Asthma Medications during Pregnancy and Breastfeeding

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Poor asthma control in pregnancy is associated with:

Maternal morbidities :
- Hypertension/Pre-eclampsia
- Postpartum haemorrhage
- Hospital/ICU admission

Fetal morbidities:
- Low birth weight
- Preterm birth
- Perinatal mortality

Flu and Covid19 vaccinations are strongly advised and safe

Unvaccinated pregnant patients are at increased risk of respiratory failure due to Influenza and COVID-19.

Benefits of asthma medications outweigh potential risks in pregnancy

Adherence to medications:
- Improves pregnancy outcomes
- Reduces the risk of loss of asthma control

Treat acute asthma exacerbation as in non-pregnant patients to avoid adverse maternal-fetal outcomes.

- **Pre-pregnancy planning is key**: confirm asthma diagnosis, assess asthma control, optimise therapy and educate on managing asthma
- If well controlled and treatment response confirmed, **continue all effective therapies during pregnancy** unless there is a clear reason to change
- Undertake an **individualised risk assessment prior to stopping or changing** asthma therapies during pregnancy. Seek further advice if required (GP, Asthma specialist, Obstetrician, Pharmacist, www.nmic.ie)

Inhaled, Nasal and Nebulised Therapies

Inhaled Corticosteroids	• Continued use of ICS is **critical** in patients with **confirmed asthma** in pregnancy. • If controlled on an individual ICS: continue during pregnancy. • If initiating ICS: beclomethasone or budesonide are preferred as most evidence.
Beta-agonists	SABA: Salbutamol is preferred. Terbutaline may be used if already established. LABA: • Must **always be combined with ICS** in asthma. • Most experience with salmeterol and formoterol. • If initiating LABA: salmeterol is preferred as most evidence. • Limited data for newer agents e.g ultra-LABA. If controlled, can continue to use.
Anti-cholinergic agents	• Ipratropium: when indicated, may be used. • Tiotropium: limited data. If controlled, can continue to use.
Oxygen	Oxygenation as prescribed in non-pregnant patients.
Saline (0.9% - 7%)	Limited systemic absorption- can be used in pregnancy.
Nasal corticosteroids and antihistamines	• Can be used. Budesonide and fluticasone are preferred as as most evidence. • Limited data for newer agents (e.g. mometasone, ciclesonide, azelastine) but low absorption expected. If controlled, can continue to use.

Breastfeeding: Most inhaled and nasal preparations are considered safe.

Antimicrobial Therapy

Most asthma exacerbations are non-bacterial and do not require antimicrobial therapy. Adequate treatment of confirmed bacterial infection/sepsis in pregnancy **is essential**. Failure to treat appropriately can lead to adverse maternal and fetal effects. Refer to local/national guidelines when prescribing.

Penicillins e.g. Amoxicillin & Co-amoxiclav	• Extensive evidence to support use in pregnancy and breastfeeding when indicated. • Amoxicillin is one of the antibiotics of choice during pregnancy. • Consider alternatives to co-amoxiclav for women with PPROM or those at risk of pre-term birth due to concerns for necrotising enterocolitis in the neonate.
Macrolides e.g. Azithromycin & Clarithromycin	• Majority of data suggest no increased risk of adverse pregnancy outcomes. Limited studies describe small increased risks of malformation and miscarriage (first trimester). • Azithromycin: Acute infections- can be used when indicated. Chronic therapy- can be used if benefit is expected to outweigh any small increased risk. • Clarithromycin: Reserve for compelling indications where no suitable alternatives. • Macrolides can be used if breastfeeding.
Doxycycline	• Avoid in the second and third trimester. • Avoid prolonged (>21 days) or repeat courses during breastfeeding.

Systemic Drugs

Oral Corticosteroids (OCS)	• Oral steroid (OCS) therapy should be prescribed and administered if clinically necessary. • There is conflicting information describing associations between first trimester OCS use and oral clefts, as well as later pregnancy use and low birth weight/preterm birth. **In severe asthma/exacerbations, when OCS use is indicated, the benefits of therapy likely outweighs any potential adverse effects** • For patients on longer-term OCS (more than 5mg prednisolone daily or equivalent), consider the need for additional intrapartum steroids (after individualised assessment) to minimise maternal and fetal risks. • Can be used when indicated if breastfeeding.
Leukotriene receptor antagonists	• Montelukast is preferred as as most evidence and can be used if clinically indicated. Limited data for zafirlukast; if effective and indicated, can continue to use. • Can be used when breastfeeding.
Theophylline	• Can be used in pregnancy if indicated. Monitor blood levels. Monitor infant for adverse effects (irritability, tachycardia, vomiting) if used in third trimester. • Breastfeeding: Potential neonatal adverse effects reported (e.g. irritability and sleep disturbance). Monitor infant and avoid feeding 4 hours after immediate-release dose.
Oral Antihistamines	• Cetirizine, loratadine and chlorpheniramine are preferred as most evidence. • Limited data for newer agents (e.g. fexofenadine and levocetirizine); can be considered if first line medications are not effective. • Can be used when breastfeeding.
Magnesium Sulphate IV	• Should be used for life-threatening asthma exacerbations in pregnancy/breastfeeding. • Good evidence for safety; used widely for obstetric indications.
Salbutamol IV	• Can be used. Monitor for maternal hypoglycaemia, tachycardia and fetal tachycardia. • Monitor for neonatal hypoglycaemia if high doses used within 48 hrs of birth. • Breastfeeding: monitor infant for tremor and irritability.
Pseudo-ephedrine	• **Avoid during first trimester of pregnancy and avoid prolonged use later in pregnancy**. • Breastfeeding: can reduce breastmilk supply and cause infant irritability/agitation
Carbocysteine/ Erdosteine	• No information available and limited data for efficacy. • Use only when considered essential.
Monoclonal Antibodies e.g. Omalizumab, Benralizumab, Mepolizumab, Resilumab	• Preliminary data on use in pregnancy are encouraging. Most evidence for Omalizumab. Initiation requires careful individual benefit-risk assessment. • If controlled, can continue to use under asthma specialist supervision. • Breastfeeding: Drug properties suggest low risk to breastfed infants. However, limited data advises caution in premature neonates and in the early neonatal period.

SABA: Short-acting beta agonist. LABA: Long-acting beta agonist. ICS: Inhaled corticosteroid. LAMA: Long-acting muscarinic antagonist. Combination Inhalers: please refer to individual drug components/types. PPROM: preterm premature rupture of membranes.

Reference:
ERS/TSANZ Task Force Statement on the management of reproduction and pregnancy in women with airways diseases 2020