Clinical topics

Asthma and COPD

Key points

Information on distinguishing asthma from COPD, and identifying and managing asthma in patients with features of COPD.

Spirometry is essential in the investigation of suspected COPD or concurrent asthma and COPD. Further investigations and specialist assessment may be needed.

ICS treatment is indicated for patients with features of COPD who have any features of asthma, to reduce the risk of severe exacerbations.

Definition and clinical diagnosis of COPD

COPD is characterised by persistent airflow limitation, which is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases.[Yang 2024]

In clinical practice, diagnosis is usually based on:[Yang 2024]

- persistent symptoms of exertional breathlessness, cough and sputum
- a history of smoking, or exposure to other noxious agents
- FEV_1/FVC <0.7 post-bronchodilator.

Links between asthma and COPD

Asthma and COPD are quite distinctive and readily distinguishable from each other when they occur in their most characteristic forms. However, many adult patients show features of both these conditions.

Among patients with a diagnosis of COPD, the estimated prevalence of coexisting asthma is 27% in population-based studies and 28% in hospital-based studies.[Alshabanat 2015]

Risk factors for COPD

Smoking is the most important risk factor for COPD.[Yang 2024] Other risk factors include exposure to indoor air pollution (including from biomass combustion), other indoor/outdoor air pollution, occupational pollutants, genetics, age and sex, premature birth, compromised lung growth and development, asthma, chronic bronchitis, childhood respiratory infection, and other respiratory infections (including tuberculosis).[Yang 2024]

More information: Smoking and vaping

Co-existing asthma and COPD

Features of both asthma and COPD have been described in people with:[Gibson 2009, McDonald 2013, Reed 2010]

- current asthma (allergic or non-allergic) who have had significant exposure to tobacco smoke
- longstanding asthma or late-onset asthma who have become persistently short of breath over time
- significant smoking history and symptoms consistent with COPD who also have a history of childhood asthma
- who present in middle age or later with shortness of breath, with a history of childhood asthma but no or few symptoms in between, and little smoking history.

Coexisting asthma and COPD is no longer called 'asthma–COPD overlap',[GOLD 2024, GINA 2025] because it is not a single, well-defined disease entity, but includes a range of airway disease phenotypes with different causal mechanisms.[Bateman 2015, Gibson 2015]

People with co-existing asthma and COPD often have poor disease outcomes: compared with patients with either asthma or COPD alone, they show high usage of healthcare services, worse quality of life, more wheezing, dyspnoea, cough and sputum production, and more frequent and severe respiratory exacerbations and hospitalisations. People with co-existing asthma and COPD also have poorer lung function than people with COPD alone.[Gelb 2016, Nielsen 2015, Tho 2016, Alshabanat 2015]

Diagnostic considerations

Distinguishing between typical allergic asthma (childhood-onset allergic asthma) and typical COPD (emphysema in a heavy smoker) is straightforward, but it can be difficult to distinguish COPD from asthma in adults who have features of both conditions.[Reddel 2015, Bateman 2015]

Adults with longstanding asthma may develop persistent expiratory airflow limitation, defined as FEV_1/FVC <0.7 or < lower limit of normal.[Rutting 2022] Among this group, approximately two-thirds have a negative bronchodilator response on spirometry [Rutting 2022] (sometimes called fixed airway limitation). These findings, which are mainly due to airway remodelling,[Rutting 2022] are also features of COPD.

The possibility of COPD, or co-existing asthma and COPD, should be considered in patients with risk factors for COPD and suggestive features, even if the person has never smoked. In patients with a diagnosis of COPD, bronchodilator responsiveness testing is routinely used to assess the severity of airflow limitation as well as help identify asthma.[Yang 2024] However, a positive bronchodilator response does not rule out COPD.[Suzuki 2016, Yang 2024]

More information on **Lung function tests**

Asthma and COPD should be distinguished when possible, because current asthma guidelines and COPD guidelines make contrasting recommendations for pharmacotherapy, based on differing safety findings in each population. Asthma guidelines recommend ICS treatment for all adults, and recommend against the use of LABAs without concomitant or combination ICS. In contrast, COPD guidelines recommend LABAs as initial treatment and addition of ICS only for patients with frequent exacerbations or those with features of asthma.

Specialist referral is usually needed to distinguish asthma from COPD or make the diagnosis of coexisting asthma and COPD. Investigations to exclude other conditions and assess COPD may include high resolution computed tomography and carbon monoxide diffusing capacity of the lungs.[Yang 2024]

Table

Spirometry findings in asthma, COPD, and overlapping asthma and COPD

Finding	Consistent with		
	Asthma	**COPD**	**Asthma–COPD overlap**
Normal FEV_1/FVC before or after bronchodilator	Yes	No	No *
Abnormal lung function (post-bronchodilator reduced FEV_1/FVC and FEV_1 < lower limit of normal)	Yes #	Yes	Yes
Airflow limitation with greater bronchodilator reversibility than in healthy population (post-bronchodilator FEV_1 increase ≥12% and 200 mL from baseline)	Yes ‡	Yes	Yes
Marked bronchodilator reversibility	Yes	Possible but unusual †	Possible §

(FEV_1 increase ≥12% and 400 mL from baseline)			

Additional information

FEV_1/FVC: ratio of forced expiratory volume in one second (FEV_1) to forced vital capacity (FVC), either before or after bronchodilator

* Normal FEV_1/FVC is not consistent with COPD unless there is other evidence of chronic non-reversible expiratory airflow limitation.

This finding is consistent with asthma that is poorly controlled or measured during a flare-up, or can be seen in some patients with longstanding asthma.

‡ The greater the variation, and the more times variation is seen, the more likely the diagnosis of asthma. However, some patients with longstanding asthma may develop persistent airflow limitation.

† Marked bronchodilator responsiveness strongly favours asthma and is generally inconsistent with COPD, but does not rule out co-existing asthma and COPD.

§ This finding may be seen in patients with co-existing asthma and COPD, or occasionally in COPD, especially when FEV_1 is low.

Management of overlapping COPD and asthma

In patients with a concurrent diagnosis of asthma and COPD, treatment should mainly follow recommendations for asthma rather than COPD.[GOLD 2024]

ICS treatment is indicated for patients with features of COPD who have any features of asthma, to reduce the risk of serious exacerbations.[GINA 2025, GOLD 2024]

Alert For patients with features of COPD using ICS, monitor closely for lower respiratory tract infections, and advise patients to get medical advice immediately if they develop symptoms of a lower respiratory tract infection

Patients with features of both asthma and COPD usually also require treatment with LABA, or both LABA and LAMA, for adequate symptom control.[GINA 2025] In patients with coexisting asthma and COPD, ICS-LABA-LAMA treatment improves lung function compared with ICS-LABA treatment.[Park 2021]

Australian and New Zealand guidelines recommend pulmonary rehabilitation for patients with COPD to improve quality of life and exercise capacity and to reduce hospital admissions.[Alison 2017]

Patients should be advised to follow their action plan or get medical advice within 24 hours if they develop symptoms that suggest a lower respiratory tract infection (e.g. fever, increased sputum production, worsening shortness of breath).

Specialist referral should be considered. Monoclonal antibody therapy may benefit those who meet prescribing criteria for asthma (see **Specialist assessment and treatment for severe asthma in adults & adolescents**) or for COPD (dupilumab is approved by TGA for treatment of uncontrolled COPD with raised eosinophils in adults.)[Australian PI: dupilumab]

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Resources

National Asthma Council's **information paper on asthma-COPD overlap**

Lung Foundation Australia's **The COPD-X Plan: Australian and New Zealand guidelines for the management of chronic obstructive pulmonary disease 2024**