Continuing care for **pregnant women** with asthma

Asthma is the most common long-term medical condition encountered during pregnancy

It is estimated that 3–8% of pregnant women have asthma.[1,2] Most women with asthma have normal pregnancies and the risk of complications is small if the asthma is well-controlled.[3]

Pregnancy can affect the course of asthma

In general, during pregnancy the severity of asthma remains stable in one-third of women, worsens in one-third and improves in the remaining third. However, women with severe asthma are more likely to experience a worsening of symptoms than those with mild asthma.[3, 4] Deterioration is most likely in the second and third trimesters.[3]

The most common cause of exacerbations of asthma during pregnancy are viral respiratory infections and non-adherence to inhaled corticosteroids.[4] A systematic review showed that pregnancy itself has no direct effect on FEV1.[5]

Asthma during labour

Acute asthma exacerbations during labour are relatively rare with 80–90% of women having no asthma symptoms during labour and delivery, possibly due to the endogenous steroid production.[3,4] If an exacerbation does occur, the patients normal asthma medication can be used and adjusted as required during this period.[4]

Poorly controlled asthma is associated with maternal and foetal complications

When asthma is well controlled during pregnancy, there is little or no increased risk of adverse maternal or foetal complications. Therefore, it is important to control asthma and minimise exacerbations by optimising treatment during pregnancy.

Compared to women without a history of asthma, women with asthma, particularly poorly controlled asthma, have been reported to have higher risks of several complications of pregnancy and delivery including, pre-eclampsia, haemorrhage, intrauterine growth restriction, pre-term delivery, low birth weight and increased perinatal mortality.[1, 3, 6]

Assess current asthma control in pregnant women

Clinical features used to assess current asthma control include (Table 1):[1]

- Frequency and severity of symptoms (including how symptoms interfere with sleep or normal activity)
- Frequency of use of short-acting beta-agonist for symptom control
- History of exacerbations requiring the use of oral corticosteroids

Table 1: Assessment of asthma control in pregnant women (adapted from Schatz, 2009[1])

	Well-controlled asthma	Asthma not well controlled	Very poorly controlled asthma
Frequency of symptoms	≤ 2 days/week	> 2 days/week	Throughout the day
Frequency of nocturnal symptoms	≤ 2 times/month	1-3 times/week	≥ 4 times/week
Interference with normal activity	None	Some	Extreme
Use of short-acting beta-agonist for symptom control	≤ 2 days/week	> 2 days/week	Several times/day
FEV1 or peak flow (expressed as the % of the predicted or personal best value)	> 80%	60-80%	< 60%
Exacerbations requiring use of oral corticosteroids	0–1 in past 12 months	≥ 2 in the past 12 months	

Manage pregnant women with asthma like any other person with asthma

Pregnant women with asthma should receive the same education and management as any patient with asthma. This includes:[7]

- A personalised plan to promptly manage signs of worsening asthma
- Education about correct inhaler technique
- Smoking cessation advice and support
- Advice about identifying and controlling or avoiding factors that may exacerbate symptoms, e.g. tobacco smoke

Medicines to treat asthma are generally safe during pregnancy

In general, medicines used to treat asthma are considered safe during pregnancy.[3] Appropriate use of medicines to treat asthma carries less risk to the mother and baby than poorly controlled asthma or severe asthma exacerbations.[1, 3]

Short- and long-acting beta-2 agonists can be used as normal during pregnancy

Studies have shown no significant association between the use of inhaled short-acting beta-2 agonists and foetal congenital malformations, pre-eclampsia, pre-term delivery or low birth weight.[1, 3] Salbutamol is the short-acting beta-2 agonist that has been most extensively studied in women during pregnancy.[2, 7]

Evidence for the safety of long-acting beta-2 agonists is limited, however, animal studies and a small number of human studies have not identified any major issues.[2] As is the case for anyone with asthma, long-acting beta-2 agonists should always be used in combination with inhaled corticosteroids.[4]

Inhaled corticosteroids can be used as normal during pregnancy

Inhaled corticosteroids are an integral part of the treatment of persistent asthma. Evidence suggests that:[4, 7]

Managing acute asthma in pregnancy

Severe acute attacks of asthma are dangerous for both the pregnant woman and the foetus and require immediate hospital care.

While waiting for the ambulance, a GP can:

- Keep the patient sitting as breathing may be more difficult in a pregnant woman when supine
- Give high flow oxygen to maintain an oxygen saturation of at least 95%[4] (even if there is no access to pulse oximetry)
- Closely monitor the woman for signs of deterioration, e.g. decreasing oxygen saturation, increasing tachycardia, decreasing respiratory effort and reduced chest sounds, increasing agitation, decreasing consciousness
- Check foetal heart rate
- Use the same medicines to manage asthma exacerbations in a pregnant woman as in other adults, e.g. inhaled beta-2 agonists, inhaled anticholinergic drugs and systemic corticosteroids.[1] In most circumstances give inhaled medicine via a spacer, however, in severe asthma consider the use of an oxygen-driven nebuliser to deliver beta-2 agonists.[3]
- Consider establishing intravenous (IV) access to allow for the delivery of medicines, e.g. IV corticosteroids if oral tablets are not able to be taken and IV fluids if required[3]

- Inhaled corticosteroids are safe in pregnancy and are not associated with an increased risk of congenital malformations or adverse perinatal outcomes
- Inhaled corticosteroids reduce the risk of asthma exacerbations and improve lung function during pregnancy
- Although most studies have involved budesonide, the inhaled corticosteroid that was successfully controlling asthma before pregnancy should be continued during pregnancy

Oral (systemic) corticosteroids should not be withheld because of pregnancy

Prednisone is mostly inactivated (88%) when it crosses the placenta, therefore foetal exposure is limited.[4, 8] However, the use of oral corticosteroids during the first trimester of pregnancy has been associated with a small risk of congenital malformations (primarily cleft palate).[2, 3] Some studies have also found an association between oral corticosteroid use and pre-eclampsia, pre-term labour and low birth weight. However, it is difficult to separate the effect of oral corticosteroid use and the effect of greater disease severity (i.e. requiring the use of systemic corticosteroids) on adverse pregnancy outcomes.[1, 2] In addition, many of the studies that have found these associations, involved pregnant women taking oral corticosteroids for conditions that require continuous use of oral corticosteroids, instead of the short courses that are usually used to treat asthma exacerbations.[3]

Regardless of these associations, the benefit to the mother and baby of using oral corticosteroids to treat a severe exacerbation justifies their use.[3]

Asthma medications can be used as normal during breastfeeding

Although data on the safety of asthma medications in breastfeeding is limited, in general, only small amounts enter breast milk and none are a contraindication to breastfeeding.[1] Women with asthma should be encouraged to breastfeed and continue to use their asthma medications as normal.[3]

Theophylline and cromoglycates can be used during pregnancy

Although not often used to treat asthma, no association has been found between theophylline or cromoglycates and congenital malformations or adverse perinatal outcomes. The therapeutic range for theophylline may be lower in pregnant women because protein binding decreases during pregnancy, resulting in increased free drug levels.[3]

Safety data for leukotriene receptor inhibitors in pregnancy is limited

Data from animal studies and limited human exposure has not identified any major issues in the use of leukotriene receptor inhibitors (e.g. montelukast) during pregnancy. However, it is recommended that they are not initiated during pregnancy.[9] It may be appropriate to continue leukotriene receptor inhibitors in women who have demonstrated significant benefit from their use prior to pregnancy.[3]

Pregnant women whose asthma is well-controlled should continue their usual medicine regimen

It is appropriate for pregnant women whose asthma is well-controlled to continue taking the medicines they were using prior to becoming pregnant. New Zealand Guidelines recommend considering stepping down therapy when asthma is well-controlled,[10] however, it may be more appropriate to maintain pregnant women on their current treatment to avoid the potential loss of control. Treatment can be stepped up for women whose asthma is not well controlled.[1]

Pregnant women with asthma should be reviewed regularly

Although the GP may not be involved in routine antenatal care visits, check that the woman is receiving regular review of their current symptoms, short-acting inhaler use

and peak expiratory flow monitoring (if applicable). Close co-operation between all health professionals caring for the pregnant patient is important to ensure the best asthma management.[11]

Women with poorly controlled asthma require multidisciplinary care involving an LMC, obstetrician and respiratory physician, including asthma education. Co-ordination of the woman's complex care needs may be facilitated by her GP.

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