Royal College of Physicians | NACAP

National Asthma and Chronic Obstructive Pulmonary Disease Audit Programme (NACAP)

COPD clinical audit 2018/19

(people with COPD exacerbations discharged from acute hospitals in England, Scotland and Wales between October 2018 and September 2019)

Data analysis and methodology report

Published July 2020

In association with:

ARNS

asthma UK and British Lung Foundation Partnership

British Thoracic Society

Imperial College London

Primary Care Respiratory Society UK

Royal College of General Practitioners

RCPCH Royal College of Paediatrics and Child Health

Commissioned by:

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National Asthma and Chronic Obstructive Pulmonary Disease (COPD) Audit Programme

NACAP is a programme of work that aims to improve the quality of care, services and clinical outcomes for patients with asthma and COPD in England, Scotland and Wales. Spanning the entire patient care pathway, NACAP includes strong collaboration with asthma and COPD patients, as well as healthcare professionals, and aspires to set out a vision for a service which puts patient needs first. To find out more about the NACAP visit: **www.rcplondon.ac.uk/nacap**.

COPD: clinical audit 2018/19

This report was prepared by the following people, on behalf of the COPD advisory group (the full list of members can be found on the NACAP resources page here: **www.rcplondon.ac.uk/nacap-resources**).

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Contents

How to use this report

1. Scope and data collection

This report presents the results from an analysis of data derived from the Chronic Obstructive Pulmonary Disease (COPD) clinical audit component of the National Asthma and COPD Audit Programme (NACAP). The COPD audit is continuous and captures the process and clinical outcomes of treatment in patients admitted to hospital in England, Scotland and Wales with COPD exacerbations. The audit was launched in England and Wales on 1 February 2017 and in Scotland on 1 November 2018.

This report, which is the third report post-launch of continuous data collection, presents data describing the cohort of patients discharged between 1 October 2018 and 30 September 2019. Contributing to the overarching national quality improvement (QI) objectives of the NACAP, it serves to empower stakeholders to use audit data to facilitate improvements in the quality of care.

2. Report structure

The data are presented largely in tabular form with explanatory notes where appropriate. However, the key messages can be found in the shorter national report (via **www.rcplondon.ac.uk/copd-2018-19**). These data will also be made publicly available at hospital level on **www.data.gov.uk**, in line with the government's transparency agenda. Comparisons with the results of the 2017/2018 report (**www.rcplondon.ac.uk/copd-2017-18**) have been provided where appropriate.
Details of the statistical, data collection and information governance methodologies employed are provided in Appendix A.

Nationally benchmarked results for participating hospitals across England, Scotland and Wales have been provided in Section 10 of this report. The median values for each hospital are presented alongside the national medians for each indicator. The indicators have been selected based on national guidelines and standards. The hospital results for each indicator are colour coded in accordance with whether the hospital falls either above, within the middle two, or below the lower quartile.

3. Report coverage

National breakdowns are given for England, Scotland and Wales are presented, as well as 'All' figures.

The NACAP follows rules on suppression of small numbers in national reporting where it may be possible to identify an individual patient in any data presented. In this report, it was deemed appropriate and safe to include small numbers in national data tables without suppression for the following reasons:

- These data are presented at national aggregate level. It is not possible to combine this national aggregate data in any way which could identify an individual.
- These data are of a sample of the eligible patients that could have been included in the audit; it is not possible to ascertain which eligible patients were included, and which were not, in the data presented here.

The national COPD audit dataset was refreshed in November 2018, therefore it has not been possible to enable comparison with 2017/18 results for all measures. Where this is the case 'Not previously reported' is stated within the comparator column.

4. Audience and links to relevant guidelines and standards

The report is intended to be read by healthcare professionals; NHS managers, chief executives and board members; as well as service commissioners, policymakers and voluntary organisations. A separate report has been produced for patients and the public and is available at: **www.rcplondon.ac.uk/copd-2017-18**.

References to the appropriate National Institute for Health and Care Excellence (NICE) quality statements,[1,2] (Appendix B), clinical guidelines[3] (Appendix C) and British Thoracic Society (BTS) non-invasive ventilation (NIV) quality standards[4] (Appendix D) are inserted throughout the key findings.

Copies of our datasets, our good practice repository, and all other resources can be found via our website: **www.rcplondon.ac.uk/nacap-copd-resources**.

Section 1: General information

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Key findings

Admission and demographics

- A higher proportion of **COPD admissions** were **female (53.8%)** (53.3% in 2017/18).
- The mean **age at admission** was **71 years**.
- The highest proportion of **COPD admissions** were from the **most deprived areas** in **England (35.6%), Scotland (37.7%) and Wales (36.3%)**. For England and Wales this is similar to 2017/18 but these are the first data from Scotland.
- **There were more admissions** for COPD during **weekdays than at weekends**, with the busiest admission period across the week falling on a **Monday between 2pm and 8pm**.

Length of stay

- The **median length of stay** for admissions remained at **4 days**.

Inpatient mortality

- **Inpatient mortality remained stable** at 3.6% overall compared with 3.8% reported in 2017/18, however crude **inpatient mortality appears higher in Scotland (5.7%) and Wales (4.9%)** compared with **England (3.6%)**.

Case ascertainment

- The median case ascertainment for the period of 1 October 2018 to 30 September 2019 was **58% (IQR 40 – 70%).** In **England**, the median case ascertainment for this period was **58% (IQR 42 – 70%).** In **Wales**, the median case ascertainment for this period was 43% **(IQR 19 – 74%).**
- Case ascertainment data for Scotland is only available from 1 April 2019, therefore a Scottish breakdown cannot be given.

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

1.1 Age

	2018/19			
Age at admission	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)
Mean (SD)*	71 (10.7)	70 (9.8)	70 (10.5)	71 (10.6)

SD = standard deviation

1.2 Gender

	2018/19				2017/18
Gender†	England (N=78,302)	Scotland (N=627)	Wales (N= 3,339	All (N=82,268)	All (N=74,645)
Male	36,273 (46.3%)	271 (43.2%)	1,371 (41.1%)	37,915 (46.1%)	34,850 (46.7%)
Female	41,970 (53.6%)	356 (56.8%)	1,967 (58.9%)	44,293 (53.8%)	39,795 (53.3%)
Transgender	6 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.0%)	Not previously reported
Other	1 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	Not previously reported
Not recorded / preferred not to say	52 (0.0%)	0 (0.0%)	1 (0.0%)	53 (0.0%)	Not previously reported

1.3 Socioeconomic status

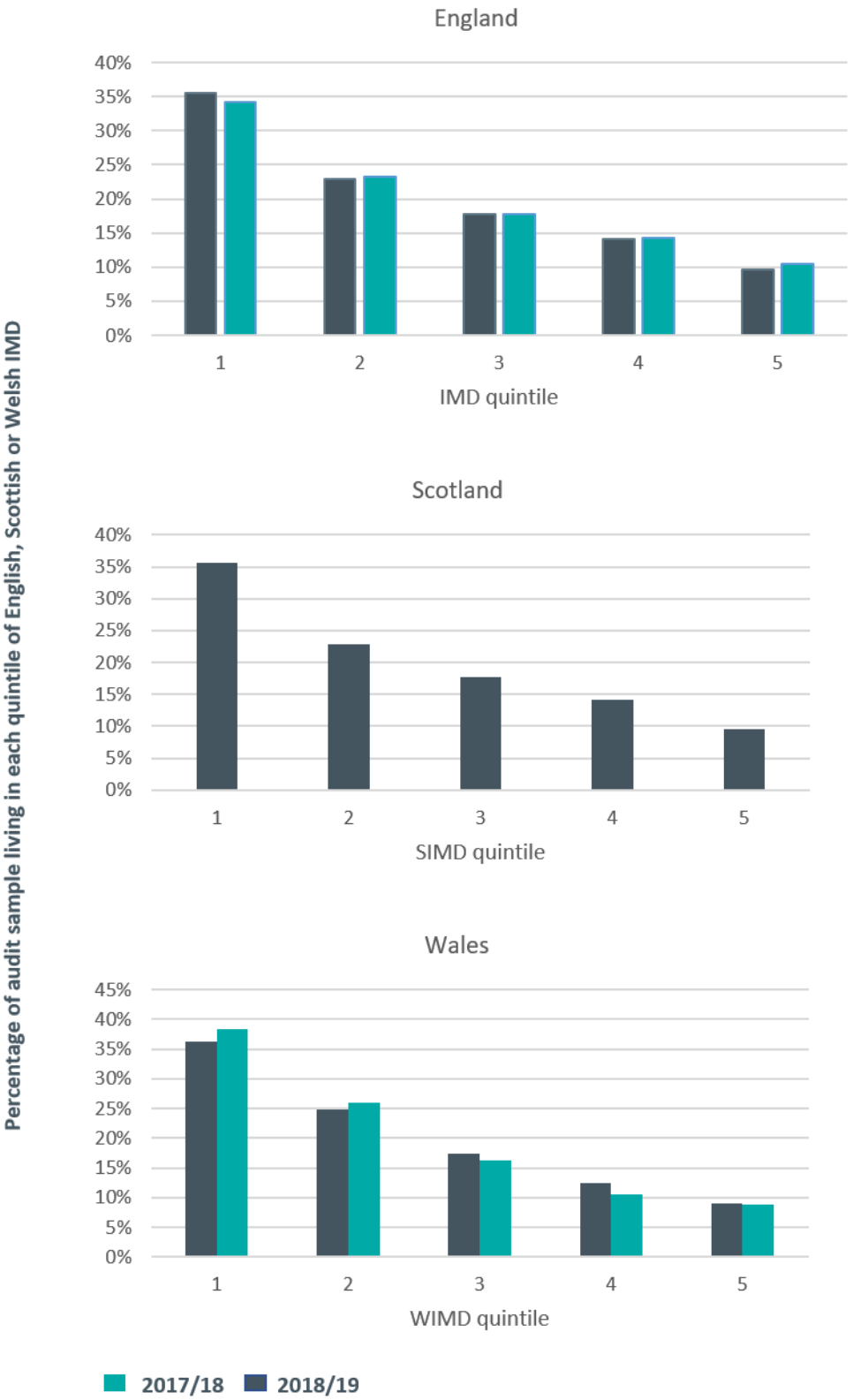
1.3.1 Index of Multiple Deprivation measures by national quintile in England, Scotland and Wales

		Percentage of audit sample living in each quintile of English, Scottish or Welsh Index of Multiple Deprivation				
Index of Multiple Deprivation		Q1 (most deprived)	Q2	Q3	Q4	Q5 (least deprived)
England (IMD)	2018/19	27,441 (35.6%)	17,631 (22.9%)	13,664 (17.7%)	10,876 (14.1%)	7,519 (9.6%)
	2017/18	24,351 (34.2%)	16,560 (23.3%)	12,682 (17.8%)	10,194 (14.3%)	7,390 (10.4%)
Scotland (IMD)	2018/19	240 (37.7%)	161 (25.3%)	132 (20.8%)	61 (9.6%)	42 (6.6%)
	2017/18	N/A	N/A	N/A	N/A	N/A
Wales (IMD)	2018/19	1,219 (36.3%)	833 (24.8%)	583 (17.4%)	418 (12.5%)	301 (9.0%)
	2017/18	1,043 (38.6%)	689 (25.5%)	455 (16.2%)	278 (10.5%)	239 (8.8%)

* Due to age being given as a median (interquartile range) in 2017/18 and mean (SD) in 2018/19 comparison is not possible therefore the comparative year has been removed.

† There is no comparative data available for transgender, other and not recorded/preferred not to say for this table from 2017/18 as this analysis was not conducted.

Fig 1 Percentage of the hospital population of COPD exacerbations in each IMD quintile



1.4 Admission

1.4.1 Average number of admissions per hospital

	2018/19				2017/18
Number of admissions	England (N=78,302)	Scotland (N=627)	Wales (N= 3,339	All (N=82,268)	All (N=74,645)
Median (IQR*)	397 (239–634)	64 (16–176)	166 (71–335)	371 (223–600)	367 (212–588)

*IQR = interquartile range

1.4.2 Age at admission by gender

	2018/19				2017/18
Age at admission by gender	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All (N=74,645)
Mean (SD)					
Male	(N=36,273) 71.7 (10.6)	(N=271) 70.4 (10.0)	(N=1,371) 71.1 (10.4)	(N=37,915) 71.7 (10.6)	(N=34,850) 73 (66–79)
Female	(N=41,970) 71.8 (10.7)	(N=356) 70.4 (9.7)	(N=1,967) 70.8 (9.7)	(N=44,293) 71.7 (10.7)	(N=39,795) 73 (65–80)
Transgender	(N=6) 66.6 (10.0)	(N=0) -	(N=0) -	(N=6) 66.6 (10.0)	Not previously reported
Other	(N=1) 68 (-)	(N=0) -	(N=0) -	(N=1) 68 (-)	Not previously reported
Not recorded/preferred not to say	(N=52) 74.7 (10.7)	(N=0) -	(N=1) 82 (-)	(N=53) 74.9 (10.6)	Not previously reported

1.4.3 Average time, in hours, between arrival and admission

	2018/19				2017/18
Time of arrival to admission, in hours	England (N=78,302)	Scotland (N=627)	Wales (N= 3,339)	All (N=82,268)	All (N=74,645)
Median (IQR)	4.0 (2.1–6.9)	1.8 (0.3–3.6)	1.0 (0.2–4.9)	3.9 (1.9–6.7)	3.9 (1.9–6.2)

1.4.4 Day and time of admission to hospital

	Day patient admitted (N=82,268)						
Time admitted	**Monday (N=12,975)**	**Tuesday (N=12,509)**	**Wednesday (N=12,198)**	**Thursday (N=12,000)**	**Friday (N=11,761)**	**Saturday (N=10,093)**	**Sunday (N=10,732)**
00.00–01.59	942 (7.3%)	1,027 (8.2%)	964 (7.9%)	912 (7.6%)	919 (7.8%)	892 (8.8%)	887 (8.3%)
02.00–03.59	711 (5.5%)	806 (6.4%)	733 (6.0%)	734 (6.1%)	711 (6.0%)	727 (7.2%)	726 (6.8%)
04.00–05.59	570 (4.4%)	600 (4.8%)	593 (4.9%)	578 (4.8%)	612 (5.2%)	640 (6.3%)	561 (5.2%)
06.00–07.59	485 (3.7%)	494 (3.9%)	487 (4.0%)	489 (4.8%)	464 (4.0%)	470 (4.7%)	513 (4.8%)
08.00–09.59	659 (5.1%)	711 (5.7%)	594 (4.9%)	640 (5.3%)	665 (5.7%)	560 (5.6%)	594 (5.5%)
10.00–11.59	977 (7.5%)	992 (7.9%)	981 (8.0%)	918 (7.7%)	968 (8.2%)	761 (7.5%)	897 (8.4%)
12.00–13.59	1,317 (10.2%)	1,122 (9.0%)	1,081 (8.9%)	1,089 (9.1%)	1,079 (9.2%)	900 (8.9%)	954 (8.9%)
14.00–15.59	1,579 (12.2%)	1,381 (11.0%)	1,355 (11.1%)	1,386 (11.6%)	1,351 (11.5%)	1,046 (10.4%)	1,120 (10.4%)
16.00–17.59	1,659 (12.8%)	1,575 (12.6%)	1,564 (12.8%)	1,480 (12.3%)	1,408 (12.0%)	1,081 (10.7%)	1,243 (11.6%)
18.00–19.59	1,458 (11.2%)	1,370 (11.0%)	1,449 (11.8%)	1,396 (11.6%)	1,298 (11.0%)	1,007 (10.0%)	1,107 (10.3%)
20.00–21.59	1,344 (10.4%)	1,213 (9.7%)	1213 (9.9%)	1,174 (9.8%)	1,090 (9.3%)	932 (9.2%)	1,024 (9.5%)
22.00–23.59	1,274 (9.8%)	1,218 (9.7%)	1,184 (9.7%)	1,204 (10.0%)	1,196 (10.2%)	1,077 (10.7%)	1,106 (10.3%)

Key

Highest (1,659 (12.8%)) — Lowest (464 (4.0%))

1.5 Length of stay

	2018/19			
Length of stay, days[‡]	**England (N=75,525)**	**Scotland (N=591)**	**Wales (N=3,174)**	**All (N=79,290)**
Median (IQR)	4 (2–7)	4 (2–7)	4 (2–8)	4 (2–7)

[‡] Patients who died were included in the analysis for 2017/18 but excluded for 2018/19. The comparative year has therefore not been given.

1.6 Did the patient die as an inpatient in your hospital?

	2018/19				2017/18
Inpatient mortality	**England (N=78,302)**	**Scotland (N=627)**	**Wales (N=3,339)**	**All (N=82,268)**	**All (N=74,645)**
Yes	2,777 (3.6%)	36 (5.7%)	165 (4.9%)	2,978 (3.6%)	2,846 (3.8%)

Section 2: Respiratory review

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2011), statements 10: People admitted to hospital with an exacerbation of COPD are cared for by a respiratory team and have access to a specialist early supported discharge scheme with appropriate community support.[2]

Key findings

- **86.5%** of admissions were **reviewed** by a member of the **respiratory team** compared with 84.7% in 2017/18. 66.1% of admissions were **reviewed within 24 hours** (64.0% in 2017/18).
- The median time from **admission to respiratory team review** was **14.7 hours** (15.0 hours in 2017/18).

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

2.1 Respiratory team review

2.1.1 Has a member of the respiratory team reviewed the patient during the admission?

	2018/19				2017/18
Respiratory team review during admission	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All (N=74,645)
Yes	68,268 (87.2%)	540 (88.1%)	2,352 (70.4%)	71,163 (86.5%)	63,229 (84.7%)

2.1.2 Was the patient reviewed by a member of the respiratory team within 24 hours?

	2018/19				2017/18
Respiratory team review within 24 hours of admission	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All (N=74,645)
Yes	52,856 (67.5%)	292 (46.6%)	1,297 (38.8%)	54,445 (66.1%)	47,761 (64.0%)

2.1.3 Average time, in hours, from admission to respiratory team review

	2018/19				2017/18
Time, in hours, from admission to respiratory team review	England (N=68,271)	Scotland (N=540)	Wales (N=2,352)	All (N=71,163)	All (N=63,229)
Median (IQR)	14.5 (5.8–22.9)	22.0 (13.3–46.9)	21.1 (9.5–52.5)	14.7 (5.9–23.4)	15.0 (6.3–23.8)

Section 3: Oxygen

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2016), statement 6: People receiving emergency oxygen for an acute exacerbation of COPD have oxygen saturation levels maintained between 88% and 92%.[1]

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2016), statement 3: People with stable COPD and a persistent resting stable oxygen saturation level of 92% or less have their arterial blood gases measured to assess whether they need long-term oxygen therapy.[1]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.3.28: If necessary, prescribe oxygen to keep the oxygen saturation of arterial blood (SaO_2) within the individualised target range.[3]

Key findings

- **60.7%** of admissions were **prescribed** oxygen.
- **2.3%** of admissions who had oxygen prescribed did **not have a target range stipulated,** similar to the 2.7% reported in 2017/18.

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

3.1 Was oxygen prescribed for this patient?

	2018/19			
Oxygen prescribed[4]	**England (N= 78,302)**	**Scotland (N=627)**	**Wales (N=3,339)**	**All (N=82,268)**
Yes	47,594 (60.8%)	411 (65.6%)	1,926 (57.7%)	49,931 (60.7%)

[4] In 2017/18, the question asked was if oxygen was prescribed to those who required it, so the data are not directly comparable and therefore comparative.

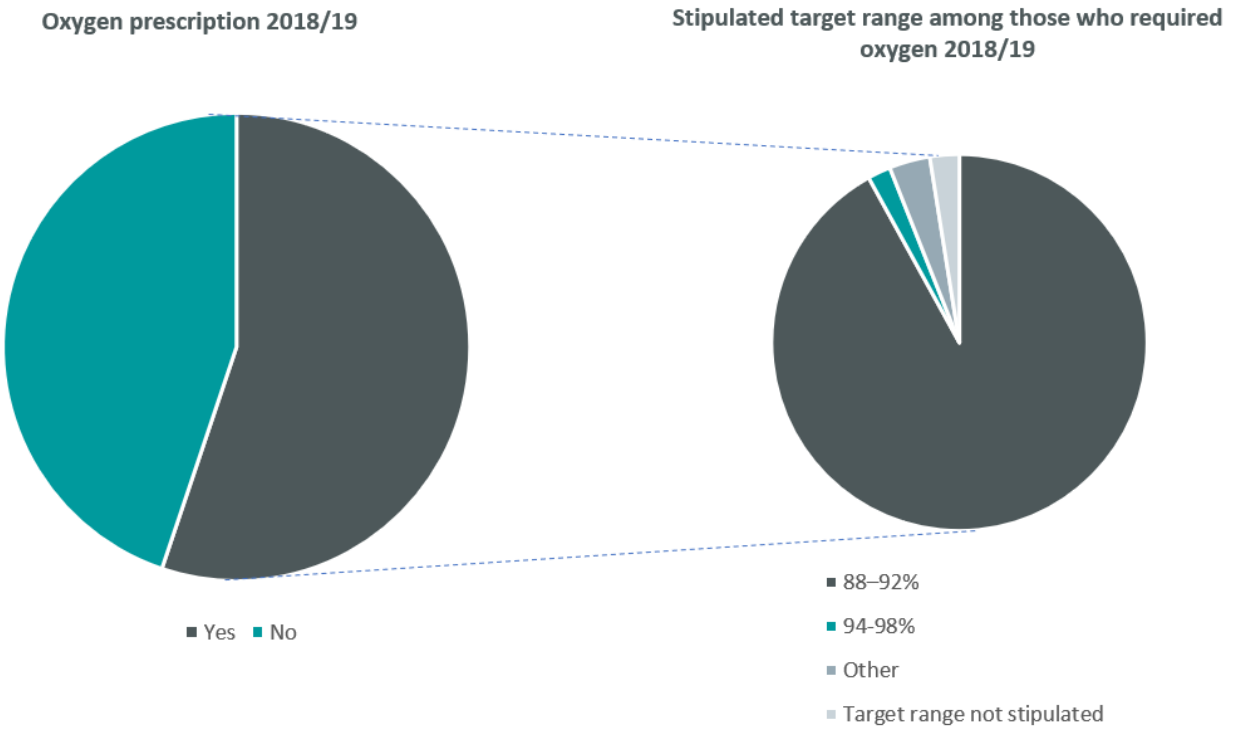
3.1.1 If oxygen was prescribed, was it to a stipulated target range?

	2018/19				2017/18
Target range for oxygen prescription, among those prescribed	England (N=47,594)	Scotland (N= 411)	Wales (N=1,926)	All (N=49,931)	All (N=42,736)
88–92%	39,721 (83.5%)	316 (76.9%)	1,750 (90.9%)	41,787 (83.7%)	36,359 (85.1%)
94–98%	5,220 (11.0%)	49 (11.9%)	106 (5.5%)	5,375 (1.8%)	3,678 (8.6%)
Other	1,506 (3.2%)	41 (10.0%)	52 (2.7%)	1,599 (3.2%)	1,551 (3.6%)
Target range not stipulated	1,147 (2.4%)	5 (1.2%)	18 (0.9%)	1,170 (2.3%)	1,148 (2.7%)

3.1.2 Was oxygen administered to the patient at any point during this admission?

	2018/19				2017/18
Oxygen administered**	England (N=47,594)	Scotland (N= 411)	Wales (N=1,926)	All (N=49,931)	All
Yes	37,578 (79.0%)	340 (82.7%)	1,481 (76.9%)	39,399 (79.0%)	Not previously reported
No	10,016 (21.0%)	71 (17.3%)	445 (23.1%)	10,532 (21.1%)	Not previously reported

Fig 2 Oxygen prescription



** There is no comparative data available for this table from 2017/18 as this analysis was not conducted.

Section 4: Non-invasive ventilation

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2016), statement 7: People with an acute exacerbation of COPD and persistent acidotic hypercapnic ventilatory failure that is not improving after 1 hour of optimal medical therapy have non-invasive ventilation.[1]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.3.31: Use NIV as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbations despite optimal medical therapy.[3]

British Thoracic Society (BTS) Quality Standards for acute NIV in adults, Statement 1: Acute non-invasive ventilation (NIV) should be offered to all patients who meet evidence-based criteria. Hospitals must ensure there is adequate capacity to provide NIV to all eligible patients.[4]

Key findings

- **10.2%** of admissions **received acute treatment with non-invasive ventilation (NIV)** compared with 10.3% in 2017/18. The rate in Wales is higher at 13.9%.
- Of those who received NIV, **23.7% received it within 2 hours of arrival** at hospital (21.0% in 2017/18).
- **The 15.2%** of admissions who received NIV **later than 24 hours** are likely 'late failures'.

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

4.1 Did the patient receive acute treatment with NIV?

	2018/19				2017/18
Acute treatment with NIV	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All (N=74,645)
Yes	7,892 (10.1%)	64 (10.2%)	465 (13.9%)	8,421 (10.2%)	7,690 (10.3%)

4.1.1 If the patient received acute treatment with NIV, was it received within 2 hours of arrival?

	2018/19				2017/18
Acute treatment with NIV received within ≤2 hours of arrival	**England (N=7,892)**	**Scotland (N=64)**	**Wales (N=465)**	**All (N=8,421)**	**All (N=7,690)**
Yes	1,881 (23.8%)	16 (25.0%)	102 (21.9%)	1,999 (23.7%)	1,618 (21.0%)
No	4,776 (60.5%)	44 (68.8%)	313 (67.3%)	5,133 (60.9%)	4,414 (57.4%)
No time/date recorded	1,235 (15.7%)	4 (6.3%)	50 (10.8%)	1,289 (15.3%)	1,658 (21.6%)

4.2 Time from arrival to acute treatment with NIV

	2018/19				2017/18
Time, in hours, from arrival at hospital to acute treatment with NIV	**England (N=6,657)**	**Scotland (N=60)**	**Wales (N=415)**	**All (N=7,132)**	**All (N=6,032)**
≤2 hours	1,881 (28.3%)	16 (26.7%)	102 (24.6%)	1,999 (28.0%)	1,618 (26.8%)
>2–24 hours	3,794 (57.0%)	31 (51.7%)	221 (53.3%)	4,046 (56.7%)	3,451 (57.2%)
>24 hours	982 (14.8%)	13 (21.7%)	92 (22.2%)	1,087 (15.2%)	963 (16.0%)

Section 5: Spirometry

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2016), statement 1: People aged over 35 years who present with a risk factor and one or more symptoms of chronic obstructive pulmonary disease (COPD) have post-bronchodilator spirometry.[1]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.1.4: Perform spirometry:

- At diagnosis
- To reconsider the diagnosis, for people who show an exceptionally good response to treatment
- To monitor disease progression.[3]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.1.5: Measure post-bronchodilator spirometry to confirm the diagnosis of COPD[3]

Key findings

> A **spirometry** result was **available for 46.0%** of patients admitted, an increase from 40.5% in 2017/18. **Availability was greater in England** (46.3%) than in Scotland (41.6%) and Wales (39.4%).

> **13.8%** of admissions with a spirometry result recorded had **no evidence of airflow obstruction despite being managed for COPD exacerbation**, higher than the 12.1% recorded in 2017/18.

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

5.1 Is a spirometry result available?

	2018/19				2017/18
Spirometry result available	England (N=78,302)	Scotland (N=627)	Wales (N= 3,339)	All (N=82,268)	All (N=74,636)
Yes	36,269 (46.3%)	261 (41.6%)	1,316 (39.4%)	37,846 (46.0%)	30,193 (40.5%)

5.2 If a spirometry result is available, what is the patients most recent FEV1 % predicted?

	2018/19				2017/18
Patient's most recent FEV1 % predicted††	**England (N=35,335)**	**Scotland (N=261)**	**Wales (N=1,289)**	**All (N=36,885)**	**All**
Median (IQR)	44 (31–60)	47 (35–67)	46 (33–61)	44 (32–60)	Not previously reported

5.3 The degree of airflow obstruction‡‡

	2018/19				2017/18
Airflow obstruction (FEV1/FVC ratio)	**England (N=33,580)**	**Scotland (N=254)**	**Wales (N=1,192)**	**All (N=35,026)**	**All (N=30,193)**
Yes (<0.7)	28,984 (86.3%)	207 (81.5%)	1,004 (84.2%)	30,195 (86.2%)	26,087 (86.4%)
No (≥0.7)	4,596 (13.7%)	47 (18.5%)	188 (15.8%)	4,831 (13.8%)	3,639 (12.1%)

†† There is no comparative data available for this table from 2017/18 as this analysis was not conducted.

‡‡ Participants were asked in the dataset to record the value of the spirometry test: the patient's most recent FEV1 as well as their most recent FVC. These have been used to calculate the FEV1/FVC ratio (ie degree of airflow obstruction).

Section 6: Smoking

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2011), statement 5: People with COPD who smoke are regularly encouraged to stop and are offered the full range of evidence-based smoking cessation support.[2]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.2.2: Document an up-to-date smoking history, including pack years smoked (number of cigarettes smoked per day, divided by 20, multiplied by the number of years smoked) for everyone with COPD.[3]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.2.3: At every opportunity, advise and encourage every person with COPD who is still smoking (regardless of their age) to stop, and offer them help to do so.[3]

NICE Guideline [NG115], Chronic obstructive pulmonary disease in over 16s: diagnosis and management, 1.2.4: Unless contraindicated, offer nicotine replacement therapy, varenicline or bupropion as appropriate to people who want to stop smoking, combined with an appropriate support programme to optimise smoking quit rates for people with COPD.[3]

NICE Quality Standards, Smoking: Supporting people to stop [QS43] (2013), standard 1: People are asked if they smoke by their healthcare practitioner, and those who smoke are offered advice on how to stop.[6]

Key findings

- **34.2%** of admissions were **current smokers** (32.3% in 2017/18). Few patients were vaping (1.1%).
- Just **47.4%** of current smokers were **referred for behavioural change intervention and/or prescribed a stop smoking drug** during the admission.

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

6.1 What was the smoking status for this patient, as documented for the current admission?

	2018/19				2017/18
Smoking status[§§]	**England (N=78,302)**	**Scotland (N=627)**	**Wales (N=3,339)**	**All (N=82,268)**	All (N=74,645)
Current smoker	26,644 (34.0%)	262 (41.8%)	1,250 (37.4%)	28,156 (34.2%)	24,124 (32.3%)
Ex-smoker	44,287 (56.6%)	344 (54.9%)	1,819 (54.5%)	46,450 (56.4%)	43,846 (58.7%)
Never smoked	2,302 (2.9%)	7 (1.1%)	125 (3.7%)	2,434 (3.0%)	2,229 (3.0%)
Ex-smoker and current vaper	888 (1.1%)	3 (0.5%)	43 (1.3%)	934 (1.1%)	Not previously reported
Never smoked and current vaper	29 (0.0%)	0 (0.0%)	0 (0.0%)	29 (0.0%)	Not previously reported
Not known / not recorded	4,152 (5.3%)	11 (1.8%)	102 (3.1%)	4,265 (5.2%)	4,446 (6.0%)

6.1.1 If a current smoker, was the patient referred to behavioural change intervention and/or prescribed a stop smoking drug during this admission?

	2018/19				2017/18
Referral to behavioural change and/or prescribed a stop smoking drug during the admission[***]	**England (N=26,644)**	**Scotland (N=262)**	**Wales (N= 1,250)**	**All (N=28,156)**	All
Yes	12,605 (47.3%)	121 (46.2%)	632 (50.6%)	13,358 (47.4%)	Not previously reported
No	13,400 (50.3%)	131 (50.0%)	575 (46.0%)	14,106 (50.1%)	Not previously reported
Not recorded	639 (2.4%)	10 (3.8%)	43 (3.4%)	692 (2.5%)	Not previously reported

[§§] There is no comparative data available for ex-smoker and current vaper and never smoked and current vaper for this table from 2017/18 as this analysis was not conducted.

[***] There is no comparative data available for this table from 2017/18 as this analysis was not conducted.

Section 7: Acute Observation†††

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Key findings

- **74.1%** of patients had a **National Early Warning Score 2 (NEWS2) score recorded.**
- **Recording of NEWS2** was **lower in England** (73.0%) than Scotland (96.3%) and Wales (95.4%) where it was almost universal.
- **50.4% of admissions were in the lowest risk category.**

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

6.1 Was a NEWS2 score recorded for this patient?

	2018/19				2017/18
NEWS2 score	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All
Yes	57,162 (73.0%)	604 (96.3%)	3,186 (95.4%)	60,952 (74.1%)	Not previously reported

6.1.1 If yes, what was the recorded NEWS2 score?

	2018/19				2017/18
NEWS2 score, among those with a score recorded	England (N=69,650)	Scotland (N=606)	Wales (N=3,311)	All (N=73,567)	All
0–4 (Low risk)	35,332 (50.7%)	243 (40.1%)	1,537 (46.4%)	37,112 (50.4%)	Not previously reported
5–6 (Medium risk)	17,052 (24.5%)	168 (27.7%)	870 (26.2%)	18,090 (24.6%)	Not previously reported
7+ (High risk)	17,266 (24.8%)	195 (32.1%)	894 (27.0%)	18,365 (24.9%)	Not previously reported

††† There is no comparative data available from 2017/18 for the tables in this section as this analysis was not conducted.

Section 8: Comorbidities‡‡‡

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Key findings

- **37.7%** of patients had a history of **cardiovascular disease, and 16.3%** had a history of **mental illness.**
- **New interventions** were made in **21.4%** of those with **cardiovascular disease** and **14.1%** of those with **mental illness.**

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

8.1 Was a history of cardiovascular disease recorded for this patient?

	2018/19				2017/18
History of cardiovascular disease recorded	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All
Yes	29,267 (37.4%)	222 (35.4%)	1,523 (45.6%)	31,012 (37.7%)	Not previously reported
No	49,035 (62.6%)	405 (64.6%)	1,816 (54.4%)	51,256 (62.3%)	Not previously reported

8.1.1 If yes, were any new interventions made for this comorbidity?

	2018/19				2017/18
Interventions for cardiovascular disease	England (N=29,267)	Scotland (N=222)	Wales (N=1,523)	All (N=31,012)	All
Yes	6,161 (21.1%)	46 (20.7%)	417 (27.4%)	6,624 (21.4%)	Not previously reported
No	23,106 (79.0%)	176 (79.3%)	1,106 (72.6%)	24,388 (78.6%)	Not previously reported

‡‡‡ There is no comparative data available from 2017/18 for the tables in this section as this analysis was not conducted.

8.2 Was a history of mental illness recorded for this patient?

	2018/19				2017/18
History of mental illness recorded	England (N=78,302)	Scotland (N=627)	Wales (N=3,339)	All (N=82,268)	All
Yes	12,483 (15.9%)	123 (19.6%)	777 (23.3%)	13,383 (16.3%)	Not previously reported
No	65,819 (84.1%)	504 (80.4%)	2,562 (76.7%)	68,885 (83.7%)	Not previously reported

8.2.1 If yes, were any new interventions made for this comorbidity?

	2018/19				2017/18
Interventions for mental health recorded[§§§]	England (N=12,483)	Scotland (N=123)	Wales (N=777)	All (N=13,383)	All
Yes	1,751 (14.0%)	23 (18.7%)	112 (14.4%)	1,886 (14.1%)	Not previously reported
No	10,726 (85.9%)	100 (81.3%)	665 (85.6%)	11,491 (85.9%)	Not previously reported

[§§§] There were six patients with missing data who have been excluded from this analysis.

Section 9: Discharge processes

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Key standards:

NICE Quality Standards, Chronic Obstructive Pulmonary Disease in adults [QS10] (2016), statement 8: (Placeholder) Hospital discharge care bundle.[1]

Key findings

Discharge

- The lowest number of discharges took place on a weekend (**8.1% on Saturdays and 6.2% on Sundays**).

Discharge bundle

- **73.8%** of admissions received a **discharge bundle** (a significant increase over 67.2% in 2017/18).
- However, use of individual measures considered part of a bundle on discharge varied greatly. Only **70.4%** of patients had their **inhaler technique checked,** and only **56.0%** were **assessed for suitability for pulmonary rehabilitation** despite these being standard components of a discharge bundle.
- **9%** of patients had care **discussed at an MDT meeting** with a local community team**.**

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

9.1 Day of discharge

	2018/19				2017/18
Day of discharge****	England (N=75,525)	Scotland (N=591)	Wales (N=3,174)	All (N=79,290)	All (N=71,799)
Monday	12,731 (16.9%)	114 (19.3%)	645 (20.3%)	13,490 (17.0%)	11,349 (15.8%)
Tuesday	13,303 (17.6%)	103 (17.4%)	567 (17.9%)	13,973 (17.6%)	12,712 (17.7%)
Wednesday	12,646 (16.7%)	104 (17.6%)	503 (15.9%)	13,253 (16.7%)	12,382 (17.2%)
Thursday	12,423 (16.5%)	86 (14.6%)	529 (16.7%)	13,038 (16.44%)	11,790 (16.4%)
Friday	13,421 (17.8%)	112 (19.0%)	633 (19.9%)	14,166 (17.9%)	13,016 (18.1%)
Saturday	6,203 (8.2%)	50 (8.5%)	175 (5.5%)	6,428 (8.1%)	5,931 (8.3%)
Sunday	4,798 (6.4%)	22 (3.7%)	122 (3.8%)	4,942 (6.2%)	4,619 (6.4%)

9.2 Was a discharge bundle completed for this admission?

	2018/19			
Discharge bundle completed for this admission††††	England (N=75,525)	Scotland (N=591)	Wales (N=3,174	All (N=79,290)
Yes	57,808 (76.5%)	232 (39.3%)	438 (13.8%)	58,478 (73.8%)
No	17,259 (22.9%)	353 (59.7%)	2,701 (85.1%)	20,313 (25.6%)
Patient self-discharged	458 (0.6%)	6 (1.0%)	35 (1.1%)	499 (0.6%)

**** Patients who died have been excluded from this analysis.

†††† Patients who died were included in the denominator, and therefore the breakdown, for this measure in 2017/18. To ensure that hospitals can achieve 100% for completing a discharge bundle, patients who died have now been removed from the denominator and breakdown and the comparative year therefore removed.

9.3 Which of the following specific elements of good practice were undertaken as part of the patient's discharge?‡‡‡‡

	2018/19				2017/18
Elements of good practice care	England (N=75,525)	Scotland (N=591)	Wales (N=3,174)	All (N=79,290)	All
Inhaler technique checked	53,955 (71.4%)	423 (71.6%)	1,456 (45.9%)	55,834 (70.4%)	Not previously reported
Assessment of medication	55,342 (73.3%)	425 (71.9%)	2,658 (83.7%)	58,425 (73.7%)	Not previously reported
Self-management plan provided	43,543 (57.7%)	156 (26.4%)	923 (29.1%)	44,622 (56.3%)	Not previously reported
Emergency drug pack provided or referred to community	18,761 (24.8%)	17 (2.9%)	406 (12.8%)	19,184 (24.2%)	Not previously reported
Oxygen alert card provided	7,283 (9.6%)	42 (71%)	42 (1.3%)	7,367 (9.3%)	Not previously reported
Smoking cessation drugs or referral to behavioural change	12,892 (17.1%)	121 (20.5%)	635 (20.0%)	13,648 (17.2%)	Not previously reported
Pulmonary rehabilitation suitability assessment	43,353 (57.4%)	259 (43.8%)	771 (24.3%)	44,383 (56.0%)	Not previously reported
Follow up requests	24,004 (31.8%)	62 (10.5%)	746 (23.5%)	24,812 (31.3%)	Not previously reported
MDT meeting about patient	6,865 (9.1%)	17 (2.9%)	542 (17.1%)	7,424 (9.4%)	Not previously reported
BLF patient passport provided	6,070 (8.0%)	0 (0.0%)	108 (3.4%)	6,178 (7.8%)	Not previously reported
None	8,549 (11.3%)	117 (19.8%)	305 (9.6%)	8,971 (11.3%)	Not previously reported

BLF = British Lung Foundation; MDT = multidisciplinary team

‡‡‡‡ There is no comparative data available for this table for 2017/18 as this analysis was not conducted.

Section 10: Sub-analyses

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This section presents associations between various metrics and:

- time from arrival to acute treatment with NIV
- review by a member of the respiratory team.

Key findings

Respiratory review

- Respiratory team review within 24 hours was associated with or had an impact on:
  - **Better smoking cessation support**; smokers who **received a specialist review** within 24 hours were **more likely** to be referred to behavioural change intervention and/or prescribed a stop smoking drug **(53.3%)** compared with those who did not receive a review **(38.5%)**.
  - **Discharge bundles**; patients who **received a specialist review** within 24 hours were **much more likely** to receive a discharge bundle **(86.5%)** compared with those who did not receive a review **(50.0%)**.
  - **Oxygen prescription**; patients who received a **specialist review within 24 hours** and required oxygen were **more likely (64.0%)** to receive it compared with those who received a review after 24 hours **(54.2%)**.

NIV

- Patients who received acute treatment with **NIV between >2 and 24 hours after they arrived at hospital** were **more likely** to have a length of stay greater than 4 days (73.0%) relative to patients receiving NIV in less than 2 hours (70.6%).

Navigation

This section contains the following tables and graphs. If you are viewing this report on a computer, you can select the table that you wish to see from the list below.

10.1 NIV

10.1.1 Time to acute treatment with NIV and association with length of stay[§§§§]

	2018/19		2017/18	
Time to acute treatment with NIV and length of stay	Time from arrival to acute treatment with NIV ≤2 hours (N=1,794)	Time from arrival to acute treatment with NIV >2–24 hours (N=3,624)	Time from arrival to acute treatment with NIV <2 hours (N=1,618)	Time from arrival to acute treatment with NIV 2–24 hours (N=3,451)
Length of stay ≤4 days	527 (29.4%)	979 (27.0%)	445 (27.5%)	819 (23.7%)
Length of stay >4 days	1,267 (70.6%)	2,645 (73.0%)	1,003 (62.0%)	2,269 (65.7%)

10.1.2 Time to acute treatment with NIV and associations with inpatient mortality[§§§§§]

	2018/19		2017/18	
Time to acute treatment with NIV and inpatient mortality	Time from arrival to acute treatment with NIV ≤2 hours (N=1,999)	Time from arrival to acute treatment with NIV >2–24 hours (N=4,046)	Time from arrival to acute treatment with NIV <2 hours (N=1,618)	Time from arrival to acute treatment with NIV 2–24 hours (N=3,451)
Died as inpatient	205 (10.3%)	422 (10.4%)	170 (10.5%)	363 (10.5%)

[§§§§] Patients receiving acute treatment with NIV >24 hours after arrival have been excluded from this analysis.

10.2 Respiratory specialist review*****

10.2.1 Time to respiratory specialist review and associations with length of stay

	2018/19		2017/18	
Time to respiratory specialist review and length of stay	Received specialist review within 24 hours (N=52,563)	Did not receive specialist review in 24 hours (N=26,727)	Received specialist review within 24 hours (N=47,761)	Did not receive specialist review in 24 hours (N=26,884)
Length of stay ≤4 days	30,251 (57.6%)	14,902 (55.8%)	27,010 (56.6%)	14,999 (55.8%)
Length of stay >4 days	22,312 (42.5%)	11,825 (44.2%)	19,028 (39.8%)	10,762 (40.0%)

10.2.2 Time to respiratory specialist review and associations with inpatients mortality

	2018/19		2017/18	
Time to respiratory specialist review and inpatient mortality	Received specialist review within 24 hours (N=54,445)	Did not receive specialist review in 24 hours (N=27,823)	Received specialist review within 24 hours (N=47,761)	Did not receive specialist review in 24 hours (N=26,884)
Died as an inpatient	1,882 (3.5%)	1,096 (3.9%)	1,723 (3.6%)	1,123 (4.2%)

10.2.3 Time to respiratory specialist review and associations with prescription of oxygen

	2018/19		2017/18	
Time to respiratory specialist review and prescription of oxygen	Received specialist review within 24 hours and required oxygen (N=54,445)	Did not receive specialist review within 24 hours and required oxygen (N=27,823)	Received specialist review within 24 hours and required oxygen (N=38,578)	Did not receive specialist review within 24 hours and required oxygen (N=20,801)
Oxygen prescribed	34,832 (64.0%)	15,099 (54.2%)	29,157 (75.6%)	13,579 (65.3%)

10.2.4 Time to respiratory specialist review and associations with receiving NIV within 2 hours of arrival

	2018/19		2017/18	
Time to respiratory specialist review and receiving NIV within 2 hours of arrival	Received specialist review within 24 hours and received NIV (N=4,795)	Did not receive specialist review within 24 hours and received NIV (N=1,250)	Received specialist review within 24 hours and received NIV (N=5,733)	Did not receive specialist review within 24 hours and received NIV (N=1,957)
Received NIV within 2 hours of arrival	1,562 (32.6%)	437 (35.0%)	1,280 (22.3%)	338 (17.3%)

10.2.5 Time to respiratory specialist review and associations with smokers that were referred to behavioural change intervention and/or were prescribed a stop smoking drug

***** Did not receive specialist review within 24 hours includes both patients that did not receive any specialist review as well as those that received one more than 24 hours after they were admitted.

	2018/19		2017/18	
Time to respiratory specialist review and smoking cessation	**Received specialist review within 24 hours and a current smoker (N=18,798)**	**Did not receive specialist review within 24 hours and a current smoker (N=8,666)**	**Received specialist review within 24 hours and a current smoker**	**Did not receive specialist review within 24 hours and a current smoker**
Referred to behavioural change intervention and/or prescribed a stop smoking drug	10,025 (53.3%)	3,333 (38.5%)	Not previously reported	Not previously reported

10.2.6 Time to respiratory specialist review and associations with those receiving a discharge bundle

	2018/19		2017/18	
Time to respiratory specialist review and receipt of a discharge bundle	**Received specialist review within 24 hours and received a discharge bundle (N=52,305)**	**Did not receive specialist review within 24 hours and received a discharge bundle (N=26,486)**	**Received specialist review within 24 hours and received a discharge bundle (N=45,328)**	**Did not receive specialist review within 24 hours and received a discharge bundle (N=25,254)**
Received a discharge bundle[†††††]	45,258 (86.5%)	13,220 (50.0%)	38,094 (84.0%)	12,090 (47.9%)

[†††††] Excluding those patients who died or self-discharged.

Section 11: Benchmarked key indicators

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11.1 Benchmarking of key indicators for participating hospitals

Table 1 shows the national (England, Scotland and Wales combined) medians, lower quartiles and upper quartiles for the key indicators that have been presented in the unadjusted benchmarking of hospitals (Table 2). The values presented in Table 1 have been derived by the method shown visually in the box and whisker plot (Fig 4). More specifically, to create the 'box', data for each key indicator were ordered numerically from smallest (whisker; P0) to largest (whisker; P100) to find the median (P50), the middle point of the values. The data are divided into two halves, these two halves are then divided in half again to identify the lower quartile (P25) and the upper quartile (P75).

Table 1 The median and interquartile ranges for each key indicator

	Key indicators						
Median and interquartile ranges (%)	**Length of stay (days)**	**Oxygen prescribed to those patients who required it (%)**	**Patient requiring acute treatment with NIV received it within 2 hours of arrival (%)**	**Spirometry result available (%)**	**Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug (%)**	**Patient received respiratory review within 24 hours of admission (%)**	**Discharge bundle completed for the admission (%)**
Lower quartile	**2**	**47**	**14**	**27**	**28**	**40**	**59**
Median	**4**	**61**	**24**	**44**	**40**	**66**	**81**
Upper quartile	**7**	**75**	**32**	**60**	**58**	**78**	**94**

The colours refer to the quartile in which each result lies:

Red = result equal to or below lower quartile for that indicator

Amber = result above lower quartile but below upper quartile for that indicator

Green = result equal to or above upper quartile for that indicator

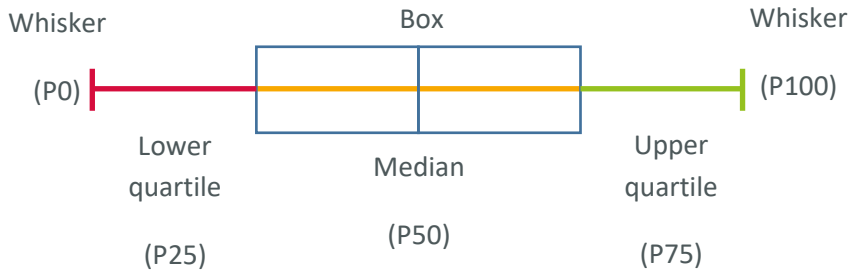

Fig 4 Box and whisker plot

Table 2 Unadjusted benchmarking of key indicators for participating hospitals in England, Scotland and Wales

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
			N	%	N	%	N	%	N	%	N	%	N	%
National medians		4	**49,931**	61%	**1,999**	24%	**37,846**	44%	**13,648**	40%	**54,445**	66%	**58,478**	81%
England														
Addenbrooke's Hospital (N=860)	Cambridge University Hospitals NHS Foundation Trust	4	755	88%	25	29%	453	53%	100	35%	708	82%	838	100%
Airedale General Hospital (N=277)	Airedale NHS Foundation Trust	4	138	50%	6	24%	196	71%	27	21%	179	65%	199	74%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Arrowe Park Hospital (N=886)	Wirral University Teaching Hospital NHS Foundation Trust	3	482	54%	<5	N/A	608	69%	271	83%	776	88%	749	90%
Barnet General Hospital (N=290)	Royal Free London NHS Foundation Trust	5	153	53%	10	32%	105	36%	63	62%	180	62%	206	75%
Barnsley District General Hospital (N=909)	Barnsley Hospital NHS Foundation Trust	3	726	80%	13	27%	348	38%	46	13%	781	86%	754	84%
Basildon Hospital (N=731)	Basildon and Thurrock University Hospitals NHS Foundation Trust	5	698	95%	19	18%	270	37%	53	21%	619	85%	671	96%
Basingstoke and North Hampshire Hospital (N=262)	Hampshire Hospitals NHS Foundation Trust	6	134	51%	6	15%	28	11%	92	78%	190	73%	242	96%
Bassetlaw District General Hospital (N=277)	Doncaster And Bassetlaw Teaching Hospitals NHS Foundation Trust	3	151	55%	6	17%	132	48%	28	33%	262	95%	220	85%
Bedford Hospital (N=373)	Bedford Hospital NHS Trust	3	142	38%	10	31%	40	11%	47	33%	263	71%	276	77%
Birmingham City Hospital (N=397)	Sandwell and West Birmingham Hospitals NHS Trust	3	193	49%	7	24%	212	53%	73	41%	327	82%	367	94%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Birmingham Heartlands Hospital (N=507)	University Hospitals Birmingham NHS Foundation Trust	4	187	37%	18	21%	307	61%	116	50%	408	80%	431	89%
Bradford Royal Infirmary (N=1,175)	Bradford Teaching Hospitals NHS Foundation Trust	2	545	46%	13	9%	240	20%	137	22%	381	32%	364	32%
Bristol Royal Infirmary (N=1,175)	University Hospitals Bristol NHS Foundation Trust	3	204	38%	13	33%	254	47%	68	31%	410	75%	450	86%
Calderdale Royal Hospital (N=376)	Calderdale and Huddersfield NHS Foundation Trust	2	210	56%	13	25%	312	83%	133	84%	351	93%	359	100%
Charing Cross Hospital (N=231)	Imperial College Healthcare NHS Trust	5	143	62%	14	31%	174	75%	41	40%	152	66%	219	96%
Chelsea and Westminster Hospital (N=253)	Chelsea And Westminster Hospital NHS Foundation Trust	3	69	27%	9	29%	11	4%	38	41%	155	61%	201	81%
Cheltenham General Hospital (N=62)	Gloucestershire Hospitals NHS Foundation Trust	5	46	74%	<5	N/A	10	16%	8	32%	41	66%	35	60%
Chesterfield Royal (N=458)	Chesterfield Royal Hospital NHS Foundation Trust	3	111	24%	17	38%	33	7%	97	58%	284	62%	397	88%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Chorley Hospital (N=295)	Lancashire Teaching Hospitals NHS Foundation Trust	4	159	54%	<5	N/A	130	44%	56	55%	50	17%	10	4%
Colchester General Hospital (N=762)	East Suffolk and North Essex NHS Foundation Trust	3	733	96%	24	33%	94	12%	51	16%	298	39%	412	59%
Conquest Hospital (N=228)	East Sussex Healthcare NHS Trust	4	151	66%	<5	50%	42	14%	19	33%	213	93%	223	99%
Countess of Chester Hospital (N=239)	Countess of Chester Hospital NHS Foundation Trust	7	100	42%	5	10%	126	53%	29	32%	53	22%	110	50%
County Hospital (Stafford) (N=146)	University Hospitals of North Midlands NHS Trust	3	132	90%	<5	N/A	67	46%	16	42%	97	66%	140	99%
County Hospital Hereford (N=52)	Wye Valley NHS Trust	5	49	94%	<5	N/A	30	58%	10	53%	17	33%	40	80%
Croydon University Hospital (N=369)	Croydon Health Services NHS Trust	3	90	24%	11	35%	56	15%	69	40%	260	70%	276	78%
Cumberland Infirmary (N=138)	North Cumbria Integrated Care NHS Foundation Trust	5	134	97%	9	35%	28	20%	33	57%	69	50%	74	56%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Darent Valley Hospital (N=537)	Dartford and Gravesham NHS Trust	7	357	66%	14	18%	128	24%	66	32%	192	36%	410	81%
Darlington Memorial Hospital (N=653)	County Durham and Darlington NHS Foundation Trust	4	232	36%	25	23%	250	38%	155	57%	465	71%	584	91%
Derriford Hospital (N=652)	University Hospitals Plymouth NHS Trust	5	518	79%	11	23%	260	40%	97	36%	348	53%	453	72%
Diana, Princess of Wales Hospital (N=328)	Northern Lincolnshire and Goole NHS Foundation Trust	7	236	72%	10	25%	128	39%	32	28%	88	27%	261	85%
Doncaster Royal Infirmary (N=632)	Doncaster And Bassetlaw Teaching Hospitals NHS Foundation Trust	4	459	73%	31	33%	352	56%	130	60%	573	91%	582	97%
Dorset County Hospital (N=191)	Dorset County Hospital NHS Foundation Trust	3	149	78%	6	26%	44	23%	19	39%	122	64%	55	31%
Ealing Hospital (N=412)	London North West University Healthcare NHS Trust	6	346	84%	19	31%	224	54%	91	61%	283	69%	373	98%
East Surrey Hospital (N=202)	Surrey and Sussex Healthcare NHS Trust	5	119	59%	6	25%	30	15%	34	36%	89	44%	124	63%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Eastbourne DGH (N=243)	East Sussex Healthcare NHS Trust	5	182	75%	<5	N/A	109	45%	20	29%	232	95%	229	99%
Epsom Hospital (N=193)	Epsom and St Helier University Hospitals NHS Trust	4	105	54%	<5	N/A	78	40%	32	59%	149	77%	156	91%
Fairfield General Hospital (N=810)	Pennine Acute Hospitals NHS Trust	1	299	37%	23	51%	193	24%	<5	N/A	199	25%	253	32%
Friarage Hospital (N=33)	South Tees Hospitals NHS Foundation Trust	2	16	48%	<5	N/A	11	33%	<5	N/A	20	61%	27	82%
Frimley Park Hospital (N=385)	Frimley Health NHS Foundation Trust	3	206	54%	8	24%	42	11%	59	37%	251	65%	263	69%
Furness General (N=393)	University Hospitals of Morecambe Bay NHS Foundation Trust	6	59	15%	11	21%	180	46%	30	23%	262	67%	339	93%
George Eliot Hospital (N=290)	George Eliot Hospital NHS Trust	5	191	66%	<5	N/A	140	48%	31	35%	176	61%	266	97%
Glenfield Hospital (N=1,006)	University Hospitals of Leicester NHS Trust	4	702	70%	21	30%	816	81%	314	76%	974	97%	871	87%
Gloucestershire Royal Hospital (N=159)	Gloucestershire Hospitals NHS Foundation Trust	5	129	81%	<5	N/A	11	7%	27	39%	107	67%	118	76%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Good Hope General Hospital (N=420)	University Hospitals Birmingham NHS Foundation Trust	4	105	25%	15	23%	215	51%	36	28%	266	63%	269	66%
Grantham And District General Hospital (N=147)	United Lincolnshire Hospitals NHS Trust	5	76	52%	<5	N/A	29	20%	29	52%	115	78%	138	98%
Harrogate District Hospital (N=92)	Harrogate and District NHS Foundation Trust	3	72	78%	5	31%	22	24%	<5	N/A	67	73%	66	74%
Hillingdon Hospital (N=294)	The Hillingdon Hospitals NHS Foundation Trust	4	209	71%	9	20%	199	68%	65	63%	220	75%	235	81%
Hinchingbrooke Hospital (N=392)	North West Anglia NHS Foundation Trust	2	149	38%	5	19%	88	22%	31	19%	162	41%	175	47%
Homerton Hospital (N=310)	Homerton University Hospital NHS Foundation Trust	3	181	58%	7	32%	182	59%	78	56%	124	40%	192	64%
Horton General Hospital (N=226)	Oxford University Hospitals NHS Foundation Trust	3	105	46%	5	31%	118	52%	30	33%	154	68%	211	97%
Hull Royal Infirmary (N=1,242)	Hull University Teaching Hospitals NHS Trust	2	490	39%	8	6%	69	6%	127	26%	1002	81%	835	71%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
James Cook University Hospital (N=600)	South Tees Hospitals NHS Foundation Trust	3	417	70%	22	26%	88	15%	86	30%	502	84%	573	99%
James Paget Hospital (N=374)	James Paget University Hospitals NHS Foundation Trust	5	269	72%	8	20%	218	58%	23	21%	130	35%	220	59%
John Radcliffe Hospital (N=660)	Oxford University Hospitals NHS Foundation Trust	3	401	61%	32	33%	467	71%	95	45%	493	75%	589	95%
Kettering General Hospital (N=545)	Kettering General Hospital NHS Foundation Trust	4	472	87%	18	25%	184	34%	49	23%	312	57%	355	67%
King George Hospital (N=361)	Barking, Havering and Redbridge University Hospitals NHS Trust	4	253	70%	8	24%	135	37%	81	63%	194	54%	252	75%
King's College Hospital (N=162)	King's College Hospital NHS Foundation Trust	3	82	51%	8	36%	142	88%	44	59%	126	78%	148	93%
Kings Mill Hospital (N=619)	Sherwood Forest Hospitals NHS Foundation Trust	4	415	67%	30	35%	148	24%	165	73%	440	71%	512	85%
Kingston Hospital (N=363)	Kingston Hospital NHS Foundation Trust	4	261	72%	15	43%	145	40%	55	47%	248	68%	247	74%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Leicester Royal Infirmary (N=95)	University Hospitals of Leicester NHS Trust	4	70	74%	<5	N/A	5	5%	<5	N/A	6	6%	<5	N/A
Leighton Hospital (N=211)	Mid Cheshire Hospitals NHS Foundation Trust	3	122	58%	<5	N/A	68	32%	33	35%	125	59%	<5	N/A
Lincoln County Hospital (N=497)	United Lincolnshire Hospitals NHS Trust	3	311	63%	<5	N/A	199	40%	72	40%	331	67%	399	85%
Lister Hospital (N=734)	East and North Hertfordshire NHS Trust	4	667	91%	22	40%	324	44%	112	56%	696	95%	698	100%
Luton and Dunstable Hospital (N=681)	Luton and Dunstable University Hospital NHS Foundation Trust	5	273	40%	6	18%	354	52%	74	31%	605	89%	640	100%
Lymington New Forest Hospital (N=69)	Southern Health NHS Foundation Trust	4	57	83%	<5	N/A	35	51%	8	53%	41	59%	23	35%
Macclesfield District General Hospital (N=224)	East Cheshire NHS Trust	4	188	84%	<5	N/A	127	57%	54	71%	162	72%	139	67%
Maidstone General Hospital (N=355)	Maidstone and Tunbridge Wells NHS Trust	6	335	94%	18	34%	253	71%	57	79%	219	62%	339	99%
Manchester Royal Infirmary (N=680)	Manchester University NHS Foundation Trust	5	389	57%	30	44%	381	56%	205	55%	529	78%	618	95%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Manor Hospital (N=924)	Walsall Healthcare NHS Trust	4	54	6%	<5	N/A	614	66%	91	27%	622	67%	819	92%
Medway Maritime Hospital (N=634)	Medway NHS Foundation Trust	5	408	64%	41	44%	47	7%	53	28%	312	49%	537	88%
Milton Keynes General Hospital (N=488)	Milton Keynes University Hospital NHS Foundation Trust	5	<5	N/A	7	19%	140	29%	219	72%	326	67%	434	93%
Musgrove Park Hospital (N=397)	Taunton and Somerset NHS Foundation Trust	4	115	29%	10	40%	266	67%	87	65%	191	48%	291	75%
New Cross Hospital (N=410)	The Royal Wolverhampton NHS Trust	3	209	51%	15	38%	266	65%	38	26%	346	84%	343	87%
Norfolk and Norwich Hospital (N=593)	Norfolk and Norwich University Hospitals NHS Foundation Trust	3	388	65%	<5	N/A	273	46%	135	58%	436	74%	426	74%
North Devon District Hospital (N=140)	Northern Devon Healthcare NHS Trust	4	99	71%	<5	N/A	20	14%	28	55%	82	59%	87	63%
North Manchester General Hospital (N=519)	Pennine Acute Hospitals NHS Trust	2	204	39%	10	19%	208	40%	89	34%	260	50%	180	36%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
North Middlesex Hospital (N=73)	North Middlesex University Hospital NHS Trust	3	40	55%	<5	33%	<5	N/A	<5	N/A	5	7%	22	31%
Northampton General Hospital (N=667)	Northampton General Hospital NHS Trust	4	249	37%	18	25%	265	40%	34	15%	484	73%	543	86%
Northern General Hospital (N=1,094)	Sheffield Teaching Hospitals NHS Foundation Trust	4	733	67%	25	33%	630	58%	181	39%	1040	95%	1003	95%
Northumbria Specialist Emergency Care Hospital (N=454)	Northumbria Healthcare NHS Foundation Trust	3	299	66%	14	40%	185	41%	64	43%	428	94%	445	100%
Northwick Park Hospital (N=543)	London North West University Healthcare NHS Trust	6	398	73%	23	31%	225	41%	43	28%	283	52%	433	83%
Nottingham City Hospital (N=1,242)	Nottingham University Hospitals NHS Trust	3	1117	90%	7	9%	486	39%	234	42%	966	78%	969	81%
Peterborough City Hospital (N=809)	North West Anglia NHS Foundation Trust	3	288	36%	9	20%	377	47%	29	7%	198	24%	100	13%
Pilgrim Hospital (N=414)	United Lincolnshire Hospitals NHS Trust	4	169	41%	<5	N/A	173	42%	36	24%	235	57%	294	74%
Pinderfields General Hospital (N=1,515)	Mid Yorkshire Hospitals NHS Trust	4	1282	85%	67	24%	970	64%	214	30%	1333	88%	1265	87%

Hospital/unit name (N)	Trust / health board name	Length of stay (days)	Oxygen prescribed to those patients who required it		Patient requiring acute treatment with NIV received it within 2 hours of arrival		Spirometry result available		Current smoker referred to behavioural change intervention and/or prescribed a stop smoking drug		Patient received respiratory review within 24 hours of admission		Discharge bundle completed for the admission	
Poole General Hospital (N=460)	Poole Hospital NHS Foundation Trust	4	224	49%	10	34%	344	75%	29	20%	422	92%	403	93%
Princess Alexandra Hospital (N=221)	The Princess Alexandra Hospital NHS Trust	5	119	54%	<5	N/A	148	67%	27	38%	175	79%	210	98%
Princess Royal Hospital (Haywards Heath) (N=32)	Brighton and Sussex University Hospitals NHS Trust	3	15	47%	<5	N/A	<5	N/A	<5	N/A	6	19%	<5	N/A
Princess Royal Hospital, Telford (N=132)	Shrewsbury and Telford Hospital NHS Trust	4	64	48%	<5	N/A	20	15%	<5	N/A	67	51%	72	56%
Princess Royal University Hospital (Bromley) (N=299)	King's College Hospital NHS Foundation Trust	5	247	83%	<5	N/A	17	6%	17	21%	109	36%	280	98%
Queen Alexandra Hospital (N=1,125)	Portsmouth Hospitals NHS Trust	4	955	85%	36	30%	770	68%	359	87%	979	87%	1079	100%
Queen Elizabeth Hospital, Edgbaston (N=1,116)	University Hospitals Birmingham NHS Foundation Trust	5	921	83%	7	8%	642	58%	223	40%	803	72%	960	88%

Queen Elizabeth Hospital, Gateshead (N=1,101)	Gateshead Health NHS Foundation Trust	4	450	41%	9	16%	<5	N/A	<5	N/A	876	80%	931	87%
Queen Elizabeth Hospital, King's Lynn (N=322)	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	3	287	89%	14	35%	21	7%	30	31%	55	17%	44	14%
Queen Elizabeth the Queen Mother Hospital (N=518)	East Kent Hospitals University NHS Foundation Trust	4	314	61%	41	38%	298	58%	95	49%	395	76%	444	89%
Queens Hospital (N=518)	University Hospitals of Derby and Burton NHS Foundation Trust	4	160	31%	6	14%	124	24%	63	44%	420	81%	465	95%
Queens Hospital Romford (N=669)	Barking, Havering and Redbridge University Hospitals NHS Trust	5	541	81%	37	35%	292	44%	176	78%	459	69%	554	88%
Rotherham General Hospital (N=120)	The Rotherham NHS Foundation Trust	2	95	79%	<5	N/A	17	14%	10	26%	52	42%	12	10%
Royal Albert Edward Infirmary (N=339)	Wrightington, Wigan and Leigh NHS Foundation Trust	2	173	51%	<5	N/A	13	4%	20	14%	160	47%	34	11%
Royal Berkshire Hospital (N=685)	Royal Berkshire NHS Foundation Trust	4	262	38%	15	24%	408	60%	90	40%	468	68%	535	83%
Royal Blackburn Hospital (N=1,090)	East Lancashire Hospitals NHS Trust	2	654	60%	20	17%	870	80%	288	59%	722	66%	721	70%
Royal Bolton Hospital (N=105)	Bolton NHS Foundation Trust	3	73	70%	<5	N/A	36	34%	5	9%	56	53%	11	11%

Royal Bournemouth General Hospital (N=633)	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	4	522	82%	15	21%	599	95%	98	40%	409	65%	508	85%
Royal Cornwall Hospital (N=482)	Royal Cornwall Hospitals NHS Trust	3	406	84%	7	23%	210	44%	58	31%	177	37%	6	1%
Royal Derby Hospital (N=1,034)	University Hospitals of Derby and Burton NHS Foundation Trust	3	921	89%	11	24%	565	55%	103	27%	847	82%	889	88%
Royal Devon & Exeter Hospital (N=331)	Royal Devon and Exeter NHS Foundation Trust	5	229	69%	<5	N/A	41	12%	90	90%	272	82%	304	99%
Royal Free Hospital (N=103)	Royal Free London NHS Foundation Trust	5	84	82%	<5	N/A	68	66%	12	36%	63	61%	73	74%
Royal Hampshire County Hospital (N=309)	Hampshire Hospitals NHS Foundation Trust	6	111	36%	10	28%	7	2%	50	54%	228	74%	291	98%
Royal Lancaster Infirmary (N=293)	University Hospitals of Morecambe Bay NHS Foundation Trust	3	35	12%	13	31%	220	75%	79	55%	213	73%	222	81%
Royal Liverpool University Hospital (N=746)	Liverpool University Hospitals NHS Foundation Trust	5	363	49%	<5	N/A	439	59%	195	62%	471	63%	552	78%
Royal London Hospital (N=150)	Barts Health NHS Trust	4	100	67%	<5	N/A	128	85%	18	27%	109	73%	51	35%
Royal Oldham Hospital (N=617)	Pennine Acute Hospitals NHS Trust	3	352	57%	<5	N/A	307	50%	51	16%	260	42%	432	72%

Royal Preston Hospital (N=488)	Lancashire Teaching Hospitals NHS Foundation Trust	4	238	49%	17	24%	210	43%	111	54%	123	25%	52	11%
Royal Stoke University Hospital (N=889)	University Hospitals of North Midlands NHS Trust	4	813	91%	9	10%	566	64%	164	53%	830	93%	773	90%
Royal Surrey County Hospital (N=279)	Royal Surrey County Hospital NHS Foundation Trust	4	126	45%	<5	N/A	84	30%	53	52%	213	76%	223	83%
Royal Sussex County Hospital (N=199)	Brighton and Sussex University Hospitals NHS Trust	4	161	81%	5	23%	54	27%	51	65%	178	89%	194	99%
Royal United Hospital Bath (N=420)	Royal United Hospitals Bath NHS Foundation Trust	4	321	76%	25	42%	122	29%	42	25%	328	78%	374	94%
Royal Victoria Infirmary (N=72)	The Newcastle Upon Tyne Hospitals NHS Foundation Trust	5	8	11%	6	55%	48	67%	9	25%	39	54%	10	14%
Russells Hall Hospital (N=387)	The Dudley Group NHS Foundation Trust	2	170	44%	6	27%	348	90%	39	27%	279	72%	258	68%
Salford Royal Hospital (N=553)	Salford Royal NHS Foundation Trust	3	513	93%	12	29%	347	63%	183	68%	438	79%	388	73%
Salisbury District Hospital (N=274)	Salisbury NHS Foundation Trust	5	236	86%	5	38%	157	57%	53	62%	172	63%	257	98%
Sandwell District Hospital (N=685)	Sandwell and West Birmingham Hospitals NHS Trust	2	230	34%	5	12%	349	51%	80	37%	492	72%	623	95%
Scarborough General Hospital (N=486)	York Teaching Hospital NHS Foundation Trust	5	223	46%	6	19%	351	72%	7	5%	307	63%	428	94%

Scunthorpe General Hospital (N=568)	Northern Lincolnshire and Goole NHS Foundation Trust	5	396	70%	15	30%	321	57%	48	23%	268	47%	426	81%
Solihull General Hospital (N=232)	University Hospitals Birmingham NHS Foundation Trust	4	101	44%	5	38%	121	52%	46	75%	183	79%	192	86%
South Tyneside District Hospital (N=371)	South Tyneside and Sunderland NHS Foundation Trust	4	237	64%	<5	N/A	150	40%	73	44%	278	75%	228	64%
Southampton General Hospital (N=768)	University Hospital Southampton NHS Foundation Trust	4	335	44%	7	13%	417	54%	150	43%	605	79%	634	85%
Southend Hospital (N=774)	Southend University Hospital NHS Foundation Trust	4	416	54%	18	17%	672	87%	114	41%	415	54%	522	70%
Southmead Hospital (N=801)	North Bristol NHS Trust	4	603	75%	19	25%	602	75%	210	71%	689	86%	736	97%
Southport and Formby District General (N=330)	Southport and Ormskirk Hospital NHS Trust	5	168	51%	7	23%	140	42%	18	19%	78	24%	8	3%
St George's Hospital (N=114)	St George's University Hospitals NHS Foundation Trust	5	66	58%	<5	N/A	49	43%	13	30%	59	52%	111	98%
St Helier Hospital (N=238)	Epsom and St Helier University Hospitals NHS Trust	4	106	45%	7	27%	195	82%	42	65%	196	82%	225	100%
St James's University Hospital (N=95)	Leeds Teaching Hospitals NHS Trust	3	67	71%	<5	N/A	63	66%	<5	N/A	82	86%	65	71%
St Mary's Hospital,	Isle of Wight NHS Trust	4	118	70%	5	26%	46	27%	26	45%	110	65%	148	96%

Newport (N=168)														
St Marys Hospital, Paddington (N=262)	Imperial College Healthcare NHS Trust	4	201	77%	22	45%	170	65%	55	47%	201	77%	239	94%
St Peter's Hospital (N=324)	Ashford and St Peter's Hospitals NHS Foundation Trust	4	226	70%	7	14%	11	9%	32	25%	144	44%	56	18%
St Richards Hospital (N=336)	Western Sussex Hospitals NHS Foundation Trust	3	262	78%	5	24%	129	38%	62	51%	124	37%	169	52%
St Thomas Hospital (N=509)	Guy's and St Thomas' NHS Foundation Trust	3	208	41%	29	39%	414	81%	172	68%	476	94%	466	98%
Stepping Hill Hospital (N=561)	Stockport NHS Foundation Trust	4	155	28%	17	27%	240	43%	105	40%	242	43%	286	54%
Sunderland Royal Hospital (N=504)	South Tyneside and Sunderland NHS Foundation Trust	4	379	75%	14	20%	304	60%	136	60%	305	61%	166	35%
Tameside General Hospital (N=931)	Tameside And Glossop Integrated Care NHS Foundation Trust	3	558	60%	27	28%	203	22%	49	12%	527	57%	669	76%
The Great Western Hospital (N=667)	Great Western Hospitals NHS Foundation Trust	4	148	22%	24	44%	286	43%	6	3%	458	69%	519	80%
The Ipswich Hospital (N=573)	East Suffolk and North Essex NHS Foundation Trust	4	546	95%	13	34%	394	69%	157	55%	255	45%	367	66%
Torbay Hospital (N=836)	Torbay and South Devon NHS Foundation Trust	2	553	66%	18	30%	380	45%	132	35%	332	40%	98	12%

Tunbridge Wells Hospital (N=401)	Maidstone and Tunbridge Wells NHS Trust	5	370	92%	8	25%	283	71%	72	63%	255	64%	381	99%
University College Hospital (N=183)	University College London Hospitals NHS Foundation Trust	3	86	47%	5	28%	129	70%	26	36%	125	68%	170	94%
University Hospital Aintree (N=1,001)	Liverpool University Hospitals NHS Foundation Trust	3	613	61%	25	21%	558	56%	306	75%	800	80%	748	77%
University Hospital Coventry (N=560)	University Hospitals Coventry and Warwickshire NHS Trust	5	374	67%	14	19%	434	78%	164	62%	379	68%	392	71%
University Hospital Lewisham (N=187)	Lewisham and Greenwich NHS Trust	5	125	67%	<5	N/A	<5	N/A	13	20%	106	57%	183	98%
University Hospital of North Durham (N=878)	County Durham and Darlington NHS Foundation Trust	3	603	69%	24	20%	441	50%	118	39%	741	84%	816	94%
University Hospital of North Tees (N=1,155)	North Tees and Hartlepool NHS Foundation Trust	3	700	61%	30	24%	259	22%	250	53%	693	60%	742	66%
Victoria Hospital (N=223)	Blackpool Teaching Hospitals NHS Foundation Trust	5	140	63%	6	22%	74	33%	54	50%	62	26%	50	23%
Warrington District General Hospital (N=364)	Warrington and Halton Hospitals NHS Foundation Trust	5	236	65%	<5	N/A	177	49%	116	75%	269	74%	346	99%
Watford General Hospital (N=354)	West Hertfordshire Hospitals NHS Trust	4	152	43%	8	27%	19	5%	59	55%	204	58%	309	90%

West Middlesex University Hospital (N=485)	Chelsea And Westminster Hospital NHS Foundation Trust	4	281	58%	23	31%	307	63%	93	52%	403	83%	433	94%
West Suffolk Hospital (N=142)	West Suffolk NHS Foundation Trust	3	132	93%	<5	N/A	5	4%	<5	N/A	27	19%	<5	N/A
Weston General Hospital (N=295)	Weston Area Health NHS Trust	4	231	78%	<5	N/A	99	34%	69	60%	179	61%	241	85%
Wexham Park Hospital (N=325)	Frimley Health NHS Foundation Trust	3	217	67%	8	31%	49	15%	89	62%	222	68%	259	82%
Whipps Cross Hospital (N=431)	Barts Health NHS Trust	6	201	47%	21	34%	229	53%	111	93%	275	64%	391	98%
Whiston Hospital (N=680)	St Helens And Knowsley Teaching Hospitals NHS Trust	3	179	26%	7	10%	448	66%	149	43%	436	64%	507	77%
Whittington Hospital (N=180)	Whittington Health NHS Trust	5	176	98%	<5	N/A	99	55%	37	46%	109	61%	122	71%
William Harvey Hospital (N=395)	East Kent Hospitals University NHS Foundation Trust	3	214	54%	31	42%	186	47%	77	46%	250	63%	275	75%
Worcestershire Royal Hospital (N=598)	Worcestershire Acute Hospitals NHS Trust	4	339	57%	9	14%	257	43%	86	37%	413	69%	428	74%
Worthing Hospital (N=238)	Western Sussex Hospitals NHS Foundation Trust	3	132	55%	<5	N/A	80	34%	46	56%	151	63%	171	77%
Wythenshawe Hospital (N=614)	Manchester University NHS Foundation Trust	3	457	74%	8	19%	258	42%	155	58%	545	89%	390	66%
Yeovil District Hospital (N=368)	Yeovil District Hospital NHS Foundation Trust	5	365	99%	13	46%	306	83%	51	72%	292	79%	317	95%

York District Hospital (N=516)	York Teaching Hospital NHS Foundation Trust	4	342	66%	5	10%	377	73%	72	32%	351	68%	448	90%
Scotland														
Dumfries and Galloway Royal Infirmary (N=176)	NHS Dumfries and Galloway	4	64	36%	5	17%	<5	N/A	19	28%	35	20%	37	24%
Forth Valley Royal Hospital (N=108)	NHS Forth Valley	2	71	66%	7	70%	48	44%	15	23%	83	77%	23	22%
Inverclyde Royal Hospital (N=299)	NHS Greater Glasgow and Clyde	4	244	82%	<5	N/A	185	62%	77	64%	136	45%	133	47%
Ninewells Hospital (N=9)	NHS Tayside	4	9	100%	<5	N/A	6	67%	<5	N/A	9	100%	6	67%
St John's Hospital at Howden (N=19)	NHS Lothian	2	11	58%	<5	N/A	15	79%	5	83%	13	68%	17	100%
Victoria Hospital (Kirkcaldy) (N=16)	NHS Fife	2	12	75%	<5	N/A	7	44%	<5	N/A	16	100%	16	100%
Wales														
Bronglais General Hospital (N=152)	Hywel Dda University Health Board	5	62	41%	10	31%	58	38%	31	50%	106	70%	93	65%
Glan Clwyd Hospital (N=152)	Betsi Cadwaladr University Local Health Board	5	83	55%	<5	N/A	89	59%	39	63%	77	51%	<5	N/A
Glangwili General Hospital (N=86)	Hywel Dda University Health Board	4	48	56%	<5	N/A	27	31%	10	38%	29	34%	29	38%
Llandough Hospital (N=454)	Cardiff & Vale University Local Health Board	4	206	45%	<5	N/A	238	52%	80	40%	153	34%	8	2%

Morriston Hospital (N=402)	Swansea Bay University Local Health Board	5	301	75%	22	25%	64	16%	66	42%	116	29%	23	0%
Nevill Hall Hospital (N=175)	Aneurin Bevan University Local Health Board	5	124	71%	<5	N/A	109	62%	45	65%	89	51%	125	79%
Prince Charles Hospital (N=296)	Cwm Taf Morgannwg University Local Health Board	5	116	39%	5	20%	88	30%	55	66%	105	35%	6	2%
Prince Philip Hospital (N=157)	Hywel Dda University Local Health Board	2	77	49%	<5	N/A	50	32%	22	29%	46	29%	20	13%
Princess of Wales Hospital (N=280)	Swansea Bay University LHB	4	200	71%	15	33%	88	31%	39	39%	68	24%	<5	N/A
Royal Glamorgan (N=366)	Cwm Taf Morgannwg University Local Health Board	4	229	63%	7	16%	144	39%	79	58%	174	48%	<5	N/A
Royal Gwent Hospital (N=37)	Aneurin Bevan University Local Health Board	5	24	65%	<5	N/A	28	76%	<5	N/A	16	44%	13	38%
Singleton Hospital (N=321)	Swansea Bay University Local Health Board	3	225	70%	<5	N/A	118	37%	57	39%	134	42%	28	5%
University Hospital of Wales (N=348)	Cardiff & Vale University Local Health Board	4	178	51%	21	31%	175	50%	84	53%	154	44%	<5	N/A
Withybush General Hospital (N=24)	Hywel Dda University Local Health Board	4	13	54%	<5	N/A	6	25%	8	73%	9	38%	8	33%
Ysbyty Gwynedd Hospital (N=55)	Betsi Cadwaladr University LHB	6	24	44%	<5	N/A	24	44%	18	90%	19	35%	55	100%

Ysbyty Ystrad Fawr (N=34)	Aneurin Bevan University Local Health Board	8	16	47%	<5	N/A	10	29%	0	0%	2	6%	30	100%

11.2 Non-participating hospitals in England, Scotland and Wales

The hospitals included in this list are those that either do not participate in the audit or those that have registered, but did not enter any data for the period audited.

Hospital name	Trust / health board name
Aberdeen Royal Infirmary	NHS Grampian
Belford Hospital	NHS Highland
Broomfield Chelmsford	Mid Essex Hospital Services NHS Trust
Borders General Hospital	NHS Borders
Balfour Hospital	Orkney
Gartnavel General	NHS Greater Glasgow and Clyde
Gilbert Bain Hospital	NHS Shetland
Glasgow Royal Infirmary	NHS Greater Glasgow and Clyde
Huddersfield Royal Infirmary	Calderdale and Huddersfield NHS Foundation Trust
Leeds General Infirmary	Leeds Teaching Hospitals NHS Trust
Maelor Hospital	Betsi Cadwaladr University Health Board
New Victoria Hospital	NHS Greater Glasgow and Clyde
Newham General Hospital	Barts Health NHS Trust
Perth Royal Infirmary	NHS Tayside
Queen Elizabeth Hospital, Woolwich	Lewisham and Greenwich NHS Trust
Royal Alexandra Hospital	NHS Greater Glasgow and Clyde
Royal Infirmary of Edinburgh	NHS Lothian
Royal Shrewsbury Hospital	Shrewsbury and Telford Hospital NHS Trust
Stobhill General Hospital	NHS Greater Glasgow and Clyde
Trafford General Hospital	Manchester University NHS Foundation Trust
University Hospital Ayr	NHS Ayrshire and Arran
University Hospital Crosshouse	NHS Ayrshire and Arran
University Hospital Hairmyres	NHS Lanarkshire
University Hospital Monklands	NHS Lanarkshire
Warwick Hospital	South Warwickshire NHS Foundation Trust
West Cumberland Infirmary	North Cumbria University Hospitals NHS Trust
Western General Hospital	NHS Lothian
Western Isles Hospital	NHS Western Isles
Wishaw General Hospital	NHS Lanarkshire

Appendix A: Methodology

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Methodology of the audit creation and setup

NACAP's COPD continuous clinical audit is built upon the learning from the 2014 snapshot clinical audit.[7] The structure of the dataset is similar to that used in 2014, however, it has been considerably streamlined to account for the change in methodology from snapshot (in 2014) to continuous audit which commenced in February 2017. This is the third annual report since the start of continuous data collection and presents the results of the cohort of patients discharged between 1 October and 30 September 2019.

All hospitals in England, Scotland and Wales that admit patients with acute exacerbations of COPD (AECOPD) (n=218) were eligible to participate in the audit. A total of 189 hospitals (86%) participated in this period of the audit. A full list of participating hospitals, including those hospitals that did not enter any data for the audit period are listed in Section 10.

Information governance and data storage, security and transfer

This audit operates under Section 251 approval from the Confidentiality Advisory Group (CAG) of the Health Research Authority (HRA). The reference number is CAG-8-06(b)/2013. A record of the approval can be found at: **www.hra.nhs.uk/about-the-hra/our-committees/section-251/cag-advice-and-approval-decisions** (April 2013 onwards; non-research).

To find out more about the audit's information governance (IG), legal basis, data storage, security and transfer arrangements please review the COPD fair processing document, IG frequently asked questions (FAQs) and the audit's data flow diagram, all of which can be found on the audit resources page: **www.rcplondon.ac.uk/nacap-copd-resources**. In addition, a patient leaflet and poster are available to download from the same page

Recruitment

The England and Wales recruitment process for the audit started in 2016, prior to the launch of the continuous audit. For further details of the recruitment methodology employed, please refer to Appendix C of the data analysis and methodology component of the 2017 clinical audit report, which can be found here: **www.rcplondon.ac.uk/working-together**. Recruitment for Scotland started in early 2018 and audit launched there on 1 November 2018, with a very similar recruitment process being followed.

Audit question development and pilot

The audit dataset was based on the snapshot 2014 dataset. It was developed in 2016 iteratively and then refreshed in 2018 by the audit programme team and clinical lead, in consultation with all necessary governance groups. For further information on the original piloting of the audit please refer to Appendix C of the data analysis and methodology of the 2017 clinical audit report found here: **www.rcplondon.ac.uk/working-together**.

Data entry

Hospitals are required to enter data via the audit programme's bespoke web tool, created by Crown Informatics Ltd (available at **www.nacap.org.uk**).

Guidance documentation to support participation in the audit such as the dataset with help notes, data collection sheets, audit technical guidance and FAQs are available to download from both the web tool (**www.nacap.org.uk**) and the COPD audit resources webpage on the RCP website (**www.rcplondon.ac.uk/nacap-copd-resources**).

Data entry to the audit is regularly reviewed by the NACAP team. Where few records are entered (eg less than 50–100 a year, depending on the size of the hospital) or where there is a notable change in participation rates (eg a hospital that has entered 50% less records in the current 6 months than in the 6 months prior), the NACAP team communicate directly with the hospital to understand the reasons behind the lack of participation and to provide support where possible. Regular email updates and newsletters are also sent to participants with reminders about timelines.

Telephone and email support

The audit programme team at the RCP provide a helpdesk 9am–5pm every working day, which is available via both telephone and email, so that participants could contact the team directly with any questions.

Analysis methodology

Deadline and data transfer

The data entry deadline for completion of records pertaining to the audit period (patients discharged between 14 September 2017 and 30 September 2018) was **9 November 2018** at 12pm. Thereafter data were extracted by Crown Informatics, drafts were excluded and the data was anonymised as follows:

- NHS number replaced by an anonymised patient identifier
- Postcode replaced by a Lower Layer Super Output Area (LSOA)[‡‡‡‡‡]
- Date of birth replaced by calculated age
- Date of death replaced with a life status flag.

The anonymised file containing non-identifiable patient data was then sent via secure file transfer to the statistical team at Imperial College London (National Heart & Lung Institute) where they were analysed.

[‡‡‡‡‡] A Lower Layer Super Output Area (LSOA) is a geographical area in England and Wales which is large enough to be non-identifiable to the patient.

Data cleaning and analysis

Data received by Imperial College London were imported into and analysed using Stata 15

The dataset was prepared, cleaned, and analysed as follows:

- All string categorical variables were recoded numerically and labelled with the former string value.
- All string date/time variables were converted to numerical date/time variables.
- All indicator variables (to denote presence or absence) were converted from their current format (eg an 'X' character) to a binary 0 or 1 value.
- Overseas patients were removed (n=64).
- Patients with an invalid NHS number were removed (n=7).
- Patients from v1 dataset were removed as they had no NEWS2 data (n=64).
- Admissions with:
  - an arrival time after admission time were removed (n=1)
  - a discharge date before admission date were removed (n=0)
  - a respiratory specialist review before arrival were removed (n=2)
  - a respiratory specialist review after discharge were removed (n=0)
  - NIV before arrival were removed (n=0)
  - NIV after discharge were removed (n=0)
  - a discharge before arrival were removed (n=0).
- 2-hour time categories (ie 12 in total, starting from 12am) were generated for time of arrival and time of first review by a member of the respiratory team.
- Time from arrival to admission was generated by subtracting arrival time from admission time.
- Time from admission to specialist review was generated by subtracting admission time from review time and admissions with review wait times less than or equal to –24 hours (24 hours prior) were removed as this was considered unrealistic (n=0).
- Time from arrival to NIV was calculated by subtracting arrival time from time of NIV administration.

Sub-analysis

- Variables required for analysis and generating odds ratios were created:
  - length of stay (equal to or below median/above median)
  - NIV in 2 hours (y/n).

Appendix B: NICE Quality standard [QS10] – Chronic obstructive pulmonary disease in adults

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Please note, in 2016 this quality standard was updated and statements prioritised in 2011 were either updated or replaced. To see the full quality standard please use the following link: **www.nice.org.uk/guidance/qs10**.

No.	Quality statement
1	People aged over 35 years who present with a risk factor and one or more symptoms of chronic obstructive pulmonary disease (COPD) have post-bronchodilator spirometry. [2011, updated 2016]
2	People with COPD who are prescribed an inhaler have their inhaler technique assessed when starting treatment and then regularly during treatment. [2011, updated 2016]
3	People with stable COPD and a persistent resting stable oxygen saturation level of 92% or less have their arterial blood gases measured to assess whether they need long-term oxygen therapy. [2011, updated 2016]
4	People with stable COPD and exercise limitation due to breathlessness are referred to a pulmonary rehabilitation programme. [2011, updated 2016]
5	People admitted to hospital for an acute exacerbation of COPD start a pulmonary rehabilitation programme within 4 weeks of discharge. [2011, updated 2016]
6	People receiving emergency oxygen for an acute exacerbation of COPD have oxygen saturation levels maintained between 88% and 92%. [new 2016]
7	People with an acute exacerbation of COPD and persistent acidotic hypercapnic ventilatory failure that is not improving after 1 hour of optimal medical therapy have non-invasive ventilation. [2011, updated 2016]
8	(Placeholder[§§§§§]) Hospital discharge care bundle. [new 2016]

Statements from the 2011 quality standard for COPD that may still be useful at a local level, but are no longer considered national priorities for improvement:

[§§§§§] A placeholder statement is an area of care that has been prioritised by the Quality Standards Advisory Committee but for which no source guidance is currently available. A placeholder statement indicates the need for evidence-based guidance to be developed in this area.

• People with COPD have a current individualised comprehensive management plan, which includes high-quality information and educational material about the condition and its management, relevant to the stage of disease.
• People with COPD have a comprehensive clinical and psychosocial assessment, at least once a year or more frequently if indicated, which includes degree of breathlessness, frequency of exacerbations, validated measures of health status and prognosis, presence of hypoxaemia and comorbidities.
• People with COPD who smoke are regularly encouraged to stop and are offered the full range of evidence-based smoking cessation support.
• People who have had an exacerbation of COPD are provided with individualised written advice on early recognition of future exacerbations, management strategies (including appropriate provision of antibiotics and corticosteroids for self-treatment at home) and a named contact.
• People with COPD receiving long-term oxygen therapy are reviewed in accordance with NICE guidance, at least annually, by a specialist oxygen service as part of the integrated clinical management of their COPD.
• People admitted to hospital with an exacerbation of COPD are cared for by a respiratory team, and have access to a specialist early supported-discharge scheme with appropriate community support.
• People admitted to hospital with an exacerbation of COPD are reviewed within 2 weeks of discharge.
• People with advanced COPD, and their carers, are identified and offered palliative care that addresses physical, social and emotional needs.

Appendix C: NICE guideline [NG115] – Chronic obstructive pulmonary disease in over 16s: diagnosis and management

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NICE clinical guideline [CG101], June 2010, was updated and replaced by NICE guideline [NG115] in December 2018. Below is a summary of the NICE guideline [NG115] sections that are referred to in this report. To see the full guideline please use the following link: **www.nice.org.uk/guidance/NG115**.

Recommendations marked [2004] or [2010] last had an evidence review in 2004 or 2010.

1.1	Diagnosing COPD
Spirometry	
1.1.4	Perform spirometry: • At diagnosis • To reconsider the diagnosis, for people who show an exceptionally good response to treatment • To monitor disease progression. [2004, amended 2018]
1.1.5	Measure post-bronchodilator spirometry to confirm the diagnosis of COPD. [2010]
1.1.6	Think about alternative diagnoses or investigations for older people who have an FEV1/FVC ratio below 0.7 but do not have typical symptoms of COPD. [2010]
1.1.7	Think about a diagnosis of COPD in younger people who have symptoms of COPD, even when their FEV1/FVC ratio is above 0.7. [2010]
1.1.8	All healthcare professionals who care for people with COPD should have access to spirometry and be competent in interpreting the results. [2004]
1.1.9	Spirometry can be performed by any healthcare worker who has had appropriate training and has up-to-date skills. [2004]
1.1.10	Spirometry services should be supported by quality control processes. [2004]
1.1.11	It is recommended that GLI 2012 reference values are used, but it is recognised that these values are not applicable for all ethnic groups. [2004, amended 2018]
Referral for specialist advice	
1.1.30	When clinically indicated, refer people for specialist advice. Referral may be appropriate at all stages of the disease and not solely in the most severely disabled people. [2004]
1.1.31	People who are referred do not always have to be seen by a respiratory physician. In some cases they may be seen by members of the COPD team who have appropriate training and expertise. [2004]

1.2	Managing stable COPD
1.2.1	For guidance on the management of multimorbidity, see the NICE guideline on multimorbidity. [2018]
Smoking cessation	
1.2.2	Document an up-to-date smoking history, including pack years smoked (number of cigarettes smoked per day, divided by 20, multiplied by the number of years smoked) for everyone with COPD. [2004]
1.2.3	At every opportunity, advise and encourage every person with COPD who is still smoking (regardless of their age) to stop, and offer them help to do so. [2004]
1.2.4	Unless contraindicated, offer nicotine replacement therapy, varenicline or bupropion as appropriate to people who want to stop smoking, combined with an appropriate support programme to optimise smoking quit rates for people with COPD. [2010]
1.2.5	For more guidance on helping people to quit smoking, see the NICE guideline on stop smoking interventions and services. [2010]
1.2.6	For more guidance on varenicline, see the NICE technology appraisal guidance on varenicline for smoking cessation. [2010]
Non-invasive ventilation	
1.2.70	Refer people who are adequately treated but have chronic hypercapnic respiratory failure and have needed assisted ventilation (whether invasive or non-invasive) during an exacerbation, or who are hypercapnic or acidotic on long-term oxygen therapy, to a specialist centre for consideration of long-term non-invasive ventilation. [2004]

1.3	Management of exacerbations of COPD
Oxygen therapy during exacerbations of COPD	
1.3.27	Measure oxygen saturation in people with an exacerbation if there are no facilities to measure arterial blood gases. [2004]
1.3.28	If necessary, prescribe oxygen to keep the oxygen saturation of arterial blood (SaO_2) within the individualised target range. [2010]
1.3.29	Pulse oximeters should be available to all healthcare professionals involved in the care of people with exacerbations of COPD, and they should be trained in their use. Clinicians should be aware that pulse oximetry gives no information about the $PaCO_2$ or pH. [2004]
1.3.30	Measure arterial blood gases and note the inspired oxygen concentration in all people who arrive at hospital with an exacerbation of COPD. Repeat arterial blood gas measurements regularly, according to the response to treatment. [2004]
Non-invasive ventilation (NIV) and COPD exacerbations	
1.3.31	Use NIV as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbations despite optimal medical therapy. [2004]
1.3.32	It is recommended that NIV should be delivered in a dedicated setting, with staff who have been trained in its application, who are experienced in its use and who are aware of its limitations. [2004]
1.3.33	When people are started on NIV, there should be a clear plan covering what to do in the event of deterioration, and ceilings of therapy should be agreed. [2004]

Discharge planning	
1.3.42	Measure spirometry in all people before discharge. [2004]
1.3.43	Re-establish people on their optimal maintenance bronchodilator therapy before discharge. [2004]
1.3.44	People who have had an episode of respiratory failure should have satisfactory oximetry or arterial blood gas results before discharge. [2004]
1.3.45	Assess all aspects of the routine care that people receive (including appropriateness and risk of side effects) before discharge. [2004]
1.3.46	Give people (or home carers) appropriate information to enable them to fully understand the correct use of medications, including oxygen, before discharge. [2004]
1.3.47	Make arrangements for follow-up and home care (such as visiting nurse, oxygen delivery or referral for other support) before discharge. [2004]
1.3.48	The person, their family and their physician should be confident that they can manage successfully before they are discharged. A formal activities of daily living assessment may be helpful when there is still doubt. [2004]

Appendix D: British Thoracic Society (BTS) Quality Standards for acute NIV in adults

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Below is only a summary of the BTS NIV Quality Standards, published April 2018, that are referred to within this report. To see the full standards and rationales please use the following link: **www.brit-thoracic.org.uk/standards-of-care/quality-standards/bts-niv-quality-standards/**.

No.	Quality statement
1	Acute non-invasive ventilation (NIV) should be offered to all patients who meet evidence-based criteria. Hospitals must ensure there is adequate capacity to provide NIV to all eligible patients.
2	All staff who prescribe, initiate or make changes to acute NIV treatment should have evidence of training and maintenance of competencies appropriate for their role.
3	Acute NIV should only be carried out in specified clinical areas designated for the delivery of acute NIV.
4	Patients who meet evidence-based criteria for acute NIV should start NIV within 60 min of the blood gas result associated with the clinical decision to provide NIV and within 120 min of hospital arrival for patients who present acutely.
5	All patients should have a documented escalation plan before starting treatment with acute NIV. Clinical progress should be reviewed by a healthcare professional with appropriate training and competence within 4 hours of starting NIV and by a consultant with training and competence in acute NIV within 14 hours of starting acute NIV.
6	All patients treated with acute NIV should have blood gas analysis performed within 2 hours of starting acute NIV. Failure of these blood gas measurements to improve should trigger specialist healthcare professional review within 30 min.

Appendix E: References

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1 National Institute for Health and Care Excellence. *Chronic obstructive pulmonary disease in adults. NICE Quality standard 10 (QS10)*. 2016 edition. London: NICE, 2016. www.nice.org.uk/Guidance/QS10 [Accessed December 2018].

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