use



Accessing HealthPathways

Please click on the **Sign in or register** button to create your individual account or scan the QR code below.

If you have any questions, please email the team at info@healthpathwaysmelbourne.org.au



Community Asthma Program

CAP is DHHS funded

(free service)

cohealth
care for all

DPV Health

cohealth
care for all

CAP Poll Question

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Wrap up

Dr Kirsty Tamis

Feedback

Your feedback is important to us, and helps us to get the most out of the Community of Practice

- Please answer the survey questions via link in chat or the QR code
- Share with us what you would you like to discuss at future Community of Practice Meetings?
- Attendance certificates will be received within 4-6 weeks. RACGP CPD hours will be uploaded within 30 days
- Recording will be available on our website here within the next week

Next Community of Practice

Date and time: Wednesday, January 28 6:30pm-8pm

Visit the NWMPHN event's calendar or subscribe to our newsletter to be notified.