Asthma in Pregnancy Guideline

Guideline information

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Summary of document:
To provide guidance and to standardise the recognition and management of Asthma in Pregnancy.

Scope:
All Maternity areas within Hywel Dda University Health Board. The guidance below uses the term 'woman' (pronouns she or her) to describe individuals whose sex assigned at birth was female, whether they identify as female, male or non-binary. It is important to acknowledge it is not only people who identify as women for whom it is necessary to access women's health and reproductive services. Therefore, this should include people who do not identify themselves as women but who are pregnant or have recently given birth. Obstetric and Midwifery services and delivery of care must therefore be appropriate, inclusive, and sensitive to the needs of those individuals whose gender identity does not align with the sex that they were assigned at birth.

To be read in conjunction with:
Intrapartum care for women with existing medical conditions or obstetric complications and their babies. NICE guideline [NG121] Published: 06 March 2019 Last updated: 25 April 2019
https://www.nice.org.uk/guidance/ng121/chapter/Recommendations

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1.0 – New Guideline

Keywords
Asthma, Pregnancy

Glossary of terms
ACT - Asthma Control Test
PEFR - Peak expiratory flow reading
RSV - Respiratory syncytial Virus

Key points:
Recognition and management of Asthma in Pregnancy.

Contents

Scope
All Maternity areas within Hywel Dda University Health Board.

Aim
The aim of this document is to:
- provide guidance and to standardise the recognition and management of Asthma in Pregnancy.

Objectives
The aim of this document will be achieved by the following objectives:
- ensure the appropriate management of women with asthma in pregnancy, birth and the postnatal period.

Introduction
Asthma is the most common chronic condition in pregnancy affecting around 10% of pregnant women. The majority of women with asthma have normal pregnancies and the risk of complications is small in those with well-controlled asthma.

During pregnancy asthma often changes presumably due to hormonal changes but it is unpredictable and many women's asthma control in pregnancy will improve whilst others get significantly worse. In general, one third improves, one third worsens and one third stays the same in pregnancy.

Asthmatic exacerbations are more common between 24+0 and 36+0 weeks of pregnancy with peak incidence from 32-34 weeks, but less likely to occur in last 4 weeks of pregnancy.

Symptoms of breathlessness in those with severe or poorly controlled asthma tend to worsen during pregnancy, owing to the added physiological burden due to reduced lung volumes and increased metabolic demands in those who are already compromised.

Adherence to asthma treatment is therefore essential and pregnant women require clear education and reassurance that asthma treatment is safe in pregnancy. Pregnancy can affect the course of asthma and asthma and its treatment can affect pregnancy outcomes.

The most common cause of exacerbations are viral respiratory infections, followed by poor adherence to inhaled corticosteroid therapy.

Clinical Features
Asthma is a chronic lung disorder that is marked by recurring episodes of airway obstruction (in the form of bronchospasm).

Clinical symptoms:
- Breathlessness, cough, wheeze, chest tightness, nocturnal waking due to cough

Signs:
- Raised respiratory rate, wheeze, use of accessory muscles, tachycardia.

Triggering Factors
- Allergens (Pollen, animal fur, dust), exercise, cold (rapid change in air temperature), emotion, upper respiratory infections, medications (aspirin, beta blockers)

Management of Asthma in Pregnancy

Antenatal Period

Antenatal maternal Care and fetal surveillance should be based on the severity of asthma.

Midwife Led Care
Women with well controlled asthma i.e. not under care of Respiratory consultant, not admitted for asthma in past 5 years are at low risk of complications.

Any worsening of their asthma symptoms should trigger a recommendation for primary care review of their asthma, and referral into the medical antenatal obstetric clinic service.

Consultant Led Care
Women with moderate to severe asthma i.e. poorly controlled asthma, uncontrolled or difficult asthma or under the care of hospital physician for asthma or required admitted to hospital because of asthma in previous five years need to be managed by both a respiratory physician and Consultant obstetrician.

Women who have asthma prior to pregnancy

Woman with asthma should have already received education prior to pregnancy. from their General Practitioner/ Nurse Practitioner or Respiratory Nurse specialist via their Physicians clinic.

This includes:

- How to use their devices properly,
- The importance of good asthma control including smoking cessation (as appropriate),
- Trigger avoidance, including reflux.
- Importance of Medication Compliance
- Monitoring Peak Flow and correct use of the peak flow meter.

Effect of Pregnancy on Asthma

- Asthma may improve, worsen or remain unchanged in pregnancy.
- The management and treatment of asthma are generally the same in pregnant women as in non-pregnant adults.
- Women with mild asthma are unlikely to experience problems relating to their asthma or its treatment in pregnancy.
- An asthma attack during labour is extremely unlikely (perhaps due to increased production of endogenous steroids) so consider other causes of acute respiratory distress should it occur in labour.
- The most common cause of deterioration in disease control in pregnancy is caused by reduction, or even complete cessation, of medication due to fears about its safety. This is actually the biggest risk to the baby.

Effect of Asthma on Pregnancy

- In most women with well-controlled asthma there are no or minimal additional risks in pregnancy.
- Poorly controlled asthma may adversely affect the fetus with a small but significant increase in risk of complications.

- Risk of intrauterine growth restriction/small for dates and preterm birth are associated with poor asthma control.

Tools available to support the woman to self-assess her asthma control, make an asthma action plana and access information

- Encourage woman to complete the Asthma Control Test (ART).
  The ART is a 5 question tool, self-administered by the patient to assess their symptoms and whether asthma is well controlled. If score 19 or less refer to relevant team providing pre-pregnancy care for asthma (i.e. General practitioner or Respiratory Specialist team) (See Appendix 1)

- Advise completion of a personal **Asthma Action Plan** with regard to day-to-day and exacerbation management which they can also share with the midwives/ obstetricians.
  This is a valuable tool that when completed can share how the woman controls her asthma, what inhaler she takes and when, what she does when her asthma gets worse, in an asthma attack, her asthma triggers and prompts woman of when she should seek medical review/ take emergency action. (See Appendix 2)
  https://www.asthmaandlung.org.uk/conditions/asthma/manage/your-asthma-action-plan

- Signpost all women to “Asthma and Lung” website for information and advice:
  https://www.asthmaandlung.org.uk/conditions/asthma/manage/pregnancy

Advice and Management

- Advise women to continue drug therapy as in non-pregnant state.
- Advise safety of their medications including inhaled corticosteroids and importance of continuing with therapy. The risk of taking steroids in pregnancy is generally similar to those when not pregnant and oral corticosteroids should not be withheld because of pregnancy in the event of an exacerbation.
  Note whilst Oral corticosteroid use in the first trimester has shown a small increase in the risk of cleft lip or palate they should still be prescribed when required but used with caution.
- Emphasise that it is safer to use asthma therapy in pregnancy to achieve and maintain good control than to have uncontrolled asthma.
- Discuss explicitly the importance of good control. If suffer an exacerbation of asthma that this is important it is reported and treated promptly.
- Women should be advised to stop smoking.Offer referral to smoking cessation program.
- If severe/brittle asthma refer to Obstetric Anaesthetic clinic.
- Liaise with the Respiratory Physician/ specialist nurses if a woman’s control deteriorates or a woman has severe asthma.
- If asthma is managed already by the woman’s GP or practice nurse advise that they request an asthma review (preferably as early in pregnancy as possible)
- Encourage home peak flow monitoring.
- Offer vaccinations, including RSV, whooping cough throughout the year, and flu and Covid 19, which are offered seasonally.
- Explain Indigestion and acid reflux are more common during pregnancy and can exacerbate asthma.
- Ensure antenatal clinic letters are copied to appropriate Respiratory Physician for women who require input/ review or are already under the care of Respiratory team.

Use of Aspirin in pregnancy women with asthma
Low dose aspirin may be indicated in pregnancy as a prophylaxis for certain women who are high risk of conditions such as pre-eclampsia, antiphospholipid syndrome etc. Pregnant women with asthma should be asked about a history of aspirin sensitivity before being advised to take low dose aspirin. For a small minority of women with asthma there may be a possibility of 'aspirin sensitivity' and severe bronchospasm. In those patients who have a clear history of previous asthma sensitivity even low dose exposure can be life threatening and is therefore contraindicated.

In moderate, severe, uncontrolled or worsening asthmatic women in pregnancy

- Avoid commencing Montelucast in pregnancy but may be continued if the patient is already on it prior to pregnancy as benefits would outweigh risks
- If uncontrolled/ worsening asthma (Peak flow rate <80% of expected), if woman is an outpatient refer to A&E. If woman is an inpatient on Maternity request an urgent medical review.
- Consider anaesthetic review.
- A clear plan of intrapartum and postpartum management must be documented in the notes.

Admission

If women with asthma admitted to maternity wards, daily peak flow monitoring should be done and referral to Respiratory team if develops worsening signs/ symptoms of asthma.

Induction of Labour

- Prostaglandin E2 (propess, prostin) used to induce labour and to ripen the cervix is safe to use.
- Prostaglandin E1 (misoprostol) used for early management of miscarriage and PPH is safe to use.
- β2 agonists via inhaled route do not impair uterine contractions or delay the onset of labour.
- The use of inhaled and oral medications including steroids should be continued throughout the induction process.

Intrapartum Care

Less than one fifth of patients experience exacerbations during labour. Severe and life-threatening exacerbations are very rare. Advise women that an acute asthma attack is rare in labour.

- Continue all usual asthma medication regularly as usual during labour.
- All forms of analgesia in labour are safe including epidurals and Entonox. Care must be taken to enquire about a history of sensitivity to non-steroidal anti-inflammatory drugs as these can precipitate life-threatening bronchospasm in a small proportion of asthmatics. Choose an alternative analgesia.
- Opiates can be used except in an unlikely event of an acute severe asthmatic attack and then they should be avoided.
- On call Anaesthetist for Labour ward should be informed when brittle asthmatic woman is in labour.
- In absence of acute severe asthma attack reserve Caesarean Section for usual obstetric indications only.
- Women receiving steroid tablets at a dose exceeding prednisolone 5 mg per day for more than two weeks prior to birth should receive parenteral hydrocortisone 100 mg 6 hourly during labour.

Post-partum

- Syntocinon to be given for the third stage.
- Ergometrine, oxytocin and prostaglandin may cause bronchoconstriction and should be used with caution.
- Prostaglandin F2α e.g. Hemabate® (carboprost tromethamine) can cause bronchospasm and **needs to be used with caution**, whereas prostaglandin E2 e.g. Prostin® (dinoprostone) is not associated with bronchospasm.
- NEVER GIVE CARBOPROST INTRAVENOUSLY

Breast Feeding

- Women with asthma should be encouraged to breastfeed.
- Use asthma medications as normal during lactation in line with manufacturers' recommendations.

Management of Acute Asthma presentation in Pregnancy/Labour

Acute uncontrolled asthma can kill – but it is rarely a problem in pregnancy.

Acute severe asthma in pregnancy is an medical emergency and should be treated vigorously in hospital, can be spontaneous but is more commonly induced by either superimposed respiratory infection or medically induced e.g. with carboprost (haemobate).

Principles in acute asthma presentation

1. Give drug therapy as in non-pregnant.
2. In pregnant patients with acute asthma, deliver High flow Oxygen immediately to maintain saturation between 94-98%
3. ALWAYS check Peak expiratory flow (PEFR) and refer to flow chart to categorise.
4. Moderate, severe and life-threatening asthma (see peak flow) must be treated vigorously by the admitting team while waiting for help from the medics. See flow charts.
5. Exclude other causes of worsening breathlessness and wheeze such as pulmonary embolism, cardiomyopathy etc.
6. Continuous foetal monitoring
7. Close liaison between respiratory physician, anaesthetist and obstetrician with, early referral to critical care physicians for women with acute severe asthma
8. Be aware that many young pregnant women with asthma do not appear distressed and their observations remain stable.

See Pathways for Management of Acute Asthma in Adults in Hospital and in Emergency Department (BTS/SIGN 2019) See Appendix 3 and Appendix 4.

Useful Information

Medicines Information Service for Hywel Dda UHB (add telephone number).
E-Lactancia Breastfeeding Checker: http://www.e-lactancia.org/

Patient information;

Asthma and Lung.org.uk
https://www.asthmaandlung.org.uk/conditions/asthma/manage/pregnancy open in new tab

Personal **Asthma Action Plan**
https://www.asthmaandlung.org.uk/conditions/asthma/manage/your-asthma-action-plan -open in new tab

Asthma Control Test Score for People 12 years and Older (www.beatasthma.co.uk)
https://www.beatasthma.co.uk/wp-content/uploads/2017/10/Asthma-control-test-for-children-12-years-and-older.pdf- open in new tab

Note: the Asthma Action plan and Asthma control test is available in other languages on respective websites.

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3. British Guideline of the Management of Asthma in Pregnancy (BTS/SIGN 2019) – British Thoracic Society, Scottish Intercollegiate Guideline Network August 2020. Accessed 14.03.2024

4. MBRRACE Saving Lives, Improving Mothers' Care - State of the Nation Themed Report Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths from infection, neurological, haematological, respiratory, endocrine, gastrointestinal and general surgical causes 2019-21 and morbidity following repeat caesarean birth (October 2023)

Appendix 1 – Asthma Control Test Score, Self-Administrated by Patient

Name_____

Date of birth_____

beat asthma

Asthma Control Test Score for People 12 years and Older

Step 1: Write the number of each answer in the score box provided.

Step 2: Add the score boxes for your total.

Step 3: Take the test to your doctor to talk about your score.

1. In the past 4 weeks, how much of the time did you asthma keep you from getting as much done at work, school or home?

Score

1	2	3	4	5
All of the time	Most of the time	Some of the time	A little of the time	None of the time

2. During the past 4 weeks, how often have you had shortness of breath?

1	2	3	4	5
More than once a day	Once a day	3-6 times a week	Once or twice a week	Not at all

3. During the last 4 weeks, how often did your asthma symptoms wake you up at night or earlier than usual?

1	2	3	4	5
4 or more nights a week	2 or 3 nights a week	Once a week	Once or twice	Not at all

4 During the last 4 weeks, how often have you used your reliever medication?

1	2	3	4	5
3 or more times per day	1 or 2 times per day	2 or 3 times per week	Once a week or less	Not at all

5 How would you rate your asthma control during the past 4 weeks?

1	2	3	4	5
Not controlled at all	Poorly controlled	Somewhat controlled	Well controlled	Completely controlled

Total Score

19 If your score is 19 or less, your asthma may not be as controlled as it could be. Talk to your doctor to see if things can be improved.

www.beatasthma.co.uk

Appendix 2 – Adult Asthma Action Plan

ASTHMA+ LUNG UK

ADULT ASTHMA ACTION PLAN

Fill this in with your GP or nurse

Name and date:

How to use it

Your written asthma action plan can help you stay on top of your asthma. To get the most from it you could:

1. **Put it somewhere easy to find –** your fridge door, noticeboard or bedside table.
2. **Keep a photo of it on your mobile phone or tablet –** so you can check it wherever you are. You can also send it to a family member or friend, so they know what to do if your asthma symptoms get worse.
3. **Check in with it regularly –** put a note on your calendar or a monthly reminder on your phone to read it through. Are you remembering to use your everyday asthma medicines? Do you know what to do if your symptoms get worse?
4. **Take it to every asthma appointment –** including hospital appointments. Ask your GP or asthma nurse to update it if their advice for you changes.

Get more advice + support from Asthma + Lung UK

Speak to a respiratory nurse specialist about managing your asthma: **0300 222 5800**

Message our respiratory nurse specialists on Whatsapp: **07999 377 775**

Get news, advice and download information: **AsthmaAndLung.org.uk**

Follow us on facebook for news and tips about your asthma: **facebook.com/AsthmaLungUK**

ASTHMA QUESTIONS?

Ask our respiratory nurse specialists
Call **0300 222 5800** WhatsApp **07999 377 775**
(Monday-Friday, 9am-5pm)

My asthma triggers

Taking my asthma medicine every day will help reduce my reaction to these triggers. Avoiding them where possible will also help.

People with allergies need to be extra careful as asthma attacks can be more severe.

My asthma review
I should have at least one routine asthma review every year. I will bring:

- my action plan to see if it needs updating
- any inhalers and spacers I have, to check I'm using them correctly and in the best way
- my peak flow meter if I use one
- any questions about my asthma and how to cope with it.

Next asthma review date: .....

GP/asthma nurse contact

Name: .....

Phone number: .....

Out-of-hours contact number (ask your GP surgery who to call when they are closed)

Name: .....

Phone number: .....

Last reviewed and updated 2021; next review 2024.

1 Every day asthma care:

My asthma is being managed well:

- With this daily routine I should expect/aim to have no symptoms.
- If I have not had any symptoms or needed my reliever inhaler for at least 12 weeks, I can ask my GP or asthma nurse to review my medicines in case they can reduce the dose.
- My personal best peak flow is:

My daily asthma routine:

My preventer inhaler (insert name/colour):

.....

I need to take my preventer inhaler every day even when I feel well.

I take ..... puff(s) in the morning

and ..... puff(s) at night.

My reliever inhaler (insert name/colour):

.....

I take my reliever inhaler only if I need to

I take ..... puff(s) of my reliever inhaler if any of these things happen:

- I'm wheezing
- My chest feels tight
- I'm finding it hard to breathe
- I'm coughing

Other medicines and devices (e.g spacer, peak flow meter) I use for my asthma every day:

2 When I feel worse:

My asthma is getting worse if I'm experiencing any of these:

- My symptoms are coming back (wheeze, tightness in my chest, feeling breathless, cough).
- I am waking up at night.
- My symptoms are interfering with my usual day-to-day activities (eg at work, exercising).
- I am using my reliever inhaler three times a week or more.
- My peak flow drops to below: .....

URGENT! If you need your reliever inhaler more than every four hours, you need to take emergency action now. See section 3.

What I can do to get on top of my asthma now:

If I haven't been using my preventer inhaler, I'll start using it regularly again or if I have been using it:

- Increase my preventer inhaler dose to ..... puffs ..... times a day until my symptoms have gone and my peak flow is back to my personal best.
- Take my reliever inhaler as needed (up to ..... puffs every four hours).
- Carry my reliever inhaler with me when I'm out.

URGENT! See a doctor or nurse within 24 hours if you get worse at any time or you haven't improved after seven days.

Other advice from my GP about what to do if my asthma is worse (eg MART or rescue steroid tablets):

3 In an asthma attack:

I'm having an asthma attack if I'm experiencing any of these:

- My reliever inhaler is not helping or I need it more than every four hours.
- I find it difficult to walk or talk.
- I find it difficult to breathe.
- I'm wheezing a lot, or I have a very tight chest, or I'm coughing a lot.
- My peak flow is below: .....

What to do in an asthma attack

1. Sit up straight – try to keep calm.
2. Take one puff of your reliever inhaler (usually blue) every 30-60 seconds up to 10 puffs.
3. If you feel worse at any point OR you don't feel better after 10 puffs **call 999 for an ambulance**.
4. If the ambulance has not arrived after 10 minutes and your symptoms are not improving, repeat step 2.
5. If your symptoms are no better after repeating step 2, and the ambulance has still not arrived, **contact 999 again immediately**.

Important: this asthma attack advice does not apply to you if you use a MART inhaler.

After an asthma attack

- If you dealt with your asthma attack at home, see your GP today.
- If you were treated in hospital, see your GP within 48 hours of being discharged.
- Finish any medicines they prescribe you, even if you start to feel better.
- If you don't improve after treatment, see your GP urgently.

What to do in an asthma attack if I'm on MART:

Appendix 3 – Flowchart for the management of Acute Asthma in adults in hospital

Management of acute asthma in adults in hospital

Features of acute severe asthma

- Peak expiratory flow (PEF) 33–50% of best (use % predicted if recent best unknown)
- Can't complete sentences in one breath
- Respiration ≥25 breaths/min
- Pulse ≥110 beats/min

Life-threatening features

- PEF <33% of best or predicted
- SpO_2 <92%
- Silent chest, cyanosis, or poor respiratory effort
- Arrhythmia or hypotension
- Exhaustion, altered consciousness

If a patient has any life-threatening feature, measure arterial blood gases. No other investigations are needed for immediate management.

Blood gas markers of a life-threatening attack:

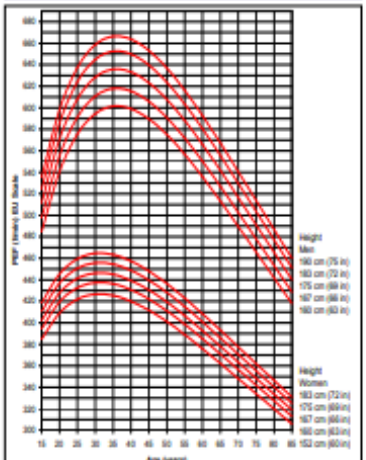
- 'Normal' (4.6–6 kPa, 35–45 mmHg) $PaCO_2$
- Severe hypoxia: PaO_2 <8 kPa (60 mmHg) irrespective of treatment with oxygen
- A low pH (or high H^+)

Caution: Patients with severe or life-threatening attacks may not be distressed and may not have all these abnormalities. The presence of any should alert the doctor.

Near-fatal asthma

- Raised $PaCO_2$
- Requiring mechanical ventilation with raised inflation pressures

Peak Expiratory Flow Rate - Normal Values



Adapted by Clement Clarke for use with EN13826 / EU scale peak flow meters from Nunn AJ Gregg I, Br Med J 1989;298:1068-70

IMMEDIATE TREATMENT

- Oxygen to maintain SpO_2 94–98%
- β_2 bronchodilator (salbutamol 5 mg) via an oxygen-driven nebuliser
- Ipratropium bromide 0.5 mg via an oxygen-driven nebuliser
- Prednisolone tablets 40–50 mg or IV hydrocortisone 100 mg
- No sedatives of any kind
- Chest X-ray if pneumothorax or consolidation are suspected or patient requires mechanical ventilation

IF LIFE-THREATENING FEATURES ARE PRESENT:

- Discuss with senior clinician and ICU team
- Consider IV magnesium sulphate 1.2–2 g infusion over 20 minutes (unless already given)
- Give nebulised β_2 bronchodilator more frequently eg salbutamol 5 mg up to every 15-30 minutes or 10 mg per hour via continuous nebulisation (requires special nebuliser)

SUBSEQUENT MANAGEMENT

IF PATIENT IS IMPROVING continue:

- Oxygen to maintain SpO_2 94–98%
- Prednisolone 40–50mg daily or IV hydrocortisone 100 mg 6 hourly
- Nebulised β_2 bronchodilator with ipratropium 4–6 hourly

IF PATIENT NOT IMPROVING AFTER 15–30 MINUTES:

- Continue oxygen and steroids
- Use continuous nebulisation of salbutamol at 5–10 mg/hour if an appropriate nebuliser is available. Otherwise give nebulised salbutamol 5 mg every 15–30 minutes
- Continue ipratropium 0.5 mg 4–6 hourly until patient is improving

IF PATIENT IS STILL NOT IMPROVING:

- Discuss patient with senior clinician and ICU team
- Consider IV magnesium sulphate 1.2–2 g over 20 minutes (unless already given)
- Senior clinician may consider use of IV β_2 bronchodilator or IV aminophylline or progression to mechanical ventilation

MONITORING

- Repeat measurement of PEF 15–30 minutes after starting treatment
- Oximetry: maintain SpO_2 >94–98%
- Repeat blood gas measurements within 1 hour of starting treatment if:
  - initial PaO_2 <8 kPa (60 mmHg) unless subsequent SpO_2 >92% or
  - $PaCO_2$ normal or raised or
  - patient deteriorates
- Chart PEF before and after giving β_2 bronchodilator and at least 4 times daily throughout hospital stay

Transfer to ICU accompanied by a doctor prepared to intubate if:

- Deteriorating PEF, worsening or persisting hypoxia, or hypercapnia
- Exhaustion, altered consciousness
- Poor respiratory effort or respiratory arrest

DISCHARGE

When discharged from hospital, patients should have:

- Been on discharge medication for 12–24 hours and have had inhaler technique checked and recorded
- PEF >75% of best or predicted and PEF diurnal variability <25% unless discharge is agreed with respiratory physician
- Treatment with **oral steroids (prednisolone 40–50 mg until recovery - minimum 5 days) and inhaled steroids** in addition to bronchodilators
- Own PEF meter and **written asthma action plan**
- GP follow up arranged within **2 working days**
- Follow-up appointment in respiratory clinic **within 4 weeks**

Patients with severe asthma (indicated by need for admission) **and adverse behavioural or psychosocial features are at risk of further severe or fatal attacks.**

- Determine reason(s) for exacerbation and admission
- Send details of admission, discharge and potential best PEF to GP

Appendix 4 – Flowchart for the management of Acute Asthma in adults in the Emergency Departments