Report of
The National Chronic Obstructive Pulmonary Disease Audit 2008: Resources and Organisation of care in Acute NHS units across the UK

September 2008

St Elsewhere Hospital

Royal College of Physicians of London, British Thoracic Society and British Lung Foundation

Report prepared by

Rhona J Buckingham MA, RGN
Project Manager, The National COPD Audit 2008,
Clinical Effectiveness and Evaluation unit, The Royal College of Physicians, London.

Derek Lowe MSc, C.Stat
Medical Statistician, The National COPD Audit 2008
Clinical Effectiveness and Evaluation unit, The Royal College of Physicians, London.

Nancy A Pursey BSc (Hons)
Project Co-ordinator, The National COPD Audit 2008
Clinical Effectiveness and Evaluation unit, The Royal College of Physicians, London.

Professor C Michael Roberts MA MD FRCP ILTHE
Associate Director of The National COPD Audit 2008,
Consultant Respiratory Physician, Whipps Cross University Hospital NHS Trust.

Dr Robert A Stone BSc PhD FRCP
Associate Director of The National COPD Audit 2008,
Consultant Respiratory Physician, Musgrove Park Hospital, Taunton and Somerset NHS Foundation Trust.

On behalf of the National COPD Audit 2008 Steering Group

Acknowledgements

We would like to thank all the people who have contributed to the development of the methodology and questions for the National COPD Audit 2008. We consulted widely and received extremely helpful, enthusiastic input from colleagues and patient representatives, all of which was considered by the project team prior to the refinement of the tools.

We are particularly indebted to members of the Steering Group who unreservedly gave the Project Team direction, support and the benefit of their expert opinions.

Thanks are extended to a number of individuals, teams and groups that specifically assisted with the development and piloting of the audit methodology and questions, namely:

- Dr Charlotte Bolton, Alena Ball and Danielle Richards: Llandough Hospital, Cardiff.
- Dr Charlotte Campbell and Sheila Cooper: Wycombe Hospital, Buckinghamshire.

- Dr Paul Tate and Dr David Ross: St Richard's Hospital, West Sussex.
- Dr Catherine Thompson, Victoria Parker and Felicity Chastney: Salisbury District Hospital, Wiltshire.
- Stephen Callaghan: Liverpool Primary Care Trust
- Nicky Hughes: Cardiff Local Health Board
- Dr Margaret O'Brien: Northern Health & Social Services Board
- Maureen Carroll and colleagues: NHS Lanarkshire
- Taunton Breathe Easy Group
- The Lung Club, Whipps Cross Hospital Chest Clinic
- Blackdown Hills Breathe Easy Group

We acknowledge and very much appreciate the time and effort given by all clinical and audit colleagues across the NHS, in order to contribute to this project.

Thanks are also due to the hundreds of General Practitioners and patients who contributed to the audit by way of completing and returning a survey about COPD care to the Project Team.

Finally, thanks are extended to The Health Foundation that fully funded the National COPD Audit 2008.

Contents

Executive Summary

Chronic Obstructive Pulmonary Disease (COPD) is the fifth biggest cause of death in the UK, the second most common cause of emergency admission to hospital and one of the most costly in-patient conditions treated by the National Health Service (NHS) (British Lung Foundation 2007)[1]. With effective services and treatment the rates and severity of exacerbations can be reduced, so in turn reducing the need for hospital admission, reducing lengths of stay, reducing cost and improving the outcomes and quality of life for patients.

Previous national audits of acute COPD care in 1997 and 2003 have highlighted the limitations and variability of COPD management. Since that time the National Institute for Clinical Excellence (NICE)[2] has published its guideline on the management of chronic obstructive pulmonary disease in adults in primary and secondary care (2004), and a National Service Framework (NSF) for England is currently being prepared [due for publication in 2009].

This third round of national COPD audit has been carried out to assess progress since the 2003 National COPD Audit and the 2004 NICE guidance. The audit aims to:

- Enable units to compare their performance against national standards.
- Identify resource and organisational factors that may account for observed variations in outcome.
- Facilitate improvement in the quality of care.
- Identify changes since the 2003 National COPD Audit (Royal College of Physicians and British Thoracic Society, 2003)[3].

The National COPD Audit 2008 builds on previous audits of acute COPD care, with three additional elements. A cross-sectional resources and organisation of care audit, reported here, was followed by a clinical process and outcomes audit of up to 60 cases admitted to hospital with an exacerbation of COPD.

In addition, hospital teams sent a survey to the General Practitioners of the first 30 clinical audit patients asking for details of their care during the preceding 12 months. Hospital teams also surveyed 30 clinical audit patients about the events leading up to their admission. Responses from both surveys were returned anonymously to the project team at the Clinical Effectiveness and Evaluation unit (CEEu) of The Royal College of Physicians of London.

---

[1] British Lung Foundation, 2007. *Invisible lives: Chronic Obstructive Pulmonary Disease (COPD) finding the missing millions.* Available at: http://www.lunguk.org/NR/rdonlyres/E027CA18-B5C6-49AB-96FA-C4AF55E6F484/0/InvisibleLivesreport.pdf (20 August 2008)

[2] National Institute for Clinical Excellence, 2004. *National clinical guideline on management of chronic obstructive pulmonary disease in adults in primary and secondary care.*

[3] Royal College of Physicians and British Thoracic Society, 2003. *Report of the 2003 National COPD Audit*. Available at: http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/Documents/NCROP%20nationalCOPDaudit2003report.pdf (20 August 2008)

In recognition of the developing integration of COPD services across primary and secondary care, UK Primary Care Organisations were surveyed about resources and organisation of care for people with COPD in their locality.

This report describes the results of the resources and organisation of care audit in acute UK NHS units. The results of the clinical audit, GP, patient and PCO surveys will be published separately.

Two hundred and thirty nine 'units' from 180 Acute NHS Trusts contributed to this resources and organisation of care audit, equating to a participation rate of 98% of Acute NHS Trusts across the United Kingdom. Data were collected about general aspects of COPD care and specific Quality Indicators for COPD services, namely: non-invasive ventilation (NIV), pulmonary rehabilitation (PR), early discharge schemes (EDS) and oxygen services. Also, information about palliative care services for people with COPD was collected. The audit was carried out between March and May 2008.

Key Findings

1. There has been a significant increase in the provision of some COPD-specific services since 2003, such as early discharge programmes (44% to 59%) and the availability of Non-Invasive Ventilation (NIV) for acute respiratory failure (89% to 97%).

2. There has been a significant improvement since 2003 in staffing available to meet the needs of COPD patients but one-third of units report current staffing vacancies; many units still fall below the staffing levels recommended by The Royal College of Physicians (2008)[4].

3. There are many examples of self reported good practice and service innovation.

4. Many of the COPD-specific services are of variable quality. Services often fail to meet the indicators included in the audit and none of the participating units achieved all the 46 COPD service quality standards in full.

5. Specific deficiencies in NIV and oxygen services are noteworthy. Many quality indicators for NIV and oxygen assessment are not met in participating units. This is of concern in this group of particularly ill patients.

6. There are serious deficiencies in the provision of information to patients across all COPD services. Few Units provide information to patients and

[4] Royal College of Physicians, 2008. *Consultant Physicians working with patients: the duties, responsibilities and practice of physicians in medicine (4th edition)*

carers about the use of NIV, about end of life care and the availability of local services.

7. In general there is limited provision of end of life and palliative care services but some excellent examples of good practice as exemplified by participants in the National COPD Resources and Outcomes Project (NCROP) which is reported elsewhere[5].

8. Although engagement with this National Audit has been outstanding, audit of local service provision is not well-implemented in most Units. Without such key audit data it is difficult to see how Provider Units, Commissioners or patients themselves may judge the quality of the COPD service or the outcomes that are critical to patient care.

Recommendations

1. Further investment is necessary to achieve recommended levels in staffing and to provide comprehensive high quality COPD services for patients.

2. Units should consider how they may meet recommended national and local quality indicators and develop agreed service improvement plans with their Commissioners.

3. Units should undertake regular audit of their COPD service against national quality indicators as a mechanism of both identifying areas requiring improvement and demonstrating good practice.

4. There is a specific need to review and improve the current provision of information to patients about specific medical interventions (e.g. NIV) and service provision (e.g. Palliative Care and Early Discharge schemes).

5. Extra resources are required specifically to improve palliative and end-of-life care provision for patients with COPD.

6. There should be a mechanism for disseminating innovation and good clinical practice amongst units and healthcare professionals wishing to develop their COPD services.

[5] Roberts, C., Buckingham, R., Seiger, A., & Stone, R. Clinician perceived good practice in end of life care for COPD Patients. *Palliative Medicine*. In press.

Introduction

The National COPD Audit 2008 was led by a partnership between the Clinical Effectiveness and Evaluation unit (CEEu) of The Royal College of Physicians of London (RCP), the British Thoracic Society (BTS) and the British Lung Foundation (BLF).

Governance of the project

The National COPD Audit 2008 was governed by 2 groups (Appendix A).

- A Steering Group, comprising representatives from Respiratory Medicine and Nursing, Physiotherapy, Geriatric and Intensive Care Medicine, Public Health, Primary Care and Patients. The Group met on a quarterly basis to ensure the audit's relevance to those receiving and delivering COPD services in the UK.

- A smaller executive Implementation Group, drawn from membership of the Steering Group, met on a monthly basis to monitor progress, support and direct the project.

Audit methodology

The 2008 National COPD Audit was similar to previous audits of acute COPD care undertaken in 1997 and 2003, albeit with 3 additional elements. Thus, a cross-sectional resource and organisation of care audit was followed by a clinical audit of up to 60 cases admitted to hospital with an exacerbation of COPD during the data collection period. The resources and organisational audit collected general data with more specific quality indicators for NIV, pulmonary rehabilitation, early discharge and oxygen services. Further information was requested for palliative care provision and examples of good practice in this and other areas of COPD care were requested. Clinical cases were identified prospectively, with process of care and 90 day clinical outcomes audited retrospectively.

In 2008, for the first time, hospital teams were additionally requested to forward a survey to the General Practitioners of the first 30 audited patients admitted with a COPD exacerbation. The teams were asked also to request that 30 of their 60 audited patients complete a survey and return it anonymously to the project team at the CEEu via a pre-paid envelope. An organisational survey of United Kingdom NHS Primary Care Organisations (PCOs) was undertaken, with participating PCOs completing a cross-sectional paper-based questionnaire about the resources and organisation of care for people with COPD in their locality.

The purpose of these surveys was to explore aspects of COPD around the acute care pathway from different perspectives and, thus, the National COPD Audit 2008 comprised five distinct elements:

1. The National COPD Audit 2008: resources and organisation of care in acute NHS units across the UK

2. The National COPD Audit 2008: clinical audit of COPD exacerbations admitted to acute NHS units across the UK

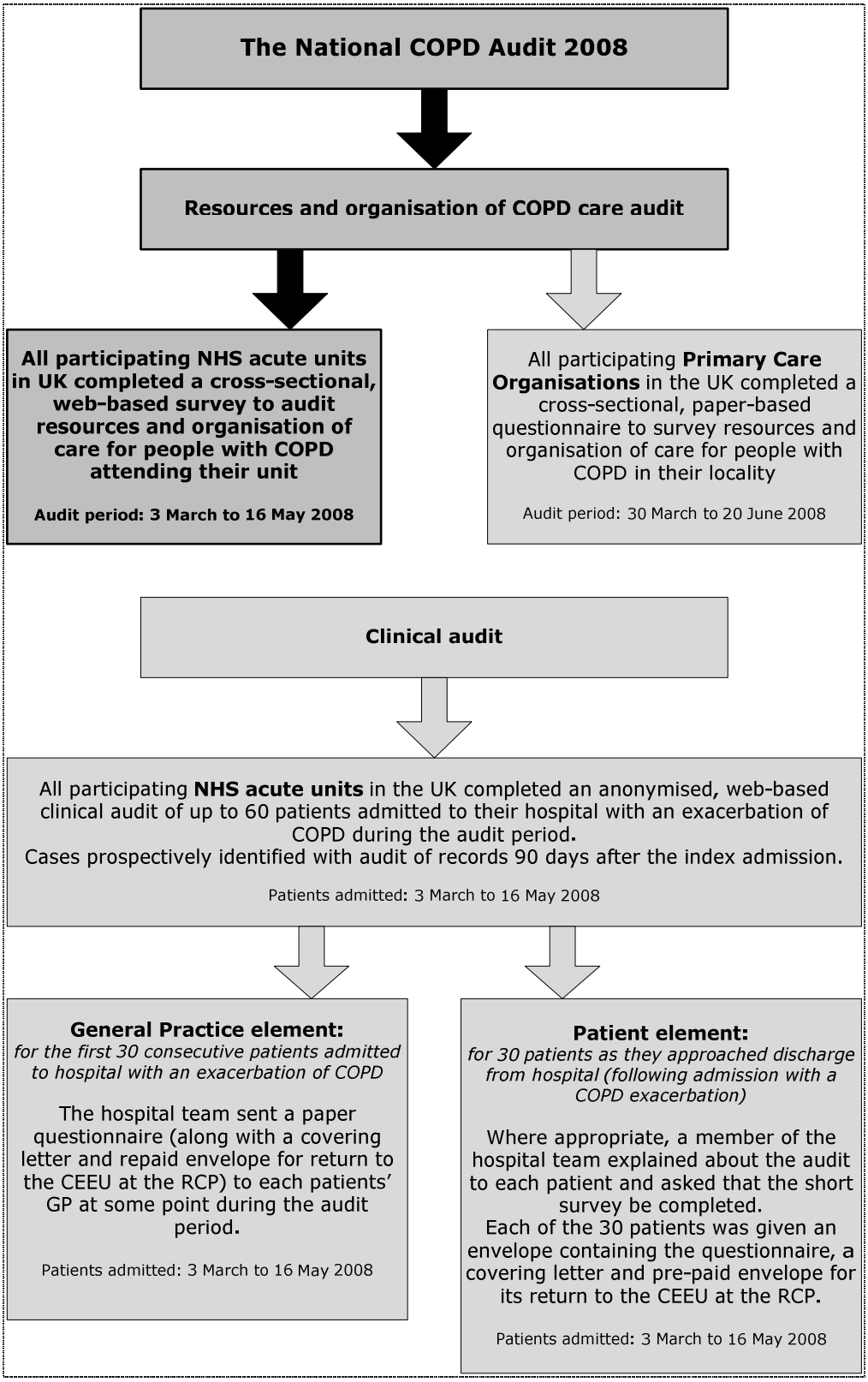
3. The National COPD Audit 2008: General Practitioner survey

4. The National COPD Audit 2008: patient survey

5. The National COPD Audit 2008: Primary Care Organisation resources and organisation of care survey

This report describes only the results from the resources and organisation of care audit in Acute NHS units across the UK i.e. element 1 (illustrated dark grey with black arrows in Figure 1 below).

Figure 1: The National COPD Audit 2008: methodology



Recruitment

Efforts to ensure a high participation rate began in July 2007. The audit was promoted via the RCP and BTS websites, flyers were distributed at specialist conferences, information was widely disseminated to respiratory colleagues via global emails from the BTS, and a letter to raise awareness of the audit was sent to the Chief Executive Officers of all NHS Acute Trusts in September 2007. It requested the support of both respiratory and clinical audit colleagues.

A letter to clinical audit departments, respiratory and medical consultants followed in October 2007. It outlined plans for the forthcoming audit and sought 'registration' by way of units identifying two local leads – a clinician and a clinical audit colleague to oversee their participation.

Concerted efforts were subsequently made to identify potential leads at Trusts that did not respond to the initial letter inviting participation. Various sources were used to identify colleagues: BTS Directory of Training Posts and Services in Adult and Paediatric Respiratory Medicine 2007; Binley's Directory of NHS Management Autumn / Winter 2007/2008; contacting individual hospitals by phone or email; asking colleagues at neighbouring hospitals to identify a potential lead.

Methods

The audit was co-ordinated by the Clinical Effectiveness and Evaluation unit (CEEu) at the Royal College of Physicians in London. Resources and organisation of care data were collected and submitted to a web-based data collection tool by local staff and overseen by a Respiratory Consultant within each participating unit.

Development of the audit questions

The resources and organisation of care audit pro-forma is shown in Appendix B. It builds on the 2003 National COPD Audit pro-forma, so allowing some assessment of change over time to be made, a high priority for stakeholders.

Following wide e-mail consultation with all members of the BTS recorded as having an interest in COPD in the BTS Directory of Training Posts and Services in Adult and Paediatric Respiratory Medicine 2007, a number of modifications were made to the 2003 audit questions, reflecting changes in patterns of COPD service provision since 2003. In addition, the audit pro-forma included a number of quality indicators based on NICE / BTS guidance and expert opinion sought from members of the Steering Group via email and during a face-to-face meeting in November 2006. These

indicators relate to four key areas of service provision: non-invasive ventilation (NIV), early discharge schemes (EDS), pulmonary rehabilitation (PR) and the provision of oxygen services. Four questions relating to the provision of palliative care services for people with COPD were also included.

Definitions

- ***Definition of a 'unit'***

The term 'unit' was used to describe each organisation that participated in the audit: specifically, for the purposes of the audit, a 'unit' was defined as 'a hospital that admits acute unselected emergency admissions'.

Thus, where a whole Trust has participated in the audit, the term 'unit' refers to that Trust. Where a hospital has participated in the audit as part of a Trust, the term 'unit' refers only to that hospital within the Trust. Participants were asked to define 'units' in terms of the functionality of their Respiratory Medicine Departments.

- ***Chronic Obstructive Pulmonary Disease (COPD)***

To ensure accurate diagnosis of COPD exacerbation, the lead clinician at each unit was encouraged to review the medical notes of patients included in the audit to check for any evidence of misdiagnosis. Any patients whom the lead clinician considered to have been misdiagnosed (i.e. diagnosis appeared to be COPD on admission but later deemed incorrect) were to be excluded from the audit. Also excluded were any patients where the diagnosis was changed to exacerbation of COPD from another presenting condition, as this would have affected their early management in hospital.

- ***Admission***

For the purposes of the National COPD Audit 2008 an admission is defined as "an episode in which a patient with an acute COPD exacerbation is admitted to a ward and stayed in hospital for 4 hours or more (this includes Emergency Medicine Centres / Medical Admission Units or similar but excludes Accident and Emergency Units) prior to discharge or acceptance to an early discharge scheme". A stay in hospital of less than 4 hours would be classed as a non-admission and would not be included.

- ***Early discharge schemes***

Early discharge schemes have a variety of names, including 'hospital at home', or may be known by local acronyms. Units were asked to include in the audit those patients who presented to hospital with COPD exacerbation and were then accepted onto an early discharge or hospital at home scheme, so reducing length of stay. Patients seen at home by such schemes but not presenting to hospital were excluded from the audit.

Web-based data collection tool

The National COPD Audit 2008 web-based data collection tool was developed by Net Solving Ltd. It was accessible via the RCP's Web-Site (Appendix C screen shots). Security and confidentiality were maintained throughout the audit period by using site-specific codes and passwords for each unit At no point during the audit did we collect patient identifiable information.

Online 'help-notes' for each question were accessible within the tool. These contained the rationale for each question, suggestions for sources of data and, where appropriate, references to the guidance from which standards emerged.

A number of documents designed to support participation in the audit were posted within the web-tool, including copies of the methodology and questions. Weekly project updates were also sent to participating teams to direct them through the phases of the audit and share progress.

Participating units were able to enter and save data both during and at the end of an in-putting session. In addition, each question had a 'comments' icon to allow auditors to free-text further information to clarify their answer as necessary.

Units were encouraged to check the accuracy of their completed dataset prior to submitting and 'locking', at which point the project team at the CEEu would export it to an Excel file in preparation for analysis. Participating teams were similarly encouraged to export a copy of their own data to an Excel file for their future reference.

The tool and audit questions were tested by four acute units during the pilot phase of the audit between November 2007 and January 2008. Following evaluation of this phase, minor modifications were made to the audit tool, questions and supporting documents e.g. clarifications to 'help-notes' and ordering of the questions.

Data collection

Collection and submission of the resources and organisation of care data took place between Monday 3rd March and 16 May 2008.

Telephone and email support

The project team provided dedicated support to deal with queries or comments from participants throughout the audit; a telephone helpline was available from Monday to Friday, 9.30am to 4.30pm and queries could be emailed directly to the project team. Where similar queries were

being raised frequently, they were shared with teams via the weekly project updates, along with responses from the Clinical Directors.

Presentation of results

This report gives your individual results alongside the summary results for all units participating in this audit.

Where applicable, 2003 National COPD Audit data is recorded beneath tables to allow an assessment of change.

Sections 1 to 6 give your results for each question asked in the audit, alongside the national summary. Section 7 gives your organisational and quality scores alongside the national summary.

There are 4 quality scores, each scaled from 0 to 100 and based on standards (12 for NIV, 11 for Pulmonary Rehabilitation, 9 for Early Discharge Schemes, 14 for Long Term Oxygen Therapy (LTOT). There is also an organisation of care score based on responses to 24 audit questions. The algorithms that describe the scoring system for the organisational and quality scores are given in Appendix D.

Results

Organisational Data were received from 239 units within 180 Trusts. Response rate for Trusts was 98% (180/184). Appendix E.

Section 1: Admissions, staffing levels, general organisation of care

KEY MESSAGES:

Resources

- Reported COPD admissions have increased since the 2003 audit up from a median of 458 per unit (data available for 228 units) to 483 per unit (data from 238 units).
- The average number of respiratory consultants per unit has improved since 2003 but 11% of units still have 1 or less Whole Time Equivalents (WTE).

Organisation

- There has been an increase in the use of specialty respiratory wards (up from 65% in 2003 to 84% in 2008) but only just over half of all units (52%) currently use specialty triage.
- 94% of units now have an admissions ward (up from 88% in 2003).
- 79% of units have either a medical or mixed HDU.
- There is an increase in units with an early warning or outreach service (61% in 2003, now 87%).
- Most units (81%) have 2 or more take rounds per 24 hours.
- An encouraging percentage of units have guidelines for assessment (67%) and treatment (75%) but few for follow up (45%).

Areas identified as needing improvement

- There has been a slight improvement in access to a respiratory nurse for all COPD patients (from 72% to 80%) but 1 in 5 units still operate a less than comprehensive COPD nursing service.
- One third (33%) of units had a current staffing vacancy, with nursing posts the most commonly unfilled.
- Invasive ventilation was not used in 23% of units as a method of ventilatory support to treat patients with COPD exacerbation.

Emergency admissions in 2007

	National audit (239)	**Your Unit**
How many medical emergency admissions did your Unit admit in 2007?		
Median	10220	
Inter-Quartile range	7239 – 13887	
Units with data	239	
How many COPD emergency admissions did your Unit admit in 2007?		
Median	483	
Inter-Quartile range	338-770	
Units with data	238	

***2003 audit**: COPD patients admitted in 2002: median 458 IQR 312-716*

Staff members (WTE) of the Respiratory Team

Although there have been increases in staffing numbers since 2003, when the RCP recommended the delivery of a quality service in respiratory medicine would require five WTE Consultants per 250,000 population, Consultant numbers remain below the recently updated RCP / BTS recommendation of seven WTE adult respiratory physicians being required to deliver a such a service (Royal College of Physicians 2002 & 2008)[6,7].

There was wide variation in the resources available to manage COPD admissions as exemplified by the number of doctors and nurses available to treat such patients.

11% (26) of units had ≤ 1 WTE respiratory medical consultant whereas 27% (65) of units had 4 or more WTEs.

RESPIRATORY TEAM	National audit (239) : **%** of units with					Median (IQR) WTE	Median (IQR) WTE per 1000 emergency COPD admissions 2007	**Your site**	
	NO WTE	0.1 to 1.0 WTE	1.1 to 2.0 WTE	2.1 to 3.0 WTE	> 3.0 WTE			**WTE**	**WTE per 1000 emergency COPD admissions 2007**
FY1	8	27	36	19	10	2 (1-3)	3.6 (2.1-5.4)		
FY2 and /or ST1 and/or ST2 and/or SHO	5	17	39	19	21	2 (2-3)	4.5 (2.6-6.3)		
ST3 and above and /or SpR	11	23	38	15	13	2 (1-3)	3.7 (1.9-5.5)		
Associate Specialist	91	8	0.4	0.8	-	0 (0-0)	0 (0-0)		
Staff Grade	79	19	2	-	0.4	0 (0-0)	0 (0-0)		
Respiratory Consultant	2	9	33	25	32	3 (2-4)	5.3 (3.6-7.8)		
Respiratory Physiologist (Lung Function Technician)	8	41	23	10	18	1 (1-3)	2.6 (1.4-5.2)		
COPD Nurse	38	23	18	9	12	1 (0-2)	1.9 (0-4.2)		
Other Specialist Respiratory Nurses	14	23	24	18	22	2 (1-3)	3.5 (1.8-6.7)		
Specialist Respiratory Physiotherapist	20	52	14	8	6	1 (0.5-2)	2.2 (0.7-3.9)		
Other *	80	10	6	2	1	0 (0-0)	0 (0-0)		
				TOTAL (excluding other)		15 (12-21)	31 (19-45)		

*In the **2003 audit** 26% of 236 units had ≤ 1 WTE respiratory medical consultants and 13% had 4 or more. The median number for 2003 was 2 (IQR 1-3). The median number per 1000 admissions in 2003 was 4.0 (IQR 2.3-6.0)*

*Other included a wide range of posts including occupational therapy, healthcare assistants, dieticians and administrative staff.

[6] Royal College of Physicians, 2002. *Consultant Physicians working with patients: the duties, responsibilities and practice of physicians in medicine (2nd edition)*

[7] Royal College of Physicians, 2008. *Consultant Physicians working with patients: the duties, responsibilities and practice of physicians in medicine (4th edition)*

Vacant posts in the respiratory team

Most vacancies were nursing posts with a much smaller number of medical staff vacancies.

	National audit (239)				Your unit
	Yes		No		
Vacant posts	33%	79	67%	159	

Not known for 1 unit

Take ward rounds undertaken by an on-call consultant per 24 hour week day on call period

Most units now have at least 2 take rounds per 24 hours.

	National audit (239)						Your unit
	One		Two		Three/Four		
Take ward rounds	19%	45	73%	174	8%	20	

***2003 audit**: One: 40%, Two: 57% as undertaken by a consultant each day*

Physician of the week scheme

Physician of the week schemes operate in a minority of units.

	National audit (239)				Your unit
	Yes		No		
Unit uses physician of week scheme	18%	43	82%	196	

***2003 audit**: 12% with scheme used in unit*

Ward-based system

The majority of units operate a ward-based system.

	National audit (239)				Your unit
	Yes		No		
Unit uses ward based system	79%	190	21%	49	

***2003 audit**: 60% with system used in unit*

Speciality triage

Both ward based systems and specialty triage are more frequently used now than in 2003, but triage still occurs in only 52% of units, despite the presence of specialist respiratory wards in 84%.

	National audit (239)				Your unit
	Yes		No		
Unit uses speciality triage	52%	125	48%	114	

***2003 audit**: 33% with specialty triage used in unit*

Written policy on age-related admission

A minority of units still operate an age-related admission policy, but those doing so have a wide range of age cut-offs.

	National audit (239)				Your unit
	Yes		No		
Unit has policy	16%	39	84%	200	
AGE cut-off:					
65		3			
70		1			
75		13			
77		1			
78		5			
79		1			
80		12			
85		3			

***2003 audit**: 22% with written age-related admissions policy*

Written policy on integrated admission

Just over one third of units have a written policy on integrated admission.

	National audit (239)				Your unit
	Yes		No		
Unit has written policy	37%	88	63%	151	

***2003 audit:** 53% with written integrated admissions policy*

Written local guidelines for COPD

An encouraging percentage of units have guidelines for assessment and treatment but fewer for follow up.

Written local guidelines for:	National audit (239)				Your unit
	Yes		No		
Assessment	67%	160	33%	79	
Treatment	75%	180	25%	59	
Follow-up after discharge	45%	108	55%	131	

A & E department

12 units operate without an Accident & Emergency Department.

	National audit (239)				Your unit
	Yes		No		
Unit has A&E department on-site	95%	227	5%	12	

Admissions ward

Nearly all units operate an admissions ward.

	National audit (239)				Your unit
	Yes		No		
Unit has admissions ward	94%	224	6%	15	

2003 audit: *88% with admissions ward*

Specialist respiratory ward

A high proportion of units have admissions units and specialty respiratory wards but relatively few use them appropriately for specialty triage.

	National audit (239)				Your unit
	Yes		No		
Unit has a specialist respiratory ward	84%	200	16%	39	

2003 audit*: 65% with specialist respiratory ward*

High Dependency Units (HDU)

1 in 10 units do not have a HDU.

	National audit (239)								Your unit
	Mixed HDU		Medical HDU		Other*		No HDU		
Type of HDU	62%	149	17%	41	10%	24	10%	25	

2003 audit*: mixed 64%, medical 11%, other 7%, none 18%*

* Some units manage HDU services within an ICU, others have a surgical only unit.

Intensive Care Unit (ICU) beds

16 units reported having no ICU beds available for COPD patients.

	National audit (239)	Your Unit
How many general operational Intensive Care Unit beds, suitable for COPD patients, does your Unit have?		
Median	7	
Inter-Quartile range	5 – 10	
Units with data	239	

2003 audit: *median 6, IQR 5-8 operational ICU beds, 13 units with none.*

Early warning detection / ICU outreach system for critically ill cases requiring ICU management

The number of units with early warning detection / ICU outreach has increased since 2003 and only 13% of units are now without such a system.

	National audit (239)				Your unit
	Yes		No		
Unit has system	87%	208	13%	31	

2003 audit: *61% using a system of early warning detection/ICU outreach*

Access to respiratory nurse

There has been a slight improvement in access to a respiratory nurse for all COPD patients (from 72% to 80%) but 1 in 5 units still operate a less than comprehensive COPD nursing service.

	National audit (239)								**Your unit**
	All COPD patients		Some patients – only those admitted under respiratory consultant		Some patients - other		None		
Which patients have Access to a respiratory nurse	80%	192	5%	11	11%	27	4%	9	

2003 audit: *72% all, 5% some under resp cons, 14% some other, 9% none*

Ventilatory support

Non-invasive ventilation (NIV) is now available in most, but not all, units receiving acute COPD admissions. Invasive ventilation was not used in 23% of units as a method of ventilatory support to treat patients with COPD exacerbation. In some cases, units stated that COPD patients were not offered invasive ventilation because of high mortality rates or lack of availability of ICU beds.

Which methods of ventilatory support does unit use to treat patients with exacerbations of COPD:	National audit (239)				**Your unit**
	Yes		No		
Invasive	77%	183	23%	56	
Non-invasive (NIV)	97%	233	3%	6	
Doxapram	40%	96	60%	143	
Other*	1%	3	99%	236	

2003 audit: *82% invasive, 55% Doxapram, 89% non-invasive BiPAP/NIPPV, 42% Nasal CPAP*

* CPAP(1), controlled Oxygen (1), none (1)

Section 2: Non-invasive ventilation (NIV)

KEY MESSAGES:

- NIV is now widely available across units.

Areas identified as needing improvement

- There is limited availability of NIV on HDU (74%) / ICU (56%).
- Many of the 12 quality indicators are not met in full. The median number fully met was 6, IQR 4-8.
- There is particularly poor provision of written information for patients about the indications for and patient experience of NIV (14% fully met the standard).
- Only 34% of units fully met the standard that nurses and doctors outside of specialist respiratory wards do know how to manage patients with COPD, and are aware of the indications for and benefits of NIV.
- Nearly half (48%) of units did not fully meet the standard that there was an ongoing inter-professional training programme for ALL staff involved in the care of patients established on NIV.
- Only 46% of units fully met the standard that there were locally adapted written protocols for the management of COPD patients requiring NIV, including weaning from NIV that were available in ALL relevant clinical areas for ALL relevant staff.
- 76% of units did not fully meet the standard to carry out an annual audit of the use of NIV including all clinical areas and covering both those patients offered NIV to examine its appropriate use AND those that might have benefited for NIV but who were not provided with this therapy.

NIV availability

There is limited availability of NIV on HDU / ICU.

Setting in which NIV is available:	National audit (239) Yes		No		**Your unit**
On HDU	74%	178	26%	61	
On ICU	56%	135	44%	104	
On Respiratory wards	70%	168	30%	71	
On General wards	13%	30	87%	209	
Other*	38%	90	62%	149	

2003 audit: *60% ICU, 63% HDU, 63% wards*

* Other means NIV used in A&E or admissions unit or equivalent.

NIV treatment standards

	National audit (239)						Your unit
	Met in full		Only partially Met		Not met at all		
NIV is used as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbation despite optimal medical therapy[8].	79%	190	18%	43	3%	6	
NIV is delivered in settings that are suitable for COPD patients: that is a designated area where staff have been specifically trained in NIV. E.g. ICU, HDU, Emergency Admissions Unit or a dedicated Respiratory Ward[9].	80%	191	16%	39	4%	9	
There is a named consultant responsible for the NIV service[10].	71%	169	18%	44	11%	26	
There is an ongoing inter-professional training programme for ALL staff involved in the care of patients established on NIV[11].	52%	124	40%	95	8%	20	
Nurses and doctors outside of specialist respiratory wards do know how to manage patients with COPD, and are aware of the indications for and benefits of NIV.	34%	81	59%	140	8%	18	
There is a written protocol that defines the monitoring of patients receiving NIV, and includes a minimum of regular clinical assessment, pulse oximetry and arterial blood gas measurements.	79%	189	13%	32	8%	18	
There is a clear set of individualised written instructions for the management of each patient receiving NIV, including what to do in the event of deterioration and agreed ceilings of therapy, along with an agreed protocol between ICU and the medical team[12].	47%	112	43%	103	10%	24	
Locally adapted written protocols for the management of COPD patients requiring NIV, including weaning from NIV, are available in ALL relevant clinical areas for ALL relevant staff.	46%	110	39%	94	15%	35	
A selection of nasal and full face masks, types and nasal pillows are available[13].	54%	129	43%	102	3%	8	
All areas offering NIV provide written information for patients about the indications for and patient experience of NIV.	14%	33	24%	58	62%	148	
There is a written policy for providing patient information about NIV to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital.	5%	11	17%	41	78%	187	
There is an annual audit of the use of NIV including ALL clinical areas. This audit covers both those patients offered NIV to examine its appropriate use AND those that might have benefited for NIV but who were not provided with this therapy.	24%	57	52%	123	25%	59	

[8, 12] National Institute for Clinical Excellence, 2004. *National clinical guideline on management of COPD in adults in primary and secondary care.*

[9, 10,13] British Thoracic Society, 1997. BTS guidelines for the management of COPD. *Thorax*; Supplement 5: 1 – 28.

[11] British Thoracic Society, 2002. BTS guideline; non-invasive ventilation in acute respiratory failure. *Thorax*; 57: 192-211

Section 3: Pulmonary Rehabilitation (PR)

KEY MESSAGES:

- The provision of formal pulmonary rehabilitation programmes looks to have improved (64% to 90%) though the question was asked differently in the two audits. In 2003 64% of units had a formal programme whilst 36% did not; in 2008 58% had a formal programme for all eligible patients whilst 32% had a formal programme for some but not all patients and 10% had no access at all.
- 43% of all units had PR programmes funded solely by Primary Care Organisations.
- Many units meet most of the 11 quality indicators in full. The median number fully met was 8, IQR 6-9.

Areas identified as needing improvement include:

- Only 49% of units fully met the standard of having annual audits of the service that includes patient numbers AND outcomes AND patient satisfaction.
- Only 30% of units fully met the standard of having a continuation phase, run by people trained in pulmonary rehabilitation, in the community.

Access to a formal PR programme

Access to a formal PR programme is available at just over half of units.

	National audit (239)						**Your unit**
	Yes, all eligible patients		Some but not all		No access		
Access	58%	138	32%	76	10%	25	

2003 audit: *64% of units had a formal PR programme. Note that in 2003 the response options available were just 'yes' and 'no', and not the 3 options offered in 2008.*

Funding

43% of all units had PR programmes funded solely by Primary Care Organisations.

	National audit (239)										Your unit
	Local hospital		Primary Care Organisation (PCO)		Joint hospital & PCO		Charitable funds		Not funded		
Funding of PR programme	24%	57	43%	103	18%	42	1%	3	14%	34	

Who contributes to PR programme

Physiotherapists, Respiratory Nurses and Dieticians are the professional groups that most commonly contribute to Pulmonary Rehabilitation programmes.

	National audit (214 with PR access)		Your unit
Physiotherapist	97%	207	
Dietician	72%	155	
Social worker	36%	77	
Pharmacist	49%	105	
Occupational therapist	64%	137	
Lung function technician	22%	47	
Respiratory nurse	91%	195	
Previous course participant	31%	67	
Other*	51%	109	

* Other includes a wide range of personnel including doctors, smoking cessation counsellors, psychologists, social service representatives, and charity representatives.

Pulmonary Rehabilitation standards

	National audit (239)						Your unit
	Met in full		Only partially met		Not met at all		
There are written inclusion and exclusion criteria for the pulmonary rehabilitation programme and it is available to anyone with a diagnosis of COPD and MRC breathlessness scale of 2 - 4.	63%	151	22%	53	15%	35	
The pulmonary rehabilitation programme is delivered by a multi-disciplinary team.	71%	170	17%	40	12%	29	
There is a designated lead clinician and a named co-coordinator for the pulmonary rehabilitation programme.	68%	162	16%	38	16%	39	
Pulmonary rehabilitation lasts a minimum of 6 weeks with exercise sessions twice a week.	79%	188	8%	20	13%	31	
There is a continuation phase, run by people trained in pulmonary rehabilitation, in the community.	30%	72	35%	83	35%	84	
The pulmonary rehabilitation programme includes education about living with COPD and ALL of the following issues: exercise, smoking cessation, diet, oxygen, social service support and benefits.	73%	175	16%	39	10%	25	
Staff that supervise the exercise component of the pulmonary rehabilitation programme are trained in resuscitation to Advanced Life Support standard and basic life support equipment is available [oxygen, bronchodilators and GTN] during these sessions[14].	41%	98	43%	103	16%	38	
The staff / patient ratio during the exercise component of the pulmonary rehabilitation programme is at least 1:8[15].	83%	198	6%	14	11%	27	
The pulmonary rehabilitation programme provides written educational resources / leaflets for patients and carers.	77%	185	12%	29	10%	25	
There are annual audits of the service that includes patient numbers AND outcomes AND patient satisfaction.	49%	116	33%	80	18%	43	
Measurements such as spirometry, exercise and health status are recorded before and after pulmonary rehabilitation.	62%	148	26%	63	12%	28	

[14,15] British Thoracic Society Standards of Care Committee, 2001. BTS statement: Pulmonary Rehabilitation. *Thorax*; 56: 827-834

Section 4: Early Discharge Scheme (EDS)

KEY MESSAGES:
There are many positive changes that include:

- There has been an increase (from 44% in 2003 to 59% in 2008) in the percentage of units offering access to EDS for patients with exacerbation of COPD.
- 36% of units with EDS offer admission prevention whilst 56% offer rapid discharge within 48 hours of an admission.
- Many of the 9 quality standards are met by most of the units with EDS. The median number fully met was 7, IQR 5-8.

Areas identified as needing improvement include:

- 41% of units do not have access to EDS for patients admitted with COPD exacerbation
- Only 39% of units with EDS fully met the standard that All COPD patients and their carers receive written information about the early discharge scheme that describes what it is, and the support that is available well in advance of them needing the service.
- Only 24% of units with EDS offer a 7 day service.
- 41% of units with EDS do not routinely enter EDS patients onto a pulmonary rehabilitation scheme.

Access to an EDS
59% of units indicated that patients coming to their unit with an exacerbation of COPD had access to EDS. This has increased from 44% of units in 2003.

	National audit (239)				Your unit
	Yes		No		
Patients coming to unit with exacerbation of COPD have access to EDS	59%	142	41%	97	

2003 audit: *44% of units had patient access to an EDS*

	National audit (142 with EDS)								Your unit
	All sites		Some sites		One site		Other		
Sites that run EDS	53%	75	14%	20	25%	36	8%	11	

Type of EDS

36% (51/142) of units with EDS access offer admission prevention whilst 56% (80/142) offer rapid discharge within 48 hours of an admission.

	National audit (142 with EDS)		**Your unit**
Admission prevention	16%	23	
Rapid discharge <48 hours	35%	50	
Rapid discharge >48 hours	20%	28	
Admission prevention AND Rapid discharge >48 hours	2%	3	
Rapid discharge <48 hours AND Rapid discharge >48 hours	4%	5	
Admission prevention AND Rapid discharge <48 hours AND Rapid discharge >48 hours	18%	25	
Others	6%	8	

Patients on EDS

Units offering an EDS report a higher number of COPD patients using the service than in 2003.

	National audit (142 EDS)	**Your unit**
How many COPD patients from your Unit were accepted by an early discharge scheme in the last 12 months?		
Median	125	
Inter-Quartile range	52 – 244	
Units with data	142	

***2003 audit**: median 112, IQR 63-216, n=104 units with data*

Days per week EDS is run

Only a quarter of units offer a 7 day service.

	National audit (142 EDS)		**Your unit**
Four	4%	5	
Five	65%	92	
Five and a half	1%	1	
Six	6%	9	
Seven	24%	35	

EDS run by

Respiratory Specialist Nurses run the majority of EDS (85%).

	National audit (142 with EDS)								Your unit
	Respiratory Specialist Nurse		General Nurse		Physiotherapist		Other*		
EDS run by	85%	120	6%	8	1%	1	9%	13	

*Other refers mainly to community based nurses.

Health care professionals directly involved with EDS

Respiratory Nurses, Respiratory Consultants and Physiotherapists are most commonly directly involved with EDS. There is minimal involvement by General Practitioners, District Nurses and Health Visitors.

RESPIRATORY TEAM	National audit (142 EDS) : **%** of units with					Median (WTE)	Your unit
	NO WTE	0.1 to 1.0 WTE	1.1 to 2.0 WTE	2.1 to 3.0 WTE	> 3.0 WTE		
General Practitioners	94	4	1	-	1	0	
Respiratory Consultants	23	29	20	11	17	1	
Respiratory Nurses	4	13	29	21	32	2.5	
District Nurses	90	4	2	1	4	0	
Health Visitors	99	1	-	-	-	0	
Physiotherapists	41	40	11	4	4	1	
Other staff*	63	19	6	2	9	0	

*Others includes varied staff e.g. occupational therapists, staff grade hospital doctors, pharmacists, social workers, support workers and often refers to community based personnel.

Patients accepted for EDS are entered onto a pulmonary rehabilitation scheme

41% of units with EDS do not routinely enter EDS patients onto a pulmonary rehabilitation scheme.

	National audit (142 with EDS)								Your unit
	At discharge		Within 2 months of discharge		Not routinely entered		Other*		
EDS & pulm. Rehab.	13%	19	30%	42	41%	58	16%	23	

*Other refers mainly to a system where patients are individually assessed for suitability.

Early Discharge Scheme standards

	National audit (142 EDS)						Your unit
	Met in full		Only partially met		Not met at all		
There are clear written criteria for acceptance on to the Early Discharge Scheme.	88%	125	10%	14	2%	3	
The scheme is run by individuals who are capable of working independently and includes those specifically trained in respiratory medicine.	91%	129	8%	12	1%	1	
There is a named clinician responsible for the service.	80%	113	13%	19	7%	10	
There are clear written protocols of care for the management of patients under the early discharge scheme.	83%	118	15%	22	1%	2	
Patients not accepted onto the scheme still receive a package of written smoking cessation / educational support.	39%	56	44%	63	16%	23	
All COPD patients and their carers receive written information about the early discharge scheme that describes what it is, and the support that is available well in advance of them needing the service.	39%	56	37%	52	24%	34	
The early discharge scheme has good lines of communication to manage patient care together with their GP.	75%	107	24%	34	1%	1	
There are clear clinical links between the early discharge team and various members of the primary care team.	69%	98	27%	39	4%	5	
There is continuous data collection along with both prospective and annual audits of the service to monitor its effectiveness.	66%	94	26%	37	8%	11	

Section 5: Long-term Oxygen Therapy (LTOT)

KEY MESSAGES:

- 76% of units fully met the standard of having a hospital based LTOT assessment service, 20% partially met the standard and 4% did not meet the standard at all.
- Median number of the 14 standards fully met was 8, IQR 6-11.
- 56% of units fully met the standard of providing ambulatory oxygen for suitable patients, 34% partially met the standard and 10% did not meet the standard at all.

Areas identified as needing improvement

- Only 56% of units fully met the standard that for patients prescribed LTOT, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.
- Only 41% of units fully met the standard that for patients prescribed ambulatory oxygen, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.
- Only 58% of units fully met the standard that written information is provided to all patients receiving oxygen.
- 69% of units did not fully meet the standard that regular audits of oxygen prescribing are carried out.
- The majority (60%) of units did not receive funding for oxygen assessment services.

Funding

The majority of units do not receive funding for oxygen assessment services (60%).

	National audit (239)				Your unit
	Yes		No		
Do you receive funding for oxygen assessment services?	40%	96	60%	143	

Long-term Oxygen Therapy (LTOT) standards

	National audit (239)						Your unit
	Met in full		Only partially Met		Not met at all		
There is a hospital based Long Term Oxygen Therapy [LTOT] assessment service	76%	182	20%	48	4%	9	
There is screening in clinic of all patients with COPD to detect SaO2 <92%.	73%	175	23%	56	3%	8	
The LTOT assessment includes optimising oxygen flow to achieve a PaO2 of 8kPa or greater using arterial blood gases.	87%	207	11%	26	3%	6	
The LTOT assessment uses a concentrator machine as the oxygen source.	46%	110	11%	26	43%	103	
For patients prescribed LTOT, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision[16].	56%	135	35%	84	8%	20	
There is a healthcare professional contact available to deal with queries from patients and carers concerning their oxygen therapy.	76%	182	21%	51	3%	6	
Ambulatory oxygen is provided by the department for suitable patients.	56%	134	34%	82	10%	23	
There is screening for suitability for ambulatory oxygen, including SaO2 measurement, before referral for assessment.	39%	94	38%	90	23%	55	
For patients prescribed ambulatory oxygen, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision[17].	41%	99	36%	87	22%	53	
Written information is provided to all patients receiving oxygen[18].	58%	138	31%	75	11%	26	
All hospital based oxygen prescriptions are routed through the respiratory department.	51%	122	40%	95	9%	22	
Short Burst Oxygen is provided by the department for suitable patients.	75%	179	18%	42	8%	18	
Patients are assessed for suitability before receiving Short Burst Oxygen.	47%	112	45%	107	8%	20	
Regular audits of oxygen prescribing are carried out.	31%	75	40%	95	29%	69	

[16] British Thoracic Society, 2006. *Information on the New Home Oxygen Service*. Available at: http://www.brit-thoracic.org.uk/page294.html (22 August 2007)
[17] British Thoracic Society, 2006. *Information on the New Home Oxygen Service*. Available at: http://www.brit-thoracic.org.uk/page294.html (22 August 2007)
[18] British Thoracic Society, 2006. *Clinical Component for the Home Oxygen Service in England and Wales*.

Section 6: Palliative care

KEY MESSAGES:

- Half (51%) of units did not have a formal referral pathway to palliative medicine for end of life care. Two-thirds (66%) are planning to develop (or further develop) palliative care services in the future.

Areas identified as needing improvement

- Only 13% of units provide information to severe COPD patients about end of life care whilst they are in a stable state.

Formal arrangements

Half (51%) of units did not have formal arrangements for patients with COPD to receive palliative care.

	National audit (239)				Your unit
	Yes		No		
Are there any formal arrangements for patients with COPD to receive palliative care in your area?	49%	117	51%	122	

Information policy

The majority of units do not have a policy for providing severe COPD patients' with information about end of life care whilst in a stable state.

	National audit (239)				Your unit
	Yes		No		
Is there is a policy for providing patient information about end of life care to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital.	13%	31	87%	208	

Future plans

Two thirds of units are planning to develop palliative care service.

	National audit (239)				Your unit
	Yes		No		
Are there any plans to develop / further develop palliative care service for patients with COPD?	66%	158	34%	81	

Section 7: Organisational and quality scores

A scoring system has been developed to enable units to further compare their organisation with other units. The algorithm for computing these scores is given in Appendix E.

In brief:

- The organisation of care algorithm comprises 18 individual audit questions which are scored on a 0 to 1 scale and 6 questions which are scored on a 0 to 2 scale. Adding the scores for these 24 questions gives a possible total organisational score ranging from 0 to 30, which is then scaled from 0 to 100.

- The four quality scores are based entirely on the standards and whether units fully or partially meet these – 12 standards for NIV, 11 for pulmonary rehabilitation, 9 for early discharge schemes and 14 for LTOT. A 'fully met' standard scores 2, a 'partially met' standard scores 1 and a standard 'not met' scores 0. The standard scores are added up for each of the 4 areas and the totals scaled from 0 to 100.

	2008 Audit		
SCORE	Median	IQR	**Your unit score**
Organisation of care	69	58-76	
NIV Quality	67	58-75	
Pulmonary Rehabilitation (PR) Quality	82	73-91	
Early Discharge Scheme (EDS) Quality For those with EDS, n=142	83	78-89	
LTOT Quality	75	64-86	

- Your organisation score was in the QUARTILE of scores
- Your NIV Quality score was in the QUARTILE of scores
- Your PR Quality score was in the QUARTILE of scores
- Your EDS Quality score was in the QUARTILE of scores
- Your LTOT Quality score was in the QUARTILE of scores

Appendix A Membership of The National COPD Audit 2008 Steering and Implementation Groups

The National COPD Audit 2008 Steering Group

- Professor Mike Roberts, Associate Director of the National COPD Audit 2008: Consultant Respiratory Physician, Whipps Cross University Hospital, London.
- Dr Robert Stone, Associate Director of the National COPD Audit 2008: and Consultant Respiratory Physician, Musgrove Park Hospital, Taunton.
- Dr Ian Basnett, Public Health Consultant, Tower Hamlets Primary Care Trust, London.
- Rhona Buckingham, National COPD Audit 2008 Project Manager, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Maria Buxton, Consultant Physiotherapist, Central Middlesex Hospital and Brent Primary Care Trust.
- Dr John Coakley, Medical Director, Homerton University Hospital NHS Foundation Trust.
- Denise Daly, Consultant Physiotherapist, Royal Surrey County Hospital, Guildford.
- Sheila Edwards, Chief Executive, British Thoracic Society.
- Professor Brian Harrison, British Thoracic Society.
- Dr Steve Holmes, General Practitioner, General Practice Airways Group (GPIAG).
- Kevin Holton, Head of the COPD National Service Framework (NSF) Team, Department of Health.
- Dr Harold Hosker, Consultant Respiratory Physician, Airedale General Hospital, Keighley.
- Jane Ingham, Director of Clinical Standards, Royal College of Physicians.
- Dr Lawrence McAlpine, Consultant Physician, Monklands Hospital, Airdrie.
- Dr Phyo Myint, Honorary Consultant Physician, Norfolk and Norwich University Hospitals.
- Fiona Phillips, Public Health Consultant, COPD National Service Framework (NSF) Team, Department of Health.
- Dr Jonathan Potter, Clinical Director, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Samantha Prigmore, Respiratory Nurse Consultant, St George's Hospital, London.
- Nancy Pursey, National COPD Audit 2008 Project Co-ordinator, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Carol Rivas, Research Fellow, Queen Mary's School of Medicine & Dentistry, University of London.
- Anil Seiger, Manager, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Dame Helena Shovelton, Chief Executive, British Lung Foundation.
- Teresa Smith, Chest Clinic Manager, King Edward VII Hospital, Windsor.
- Dr Stephanie Taylor, Senior Clinical Lecturer Health Services Research & Development, Queen Mary's School of Medicine & Dentistry, University of London.

The National COPD Audit 2008 Implementation Group

- Professor Mike Roberts, Associate Director of the National COPD Audit 2008: Consultant Respiratory Physician, Whipps Cross University Hospital, London.
- Dr Robert Stone, Associate Director of the National COPD Audit 2008: and Consultant Respiratory Physician, Musgrove Park Hospital, Taunton.
- Rhona Buckingham, National COPD Audit 2008 Project Manager, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Sheila Edwards, Chief Executive, British Thoracic Society.
- Professor Brian Harrison, British Thoracic Society.
- Dr Harold Hosker, Consultant Respiratory Physician, Airedale General Hospital, Keighley.
- Jane Ingham, Director of Clinical Standards, Royal College of Physicians.
- Dr Jonathan Potter, Clinical Director, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Samantha Prigmore, Respiratory Nurse Consultant, St George's Hospital, London.

- Nancy Pursey, National COPD Audit 2008 Project Co-ordinator, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Carol Rivas, Research Fellow, Queen Mary's School of Medicine & Dentistry, University of London.
- Anil Seiger, Manager, Clinical Effectiveness and Evaluation unit, Royal College of Physicians.
- Dame Helena Shovelton, Chief Executive, British Lung Foundation.
- Dr Stephanie Taylor, Senior Clinical Lecturer Health Services Research & Development, Queen Mary's School of Medicine & Dentistry, University of London.

Appendix B The National COPD Audit 2008 – resources and organisation of care pro-forma

Hospital details			
Question number	**Question / scoring system (where appropriate)**	**Variable**	**Help note**
1.1	How many medical emergency admissions did your Unit admit in 2007?	_____ number	• For the purposes of this survey, a 'unit' is defined as a hospital that admits acute unselected emergency admissions. NB this excludes community hospitals. • This refers to emergency admissions only. • Please include all admissions under the care of a consultant physician, including care of the elderly. Please include admissions to a Medical Admissions Unit via Accident and Emergency dept. • Paediatrics are not included. • A stay in hospital of less than 4 hours would be classed as a non-admission and would not be included. • Patients > 16 years old. • 2007 refers to 1st January 2007 to 31st December 2007 inclusive. • This may be identified from your Unit's discharge / death codes – ICD10 codes. Consider asking your IT or clinical coding department to help with this
1.2	How many COPD emergency admissions did your Unit admit in 2007?	_____ number	• This refers to emergency admissions only. • A stay in hospital of less than 4 hours would be classed as a non-admission and would not be included. • 2007 refers to 1st January 2007 to 31st December 2007 inclusive. • This may be identified from your Unit's discharge / death codes - ICD10 codes obtainable on hospital computer systems. • Consider asking your IT or clinical coding department

			to help with this. • The following codes are applicable: J41.1 Mucopurulent chronic bronchitis J42.0 Unspecified chronic bronchitis J43.0 Emphysema J43.1 Panlobular emphysema Panacinar emphysema J43.2 Centrilobular emphysema J43.8 Other emphysema J43.9 Emphysema, unspecified J44.0 Other chronic obstructive pulmonary disease J44.1 Chronic obstructive pulmonary disease with acute exacerbation, unspecified J44.8 Other specified chronic obstructive pulmonary disease J44.9 Chronic obstructive pulmonary disease, unspecified
1.3	How many of the following staff members are there in your respiratory team?	**a.** FY1 **b.** FY2 and /or ST1 and/or ST2 and/or SHO **c.** ST3 and above and /or SpR **d.** Associate Specialist **e.** Staff Grade **f.** Respiratory Consultant **g.** Respiratory Physiologist (Lung Function Technician) **h.** COPD Nurse **i.** Other Specialist Respiratory Nurses **j.** Specialist Respiratory Physiotherapist **k.** Other (please specify)	• Enter "zero" where there are no staff member available for a particular group. • Where staff are available part-time indicate the Whole Time Equivalent (WTE) [e.g. 0.5]
1.4 **a**	Are there any vacant posts in your respiratory team? If yes, which posts are vacant?	☐ Yes ☐ No _____ (text)	 Please identify which posts are vacant at present e.g. physiotherapist

1.5	How many take ward rounds are undertaken by an on-call Consultant per 24 hour week day on call period?	_____ number	• Enter the number of ward rounds undertaken by Consultants on-call for admissions that would include COPD cases. For example this might be general medicine take or a specialty take if that is what you operate in your unit. • If the practice of these consultants differs please enter the number of ward rounds undertaken as most common practice.
1.6	Is a physician of the week scheme used in your Unit?	☐ Yes ☐ No	• Where a single consultant is on call for the whole week or for most of the week. • If the days/nights are split still answer 'yes' to this question. • If you are unsure whether your unit uses a physician of the week scheme, please ask a Senior Clinician for advice.
1.7	Is a ward-based system used in your Unit?	☐ Yes ☐ No	• In such a system the respiratory patients would be allocated to a particular ward or wards with specific medical, nursing and AHP staff. • If you are unsure, please ask a Senior Clinician for advice.
1.8	Does your Unit use speciality triage?	☐ Yes ☐ No	• Enter 'yes' if your Unit has a specialist respiratory triage. • Under such a system the emergency COPD patients would usually be transferred to a respiratory specialist within the first 36 hours of admission. • This does not necessarily mean the patient would be on a respiratory ward, but would be under respiratory specialist care. • This may or not be to a single respiratory specialist ward. If you are unsure, please ask a Senior Clinician for advice.

1.9	Does your Unit operate a written policy on the following? a) Age related admission (i) If yes, what is the age cut off? b) Integrated admission	☐ Yes ☐ No _____ numerical (age) ☐ Yes ☐ No	• A system with an age related cut off limit for admissions where above that age patients are seen by geriatrics and below that by medicine. • Record the age cut off – numerical. • A system where patients are triaged according to medical need into medicine or geriatric departments either on the take or post take ward round or all patients are admitted under the acute team regardless or age. If you are unsure, please ask a Senior Clinician for advice.
1.10	Does your Unit have written local guidelines for: a) the assessment of COPD b) the treatment of COPD c) the follow up of patients with COPD after discharge	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	• Please tick 'yes' if there are local written guidelines for the medical assessment of COPD. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. • Please tick 'yes' if there are local guidelines for the medical treatment of COPD. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. • Please tick 'yes' if there are local guidelines for the medical follow up of patients with COPD after discharge. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. • If you are unsure, please ask a Senior Clinician for advice.
1.11	Does your Unit have an Accident and Emergency Department?	☐ Yes ☐ No	• Your 'Unit' refers either to your Trust, or if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital.

1.12	Does your Unit have an admissions ward?	☐ Yes ☐ No	• Your 'Unit' refers either to your Trust, or, if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital. • An admissions ward could be a Medical Admissions Unit, an Emergency Medical Unit. If you are participating as a Trust and there is no admissions ward in your hospital but there is in another hospital in the same Trust then answer yes.
1.13	Does your Unit have a specialist respiratory ward?	☐ Yes ☐ No	• Your 'Unit' refers either to your Trust, or, if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital.
1.14	Does your Unit have one of the following High Dependency Units? a) a medical HDU b) a mixed HDU c) No HDU d) Other (please specify)	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No _____ (free text)	 • A mixed HDU refers to a shared high dependency unit e.g. between medicine and surgery, or between respiratory medicine and general medicine. • Please indicate the type of HDU your Unit has.
1.15	How many general operational Intensive Care Unit beds, suitable for COPD patients, does your Unit have?	_____ (numerical)	• This refers to ICU beds open for acute medical admissions such as COPD. It would exclude for example, ruing fenced specialist neurological ICU beds. • Exclude ICU beds that are closed at the time of the audit, whatever the reason. • If you don't know please phone the ICU and ask someone!

1.16	Does your Unit use a system of early warning detection or ICU outreach for critically ill cases requiring ICU management?	☐ Yes ☐ No	• For example an outreach specialist nurse or a written protocol for identifying sick patients that automatically triggers an ICU referral. • If you are unsure, please ask a Senior Clinician for advice. • If you don't know please phone the ICU and ask someone!
1.17	Which patients have access to a respiratory nurse?	☐ All COPD patients ☐ Some patients – only those admitted under a respiratory consultant ☐ Some patients – other ☐ No respiratory nurse ☐ None	• Please indicate the option that applies.
Non-invasive ventilation (NIV)			
2.1	Which method[s] of ventilatory support do you use in your Unit to treat patients with exacerbations of COPD?	☐ Invasive ventilation ☐ Non Invasive ventilation ☐ Doxapram ☐ Other (please specify)	• Only include those methods that are used to treat patients with COPD. • Please indicate all methods that your Unit uses. You may select as many options as are relevant.
2.2	In which setting is non-invasive ventilation (NIV) available?	☐ On HDU ☐ On ICU ☐ On respiratory wards ☐ On general wards ☐ Other (please specify)	• Please tick all options that apply

This section is designed to audit your practice against standards as defined by The National Institute for Clinical Excellence, The British Thoracic Society and the Steering Group that has overseen the development of this project. Where possible we have identified the source of the standard in the help notes. **Read each standard (question) and consider whether the practice within your Unit meets it. Then indicate whether the statement is: a) Met in full, b) Only partially met, c) Not met at all by your Unit.**			
2.3	NIV is used as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbation despite optimal medical therapy.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: National Institute for Clinical Excellence, 2004. Chronic Obstructive Pulmonary Disease; national guideline on management of chronic obstructive pulmonary disease in adults in primary and secondary care. Where NIV is used but not universally available as treatment of choice, indicate 'only partially met'.
2.4	NIV is delivered in settings that are suitable for COPD patients: that is a designated area where staff have been specifically trained in NIV. E.g. ICU, HDU, Emergency Admissions Unit or a dedicated Respiratory Ward.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If some, but not all, staff have been trained, indicate only partially met. If there is no training programme, indicate 'not met'.
2.5	There is a named consultant responsible for the NIV service.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If there is a lead who is not formally nominated, indicate 'only partially met', otherwise indicate 'not met' if there is no arrangement.

2.6	There is an ongoing inter-professional training programme for ALL staff involved in the care of patients established on NIV.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 2002. BTS guideline; non-invasive ventilation in acute respiratory failure. Thorax; 57: 192 – 211. Where training is ad hoc, or uni-disciplinary please indicate 'only partially met'.
2.7	Nurses and doctors outside of specialist respiratory wards do know how to manage patients with COPD, and are aware of the indications for and benefits of NIV.	☐ Met in full ☐ Only partially met ☐ Not met at all	For example, if a patient with COPD admitted under the surgeons developed type II failure, they would understand the need to refer for NIV; or if admitted under the general medical team, they would know how to treat with NIV on take. Where some, but not all colleagues outside of the specialist respiratory ward know how to manage COPD patients and are aware of the indications and benefits of NIV, please indicate 'only partially met'.
2.8	There is a written protocol that defines the monitoring of patients receiving NIV, and includes a minimum of regular clinical assessment, pulse oximetry and arterial blood gas measurements.	☐ Met in full ☐ Only partially met ☐ Not met at all	This protocol should be known to you.
2.9	There is a clear set of individualised written instructions for the management of each patient receiving NIV, including what to do in the event of deterioration and agreed ceilings of therapy, along with an agreed protocol between ICU and the medical teams for the escalation of NIV to ICU care with intensive ventilation.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: National Institute for Clinical Excellence, 2004. Chronic Obstructive Pulmonary Disease; national guideline on management of chronic obstructive pulmonary disease in adults in primary and secondary care. Where a clear set of individualised instructions are written for the management of each patient receiving NIV but this does not include what to do in the event of deterioration, please record 'only partially met'.

			Additionally where individualised instructions are written for the management of each patient receiving NIV, but there is no protocol between ITU and the medical teams for the escalation of NIV to ITU care, please record 'only partially met'.
2.10	Locally adapted written protocols for the management of COPD patients requiring NIV, including weaning from NIV, are available in ALL relevant clinical areas for ALL relevant staff.	☐ Met in full ☐ Only partially met ☐ Not met at all	Available for example, in A & E, admissions unit, HDU, the respiratory ward. If available only in some areas, then record 'partially met'.
2.11	A selection of nasal and full face masks, types and nasal pillows are available.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If only a limited range is available, then select 'partially met'.
2.12	All areas offering NIV provide written information for patients about the indications for and patient experience of NIV.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where written information for patients about NIV is available but only in some areas that provide this service, for example only on the respiratory ward, record 'only partially met'. If the written information only explains the indications for NIV and does not cover the patient experience of it, please record 'only partially met'.
2.13	There is a written policy for providing patient information about NIV to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital.	☐ Met in full ☐ Only partially met ☐ Not met at all	If there is written guidance but implemented on an ad hoc basis, record 'only partially met'. If this is done on an ad hoc basis then please record 'not met at all'.

2.14	There is an **annual** audit of the use of NIV including ALL clinical areas. This audit covers both those patients offered NIV to examine its appropriate use AND those that might have benefited for NIV but who were not provided with this therapy.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where annual audits include **only some** clinical areas that provide NIV, please record 'only partially met'. Additionally, if audits do not cover *both* the patients that receive NIV and those that do not, please record 'only partially met'.
Pulmonary Rehabilitation			
3.1	Do all eligible patients have access to a formal pulmonary rehabilitation programme?	☐ Yes ☐ Some but not all ☐ No access	This is a programme that runs specifically for pulmonary patients including those with COPD. This may be offered either from the acute site or in the community.
3.2	Who funds the pulmonary rehabilitation programme?	☐ Local hospital ☐ Primary Care Organisation ☐ Jointly funded between the hospital and PCO ☐ Charitable funds ☐ Not funded	
3.3	There are written inclusion and exclusion criteria for the pulmonary rehabilitation programme and it is available to anyone with a diagnosis of COPD and MRC breathlessness scale of 2 – 4.	☐ Met in full ☐ Only partially met ☐ Not met at all	Denote 'only partially met' if the written criteria are available but not specifically for those with MRC 2-4.
3.4 a	The pulmonary rehabilitation programme is delivered by a multi-disciplinary team.	☐ Met in full ☐ Only partially met ☐ Not met at all	Denote 'only partially met' if your rehab programme has contributions from only the physiotherapists and respiratory nurses.

b	Disciplines that contribute to the Pulmonary Rehabilitation programme are:	☐ Physiotherapist ☐ Dietician ☐ Social Worker ☐ Pharmacist ☐ Occupational Therapist ☐ Lung Function Technician ☐ Respiratory Nurse ☐ Previous Course Participant ☐ Other (please specify)	Please indicate all disciplines that contribute to the pulmonary rehabilitation programme.
This section is designed to audit your practice against standards as defined by The National Institute for Clinical Excellence, The British Thoracic Society and the Steering Group that has overseen the development of this project. Where possible we have identified the source of the standard in the help notes. **Read each standard (question) and consider whether the practice within your Unit meets it. Then indicate whether the statement is: a) Met in full, b) Only partially met, c) Not met at all by your Unit.**			
3.5	There is a designated lead clinician and a named co-coordinator for the pulmonary rehabilitation programme.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where the designated lead clinician is the same person who co-ordinates the pulmonary rehabilitation programme, please indicate 'met in full'. Where there is a designated lead clinician but not a named co-ordinator for the programme, or vice versa, please record 'only partially met'.
3.6	Pulmonary rehabilitation lasts a minimum of 6 weeks with exercise sessions twice a week.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where pulmonary rehabilitation is provided but the course lasts less than 6 weeks, or has fewer exercise sessions than two per week, please record 'only partially met'.
3.7	There is a continuation phase, run by people trained in pulmonary rehabilitation, in the community.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where a continuation phase is run on an ad hoc basis, please record 'only partially met'.

3.8	The pulmonary rehabilitation programme includes education about living with COPD and ALL of the following issues: exercise, smoking cessation, diet, oxygen, social service support and benefits.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where the pulmonary rehabilitation programme includes education but not all of the issues listed (exercise, smoking cessation, diet, oxygen, social service support and benefits), please record 'only partially met'.
3.9	Staff that supervise the exercise component of the pulmonary rehabilitation programme are trained in resuscitation to Advanced Life Support standard and basic life support equipment is available [oxygen, bronchodilators and GTN] during these sessions.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: BTS Standards of Care Committee, 2001. BTS statement: Pulmonary Rehabilitation. Thorax; 56: 827-834 (November) Where some but not all staff are trained in resuscitation to Advanced Life Support standard, please indicate 'only partially met'
3.10	The staff / patient ratio during the exercise component of the pulmonary rehabilitation programme is at least 1:8	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: BTS Standards of Care Committee, 2001. BTS statement: Pulmonary Rehabilitation. Thorax; 56: 827-834 (November)
3.11	The pulmonary rehabilitation programme provides written educational resources / leaflets for patients and carers.	☐ Met in full ☐ Only partially met ☐ Not met at all	If leaflets are provided for one but not another group, denote only partially met.
3.12	There are annual audits of the service that includes patient numbers AND outcomes AND patient satisfaction.	☐ Met in full ☐ Only partially met ☐ Not met at all	If the audit includes either patient numbers of patient satisfaction but not both, indicate 'only partially met'.

3.13	Measurements such as spirometry, exercise and health status are recorded before and after pulmonary rehabilitation.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where measurements such as spirometry, exercise and health status are recorded either before or after pulmonary rehabilitation but not both please record 'only partially met'.
Early Discharge Scheme			
4.1	Do patients coming to your Unit with an exacerbation of COPD have access to an early discharge scheme?	☐ Yes ☐ No	
a	And if responding as a Trust, does the scheme run on all sites, some sites, one site or other (please specify)	☐ All sites ☐ Some sites ☐ One site ☐ Other (please specify)	If the scheme covers more than one of these areas please enter 'other' and specify this in the box provided. If you are unsure, please ask a Senior Clinician for advice.
4.2	Is this scheme run for:	☐ admission prevention ☐ rapid discharge <48 hours ☐ rapid discharge >48 hours ☐ other- please specify	Please select appropriate option. If you are unsure about the nature of your scheme, please ask a Senior Clinician for advice.
4.3	How many COPD patients from your Unit were accepted by an early discharge scheme in the last 12 months?	_____ (numerical)	If the scheme has been running for more than a year, please enter the most figures available for a 12 month period. If the scheme has been running for less than a year, please extrapolate to give data for a 12 month period i.e., if it has been running for 4 months, please multiply the number of patients accepted by 3.
4.4	How many days per week does the scheme run?	_____ (numerical)	This is irrespective of the particular days of the week that the scheme runs. If you are unsure, please ask a Senior Clinician for advice.

4.5	Is the early discharge scheme run by:	☐ Respiratory Specialist Nurse ☐ General Nurse ☐ Physiotherapist ☐ Other, please specify	Please identify the profession of the person who manages the scheme.
4.6	How many of the following staff members are directly involved in patient care for the EDS:	☐ General Practitioners ☐ Respiratory Consultants ☐ Respiratory Nurses ☐ District Nurses ☐ Health Visitors ☐ Physiotherapists ☐ Other, please specify	Please enter the actual numbers of each professional group involved and not whole time equivalents [WTEs]. Please record 0 where this professional group does not have input into EDS.
This section is designed to audit your practice against standards as defined by The National Institute for Clinical Excellence, The British Thoracic Society and the Steering Group that has overseen the development of this project. Where possible we have identified the source of the standard in the help notes. **Read each standard (question) and consider whether the practice within your Unit meets it. Then indicate whether the statement is: a) Met in full, b) Only partially met, c) Not met at all by your Unit.**			
4.7	There are clear written criteria for acceptance on to the Early Discharge Scheme.	☐ Met in full ☐ Only partially met ☐ Not met at all	
4.8	The scheme is run by individuals who are capable of working independently and includes those specifically trained in respiratory medicine.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where the scheme is run by individuals who are not specifically trained in respiratory medicine, denote only partially met.
4.9	There is a named clinician responsible for the service.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where there is a clinician responsible, but not officially "named", denote 'only partially met'.

4.10	There are clear written protocols of care for the management of patients under the early discharge scheme.	☐ Met in full ☐ Only partially met ☐ Not met at all	
4.11	Patients accepted for early discharge are entered onto a pulmonary rehabilitation scheme.	☐ At discharge ☐ Within 2 months of discharge ☐ Not routinely entered ☐ Other, please specify	Patients accepted for early discharge are offered a place on a subsequent pulmonary rehabilitation course, upon ending the EDS placement support. If only some patients are offered a place on rehab after early discharge, denote only partially met.
4.12	Patients not accepted onto the scheme still receive a package of written smoking cessation / educational support.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where some but not all non-accepted patients receive such support, denote 'only partially met'.
4.13	All COPD patients and their carers receive written information about the early discharge scheme that describes what it is, and the support that is available well in advance of them needing the service.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where this information is given to patients at the time that they need the service or it does not cover both what the service is and the support that is available, please record 'only partially met'.
4.14	The early discharge scheme has good lines of communication to manage patient care together with their GP.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where clear lines of communication between the early discharge team and the patients GP are not defined, please record 'only partially met'.
4.15	There are clear clinical links between the early discharge team and various members of the primary care team.	☐ Met in full ☐ Only partially met ☐ Not met at all	If these links exist but are not formalised, denote 'only partially met'.

4.16	There is continuous data collection along with both prospective and annual audits of the service to monitor its effectiveness.	☐ Met in full ☐ Only partially met ☐ Not met at all	If some but not all these criteria are met, denote only partially met.
Oxygen services **This section is designed to audit your practice against standards as defined by The National Institute for Clinical Excellence, The British Thoracic Society and the Steering Group that has overseen the development of this project. Where possible we have identified the source of the standard in the help notes.** **Read each standard (question) and consider whether the practice within your Unit meets it. Then indicate whether the statement is: a) Met in full, b) Only partially met, c) Not met at all by your Unit.**			
5.1	There is a hospital based Long Term Oxygen Therapy [LTOT] assessment service	☐ Met in full ☐ Only partially met ☐ Not met at all	If the service meets some but not all the standard criteria, denote 'only partially met'
5.2	There is screening in clinic of all patients with COPD to detect SaO2 <92%.	☐ Met in full ☐ Only partially met ☐ Not met at all	If there is screening of some, but not all patients, with COPD to detect low sat, denote 'only partially met'.
5.3	The LTOT assessment includes optimising oxygen flow to achieve a PaO2 of 8kPa or greater using arterial blood gases.	☐ Met in full ☐ Only partially met ☐ Not met at all	
5.4	The LTOT assessment uses a concentrator machine as the oxygen source.	☐ Met in full ☐ Only partially met ☐ Not met at all	Oxygen provided from a wall mounted supply or cylinder will have a higher concentration, than if it is delivered via a concentrator.

5.5	For patients prescribed LTOT, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 2006. Information on the New Home Oxygen Service. Available at: http://www.brit-thoracic.org.uk/page294.html (22 August 2007) Formal arrangements are required to follow-up patients that are prescribed LTOT: including ensuring LTOT adequately corrects hypoxia, there is good compliance, detection of clinical deterioration and to ensure there is a continuing requirement for the LTOT. Where some of these criteria are met, but not all, please record 'only partially met'.
5.6	There is a healthcare professional contact available to deal with queries from patients and carers concerning their oxygen therapy.	☐ Met in full ☐ Only partially met ☐ Not met at all	If that contact is not readily available, denote 'only partially met'
5.7	Ambulatory oxygen is provided by the department for suitable patients.	☐ Met in full ☐ Only partially met ☐ Not met at all	If ambulatory oxygen is provided on an ad hoc rather than formal basis, denote 'only partially met'
5.8	Do you receive funding for oxygen assessment services?	☐ Met in full ☐ Only partially met ☐ Not met at all	
5.9	There is screening for suitability for ambulatory oxygen, including SaO2 measurement, before referral for assessment.	☐ Met in full ☐ Only partially met ☐ Not met at all	If there is a screening process in place that isn't used, denote 'only partially met'

5.10	For patients prescribed ambulatory oxygen, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 2006. Information on the New Home Oxygen Service. Formal arrangements are required to follow-up patients that are prescribed ambulatory oxygen therapy. If some but not all patients are followed up according to the guidance, denote 'only partially met'.
5.11	Written information is provided to all patients receiving oxygen.	☐ Met in full ☐ Only partially met ☐ Not met at all	As defined by: British Thoracic Society, 2006. Clinical Component for the Home Oxygen Service in England and Wales. Patients should receive written information regarding the reason for being prescribed oxygen and the principles of oxygen therapy. Where written information covers just the reason for the prescription and not the principles of oxygen therapy, and vice versa, please record 'only partially met'.
5.12	All hospital based oxygen prescriptions are routed through the respiratory department.	☐ Met in full ☐ Only partially met ☐ Not met at all	Where some but not all prescriptions are routed through the respiratory department, denote 'only partially met'.
5.13	Short Burst Oxygen is provided by the department for suitable patients.	☐ Met in full ☐ Only partially met ☐ Not met at all	
5.14	Patients are assessed for suitability before receiving Short Burst Oxygen.	☐ Met in full ☐ Only partially met ☐ Not met at all	If some but not all patients are assessed for suitability, denote 'only partially met'
5.15	Regular audits of oxygen prescribing are carried out.	☐ Met in full ☐ Only partially met ☐ Not met at all	If audits are carried out, but are not regular, denote 'only partially met'.

Palliative Care			
6.1	Are there any formal arrangements for patients with COPD to receive palliative care in your area?	☐ Yes ☐ No	
a	If yes, please describe the services that are provided.	_____ (free text)	
6.2	Is there is a policy for providing patient information about end of life care to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital.	☐ Yes ☐ No	
a	If yes, please describe the policy.	_____ (free text)	
6.3	Are there any plans to develop / further develop palliative care service for patients with COPD?	☐ Yes ☐ No	
a	If yes, please describe what is planned.	_____ (free text)	
6.4	Are there any examples of good practice in the delivery of end of life care you would like to highlight? Please describe them here.	_____ (free text)	

~ End ~

Appendix C The National COPD Audit 2008 web-based data collection tool: screen shots

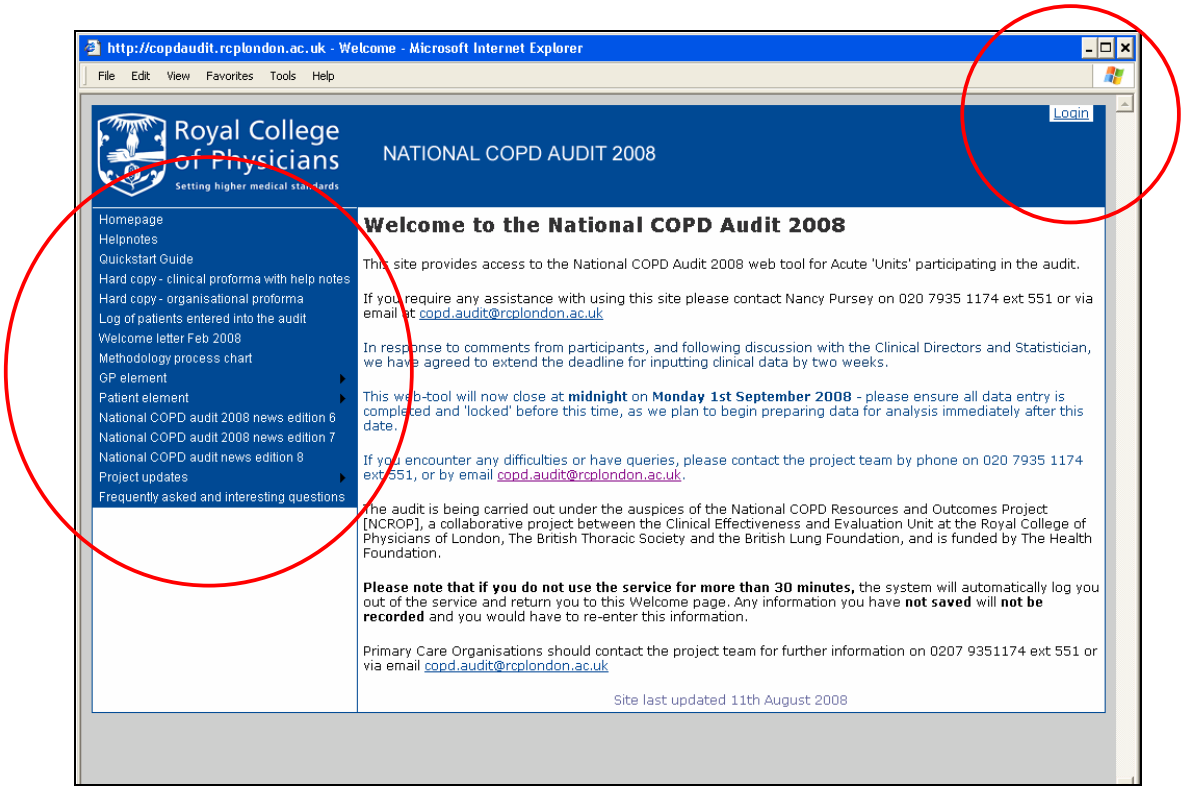
http://copdaudit.rcplondon.ac.uk/2008/modules/page/page.aspx?pc=welcome

Welcome Page

- The **main body** of the Welcome Page was used to share key messages throughout the audit period: such as deadlines, contact details for the project team at the Royal College of Physicians.

- The 'Welcome Page' of the National COPD Audit 2008 web-based data collection tool had a **vertical menu** on the left hand side which linked to information that supported the audit including: a diagram of the audit methodology, the 'welcome letter' that was sent to participating units at the beginning of the audit, help-notes, copies of audit pro-formas, peripheral surveys and the associated covering letters (for general practitioners and patients), weekly project updates and newsletters.

- Participating units accessed the web-based data collection tool via the **'Login'** icon (top right)



- Participating units accessed the web-based data collection tool via the **'Login'** icon (top right).

- From here, the **Terms of Agreement** had to be accepted before proceeding. These stated:

WARNING
This database contains information which is available to the staff of the Hospitals whose patients have received investigations or treatment in those hospitals.

It is an offence to view these data if you are not authorised to do so.

It is an offence to make use of this database other than for the purpose for which it was created.

Under no circumstances should users pass on their login or password to others.

If a user believes that their password has been compromised they should inform the Clinical Effectiveness and Evaluation Unit at the Royal College of Physicians.

Users should only be able to see data in records of their own institutions.

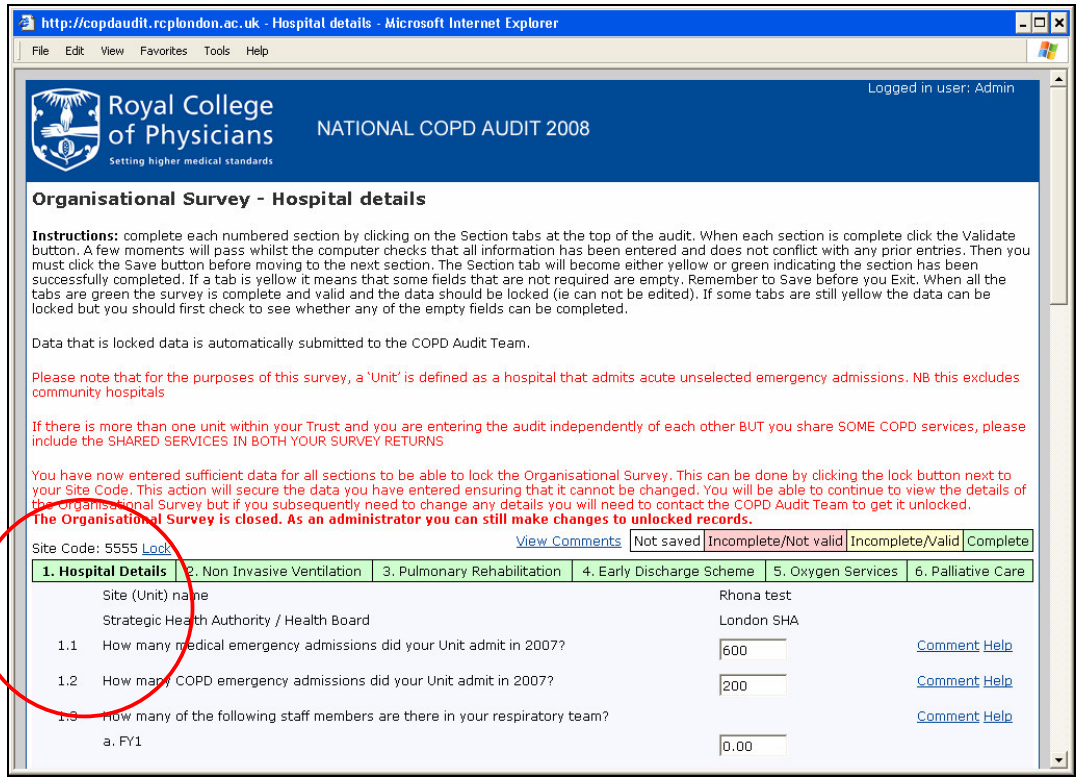
If a user detects what he or she believes is a breach of security or confidentiality then it is their responsibility not to disseminate the information obtained and to report the event to the Clinical Effectiveness and Evaluation Unit at the Royal College of Physicians immediately.

Organisational Survey

- Having entered a unique Site Code and Password, participating units could access the **Organisational Survey** and enter data.

- The survey was divided into **six sections** – indicated by tabs across the top of the survey: hospital details, Non-Invasive Ventilation, Pulmonary Rehabilitation, Early Discharge Scheme, Oxygen Services and Palliative Care.

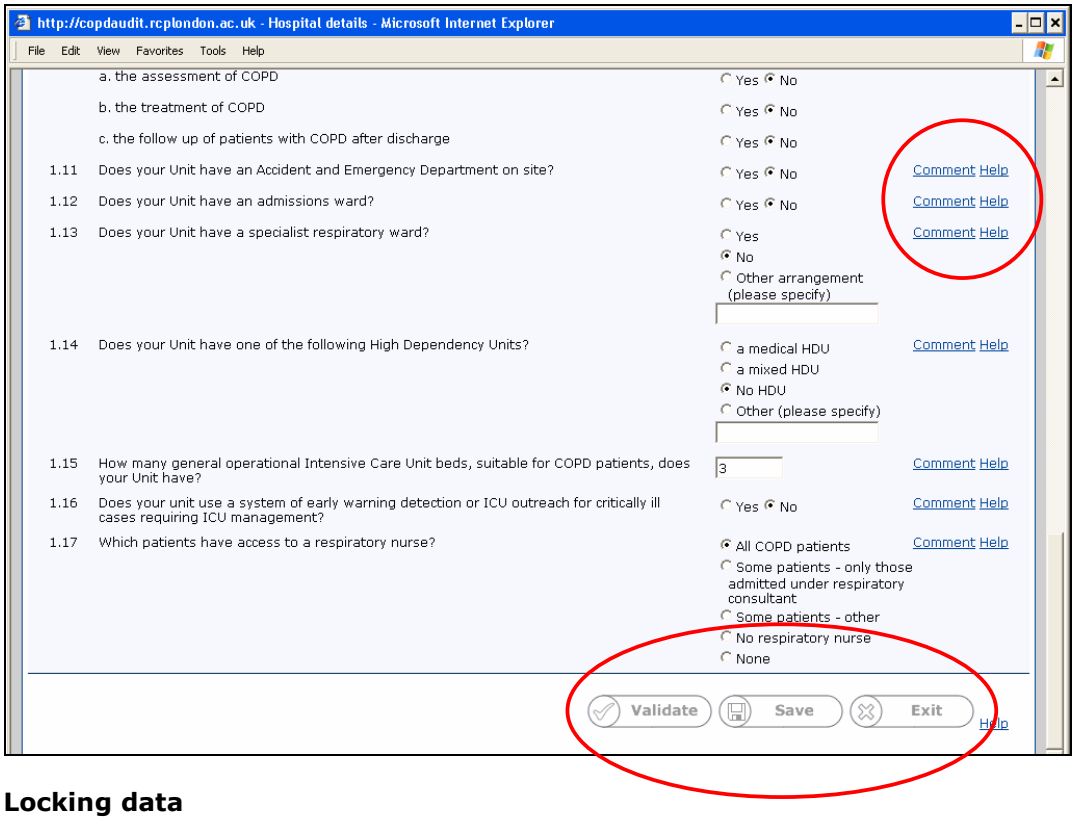
- **Data entry** comprised of simply 'clicking' in the box next to the question being answered and typing the answer. Beside each question, a '**Help**' icon contained the rationale for the question, suggestions for sources of data and where appropriate, references to the guidance from which standards emerged.



- The **'Comments'** icon, next to each question enabled auditors to free text further information to clarify their answer as necessary.

- **Section tabs** turned from red, when data entry was incomplete or invalid, to green when the section had been completed.

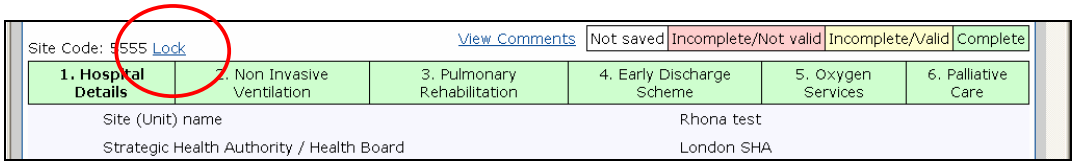
- Data was validated by clicking the **'Validate'** icon and then saved by clicking the **'Save'** icon at the bottom of the page. The **'Exit'** icon allowed the auditor to leave the tool without loosing data. Where data were invalid, the web-tool automatically identified them and requested clarification.



Locking data

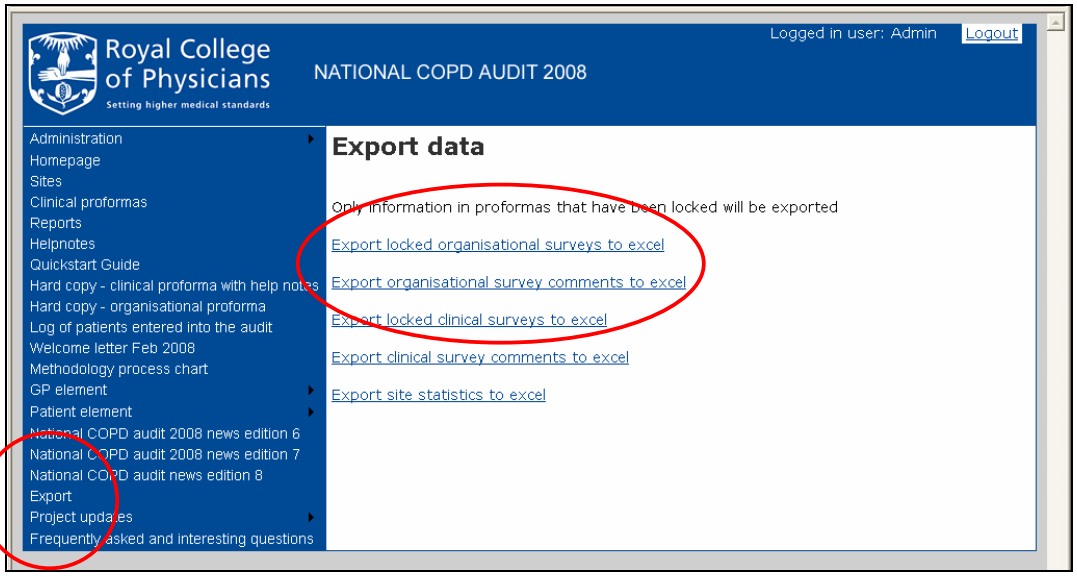
- Once all data were entered and validated – all section tabs green – the data were checked and 'locked' by the participating unit. **'Locked'** data could not be changed without contacting the project team and asking that they be **'unlocked'**.

- Only 'locked' data were exported by the project team at the Royal College of Physicians for analysis by the statisticians.



Exporting data

- The National COPD Audit 2008 web-tool had the facility for participating units to save and **export** data to an Excel file for their own records.


Logged in user: Admin
Logout
Royal College of Physicians
Setting higher medical standards
NATIONAL COPD AUDIT 2008
Administration
Homepage
Sites
Clinical proformas
Reports
Helpnotes
Quickstart Guide
Hard copy - clinical proforma with help notes
Hard copy - organisational proforma
Log of patients entered into the audit
Welcome letter Feb 2008
Methodology process chart
GP element
Patient element
National COPD audit 2008 news edition 6
National COPD audit 2008 news edition 7
National COPD audit news edition 8
Export
Project updates
Frequently asked and interesting questions
Export data
Only information in proformas that have been locked will be exported
Export locked organisational surveys to excel
Export organisational survey comments to excel
Export locked clinical surveys to excel
Export clinical survey comments to excel
Export site statistics to excel

~

Appendix D National COPD Audit 2008 - Organisational Survey – scoring algorithms

1. ORGANISATION OF CARE SCORE

The scoring system is described below. Individual question scores are added together to get a score from 0 to 30 which is then scaled for convenience of presentation from 0 to 100.

Question number	Question	Help note	Variables
1.1	How many medical patients did your Unit admit in 2007?	This may be identified from your Unit's discharge / death codes – ICD10 codes. Consider asking your IT or clinical coding department to help with this.	Numerical **Q1.1 NOT INCLUDED IN SCORING SYSTEM**
1.2	How many COPD patients did your Unit admit in 2007?	This may be identified from your Unit's discharge / death codes - ICD10 codes obtainable on hospital computer systems. Consider asking your IT or clinical coding department to help with this. **Q1.2 used in the scoring system: with Q1.3 and Q1.14 – SEE THESE QUESTIONS**	Numerical
1.3	How many of the following staff members are there in your respiratory team?	Enter "zero" where there are no staff member available for a particular group. Where staff are available part-time indicate the Whole Time Equivalent (WTE) [e.g. 0.5] **Q1.3 used in the scoring system:** **FIRST calculate:** **a) SUM OF a. thru j. and calculate total staff WTE per 1000 COPD patients admitted to unit in 2007** **b) Respiratory consultants (f.) per 1000 COPD patients admitted to unit in 2007** **NEXT, compute quartile ranges for a) and b) above. Score individual units as 0, 0.33, 0.67 and 1.00 according to which quartile their score falls into.** **NEXT, ADD the scores for a) and b) above to get a total score for this question of between 0 and 2.**	**a.** FY1 **b.** FY2 and/or ST1 and/or ST2 and/or SHO **c.** ST3 and above and/or SpR **d.** Associate Specialist **e.** Staff Grade **f.** Respiratory Consultant **g.** Respiratory Physiologist [Lung Function Technician] **h.** COPD Nurse **i.** Other Specialist Respiratory Nurses **j.** Specialist Respiratory Physiotherapist **k.** Other [please specify]

1.4	How many take ward rounds are undertaken by an on-call Consultant per 24 hour week day on call period.	Enter the number of ward rounds undertaken by Consultants on-call for admissions that would include COPD cases. For example this might be general medicine take or a specialty take if that is what you operate in your unit. If the practice of these consultants differs please enter the number of ward rounds undertaken as most common practice. **Q1.4 used in the scoring system:** **1 ROUND SCORES 0.5** **2 ROUNDS SCORES 0.75** **3+ ROUNDS SCORES 1.0**	Numerical
1.5	Is a physician of the week scheme used in your Unit?	Where a single consultant is on call for the whole week or for most of the week. If the days/nights are split still answer 'yes' to this question. If you are unsure whether your unit uses a physician of the week scheme, please ask a Senior Clinician for advice.	Yes / No **Q1.5 NOT INCLUDED IN SCORING SYSTEM**
1.6	Is a ward-based system used in your Unit?	In such a system the respiratory patients would be allocated to a particular ward or wards with specific medical, nursing and AHP staff. If you are unsure, please ask a Senior Clinician for advice. **Q1.6 used in the scoring system:** **Yes SCORES 1** **No SCORES 0**	Yes / No
1.7	Does your Unit use speciality triage?	Enter 'yes' if your Unit has a specialist respiratory triage. Under such a system the emergency COPD patients would usually be transferred to a respiratory specialist within the first 36 hours of admission. This does not necessarily mean the patient would be on a respiratory ward, but would be under respiratory specialist care. This may or not be to a single respiratory specialist ward. If you are unsure, please ask a Senior Clinician for advice. **Q1.7 used in the scoring system:** **Yes SCORES 2** **No SCORES 0**	Yes / No

1.8	Does your Unit operate a written policy on the following?	If you are unsure, please ask a Senior Clinician for advice.	
	a) Age related admission	A system with an age related cut off limit for admissions where above that age patients are seen by geriatrics and below that by medicine. **Q1.8a used in the scoring system:** **Yes SCORES 0** **No SCORES 0.5**	Yes / No
	If yes, what is the age cut off?	Record the age cut off – numerical.	Numerical
	b) Integrated admission	A system where patients are triaged according to medical need into medicine or geriatric departments either on the take or post take ward round or all patients are admitted under the acute team regardless or age. **Q1.8b used in the scoring system:** **Yes SCORES 0.5** **No SCORES 0** **Then,** **Q1.8a) AND Q1.8b) SCORES ARE ADDED TO GET A TOTAL SCORE FOR THIS QUESTION OF BETWEEN 0 AND 1**	Yes / No
1.9	Does your Unit have written local guidelines for: **a)** the assessment of COPD	Please tick 'yes' if there are local written guidelines for the medical assessment of COPD. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. **Q1.9a used in the scoring system:** **Yes SCORES 1** **No SCORES 0**	Yes / No

	b) the treatment of COPD	Please tick 'yes' if there are local guidelines for the medical treatment of COPD. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. **Q1.9b used in the scoring system:** **Yes SCORES 1** **No SCORES 0**	Yes / No
	c) the follow up of patients with COPD after discharge	Please tick 'yes' if there are local guidelines for the medical follow up of patients with COPD after discharge. Exclude guidelines that are specific to other disciplines e.g. nursing or physiotherapy. If you are unsure, please ask a Senior Clinician for advice. **Q1.9c used in the scoring system:** **Yes SCORES 1** **No SCORES 0** **Then,** **SCORES FOR Q1.9a), Q1.9b) AND Q1.9c) ARE ADDED TOGETHER AND THEN DIVIDED BY 3 TO GET A TOTAL SCORE FOR THIS QUESTION OF BETWEEN 0 AND 1**	Yes / No
1.10	Does your Unit have an Accident and Emergency Department on site?	Your 'Unit' refers either to your Trust, or if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital.	Yes / No **Q1.10 NOT INCLUDED IN SCORING SYSTEM**
1.11	Does your Unit have an admissions ward?	Your 'Unit' refers either to your Trust, or, if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital. An admissions ward could be a Medical Admissions Unit, an Emergency Medical Unit. If you are participating as a Trust and there is no admissions ward in your hospital but there is in another hospital in the same Trust then answer yes. **Q1.11 used in the scoring system:** **Yes SCORES 2** **No SCORES 0**	Yes / No

1.12	Does your Unit have a specialist respiratory ward?	Your 'Unit' refers either to your Trust, or, if you are participating in the audit as a hospital within a Trust, your 'Unit' refers only to your hospital. **Q1.12 used in the scoring system:** **Yes SCORES 2** **No SCORES 0**	Yes / No Other arrangement – please specify
1.13	Does your Unit have one of the following High Dependency Units?	A mixed HDU refers to a shared high dependency unit e.g. between medicine and surgery, or between respiratory medicine and general medicine. Please indicate the type of HDU your Unit has. **Q1.13 used in the scoring system:** **'A medical HDU' SCORES 1** **'A mixed HDU' SCORES 1** **'No HDU' SCORES 0** **'Other' SCORES 0.5** **MUTUALLY EXCLUSIVE OPTIONS THAT GIVE A QUESTION SCORE OF BETWEEN 0 AND 1**	A medical HDU / A mixed HDU / No HDU / Other
1.14	How many general operational Intensive Care Unit beds, suitable for COPD patients, does your Unit have?	This refers to ICU beds open for acute medical admissions such as COPD. It would exclude for example, ruing fenced specialist neurological ICU beds. Exclude ICU beds that are closed at the time of the audit, whatever the reason. If you don't know please phone the ICU and ask someone! **Q1.14 used in the scoring system:** **NONE SCORES 0** **OTHERWISE QUARTILES ARE CALCULATED FOR ICU BEDS PER 1000 COPD ADMISSIONS IN 2007** **QUARTILES SCORED AS 0.25, 0.50. 0.75 OR 1.00**	Numerical

1.15	Does your Unit use a system of early warning detection or ICU outreach for critically ill cases requiring ICU management?	For example an outreach specialist nurse or a written protocol for identifying sick patients that automatically triggers an ICU referral. If you are unsure, please ask a Senior Clinician for advice. If you don't know please phone the ICU and ask someone! **Q1.15 used in the scoring system:** **Yes SCORES 2** **No SCORES 0**	Yes / No
1.16	Which patients have access to a respiratory nurse?	Please indicate the option that applies. **Q1.16 used in the scoring system:** **'All COPD patients' SCORES 1** **'Some patients – only those admitted under respiratory consultant' SCORES 0.75** **'Some patients – other' SCORES 0.5** **'No respiratory nurse' SCORES 0** **'None' SCORES 0**	All COPD patients / Some patients – only those admitted under respiratory consultant / Some patients – other / No respiratory nurse / None
Non-invasive ventilation (NIV)			
2.1	Which method[s] of ventilatory support do you use in your Unit to treat patients with exacerbations of COPD?	Only include those methods that are used to treat patients with COPD. Please indicate all methods that your Unit uses. You may select as many options as are relevant. **Q2.1 used in the scoring system:** **a) Invasive ventilation SCORES 1.0** **b) Non Invasive Ventilation (NIV) SCORES 1.0** **c) Doxapram SCORES 0** **d) Other SCORES 0** **a) AND b) ARE NOT MUTUALLY EXCLUSIVE** **a) AND b) ARE ADDED TOGETHER TO GET A TOTAL SCORE FOR THIS QUESTION OF BETWEEN 0 AND 2**	**a)** Invasive ventilation **b)** Non Invasive Ventilation (NIV) **c)** Doxapram **d)** Other

2.2	In which setting is non-invasive ventilation (NIV) available?	Please tick all options that apply **Q2.2 used in the scoring system:** **On HDU SCORES 1** **On ICU SCORES 1** **On respiratory wards SCORES 1** **On general wards SCORES 0** **Other, please specify SCORES 1** **SCORES ADDED AND DIVIDED BY 4 TO GET A TOTAL SCORE OF BETWEEN 0 AND 1**	On HDU / On ICU / On respiratory wards / On general wards / Other, please specify
Pulmonary Rehabilitation			
3.1	Do all eligible patients have access to a formal pulmonary rehabilitation programme?	This is a programme that runs specifically for pulmonary patients including those with COPD. This may be offered either from the acute site or in the community. **Q3.1 used in the scoring system:** **Yes SCORES 1.0** **Some, but not all SCORES 0.5** **No access SCORES 0**	Yes / Some, but not all / No access
3.2	Who funds the pulmonary rehabilitation programme?	**Q3.2 used in the scoring system:** **The local Hospital SCORES 1** **The Primary Care Organisation SCORES 1** **Jointly funded between the Hospital and PCO SCORES 1** **Charitable funds SCORES 0.5** **Not funded SCORES 0** **MUTUALLY EXCLUSIVE OPTIONS that give 0 to 1 score**	

3.4	Disciplines that contribute to the Pulmonary Rehabilitation programme are:	Please indicate all disciplines that contribute to the pulmonary rehabilitation programme. **Q3.4 used in the scoring system:** **SCORING: THESE 9 DISCIPLINES (INCLUDING OTHER) ARE EACH SCORED 1.0. THE SUM OF THE 9 IS DIVIDED BY 9 TO GET A QUESTION SCORE OF BETWEEN 0 AND 1.**	**a)** Physiotherapist **b)** Dietician **c)** Social Worker **d)** Pharmacist **e)** Occupational Therapist **f)** Lung Function Technician **g)** Respiratory Nurse **h)** Previous Course Participant **i)** Other [please specify]
Early Discharge Scheme			
4.1	Do patients coming to your Unit with an exacerbation of COPD have access to an early discharge scheme?	If the scheme covers more than one of these areas please enter 'other' and specify this in the box provided. If you are unsure, please ask a Senior Clinician for advice. **Q4.1 used in the scoring system:** **Yes SCORES 1** **No SCORES 0** **SITES WITH NO EDS WILL AUTOMATICALLY SCORE ZERO FOR OTHER SCORING QUESTIONS IN THIS SECTION**	Yes / No
	a) And if responding as a Trust, does the scheme run on All sites, some sites, one site or other (please specify)		All sites / Some sites / One site / Other, please specify **Q4.1a NOT INCLUDED IN SCORING SYSTEM**
4.2	Is this scheme run for:	Please select appropriate option. If you are unsure about the nature of your scheme, please ask a Senior Clinician for advice.	Admission prevention / Rapid discharge <48 hours / Rapid discharge >48 hours / Other- please specify **Q4.2 NOT INCLUDED IN SCORING SYSTEM**

4.3	How many COPD patients from your Unit were accepted by an early discharge scheme in the last 12 months?	If the scheme has been running for more than a year, please enter the most figures available for a 12 month period. If the scheme has been running for less than a year, please extrapolate to give data for a 12 month period i.e., if it has been running for 4 months, please multiply the number of patients accepted by 3.	Numerical **Q4.3 NOT INCLUDED IN SCORING SYSTEM**
4.4	How many days per week does the scheme run?	This is irrespective of the particular days of the week that the scheme runs. If you are unsure, please ask a Senior Clinician for advice. **Q4.4 used in the scoring system:** **4 DAYS SCORES 0.25** **5/5.5 DAYS SCORES 0.50** **6 DAYS SCORES 0.75** **7 DAYS SCORES 1.00**	Numerical
4.5	Is the early discharge scheme run by:	Please identify the profession of the person who manages the scheme.	Respiratory Specialist Nurse / General Nurse / Physiotherapist / Other, please specify **Q4.5 NOT INCLUDED IN SCORING SYSTEM**
4.6	How many of the following staff members are directly involved in patient care for the EDS:	**Q4.6 used in the scoring system:** **SCORING: THESE 7 DISCIPLINES (INCLUDING OTHER) ARE EACH SCORED 1.0. THE SUM OF THE 7 IS DIVIDED BY 7 TO GET A QUESTION SCORE OF BETWEEN 0 AND 1.**	Numerical **a)** General Practitioners **b)** Respiratory Consultants **c)** Respiratory Nurses **d)** District Nurses **e)** Health Visitors **f)** Physiotherapists **g)** Other, please specify

4.11	Patients accepted for early discharge are entered onto a pulmonary rehabilitation scheme.	Patients accepted for early discharge are offered a place on a subsequent pulmonary rehabilitation course, upon ending the EDS placement support. If only some patients are offered a place on rehab after early discharge, denote only partially met. **Q4.11 used in the scoring system:** **At discharge SCORES 1.0** **Within 2 months of discharge SCORES 1.0** **Not routinely entered SCORES 0** **Other, please specify SCORES 0.5**	At discharge / Within 2 months of discharge / Not routinely entered / Other, please specify
Oxygen services			
5.1	There is a hospital based Long Term Oxygen Therapy [LTOT] assessment service	If the service meets some but not all the standard criteria, denote 'only partially met' **Q5.1 used in the scoring system:** **Met in full SCORES 1.0** **Only partially met SCORES 0.5** **Not met at all SCORES 0**	Met in full / Only partially met / Not met at all
5.8	Do you receive funding for oxygen assessment services?	**Q5.8 used in the scoring system:** **Yes SCORES 1** **No SCORES 0**	Yes / No
Palliative Care			
6.1	Are there any formal arrangements for patient with COPD to receive palliative care in your area? If yes, please describe the services that are provided.	**Q6.1 used in the scoring system:** **Yes SCORES 1** **No SCORES 0**	Yes / No Free text

6.2	Is there is a policy for providing patient information about end of life care to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital. If so please describe the policy		Yes / No **Q6.2 NOT INCLUDED IN SCORING SYSTEM** Free text
6.3	Are there any plans to develop / further develop palliative care service for patients with COPD? If so, please describe what is planned.		Yes / No **Q6.3 NOT INCLUDED IN SCORING SYSTEM** Free text
6.4	Are there any examples of good practice in the delivery of end of life care you would like to highlight? Please describe them here.		Yes / No **Q6.4 NOT INCLUDED IN SCORING SYSTEM** Free text

2. NIV QUALITY SCORE

The scoring system is described below. Individual question scores are obtained as:

2=Met in full, 1= Only partially met, 0=Not met at all.

The 12 question scores are added to get a score from 0 to 24 which is then scaled from 0 to 100.

Non-invasive ventilation (NIV)			
Quality Indicator		**Standard (where appropriate) and help notes**	**Variable**
2.3	NIV is used as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbation despite optimal medical therapy.	As defined by: National Institute for Clinical Excellence, 2004. Chronic Obstructive Pulmonary Disease; national guideline on management of chronic obstructive pulmonary disease in adults in primary and secondary care. Where NIV is used but not universally available as treatment of choice, indicate 'only partially met'.	Met in full Only partially met Not met at all
2.4	NIV is delivered in settings that are suitable for COPD patients: that is a designated area where staffs have been specifically trained in NIV. E.g. ICU, HDU, Emergency Admissions Unit or a dedicated Respiratory Ward.	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If some, but not all, staff have been trained, indicate only partially met. If there is no training programme, indicate 'not met'.	Met in full Only partially met Not met at all
2.5	There is a named consultant responsible for the NIV service.	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If there is a lead who is not formally nominated, indicate 'only partially met', otherwise indicate 'not met' if there is no arrangement.	Met in full Only partially met Not met at all
2.6	There is an ongoing inter-professional training programme for ALL staff involved in the care of patients established on NIV.	As defined by: British Thoracic Society, 2002. BTS guideline; non-invasive ventilation in acute respiratory failure. Thorax; 57: 192 – 211. Where training is ad hoc, or uni-disciplinary please indicate 'only partially met'.	Met in full Only partially met Not met at all

2.7	Nurses and doctors outside of specialist respiratory wards do know how to manage patients with COPD, and are aware of the indications for and benefits of NIV.	For example, if a patient with COPD admitted under the surgeons developed type II failure, they would understand the need to refer for NIV; or if admitted under the general medical team, they would know how to treat with NIV on take. Where some, but not all colleagues outside of the specialist respiratory ward know how to manage COPD patients and are aware of the indications and benefits of NIV, please indicate 'only partially met'.	Met in full Only partially met Not met at all
2.8	There is a written protocol that defines the monitoring of patients receiving NIV, and includes a minimum of regular clinical assessment, pulse oximetry and arterial blood gas measurements.	This protocol should be known to you.	Met in full Only partially met Not met at all
2.9	There is a clear set of individualised written instructions for the management of each patient receiving NIV, including what to do in the event of deterioration and agreed ceilings of therapy, along with an agreed protocol between ICU and the medical teams for the escalation of NIV to ICU care with intensive ventilation.	As defined by: National Institute for Clinical Excellence, 2004. Chronic Obstructive Pulmonary Disease; national guideline on management of chronic obstructive pulmonary disease in adults in primary and secondary care. Where a clear set of individualised instructions are written for the management of each patient receiving NIV but this does not include what to do in the event of deterioration, please record 'only partially met'. Additionally where individualised instructions are written for the management of each patient receiving NIV, but there is no protocol between ITU and the medical teams for the escalation of NIV to ITU care, please record 'only partially met'.	Met in full Only partially met Not met at all
2.10	Locally adapted written protocols for the management of COPD patients requiring NIV, including weaning from NIV, are available in ALL relevant clinical areas for ALL relevant staff.	Available for example, in A & E, admissions unit, HDU, the respiratory ward. If available only in some areas, then record 'partially met'.	Met in full Only partially met Not met at all

2.11	A selection of nasal and full face masks, types and nasal pillows are available.	As defined by: British Thoracic Society, 1997. BTS guidelines for the management of Chronic Obstructive Pulmonary Disease. Thorax; Supplement 5: 1 – 28. If only a limited range is available, then select 'partially met'.	Met in full Only partially met Not met at all
2.12	All areas offering NIV provide written information for patients about the indications for and patient experience of NIV.	Where written information for patients about NIV is available but only in some areas that provide this service, for example only on the respiratory ward, record 'only partially met'. If the written information only explains the indications for NIV and does not cover the patients experience of it, please record 'only partially met'.	Met in full Only partially met Not met at all
2.13	There is a written policy for providing patient information about NIV to severe COPD patients whilst in a stable state e.g. in an out-patient setting or upon discharge from hospital.	If there is written guidance but implemented on an ad hoc basis, record 'only partially met'. If this is done on an ad hoc basis then please record 'not met at all'.	Met in full Only partially met Not met at all
2.14	There is an **annual** audit of the use of NIV including ALL clinical areas. This audit covers both those patients offered NIV to examine its appropriate use AND those that might have benefited for NIV but who were not provided with this therapy.	Where annual audits include **only some** clinical areas that provide NIV, please record 'only partially met'. Additionally, if audits do not cover *both* the patients that receive NIV and those that do not, please record 'only partially met'.	Met in full Only partially met Not met at all

3. PULMONARY REHABILITATION QUALITY SCORE

The scoring system is described below. Individual question scores are obtained as:

2=Met in full, 1= Only partially met, 0=Not met at all.

The 11 question scores are added to get a score from 0 to 22 which is then scaled from 0 to 100.

Pulmonary Rehabilitation			
Quality Indicator		**Standard (where appropriate) and help notes**	**Variable**
3.3	There are written inclusion and exclusion criteria for the pulmonary rehabilitation programme and it is available to anyone with a diagnosis of COPD and MRC breathlessness scale of 2 – 4.	Denote 'only partially met' if the written criteria are available but not specifically for those with MRC 2-4.	Met in full Only partially met Not met at all
3.4	The pulmonary rehabilitation programme is delivered by a multi-disciplinary team.	Denote 'only partially met' if your rehab programme has contributions from only the physiotherapists and respiratory nurses.	Met in full Only partially met Not met at all
3.5	There is a designated lead clinician and a named co-coordinator for the pulmonary rehabilitation programme.	Where the designated lead clinician is the same person who co-ordinates the pulmonary rehabilitation programme, please indicate 'met in full'. Where there is a designated lead clinician but not a named co-ordinator for the programme, or vice versa, please record 'only partially met'.	Met in full Only partially met Not met at all
3.6	Pulmonary rehabilitation lasts a minimum of 6 weeks with exercise sessions twice a week.	Where pulmonary rehabilitation is provided but the course lasts less than 6 weeks, or has fewer exercise sessions than two per week, please record 'only partially met'.	Met in full Only partially met Not met at all
3.7	There is a continuation phase, run by people trained in pulmonary rehabilitation, in the community.	Where a continuation phase is run on an ad hoc basis, please record 'only partially met'.	Met in full Only partially met Not met at all

3.8	The pulmonary rehabilitation programme includes education about living with COPD and ALL of the following issues: exercise, smoking cessation, diet, oxygen, social service support and benefits.	Where the pulmonary rehabilitation programme includes education but not all of the issues listed (exercise, smoking cessation, diet, oxygen, social service support and benefits), please record 'only partially met'.	Met in full Only partially met Not met at all
3.9	Staff that supervise the exercise component of the pulmonary rehabilitation programme are trained in resuscitation to Advanced Life Support standard and basic life support equipment is available [oxygen, bronchodilators and GTN] during these sessions.	As defined by: BTS Standards of Care Committee, 2001. BTS statement: Pulmonary Rehabilitation. Thorax; 56: 827-834 (November) Where some but not all staff are trained in resuscitation to Advanced Life Support standard, please indicate 'only partially met'	Met in full Only partially met Not met at all
3.10	The staff / patient ratio during the exercise component of the pulmonary rehabilitation programme is at least 1:8	As defined by: BTS Standards of Care Committee, 2001. BTS statement: Pulmonary Rehabilitation. Thorax; 56: 827-834 (November)	Met in full Only partially met Not met at all
3.11	The pulmonary rehabilitation programme provides written educational resources / leaflets for patients and carers.	If leaflets are provided for one but not another group, denote only partially met.	Met in full Only partially met Not met at all
3.12	There are annual audits of the service that includes patient numbers AND outcomes AND patient satisfaction.	If the audit includes either patient numbers of patient satisfaction but not both, indicate 'only partially met'.	Met in full Only partially met Not met at all
3.13	Measurements such as spirometry, exercise and health status, are recorded before and after pulmonary rehabilitation.	Where measurements such as spirometry, exercise and health status are recorded either before or after pulmonary rehabilitation but not both please record 'only partially met'.	Met in full Only partially met Not met at all

4. EARLY DISCHARGE SCHEME QUALITY SCORE

The scoring system is described below. Individual question scores are obtained as:

2=Met in full, 1= Only partially met, 0=Not met at all.

The 9 question scores are added to get a score from 0 to 18 which is then scaled from 0 to 100.

Early Discharge Scheme			
Quality Indicator		**Standard (where appropriate) and help notes**	**Variable**
4.7	There are clear written criteria for acceptance on to the Early Discharge Scheme.		Met in full Only partially met Not met at all
4.8	The scheme is run by individuals who are capable of working independently and includes those specifically trained in respiratory medicine.	Where the scheme is run by individuals who are not specifically trained in respiratory medicine, denote only partially met.	Met in full Only partially met Not met at all
4.9	There is a named clinician responsible for the service.	Where there is a clinician responsible, but not officially "named", denote 'only partially met'.	Met in full Only partially met Not met at all
4.10	There are clear written protocols of care for the management of patients under the early discharge scheme.		Met in full Only partially met Not met at all
4.12	Patients not accepted onto the scheme still receive a package of written smoking cessation / educational support.	Where some but not all non-accepted patients receive such support, denote 'only partially met'.	Met in full Only partially met Not met at all
4.13	All COPD patients and their carers receive written information about the early discharge scheme that describes what it is, and the support that is available well in advance of them needing the service.	Where this information is given to patients at the time that they need the service or it does not cover both what the service is and the support that is available, please record 'only partially met'.	Met in full Only partially met Not met at all

4.14	The early discharge scheme has good lines of communication to manage patient care together with their GP	Where clear lines of communication between the early discharge team and the patients GP are not defined, please record 'only partially met'.	Met in full Only partially met Not met at all
4.15	There are clear clinical links between the early discharge team and various members of the primary care team	If these links exist but are not formalised, denote 'only partially met'.	Met in full Only partially met Not met at all
4.16	There is continuous data collection along with both prospective and annual audits of the service to monitor its effectiveness.	If some but not all these criteria are met, denote only partially met.	Met in full Only partially met Not met at all

5. OXYGEN SERVICES QUALITY SCORE

The scoring system is described below. Individual question scores are obtained as:

2=Met in full, 1=Only partially met, 0=Not met at all.

The 14 question scores are added to get a score from 0 to 28 which is then scaled from 0 to 100.

Oxygen services			
Quality Indicator		**Standard (where appropriate) and help notes**	**Variable**
5.1	There is a hospital based Long Term Oxygen Therapy [LTOT] assessment service	If the service meets some but not all the standard criteria, denote 'only partially met'	Met in full Only partially met Not met at all
5.2	There is screening in clinic of all patients with COPD to detect SaO2 <92%.	If there is screening of some, but not all patients, with COPD to detect low sat, denote 'only partially met'.	Met in full Only partially met Not met at all
5.3	The LTOT assessment includes optimising oxygen flow to achieve a PaO2 of 8kPa or greater using arterial blood gases.		Met in full Only partially met Not met at all
5.4	The LTOT assessment uses a concentrator machine as the oxygen source.	Oxygen provided from a wall mounted supply or cylinder will have a higher concentration, than if it is delivered via a concentrator.	Met in full Only partially met Not met at all
5.5	For patients prescribed LTOT, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.	As defined by: British Thoracic Society, 2006. Information on the New Home Oxygen Service. Available at: http://www.brit-thoracic.org.uk/page294.html (22 August 2007) Formal arrangements are required to follow-up patients that are prescribed LTOT, including ensuring LTOT adequately corrects hypoxia, there is good compliance, detection of clinical deterioration and to ensure there is a continuing requirement for the LTOT. Where some of these criteria are met, but not all, please record 'only partially met'.	Met in full Only partially met Not met at all

5.6	There is a healthcare professional contact available to deal with queries from patients and carers concerning their oxygen therapy.	If that contact is not readily available, denote 'only partially met'	Met in full Only partially met Not met at all
5.7	Ambulatory oxygen is provided by the department for suitable patients.	If ambulatory oxygen is provided on an ad hoc rather than formal basis, denote 'only partially met'	Met in full Only partially met Not met at all
5.9	There is screening for suitability for ambulatory oxygen, including SaO2 measurement, before referral for assessment.	If there is a screening process in place that isn't used, denote 'only partially met'	Met in full Only partially met Not met at all
5.10	For patients' prescribed ambulatory oxygen, follow-up arrangements are made as recommended by the BTS guidelines for home oxygen provision.	As defined by: British Thoracic Society, 2006. Information on the New Home Oxygen Service. Formal arrangements are required to follow-up patients that are prescribed ambulatory oxygen therapy. If some but not all patients are followed up according to the guidance, denote 'only partially met'.	Met in full Only partially met Not met at all
5.11	Written information is provided to all patients receiving oxygen.	As defined by: British Thoracic Society, 2006. Clinical Component for the Home Oxygen Service in England and Wales. Patients should receive written information regarding the reason for being prescribed oxygen and the principles of oxygen therapy. Where written information covers just the reason for the prescription and not the principles of oxygen therapy, and vice versa, please record 'only partially met'.	Met in full Only partially met Not met at all
5.12	All hospital based oxygen prescriptions are routed through the respiratory department.	Where some but not all prescriptions are routed through the respiratory department, denote 'only partially met'.	Met in full Only partially met Not met at all

5.13	Short Burst Oxygen is provided by the department for suitable patients.		Met in full Only partially met Not met at all
5.14	Patients are assessed for suitability before receiving Short Burst Oxygen.	If some but not all patients are assessed for suitability, denote 'only partially met'	Met in full Only partially met Not met at all
5.15	Regular audits of oxygen prescribing are carried out.	If audits are carried out, but are not regular, denote 'only partially met'.	Met in full Only partially met Not met at all

~ End ~

Appendix E The National COPD Audit 2008: list of participating NHS 'units'

- Aberdeen Royal Infirmary
- Addenbrooke's Hospital
- Aintree Chest Centre, University Hospital Aintree
- Airedale General Hospital
- Alexandra Hospital, Redditch
- Altnagelvin Area Hospital
- Antrim Area Hospital
- Arrowe Park Hospital
- Ayr Hospital
- Barnet Hospital
- Barnsley District General Hospital
- Basildon University Hospital
- Basingstoke and North Hampshire Hospital
- Bedford Hospital
- Belfast City Hospital
- Birmingham Heartlands Hospital
- Bishop Auckland General Hospital
- Blackpool Victoria Hospital
- Borders General Hospital
- Bradford Royal Infirmary
- Bridlington and District Hospital
- Bristol Royal Infirmary
- Bronglais District General Hospital
- Broomfield Hospital
- Caithness General Hospital
- Calderdale Royal Hospital
- Causeway Hospital
- Central Middlesex Hospital
- Charing Cross Hospital
- Chase Farm Hospital
- Chelsea and Westminster Hospital
- Cheltenham General Hospital
- Chesterfield Royal Hospital
- City Hospital, Birmingham
- Colchester General Hospital
- Conquest Hospital
- Countess of Chester Hospital
- Craigavon Area Hospital
- Crosshouse Hospital
- Cumberland Infirmary
- Daisy Hill Hospital
- Darent Valley Hospital
- Darlington Memorial Hospital
- Derbyshire Royal Infirmary and Derby City General Hospital
- Derriford Hospital
- Dewsbury and District Hospital
- Diana, Princess of Wales Hospital
- Doncaster Royal Infirmary
- Dorset County Hospital
- Downe Hospital
- Ealing Hospital NHS Trust
- East Surrey Hospital
- Eastbourne District General Hospital
- Epsom General Hospital and St Helier Hospital
- Fairfield General Hospital
- Friarage Hospital
- Frimley Park Hospital
- George Eliot Hospital
- Glan Clwyd Hospital
- Glasgow Royal Infirmary
- Gloucestershire Royal Hospital
- Good Hope Hospital
- Grantham and District Hospital
- Hairmyres Hospital
- Hammersmith Hospital
- Harrogate District Hospital
- Hemel Hempstead General Hospital
- Hereford County Hospital
- Hillingdon Hospital
- Hinchingbrooke Hospital
- Homerton University Hospital
- Horton General Hospital
- Huddersfield Royal Infirmary
- Hull and East Yorkshire Hospitals
- James Paget University Hospital
- Jersey General Hospital
- Kent & Canterbury Hospital
- Kent & Sussex Hospital
- Kettering General Hospital
- King George Hospital
- King's College Hospital
- King's Mill Hospital
- Kingston Hospital
- Lagan Valley Hospital
- Leighton Hospital
- Lincoln County Hospital
- Llandough Hospital
- Lorn & Islands District General Hospital
- Lymington New Forest Hospital
- Macclesfield District General Hospital
- Maidstone Hospital
- Manchester Royal Infirmary
- Manor Hospital
- Mater Hospital
- Mayday University Hospital
- Medway Maritime Hospital
- Milton Keynes General Hospital
- Monklands Hospital
- Montagu Hospital
- Morriston Hospital
- Musgrove Park Hospital, Taunton
- Neath Port Talbot Hospital
- Nevill Hall Hospital
- New Cross Hospital
- Newham University Hospital
- Nobles Hospital
- Norfolk and Norwich University Hospital
- North Bristol NHS Trust (Southmead Hospital)
- North Devon District Hospital
- North Manchester General Hospital
- North Middlesex University Hospital
- North Tyneside General Hospital

- Northampton General Hospital
- Northern General Hospital
- Northwick Park and St Mark's Hospital
- Papworth Hospital
- Perth Royal Infirmary
- Peterborough District Hospital
- Pilgrim Hospital
- Pinderfields General Hospital
- Pontefract General Infirmary
- Poole Hospital
- Prince Charles Hospital
- Prince Philip Hospital
- Princess Elizabeth Hospital
- Princess of Wales Hospital
- Princess Royal Hospital
- Princess Royal Hospital, Haywards Heath
- Queen Alexandra Hospital
- Queen Elizabeth Hospital, Gateshead
- Queen Elizabeth Hospital, Woolwich
- Queen Elizabeth The Queen Mother Hospital
- Queen Margaret Hospital, Dunfermline
- Queen's Hospital, Burton upon Trent
- Queen's Hospital, Romford
- Rochdale Infirmary
- Rotherham General Hospital
- Royal Albert Edward Infirmary
- Royal Alexandra Hospital
- Royal Berkshire Hospital
- Royal Blackburn Hospital
- Royal Bolton Hospital
- Royal Brompton Hospital
- Royal Cornwall Hospital
- Royal Devon and Exeter Hospital
- Royal Free Hospital
- Royal Glamorgan Hospital
- Royal Gwent Hospital
- Royal Hampshire County Hospital
- Royal Infirmary of Edinburgh
- Royal Lancaster Infirmary
- Royal Liverpool University Hospital
- Royal Oldham Hospital
- Royal Preston Hospital
- Royal Shrewsbury Hospital
- Royal Sussex County Hospital
- Royal United Hospital, Bath
- Royal Victoria Infirmary and Freeman Hospital
- Russells Hall Hospital
- Salford Royal NHS Foundation Trust
- Salisbury District Hospital
- Sandwell General Hospital
- Scarborough General Hospital
- Scunthorpe General Hospital
- Selly Oak Hospital
- Singleton Hospital
- Solihull Hospital
- South Tyneside District Hospital
- Southampton General Hospital
- Southend University Hospital
- Southern General Hospital
- Southport and Formby District General Hospital
- St George's Hospital
- St James's University Hospital
- St John's Hospital at Howden
- St Mary's Hospital, Isle of Wight
- St Mary's Hospital, London
- St Peter's Hospital
- St Richards Hospital
- St Thomas' Hospital
- Staffordshire General Hospital
- Stepping Hill Hospital
- Stirling Royal Infirmary
- Stobhill Hospital
- Sunderland Royal Hospital
- Tameside General Hospital
- The Churchill Hospital and John Radcliffe Hospital
- The Great Western Hospital
- The James Cook University Hospital
- The Luton & Dunstable Hospital
- The Princess Alexandra Hospital
- The Princess Royal University Hospital
- The Queen Elizabeth Hospital, King's Lynn
- The Queen Elizabeth II Hospital and Hertford County Hospital
- The Royal Bournemouth Hospital
- The Royal Hallamshire Hospital
- The Royal Hospitals, Belfast
- The Royal London Hospital
- The Royal Surrey County Hospital NHS Trust
- The Whittington Hospital
- Torbay Hospital
- Trafford General Hospital
- Tyrone County Hospital
- Ulster Hospital
- University College London Hospital
- University Hospital Lewisham
- University Hospital North Durham
- University Hospital North Staffordshire
- University Hospital of Hartlepool
- University Hospital of North Tees
- University Hospital of Wales
- University Hospital, Coventry
- University Hospitals of Leicester NHS Trust
- Victoria Infirmary, Glasgow
- Wansbeck General Hospital
- Warrington Hospital
- Warwick Hospital
- West Cumberland Hospital
- West Middlesex University Hospital
- West Suffolk Hospitals
- West Wales General Hospital
- Western General Hospital
- Western Infirmary and Gartnavel General Hospital
- Western Isles Hospital
- Weston General Hospital
- Wexham Park Hospital
- Whipps Cross University Hospital
- Whiston Hospital
- William Harvey Hospital
- Wishaw General Hospital

- Withybush General Hospital
- Worcestershire Royal Hospital
- Worthing Hospital
- Wrexham Maelor Hospital
- Wycombe Hospital
- Wythenshawe Hospital
- Yeovil District Hospital
- York Hospital
- Ysbyty Gwynedd