

Epidemic Thunderstorm Asthma

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Clean Air Summit 2018


Outline

- **What is epidemic thunderstorm asthma?**
- **21 November 2016**
 - Health impact
 - Environmental conditions
- **Risk Groups**
- **Preparation and Readiness**
- **Forecasting and warning systems**

Background

- 21st November 2016 - largest epidemic thunderstorm asthma event on record
- Unprecedented in size, acuity and impact
- Unexpected, widespread
- Presented a large challenge for emergency health services and the Victorian community more generally

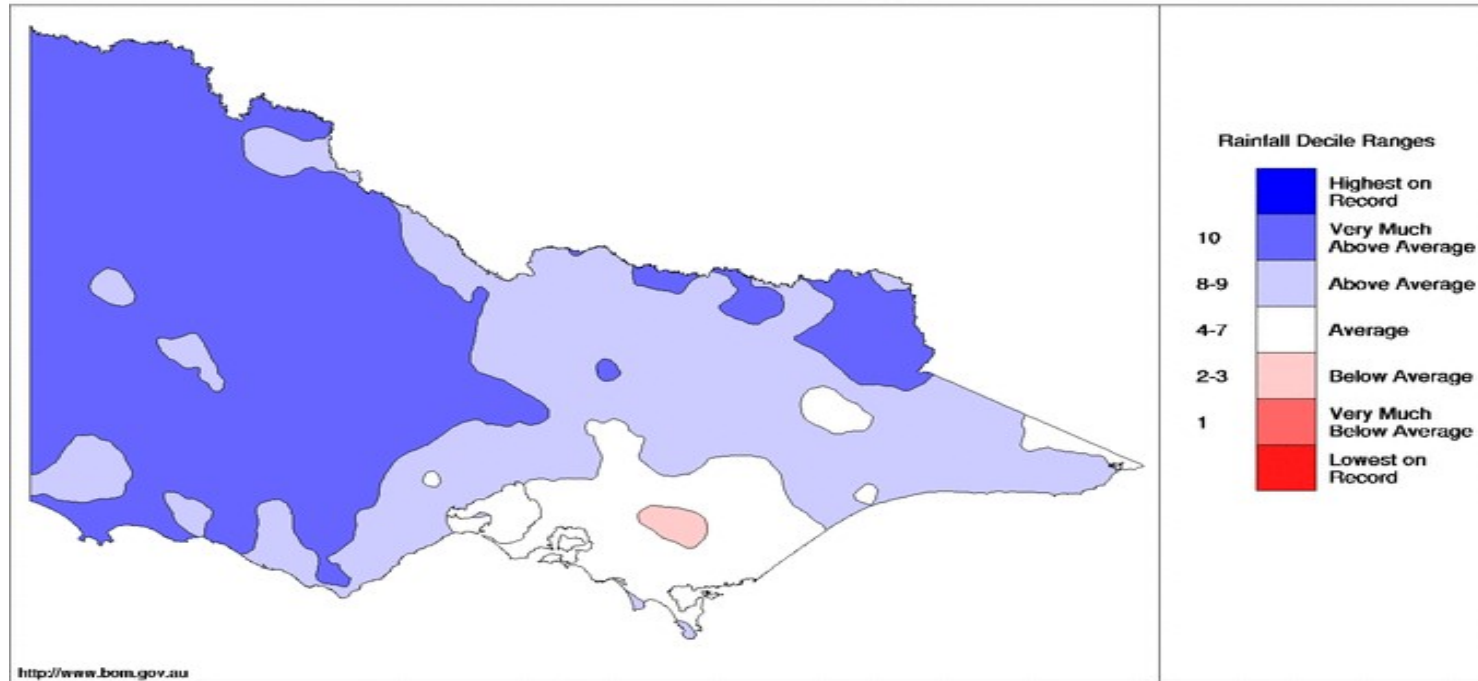




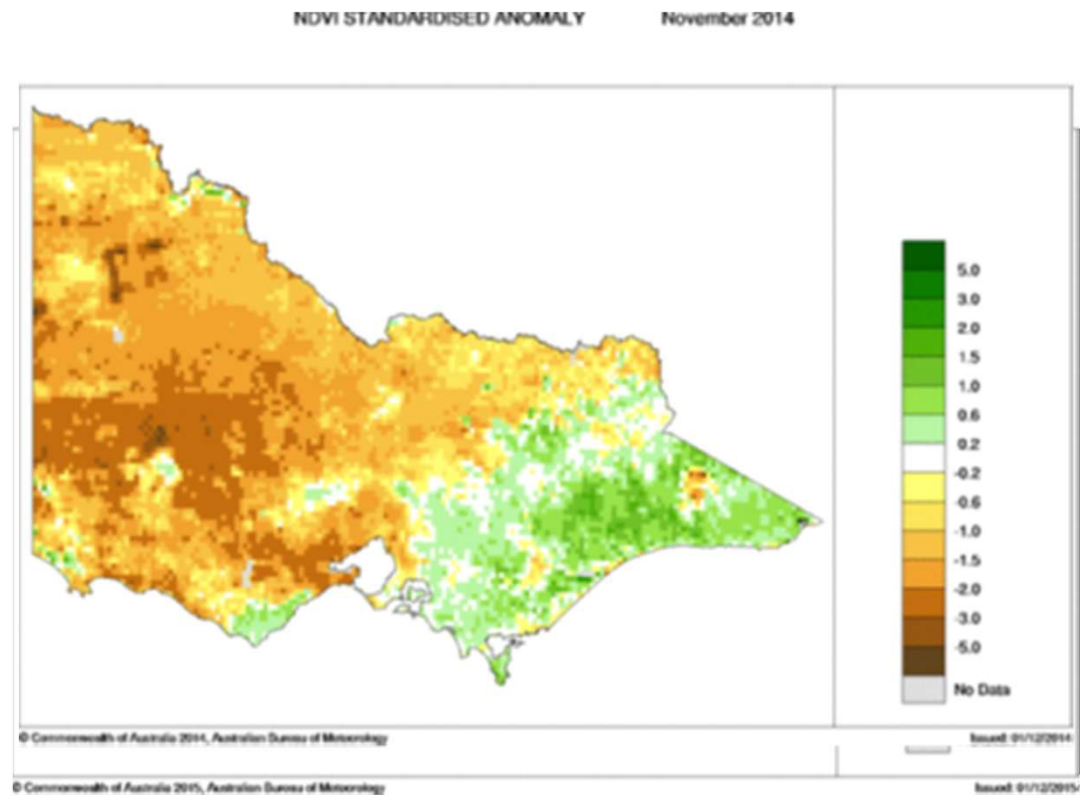
Environmental Conditions – what happened?

Spring rainfall 2016 – wettest spring on record

Victorian Rainfall Deciles 1 September to 30 November 2016
Distribution Based on Gridded Data
Australian Bureau of Meteorology



Green grassland in Victoria - November 2016, 2015 and 2014



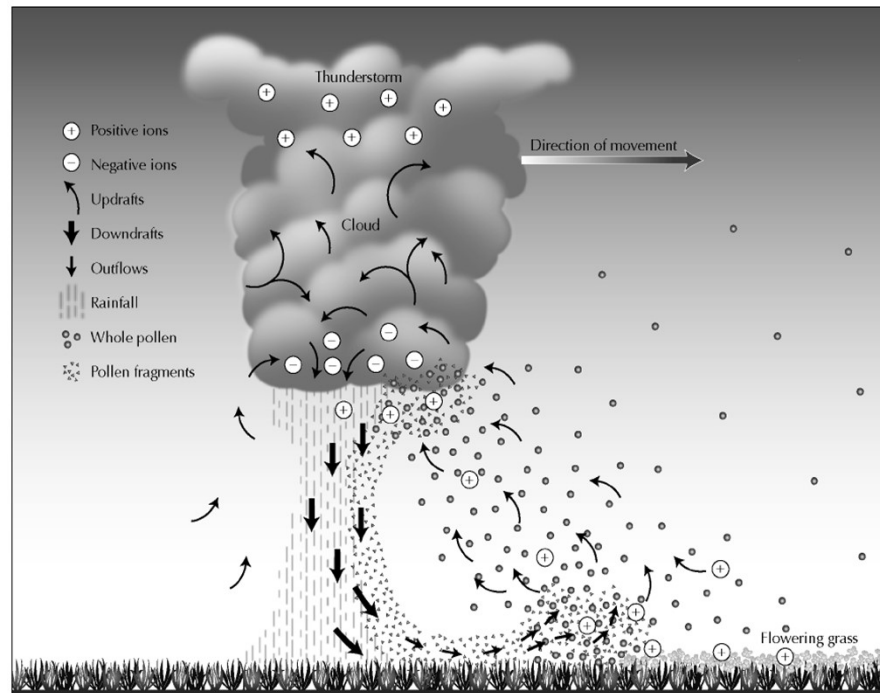
Thunderstorms moving across greater Melbourne, 21 November 2016



Source: Bureau of Meteorology

Note: map shows Coordinated Universal Time (UTC) add 11 hours for Melbourne time

Mechanism of epidemic thunderstorm asthma



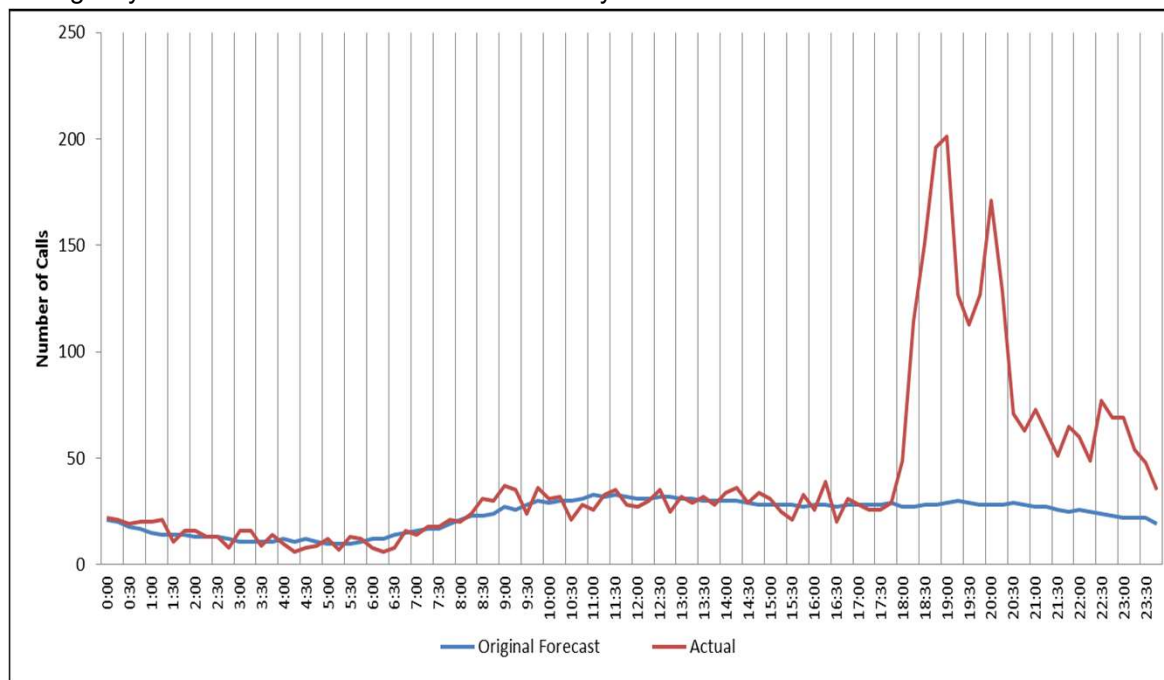
Source: Taylor, P. E. and Jonsson, H. 2004. Thunderstorm asthma. *Current Allergy and Asthma Reports* 4 (5): 409-413.



Health Impact of 2016 event

Ambulance Victoria

Emergency Services Telecommunications Authority call volume 21 November 2016



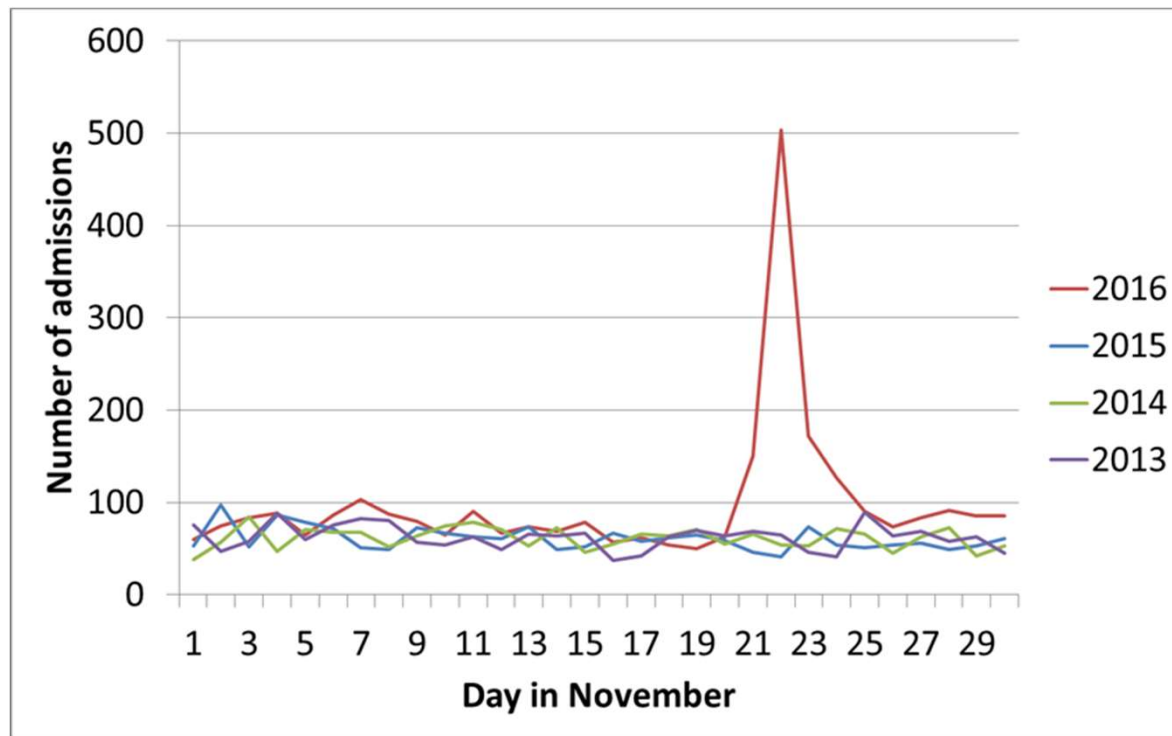
Source: Emergency Services Telecommunications Authority

Victorian public hospital emergency department presentations, 21-22 November 2016

Table 1: Victorian public hospital emergency department presentations, 21-22 November 2016

	Number of presentations	3 year average	Excess cases (% increase on 3 year average)
Total presentations (including respiratory and 'nil diagnosis')			
Melbourne & Geelong	9909	6266	3643 (58%)
Other hospitals	2814	2590	224 (9%)
	12723	8856	3867 (44%)
Respiratory presentations			
Melbourne & Geelong	2973	453	2520 (556%)
Other hospitals	239	151	88 (58%)
	3212	604	2608 (432%)

Asthma-related hospital admissions



Asthma and thunderstorms

- Asthma common condition. Many triggers including weather.
- Epidemic of asthma symptoms associated with thunderstorms first described in MJA in 1984 at Western Hospital

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pharyngeal carcinoma and normal human adrenal medulla by m-[125I]iodobenzylguanidine: concise communication. *J Nucl Med* 1984; 25: 436-440.

Weather or not
To the Editor: The early hours of Sunday morning (11th of November) Remembrance Day 1984 is one battle I will remember. Myself, junior resident of the medical receiving unit of Western General Hospital, pitted against the aftermath of a powerful thunderstorm which rolled into Melbourne — an asthma epidemic of 85 patients. It was deemed my duty to admit 16 of these patients, which seemed to me at the time only to allow more of the wounded to take their place in Casualty.

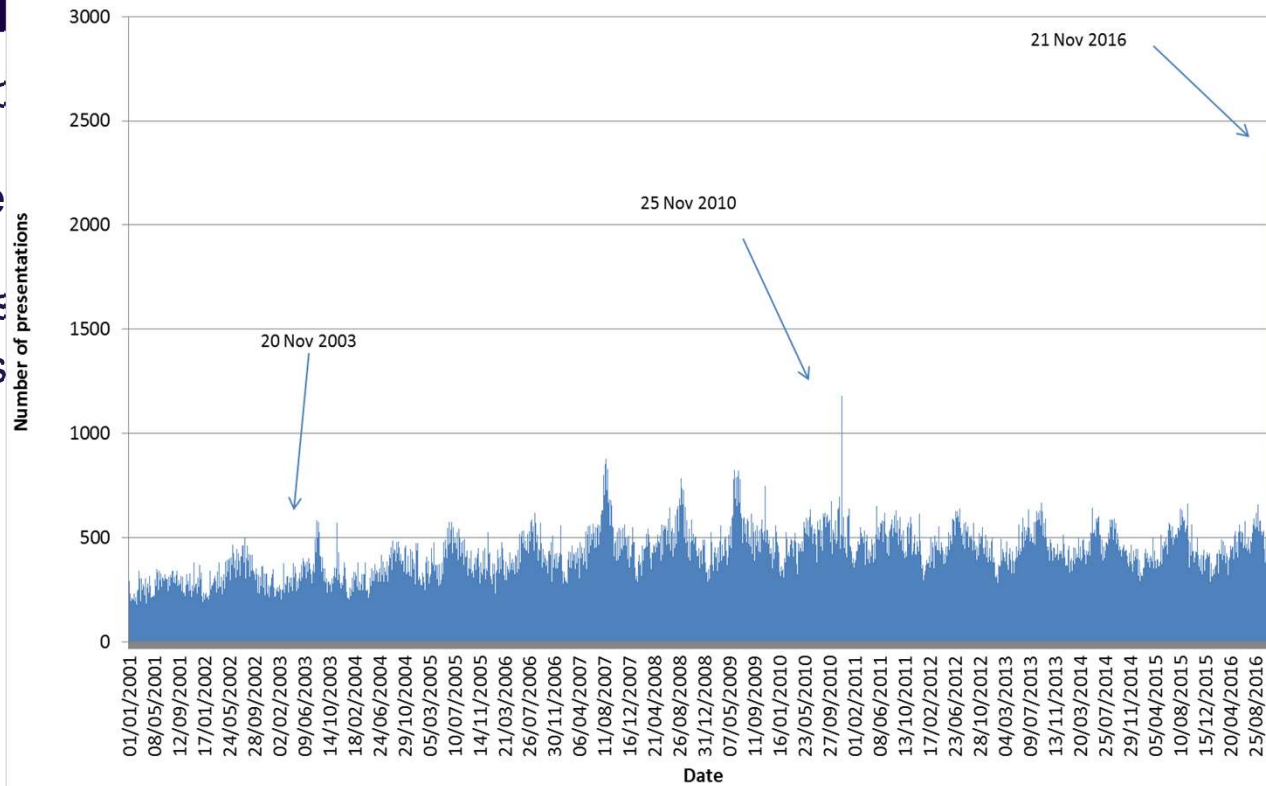
Asthma endemics are a phenomenon that has been noted many times in the past 20 years,^{1,2} and the causal relationship between symptoms and the elements was simply stated by many of the patients: "It's the

Severe influenza
To the Editor:
symptom of
myositis is a
like to report
encountered
In spring, a
my rooms
headache, cor
lethargy. The
next day by
calves. Gener

3. Salvaggio JE. Characterization of allergic rhinitis. *J Allergy* 1966; 37: 1-12.
4. Packer GE, A. weather. *Lancet* 1983; i: 165-1.
5. Brown HM, J. *Lancet* 1983; i: 165-1.
6. Dawson KP. pollution and asthma. *Lancet* 1983; i: 165-1.

Epidemic

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- Analys
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Source:

Who is at risk?

Review of events in Australia suggests following at risk groups:

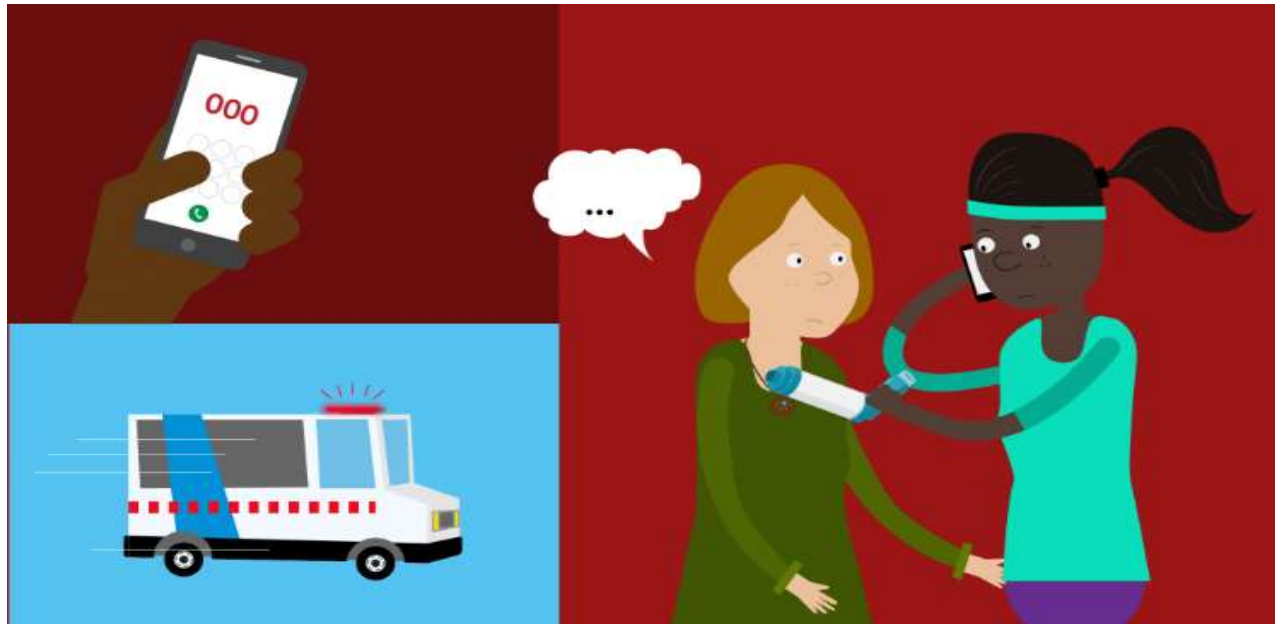
- **Diagnosed current or past asthma**
(especially poorly controlled and no 'preventer')
- **Undiagnosed asthma**
- **Hay fever (allergic rhinitis)**
- Patients aged 20-60 years
- Ethnicity: (Indian/Sri Lankan & South East Asian)



How can we help community prepare?

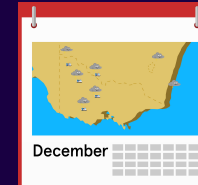
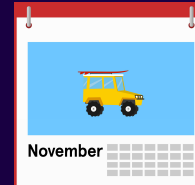
- **Identify at risk individuals**
 - Known Asthma
 - Known Hayfever
 - Anyone with hayfever or asthma symptoms
- **Ensure reliever medication is available especially during pollen season**
- **GP review**
 - Ensure individuals have an up to date asthma management plan
 - Encourage compliance with preventer therapy
 - Ensure appropriate hay fever medication

Asthma First Aid



The Thunderstorm Asthma forecast will be found:

Forecasting system



Vic Emergency website

www.emergency.vic.gov.au/prepare

Sign up, download app, create a 'watch zone'



Protect yourself from thunderstorm asthma.

Download the VicEmergency app today

emergency.vic.gov.au

The graphic features a dark blue background. At the top is a grey, angry-looking cloud with a lightning bolt. At the bottom is a yellow sun with a sad face.

High Risk Days

- Alerts provided via Vic Emergency
- Avoid being outside during thunderstorms especially wind gusts before storms
- Stay inside and close your doors and windows.



PROTECT YOURSELF FROM THUNDERSTORM ASTHMA



- 1 Speak to your doctor or pharmacist about what you can do to protect yourself this pollen season.
- 2 Learn the 4 steps of asthma first aid.
- 3 Be aware of thunderstorm asthma forecasts during pollen season.

Protect yourself this pollen season.
Managing asthma and allergies matters.
Visit betterhealth.vic.gov.au for more information.
Authorised and published by the Victorian Government, Treasury Place, Melbourne



4 STEPS OF ASTHMA FIRST AID



- 1 Sit the person upright



- 2 Give 4 separate puffs of blue/grey reliever puffer
 - Shake puffer
 - Put 1 puff into spacer
 - Take 4 breaths from spacer
 Repeat until 4 puffs have been taken
Remember: **shake, 1 puff, 4 breaths**

OR give 2 separate doses of a Bricanyl inhaler (age 6 & over) or a Symbicort inhaler (over 12)



- 3 Wait 4 minutes
If there is no improvement, give 4 more separate puffs of blue/grey reliever as above
OR give 1 more dose of Bricanyl or Symbicort inhaler



- 4 If there is still no improvement dial Triple Zero (000) for an ambulance
Keep giving 4 separate puffs every 4 minutes until emergency assistance arrives
OR 1 dose of Bricanyl or Symbicort every 4 minutes – up to 3 more doses of Symbicort

Call emergency assistance immediately. Dial Triple Zero (000):

- If the person is not breathing.
- If the person's asthma suddenly becomes worse, or is not improving.
- If the person is having an asthma attack and a reliever is not available.
- If you are not sure if it's asthma.
- If the person is known to have anaphylaxis – follow their Anaphylaxis Action Plan, then give Asthma First Aid. Blue/grey reliever medication is unlikely to harm, even if the person does not have asthma.

Protect yourself this pollen season.
Managing asthma and allergies matters.
Visit betterhealth.vic.gov.au or call 1800ASTHMA (1800 278 462) for more information.
Authorised and published by the Victorian Government, Treasury Place, Melbourne



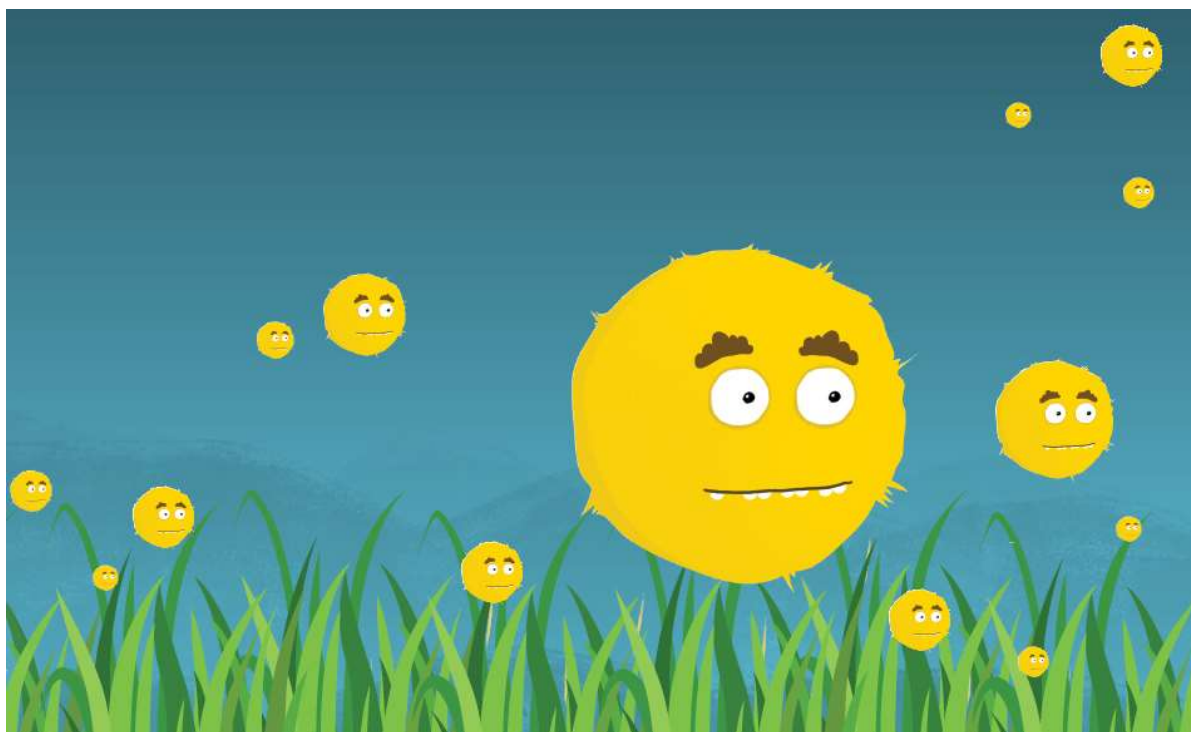
Community and health professional education

- Community campaign Better Health Channel
www.betterhealth.vic.gov.au/thunderstormasthma
- Asthma Australia 100 free education sessions across Victoria
www.asthmaaustralia.org.au
- National Asthma Council 27 sessions for health professionals



Webinars: Australian College of Rural and Remote Medicine
Pharmaceutical Society of Australia
Australian Primary Care Nurses Association
www.nationalasthma.org.au

Thank you



References

Better Health Channel

www.betterhealthchannel.vic.gov.au/thunderstormasthma

Asthma Australia

www.asthmaaustralia.org.au

National Asthma Council

www.nationalasthma.org.au

Vic Emergency

www.emergency.vic.gov.au/prepare

The November 2016 Victorian epidemic thunderstorm asthma event: an assessment of the health impacts

www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/response

Inspector General of Emergency Management (IGEM): Final Report

www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/review

Literature review on thunderstorm asthma and its implications for public health advice

www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/response