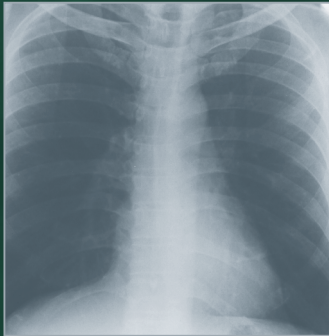


National COPD Audit Programme



Time to take a breath

National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: National primary care audit (Wales) 2014–2015

**National clinical audit report
October 2016**

Prepared by:



**Royal College
of Physicians**



Royal College of
General Practitioners

In partnership with:



**British
Thoracic
Society**



Commissioned by:



Working in wider partnership with:



The Royal College of Physicians

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The National COPD Audit Programme is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

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Authors	Baxter N, Holzhauser-Barrie J, McMillan V, Saleem Khan M, Skipper E, Roberts CM (on behalf of the National COPD Audit Programme: primary care workstream)
Publication date	October 2016
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Description	<p>This is the first of the COPD primary care audit reports, published as part of the National COPD Audit Programme. This report details national data relating to primary-care-delivered COPD care in Wales.</p> <p>The report is relevant to anyone with an interest in COPD. It provides a broad view of primary care services, and will enable lay people, as well as experts, to understand how COPD services function currently, and where change needs to occur.</p> <p>The information, key findings and recommendations outlined in the report are designed to provide readers with a basis for identifying areas in need of change and to facilitate development of improvement programmes that are relevant not only to primary care providers but also to commissioners and policymakers.</p>
Supersedes	There is no scheduled review date for this report because it is detailing the results of the first of three annual audits. Reports on future audit cycles, which are anticipated to be published in 2017 and 2018 will, therefore, add to the learning contained within this report.
Related publications	<ul style="list-style-type: none"> National Institute for Health and Care Excellence. <i>Chronic obstructive pulmonary disease in adults</i>. Quality Standard 10 (QS10). London: NICE, 2016. www.nice.org.uk/guidance/qs10 National Institute for Health and Care Excellence. <i>Smoking: supporting people to stop</i>. Quality Standard 43 (QS43). London: NICE, 2013. www.nice.org.uk/guidance/qs43 National Institute for Health and Care Excellence. <i>Chronic obstructive pulmonary disease in over 16s: diagnosis and management</i>. Clinical Guideline 101 (CG101). London: NICE, 2010. www.nice.org.uk/guidance/CG101 Stone RA, Holzhauser-Barrie J, Lowe D, Searle L, Skipper E, Welham S, Roberts CM. <i>COPD: Who cares? National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Resources and organisation of care in acute NHS units in England and Wales 2014</i>. National organisational audit report. London: RCP, November 2014. www.rcplondon.ac.uk/projects/outputs/copd-who-cares-organisational-audit-2014 Stone RA, Holzhauser-Barrie J, Lowe D, Searle L, Skipper E, Welham S, Roberts CM. <i>COPD: Who cares matters. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Clinical audit of COPD exacerbations admitted to acute units in England and Wales 2014</i>. National clinical audit report. London: RCP, February 2015. www.rcplondon.ac.uk/projects/outputs/copd-who-cares-matters-clinical-audit-2014 Steiner M, Holzhauser-Barrie J, Lowe D, Searle L, Skipper E, Welham S, Roberts CM. <i>Pulmonary Rehabilitation: Time to breathe better. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Resources and organisation of Pulmonary Rehabilitation services in England and Wales 2015</i>. National organisational audit report. London: RCP, November 2015. www.rcplondon.ac.uk/projects/outputs/pulmonary-rehabilitation-time-breathe-better

	<ul style="list-style-type: none">Steiner M, Holzauer-Barrie J, Lowe D, Searle L, Skipper E, Welham S, Roberts CM. <i>Pulmonary Rehabilitation: Steps to breathe better. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Clinical audit of Pulmonary Rehabilitation services in England and Wales 2015</i>. National clinical audit report. London: RCP, February 2016. www.rcplondon.ac.uk/projects/outputs/pulmonary-rehabilitation-steps-breathe-better
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Report preparation

This report was written by the following, on behalf of the national COPD primary care audit 2014–15 workstream group. (The full list of workstream group members is included at [Appendix C.](#))

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We would specifically like to acknowledge the input of Mr Sunil Rai, Data Coordinator for the Falls and Fragility Fracture Audit Programme, in the production of this report.

Foreword

Chronic obstructive pulmonary disease (COPD) inflicts a huge toll on individual patients, their carers, and on the NHS. In total, 1.2 million people in the UK have been diagnosed with COPD and 30000 people die of the disease each year.¹ In 2012 in Wales, the prevalence of diagnosed COPD was 2173 per 100000 people. The death rate from COPD in Wales is higher than in the UK generally, as are the rates of emergency admission to hospital for COPD.¹

Previous national COPD audits have concentrated on acute management of COPD in secondary and tertiary care, but the current National COPD Audit Programme (commissioned in 2013) includes an audit of primary care for the first time. The original focus of the primary care audit was to collect data from practices in England and Wales relating to the routine care of people with COPD, which went beyond that provided by publicly available data sources. The metrics were based on recommendations in the COPD Clinical Guidelines and COPD Quality Standards produced by the National Institute for Health and Care Excellence (NICE) in 2010, 2013 and 2016^{2,3,4} respectively.

There have been significant challenges and delays with the audit, due to increasing limitations on data extraction from practices in England. It has, therefore, not been possible to carry out the audit in England beyond publicly available Quality and Outcomes Framework (QOF) data, but it is hoped that this important work can be carried out in England in the future. Meanwhile, thanks should be given to the many health professionals and 280 practices involved in providing valuable information about the care of 48105 people living with COPD in Wales.

Primary care, embedded in a tradition of generalist care, plays a pivotal role in the day-to-day management of people with COPD, 80% of whom will have comorbidity. However, results of the COPD secondary care audit^{5,6} have highlighted the need for better communication between secondary and primary care. The potential in future cycles for the National COPD Audit Programme primary care data to be linked to the secondary care data provides an opportunity for better integrated care between community and hospital services.

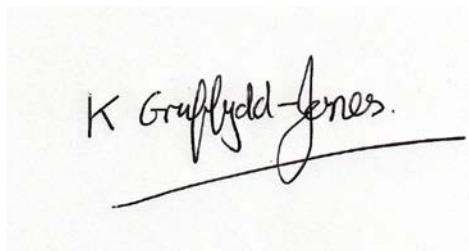
The data included in this report show wide variations, some of which may be due to data recording. There are high rates of reporting of Medical Research Council (MRC) breathlessness (dyspnoea) scores in the annual review, but low recording of other key metrics such as oxygen prescribing. Low recording rates could reflect lower standards of care, but also may reflect confusion about appropriate coding. There is undoubtedly a need for greater clarification about what should be asked during a routine COPD review and how this should be recorded.

Exacerbation frequency is an important guide to pharmacological treatment and an important marker of disease severity, and should be integral to efficacy of any COPD review. The recording of drug therapy in patient records is standard practice, yet the recording of the use of a very expensive and potentially harmful therapy, oxygen, is rarely carried out.

This report continues to emphasise the need to record an accurate diagnosis of COPD using the essential tools of chest X-ray and post-bronchodilator spirometry. It also highlights the variation in the prescription of inhaled steroids in COPD management and an underuse of higher value interventions such as smoking cessation and pulmonary rehabilitation. The system should ensure that these vital services are available to patients with COPD in all areas, in a timely and accessible form.

In summary, the first phase of the national COPD primary care audit highlights the need for a national template for COPD review with standardised coding. Confidence in accurate diagnosis of COPD needs to improve. Effectively targeted pharmacological treatments to prevent exacerbations, improve quality of life, relieve breathlessness and treat tobacco dependency, and the individualised mind and body treatment package of pulmonary rehabilitation can greatly improve the quality of life of many people with COPD. This

report provides the springboard for primary care to make sure that the right people get the correct diagnosis and receive effective treatment, whoever they are and wherever they are.

A handwritten signature in black ink on a light-colored background. The signature reads "K Gruffydd-Jones." and is underlined with a single horizontal line.

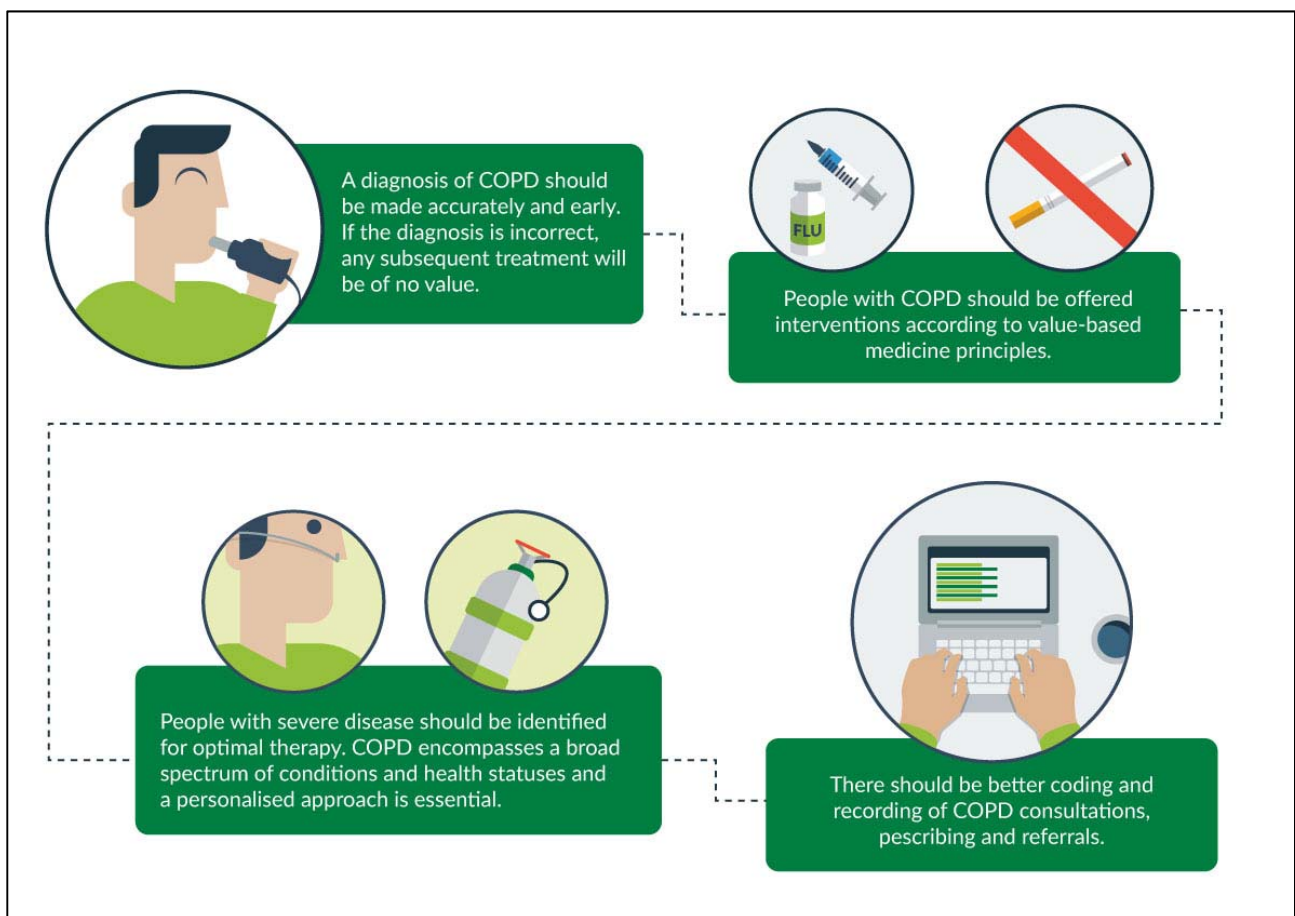
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Executive summary

This comprehensive primary care snapshot audit for Wales in 2014–15 (the first for a UK nation) reports on the clinical effectiveness of COPD care in the general practice setting. This report helps to complete a picture of COPD services in Wales by adding to the recently published national COPD reports about the quality of hospital care^{5,6} and pulmonary rehabilitation services.^{7,8} This is the first time such an audit has been attempted, so part of the process has involved gaining learning about how we can do this better in future cycles. This audit report aims to support primary care clinicians who are currently working under considerable pressure to deliver a high standard of care to people with COPD. We hope to do this by sharing good practice and providing advice on how to address apparent deficiencies in care. To that effect, the report makes the following key recommendations:



We thank the 280 practices and the 48105 people registered with COPD who have taken part in this first of three cycles of audit. In total, we reached 61% of practices in Wales and we expect to build on that in future audit cycles.

This first data extraction and analysis has highlighted areas for quality improvement, and key priorities will be discussed in this report. We have also learned more about data quality, and all organisations should reflect on how they can enable general practice to make the best use of information systems to support future quality improvement.

The results demonstrate that the computerised coding of how a COPD diagnosis is made is not consistent between practices. Consequently, coding provided confidence in diagnosis (recording of an appropriate diagnostic test code and of a result for that test that was consistent with a diagnosis of COPD) for only 14.4% of people on COPD registers. Where there is evidence that spirometry has been performed, one-quarter of the values are not consistent with COPD. We have available to us life-saving and life-enhancing

therapy for people with COPD. These treatments are well evidenced and many are highly cost-effective. The extracted electronic data show there is good provision of many aspects of evidence-based COPD care but there may also be underutilisation of established NICE-advised interventions and potential overuse of harmful or ineffective treatments.

We know from less comprehensive reports and studies from within and outside the UK that Wales is no outlier in this regard.⁹ However, this audit programme allows us to grasp the opportunity to improve the outcomes for the tens of thousands of people living with COPD in Wales.

The Wales Respiratory Health Implementation Group (RHIG) has told us that it has already recognised that there is a need to ensure accurate and timely diagnosis as well as more widespread use of the highest value COPD interventions.¹⁰ The RHIG has instituted programmes and resource for better diagnosis and effective and accessible pulmonary rehabilitation programmes. We are confident that this work will show measurable improvement during the life of this audit programme and that the feedback of data to individual practices will inform local quality improvement initiatives.

We would encourage patient groups at the cluster and practice level to work with their general practices to aid further quality improvement. Separate reports, which display these data at a practice level, are already available via the NHS Digital website. Details on how to access these are available on the National COPD Audit Programme's website.¹¹ Reports displaying these data at local health board and cluster level will be released later in the autumn of 2016. These reports will help practices and health boards to prioritise their areas for improvement.

Recommendations

A diagnosis of COPD should be made accurately and early. If the diagnosis is incorrect, any subsequent treatment will be of no value.

- a. People who have breathlessness and/or cough that does not go away or frequent 'chest infections' should have access to health professionals who have been trained to know what to do and have the resources to reach a diagnosis in a timely way. Spirometry is fundamental to a diagnosis of COPD and patients should be assured that their test has been performed and interpreted in the right way.
- b. Trained and competent health workers should offer people with a risk factor and symptoms suggestive of COPD a comprehensive and structured assessment.
- c. Clinical symptoms, risk factors and evidence of post-bronchodilator airways obstruction are all essential factors when making a diagnosis.
- d. People who are at risk of COPD are at a higher risk of lung cancer, and chest X-ray is an essential part of the breathlessness assessment and diagnosis of COPD.

People with COPD should be offered interventions according to value-based medicine principles.¹²

- a. Tobacco dependence treatment is safe, well tolerated and effective at prolonging life: it reduces flare ups and has a wider impact on health. However, it is underused. Health professionals who treat people with COPD should be trained to have the right conversation; to know how to assess dependency; and to feel confident and have the resource to treat it.
- b. Flu vaccination is effective and safe but underused in people with COPD. System leaders should identify where variation exists and ensure that people with COPD have the best information to make the right decision for them.
- c. Anyone with a Medical Research Council (MRC) breathlessness score of 3 or more should be offered and encouraged to do pulmonary rehabilitation by their primary care health professional and have timely and easy access to an appropriate provider of this evidence-based therapy.
- d. Health professionals providing inhaler therapy for COPD should have up-to-date knowledge about what devices are available and ensure that people are able to use their devices (NICE CG101, 1.2.2.11 to 1.2.2.14);³ are offered optimal bronchodilator medication (NICE CG101, 1.1.6);³ and are issued with inhaled corticosteroids (ICS) only when it is likely to be beneficial (NICE CG101, 1.2.2.2 and 1.2.2.3).³ They should ensure that safety of long-term, high-dose inhaled steroids is discussed (NICE CG101 1.1.8).³

People with severe disease (categorised according to the extent of airflow limitation)¹³ should be identified for optimal therapy. COPD encompasses a broad spectrum of conditions and health statuses and a personalised approach is essential.

- a. People having frequent exacerbations of COPD need to be identified, as they are at higher risk of an accelerated decline in their condition and may require specialist review both to manage symptoms and to slow decline. The recording of 'number of exacerbations in the last year' allows this group to be better identified by practices and prioritised.
- b. Long-term oxygen therapy is a life prolonging intervention for people with COPD who have hypoxia. When primary care health professionals detect low oxygen saturation in the primary care setting, referral to a suitable assessment and review service should be offered. Primary care should record the use of oxygen on patient notes as they would any other long-term medication, to ensure timely review for assessment of safety and effectiveness.

There should be better coding and recording of COPD consultations, prescribing and referrals.

- a. As patient access to personal health records improves and patients' involvement in their own care becomes an expected norm, there will be opportunities to support people with COPD to 'know their numbers' or, in other words, to understand why their spirometry test is consistent with COPD. They should be able to record quality of life assessments, their ability and confidence to use inhalers and their understanding of how to help themselves through access to and involvement with self-care documentation and action plans.
- b. Much of the variation seen in the data suggests variance in electronic coding. In order to link datasets across the system in the future, we ask the wider system (whether through development of the Systematised Nomenclature of Medicine coding system or other activity) to make standard recording templates available to ensure that the right things are recorded and that health professionals can spend more time with patients by avoiding the time spent on duplicate entries or manual entry. Health boards and clusters of GP surgeries should consider the use of a standardised set of codes and templates.

Introduction

The National COPD Audit Programme (commissioned by the Healthcare Quality Improvement Partnership (HQIP) on behalf of NHS England and NHS Wales as part of the National Clinical Audit Programme (NCA)) sets out a programme of work that aims to drive improvements in the quality of care and services provided for COPD patients in England and Wales. For the first time in respiratory audit, the programme is looking at COPD care across the patient pathway, both in and out of hospital, bringing together key elements from the primary, secondary and community care sectors.

The programme is led by the Royal College of Physicians (RCP), working in partnership with the British Thoracic Society (BTS), the British Lung Foundation (BLF), the Primary Care Respiratory Society UK (PCRS-UK), the Royal College of General Practitioners (RCGP) and NHS Digital.

There are four programme workstreams:

1. Primary care audit: collection of audit data from general practice patient record systems in Wales. Delivered by the RCP and NHS Digital, working with the PCRS-UK, the RCGP and the NHS Wales Informatics Service.
2. Secondary care audit: in 2014 there were snapshot audits of patients admitted to hospital with COPD exacerbation,⁵ plus organisational audits of the resourcing of COPD services in acute units.⁶ The 2014 audits were delivered by the BTS, working with the RCP. A continuous audit of admissions to hospital with COPD exacerbation will commence in 2017.
3. Pulmonary rehabilitation: audits of patients attending pulmonary rehabilitation (including outcomes at 180 days),⁸ plus organisational audits of the resourcing of pulmonary rehabilitation services for COPD patients.⁷ The 2015 round of this audit was delivered by the BTS, working with the RCP. A second round of snapshot clinical and organisational audits will commence in 2017.
4. Patient Reported Experience Measures (PREMs): 1-year development work exploring the potential/feasibility for PREMs to be incorporated into the programme in the future. Delivered by the BLF, working with Picker Institute Europe.¹⁴

Reported here are data from the 2014–15 clinical audit of COPD in primary care in Wales.

Results

Rationale, results, analysis and interpretation

This report provides results for 24 questions extracted from those practices that opted in to the clinical audit of COPD in primary care in Wales and 5 further QOF questions for all Welsh practices. This is an overall result for Wales, with health board variation highlighted. Individual reports with these measures were made available to participating practices in April 2016 and local health boards will receive a key highlights report in the autumn of 2016.

Each section is followed by a short summary of what the data suggest, key messages and areas needing improvement.

Data cleaning and reliability

Data from two sources were used for the production of the report. The first source was the published QOF for Wales, which is detailed at the following website: <http://gov.wales/statistics-and-research/general-medical-services-contract/?lang=en>.¹⁵ The second source was an extract from participating Welsh GPs. Data from each participating GP were provided to the Health and Social Care Information Centre (HSCIC – NHS Digital from 01.08.2016) in ‘comma separated value’ files (a simple format that stores tabular data in plain text) that were processed to create the report. Patients who had previously advised their GP practice that they wanted to opt out of data sharing with organisations beyond the practice and were coded as such have not been included in this audit.

The final day of the audit period was 31 March 2015 and this date was used as the audit date for analysis.

The following cleaning was undertaken on the provided files.

- *Dates*. Invalid dates were removed and replaced with a null value. For example: 32.13.2015 would be replaced with a null value.
- *Postcodes*. These were placed into an 8-character format and if no valid 8-character format was possible then the submitted value was replaced by a null value. For example XX1 would be replaced with a null value.
- *Latest forced expiratory volume in 1 second (FEV₁) / forced vital capacity (FVC) ratio after bronchodilator*. Values over 1 were divided by 100. Values under 0.2 (lowest ratio that could reasonably be expected if an adequate test has been performed) or over 1 were replaced by a null value. For example a value of 70 would be changed to 0.7 and then retained. A value of 10 would be changed to 0.1 and then replaced by a null value.
- *Events after the audit date*. The data file contained all events of the specified type regardless of the date. All events that occurred after the audit date were then removed from the database. For example, a line of data with an event date of 10.05.2015 would be removed and would not feature in the analysis.

Section 1: Demographics and patient characteristics

We were able to calculate demographics for the patients of practices that had opted in to the audit extraction.

The mean and median average age of this cohort of people with COPD was 71 years, with the youngest aged 36. An upper limit of 110 years was used, as this is the standard methodology used with other RCP audits, but this did not alter the composition significantly.

Men were represented in greater numbers in this population.

n=48105		n=47992 (removal of ages >110)	
Average age	71.4	Average age	71.3
Min age	36	Min age	36
Max age	134	Max age	110
Median age	71	Median age	71
Male	25261	Male	25188
Female	22841	Female	22801
Unknown sex (U)	3	Unknown sex (U)	3
Average male age	71.8	Average male age	71.7
Average female age	71	Average female age	70.9

Section 2: All Wales data from the QOF 2014–15

Questions 1–5 were asked because they were required through the QOF in 2014–15. QOF indicators are chosen following a robust evidence- and expert opinion-based process that takes into account clinical and cost effectiveness.

Readers from the other three countries of the UK may not recognise either the wording or the time frames that are used in Welsh QOF indicators. Each country has its own version of the QOF, so direct comparison between countries may not be possible.

Interpreting ‘exception reporting’ for QOF questions 1–5

The five QOF questions provide a result for the ‘eligible’ population and this is not always the entire COPD register. Practices can exclude a patient for an indicator either because the patient declines to take part in the test or measure, or because it would be inappropriate or not possible to include them within the time frame when that indicator should be recorded. This is an ‘exception’.

The exception rates (ie the proportion of the COPD register that was considered to be eligible or ineligible for each question) are presented beneath each relevant bar chart. Please note that the final denominator for the QOF question only includes those who were not ‘exception reported’.

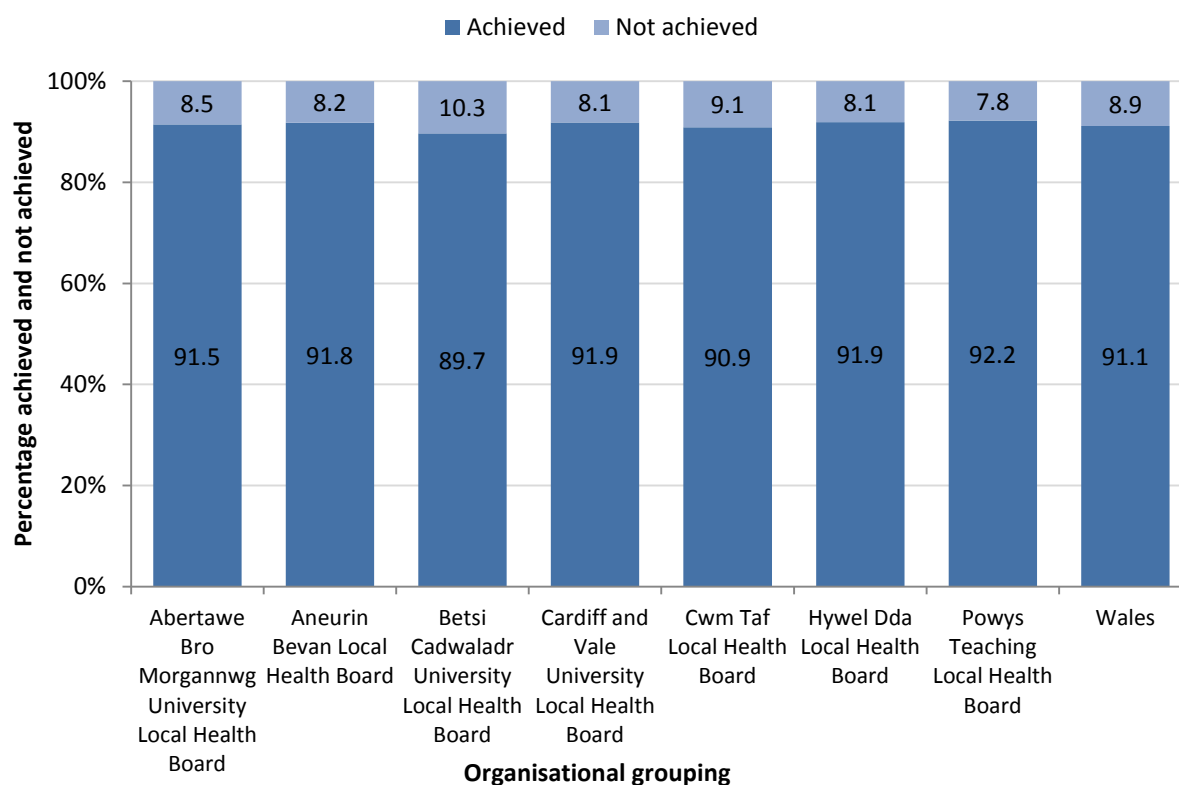
It is important to look for variation between providers in terms of how many of their patients with COPD are exception reported. Practices with higher levels of ‘exception reported’ patients need to examine whether they are providing sufficient care to the patients with the most acute COPD.

Question 1: COPD003. The percentage of eligible patients with COPD who have had a review, undertaken by a healthcare professional, including an assessment of breathlessness using the Medical Research Council (MRC) breathlessness scale in the preceding 15 months

Rationale: COPD is increasingly recognised as a treatable disease with large improvements in symptoms, health status, exacerbation rates and even mortality, if managed appropriately. Appropriate management is based on National Institute for Health and Care Excellence (NICE) Clinical Guideline 101 (CG101).³ In making assessments of the patient’s condition as part of an annual review and when considering management changes, it is essential that healthcare professionals are aware of a number of factors, including:

- MRC breathlessness scale
- degree of airways obstruction
- smoking status
- number of exacerbations in the last year.

Question 1: COPD003. The percentage of patients with COPD who have had a review, undertaken by a healthcare professional, including an assessment of breathlessness using the Medical Research Council dyspnoea scale in the preceding 15 months



Exception rate for question 1

Organisational grouping	Included	Excluded
Abertawe Bro Morgannwg University Local Health Board	84.2%	15.8%
Aneurin Bevan Local Health Board	86.7%	13.3%
Betsi Cadwaladr University Local Health Board	86.0%	14.0%
Cardiff and Vale University Local Health Board	85.7%	14.3%
Cwm Taf Local Health Board	82.4%	17.6%
Hywel Dda Local Health Board	79.9%	20.1%
Powys Teaching Local Health Board	84.6%	15.4%
Wales	84.6%	15.4%

KEY FINDINGS

- Overall, 91.1% of people who are not exception reported on COPD registers in Wales have an annual review that includes assessment of breathlessness.
- In total, 15.4% of people on COPD registers are exception reported, which can mean that some or all of the review could not be completed either due to patient choice or inappropriateness of the item(s) in the review.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Individual practices and system leaders should review the reasons why some of their registered COPD population are not getting some or all aspects of an annual review and whether this is having an impact on outcomes.

QUALITY IMPROVEMENT

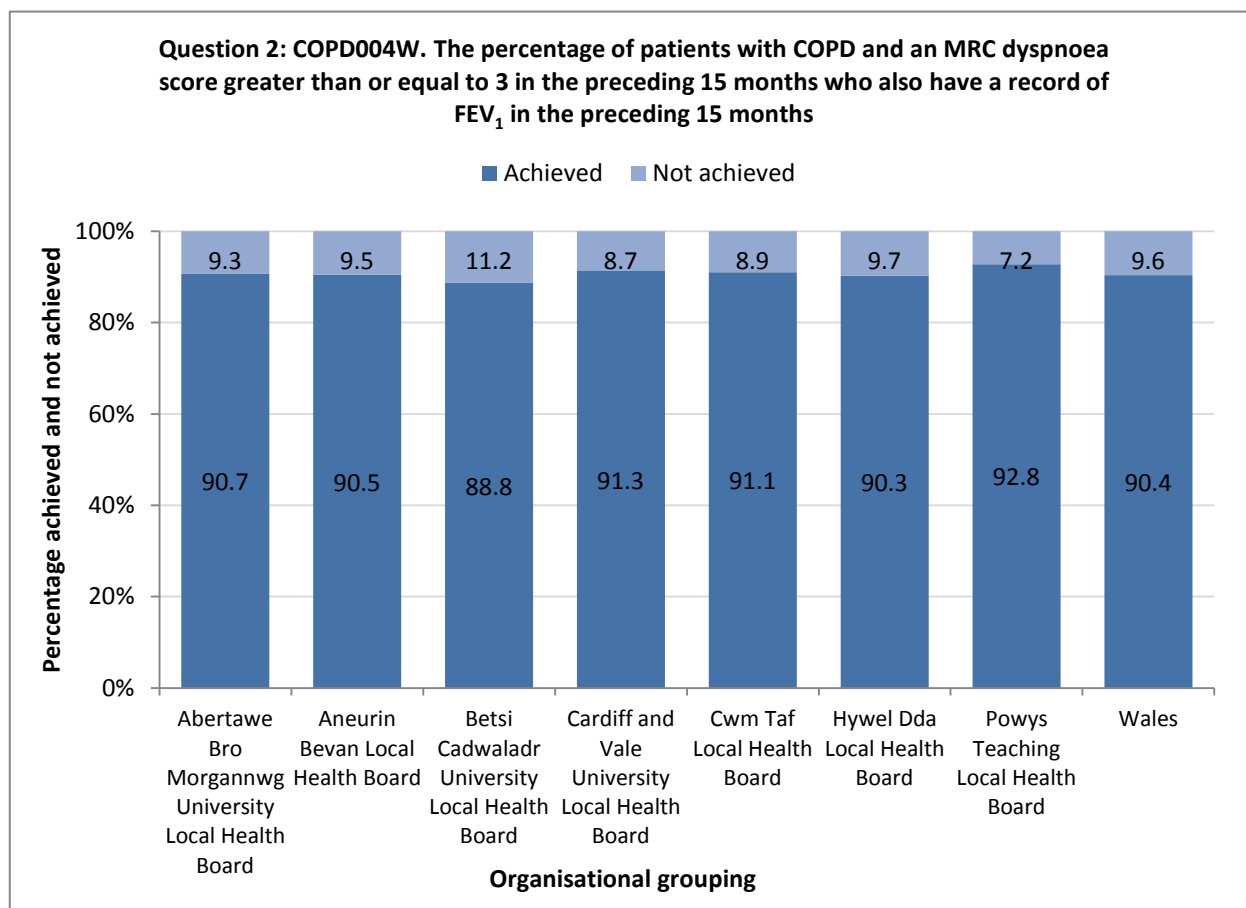
- Practices should look at the systems used to ensure attendance at annual reviews, especially when monitoring repeat prescriptions. They should also think about the people the practice is perhaps not seeing, for example people with serious mental illness, the housebound and homeless people, who may need additional co-working to ensure review.
- If this is a cluster or health board wide problem, does the whole system need to consider whether a service review is required to reach those who are not being seen? Is there a template to ensure that everyone records COPD care in the same way?
- Where it appears that there is variation between practices, could additional measures or resource be used or allocated in those practices where review numbers are lower to improve attendance? For example, could administrative measures such as use of reminder letters, texts and telephone calls the day before patients' appointments or the provision of home visits be used to affect change?
- People with COPD should be asked about their breathlessness using the MRC breathlessness scale because those with higher scores have more serious disease and, consequently, need more intensive monitoring and therapies (eg pulmonary rehabilitation).
- Breathlessness is a cardinal symptom of COPD, but people with COPD are at higher risk of developing other long-term conditions that also cause breathlessness, such as heart failure, anxiety and cancer. Practices should consider implementing a structured annual breathlessness assessment to ensure that other causes of breathlessness are being considered at annual review.
- Overall, 80% of people with COPD have another long-term condition.¹⁶ Therefore, those who are not getting reviewed may also be failing to get optimal care for their other conditions. For those with multi-morbidity, could resource be re-allocated and used to help them receive a multi-approach review from a long-term condition health professional?
- Practices should help people with COPD to engage with them better by providing them with the BLF's COPD patient passport: <http://passport.blf.org.uk/>.

RESOURCES

- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD
- British Lung Foundation. COPD patient passport. <http://passport.blf.org.uk/> [Accessed September 2016]

Question 2: COPD004W. The percentage of eligible patients with COPD and an MRC breathlessness score greater than or equal to 3 in the preceding 15 months who also have a record of FEV₁ in the preceding 15 months

Rationale: An MRC breathlessness score of 3 or more represents significant functional impairment,¹⁷ and patients with these scores should be receiving the key components of a review as described in question 1. They should be receiving pulmonary rehabilitation as soon as possible. They may also require additional pharmacological interventions and oxygen therapy, so a more targeted and intensive review may be required. People with more severe COPD who still smoke are likely to have greater addiction and a higher chance of relapse, and may need intensive behavioural and pharmacological support.



Exception rate for question 2		
Organisational grouping	Included	Excluded
Abertawe Bro Morgannwg University Local Health Board	94.3%	5.7%
Aneurin Bevan Local Health Board	95.1%	4.9%
Betsi Cadwaladr University Local Health Board	92.8%	7.2%
Cardiff and Vale University Local Health Board	94.8%	5.2%
Cwm Taf Local Health Board	92.4%	7.6%
Hywel Dda Local Health Board	89.1%	10.9%
Powys Teaching Local Health Board	97.3%	2.7%
Wales	93.5%	6.5%

KEY FINDINGS

- In total, 90.4% of eligible people on the COPD register with more serious breathlessness received an assessment of airflow obstruction.
- Overall, 6.5% were exception reported for this indicator.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- System leaders should review whether there is variation in access to annual spirometry measures between local health boards and within clusters.
- The predicted FEV₁ percentage score is used to stratify patient groups for decisions on therapy and determining prognostic scores, so it is considered to be an important part of the assessment and should be done annually.

QUALITY IMPROVEMENT

- Where variation exists, are spirometer readings being correctly translated to the right code?
- Does the provider have a trained person to i) do the test and ii) interpret the test and code

correctly?

- The primary care audit group supports using time with patients wisely in primary care to do the right things. Full diagnostic spirometry is not required annually once diagnosis is accurately confirmed unless the health professional thinks an additional cause of breathlessness is present and reassessment is required. An FEV₁ (in order to note change and the predicted FEV₁ percentage score) can be performed on cheaper and more portable equipment such as micro spirometers and this takes less time than full spirometry. Micro spirometers can be used in patients' homes and are helpful tools for primary care health professionals to be familiar with as part of their initial assessment of breathlessness and cough. People with considerably reduced lung volumes may need full spirometry or assessment in a lung function unit.

RESOURCES

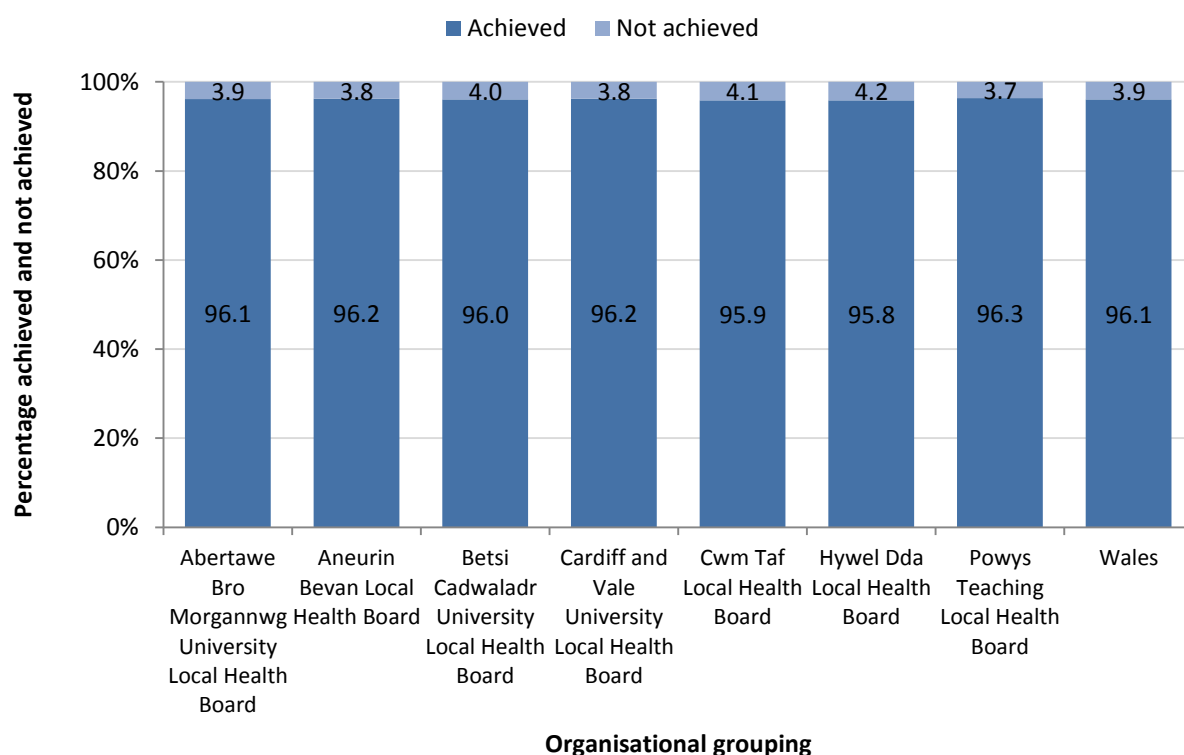
- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD
- IMPRESS. Breathlessness algorithm. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=101&Itemid=69 [Accessed September 2016]

Question 3: COPD005. The percentage of eligible patients with COPD and an MRC breathlessness score of ≥ 3 at any time in the preceding 15 months, with a record of oxygen saturation value within the preceding 15 months

Rationale: People with COPD who potentially require long-term oxygen therapy are assessed in accordance with NICE guidance by a specialist oxygen service.² NICE recommends that pulse oximetry should be performed in people with the following risks for hypoxia requiring oxygen therapy:

- people with very severe airflow obstruction (FEV₁ <30% predicted): it should also be considered in patients with predicted FEV₁ of 30–49%
- people with cyanosis
- people with polycythaemia
- people with peripheral oedema
- people with a raised jugular venous pressure.

Question 3: COPD005. The percentage of patients with COPD and Medical Research Council dyspnoea grade ≥ 3 at any time in the preceding 15 months, with a record of oxygen saturation value within the preceding 15 months



Exception rate for question 3

Organisational grouping	Included	Excluded
Abertawe Bro Morgannwg University Local Health Board	98.1%	1.9%
Aneurin Bevan Local Health Board	98.0%	2.0%
Betsi Cadwaladr University Local Health Board	97.3%	2.7%
Cardiff and Vale University Local Health Board	97.0%	3.0%
Cwm Taf Local Health Board	96.2%	3.8%
Hywel Dda Local Health Board	94.7%	5.3%
Powys Teaching Local Health Board	98.0%	2.0%
Wales	97.2%	2.8%

KEY FINDINGS

- Overall, 96.1% of eligible people on the COPD register with more serious breathlessness received an assessment of oxygen saturation.
- Exception reporting was only 2.8% for this indicator.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Breathless people with COPD are now having pulse oximetry performed almost universally.

QUALITY IMPROVEMENT

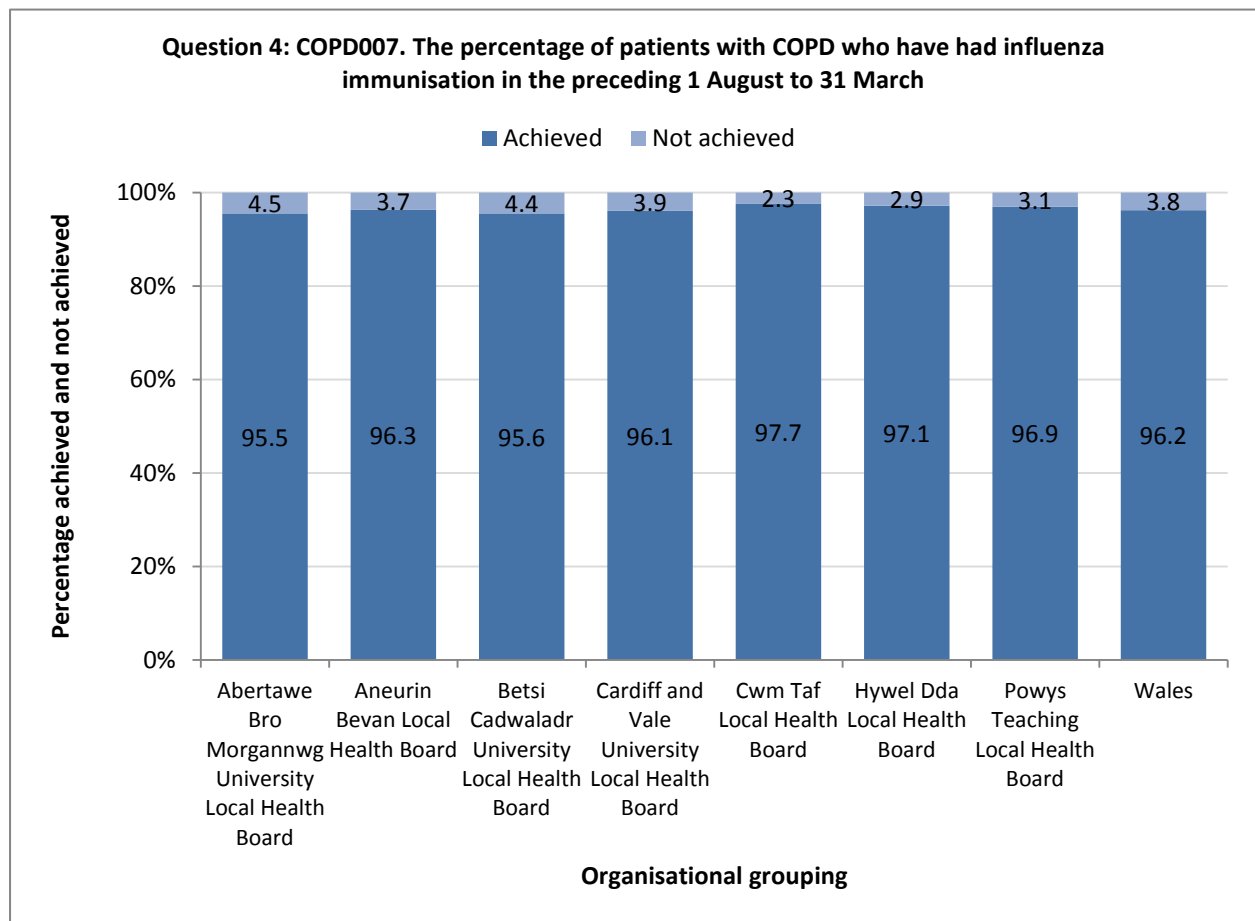
- Where variation exists, are pulse oximetry readings being correctly translated to the right code?
- Do all health professionals have a pulse oximeter and do they feel confident using it?
- Long-term oxygen therapy is life prolonging and improving for people with COPD who have chronic hypoxia. Are patients identified as having long-term hypoxia when stable (persistent SpO₂ <92%) being referred for assessment by a specialist oxygen team?

RESOURCES

- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD
- IMPRESS. Breathlessness algorithm. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=101&Itemid=69 [Accessed September 2016]
- Primary Care Respiratory Society UK. Wall chart on home oxygen prescribing. Sutton Coldfield: PCRS-UK, 2016. www.pcrs-uk.org/wall-chart-home-oxygen-prescribing
- British Lung Foundation. *Oxygen therapy*. Patient guide. London: BLF, 2015. <http://shop.blf.org.uk/collections/lung-healthinformation/products/oxygen-booklet>

Question 4: COPD007. The percentage of eligible patients with COPD who have had influenza immunisation in the preceding 1 August to 31 March

Rationale: People with chronic respiratory illness who are infected with the influenza virus have more serious illness and are at higher risk of mortality. The influenza vaccine has variable effectiveness, according to the season and the patient’s current health status when the vaccine is given. The vaccine is safe and is the highest value intervention for the treatment of COPD, but it is used less than some other COPD interventions that have less value.^{18,19,20}



Exception rate for question 4		
Organisational grouping	Included	Excluded
Abertawe Bro Morgannwg University Local Health Board	77.1%	22.9%
Aneurin Bevan Local Health Board	81.8%	18.2%
Betsi Cadwaladr University Local Health Board	83.6%	16.4%
Cardiff and Vale University Local Health Board	82.1%	17.9%
Cwm Taf Local Health Board	79.1%	20.9%
Hywel Dda Local Health Board	78.3%	21.7%
Powys Teaching Local Health Board	81.6%	18.4%
Wales	80.8%	19.2%

KEY FINDINGS

- Approximately one in five people on the COPD register were not recorded as having had the influenza vaccine in 2014–15.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Influenza vaccine is a high-value intervention for COPD but it is currently underutilised according to extracted data. It is part of the core treatment of COPD.

QUALITY IMPROVEMENT

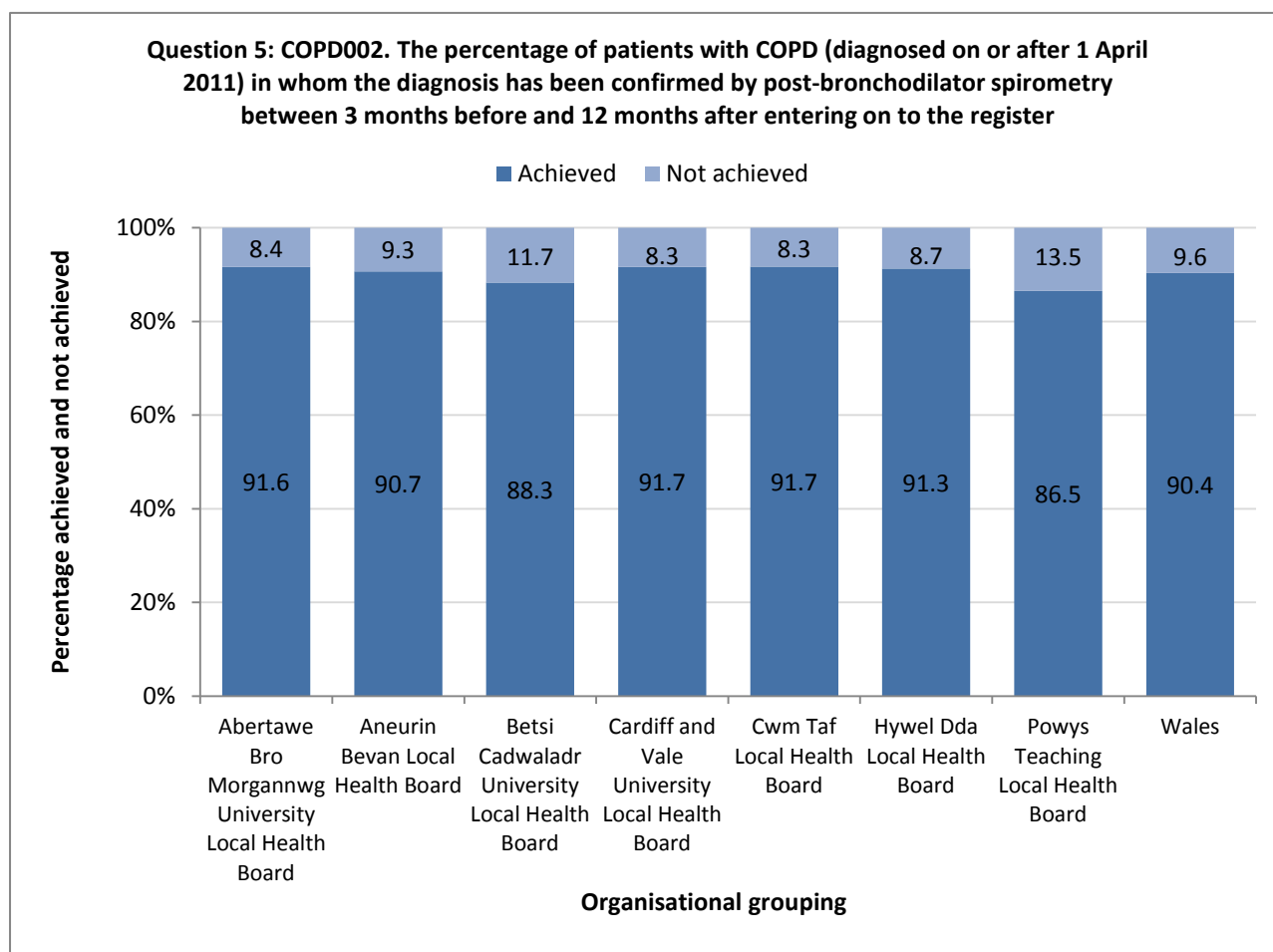
- Do systems support primary care recording of influenza vaccine where it has happened elsewhere, for example at a pharmacy?
- Where variation exists between clusters or health boards, is there a difference in implementation of the national influenza campaign?
- Do health professionals show leadership in relation to the influenza vaccine by having it themselves?

RESOURCES

- IMPRESS. *IMPRESS guide to the relative value of COPD interventions*. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=52&Itemid=89 [Accessed September 2016]
- NHS Employers. National Wales influenza campaign. www.nhsemployers.org/campaigns/flu-fighter/flu-fighter-cymru [Accessed September 2016]
- Hopkinson N, Williams S. *Flu vaccination protects you, your family and your patients – still time to make a difference*. Influenza vaccine for health professionals: information sheet. London: London Respiratory Network, 2015. www.networks.nhs.uk/nhs-networks/london-lungs/documents/flu-vaccination-protects-you-your-family-and-your-patients-still-time-to-make-a-difference/file_popview

Question 5: COPD002. The percentage of eligible patients with COPD (diagnosed on or after 1 April 2011) in whom the diagnosis has been confirmed by post-bronchodilator spirometry between 3 months before and 12 months after being entered on to the register

Rationale: People with COPD have one or more indicative symptoms recorded and have the diagnosis confirmed by post-bronchodilator spirometry carried out on calibrated equipment by healthcare professionals who are competent in its performance and interpretation (NICE QS10: www.nice.org.uk/guidance/QS10/chapter/Quality-statement-1-Diagnosis).²



Exception rate for question 5		
Organisational grouping	Included	Excluded
Abertawe Bro Morgannwg University Local Health Board	89.7%	10.3%
Aneurin Bevan Local Health Board	88.6%	11.4%
Betsi Cadwaladr University Local Health Board	87.7%	12.3%
Cardiff and Vale University Local Health Board	89.2%	10.8%
Cwm Taf Local Health Board	87.8%	12.2%
Hywel Dda Local Health Board	87.2%	12.8%
Powys Teaching Local Health Board	90.5%	9.5%
Wales	88.5%	11.5%

KEY FINDINGS

- Overall, 90.4% of eligible people on COPD registers have a code entered to record spirometric confirmation of diagnosis.
- In total, 11.5% were exception reported for this indicator.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- System leaders should look for variation between practices and clusters to see what factors prevent people from receiving a diagnosis supported by spirometry. Where this cannot be done sufficiently to confirm the diagnosis, has an alternative test been used?
- Practices should review their registers and consider whether they have sufficient evidence to have added a patient to the COPD register.

QUALITY IMPROVEMENT

- It is well understood that not all patients can perform the spirometry tests. In addition, they may have equivocal results that need further confirmation through computerised tomography (CT) scan or gas exchange tests in a lung physiology unit. A 100% result was not expected for this indicator but patients and commissioners should feel confident that they have had a recognised diagnostic test completed by a trained and competent individual who can then make a decision based on the clinical history and result.
- The primary care audit group would ask that providers and commissioners aspire to ensure that all patients who have COPD can 'know their number' if they want to, in other words, the number that tells them they have COPD (FEV₁/VC or FVC ratio) and the degree of their airways obstruction (predicted FEV₁ percentage score).

RESOURCES

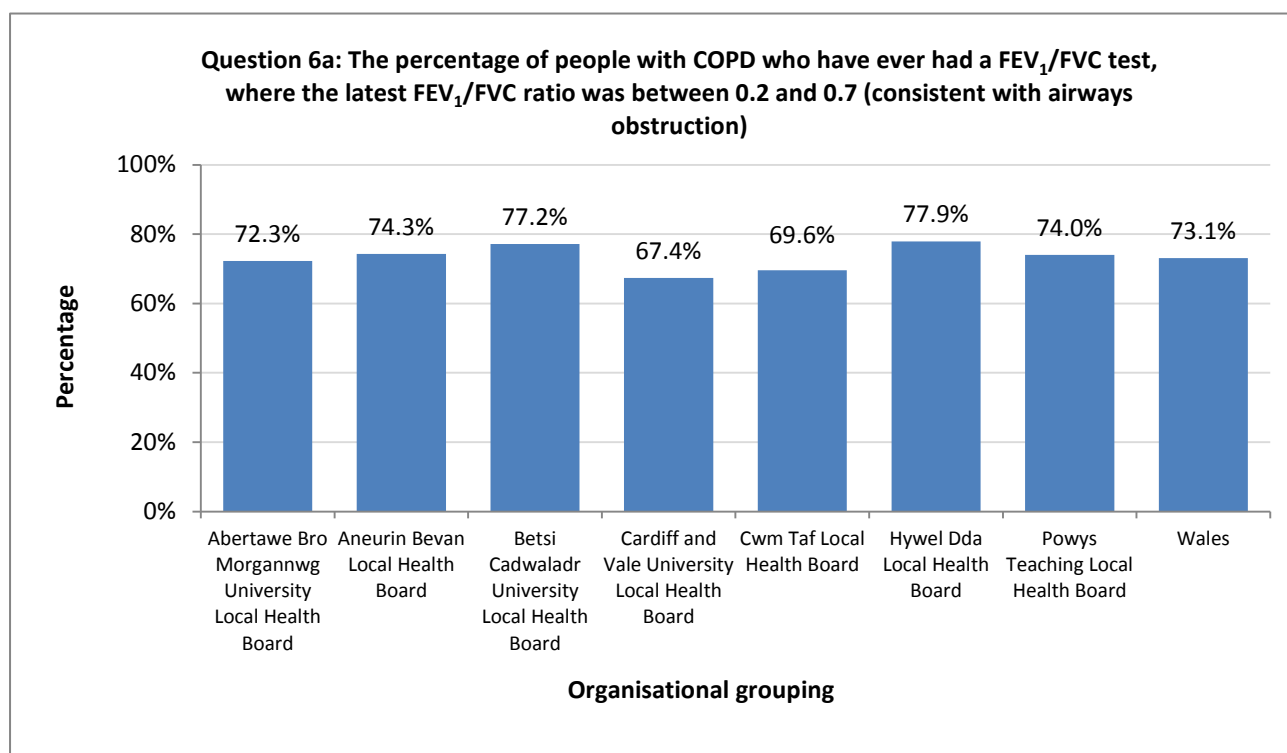
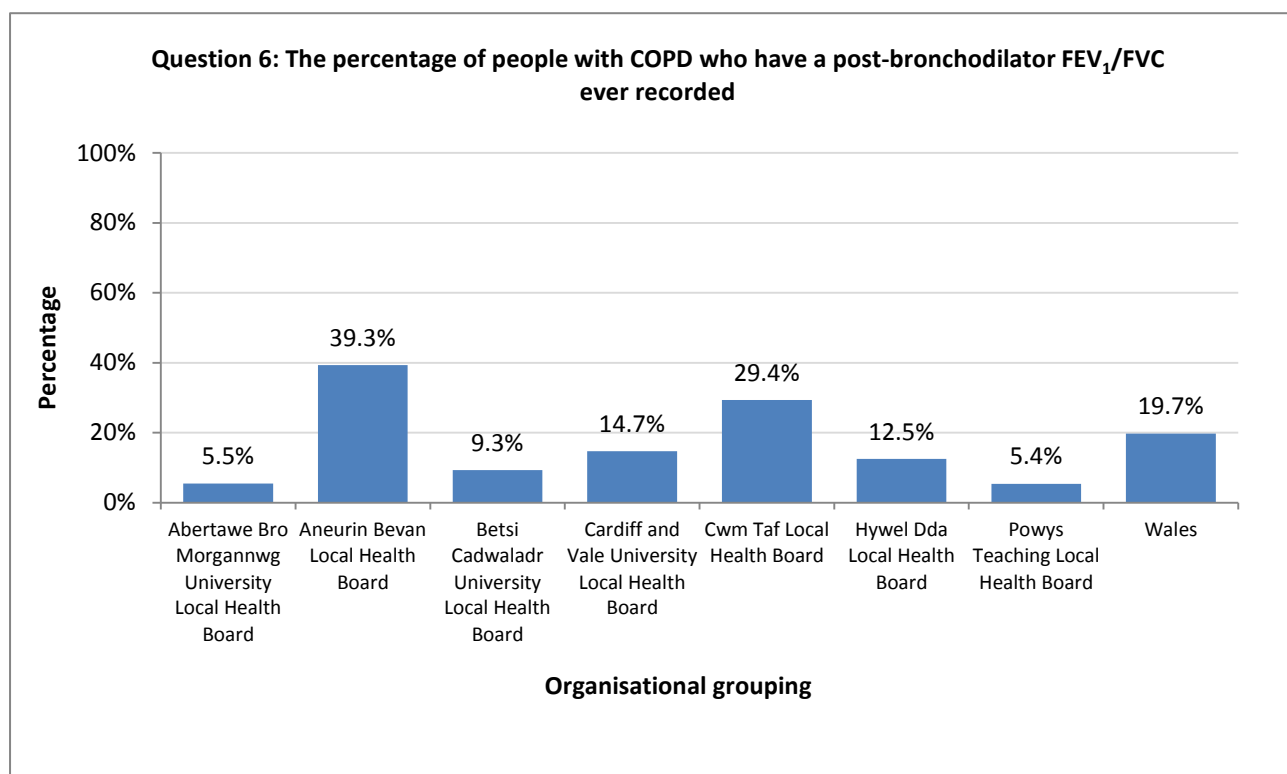
- Primary Care Commissioning. *A guide to performing quality assured diagnostic spirometry*. Leeds: PCC, 2013. www.pcc-cic.org.uk/article/guide-quality-assured-diagnostic-spirometry
- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD

Section 3: Additional data extracted from opted-in general practice records

Question 6: The percentage of people with COPD who have a post-bronchodilator FEV₁/FVC ever recorded

Question 6a: The percentage of people with COPD who have ever had a FEV₁/FVC test, where the latest FEV₁/FVC ratio was between 0.2 and 0.7 (consistent with airways obstruction)

Rationale: A post-bronchodilator FEV₁/VC or FVC <0.7 is required to make a diagnosis of COPD, according to NICE COPD QS10 (quality statement 1).²



KEY FINDINGS

- In total, 19.7% of people on the COPD register in Wales have an electronic record of the post-bronchodilator FEV₁/FVC ratio (Read code 339m). Therefore, four out of five people do not have an appropriate record of the principle diagnostic test for COPD.
- Where people on the COPD register did have a record of having had this test, 26.9% had a value that was not consistent with COPD.
- There is variation between health boards both for the presence of the diagnostic code and the accuracy of the diagnosis based on the value within this code.
- These extracted data are at odds with those collected for QOF COPD002:

The percentage of patients with COPD (diagnosed on or after 1 April 2011) in whom the diagnosis has been confirmed by post-bronchodilator spirometry between 3 months before and 12 months after entering on to the register.

For this QOF indicator, practices recorded confidence in diagnosis in over 90% of cases using a non-numeric code. However, when the extracted numeric code data are searched for, they are present and consistent with airways obstruction in only 14.4% of diagnoses (19.7% of people on the register have a code for post-bronchodilator FEV₁/FVC ratio and 73.1% of these people have a result consistent with a diagnosis of COPD (>0.2 and <0.7)).

- In order to further understand the figures presented above, analyses of an additional 10 Read codes (339: M, O1, 9, j, k, l, R, T, U, r), which capture spirometric ratios using both FVC and VC as denominators, as well as tests conducted pre- and post-bronchodilator (and non-specified), were conducted. These additional codes are not able to provide assurance of diagnostic accuracy; however, they can provide an indication of the degree of coding error versus diagnostic error or inaccuracy. The analysis of these additional codes showed that 58% (68% of 85%) of people on COPD registers have a ratio code and a value consistent with airways obstruction ever recorded. This is a considerably more reassuring result than the 14.4% outlined above (which was computed using the most appropriate and accurate Read code). However, these analyses still show that 32% of those who have a spirometry code do not have a value consistent with airways obstruction and that 15% have been given a diagnosis of COPD despite no ratio ever having been recorded.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- As a matter of urgency, system leaders and practices should review people on existing COPD registers to check and ensure the correct recording of spirometry using agreed Read or SNOMED codes.
- Where accuracy is a concern, a re-evaluation of cause of breathlessness or other respiratory system will be required. People without an FEV₁/(F)VVC ratio of <0.7 cannot have a conclusive diagnosis of COPD without further testing and assessment. Consequently, at best 42% of the COPD registered population (using the figures obtained from the re-analysis of multiple potentially used Read codes) and at worst 85.6% (using the figures obtained from analysis of the most appropriate Read code 339m) will require diagnostic re-evaluation to confirm COPD.

QUALITY IMPROVEMENT

- Practices and leaders in the system should ensure that those making a diagnosis of COPD are trained and competent to perform this task.
- We recommend an 'All Wales' template for spirometry data entry with agreed codes so that localities and regions are accurately recording what they are measuring, in order to attend to any unwarranted variation. Furthermore, a template front page entirely devoted to diagnosis may enhance accuracy.
- If the spirometry does not confirm COPD, the cause of the patient's breathlessness should be reassessed using a recognised structured assessment. If COPD remains the most likely diagnosis after assessment, the patient should be referred for gas transfer analysis at a lung function unit or for CT confirmation of emphysema. It is not possible to diagnose COPD with a chest X-ray – it

can show hyperinflation but this does not confirm a COPD diagnosis.

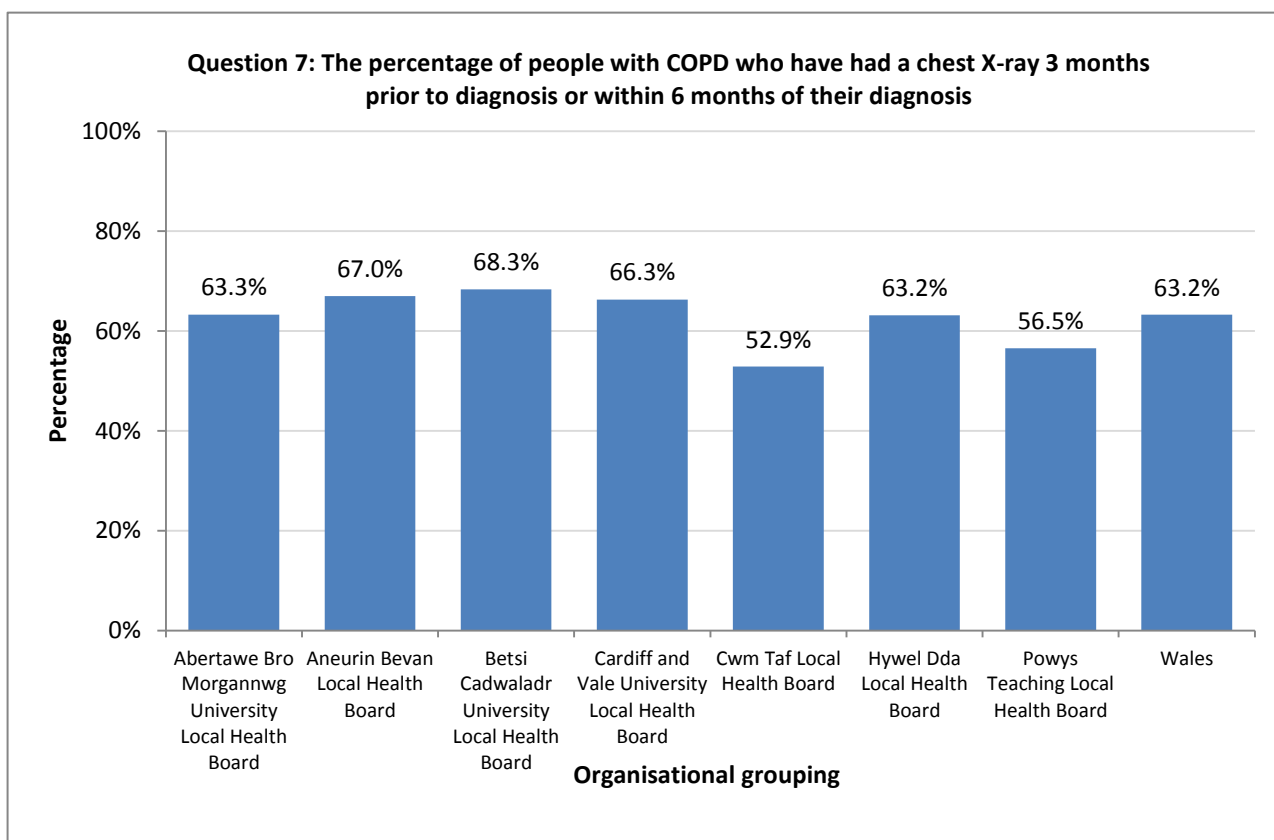
- Practices and lung physiologists may have correctly decided to use the relaxed VC to confirm the ratio. Future cycles of audit will ensure that where VC has been selected as the denominator it will be included in the final result, as long as a post-bronchodilator code is also recorded.
- The Wales Respiratory Health Implementation Group (RHIG) is currently planning to train all primary care nurses to deliver spirometry up to Association for Respiratory Technology and Physiology (ARTP) standards.¹⁰ All practices now have a spirometer linked to desktop software that can be uploaded onto the Welsh clinical information portal.

RESOURCES

- Primary Care Commissioning. *A guide to performing quality assured diagnostic spirometry*. Leeds: PCC, 2013. www.pcc-cic.org.uk/article/guide-quality-assured-diagnostic-spirometry
- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD
- IMPRESS. *Acute breathlessness assessment*. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=101&Itemid=69 [Accessed September 2016]

Question 7: The percentage of people with COPD who have had a chest X-ray 3 months prior to diagnosis or within 6 months of their diagnosis

Rationale: NICE CG101³ recommends that at the time of their initial diagnostic evaluation, in addition to spirometry, all people with COPD should have a chest X-ray to exclude other pathologies.



KEY FINDINGS

- Overall, 63.2% of people on COPD registers in Wales have a record of chest X-ray around the time of diagnosis.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Chest X-ray at diagnosis of COPD is an essential rather than optional test. Improved manual entry or automated coding of chest X-ray would allow practices and those responsible for population healthcare to have a clearer picture about the appropriate and necessary use of investigations in people with suspected COPD. Reasons for the highest and lowest recording of chest X-ray between local health boards and practices should be explored.

QUALITY IMPROVEMENT

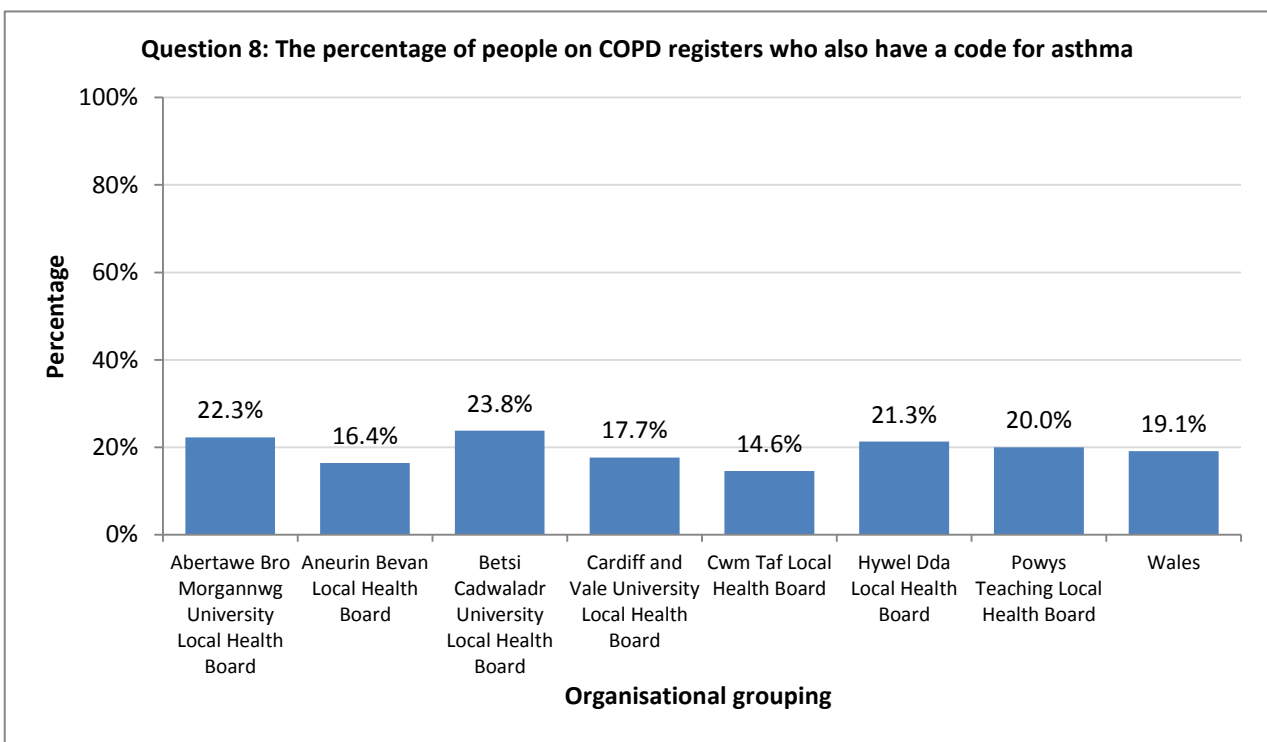
- NICE recommends a chest X-ray at diagnosis of COPD, to exclude comorbidities including lung cancer, which is more common in people with COPD.³
- Decision support tools that link with primary care IT systems could ensure that all elements of a suspected COPD assessment are considered and (if ordered or tested) are automatically coded within notes, so that their presence or absence is visible to patients and their healthcare professionals.

RESOURCES

- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/QGCOPD
- IMPRESS. *Acute breathlessness assessment*. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=101&Itemid=69 [Accessed September 2016]

Question 8: The percentage of people on COPD registers who also have a code for asthma

Rationale: People who have both asthma and COPD require different treatment from those who have COPD alone. Inhaled steroids are usually indicated in all patients who have true asthma and COPD overlap.



KEY FINDINGS

- Overall, 19.1% of people on COPD registers in Wales also have a code for asthma.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- There is variation between providers for dual diagnosis that may be unwarranted and needs review. This may need to happen at health board level too.

QUALITY IMPROVEMENT

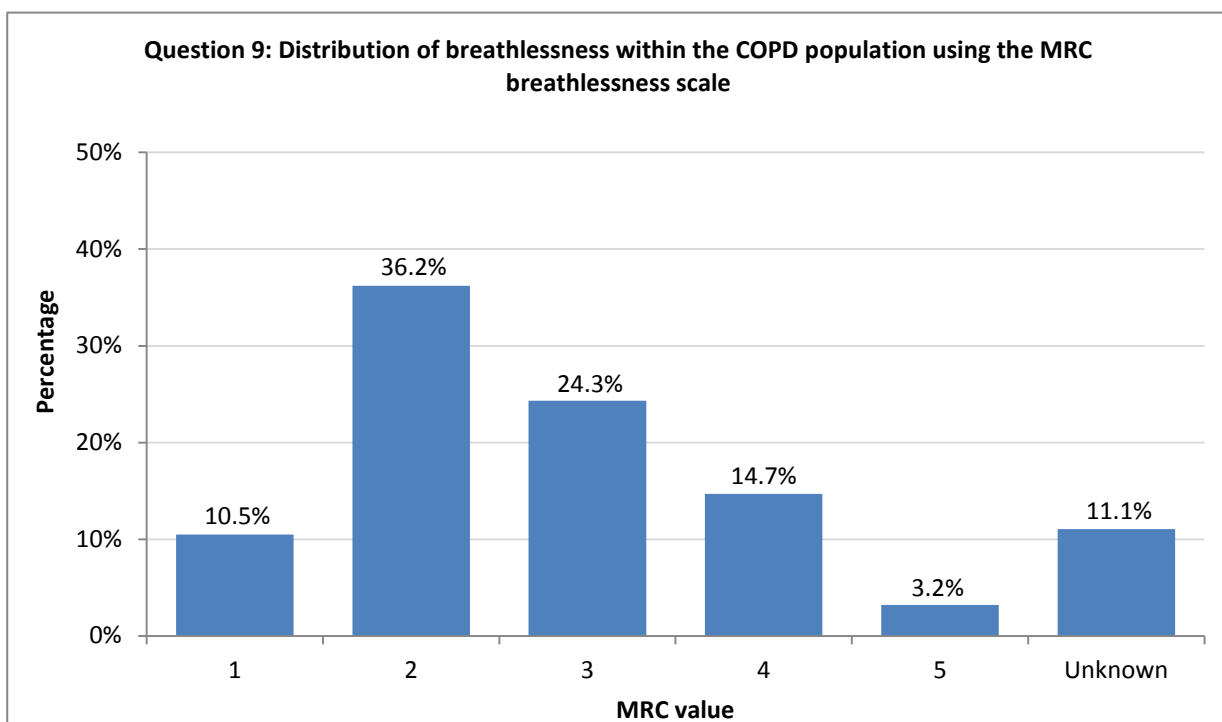
- Patients with a dual diagnosis of COPD and asthma should be reviewed against a recognised guideline (see below) to ensure that the coding is consistent with the diagnostic criteria for asthma and COPD.
- People with dual diagnosis that is reversed after review or confirmed should be reviewed to ensure that they are on the correct drug regimen. People with asthma should not be on a bronchodilator alone and if they have proven asthma and require inhaled steroids as part of their therapy, the dose should be prescribed according to asthma guidelines.
- Note: there is usually little additional benefit of inhaled steroids in asthma above 800 mcg beclometasone dipropionate (BDP) equivalent daily. Licensed COPD doses of steroids often exceed this and may need adjusting if the patient has asthma with mild or moderate COPD.

RESOURCES

- British Thoracic Society, Scottish Intercollegiate Guidelines Network. *British guideline on the management of asthma: A national clinical guideline*. Edinburgh: BTS/SIGN, 2014. www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline
- Primary Care Respiratory Society UK. *Diagnosis and management of COPD in primary care: A guide for those working in primary care*. Sutton Coldfield: PCRS-UK, 2014. www.pcrs-uk.org/resource/Guidelines-and-guidance/AQG

Question 9: Distribution of breathlessness within the COPD population using the MRC breathlessness scale

Rationale: Included to understand the severity of disease in the population.



KEY FINDINGS

- Overall, 11.1% of people on COPD registers in Wales do not have a breathlessness score recorded.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- MRC breathlessness scores are essential to plan care and they need to be recorded regularly to detect a change that could signal an additional cause of breathlessness.¹⁷

QUALITY IMPROVEMENT

- Review how MRC breathlessness scores are recorded. Can scores of function in relation to breathlessness be completed by patients prior to their review, to save time and encourage engagement and self-care?

Question 10: The DOSE²¹ score: breathlessness (dyspnoea), obstruction, smoking and exacerbations

Rationale: Severe breathlessness and airways obstruction, tobacco smoking and frequent exacerbations predict worse outcomes and are associated with more rapid lung decline. Recording the parameters for this score *each year* is essential in order to target individual care plans of people with COPD.²¹

	Abertawe Bro Morgannwg University Local Health Board	Aneurin Bevan Local Health Board	Betsi Cadwaladr University Local Health Board	Cardiff and Vale University Local Health Board	Cwm Taf Local Health Board	Hywel Dda Local Health Board	Powys Teaching Local Health Board	Wales
Question 10a: Breathlessness (dyspnoea) – the percentage of people with an MRC scale of 1–5 <i>within the last year</i>	55.5%	61.7%	61.6%	56.8%	59.1%	55.5%	57.3%	58.2%
Question 10b: Obstruction – the percentage of people with COPD with <i>any</i> spirometry test code <i>within the last year</i>	47.5%	55.6%	45.3%	51.3%	51.5%	45.3%	55.9%	50.1%
Question 10c: Smoking – the percentage of people with COPD with a smoking status recorded <i>within the last year</i>	69.4%	77.3%	70.6%	65.6%	75.0%	68.0%	73.2%	71.7%
Question 10d: Exacerbations – the percentage of people with COPD with at least one exacerbation recorded <i>within the last year</i>	9.1%	13.0%	11.6%	11.3%	13.5%	6.9%	10.5%	10.8%

KEY FINDINGS

- The vast majority of people on COPD registers in Wales have insufficient measures coded in the last year in order to calculate a DOSE²¹ score and target appropriate therapy and case management.
- The MRC breathlessness score results are at odds with the QOF declarations for annual review where MRC breathlessness score should be recorded: 91.1% (QOF COPD003) versus 58.2% from extracted data.
- The airways obstruction score results show that 50.1% of COPD patients have had a spirometry result coded in the last year.
- In total, 71.7% of people with COPD were asked about their smoking status and had it

recorded in the last year.

- In total, 10.8% of people had at least one COPD exacerbation coded in the last year. The ‘total number of exacerbations in the last year’ (Read code 66yf) could not be calculated for technical data extraction reasons.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Calculations of accurate DOSE scores (coding of breathlessness severity, airways obstruction and current tobacco use) needs to improve so that healthcare professionals can be alerted to patients with greater need and the system can ensure adequate resource according to the burden of severity of COPD at a population level.
- The number of exacerbations per year is critical to calculating the DOSE score, but also to identifying people at higher risk. In the next cycle of audit the methodology will need to improve to more accurately and comprehensively capture the burden of COPD exacerbations in the population. Routine use of the 66yf Read code at annual review would assist understanding of this.

QUALITY IMPROVEMENT

- NICE recommends the use of the DOSE²¹ index multi-component assessment and recording of those items that allow calculation of the score, to allow case management of those with higher scores.
- Annual review templates should encourage all four parameters to be recorded and, ideally, automatically calculate the DOSE²¹ score once these have been entered. This would add value for individual clinicians and patients in consultations and also for health planners and commissioners at the population level. Templates can also be used to ensure individualised treatments, for example to help clinicians to identify when prescriptions of steroids and antibiotics suggest more severe disease.

RESOURCE

- Jones R, Donaldson G, Chavannes N *et al.* Derivation and validation of a composite index of severity in chronic obstructive pulmonary disease: The DOSE Index. *Am J Respir Crit Care Med* 2009;180:1189–1195. www.atsjournals.org/doi/abs/10.1164/rccm.200902-0271OC#.Vrm1XkpFDGg

Questions 11–16: Assessment and treatment of tobacco dependency

Rationale: Tobacco smoking is the cause of COPD in the vast majority of people.²² Stopping smoking reduces the rate of decline of lung function and reduces exacerbations. Other treatments for COPD work better if tobacco use has ceased. Treatment of tobacco dependency as part of a COPD management plan is recommended in NICE guideline CG101,³ and details of what constitutes an evidence-based approach are contained in NICE guidelines PH45 and PH10.^{23,24}

	Abertawe Bro Morgannwg University Local Health Board	Aneurin Bevan Local Health Board	Betsi Cadwaladr University Local Health Board	Cardiff and Vale University Local Health Board	Cwm Taf Local Health Board	Hywel Dda Local Health Board	Powys Teaching Local Health Board	Wales
Question 11: People with COPD where <i>last smoking code</i> indicated current tobacco smoking	35.0%	34.5%	33.5%	34.7%	32.6%	30.4%	28.4%	33.5%
Question 12: People with COPD where last smoking code indicated current tobacco smoking and <i>in the last year</i> a code was used that suggests the person has been asked and advised about smoking cessation	74.4%	81.2%	81.8%	69.8%	83.5%	73.7%	83.6%	77.6%
Question 13: People with COPD where last smoking code indicated current tobacco smoking and <i>in the last year</i> a code was used that suggests the person has been referred for smoking cessation	71.3%	78.2%	76.5%	66.9%	81.6%	69.0%	81.7%	74.3%
Question 14: People with COPD where last smoking code indicated current tobacco smoking and <i>in the last year</i> a code (prescription code or quit smoking pharmacotherapy code) was used that suggests the person received pharmacology for tobacco dependency	6.7%	13.6%	14.8%	13.4%	10.1%	9.7%	12.6%	10.8%
Question 15: People with COPD where last smoking code indicated current tobacco smoking who declined treatment for tobacco dependency <i>in the last year</i>	5.8%	5.8%	13.9%	6.1%	6.9%	15.2%	19.5%	8.2%
Question 16: People with COPD where the last smoking status code was recorded <i>within the last year</i>	69.4%	77.3%	70.6%	65.6%	75.0%	68.0%	73.2%	71.7%

KEY FINDINGS

- In total, 71.7% of people on COPD registers in Wales were asked about their smoked tobacco use in 2014–15.
- Where the latest tobacco use code is 'current smoker', there is evidence that in most cases there was some discussion or action (77.6%) and in 74.3% a referral was made.
- Overall, 33.5% of people with COPD are currently smokers, based on the latest collected data.
- In total, 10.8% of people who are recorded as being current smokers had received a stop smoking drug in 2014–15.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Tobacco dependency is a relapsing long-term condition, and NICE CG101³ advises that a review should happen every year. Not all patients' smoking status was recorded in the last year.
- NICE recommends pharmacotherapy and behavioural support to help people quit smoking. A high proportion of smokers have been referred for pharmacotherapy and behavioural support, but only a small proportion receive a stop smoking prescription and, therefore, the full therapeutic intervention.

QUALITY IMPROVEMENT

- Health professionals should receive behaviour change training that enables them to feel confident to have the right conversation about tobacco smoking and that empowers them to feel effective in helping someone quit smoking (through both behavioural and pharmacological means).
- Training is available for primary care health professionals to provide a short evidence-based intervention lasting 30 seconds that can help to elicit behaviour change. Health

professionals who care for people with COPD should have this training.

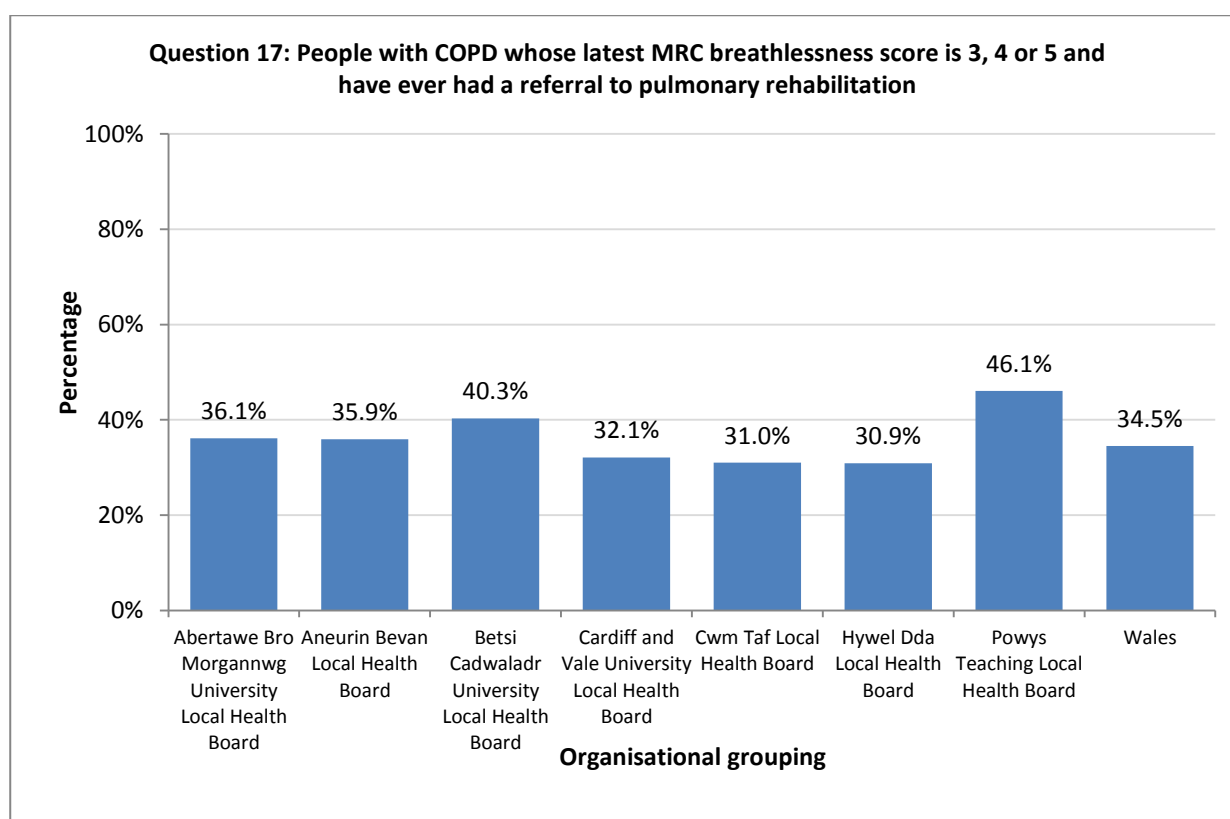
- Consider using an exhaled carbon monoxide (CO) monitor at each review. This can motivate people to quit and can reassure and encourage them when CO values fall.
- Accessing a stop smoking service increases the chances of quitting. The system should ensure that there is adequate provision of services so that when primary care refers motivated patients there is an accessible and responsive service.
- Primary care prescribers should encourage the use of pharmacotherapy to help people quit and ensure that they have sufficient knowledge of the available nicotine replacement devices and modes of delivery so that they can be supportive of advice provided by stop smoking specialists.
- People with current or past mental health problems should be offered varenicline as part of a quit smoking attempt and they should be advised that it is safe. They need close monitoring and are at higher risk of relapse, and so regular review and motivational support is required.²⁵
- The RHIG is developing innovative new referral tools for stop smoking services and encouraging the use of validated 1-year quit rates across primary and secondary care.¹⁰

RESOURCES

- National Centre for Smoking Cessation and Training. *A short training module on how to deliver very brief advice on smoking*. Dorchester: NCSCT. www.ncsct.co.uk/publication_very-brief-advice.php [Accessed September 2016]
- London Clinical Senate. *Helping smokers quit: The expired Carbon Monoxide (CO) test – guidance for health professionals*. www.londonsenate.nhs.uk/wp-content/uploads/2015/04/Helping-Smokers-Quit-Programme-The-expired-carbon-monoxide-CO-test.pdf [Accessed September 2016]
- London Clinical Senate. *Helping smokers quit: Why and how to prescribe varenicline in hospital*. Advice on prescribing varenicline for unwell smokers. www.londonsenate.nhs.uk/wp-content/uploads/2016/01/Why-and-how-to-prescribe-varenicline-in-hospitals.pdf [Accessed September 2016]
- British Thoracic Society. *British Thoracic Society Recommendations for Hospital Smoking Cessation Services for Commissioners and Health Care Professionals*. www.brit-thoracic.org.uk/document-library/clinical-information/smoking-cessation/bts-recommendations-for-smoking-cessation-services/ [Accessed September 2016]
- British Thoracic Society. *The case for change: Why dedicated, comprehensive and sustainable stop smoking services are necessary for hospitals*. www.brit-thoracic.org.uk/document-library/clinical-information/smoking-cessation/bts-case-for-change/ [Accessed September 2016]

Question 17: People with COPD whose latest MRC breathlessness score is 3, 4 or 5 and have ever had a referral to pulmonary rehabilitation

Rationale: NICE CG101³ recommends pulmonary rehabilitation to anyone who has COPD and a functional MRC breathlessness score of 3, 4 or 5. It is an intervention with a strong evidence base for improving breathlessness, activity levels and tolerance, and improving quality of life, depression and anxiety scores.²⁶



KEY FINDINGS

- Overall, 34.5% of people on COPD registers in Wales with a severity of breathlessness that would indicate suitability for referral for pulmonary rehabilitation have ever been referred to the service.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- The system needs to ensure that health professionals know who and when to refer to pulmonary rehabilitation so that more people can access this well-evidenced intervention.
- There is a large degree of variation between health boards and the significance of this variation needs to be understood.

QUALITY IMPROVEMENT

- Variation in referral between health boards and clusters should be reviewed and conversations with referrers, patients and patient charities should aim to understand the reasons for this.
- For those who are unwilling or unable to attend, consider providing appropriate information regarding the importance of physical activity. Local health providers/commissioners need to actively explore interventions that would enhance referral and uptake of pulmonary rehabilitation. This is both a culture change at referrer level and requires adequate provision of accessible services.
- Wales has a mixed geography with rural areas historically being less well serviced by rehabilitation services. The RHIG has developed a programme with Cardiff Metropolitan University to train exercise instructors to provide a National Exercise Referral Scheme (NERS) level 4 in hard-to-reach areas. This will be underpinned by data collection on outcomes, to monitor its effectiveness.

RESOURCES

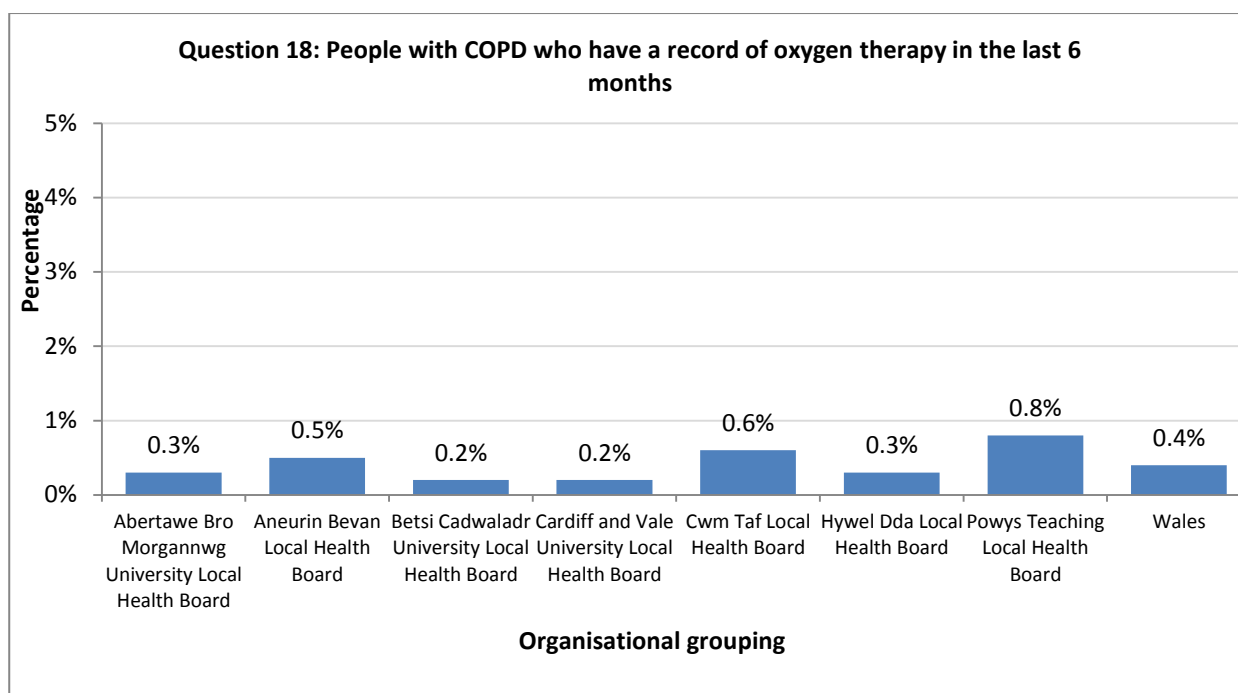
- British Lung Foundation. *Exercising with a lung condition*. Patient guide. www.blf.org.uk/Page/Exercise-with-a-lung-condition [Accessed September 2016]

- National COPD Audit Programme: pulmonary rehabilitation workstream.
www.rcplondon.ac.uk/projects/national-copd-audit-programme-pulmonary-rehabilitation-workstream [Accessed September 2016]

Question 18: People with COPD who have a record of oxygen therapy in the last 6 months

Rationale: NICE CG101³ recommends oxygen therapy as a long-term treatment in COPD for people with persistent hypoxia. They should have been assessed by a specialist oxygen service to ensure that prescription is clinically effective and that it will be safe for the patient and those living with and around them.

Ambulatory oxygen is recommended for people with COPD who desaturate significantly when they are active, in order to increase the benefits to their physical and mental health from exercise.



KEY FINDINGS

- Overall, 0.4% of people on COPD registers have a record of oxygen therapy. This represents about 315 people in Wales, or an average of 45 people per health board, if we extrapolate to all practices from the 61% sampled.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- It appears that there is under recording of oxygen therapy in general practice.

QUALITY IMPROVEMENT

- Oxygen should be recorded as a repeat prescription (although it is not authorised for FP10 issue) and be included in the annual prescribing review, as would be done for other drugs on the repeat prescribing list. As this is a specialist prescription, GPs need to ensure that a home oxygen review service has been offered each year as a minimum, to ensure safety and clinical effectiveness.
- Any patient with COPD who is prescribed oxygen prior to a home oxygen assessment and review service being available should be re-assessed and referred.
- Patients who use oxygen and smoke or live in households with smokers should be prioritised for review and be offered quit smoking therapy to ensure clinical effectiveness of the therapy

and to avoid fire-related harm to themselves and those around them.

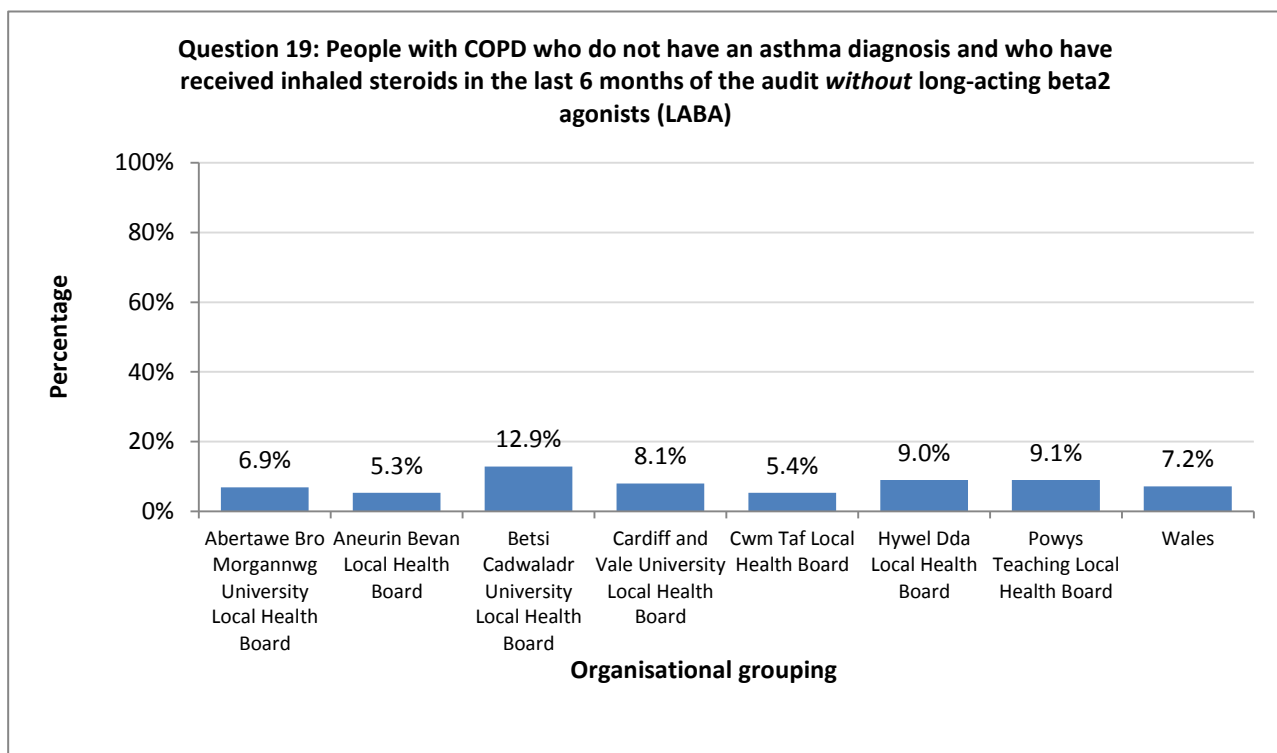
RESOURCE

- British Thoracic Society. *Guidelines for home oxygen use in adults*. www.brit-thoracic.org.uk/guidelines-and-quality-standards/home-oxygen-guideline-adults/ [Accessed September 2016]

Questions 19 and 20: Use of inhaled medicines in COPD

Rationale: NICE CG101³ recommends inhaled steroids for COPD (no asthma) only in combination with long-acting bronchodilators and only if the patient's disease is severe (predicted FEV₁ score of <50%) and associated with frequent flare-ups.

Question 19: People with COPD who do not have an asthma diagnosis and who have received inhaled steroids in the last 6 months of the audit *without* long-acting beta2 agonists (LABA)



KEY FINDINGS

- In total, 92.8% of people with COPD who do not have an asthma diagnosis and who received ICS in the last 6 months of the audit also appropriately received an LABA.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- People on the COPD register without asthma using standalone inhaled steroids will require a diagnostic and severity review to determine whether they are indicated, and therapeutic replanning according to NICE CG101.³

QUALITY IMPROVEMENT

- System leaders, including pharmacists, should review their local data around ICS prescribing in order to understand where guidelines do not appear to be in use and whether people with COPD are receiving optimal inhaler therapy.
- People with COPD who are on long-term inhaled steroids of greater than 1000 BDP equivalent

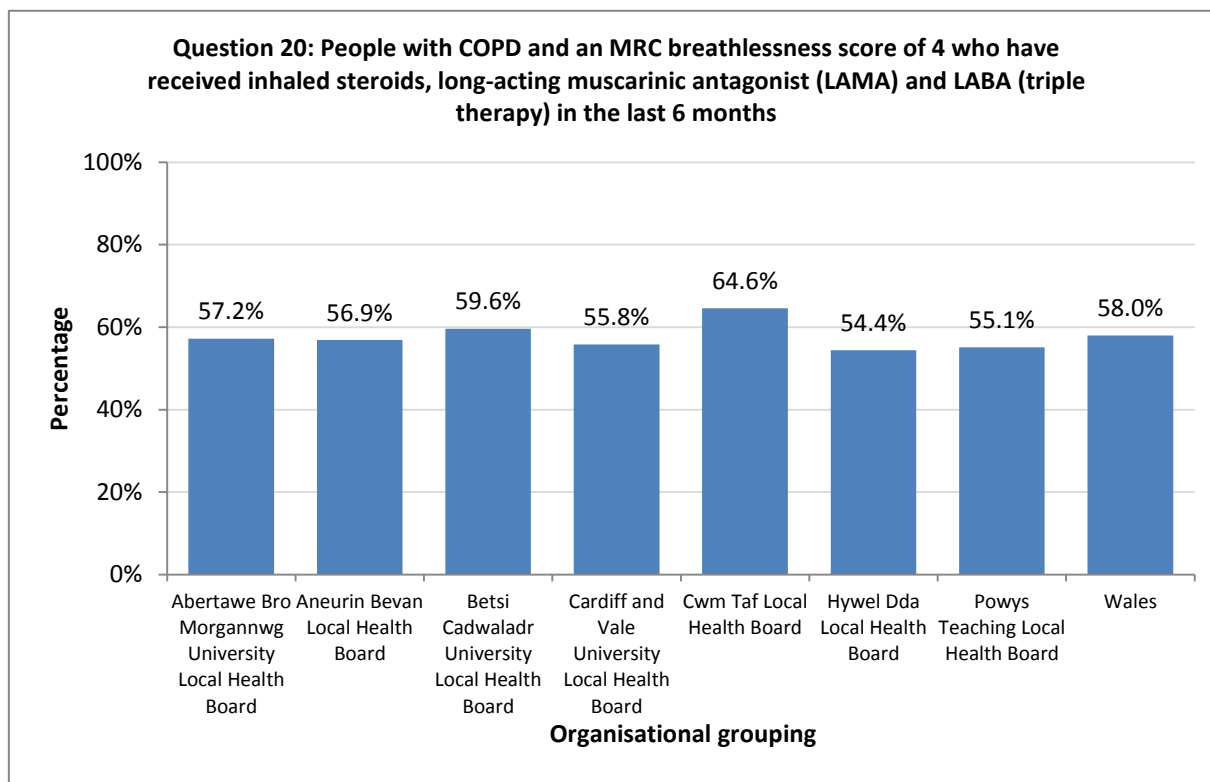
per day should be reviewed as a priority and provided with a steroid safety card (as advised by the Medicines and Healthcare Products Regulatory Agency (MHRA))²⁷ if a decision is made that the indication and dose are appropriate.

- People on inhaled steroids outside of the indication should be reviewed and stepped down; this could be with the support of a respiratory pharmacist. Potential harms that are associated with long-term inhaled steroid use include increased risk of pneumonia and, with higher doses, adrenal suppression. Local guidelines or support from specialists should be available to support concerns that primary care health professionals may have about reducing inhaled steroids in people who may have underlying asthma.

RESOURCES

- National Institute for Health and Care Excellence. *Chronic obstructive pulmonary disease quality standard (QS10)*. London: NICE, 2016. www.nice.org.uk/guidance/qs10
- GOLD guidance on COPD <http://goldcopd.org/Guidelines/guidelines-resources.html> and <http://goldcopd.org/gold-reports/> [Accessed September 2016]
- London Respiratory Team. *Inhaled corticosteroids in adults: prescribing guidance for healthcare professionals*. Inhaled steroid safety card and prescriber guideline. London: London Respiratory Network. www.networks.nhs.uk/nhs-networks/london-respiratory-network/key-documents/responsible-respiratory-prescribing/LRT%20Inhaled%20steroid%20clinician%20guidance.pdf [Accessed September 2016]
- PCRS-UK. *Stepping down triple therapy in COPD*. https://pcrs-uk.org/sites/pcrs-uk.org/files/SteppingDownTripleRxinCOPD_FINALMay2015.pdf [Accessed September 2016]

Question 20: People with COPD and an MRC breathlessness score of 4 who have received inhaled steroids, long-acting muscarinic antagonist (LAMA) and LABA (triple therapy) in the last 6 months



KEY FINDINGS

- Overall, 58% of people with COPD who have an MRC breathlessness score of 4 are receiving triple therapy.

QUALITY IMPROVEMENT

- Prescribers should use a local guideline for COPD inhaler prescribing, where it exists. NICE CG101³ and GOLD guidance¹³ are available in the absence of an agreed local policy.

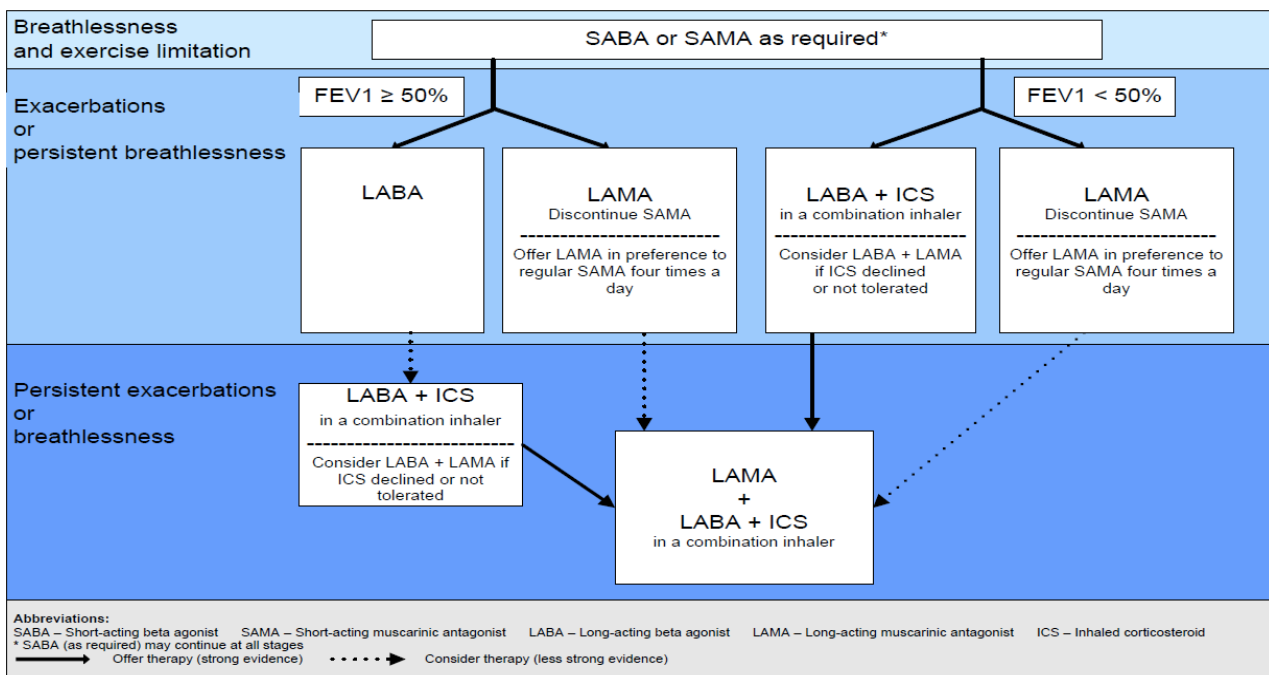
Prescribing according to guidelines

NICE

The NICE COPD guidelines suggest prescribing inhaled treatments as per the algorithm (see Figure 1 for the NICE algorithm).

Inhaled corticosteroid (ICS) without long-acting bronchodilator is not licensed or appropriate in COPD. ICS should be reserved for those with a predicted FEV₁ score of <50% and recurrent exacerbations.

Fig 1. NICE algorithm for inhaled therapies in COPD. This algorithm should be used within the wider context of the management of COPD.³

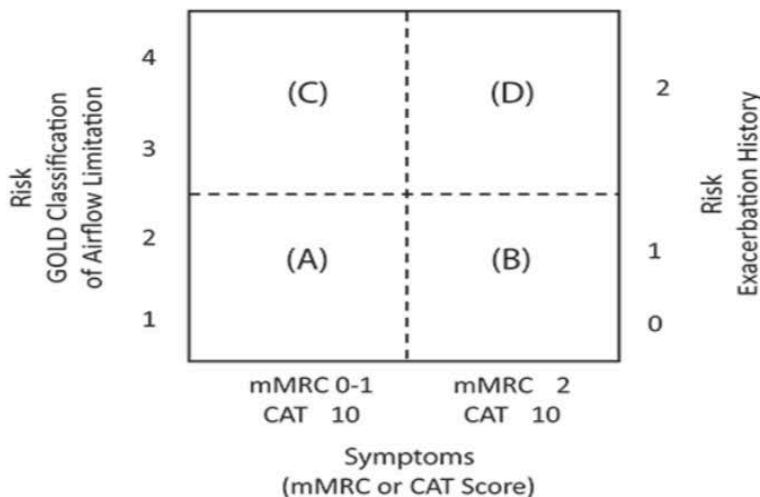


Source: National Institute for Health and Care Excellence. *Chronic obstructive pulmonary disease: Management of chronic obstructive pulmonary disease in adults in primary and secondary care (partial update)* (CG101). London: NICE, 2010. www.nice.org.uk/guidance/CG101

GOLD

The GOLD guideline¹³ classifies people with COPD according to three characteristics: i) degree of breathlessness, ii) number of exacerbations in the last year and iii) airflow limitation. The extracted data suggest that only 21% of people have recorded data that would allow a prescriber to follow this guideline. Annual recording of all three metrics is therefore key to providing individualised therapeutic plans.

Fig 2. GOLD combined assessment of COPD



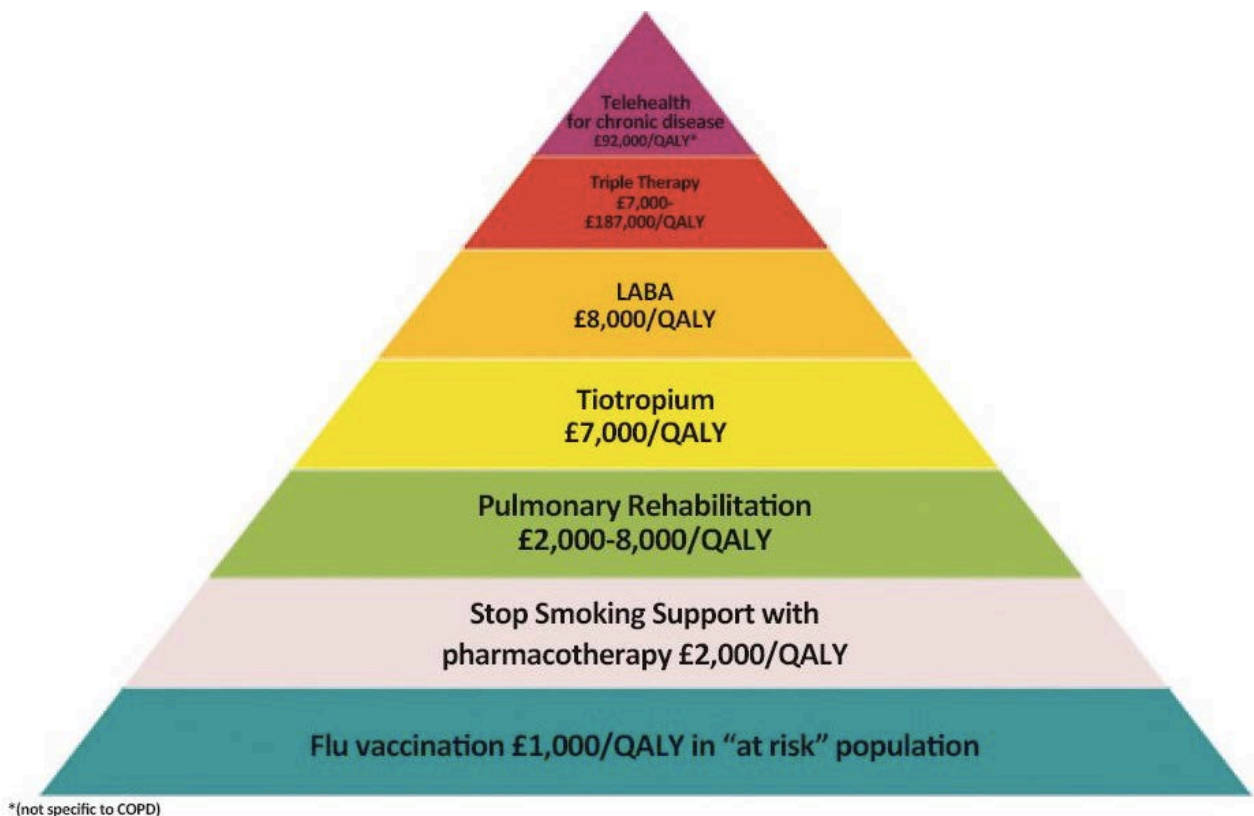
Patient Category	Characteristics	Spirometric Classification	Exacerbations Per Year	mMRC	CAT
A	Low Risk, Less Symptoms	GOLD 1-2	1	0-1	<10
B	Low Risk, More Symptoms	GOLD 1-2	1	2	10
C	High Risk, Less Symptoms	GOLD 3-4	2	0-1	<10
D	High Risk, More Symptoms	GOLD 3-4	2	2	10

CAT, COPD Assessment Test; COPD, chronic obstructive pulmonary disease; GOLD, Global Initiative for Chronic Obstructive Lung Disease; mMRC, Modified British Medical Research Council.

Source: Global Initiative for Chronic Obstructive Lung Disease. *Pocket guide to COPD diagnosis, management and prevention: A guide for healthcare professionals*. GOLD, 2015. Available from www.goldcopd.it/materiale/2015/GOLD_Pocket_2015.pdf.

Prescribing for value

When considering the management of COPD at the individual or population level, the choice of intervention should be made based on clinical effectiveness. However not all interventions are equally cost-effective. The quality-adjusted life year (QALY) pyramid (Figure 3) ranks COPD interventions according to their cost-effectiveness (using QALY scores). A QALY is a measure of the state of health of a person (or group) in which the benefits, in terms of length of life, are adjusted to reflect the quality of life. QALYs are calculated by estimating the years of life remaining for a patient following a particular treatment or intervention and weighting each year with a quality-of-life score (on a 0 to 1 scale). In the UK, the NICE accepted cost-effectiveness ‘threshold’, over which treatments are less likely to be recommended for use in the NHS, is £20,000 per QALY. Figure 3, therefore, provides a guide for how value for patients and the healthcare system for COPD can be optimised.¹⁸

Fig 3. The pyramid of value for COPD interventions

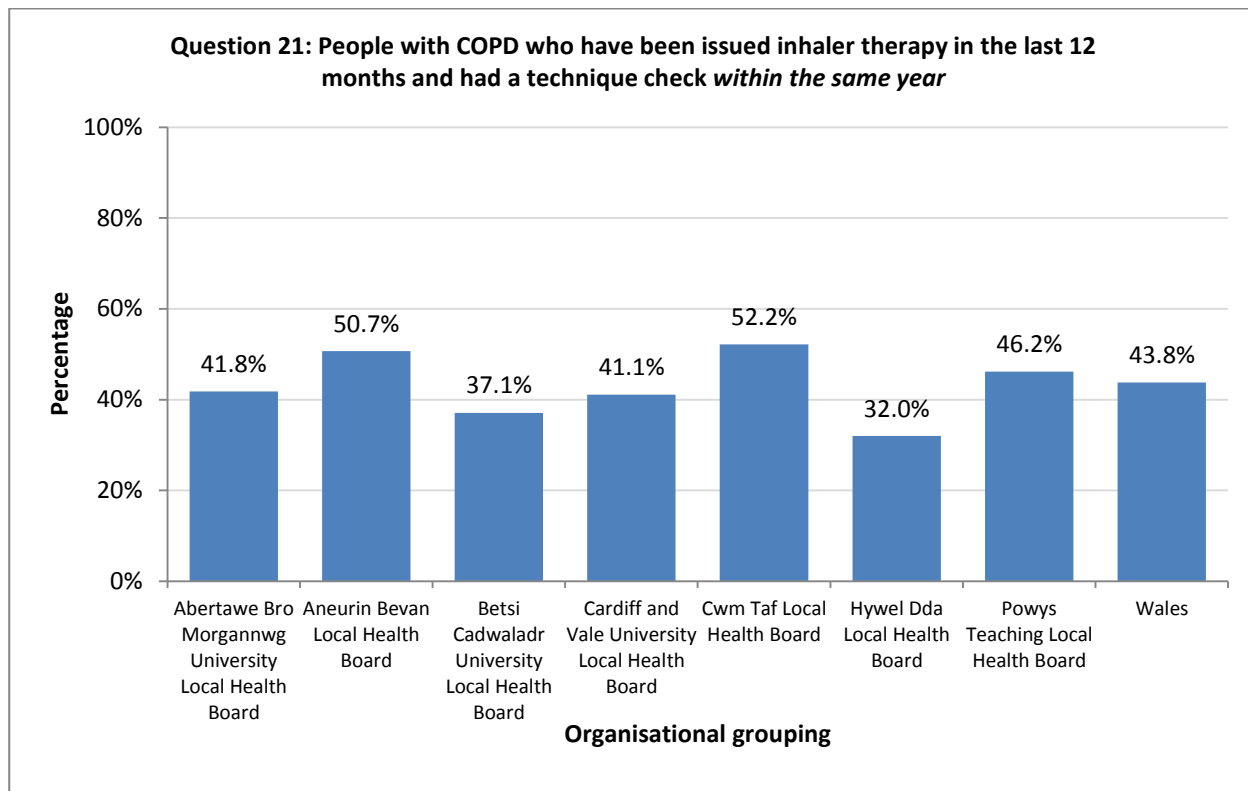
The pyramid of value for COPD interventions, developed by the London Respiratory Network with The London School of Economics and Political Science (modified from the *IMPRESS guide to the relative value of COPD interventions* www.impressresp.com/index.php?option=com_docman&task=docview&gid=51&Itemid=82), gives estimates of cost per QALY gained.¹⁸

Questions 21 and 22: Inhaler technique

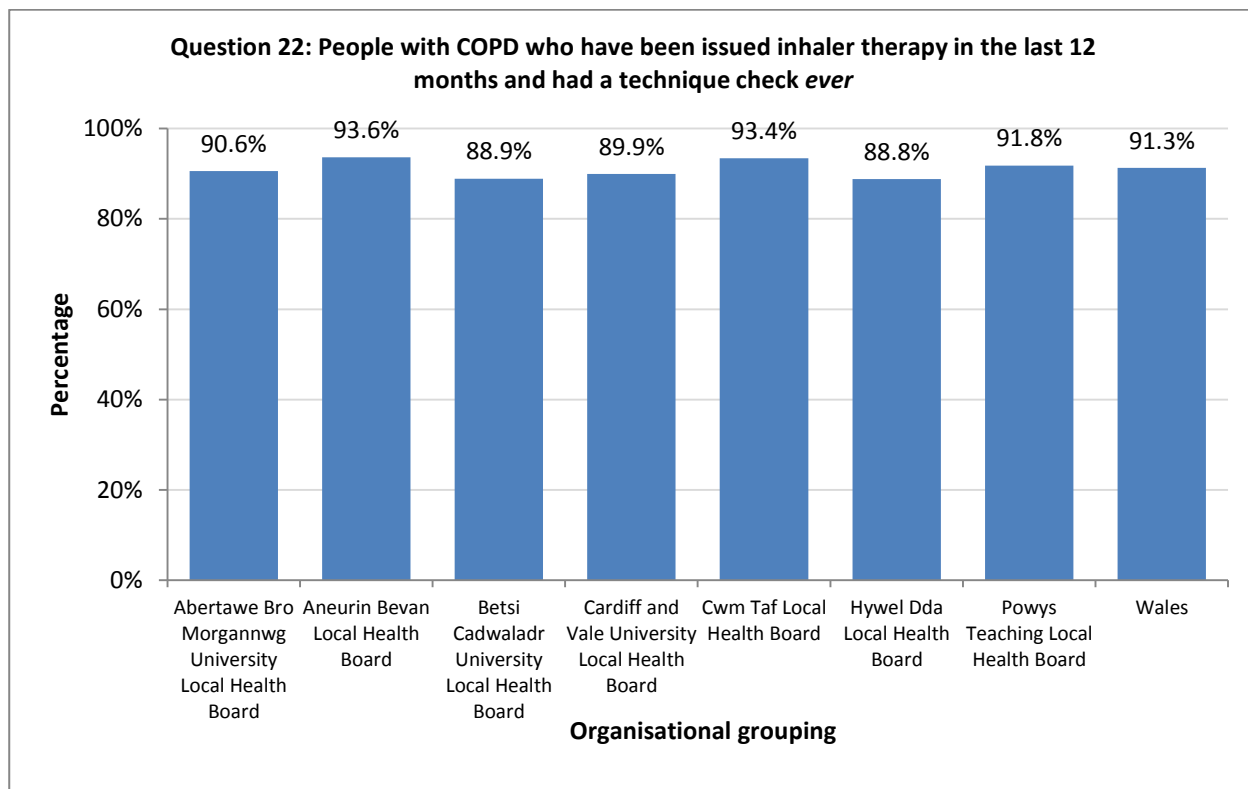
Rationale: NICE CG101³ states:

Number	Quality statement
1.2.2.11	In most cases, bronchodilator therapy is best administered using a hand-held inhaler device (including a spacer device if appropriate).
1.2.2.12	If the patient is unable to use a particular device satisfactorily, it is not suitable for him or her, and an alternative should be found.
1.2.2.13	Inhalers should be prescribed only after patients have received training in the use of the device and have demonstrated satisfactory technique.
1.2.2.14	Patients should have their ability to use an inhaler device regularly assessed by a competent healthcare professional and, if necessary, should be re-taught the correct technique.

Question 21: People with COPD who have been issued inhaler therapy in the last 12 months and had a technique check *within the same year*



Question 22: People with COPD who have been issued inhaler therapy in the last 12 months and had a technique check *ever*



KEY FINDINGS

- Overall, 43.8% of people who have COPD and are using inhaler therapy received an inhaler technique check in the last year.
- In total, 91.3% have had an inhaler check ever.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- It is clear that practices are recording inhaler technique checks; however the frequency of checks could be improved. The fact that >90% of people who have COPD had an inhaler check ever suggests that it is not a coding issue.
- Regular review of a care plan should include a check on understanding, adherence and technique with inhaled therapies, as underuse and misuse are common and regular checks ensure that the right devices are being used and any errors can be corrected.

QUALITY IMPROVEMENT

- Ensure that health professionals have received up-to-date training on inhaler device use. Many new devices have emerged in recent years and evidence suggests a lack of confidence and skill among health professionals in primary and secondary care when teaching patients to use new devices.
- A standard template and decision support software working with IT systems could encourage inhaler technique checking and training.

RESOURCE

- PCRS-UK table of inhaled drugs. www.pcrs-uk.org/resource/Guidelines-and-guidance/table-inhaled-drugs [Accessed September 2016]

Questions 23–25: Managing flare-ups of COPD**Definition of an exacerbation**

NICE CG101³ An exacerbation is a sustained worsening of the patient's symptoms from their usual stable state, which is beyond normal day-to-day variations, and is acute in onset. Commonly reported symptoms are worsening breathlessness, cough, increased sputum production and change in sputum colour. The change in these symptoms often necessitates a change in medication.

Rationale: Exacerbations or 'flare ups' of COPD accelerate the decline of COPD, impair the patient's quality of life during the episode and, if left untreated, can result in hospitalisation and a high risk of death. Recovery can be prolonged, during which time the patient and carer will need additional physical and psychosocial support. Recognising and recording exacerbations should be a key element of risk stratification in a general practice COPD population.

NICE CG101³ states:

Number	Quality statement
1.3.5.7	In the absence of significant contraindications, oral corticosteroids should be considered in patients in the community who have an exacerbation with a significant increase in breathlessness, which interferes with daily activities.
1.3.5.8	Patients requiring corticosteroid therapy should be encouraged to present early to get maximum benefits.
1.3.5.9	Prednisolone 30 mg orally should be prescribed for 7 to 14 days.
1.3.5.15	Antibiotics should be used to treat exacerbations of COPD associated with a history of more purulent sputum.
1.3.5.16	Patients with exacerbations without more purulent sputum do not need antibiotic therapy unless there is consolidation on a chest X-ray or clinical signs of pneumonia.

	Abertawe Bro Morgannwg University Local Health Board	Aneurin Bevan Local Health Board	Betsi Cadwaladr University Local Health Board	Cardiff and Vale University Local Health Board	Cwm Taf Local Health Board	Hywel Dda Local Health Board	Powys Teaching Local Health Board	Wales
Question 23: The percentage of people with COPD with at least one exacerbation recorded <i>within the last year</i>	9.1%	13.0%	11.6%	11.3%	13.5%	6.9%	10.5%	10.8%
Question 24: The percentage of people with COPD who have had an exacerbation coded <i>in the last year</i> and have been treated with oral steroids <i>in the last year</i>	86.5%	89.5%	88.6%	85.2%	90.5%	80.2%	88.7%	87.6%
Question 25: The percentage of people with COPD who have had an exacerbation coded <i>in the last year</i> and have been treated with an antibiotic <i>in the last year</i>	96.7%	97.6%	96.7%	96.0%	96.5%	92.3%	96.9%	96.4%

KEY FINDINGS

- Overall, 10.8% of people with COPD had at least one exacerbation coded in the last year. The 'total number of exacerbations in the last year' (Read code 66yf) could not be calculated for technical data extraction reasons.
- In total, 87.6% of people who had been recorded as having an exacerbation were prescribed oral corticosteroids.
- Overall, 96.4% of people with coded COPD exacerbations had received an antibiotic in the last year. Whether the antibiotic was related to the incident of COPD flare-up cannot be determined.

AREAS IDENTIFIED AS NEEDING IMPROVEMENT OR WHERE THINGS ARE GOING WELL

- Templates should encourage healthcare professionals doing annual reviews and seeing people during flare-ups to record the number of exacerbations and also how the exacerbation is being managed (for example, bronchodilator use and use of action or self-management plans, or additionally with oral steroids +/- antibiotics).
- Recording of exacerbations is essential to target individualised pharmacotherapy to this higher risk population.
- The number of exacerbations per year is critical to identifying people at higher risk. In the next cycle of audit the methodology will need to improve to more accurately and comprehensively capture the burden of COPD exacerbations in the population. Routine use of the 66yf Read code at annual review would assist understanding of this.

QUALITY IMPROVEMENT

- Patients with COPD, especially those with severe or recurrent exacerbations, should have an action plan that may also include a rescue pack of antibiotics and steroids with clear instructions for use according to NICE guidance.
- With repeated exacerbations, consider sputum testing to inform antibiotic choices.
- Patients requiring repeated 'rescue packs' should be reviewed to ensure their use is appropriate and referral for pulmonary rehabilitation should be considered.

RESOURCES

- National Institute for Health and Care Excellence. *Chronic Obstructive Pulmonary Disease in over 16s: diagnosis and management*. Clinical Guideline 101 (CG101). London: NICE, 2010 www.nice.org.uk/guidance/CG101
- British Lung Foundation. COPD self-management tools for health care professionals. <http://shop.blf.org.uk/collections/self-management-hcp> [Accessed September 2016]

Quality improvement resources

The National COPD Audit Programme has collated a range of materials to assist with local improvement work. A selection of these is listed below, and further resources will be available on our website (www.rcplondon.ac.uk/copd) in due course.

National Institute for Health and Care Excellence (NICE)

- *Chronic obstructive pulmonary disease in adults*, Quality Standard 10 (QS10). London: NICE, 2016. www.nice.org.uk/guidance/qs10
- *Smoking: supporting people to stop*. Quality Standard 43 (QS43). London: NICE, 2013. www.nice.org.uk/guidance/qs43
- *Chronic Obstructive Pulmonary Disease in over 16s: diagnosis and management*. Clinical Guideline 101 (CG101). London: NICE, 2010. www.nice.org.uk/guidance/CG101 (and a good summary of recommendations is found at www.nice.org.uk/guidance/cg101/chapter/guidance)

British Lung Foundation (BLF)

The BLF website (www.blf.org.uk) has a lot of patient information and also some useful tools including the COPD patient passport (<http://shop.blf.org.uk/products/copd-passport>), the patient guide to oxygen therapy (<http://shop.blf.org.uk/collections/lung-healthinformation/products/oxygen-booklet>) and the patient guide to exercising with a lung condition (www.blf.org.uk/Page/Exercise-with-a-lung-condition).

Primary Care Respiratory Society UK (PCRS-UK)

The PCRS-UK website (www.pcrs-uk.org) hosts a range of current educational tools and events and has a large archive of resources. Its core resources include:

- Quick guide to the diagnosis and management of COPD in primary care, 2016. <https://pcrs-uk.org/quick-guide-diagnosis-and-management-copd-primary-care>
- PCRS-UK tobacco addiction and smoking cessation advice, 2016. <https://pcrs-uk.org/tobacco-dependency-0>
- PCRS-UK wall chart on home oxygen prescribing, 2016. <https://pcrs-uk.org/wall-chart-home-oxygen-prescribing>
- PCRS-UK management of stable COPD in adults. https://pcrs-uk.org/sites/pcrs-uk.org/files/os13_copd_stable.pdf
- PCRS-UK table of inhaled drugs. www.pcrs-uk.org/resource/Guidelines-and-guidance/table-inhaled-drugs.

Royal College of General Practitioners (RCGP)

The RCGP has produced a guide to quality improvement for general practice to support the whole primary care team on their quality improvement journey. Some of the tools will be familiar, such as clinical audit and significant event analysis, however there are many more ways to take advantage of quality improvement to benefit patients and practices, and the guide is designed to help practices get started: www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

IMPRESS

IMPRESS is a collaboration between the BTS and the PCRS-UK, hosted by NHS Networks. It hosts a range of resources, including for commissioning and integrated care. For example:

- Acute breathlessness assessment. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=101&Itemid=69
- IMPRESS *Guide to the relative value of COPD interventions*. www.impressresp.com/index.php?option=com_docman&task=doc_view&gid=52&Itemid=89

The site draws together evidence and experience on COPD, heart failure, anxiety, obesity and anaemia: www.networks.nhs.uk/nhs-networks/impress-improving-and-integrating-respiratory/news/impress-breathlessness-resources

British Thoracic Society (BTS)

- BTS/SIGN asthma guideline. www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/
- BTS guidelines for home oxygen use in adults. [www.britthoracic.org.uk/document-library/clinical-information/oxygen/home-oxygen-guideline-\(adults\)/bts-guidelines-for-home-oxygen-use-in-adults/](http://www.britthoracic.org.uk/document-library/clinical-information/oxygen/home-oxygen-guideline-(adults)/bts-guidelines-for-home-oxygen-use-in-adults/)
- BTS recommendations for hospital smoking cessation services for commissioners and health care professionals. www.brit-thoracic.org.uk/document-library/clinical-information/smoking-cessation/bts-recommendations-for-smoking-cessation-services/
- BTS case for change: Why dedicated, comprehensive and sustainable stop smoking services are necessary for hospitals. www.brit-thoracic.org.uk/document-library/clinical-information/smoking-cessation/bts-case-for-change/

Wales-specific

- National Wales influenza campaign. www.nhsemployers.org/campaigns/flu-fighter/flu-fighter-cymru

Other

- GOLD guidance on COPD. <http://goldcopd.org/Guidelines/guidelines-resources.html> and <http://goldcopd.org/gold-reports/>
- London Clinical Senate. *Helping smokers quit: The expired carbon monoxide (CO) test*. www.london senate.nhs.uk/wp-content/uploads/2015/04/Helping-Smokers-Quit-Programme-The-expired-carbon-monoxide-CO-test.pdf
- National Centre for Smoking Cessation and Training (NCSCT). A short training module on how to deliver very brief advice on smoking. www.ncsct.co.uk/publication_very-brief-advice.php
- Primary Care Commissioning (PCC). *A guide to quality assured diagnostic spirometry*, 2013. www.pcc-cic.org.uk/article/guide-quality-assured-diagnostic-spirometry
- Jones R, Donaldson G, Chavannes N *et al*. Derivation and validation of a composite index of severity in chronic obstructive pulmonary disease: The DOSE Index. *Am J Respir Crit Care Med*, 2009;180:1189–1195. www.atsjournals.org/doi/abs/10.1164/rccm.200902-0271OC#.Vrm1XkpFDGg

Appendices

Appendix A

- Audit methodology
- Information governance
- Inclusion criteria
- Data extraction period
- Recruitment
- Data analysis
- Reporting

Appendix B

- List of participating practices

Appendix C

- What is the National COPD Audit Programme?
- National COPD Audit Programme governance
- National COPD Audit Programme primary care workstream group members
- National COPD Audit Programme primary care Wales/QI group members

Appendix D

- Glossary of terms, definitions and abbreviations

Appendix E

- References

Appendix A

Audit methodology

The National COPD Audit Programme primary care audit workstream seeks to enable the improvement of the quality of care for COPD delivered in primary care settings through the provision of high-quality longitudinal data.

Core aims:

- measure performance and its variation
- improve quality of care for people with COPD
- improve data recording to support measurement against national standards.

Objectives:

- provide feedback on performance against standards, at practice, health board and national level
- make recommendations for improvement, including using the opportunity of the primary care data extraction to encourage improvement in the quality of data recorded in primary care through the use of appropriate COPD templates
- signpost to, and influence, the development of quality improvement resources
- additionally, seek to link data across the audit workstreams, and with other sources of data that map the patient journey, and in doing so, highlight variations in patient care and outcomes, and strive to innovatively drive up standards of patient care.

The data collection for the primary care element of the National COPD Audit Programme is designed to support reporting on indicators that were selected to map to the NICE quality standard for COPD. The 2008 national COPD audit collected data from primary care on COPD management, but the National COPD Audit Programme is the first that has been commissioned to collect data that will allow integrated assessment of the quality of services, at the level of the individual patient, across the whole of the treatment and outcome pathway.

The COPD primary care audit development, including dataset and drafting of report templates, has been undertaken by the primary care workstream group, in consultation with COPD experts across England and Wales. The dataset, and supporting documentation, is available to download from the programme website (www.rcplondon.ac.uk/projects/outputs/copd-primary-care-workstream-aims-participation-and-resources).

The data items are categorised according to their 'centrality' in the processes of COPD care. The categorisation scheme consists of three levels:

- Level 1 data are extremely important, but usually available from sources such as the QOF (publically accessible data).
- Level 2 data are important items for the quality improvement elements (to be reported at practice level).
- Level 3 data are exploratory and intended to evaluate how well certain items are recorded, with a view to using them as level 2 items in future extractions.

Information governance

The primary care audit involves the extraction of patient identifiable data without consent, which means that it has been necessary to obtain an exemption under section 251 of the NHS Act 2006 (CAG 8-6(b)/2013) from the Health Research Authority's Confidentiality Advisory Group (CAG), to collect and process confidential patient data without explicit consent from individual patients.

Section 251 approval was given on the basis that primary care participation is on an 'opt-in' basis at the level of individual general practices, with email consent of an 'opt-in' required from participating practices.

Participating practices were also required to display a poster in their practices advising patients that the audit was taking place, and to print out a copy of a patient leaflet if further information was requested by a patient. (A PDF and printed copies of both the poster and the leaflet were provided and were also available to download from our website.) The patients' right to object to their data being used for clinical audit has been supported by the appropriate Read codes.

The necessary approvals were also gained from the Wales Data Quality System (DQS) Governance Group and the Wales Primary Care Quality Forum. The data extraction, led by the NHS Wales Informatics Service (NWIS), took place automatically using Audit+ (software that provides a common platform in Wales to extract data for audit, irrespective of the practice's clinical information system), with data transferred in such a way that they cannot be viewed by unauthorised persons and with access strictly controlled.

Inclusion criteria

- The patient is registered with the practice in Wales on the first day of the extraction period.
- There is a recorded COPD diagnosis code with a date up to the end of the reporting period.
- The patient is aged 35 or over on the first day of the extraction period.

Data extraction period

- Data were extracted for the period covering 1 January 2014 to 31 March 2015.

Recruitment

All general practices (GP surgeries) in Wales that provide care for COPD patients were able to take part in the audit.

A letter from the Chief Medical Officer / Medical Director NHS Wales, co-signed by the Chair of the RCGP Wales, the Chair of General Practitioners Committee (GPC) Wales and the national COPD primary care audit clinical lead, was emailed to all Health Board Chief Executive Officers (CEOs), Directors of Primary Care, Medical Directors and Assistant Medical Directors (Primary Care) by the audit lead at the Major Health Conditions Policy Team at the Welsh Government in September 2015. Each health board was requested to contact each of their practices and invite them to take part in the national COPD primary care audit (Wales). A draft practice recruitment letter was also provided, which included instructions for practices on how to consent to take part in the audit, along with a supporting *Frequently asked questions* document, the practice poster and the patient leaflet.

Health boards and practices were advised that the audit is operating with a general practice opt-in model and therefore no data would be taken from a practice unless they consent for the data to be released.

Practices who wished to take part in the audit were requested to do the following:

- email their consent to take part to named contacts at NWIS
- display a poster in their practice waiting room
- if a patient requests further information, print off a patient information leaflet
- if a patient asks for their data not to be included in the audit, record the necessary Read codes to ensure the patient is opted out of the audit.

Documentation to support participation in the audit was posted on the RCP National COPD Audit Programme website (www.rcplondon.ac.uk/projects/primary-care-workstream) including:

- dataset
- primary care extraction specification
- frequently asked questions (FAQs)
- practice poster
- patient information leaflet.

Data analysis

The data analysis to support the statistics presented in this report was undertaken according to a protocol developed by Health and Social Care Information Centre (HSCIC) information analysts and the National COPD Audit Programme clinical lead for the primary care workstream. For each audit question, numerators and denominators were defined by expressions based on the data fields in the extracted data and the appropriate inclusion and exclusion criteria. Details of this protocol are available in a separate document on the audit website. Information about the data cleaning undertaken are also included in this document. The data were processed using Microsoft SQL Server algorithms based on these definitions, and SQL Server Reporting Services (SSRS) was used to produce the report document.

Reporting

The audit's reporting plans have been designed to recognise the varying levels of data completeness, eg level 3 items are not planned to be analysed/reported at an individual general practice level, but are exploratory and intended to inform the next stage of the quality improvement cycle.

In the first year of the audit, performance will be measured and, where the data are poorly recorded, the RCP and its strategic partners will promote better use of the correct codes by feeding back to individual general practices on how their performance compares with local and national benchmarks. The audit dataset contains data items that are aligned to NICE guidance, some of which are likely to be poorly recorded, such as those relating to palliative care and the use of some assessment tools. This is a deliberate part of the audit design: where data quality/completeness is poor, our aim is to promote ways to improve it. In keeping with a quality improvement agenda, the programme team will remeasure the performance annually, subject to future commissioning, with feedback to complete the audit cycle.

The evaluation and use of information about this variability in recording of codes is an intentional part of the audit design and the reporting plan has been designed to ensure the collected data are used fairly and responsibly, in a way that supports service improvement. Where data are incomplete, we can provide guidance on which codes to use, especially where different codes are available.

Each practice that takes part in the audit will be able to access a practice-level report about the standards of care they are providing to their COPD patients, and how these compare with other practices in Wales. These reports will contain aggregated data, and will not include patient-level data. Each automated practice-level report, produced by NHS Digital, will only be accessible to the general practice concerned. Practice-level reports will not be made publically available. The first round of data extraction has itself been designed as a pilot to establish baseline measures of recording.

Cluster, health board level and national reports will be published on the audit programme website (www.rcplondon.ac.uk/COPD). None of the published reports will contain any identifiable data.

A national COPD primary care audit/QI (Wales) group has been convened to guide the audit's approach to supporting participants in using their results effectively to support service improvement. For general practices, relevant QI resources will be signposted; commentary on how general practices can improve their performance in coding, alongside educational and practical tools to help improve COPD care, will be included in reports.

Appendix B: List of participating practices

Health board	Cluster	Practice			
Abertawe Bro Morgannwg University Health Board	Afan	Afan Valley Group Practice			
		Cwmavon Health Centre			
		Mount Surgery			
		Fairfield Medical Centre			
		Riverside Surgery			
		King's Surgery			
		Cymmer Medical Practice			
		Morrison Road Surgery			
		Llys Meddyg Surgery			
		The Health Centre			
	Rosedale Medical Practice				
	BayHealth	St Thomas Surgery	St Thomas Surgery		
			Sketty and Killay Medical Centre		
			The Grove Medical Centre		
			The Mumbles Medical Practice		
			Gower Medical Practice		
			Uplands and Mumbles Surgery		
			University Health Centre		
			Kings Road Surgery (Mumbles)		
			Bridgend East Network	Oak Tree Surgery	Oak Tree Surgery
					New Surgery (Pencoed)
	The Medical Centre (Pencoed)				
	Riversdale House				
	Newcastle Surgery				
	Ashfield Surgery				
	Bridgend North Network	Llynfi Surgery	Llynfi Surgery		
			Woodlands Surgery		
			Cwm Garw Practice		
			Tynycoed Surgery		
			Nantylffyllon Surgery		
			Bron y Garn Surgery		
			Ogmore Vale Surgery		
			New Street Surgery		
			Nantymoel Surgery		
			Bridgend West Network	The Surgery (North Cornelly)	The Surgery (North Cornelly)
	The Portway Surgery				
	Heathbridge House				
	The Surgery (Porthcawl)				
	CityHealth	Mayhill Surgery	Mayhill Surgery		
			St Helens Medical Centre		
			Nicholl Street Medical Centre		
			Brunswick Health Centre		
Kingsway Surgery					
Greenhill Medical Centre					
Tawe Medical Centre					
Port Tennant Surgery					
High Street Surgery					

		Cockett Surgery
	Cwmtawe	Llansamlet Surgery
		Clydach Primary Care Centre
		New Cross Surgery
		Sway Road Surgery
		Strawberry Place Surgery
	Llwchwr	The Health Centre
		Princess Street Surgery
		Gowerton Medical Centre
		Talybont Surgery
		Ty'r Felin Surgery
		Pen y Bryn Surgery
	Neath	Dyfed Road Health Centre
		Castle Surgery
		Skewen Medical Centre
		Victoria Gardens Surgery
		Briton Ferry Health Centre
		Tabernacle Surgery
		Alfred Street Primary Care Centre
		Waterside Medical Practice
	Penderi	Cwmfelin Medical Centre
		Brynhyfryd Surgery
		Fforestfach Medical Group
		Manselton Surgery
		Cheriton Medical Centre
	Upper Valleys	Pontardawe Primary Care Centre
		Dulais Valley Primary Care Centre
		Vale of Neath Practice
		Cwmllynfell Surgery
		St James Medical Centre
		Amman Tawe Partnership
Aneurin Bevan Health Board	Blaenau Gwent East	The Bridge Centre
		Aberbeeg Medical Centre
		Six Bells Medical Centre
		Blaen-y-Cwm Surgery
		Aparajita Surgery
		Abernant Surgery
		Blaina Medical Practice
		The Surgery
		The Bridge Centre
	Blaenau Gwent West	Glan Rhyd Surgery
		Glyn Ebwy Surgery
		Health Centre (Tredegar)
		Glan yr Afon Surgery
		Cwm Health Centre
		Pen-y-Cae Surgery
	Caerphilly East	St Lukes Surgery
		Avicenna Medical Centre
		Pontllanfraith Health Centre
		Sunnybank Health Centre

	Wellspring Medical Centre
	Risca Surgery
	Newbridge Surgery
	The Surgery
Caerphilly North	Markham Medical Centre
	Pengam Health Centre
	The Health Centre
	The Lawn Medical Centre
	Bargoed Hall
	Nelson Surgery
	Gelligaer Surgery
	Oakfield Surgery
	Bryntirion Surgery
	South Street Surgery
	White Rose Medical Centre
	Victoria Surgery
	The Surgery Aberbargoed
Caerphilly South	Meddygfa Tridwr
	Ty Bryn Surgery
	Market Street Practice
	Nantgarw Road Surgery
	Court House Medical Centre
	The Village Surgery
	Lansbury Surgery
Monmouthshire North	Tudor Gate Surgery
	Wye Valley Practice
	Old Station Surgery
	Chippenham Surgery
	The Surgery (Usk)
	The Medical Centre (Usk)
	Dixton Road Surgery
	Raglan Surgery
	Hereford Road Surgery
Monmouthshire South	Vauxhall Surgery
	Mount Pleasant Practice
	Town Gate Practice
	Gray Hill Surgery
	Wydean Practice
Newport East	Park Surgery (Newport)
	The Rugby Surgery
	Ringland Health Centre
	Padma Surgery
	Eveswell Surgery
	Beechwood Primary Care
	Underwood Health Centre
	Lliswerry Medical Centre
Newport North	Isca Medical Centre
	Richmond Clinic
	Grange Clinic
	St Julians Medical Centre

		Malpas Brook Health Centre
		The Rogerstone Practice
	Newport West	St Paul's Clinic
		Central Surgery
		Bryngwyn Surgery
		Bellevue Surgery
		St David's Clinic
		St Brides Medical Centre
		Gaer Medical Centre
	Torfaen North	Blaenavon Medical Centre
		Panteg Health Centre
		Trosnant Lodge
		Churchwood Surgery
		The Surgery (Abersychan)
		The Mount Surgery
	Torfaen South	Oak Street Surgery
		Llanyravon Surgery
		New Chapel Street Surgery
		Cwmbran Village Surgery
		Clark Avenue Surgery
		Fairwater Medical Centre
		Greenmeadow Surgery
Betsi Cadwaladr University Health Board	Anglesey	Longford House Surgery
		The Health Centre (Ynys Mon)
		Parc Glas Surgery
		Glanrafon Surgery
		The Health Centre (Llanfairpwll)
		Gerafon Surgery
		Cambria Surgery
		Coed Y Glyn Surgery
		Meddygfa Victoria
		The Surgery (Gwalchmai)
		Meddygfa Star Surgery
	Arfon	Bodnant Surgery
		Bron Seiont Hafan Iechyd
		The Surgery (Llanberis)
		Felinheli Surgery
		Canolfan Feddygol Yr Hen
		Market Street Surgery
		Llys Meddyg (Penygroes)
		Bron Derw Medical Centre
		Liverpool House
		Glanfa
		Bodnant (Penygroes)
		Corwen House
		Dolwenith
		Bangor Medical Centre
		Meddygfa Deiniol
	Central and South Denbighshire	Plas Meddyg
		Pen-y-Bont Surgery

	Bronyffynnon Surgery
	Beech House Surgery
	The Clinic (Ruthin)
	The Health Centre (Corwen)
	Middle Lane Surgery
	Berllan Surgery
Central Wrexham	Strathmore Medical Practice
	Plas Y Bryn Medical Centre
	St George's Crescent Surgery
	Beechley Medical Centre
	Borras Park Surgery
	Hillcrest Medical Centre (Wrexham)
	The Health Centre (Prince Charles Road)
Conwy East	Cadwgan Surgery
	Kinmel Bay Medical Centre
	Rhoslan Surgery
	The Gwrych Medical Centre
	Rysseldene Surgery
	16 Wynn Avenue
	Tynycoed Surgery
Conwy West	Uwchaled Medical Practice
	Mostyn House Medical Practice
	Plas Menai Surgery
	Meddygfa (Betwy y Coed)
	Llys Meddyg (Conwy)
	The Medical Centre (Penrhyn Bay)
	Craig Y Don Medical Practice
	Lonfa
	The Surgery (Llanwrst)
	Bodreinallt
	Meddygfa Gyffin
	West Shore Surgery
Dwyfor	Treflan
	The Health Centre (Criccieth)
	Meddygfa Rhydbach
	Ty Doctor Isfryn
	Y Feddygfa Wen
	Madoc Surgery
Meirionnydd	Health Services Centre
	The Health Centre (Towyn)
	Minfor Surgery
	Bron Meirion
	Meddygfa (Bala)
	The Surgery
North and West Wrexham	Caritas Health Partnership
	Pen Y Maes Health Centre
	Bryn Darland Surgery
	Forge Road Surgery
	The Health Centre (Gresford)
	The Health Centre (Coedpoeth)

	North Denbighshire	Quarry House
		Clarence Medical Centre
		Central Surgery
		Park House Surgery
		Madryn House Surgery
		Lakeside Medical Centre
		Kings House Surgery
		Seabank Surgery
		Rhuddlan Surgery
	North East Flintshire	Hawarden Health Centre
		Marches Medical Practice
		Shotton Lane Surgery
		Deeside Medical Centre
		The Quay Health Centre
		Queensferry Medical Practice
		St Mark's Dee View Surgery
		The Quay Health Centre
		Rowleys Drive Clinic
	North West Flintshire	Pendre Surgery (Holywell)
		Bodowen Surgery
		Allt Goch Medical Centre
		Pennant Surgery
		Eyton Place Surgery
		The Laurels Surgery
	South Flintshire	Panton Surgery
		Bradley's Practice
		Hope Family Medical Centre
		Pendre Surgery (Mold)
		Roseneath Medical Practice
		Leeswood Surgery
		Caergwrle Medical Practice
	Grosvenor Street Surgery	
	South Wrexham	Bromfield Medical Centre (Mwambingu Falt)
The Health Centre (Llangollen)		
The Surgery (Gardden Road)		
The Surgery (Chirk)		
The Surgery (Overton On Dee)		
The Medical Centre		
The Health Centre (Beech Avenue)		
The Surgery (Hanmar)		
Crane Medical Centre		
Cardiff and Vale University Health Board	Cardiff East	Brynderwen Surgery
		Llanedeyrn Health Centre
		Rumney Medical Practice
		Llanrumney Medical Group
		Willowbrook Surgery
	Cardiff North	Cyncoed Medical Practice
		Llanishen Court Surgery
		North Cardiff Medical Centre
		Birchgrove Surgery

	Llwynbedw Medical Centre
	Whitchurch Road Surgery
	The Penylan Surgery
	Roath House Surgery
	Crwys Medical Centre
	St Isan Road Surgery
	St Davids Medical Centre
Cardiff South East	Roathwell Surgery
	Cloughmore Surgery
	Cathays Surgery
	Meddygfa Albany Surgery
	North Road Medical Practice
	Four Elms Medical Centre
	The City Surgery
	Clifton Surgery
Cardiff South West	Llandaff Fields Medical Practice
	The Taff Riverside Practice
	Westway Surgery
	The Surgery St David's Court
	Woodlands Medical Centre
	Meddygfa Lansdowne Surgery
	Ely Bridge Surgery
	Kings Road Surgery
	The Caerau Lane Surgery
	Meddygfa Canna Surgery
	Greenmount Surgery
Cardiff West	Radyr Medical Centre
	Bishops Road Medical Centre
	Danescourt Surgery
	Fairwater Health Centre
	Meddygfa Llwynhelyn Practice
	Llandaff North Medical Centre
	Whitchurch Village Practice
	Llandaff Surgery
Central Vale	West Quay Medical Centre
	The Waterfront Medical Centre
	Ravenscourt Surgery
	Court Road Surgery
	Sully Surgery
	Highlight Park Medical Practice
	The Practice Of Health
	Vale Family Practice
City and Cardiff South	Saltmead Medical Centre
	Grange Surgery
	Grange Medical Practice
	Corporation Road Surgery
	Butetown Medical Practice
	Clare Road Medical Centre
	Grangetown Health Centre
Eastern Vale	Redlands Surgery

		Stanwell Surgery
		Station Road Surgery
		Dinas Powys Medical Practice
		Albert Road Surgery
		The Health Centre (Dinas Powys)
	Western Vale	Cowbridge and Vale Medical Practice
		Eryl Surgery
		The Cowbridge and Western Vale Group Practice
Cwm Taf Health Board	North Cynon	St John's Medical Practice
		Cwmaman Surgery
		Hirwaun Health Centre
		Parc Surgery
		Maendy Place Surgery
		Monk Street Surgery
	North Merthyr Tydfil	The Hollies Health Centre
		Dowlais Medical Practice
		Morlais Medical Practice
	North Rhondda	Calfaria Surgery
		Horeb Surgery
		Tylorstown Surgery
		The Surgery (Ton Pentre)
		The Maerdy Ferndale Medical Group Practice
		Forest View Medical Centre
		New Tynwydd Surgery
	North Taf Ely	Eglwysbach Surgery
		The Ashgrove Surgery
		Taf Vale Practice
		Ynysangharad Surgery
		Ynysybwl Surgery
	South Cynon	Rhos House Surgery
		The Penrhiwceiber Medical Centre
		Abercynon Health Centre
		Hillcrest Medical Centre
		Miskin Surgery
		Cardiff Road Surgery
	South Merthyr Tydfil	Aberfan Surgery
		Treharris Primary Care Centre
		Pontcae Medical Practice
		Oakland Surgery
		Troedyrhiw Surgery
		Pantglas Surgery
	South Rhondda	Pont Newydd Medical Centre
		Porth Farm Surgery
		Tonypandy Health Centre
		Park Lane Surgery
		Tonypandy Health Centre
		Penygraig Surgery
		St Andrews Surgery
		The Surgery

		Cwm Gwyrdd Medical Centre
	South Taf Ely	Parc Canol Surgery
		Old School Surgery
		Newpark Surgery
		The Medical Centre
Hywel Dda Health Board	Amman/Gwendraeth	Amman Tawe Partnership
		Meddygfa Minafon
		Meddygfa'r Sarn
		Meddygfa'r Tymbl
		Brynteg Surgery
		The Surgery (Ammanford)
		Coalbrook Surgery
		Meddygfa Penygroes
		Amman Valley Medical Practice
	Llanelli	Ashgrove Medical Centre
		Llwynhendy Health Centre
		Fairfield Surgery
		Adfer Medical Group
		Meddygfa Tywyn Bach
		Avenue Villa Surgery
		Llangennech Surgery
		Ty Elli Group Practice
		Harbour View Surgery
		Andrew Street Surgery
	North Ceredigion	Borth Surgery
		Meddygfa'r Llan
		Tanyfron Surgery
		Padarn Surgery
		Ystwyth Medical Group
		Tregaron Surgery
		The Surgery (Aberaeron)
		Llanilar Health Centre
	North Pembrokeshire	St Thomas Surgery
		Barlow House Surgery
		The Health Centre (Fishguard)
		The Surgery (Milford Haven)
		Winch Lane Surgery
		St David's Surgery
		The Surgery (Solva)
		Meddygfa Wdig
		Newport Surgery
	South Ceredigion	The Surgery (New Quay)
		Meddygfa Emlyn
		Llynyfran Surgery
		Meddygfa Teifi Surgery
		Meddygfa Bro Pedr
		Cardigan Health Centre
		Brynmeddyg Surgery
		Ashleigh Surgery
	South Pembrokeshire	Argyle Medical Group

		Tenby Surgery
		Saundersfoot Medical Centre
		Meddygfa Rhiannon
		Narberth and Clarbeston Road Practice
		Health Centre (Neyland)
	Taf/Teifi/Tywi	Coach and Horses Surgery
		Meddygfa Teilo
		Furnace House Surgery
		Meddygfa Taf
		St Peter's Surgery
		Llanfair Surgery (Llandoverly)
		Meddygfa Tywi
		Morfa Lane Surgery
Powys Teaching Health Board	Mid Powys	Knighton (Wylcum St) Medical Practice
		Rhayader Medical Practice
		Builth Wells Medical Practice
		Llandrindod Wells Medical Practice
		Presteigne Medical Practice
	North Powys	Montgomery Medical Practice
		Arwystli Medical Practice
		Llanfair Caereinion Medical Practice
		Welshpool Medical Practice
		Glantwymyn Health Centre
		Llanfyllin Medical Practice
		Machynlleth Health Centre
		Newtown Medical Practice
	South Powys	Meddygfa Pengorof
		Ty Henry Vaughan
		War Memorial Health Centre
		Haygarth Medical Centre

Appendix C

What is the National COPD Audit Programme?

The National COPD Audit Programme is a programme of work that aims to drive improvements in the quality of care and services provided for COPD patients in England and Wales. For the first time in respiratory audit, the programme is looking at COPD care across the patient pathway, both in and out of hospital, bringing together key elements from the primary, secondary and community care sectors.

There are four programme workstreams:

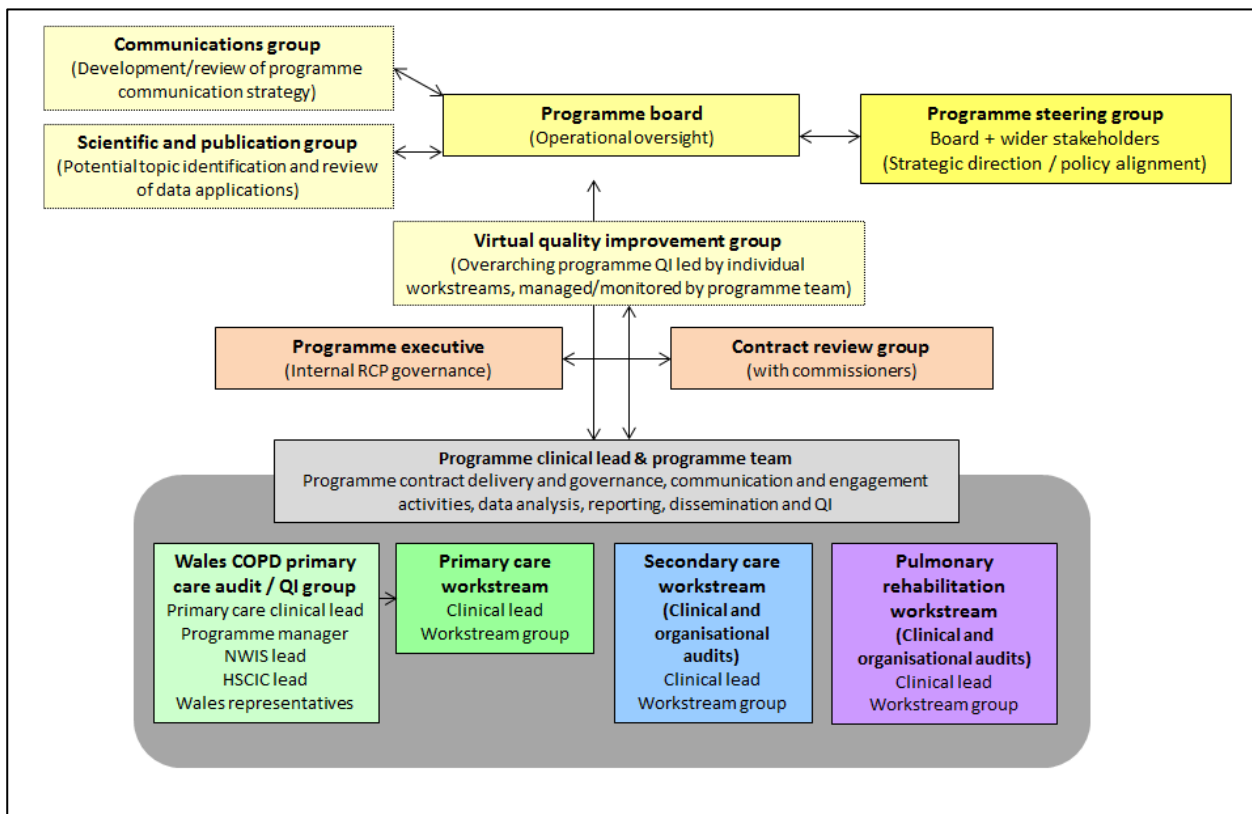
1. Primary care audit: collection of audit data from general practice patient record systems in Wales. Delivered by the RCP and NHS Digital, working with the PCRS-UK, the RCGP, and the NHS Wales Informatics Service.
2. Secondary care audit: in 2014 there were snapshot audits of patients admitted to hospital with COPD exacerbation, plus organisational audits of the resourcing of COPD services in acute units. The 2014 audits were delivered by the BTS, working with the RCP. A continuous audit of admission to hospital with COPD exacerbation will commence in 2017.
3. Pulmonary rehabilitation: audits of COPD patients attending pulmonary rehabilitation (including outcomes at 180 days), plus organisational audits of the resourcing of pulmonary rehabilitation services for COPD patients. The 2015 round of this audit was delivered by the BTS, working with the RCP. Another round of snapshot clinical and organisational audits will commence in 2017.
4. Patient Reported Experience Measures (PREMs): 1-year development work exploring the potential/feasibility for PREMs to be incorporated into the programme in the future. Delivered by the BLF, working with Picker Institute Europe.¹⁴

The programme is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). It is included in the list of national audits for inclusion in NHS trusts' quality accounts and also the NHS Wales Clinical Audit and Outcome Review Plan.

National COPD Audit Programme governance

The National COPD Audit Programme is led by the Clinical Effectiveness and Evaluation Unit (CEEU) of the Royal College of Physicians (RCP), working in partnership with the British Thoracic Society (BTS), the British Lung Foundation (BLF), the Primary Care Respiratory Society UK (PCRS-UK), the Royal College of General Practitioners (RCGP) and NHS Digital.

The audit programme aims to engage all eligible services in England and Wales. It is guided by a programme board, consisting of programme delivery partners, and a wider programme steering group, comprising strategic partners and key stakeholders, including patient representation. Both groups are chaired by Professor Mike Roberts, overall clinical lead for the programme. Within the programme, each workstream is led by a dedicated clinical lead and workstream advisory group.

Fig 4. National COPD Audit Programme governance structure (updated May 2016)

The programme board meets at least twice yearly, to provide strategic direction and to ensure that the National COPD Audit Programme achieves its objectives. It comprises the programme and workstream clinical leads, and representatives from the programme delivery team (the RCP, the BTS, the BLF and NHS Digital).

The programme steering group meets twice yearly, to ensure the National COPD Audit Programme's relevance to those receiving and delivering COPD services in England and Wales. It comprises the programme strategic partners and wider representation from organisations such as the Royal College of Nursing (RCN), the Association of Respiratory Nurse Specialists (ARNS), NHS Wales and Picker Institute Europe.

The workstream advisory groups are tasked with the development and day-to-day running of their specific element of the programme. Membership of the primary care workstream group is drawn from the steering group, supported by expert representatives from respiratory medicine and nursing. The workstream group meets quarterly or as necessary to monitor progress, and to support and direct the project, with more frequent communications between the project team and the primary care clinical lead.

The National COPD Audit Programme is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). Any enquiries in relation to the National COPD Audit Programme should be directed to COPD@rcplondon.ac.uk.

National COPD Audit Programme primary care workstream group members

- Ms Emma Adams, Clinical Audit Project Lead, Clinical Audit Support Unit (CASU), Health and Social Care Information Centre (HSCIC) (group member until December 2014)
- Dr Noel Baxter, Primary Care Workstream Clinical Lead, National COPD Audit Programme (from October 2015); and GP Clinical Lead, NHS Southwark CCG
- Ms Ruth Cater, Practice Manager, Staffa Health, Derbyshire (group member from April 2015)
- Ms Rachael Dix, Practice Development Team Manager, NHS Hardwick CCG (group member until January 2015)
- Mr James Duffy, Clinical Audit Manager, Clinical Audit Support Unit (CASU), Health and Social Care Information Centre (HSCIC) (group member from January 2015 to April 2016)
- Ms Hannah Evans, Medical Statistician, Royal College of Physicians (RCP) (group member until December 2014)
- Dr Kevin Gruffydd-Jones, Respiratory Clinical Lead, Royal College of General Practitioners (RCGP); Honorary Lecturer at University of Bath; and General Practitioner
- Ms Sally Harris, Practice Nurse, Ravenswood Medical Practice, Ipswich, Suffolk (group member until April 2016)
- Ms Juliana Holzhauser-Barrie, National COPD Audit Programme Project Manager, Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP)
- Mr Joe Hunt, NHS Wales Informatics Service Lead (Deputy) (group member from May 2016)
- Ms Hamdi Issa, National COPD Audit Programme Coordinator, Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member from April 2016 to September 2016)
- Dr Rupert Jones, Executive and Research Lead, Primary Care Respiratory Society UK (PCRS-UK); Senior Clinical Research Fellow, Centre for Clinical Trials and Population Research, Plymouth University Peninsula School of Medicine and Dentistry; General Practitioner; and Primary Care Workstream Clinical Lead, National COPD Audit Programme (until September 2015)
- Dr Matt Kearney, Department of Health (group member until January 2014)
- Simon Kendrick, Senior Information Analyst, Arden GEM Commissioning Support Unit (group member from February 2015)
- Ms Megan Lanigan, Programme Manager, Clinical Innovation and Research Centre (CIRC), Royal College of General Practitioners (RCGP) (group member until February 2015)
- Ms Viktoria McMillan, National COPD Audit Programme Manager (from May 2016), Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member from May 2016)
- Ms Nicola O'Reilly, Interim Programme Manager, Clinical Innovation and Research Centre (CIRC), Royal College of General Practitioners (RCGP) (group member from May 2015 to September 2015)
- Professor David Price, Professor of Primary Care Respiratory Medicine, PCRS-UK (group member until March 2014)
- Dr Imran Rafi, Chair of the Clinical Innovation and Research Centre (CIRC), Royal College of General Practitioners (RCGP); Senior Lecturer in Primary Care Education, St George's University of London; and General Practitioner
- Professor C Michael Roberts, Programme Clinical Lead, National COPD Audit Programme; and Consultant Respiratory Physician, Whipps Cross University Hospital NHS Trust, Barts Health, Barts and The London School of Medicine and Dentistry, Queen Mary University of London
- Mr Simon Scourfield, NHS Wales Informatics Service Lead (group member from May 2016)
- Dr Sarah Sibley, Consultant Chest Physician, Liverpool Heart and Chest Hospital (group member from July 2016)
- Mrs Emma Skipper, National COPD Audit Programme Manager (until April 2016), Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member until April 2016)

- Dr Roz Stanley, Clinical Audit Project Lead, Clinical Audit Support Unit (CASU), Health and Social Care Information Centre (HSCIC) (group member until September 2013)
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National COPD Audit Programme primary care QI/Wales group members

To reflect the Wales-specific work of the primary care workstream, an additional group was convened in 2015 to provide expert direction and input to ensure that the National COPD Primary Care Audit and the quality improvement initiatives in response to results of the audit are feasible and acceptable to clinicians providing COPD services in Wales.

Membership is as follows:

- Dr Jackie Abbey, Primary Care Respiratory Society UK (PCRS-UK) Lead
- Dr Noel Baxter, Primary Care Workstream Clinical Lead, National COPD Audit Programme (from October 2015); and GP Clinical Lead, NHS Southwark CCG
- Dr Simon Barry, Respiratory Lead for the Wales Respiratory Health Implementation Group (RHIG)
- Dr Claire Campbell, Royal College of General Practitioners (RCGP) Wales Lead
- Mr Joseph Carter, Head of Wales, British Lung Foundation Wales
- Shaun Chainey, Audit Lead, Major Health Conditions Policy Team, Welsh Government
- Mr Antony Davies, Welsh Government Lead (Deputy)
- Mr James Duffy, Clinical Audit Manager, Clinical Audit Support Unit (CASU), Health and Social Care Information Centre (HSCIC) (group member until April 2016)
- Nicola Edmunds, Wales Manager, Royal College of General Practitioners (RCGP)
- Dr Sion Edwards, Primary Care Quality, Public Health Wales
- Dr Karen Gully, Senior Medical Officer (General Practice and Primary Care), Welsh Government
- Ms Juliana Holzhauser-Barrie, National COPD Audit Programme Project Manager, Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP)
- Mr Joe Hunt, NHS Wales Informatics Service Lead (Deputy)
- Ms Hamdi Issa, National COPD Audit Programme Coordinator, Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member from April 2016 to September 2016)
- Ms Viktoria McMillan, National COPD Audit Programme Manager (from May 2016), Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member from May 2016)
- Professor C Michael Roberts, Programme Clinical Lead, National COPD Audit Programme; and Consultant Respiratory Physician, Whipps Cross University Hospital NHS Trust, Barts Health, Barts and The London School of Medicine and Dentistry, Queen Mary University of London
- Mr Simon Scourfield, NHS Wales Informatics Service Lead
- Mrs Emma Skipper, National COPD Audit Programme Manager (until April 2016), Clinical Effectiveness and Evaluation Unit, Care Quality Improvement Department, Royal College of Physicians (RCP) (group member until April 2016)

Appendix D: Glossary of terms, definitions and abbreviations

Asthma	A respiratory condition marked by attacks of spasm in the bronchi of the lungs, causing difficulty in breathing
Atrial fibrillation (AF)	A heart condition that causes an irregular and often abnormally fast heart rate
Audit	A process that measures care against set criteria, to identify where changes can be made to improve the quality of care
BDP	Beclometasone dipropionate – a steroid medication used in inhaler form as part of the long-term management of asthma
Benchmark	An evaluation of something by comparison with a standard
Beta2 agonist	A medicine that opens the airways by relaxing the muscles that constrict during an asthma attack or in COPD. This medicine is usually administered in respiratory disease by an inhaler and, less frequently, by a nebuliser
Body mass index (BMI)	A measure of health calculated using an individual's height against their weight
Bronchodilator	A substance that dilates the bronchi and bronchioles, decreasing resistance in the respiratory airway and increasing airflow to lungs
Chronic obstructive pulmonary disease (COPD)	A collection of lung diseases including chronic bronchitis, emphysema and chronic obstructive airways disease, which cause difficulties with breathing, primarily due to narrowing of the airways
Cluster	A practice cluster is a grouping of GPs and practices locally determined by an individual NHS Wales local health board (LHB)
Cyanosis	A bluish discolouration of the skin due to poor circulation or inadequate oxygenation of the blood
CXR	Chest X-ray
DOSE score	Dyspnoea (breathlessness), obstruction, smoking, exacerbation (DOSE) index – predictive of mortality in COPD
Dyspnoea	Also known as shortness of breath or breathlessness, is a subjective sensation of breathing discomfort
ECG	Electrocardiogram
Exacerbation	A sudden worsening or 'flare up' of COPD symptoms (shortness of breath, quantity and colour of phlegm)
Exception reported	Patients who are excluded from QOF indicators by practices either because they decline to take part in the test or measure or because it would be inappropriate or not possible to include them within the time frame when that indicator should be recorded
FEV₁	Forced expiratory volume in 1 second
FEV₁%	FEV ₁ /FVC ratio
FP10	A form used by an NHS doctor (in the UK) to prescribe for an NHS patient
FVC	Forced vital capacity, the total amount of air exhaled during an FEV ₁ test, the forced expiratory volume in 1 second
GPC Wales	General Practitioners Committee Wales
Health board (HB)	Health boards (HBs) in Wales plan, secure and deliver healthcare services in their areas
Hypoxaemia	An abnormally low concentration of oxygen in the blood

Hypoxia	A condition in which the body or a region of the body is deprived of adequate oxygen supply
ICS	Inhaled corticosteroid
LABA	Long-acting beta2 agonist
LAMA	Long-acting muscarinic antagonist
LTOT	Long-term oxygen therapy
Mean	The average value of the data (ie the data values are added together and then divided by the number of data items)
Median	The middle point of a dataset: half of the values are below this point, and half are above this point
Metric	A system or standard of measurement
Muscarinic antagonist	In respiratory disease an inhaled medicine that opens airways to help breathlessness and reduces inflammation
MRC breathlessness (dyspnoea) score	Medical Research Council scale – degree of breathlessness related to graded activities
NICE guideline on COPD	Guidance for the care and treatment of people with COPD in the NHS in England and Wales: http://guidance.nice.org.uk/CG101 (NICE, 2010)
NICE quality standard for COPD	Defines clinical best practice within this topic area, covering the assessment, diagnosis and clinical management of COPD in adults: http://guidance.nice.org.uk/QS10 (NICE, 2011)
Non-invasive ventilation (NIV)	Breathing support provided in hospital or at home via a face mask that delivers a slightly pressurised airflow
NWIS	NHS Wales Informatics Service
Palliative care	Treating symptoms at the end of life
Peripheral oedema	Swelling in tissues perfused by the peripheral vascular system, usually in the lower limbs
Polycythaemia	An abnormally increased concentration of haemoglobin in the blood, either through reduction of plasma volume or increase in red cell numbers
Primary care	Local healthcare delivered by GPs, NHS walk-in centres and others, which is provided and managed by CCGs/LHBs
Pulmonary rehabilitation	A programme, typically including patient education, exercise training and advice, which is designed to improve the health of patients with chronic breathing problems including COPD
Pulse oximetry/oximeter	A test used to measure the oxygen level (oxygen saturation) of the blood
QALY	Quality-adjusted life year – a generic measure of disease burden, including both the quality and the quantity of life lived
QI	Quality improvement
QOF	Quality and Outcomes Framework – a voluntary annual reward and incentive programme for all GP surgeries in England, Wales, Scotland and Northern Ireland; detailing practice achievement results
Read codes	The standard clinical terminology system used in general practice in the UK
Read code 339M	FEV ₁ /FVC ratio after bronchodilator

Read code 339O1	FEV ₁ /vital capacity ratio
Read code 339j	FEV ₁ /FVC ratio pre steroids
Read code 339k	FEV ₁ /FVC ratio post steroids
Read code 339l	FEV ₁ /FVC ratio before bronchodilator
Read code 339R	FEV ₁ /FVC per cent
Read code 339r	FEV ₁ /VC per cent
Read code 339T	FEV ₁ /FVC >70% of predicted
Read code 339U	FEV ₁ /FVC <70% of predicted
Read code 3399	FEV ₁ /FVC ratio abnormal
Read code 66yf	Number of COPD exacerbations in the past year
RHIG	Respiratory Health Implementation Group
SBOT	Short-burst oxygen therapy
Secondary care	Planned and unplanned care that is provided in hospitals
SNOMED	Systematised Nomenclature of Medicine
Specialist	A clinician whose practice is limited to a particular branch of medicine or surgery, especially one who is certified by a higher educational organisation
Spirometry	A test measuring lung function, specifically the amount (volume) and/or speed (flow) of air that can be inhaled and exhaled, and which is used to diagnose COPD
VC	Vital capacity

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