

Asthma Management Information for Children's Service Staff

The Asthma Management Information for Children's Service Staff has been designed to provide an overview of children's asthma and its management in the children's service setting. It **does not** replace ACECQA approved Sydney Children's Hospitals Network Asthma Management Course for Children's Service Staff training which is recommended to occur at a minimum every 2 years.

It is anticipated that the information included in this resource will provide staff with the following:

- An understanding of asthma and its management.
- Support in the feedback of information to colleagues in areas such as **recognising** and **managing** an asthma flare-up within the children's service setting.
- Resources to assist with the implementation of best practice asthma management procedures.
- Support in **monitoring** and **coordinating care** for children with asthma.

Contact list for further information or support

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The Asthma Management Information for Children's Service Staff has been adapted from the NSW Paediatric Hospital's "Asthma and Your Child – A Resource Pack for Parents and Carers – 2017" and developed by the Sydney Children's Hospital "Aiming for Asthma Improvement in Children Program". Current best practice and evidence based information has been used to develop this resource. The information is for educational purposes only and does not replace individual medical advice/treatment. When referring to this resource please consider policies and advice relevant to your specific education and care agency. Photocopying of information approved for educational purposes only. Requests concerning reproduction and rights to be addressed to the authors. Email: SCHN-SCH-AAIC@health.nsw.gov.au

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Using a Turbuhaler Device	Provides diagrammatic instructions for correct use of a turbuhaler device
Using other Inhaled Asthma Medicine Devices	Provides instructions for correct use of a Metered Dose Inhaler (puffer), Autohaler, and Accuhaler
Asthma Management Tips / Frequently Asked Questions	Provides staff with specific “school asthma first aid” information as well as recommendations for implementing asthma first aid - addresses common concerns.
Asthma Triggers	Lists the common asthma triggers relevant to the school environment and provides tips for managing them.
The National Asthma Council Australia *Kids’ First Aid for Asthma *National Asthma Council Australia resource www.nationalasthma.org.au	Nationally Recognised Asthma First Aid procedure recommended by the National Asthma Council Australia as the procedure to follow in a community setting in the absence of other asthma first aid instructions.

REFERENCES

National Asthma Council Australia: www.nationalasthma.org.au

National Asthma Council Australia. Australian Asthma Handbook, Version 1.3 Available from <http://www.astmahandbook.org.au>

National Asthma Council Australia (2011) Kids’ First Aid for Asthma. Available from <http://www.nationalasthma.org.au/first-aid>

Asthma and Your Child – A Resource Pack for Parents and Carers - 2017. Sydney Children’s Hospitals Network – Randwick and Westmead, & Hunter New England Kids Health.

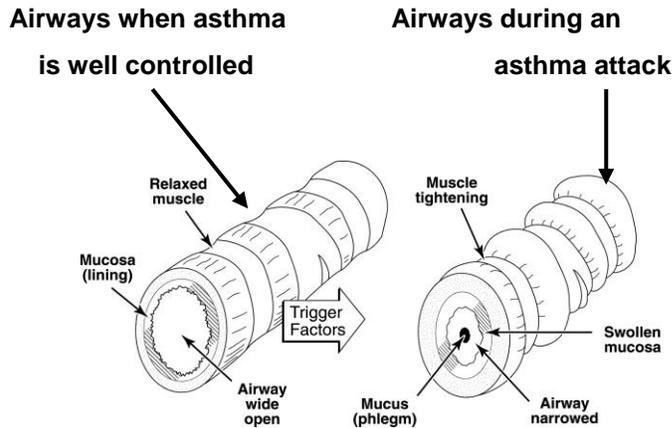
What is Asthma?

Asthma is a breathing problem that affects many children in Australia. Asthma can be managed effectively but there is no known cure. Children with asthma have inflamed and sensitive airways (breathing tubes) in their lungs. When exposed to certain triggers the airways react abnormally and become narrow on the inside. As a result, asthma symptoms are experienced.

This narrowing is due to swelling of the inside lining of the airways, an increase of mucus (phlegm) inside the airways, and tightening of the muscles around the outside of the airways.

Common asthma symptoms

- shortness of breath / difficulty in breathing
- wheezing
- coughing (dry)
- tightness in the chest or a sore tummy



(Adapted version of Airway illustration, Prince of Wales Hospital Dept Respiratory Medicine.)

Asthma Medicines

Medicines used in the treatment and management of asthma are those that relax the tight muscles around the airways (relievers) and reduce or prevent inflammation of the lining inside the airway (preventers). Asthma medicines that are used in **Asthma First Aid** are those that belong to the **RELIEVER** group and therefore most relevant to the school setting (*an exception to this is Symbicort™, which although not belonging to the Reliever group, can be used for children 12 years and over in Asthma First Aid – refer to Other Asthma Medicines, p.4*).

RELIEVER MEDICINE

Salbutamol (*Ventolin®*, *Asmol®*, *Airomir®*), & **Terbutaline** (*Bricanyl®*)

- ✓ Used in **Asthma First Aid**
- ✓ Relieves symptoms by relaxing tight muscles around the airway
- ✓ Identifiable by the blue, or blue/grey coloured canister
- ✓ Works within minutes and usually effective for 3 – 4 hours
- ✓ May also be used before exercise if exercise is a trigger
- ✓ Sometimes used by asthmatic children during a viral illness



Ventolin®



Bricanyl®

Salbutamol (*Ventolin®*, *Asmol®*, *Airomir®*) is available in a puffer to be used with a spacer device.

Terbutaline (*Bricanyl®*) comes in a turbuhaler® device and although being an effective reliever medicine that can be used in asthma first aid, a turbuhaler® device may not be suitable for children of all ages, therefore not recommended as the first choice for the school's asthma first aid kit.

Note: Most children under 7 years of age cannot successfully use a turbuhaler® device correctly. * **Refer to "Using Other Asthma Inhalation Devices" for correct use of a Turbuhaler® Device.**

Asthma Medicines (cont.)

PREVENTER MEDICINE

Steroid based eg. Flixotide®, Alvesco®, Pulmicort®, Qvar®

Non-Steroidal e.g. Intal Forte®, Montelukast® (e.g. Singulair®, Lukair®)

- ✓ Puffers identifiable by the warm autumn coloured canister
- ✓ Prevent the likelihood of asthma symptoms and reduce the risk of an asthma flare-up by decreasing the inflammation (swelling) and making the airways less sensitive to trigger factors
- ✓ Often prescribed when symptoms are frequent or troublesome
- ✓ To be effective, they need to be taken every day, even when symptoms are not present
- ✓ Used in the daily management of asthma and therefore should be taken in the home setting – an exception to this is on overnight excursions
- ✓ Not every child will be prescribed a preventer medicine



Flixotide®



Singulair®

THEY DO NOT WORK IMMEDIATELY – ARE NOT USED IN ASTHMA FIRST AID

* Steroid-based medicine requires that a child rinse their mouth out after use.

OTHER ASTHMA MEDICINES

Inhaled steroid preventer medicine and inhaled long acting reliever medicine in the one device eg. **Seretide®** (purple colouring), **Flutiform®** (grey and white colouring) and **Symbicort®** (red and white colouring), and **Breo®** (available in an aqua and grey ellipta® device).

Seretide®, Flutiform®, and Breo® are not used in Asthma First Aid

Symbicort® may be prescribed for some children aged 12 years and over to be used in asthma first aid in accordance with the Symbicort Maintenance And Reliever Therapy (SMART®) plan. Written instructions for using Symbicort® in Asthma First Aid should be provided by the child's parent on advice from the child's Doctor.



Symbicort®

Prednisolone, Prednisone, Predmix®, Redipred® – are oral “rescue” medications that are predominantly used in a hospital setting for a severe asthma flare-up, however they may also be included in a child's asthma management plan for those children diagnosed with severe asthma. These medicines are rarely used in the children's service setting and should **only be administered** upon clearly written instructions from the parent as advised by the child's doctor.

Asthma Flare-Ups

An asthma flare-up (asthma attack) can occur quickly, or develop over a few hours or days. It is indicated by:

- Asthma symptoms that start up and are worse than usual
- Asthma symptoms that respond to asthma first aid medicine but come back again quickly
- Asthma symptoms that do not respond to the usual asthma first aid medicine

It is important that asthma first aid is commenced immediately even for the mildest of asthma flare-ups, as symptoms can worsen quickly. Follow the child's individual written asthma first aid instructions eg. NSW Health Schools and Child Services Action Plan for Asthma Flare-Up, or in the absence of written instructions, follow the Nationally Recognised Asthma First Aid procedure.

If a child is showing signs of a **SEVERE** asthma flare-up, this is an emergency and an ambulance should also be called immediately by dialing **000**. If calling from a mobile phone and **000** is not working, dial **112**.

Signs of a severe asthma flare-up may include:

Breathing	Speaking	Looking	Wheezing
<p>Great difficulty</p> <p>Quick, short breaths</p> <p>Sucking in of the throat and chest</p> <p>Skin sucking in between the ribs</p>	<p>Only a couple of words between each breath</p> <p>May be unable to speak</p>	<p>Distressed and anxious</p> <p>Pale and sweaty</p> <p>Bluish tinge to the lips</p> <p>Drowsy, confused, exhausted</p>	<p>Often not heard</p> <p>Silent chest</p>

It is important to note the child's symptoms and treatment given, and to notify the parent as soon as practicable.

*Nationally Recognised Asthma First Aid

Step 1	Step 2	Step 3	Step 4
<p>Sit the child upright, stay calm and provide reassurance.</p> <p>Do not leave the child alone.</p>	<p>Give 4 puffs of a blue/grey reliever puffer (Salbutamol eg. Ventolin™, Asmol™, Airomir™), one puff at a time, using a spacer if available (including a mask if required).</p> <p>Instruct the child to take 4 breaths from the spacer after each puff.</p>	<p>Wait 4 minutes. If the child still cannot breathe normally give another 4 puffs of blue/grey reliever puffer</p>	<p>If the child still cannot breathe normally, call an ambulance immediately (Dial 000) and continue giving 4 puffs of blue/grey reliever puffer every 4 minutes until the ambulance arrives</p>
<p>Not sure if it's Asthma? CALL AN AMBULANCE IMMEDIATELY (DIAL 000)</p> <p>If the child stays conscious and their main problem seems to be breathing, follow the asthma first aid steps. Asthma reliever medicine is unlikely to harm them even if they do not have asthma.</p>			
<p>Severe Allergic Reactions - CALL AN AMBULANCE IMMEDIATELY (DIAL 000)</p> <p>Follow the child's Action Plan for Anaphylaxis if available. If you know that the child has severe allergies and seems to be having a severe allergic reaction, use their adrenaline auto injector (eg. EpiPen®) before giving asthma reliever medicine.</p>			

* Adapted from Kids' First Aid for Asthma – National Asthma Council Australia. 2011.

Using a Spacer Device

A spacer device helps children with asthma to use their puffers (aerosol inhalers or metered dose inhalers) effectively. It is highly recommended that spacers be used by all children who require a puffer, as this will allow more medication to be delivered directly to the airways.

Spacers come in two sizes – small volume (eg. Breath-A-Tech®, Space Chamber®, Able Spacer®, La Petite E-Chamber®, LiteAire®) and large volume (eg. Volumatic®, Spacer Chamber®).

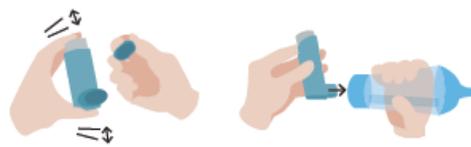
When administering asthma first aid with a blue reliever puffer, it is highly recommended to use it with a spacer device

View video demonstrations at www.asthmainchildren.org.au

A small volume spacer with a mask - recommended for children aged under 4 years.

<p>1. Remove cap and shake the puffer:</p>	<p>2. Fit the puffer into the end of the spacer:</p>
<p>3. Gently place the attached facemask over the mouth and nose of the child. Ensure there are no gaps around the edges of the mask.</p>	<p>4. Release one puff of medicine into the spacer by pressing down on the top of the puffer: Watch the child breathe normally in and out 4 to 6 times before removing the mask.</p> <p>If more than one puff (dose) is required repeat step remembering to shake puffer before each dose.</p>

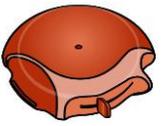
A small or large volume spacer without a mask - recommended for children aged over 4 years.

<p>1. Remove cap, shake the puffer well and insert into spacer:</p>	
<p>2. Place mouthpiece of spacer between teeth, closing lips to form a seal. Push down on top of puffer to release 1 puff of medicine into spacer:</p>	
<p>3. Take 4 normal breaths in and out through spacer: For each additional puff of medicine shake puffer and repeat steps 2 & 3. Masks can be attached to spacers for children under 4 years or those with developmental/cognitive delay.</p>	

Using a Turbuhaler Device – suitable for children aged 7 years and over

<p>1. Unscrew and lift off the cover.</p> 	<p>2. Hold the turbuhaler upright. Load by turning the coloured base to the right (1) as far as it will go and then turn back (2) until it clicks.</p> 
<p>3. Breathe out slowly (do not breathe into the turbuhaler). Hold the base and place the mouthpiece between your lips. Breathe in strongly and deeply.</p> 	<p>4. Remove the turbuhaler from your mouth before gently breathing out. Replace cover and screw shut.</p> <p>If more than one dose is required, repeat steps 2-4.</p> 

Using other Inhaled Asthma Medicine Delivery Devices

<p>Metered dose inhaler (puffer)</p> 	<p>Autohaler®</p> 	<p>Accuhaler®</p> 
<p>Puffers require good coordination and children under 7 years cannot successfully manage them.</p> <p>It is highly recommended that a puffer be used with a spacer device as more medication gets into the lungs.</p> <p>If a spacer device is unavailable a puffer can be used on its own by following the steps below:</p> <ol style="list-style-type: none"> 1. Remove inhaler cap/mouthpiece cover. 2. Shake the inhaler for 5 seconds. 3. Breathe out gently, away from inhaler. 4. Keeping the inhaler upright, tilt head back slightly and place the mouthpiece between teeth and close lips to get a good seal. 5. Commence breathing in slowly and deeply, at the same time pushing down on top of the inhaler to release 1 does of medicine. 6. Continue to breathe in slowly and deeply. 7. Remove inhaler from the mouth and hold breath for 6 to 10 seconds. 8. Breathe out gently, away from inhaler. 9. If more medicine is required repeat steps 2 to 8 10. Replace inhaler cap/mouthpiece cover. 	<p>Suitable for children 7 years of age and above</p> <ol style="list-style-type: none"> 1. Remove mouthpiece cover. 2. Shake autohaler®. 3. Holding autohaler® upright, push the lever on top into the upright position. 4. Breathe out away from the autohaler® 5. Place the autohaler® in mouth, between teeth and close lips, enduring a good seal. 6. Breathe in slowly and deeply, continuing to breathe in after hearing the click. 7. Remove autohaler® from mouth and hold breath for 6 to 10 seconds. 8. Breathe out gently, away from inhaler. 9. Push the lever back down. 10. If more medication is required repeat steps 2 to 9. 11. Replace mouthpiece cover. 	<p>Suitable for children 7 years of age and above</p> <ol style="list-style-type: none"> 1. Place thumb in groove and open accuhaler® by pushing the groove to the right until it clicks. 2. Slide lever to the right until it clicks. 3. Breathe out away from the accuhaler®. 4. Place the accuhaler® in mouth, between teeth and close lips. 5. Breathe in slowly and deeply. 6. Remove the accuhaler® from mouth and hold breath for 6 to 10 seconds. 7. Breathe out, away from the accuhaler®. 8. Close accuhaler ®by pushing thumb groove to the left. 9. If more medication is required repeat steps 1 to 8. <p>*Accuhalers have a dose counter. The last 5 doses appear in red.</p>

Asthma Management Tips

- Salbutamol is the reliever medicine that is used in asthma first aid. Ventolin®, Asmol®, & Airomir®, easily recognisable by their distinctive blue/grey coloured canisters, are all Salbutamol. Any one of these can be used for the children's service asthma first aid kit.
- Bricanyl® (Terbutaline) is also a reliever medication used in asthma first aid. Specific instructions are required regarding the number of doses to be administered. As Bricanyl® comes in a turbuhaler® device, which is not suitable for children of all ages, it is not the recommended first line reliever medicine to have in the children's service asthma first aid kit. Although Bricanyl® medicine is indicated for children 6 years and over, in reality, most children under the age of 7 years cannot master the technique for using a turbuhaler® device.
- Symbicort® is a medicine that may also be used in **Nationally Recognised Asthma First Aid**, however it is mostly only prescribed for children over 12 years of age. Like Bricanyl®, it also comes in a turbuhaler® and requires specific instructions regarding the number of inhalations to be administered.
- When an asthma flare-up occurs, asthma first aid needs to be commenced immediately. If at all possible avoid walking the child to the first aid room – instead, bring the asthma first aid equipment to the child.
- Always call for assistance but remember you do not have to wait for the “regular” first aid person with the asthma first aid equipment to arrive before initiating Asthma First Aid. Asthma first aid can be initiated by using the child's own reliever medication puffer (if readily available) and following Nationally Recognised Asthma First Aid. If the child is either too young or too breathless to use the puffer on its own, you can improvise whilst waiting for the spacer device to arrive by firing medicine from the puffer through hands that have been cupped around the child's nose and mouth forming a good seal.

Frequently Asked Questions

Can a child overdose on reliever medicine?

The Nationally Recognised Asthma First Aid procedure e.g. *Kids' First Aid for Asthma has been developed to allow reliever medicine to be delivered safely over a gradual period of time – when following this procedure you cannot overdose a child.

What are the consequences of giving reliever medicine to a child not diagnosed with asthma but having difficulty in breathing?

Reliever medicine is a safe, life saving medicine and *asthma reliever medicine is unlikely to harm them even if they do not have asthma. *Source: Kids' First Aid for Asthma – National Asthma Council Australia. 2011.

Are there any side effects from inhaled reliever medicine?

Some children may experience a fast heart rate (palpitations), shakiness or tremors, hyperactivity, and headaches. These side effects can vary between children and the extent to which they are experienced will depend on the amount of medicine delivered and the frequency that children receive this medication. **Reliever medicine should not be withheld.**

Does reliever medicine expire?

All medicines expire – the expiry date for a reliever medicine puffer can be found on the side of the canister, which fits inside the plastic holder. If the medicine has expired it can still be used for asthma first aid purpose if this is all that is available, however it may not be as effective as reliever medicine that has not expired, and should be replaced as soon as possible.

Can the spacer device in the asthma first aid kit be cleaned and re used for another student?

Unless there is no other spacer available and one is required immediately for use by another child, the **National Health & Medical Research Council “Australian Guidelines for the Prevention and Control of Infection in Healthcare 2010”**, recommends that spacers from the asthma first aid kit are not to be re-used by another child. It is therefore important that a spare spacer is always available to replace the one that has been used.

Asthma Triggers

Asthma symptoms can be triggered by a number of factors. It is common for children with asthma to have more than one trigger factor, but important to understand that asthma triggers may not be the same for each child. Avoiding or minimising exposure to known asthma triggers of individual children with asthma is the desired aim.

Exercise is a common asthma trigger with symptoms occurring either during the exercise or sometime after. This is known as exercise induced asthma. When exercising, children breathe more quickly and often breathe through their mouth. This causes a loss of moisture from the airways resulting in cool and dry air being breathed in. Asthma airways react to this cool, dry air resulting in asthma symptoms. Exercise is important for normal growth and development and should be encouraged, but when it triggers asthma symptoms, can be a reason why children avoid it. Simple steps can be taken to manage exercise induced asthma.

Strategies for managing exercise induced asthma

- begin exercise with warm up exercises and finish with cool down exercises
- check the child's individual asthma management instructions / health care management plan to determine if there are instructions for extra steps to be taken. For example, administration of reliever medicine 5 – 10 minutes prior to commencement of exercise may be helpful.
- ensure children with asthma have access to their reliever medication if needed
- always have an asthma first aid kit available where the exercise is occurring

Recommendations for when to avoid exercise for children affected by exercise induced asthma

- ✓ when air quality is high and the exercise is occurring outdoors
- ✓ if the child is unwell with cold/flu symptoms
- ✓ if the child already has asthma symptoms

Other common asthma triggers include:

<p>Cold & Flu</p> 	<p>Colds and flu frequently trigger asthma symptoms, and are difficult triggers to avoid. They are particularly troublesome at the beginning of each year when children are returning from vacation. Children may require regular reliever medicine for the duration of the cold, even in the absence of asthma symptoms.</p>
<p>Smoking</p> 	<p>No smoking policy in place within the children's service environment. Encourage staff to wear a "cover up" when smoking which can be removed prior to returning to the centre. Encourage parent cars and homes to be smoke free.</p>
<p>Allergens – including dust, moulds, dust mites, pollens & pet hair</p> 	<p>Vacuum floors and soft furnishings, and wipe hard surfaces regularly with a damp cloth. Reduce clutter and remove excessive stuffed toys. Provide rooms with adequate ventilation. Remove visible mould. Clean fridge drip trays regularly. Keep air conditioning units/ceiling fans clean. Encourage cleaners to use low irritant/low allergen cleaning products.</p>
<p>Air Environment</p> 	<p>Changes in weather, for example going from low humidity to high humidity, changes in air temperature, and windy conditions can be a trigger for a child with asthma. Poor air quality (pollution) can also be a trigger. Often asthma may get worse during a change of season. Thunderstorm activity can also trigger an asthma flare-up. In particular between October and December and when the pollen count is high.</p>
<p>Emotions</p> 	<p>Anxiety, stress, distress, laughing can sometimes be a trigger.</p>

Kids' First Aid for Asthma

National Asthma
Council Australia
leading the attack against asthma

1

Sit the child upright.
Stay calm and reassure the child.
Don't leave the child alone.

2

Give 4 separate puffs of a reliever inhaler – blue/grey puffer (e.g. Ventolin, Asmol or Airomir)

Use a spacer, if available.
Give one puff at a time with 4–6 breaths after each puff.
Use the child's own reliever inhaler if available.
If not, use first aid kit reliever inhaler or borrow one.

OR

Give 2 separate doses of a Bricanyl inhaler

If a puffer is not available, you can use Bricanyl for children aged 6 years and over, even if the child does not normally use this.

3

Wait 4 minutes.

If the child still cannot breathe normally, **give 4 more puffs.**
Give one puff at a time (Use a spacer, if available).

Wait 4 minutes.

If the child still cannot breathe normally, **give 1 more dose.**

4

If the child still cannot breathe normally,

CALL AN AMBULANCE IMMEDIATELY (DIAL 000)

Say that a child is having an asthma attack.

Keep giving reliever.

Give 4 separate puffs every 4 minutes until the ambulance arrives.

If child still cannot breathe normally,

CALL AN AMBULANCE IMMEDIATELY (DIAL 000)

Say that a child is having an asthma attack.

Keep giving reliever

Give one dose every 4 minutes until the ambulance arrives.

HOW TO USE INHALER

WITH SPACER

Use spacer if available*



- Assemble spacer (attach mask if under 4)
- Remove puffer cap and shake well
- Insert puffer upright into spacer
- Place mouthpiece between child's teeth and seal lips around it OR place mask over child's mouth and nose forming a good seal
- Press once firmly on puffer to fire one puff into spacer
- Child takes 4–6 breaths in and out of spacer
- Repeat 1 puff at a time until 4 puffs taken – remember to shake the puffer before each puff
- Replace cap

WITHOUT SPACER

Kids over 7 if no spacer



- Remove cap and shake well
- Get child to breathe out away from puffer
- Place mouthpiece between child's teeth and seal lips around it
- Ask child to take slow deep breath
- Press once firmly on puffer while child breathes in
- Get child to hold breath for at least 4 seconds, then breathe out slowly away from puffer
- Repeat 1 puff at a time until 4 puffs taken – remember to shake the puffer before each puff
- Replace cap

*If spacer not available for child under 7, cup child's/helper's hands around child's nose and mouth to form a good seal. Fire puffer through hands into air pocket. Follow steps for WITH SPACER.

BRICANYL

For children 6 and over only



- Unscrew cover and remove
- Hold inhaler upright and twist grip around then back
- Get child to breathe out away from inhaler
- Place mouthpiece between child's teeth and seal lips around it
- Ask child to take a big strong breath in
- Ask child to breathe out slowly away from inhaler
- Repeat to take a second dose – remember to twist the grip both ways to reload before each dose
- Replace cover

Not Sure if it's Asthma?

CALL AMBULANCE IMMEDIATELY (DIAL 000)

If the child stays conscious and their main problem seems to be breathing, follow the asthma first aid steps. Asthma reliever medicine is unlikely to harm them even if they do not have asthma.

Severe Allergic Reactions

CALL AMBULANCE IMMEDIATELY (DIAL 000)

Follow the child's Action Plan for Anaphylaxis if available. If you know that the child has severe allergies and seems to be having a severe allergic reaction, use their adrenaline autoinjector (e.g. EpiPen, Anapen) before giving asthma reliever medicine.

For more information on asthma visit: Asthma Foundations www.asthmaaustralia.org.au National Asthma Council Australia www.nationalasthma.org.au

If an adult is having an asthma attack, you can follow the above steps until you are able to seek medical advice.

Although all care has been taken, this chart is a general guide only which is not intended to be a substitute for individual medical advice/treatment. The National Asthma Council Australia expressly disclaims all responsibility (including for negligence) for any loss, damage or personal injury resulting from reliance on the information contained. © National Asthma Council Australia 2011.