

Identifying opportunities for earlier diagnosis of high-risk COPD patients in Australia: an observational study

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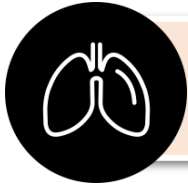
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- The presenter has advised that the following presentation will NOT include discussion on any commercial products or service and that there are NO financial interests or relationships with any of the Commercial Supporters of this year's ASM
- This study was conducted by Optimum Patient Care Australia (OPCA) and was partially funded by AstraZeneca and Optimum Patient Care Australia (OPCA).
- David Price has advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Viatrix, Teva Pharmaceuticals; consultancy agreements with AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Viatrix, Teva Pharmaceuticals; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Chiesi, Viatrix, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Inside Practice, GlaxoSmithKline, Medscape, Viatrix, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme, Teva Pharmaceuticals; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Novartis, Medscape, Teva Pharmaceuticals.; stock/stock options from AKL Research and Development Ltd which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care Ltd (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute Pte Ltd (Singapore); 5% shareholding in Timestamp which develops adherence monitoring technology; is peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation programme, and Health Technology Assessment; and was an expert witness for GlaxoSmithKline.



COPD is 5th leading underlying cause of death in Australia in 2020¹



6.9% prevalence of undiagnosed COPD in adults aged ≥40 in Australia²



Undiagnosed COPD is associated with worse quality of life³ and greater healthcare use⁴



Substantial missed opportunities for earlier diagnosis up to 10 years before COPD diagnosis⁵

COPD, chronic obstructive pulmonary disease

1. Lung Foundation Australia -- COPD-X concise guide - p4 <https://lungfoundation.com.au/resources/copd-x-concise-guide/>

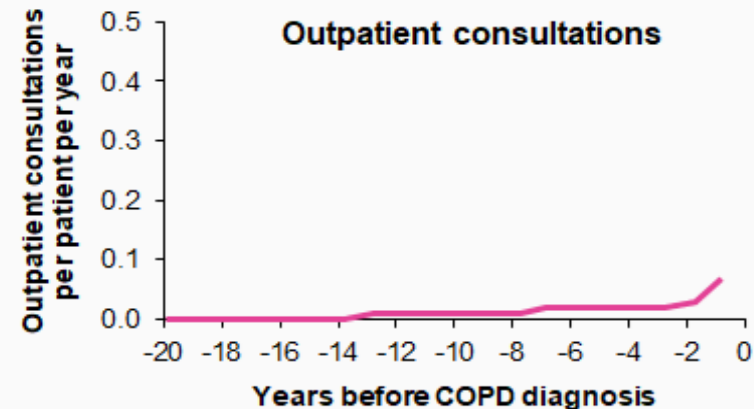
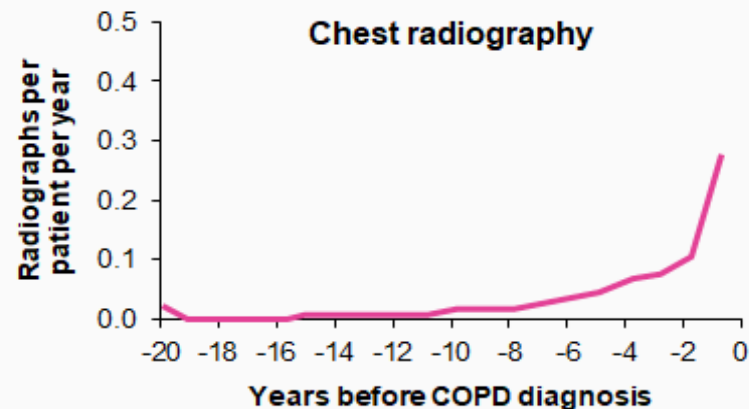
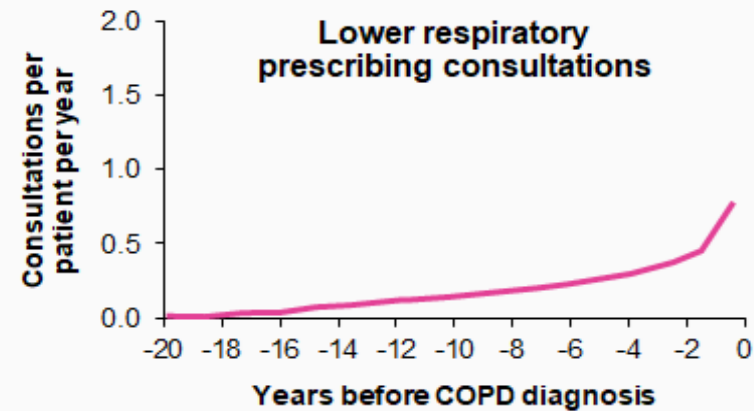
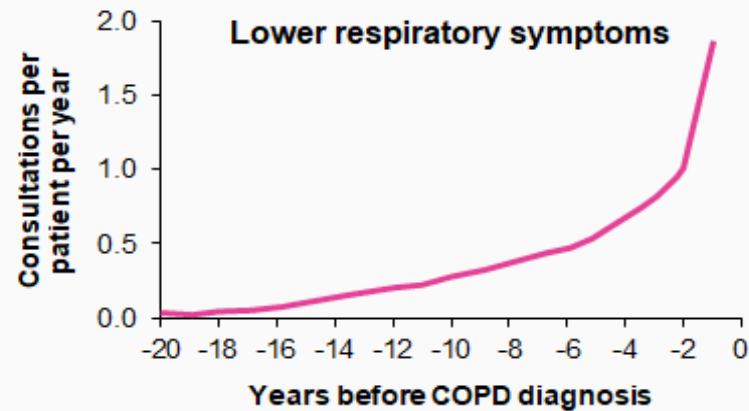
2. Petrie K et al. 2021. Undiagnosed and misdiagnosed Chronic Obstructive Pulmonary Disease: data from the BOLD Australia Study. Int J COPD. <https://doi.org/10.2147%2FCOPD.S287172>

3. Gerstein E et al. 2023. Impact of undiagnosed Chronic Obstructive Pulmonary Disease and Asthma on symptoms, quality of life, healthcare use and work productivity. AJRCCM. <https://doi.org/10.1164/rccm.202307-1264OC>

4. Johnson KM et al. 2019. Healthcare system encounters before COPD diagnosis: a registry-based longitudinal cohort study, Thorax. <https://doi.org/10.1136/thoraxjnl-2019-213554>

5. Jones RCM et al. 2014. Opportunities to diagnose chronic obstructive pulmonary disease in routine care in the UK: a retrospective study of a clinical cohort. Lancet Respir Med. <http://dx.doi.org/10.1016/>

Mean frequency of missed opportunities to diagnose COPD



In the 5 years before diagnosis of COPD:

- 85%** with lower respiratory consultation
- 68%** with lower respiratory prescription
- 40%** prescribed oral steroids
- 55%** prescribed antibiotics

Retrospective, cohort study with data collected between 1990–2009; data assessed for 38859 patients aged >40 years in the UK with an electronically coded diagnosis of COPD in their primary care records
 Jones RCM, et al. Lancet Respir Med 2014;2:267–276

Identification of key opportunities for optimising the management of high-risk COPD patients in the UK using the CONQUEST quality standards: an observational longitudinal study

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Patterns of care in the management of high-risk COPD in the US (2011–2019): an observational study for the CONQUEST quality improvement program

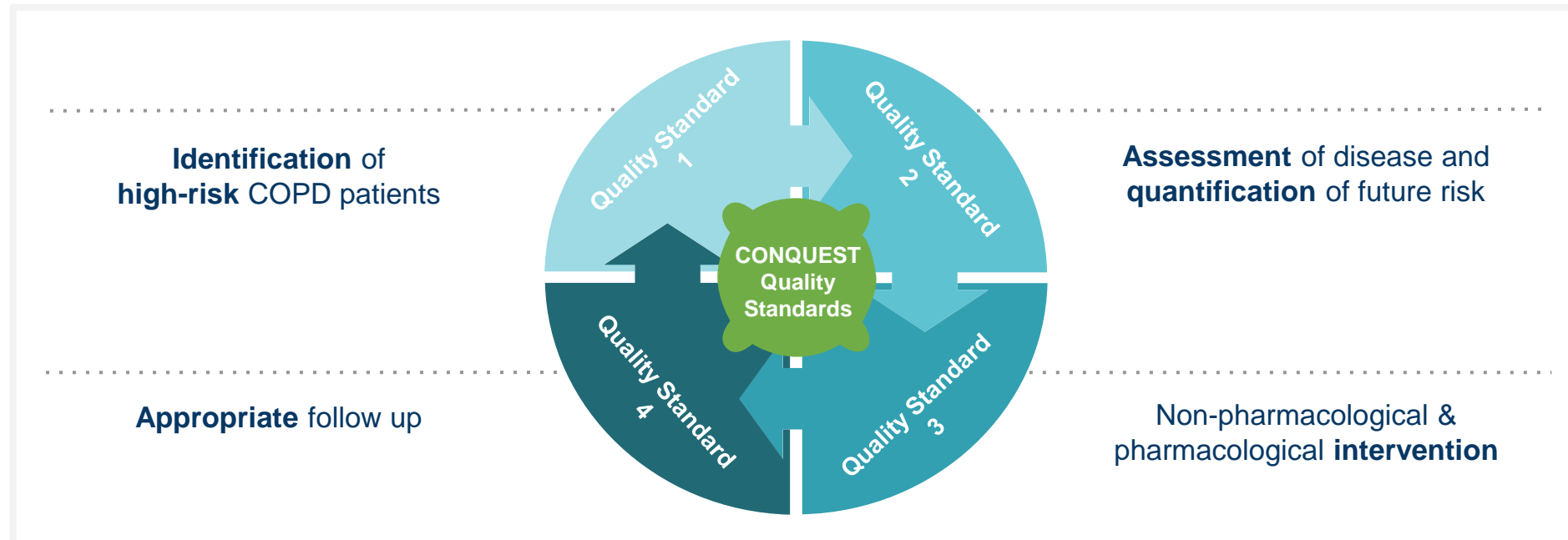
Margee Kerr,^{a,b} Yasir Tarabichi,^c Alexander Evans,^b Douglas Mapel,^d Wilson Pace,^{e,f} Victoria Carter,^b Amy Couper,^a M. Bradley Drummond,^g Norbert Feigler,^h Alex Federman,ⁱ Hitesh Gandhi,^h Nicola A. Hanania,^j Alan Kaplan,^{a,k,l} Konstantinos Kostikas,^m Maja Kruszyk,^{a,n} Marije van Melle,^{a,o,p} Hana Müllerová,^q Ruth Murray,^b Jill Ohar,^r Michael Pollack,^h Rachel Pullen,^a Dennis Williams,^{s,w} Juan Wisnivesky,ⁱ Mei-Lan K. Han,^t Catherine Meldrum,^u and David Price^{a,b,u,*}

- ❖ UK & US Opportunity Analyses^{1,2} undertaken as part of CONQUEST identified significant opportunities for earlier diagnosis of COPD patients at high-risk (≥ 2 exacerbations in the previous 12 months)
- ❖ It is currently unknown the extent of similar opportunities in other healthcare systems, such as Australia

1. Halpin, DMG; Dickens, AP; Skinner, D et al. Identification of key opportunities for optimising the management of high-risk COPD patients in the UK using the CONQUEST Quality Standards: an observational longitudinal study. *Lancet Regional Health – Europe*. (2023). 29: 100619. <https://doi.org/10.1016/j.lanepe.2023.100619>

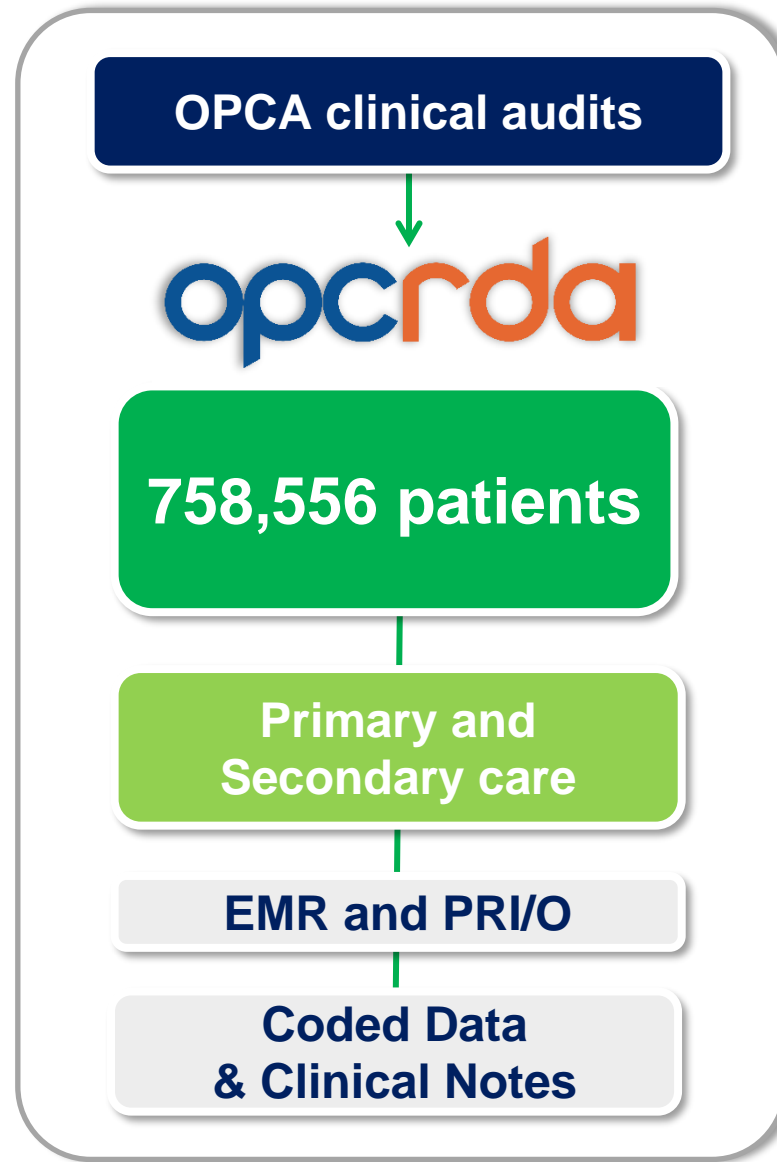
2. Kerr M; Tarabichi Y; Evans A et al. Patterns of care in the management of high-risk COPD in the US (2011-2019): an observational study for the CONQUEST quality improvement program. *Lancet Regional Health – Americas*. (2023). 24: 100546. <https://doi.org/10.1016/j.lana.2023.100546>

To compare identification and assessment of patients with potential high-risk COPD in Australia, to the national and international guidelines, and to the CONQUEST quality standards¹:



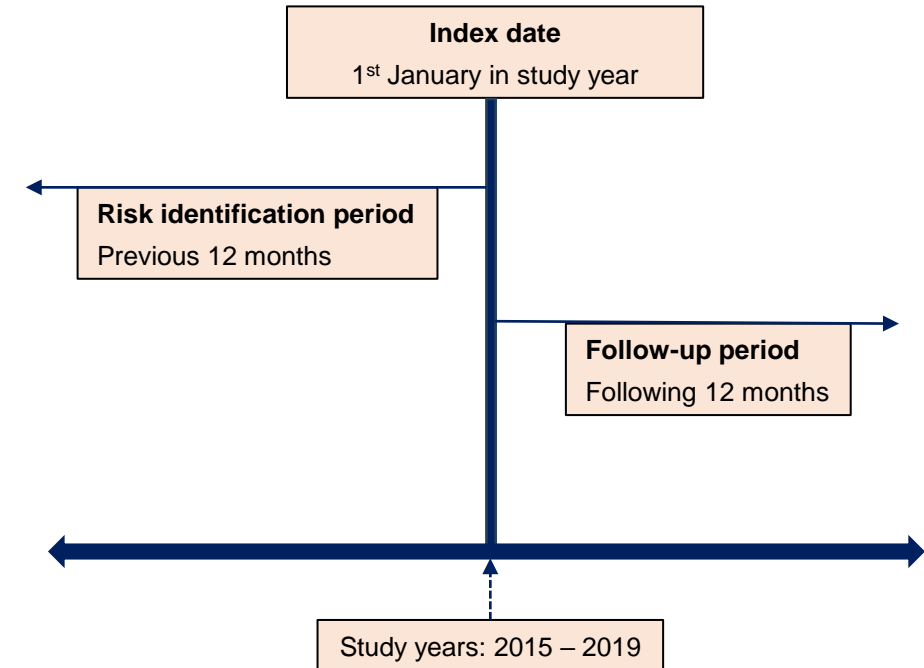
1. Pullen et al. CONQUEST Quality Standards: For the Collaboration on Quality Improvement Initiative for Achieving Excellence in Standards of COPD Care. Int J Chron Obstruct Pulmon Dis. 2021 Aug 12;16:2301-2322. doi: 10.2147/COPD.S313498

Data Source:
Optimum
Patient Care
Research
Database
Australia
(OPCRDA)



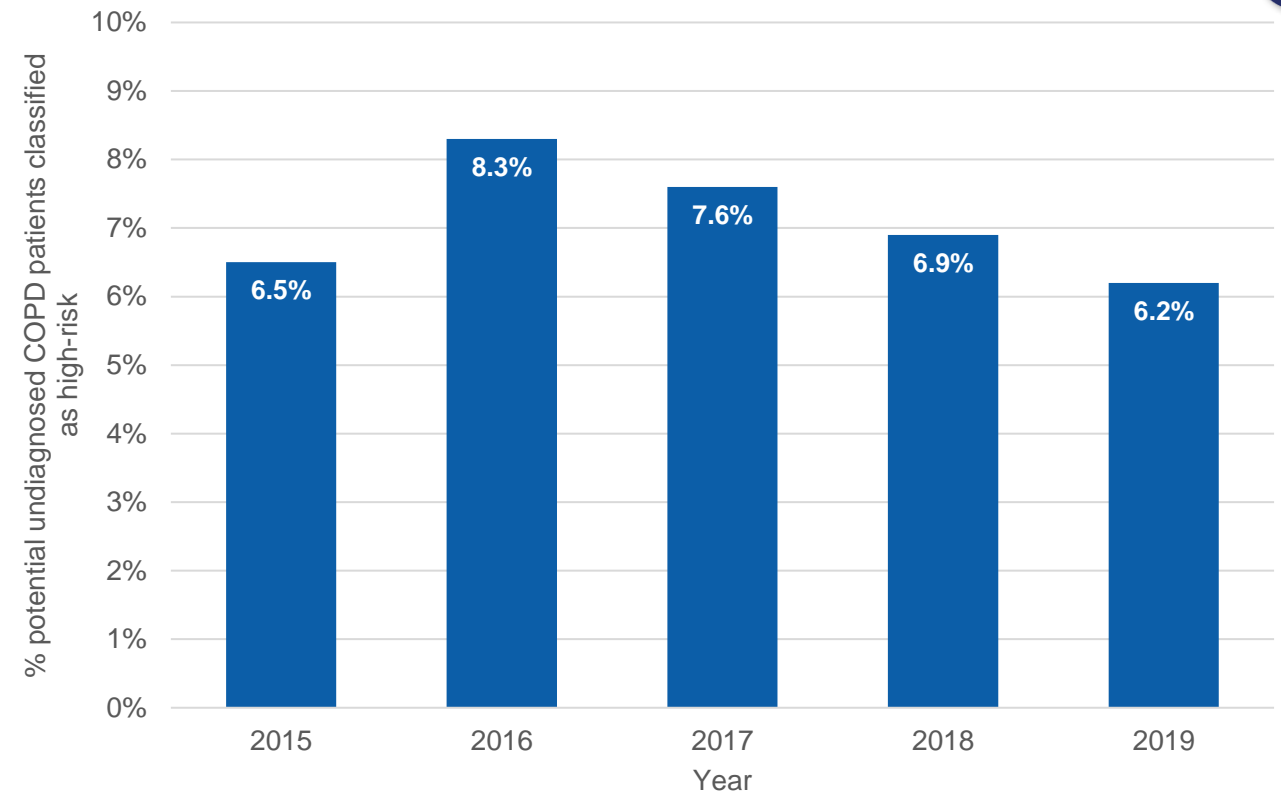
- Data & analyses have been derived from primary care electronic medical records (EMRs) within the OPCRDA.
- OPCRDA is established and maintained by Optimum Patient Care Australia (OPCA).

- ❖ Potential undiagnosed COPD patients at high-risk:
 - ❖ Ever smokers aged ≥ 40 years, no COPD diagnosis.
 - ❖ Evidence of ≥ 2 probable exacerbations in the past 24 months.
 - ❖ No asthma consultation in the risk identification period.
 - ❖ No COPD diagnostic assessment in the 12 months before the risk identification period.
 - ❖ No other significant lung disease or active cancer.
- ❖ Analysed EMR coded and free text data from OPCRDA.
- ❖ Cross-sectional analysis of annual patient cohorts between 2015-2019.



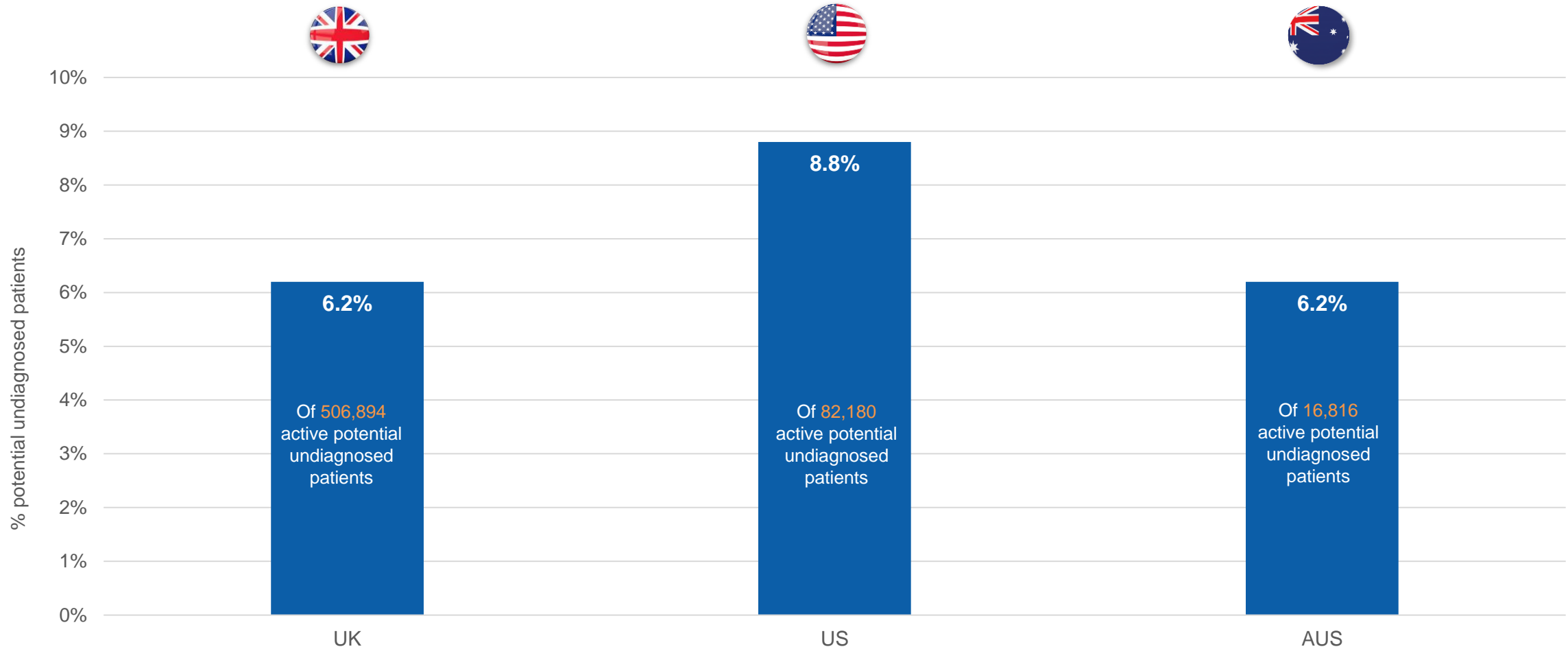


- ❖ In each study year, 5-8% of all active patients were identified as potential undiagnosed COPD.
- ❖ The proportion of potential undiagnosed COPD patients defined as high-risk ranged from 8.3% in 2016 to 6.2% in 2019.



Potential undiagnosed high-risk patients are ever smokers aged ≥ 40 years with no recorded COPD diagnosis before 1st January in each study year, and yet with evidence of ≥ 2 exacerbations in the last 12 months

% potential undiagnosed patients defined as high-risk, by country (UK, USA, Australia): 2019 Snapshot

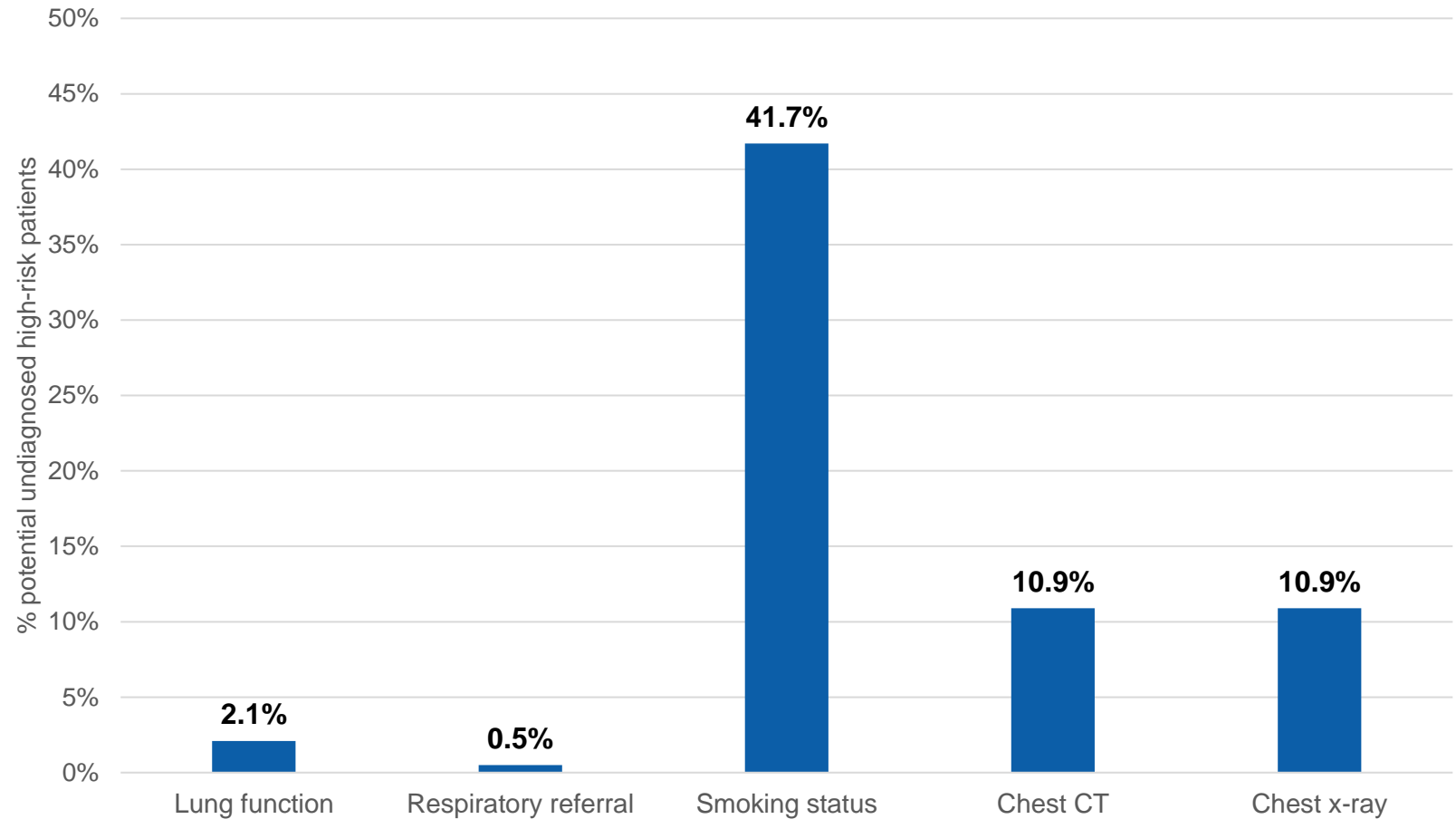


Potential undiagnosed high-risk patients are ever smokers aged ≥ 40 years with no recorded COPD diagnosis before 1st January in each study year, with evidence of ≥ 2 exacerbations in the last 12 months

% potential undiagnosed patients with recorded diagnostic assessment for COPD in the year they met high-risk criteria: 2019



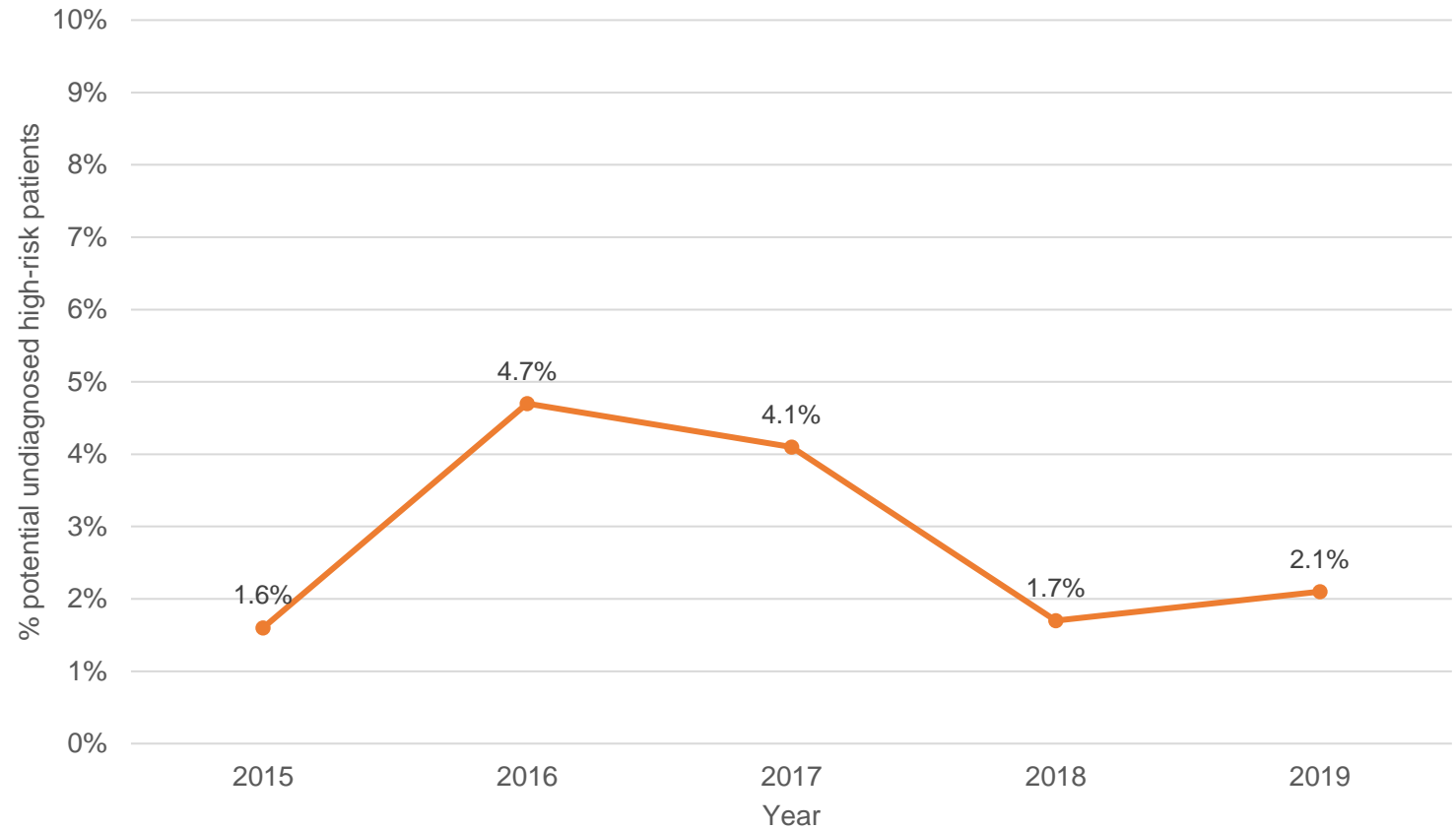
- ❖ **Time frame:** 12 months prior to 1st January 2019.
- ❖ **Lung function:** Spirometry or peak expiratory flow (PEF).



% potential undiagnosed high-risk patients with spirometry or PEF recorded in each study year

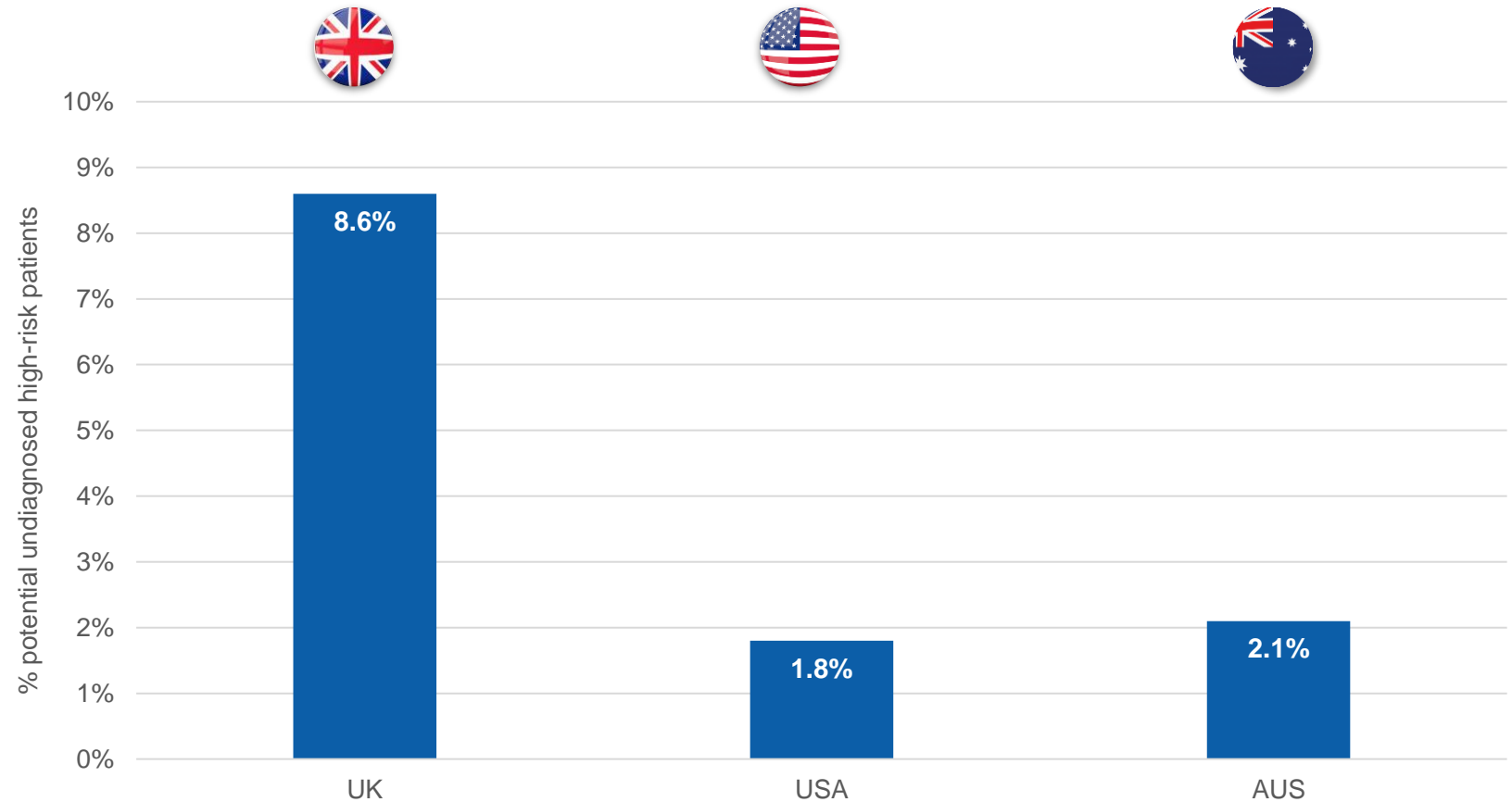


- ❖ **Time frame:** 12 months prior to 1st January.
- ❖ **Includes:** FEV1, FVC, FEV1/FVC, peak expiratory flow (PEF).

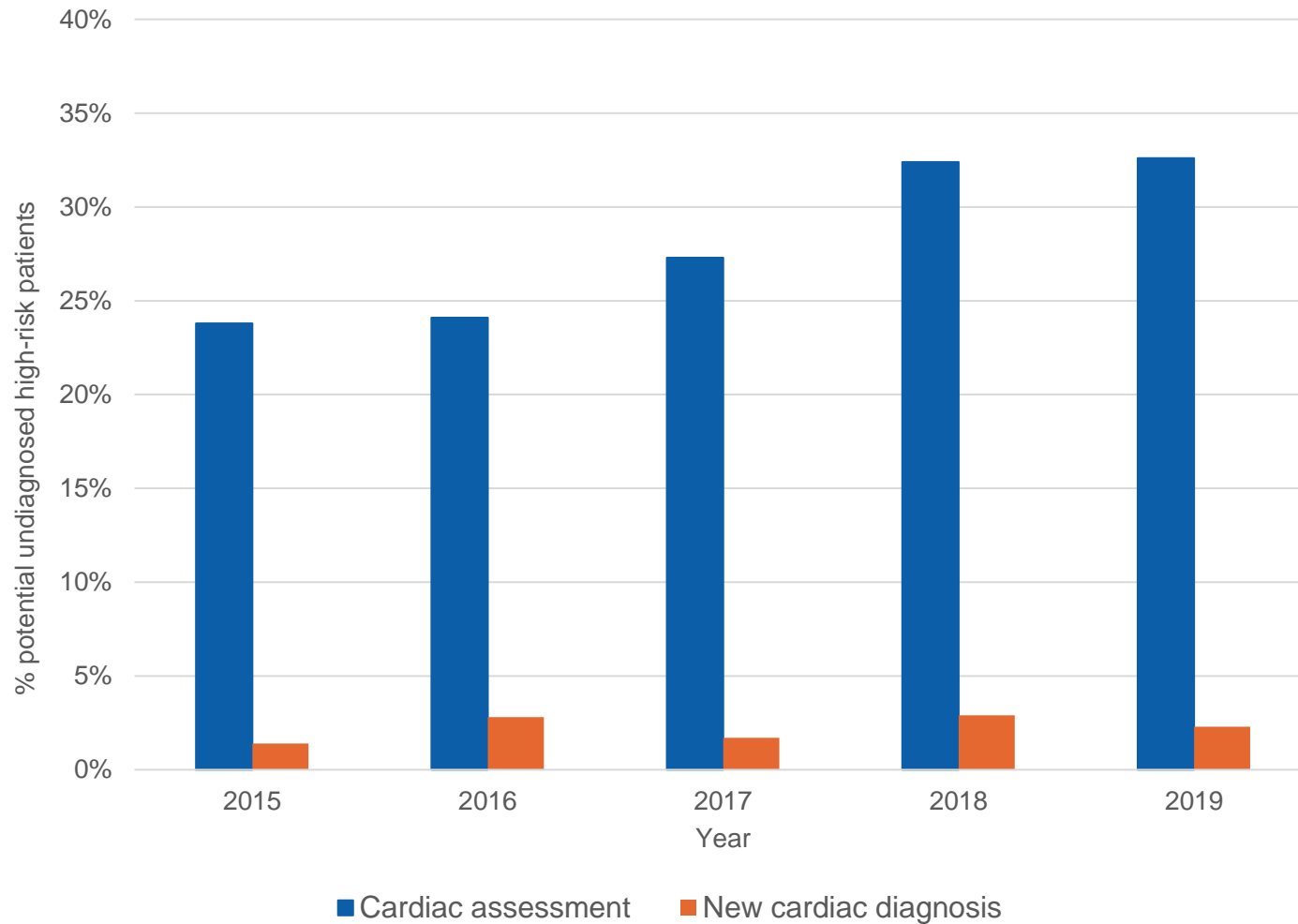


% potential undiagnosed high-risk patients with spirometry or PEF: 2019 snapshot by country

- ❖ **Time frame:** 12 months prior to 1st January 2019.
- ❖ **Includes:** FEV1, FVC, FEV1/FVC, peak expiratory flow (PEF).



% potential undiagnosed high-risk patients receiving cardiac assessments and new cardiac diagnoses in 12 months either side of 1st January



Cardiac assessments include:

- ❖ Cardiac exam, cardiac risk assessment, BNP, echocardiogram, electrocardiogram.

Cardiac diagnoses include:

- ❖ Angina, arrhythmias, cardiomyopathy, coronary heart disease, heart failure.

Time frame: 12 months either side of 1st January.

% potential undiagnosed high-risk patients with a cardiac event in 12 months either side of 1st January

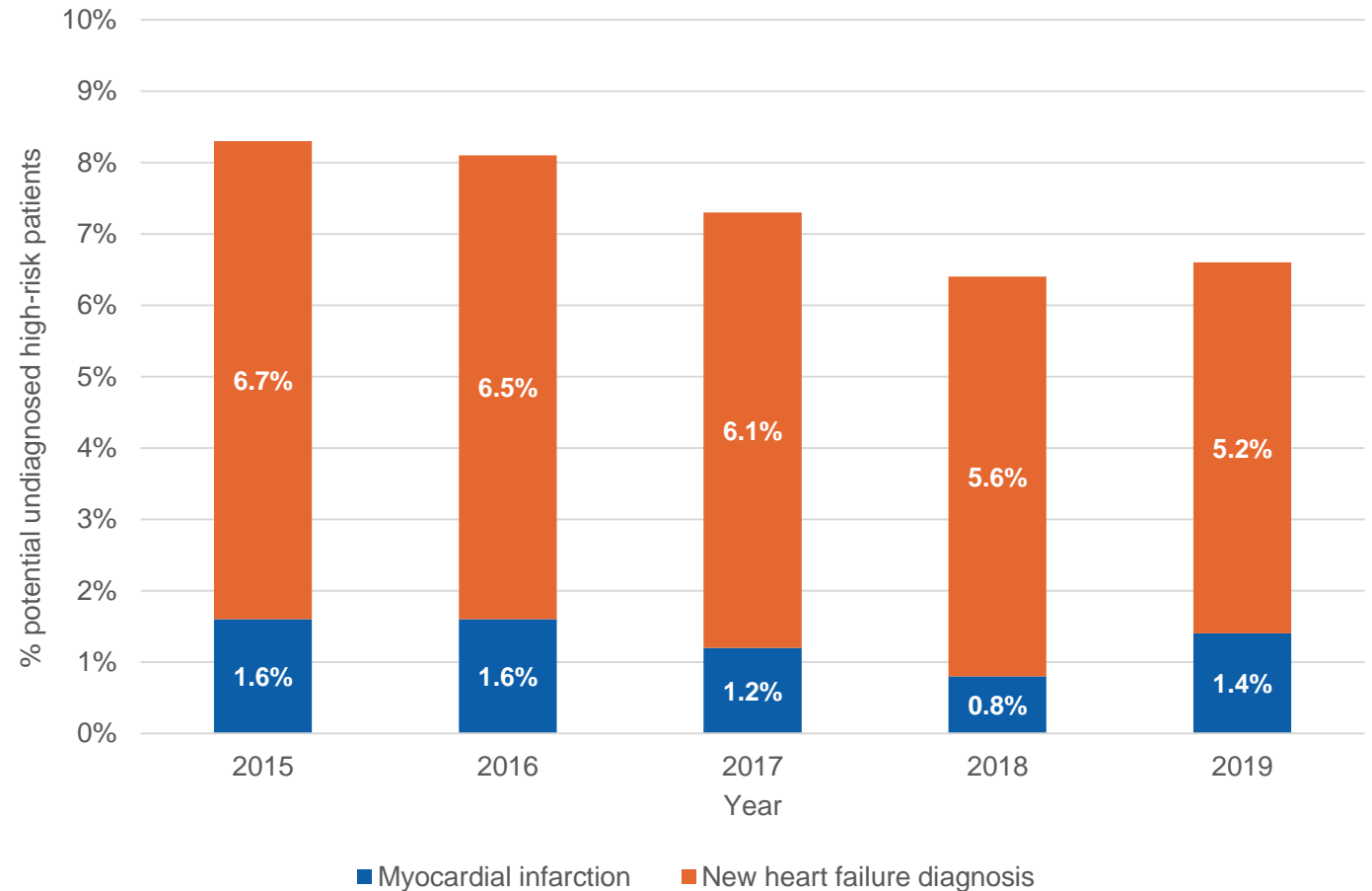


Cardiac event:

- ❖ Myocardial infarction, new heart failure diagnosis

Time frame:

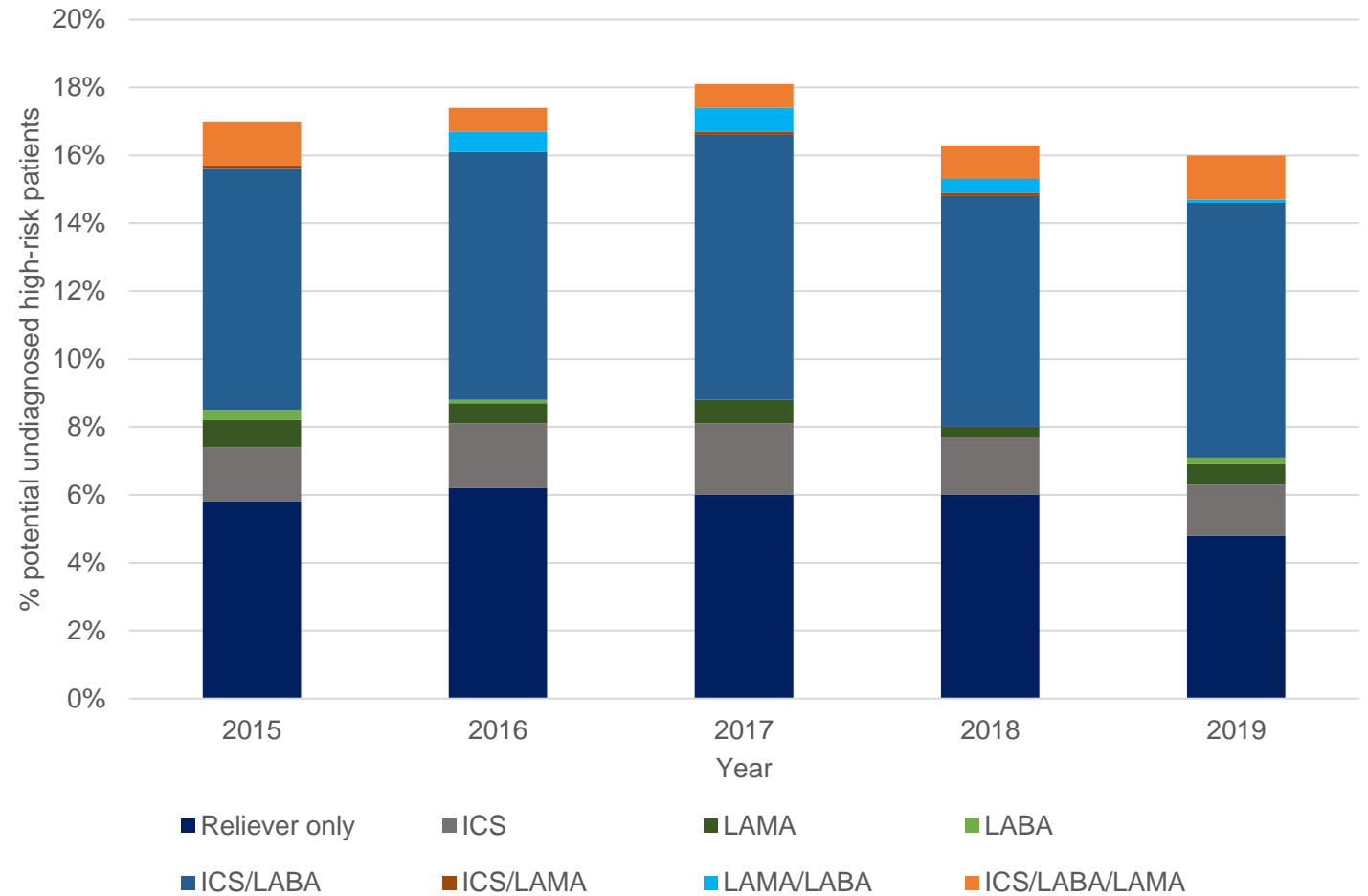
- ❖ 12 months either side of 1st January



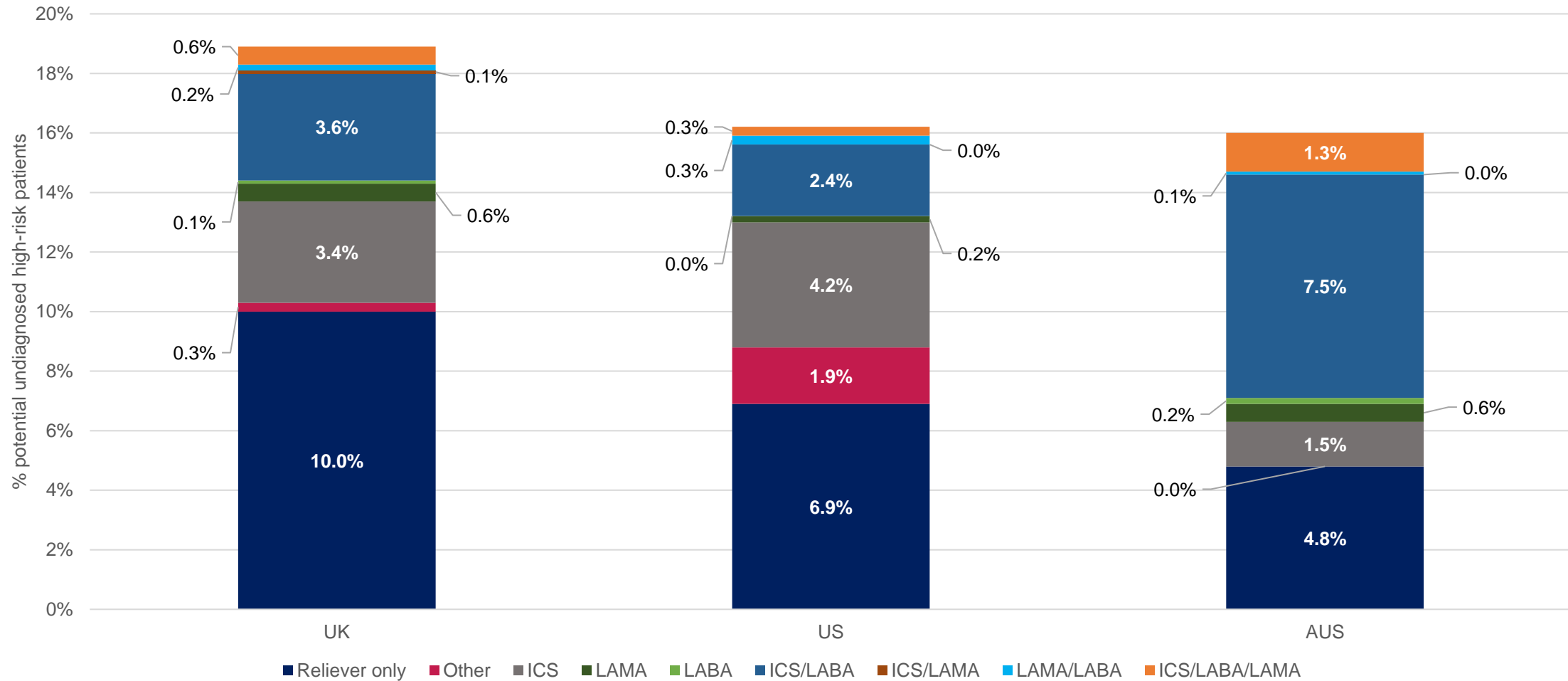
% potential undiagnosed high-risk patients prescribed inhaled therapy in the 12 months before 1st January in each study year



- ❖ 16-18% of high-risk patients were prescribed inhaled COPD therapy in each year without a recorded diagnosis of COPD.
- ❖ The most common therapies were:
 - ❖ ICS/LABA (7 – 8%)
 - ❖ Reliever only (5 – 6%)



% potential undiagnosed high-risk patients prescribed inhaled therapy: 2019 snapshot by country

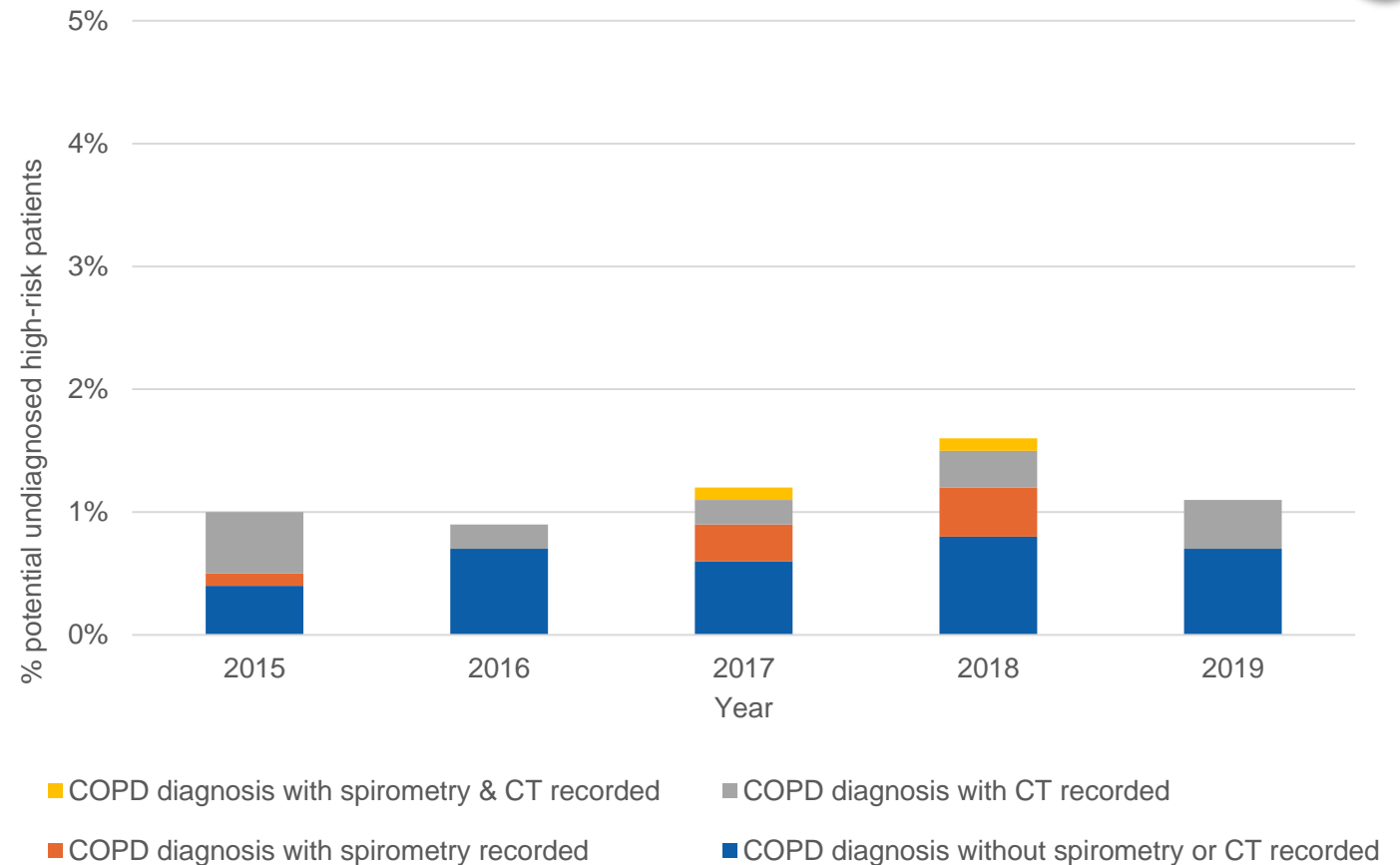


- ❖ **Time frame:** 12 months before 1st January
- ❖ **"Other" category:** Theophylline, LTRA monotherapies

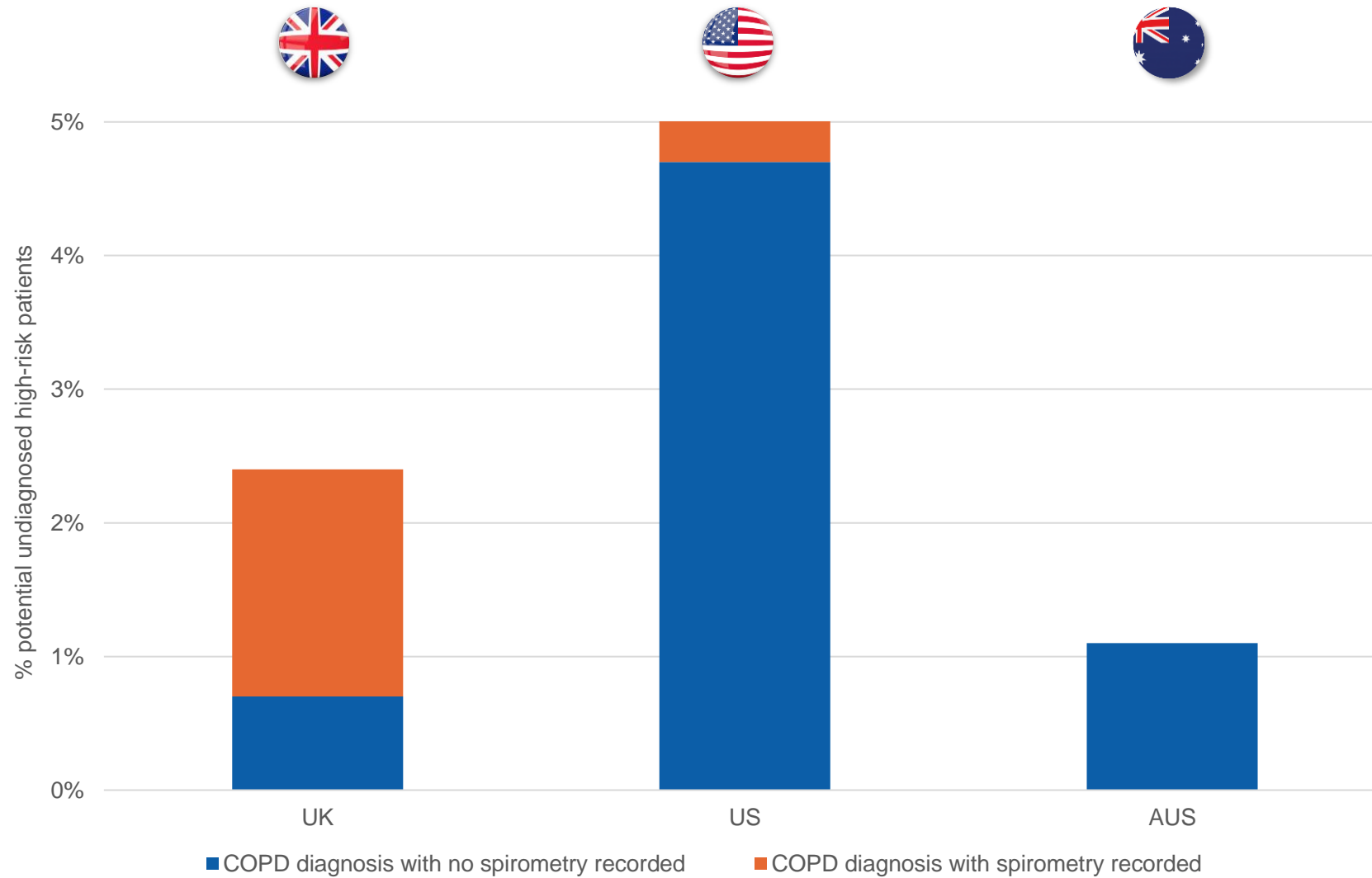
% potential undiagnosed high-risk patients receiving a new COPD diagnosis in 12 months after 1st January in each study year



- ❖ Around 1% of high-risk patients had evidence of a COPD diagnosis in each study year.
- ❖ New COPD diagnoses were more commonly recorded alongside CT scans, rather than spirometry.
- ❖ At least half of new COPD diagnoses were recorded without evidence of spirometry or CT scans.



% potential undiagnosed high-risk patients receiving a new COPD diagnosis in 12 months after 1st January: 2019 snapshot by country



- ❖ Between 6-8% of potential undiagnosed COPD patients in Australia can be considered high-risk.
- ❖ In the year that potential undiagnosed patients met high-risk criteria, the proportion receiving chest CT/x-ray was five times higher than the proportion with a recorded lung function test. In the same year, less than half of this population had an updated smoking status recorded.
- ❖ Almost 20% of potential undiagnosed high-risk patients were prescribed inhaled COPD therapy without a recorded diagnosis of COPD.
- ❖ In 2019, the proportion of patients with a recorded lung function test was four times lower in Australia and the US compared to the UK. In the same year, a higher proportion of patients were prescribed maintenance therapy in Australia compared to the UK and US.
- ❖ A lower proportion of potential undiagnosed high-risk patients received a COPD diagnosis in Australia compared to the UK and US.
- ❖ There are opportunities for earlier diagnosis of COPD among patients at high risk of exacerbation in line with Australian and global guidelines, and CONQUEST quality standards.

Acknowledgements

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