

# Anaphylaxis

Jun 27, 2018 | 0



[emergency](#), [immunology](#), [intensive care](#), [onthepods](#)

Anaphylaxis is a severe, potentially life-threatening hypersensitivity reaction that occurs due to systemic mast cell mediator release. It is a common presentation and requiring prompt recognition and urgent management.

James chats to Associate Professor Roger Garsia about anaphylaxis in this podcast.

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## About Roger Garsia

Roger Garsia is a Consultant in the Emergency Department at Prince Alfred Hospital, Sydney, Australia. He is also a Senior Lecturer in Emergency Medicine at the University of New South Wales and a Fellow of the Royal Australasian Society of Emergency Medicine.

*With Associate Professor Roger Garsia, Prince Alfred Hospital, Sydney, Australia.*

## Introduction

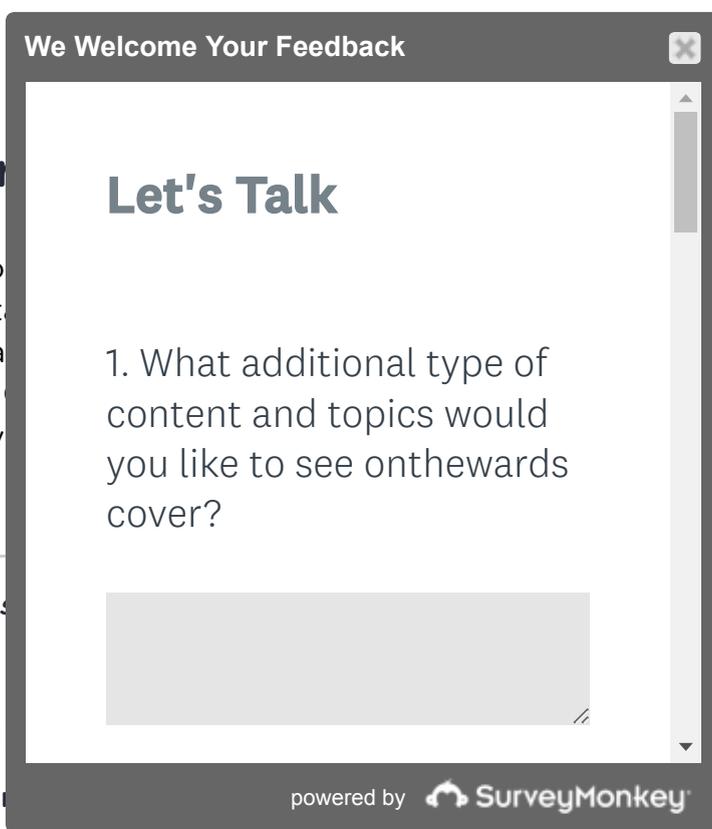
Anaphylaxis is a severe allergic reaction which occurs due to systemic mast cell mediator release. It is a common presentation to the Emergency Department and on the wards, requiring prompt recognition and urgent management. Appropriate monitoring, patient education and follow up is also critical to manage complications and prevent further episodes.

## Case

A 4-year-old girl presents to the Emergency Department with urticaria, angioedema, swollen tongue and widespread wheeze. She is in obvious respiratory distress. She has been brought in by a family friend who is unsure whether she has any allergies.



1. What signs and symptoms indicate anaphylaxis versus a less severe allergic reaction?



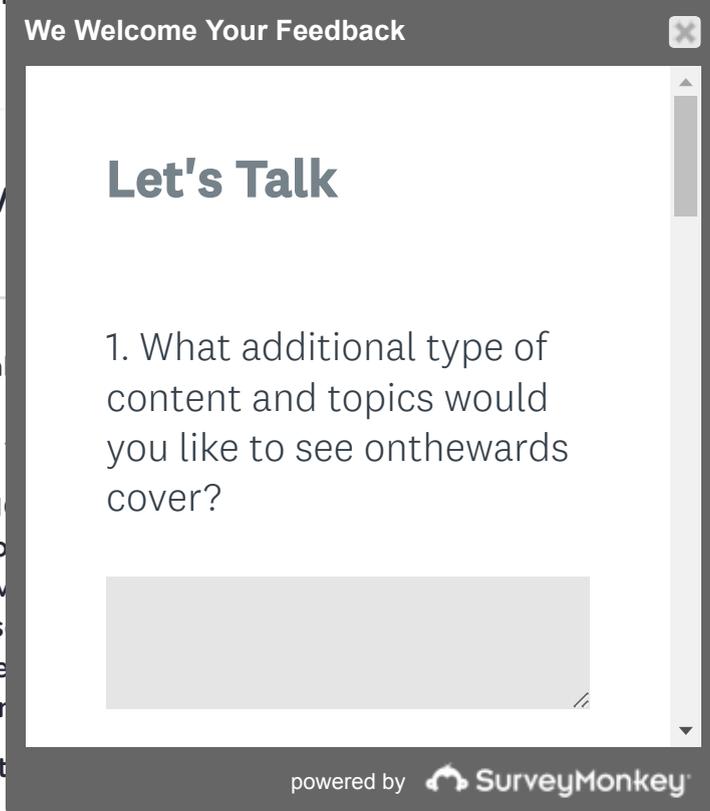
- Bronchospasm, urticaria and angioedema are signs of systemic antihistamine release suggesting anaphylaxis
- Important to also identify features of the most severe sign, shock – this can be challenging in children

## 2. How does angioedema relate to anaphylaxis?

- Angioedema is common – not all cases will be associated with cardiovascular decompensation
- Causes include abnormalities in the complement system, granulomatous conditions, and local manifestations of an allergic reaction
- Important to consider risk of airway obstruction and possibility of a systemic reaction

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- This is a medical emergency – manage immediately
- Most important
  - Dosed 1mg/kg of adrenaline 0.3mL of 1:1000
  - Peak level of adrenaline response
  - May need to repeat dosing
- Other treatment options
  - Lie the patient flat if possible (may need to sit up if airway or breathing is compromised)
  - IV fluid resuscitation
  - Nebulised salbutamol may help bronchospasm
  - Glucagon may be helpful in adults on beta blockers
  - Steroids are slower acting and not critical to immediate management but have a role in preventing rebound symptoms due to biphasic anaphylaxis
- Nil evidence that IV antihistamines improves outcomes in anaphylaxis – can worsen hypotension and obscure assessment





## 7. How can we avoid anaphylaxis in the hospital?

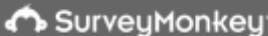
- It is important to document reactions accurately and in detail (i.e. medication, type and severity of reaction). This involves taking a detailed history including how long ago the reaction occurred, what symptoms the patient developed, the need for medical treatment and whether they have tolerated similar medications; collateral history from family and the GP may also be of benefit.
- Medical records should be updated, including delisting allergens which patients have been shown to tolerate.
- Important to be aware that anaphylaxis can occur anywhere in the hospital and be prepared.

## 8. Anaphylaxis: How can we avoid anaphylaxis?

- Anaphylaxis is a severe allergic reaction that can be fatal. It is often caused by allergens in the bloods may be helpful in the diagnosis of anaphylaxis.
- Mast cell tryptase
  - Can be used to help diagnose anaphylaxis during an acute episode of hypotension.
  - Not always raised.
  - A high level is suggestive of anaphylaxis.
- C3 and C4 levels are low in anaphylaxis. Complement esterase deficiency can also demonstrate C1

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## 9. Should the patient go home with an EpiPen? What education should be given?

- If the patient has had anaphylaxis and the trigger can not be avoided or there is a high risk of recurrence, you should leave the patient with adrenaline device and appropriate follow up.
- Several adrenaline devices available including EpiPen and adrenaline auto-injectors - these use different techniques and it is crucial to train patients and carers in their proper use.
  - EpiPen Jr (150microg) recommended for children between 10 and 20kg.
  - EpiPen (300microg) recommended for children and adults >20kg.

- To access subsidised adrenaline devices via the PBS, this needs to initially be prescribed by or in collaboration with an immunologist, respiratory physician or paediatrician.
- The patient should also be given an Anaphylaxis Action Plan – this can be found on the ASCIA website.

## 10. How might isolated angioedema be managed as opposed to anaphylaxis?

- Isolated angioedema is often bradykinin mediated, rather than histamine-mediated, and consequently may not respond to the same treatment as angioedema due to an allergic reaction.
- If there is an isolated angioedema with nil airway involvement, the patient should be monitored carefully for more systemic involvement or a respiratory compromise.
- C1 esterase deficiency
  - Observe for signs of respiratory compromise and call as necessary
  - Observe for signs of respiratory compromise and call as necessary
- ACE inhibitor and bradykinin receptor antagonist
  - ACE inhibitors can cause angioedema. If a patient is on an ACE inhibitor, consider stopping the product if they develop angioedema.
  - Bradykinin receptor antagonists (B2 antagonists) are used to treat bradykinin-mediated angioedema. They are not used for allergic angioedema.

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## Take

- A patient's first allergic reaction – we can't predict when or where it will happen. We can't predict when or where it will happen. We can't predict when or where it will happen.
- It is important to consider what the patient was doing at the time of anaphylaxis – some forms of anaphylaxis only occur in the setting of exercise.
- Do not be afraid of using adrenaline, but don't use it as a knee jerk response – there are risks associated with adrenaline (especially in the elderly) and its use is not always appropriate.

## References

- Australian Society of Clinical Immunology and Allergy. Acute management of anaphylaxis guidelines. 2017. (Available at: <https://www.allergy.org.au/health->

professionals/papers/acute-management-of-anaphylaxisguidelines)

- Laemmle-Ruff I, O’Hehir R, Ackland M, Tang M. Anaphylaxis Identification, management and prevention. Australian Family Physician. 2013. (Available at: <https://www.racgp.org.au/afp/2013/januaryfebruary/anaphylaxis/>)

## Related Podcasts

- [Identifying the sick patient](#)
- [Part 1: Undifferentiated shock](#)
- [Part 2: Undifferentiated shock](#)

**Tags:** #ACE inhibitor angioedema,#anaphylaxis,#Anaphylaxis Action Plan,#angioedema,#antihistamine,#ASCIA,#aspirin,#Australian Society of Clinical Immunology and Allergy,#cardiovascular decompensation,#epipen,#granulomatous disease,#hypertension,#ICU,#intensive care,#myocardial infarction,#myocardial ischaemia,#NSAID,#obstructive pulmonary disease,#shock,#steroids,#urticaria

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