

THUNDERSTORM ASTHMA: PREPARE YOUR PATIENTS FOR SPRING

Patients requesting medicines for allergic rhinitis (hay fever)

(S2 or S4 allergic rhinitis medicines)

ASK: Do you get hay fever mainly in spring, or are symptoms worse in spring?^[A]

Yes
Refer to pharmacist

No
If symptoms persist all or most of the year, check if patient is using an intranasal corticosteroid

WARN: about probable ryegrass pollen allergy and risk of thunderstorm asthma.^[B]

You may be allergic to ryegrass pollen. This means you could be at risk of an asthma attack triggered by a thunderstorm during grass pollen season (typically October–December).

ADVISE:

1. Preventive medication in affected regions:^[C]

- Adults – intranasal corticosteroid (S2 or S4)
- Children – intranasal H₁-antihistamine or second-generation (less sedating) oral H₁-antihistamine. If symptoms do not resolve within 2 weeks, switch to an intranasal corticosteroid (S2 or S4) if child > 12 years.

Use allergic rhinitis (hay fever) medication throughout spring and early summer (1 September–31 December).

2. Avoidance^[D]

Avoid being outdoors during thunderstorms in spring or early summer (especially in the wind gusts that come before the storm) and monitor the pollen counts and weather forecasts.

3. Asthma first aid and reliever appropriately available during grass pollen season^[E]

Do you know asthma first aid? Learn how to recognise and treat an asthma attack. Carry or know where to get a reliever quickly if needed (e.g. first aid kit or pharmacy).

EXPLORE:

Have you ever had asthma?

Yes
Advise as for asthma and suggest GP review of treatment

EXPLORE:

Do you ever wheeze when you have hay fever?

Yes
Advise GP assessment for asthma

Patients requesting medicines for asthma

(S3 or S4 asthma medicines)

Refer to pharmacist

WARN: about risk of thunderstorm asthma.

If you are allergic to ryegrass pollen, you could have a severe asthma attack if you are outside in gusty winds just before or during a thunderstorm in spring or early summer in a place where there is ryegrass pollen in the air (most of south-eastern Australia).

ADVISE:

1. Good asthma control, preventer as indicated, and self-management.

Keep taking your preventer medication as prescribed by your doctor. If you don't normally use a preventer all year, you should use one in spring and early summer (1 September–31 December)^[C] if you are going to be in an area where there is ryegrass pollen – talk to your doctor.

Always carry a reliever inhaler and replace it before the expiry date or nearly empty.^[F]

Make sure your written asthma action plan is up to date and includes thunderstorm advice – talk to your doctor.

2. Avoidance^[D]

Avoid being outdoors during thunderstorms in spring or early summer (especially in the wind gusts that come before the storm) and monitor the pollen counts and weather forecasts.

3. Asthma first aid^[E]

Do you know asthma first aid? Learn how to recognise and treat an asthma attack, including where to get a reliever quickly if needed (e.g. first aid kit or pharmacy).

EXPLORE:

Do you have allergic rhinitis (hay fever)?^[B]

Yes
Advise as for allergic rhinitis

EXPLORE:

Do your asthma symptoms get worse in springtime?

Yes
Could indicate grass pollen allergy and need for GP treatment review

EXPLORE:

Are you using a preventer medicine for your asthma?^[G]

Yes
Check regimen, adherence and inhaler technique. Advise GP review if needed.

NOTES

- A. It is reasonable to assume that people with seasonal allergic rhinitis in spring are sensitised to ryegrass pollen (in the absence of allergy tests). Perennial allergic rhinitis could mask ryegrass allergy, so people with year-round symptoms should discuss their risk with their doctor.
- B. People with allergic rhinitis (hay fever) who are sensitised to ryegrass pollen are at risk of thunderstorm asthma, whether or not they have ever had asthma.^{1,2,4} In Australia as well as in other countries, almost all recorded cases of thunderstorm asthma (90–100%) have occurred in people with a history of allergic rhinitis.¹
- C. High ryegrass pollen counts occur during October–December. Preventive treatment should start at least 2 weeks (ideally 6 weeks) before predicted pollen season to achieve therapeutic effect and should continue until levels abate:
- People with seasonal allergic rhinitis should take intranasal corticosteroids 1 September–31 December. Explain/check correct nasal spray technique – instructions and videos are available from www.nationalasthma.org.au. Provide an allergic rhinitis treatment plan – template available at www.allergy.org.au/images/pcc/ASCIAllergicRhinitisTreatmentPlan2017.pdf.
 - Adults and adolescents with asthma who do not use a preventer all year^[E] should use an inhaled corticosteroid-containing preventer 1 September–31 December and be referred to their GP for assessment. Explain correct inhaler technique.^[F]
- D. Those at risk should avoid exposure to outdoor air just before and during a thunderstorm, especially during wind gusts just before the rain front hits (e.g. get inside a building or car, with the windows shut and the air conditioner switched to recirculate/recycled). Pollen counts and forecasts for some major cities during spring and summer (dates vary) are available from AusPollen, the Australian Pollen Allergen Partnership (www.pollenforecast.com.au).
- E. Provide asthma first aid information (www.nationalasthma.org.au/asthma-first-aid) or explain where to get it in an emergency. For all those at risk due to a history of asthma or seasonal allergic rhinitis, advise either carry a reliever or know where to get one quickly (over the counter at pharmacies, in first aid kits).
- F. Explain how to recognise asthma symptoms and what to do. Advise patients to carry a reliever inhaler at all times and know how to use it. Provide training in correct inhaler technique, and check technique each year before pollen season. Instructions and videos are available from National Asthma Council Australia www.nationalasthma.org.au/living-with-asthma/how-to-videos.
Check if patients are using formoterol/budesonide within a maintenance-and-reliever regimen or as necessary reliever-only regimen. Check these patients have a written asthma action plan that specifies how to use their combination inhaler during flare-ups or emergencies. All other people with asthma should have a written asthma action plan that specifies how to use their salbutamol or terbutaline reliever.
- G. People with asthma are at higher risk of having an asthma flare-up triggered by a thunderstorm if their asthma is poorly controlled or they are not using inhaled corticosteroid-containing treatment.^{1,2} Most adults and adolescents with asthma should be using inhaled corticosteroid-based treatment, according to current Australian asthma guidelines.⁵ Recommendations for the use of asthma preventers in children are based on the child's age and the pattern of asthma symptoms when not taking regular preventer.⁵

BACKGROUND

'Epidemic thunderstorm asthma' is an unusual cluster of allergic asthma flare-ups (including severe acute asthma) associated with thunderstorms in spring/early summer (typically October–December) when there are high levels of airborne grass pollens. Perennial ryegrass has been implicated in all Australian thunderstorm asthma epidemics.¹ Fungal spores may also contribute to risk for some people.¹

A severe thunderstorm asthma event occurred in Melbourne and Geelong in November 2016, which resulted in thousands of emergency ambulance calls and a large surge after-hours pharmacy presentations, as well as emergency department presentations, hospital admissions, after-hours calls to primary care, and deaths due to asthma.² In previous years, thunderstorm asthma epidemics have occurred during October and November in Victoria and New South Wales.¹⁻³

Prevention of thunderstorm asthma is based on avoiding exposure to thunderstorms on days with high ryegrass pollen levels, optimal management of asthma and allergic rhinitis, and on education.

PREPARING FOR ASTHMA EMERGENCIES IN THE PHARMACY

- Keep a first aid kit ready with non-static spacers (disposable cardboard spacers, or polyurethane) and salbutamol puffers for emergency reserve use.
- Ensure additional stocks of salbutamol metered-dose inhalers and non-static spacers over spring.
- Ensure all staff are familiar with asthma first aid.
- Display first aid instructions in a prominent place. The First Aid for Asthma Chart is available from National Asthma Council www.nationalasthma.org.au/living-with-asthma/resources/health-professionals/charts/hp-first-aid-for-asthma-chart.

NEED MORE INFORMATION?

Read National Asthma Council Australia's [Epidemic thunderstorm asthma information paper](#)

References

1. Davies J, Queensland University of Technology. *Literature review on thunderstorm asthma and its implications for public health advice. Final report*. Melbourne: Victorian State Government Department of Health and Human Services; 2017.
2. Victoria State Government Department of Health and Human Services. *The November 2016 Victorian epidemic thunderstorm asthma event: an assessment of the health impacts. The Chief Health Officer's Report, 27 April 2017*. Melbourne: Victorian Government; 2017.
3. Waters J, Corbett S, Gibson P, et al. Epidemic asthma surveillance in the New England Region 1990–1992. *Public Health Research and Practice* 1993; 4.
4. D'Amato G, Vitale C, D'Amato M, et al. Thunderstorm-related asthma: what happens and why. *Clin Exp Allergy* 2016; 46: 390–396.
5. National Asthma Council Australia. *Australian Asthma Handbook* [Website]. Melbourne: National Asthma Council Australia; 2020. Available from: www.asthmahandbook.org.au.



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