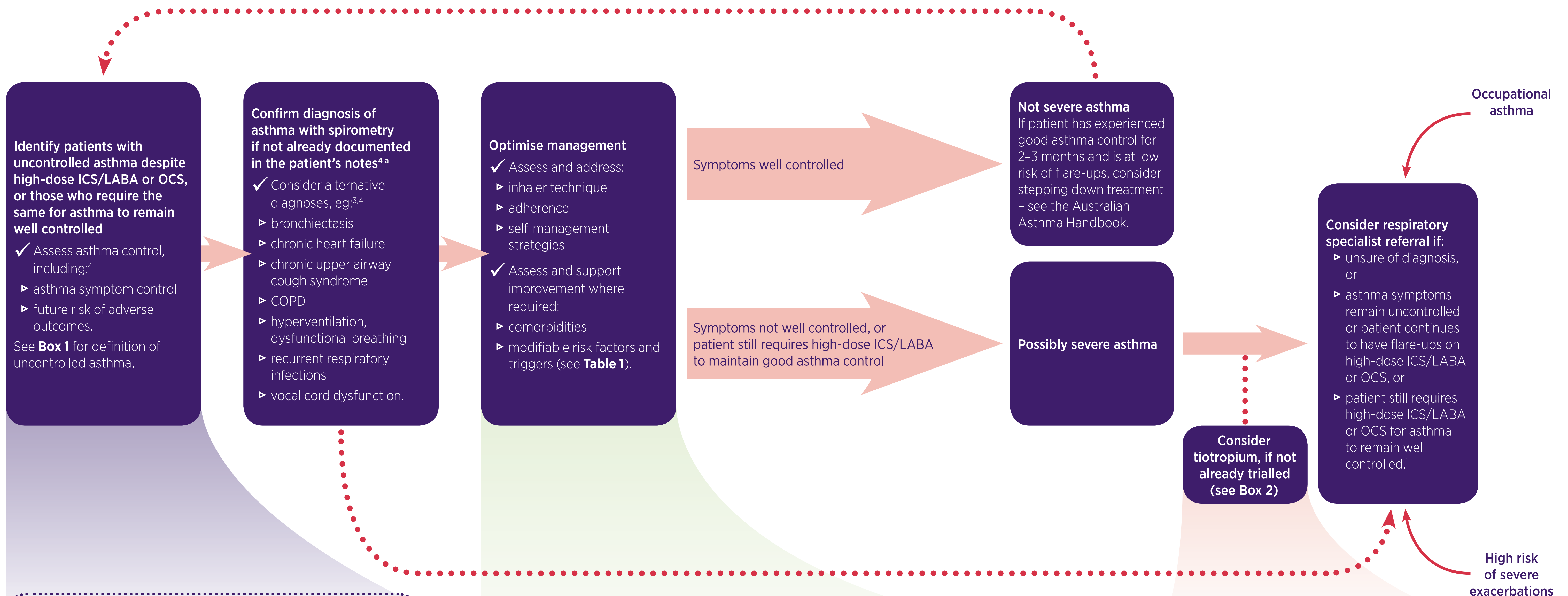
Figure 1: Systematic assessment of a patient with difficult-to-treat asthma



Box 1. What is uncontrolled asthma?

Uncontrolled asthma is defined as at least one of the following:[2]

1. Poor symptom control: in the last 4 weeks has the patient had at least one of the following:
   - daytime asthma symptoms more than twice per week?
   - any night waking due to asthma?
   - reliever needed for symptoms more than twice per week?
   - any activity limitation due to asthma?
2. Frequent severe exacerbations: two or more courses of OCS (> 3 days each) in the previous year
3. Serious exacerbations: at least one hospitalisation, ICU stay or episode of mechanical ventilation in the previous year
4. Airflow limitation: FEV_1 < 80% predicted (after appropriate bronchodilator withheld and with reduced FEV_1/FVC).

Uncontrolled asthma is also defined as controlled asthma that worsens on tapering high doses of ICS, OCS (or biologics).[2]

TABLE 1

Modifiable factors that may contribute to poor symptom control

Modifying the comorbidities in **bold** can particularly improve asthma control.

Medicines and related	Exposures	Comorbidities
High SABA use	Allergen exposure in sensitised patients (house dust mite, cat, mould, cockroach)	Allergic bronchopulmonary aspergillosis
Incorrect inhaler technique	Confirmed food allergy	Anxiety, depression
Medicines that may exacerbate asthma	Indoor or outdoor air pollution, extreme weather	COPD
Poor adherence with preventer therapy	Occupational exposure to allergens or irritants	Bronchiectasis
	Respiratory viruses	GORD
	Smoking or environmental tobacco smoke, biomass fuel exposure	**Obesity**
		Rhinosinusitis ± nasal polyposis
		Vocal cord dysfunction
		Pregnancy

Box 2. Tiotropium mist inhaler (Spiriva Respimat) for moderate to severe asthma

Available on the PBS general schedule as an add-on for adults with moderate to severe asthma[5] who:

- are on ICS ≥ 800 micrograms budesonide or equivalent per day plus a LABA, and
- who have had one or more severe asthma exacerbations in the previous year.[6]

Tiotropium is a LAMA that inhibits M3 receptors in the airways, resulting in relaxation of the airway smooth muscle.[7]

Compared to patients with severe asthma using ICS/LABA alone, a recent Cochrane review has found that adding tiotropium resulted in fewer exacerbations requiring OCS and is likely to have benefits on lung function and asthma control.[6]

Tiotropium should be stopped if no clinical benefit is seen.

a. Diagnosis is confirmed by compatible history, objective demonstration of variable expiratory airway obstruction using change in FEV_1, either spontaneously over time, before and after bronchodilator, or in response to a bronchial provocation agent (when baseline FEV_1 is normal).[5]

COPD = chronic obstructive pulmonary disease; FEV_1= forced expiratory volume in 1 second; FVC = forced vital capacity; SABA = short-acting $beta_2$ agonist; LAMA = long-acting muscarinic antagonist

VENTUREWISE MANAGEMENT OF PEOPLE WITH DIFFICULT-TO-TREAT ASTHMA: A SYSTEMATIC APPROACH