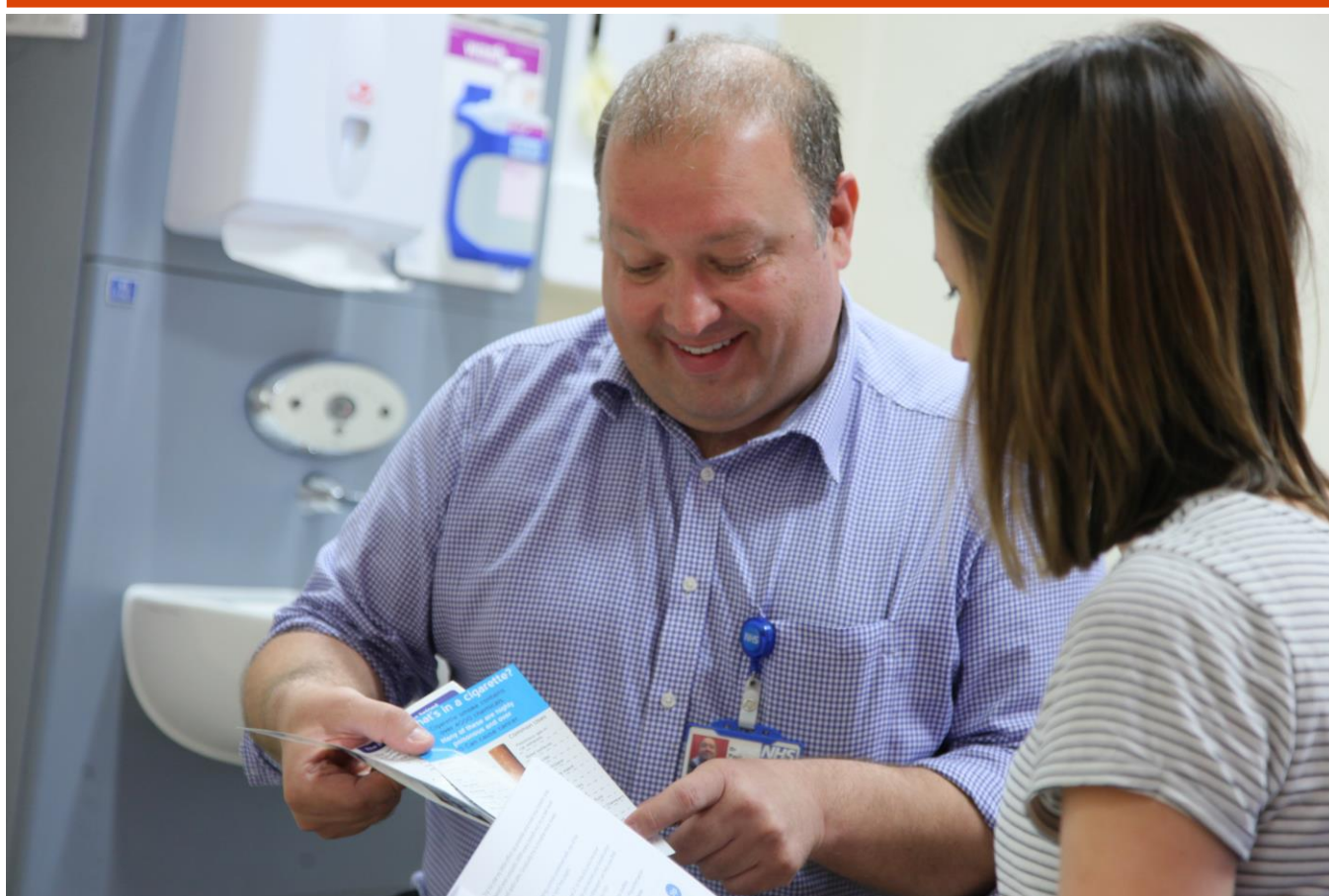




British
Thoracic
Society

BTS Respiratory Quality Improvement Report 2018/19



November 2018 ISSN 2040-2023
British Thoracic Society Reports
Vol 9, Issue 3, 2018





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British Thoracic Society Reports, Vol 9, Issue 3, 2018

ISSN 2040-2023



FOREWORD

The British Thoracic Society has been at the forefront of improving the care of patients with respiratory disease in the UK having developed and published guidelines and quality standards for many years. We have continued to improve standards of care by developing and supporting National Audit Programmes. These have been very successful due to the support of our membership.

However, as the BTS is its members, we have also been aware that the cycle of audit, reporting and re-audit, against the background of ever increasing NHS pressures, has sometimes proved challenging for members, and impacts the ability of services to enact the changes required. As a result we have been changing the focus of our work to try to facilitate the completion of the audit loop by developing Quality Improvement Tools specific for each audit report. We hope that this will help colleagues to be able to make improvements to care, and promote the cycle of ongoing improvement. We are at an early stage of this process and your, our members', ongoing support is essential for our continued success.

I would like to thank all our BTS members for their support of guidelines, audit, quality standards and quality improvement. Finally thank you to my Quality Improvement Committee colleagues for all of their support and especially to Laura Searle and Sally Welham at BTS HQ for their help, guidance, encouragement, perseverance and overwhelming positivity.

Finally, particular thanks go to Audit Programme Director, Dr James Calvert, for his vision and guidance in developing the Audit Programme in recent years.

Dr Jonathan Bennett
BTS Quality Improvement Committee Chair (2016-2018)



INTRODUCTION

The British Thoracic Society (BTS) has run a programme of national respiratory audits since 2009 with the aim of driving improvements in the quality of care and services provided for patients with respiratory conditions across the UK. The programme now encompasses eleven adult and paediatric audits, many of which have been included on the NHS England Quality Accounts List.

The role of audit is to drive up quality of care by reviewing everyday practice against national standards and making interventions in pathways where required. The purpose of this document is to provide an overview of the audit programme and the key priorities identified in recent audits (the 'national improvement objectives'), together with updates on the underlying guidance and associated QI initiatives.

One area the Society has been working on is the development of topic-specific QI Tools to help healthcare staff to design and implement changes using learning from the national audits. The first tool, addressing findings from the Smoking Cessation Audit, was published in December 2017, a second tool, focussing on Non-Invasive Ventilation was published in November 2018 and a further tool, following on from the Paediatric Pneumonia audit, is currently in development.

We would encourage readers to review their performance against all relevant national improvement objectives and plan interventions where needed. Reports showing individual hospital performance are available from the [BTS audit system website](#) and information on QI methodology and QI Tools is available on the [BTS website](#).



PART 1 – BTS AUDIT PROGRAMME OVERVIEW

1.1 AUDIT PROGRAMME CHANGES 2018

The BTS audit system was set up at the request of our members to allow hospitals to monitor their practice in key areas and identify areas for improvement. Up until 2018, audit data has been collected on the basis that hospital-level data would only be reported back to the hospital concerned, hospital results would not be made publically available and data entered onto the audit system would not be shared with third parties. This has meant that BTS has had to decline requests to share data with researchers and opportunities to collaborate with international audit programmes.

Publication of hospital-level results and outlier reporting is now the norm in many audit programmes and has the potential to drive quality improvement. Sharing audit data so that maximum use can be made of it is also considered best practice (subject to appropriate information governance safeguards being in place).

The Society has therefore introduced a new [Clinical Data Policy](#) setting out how audit data collected from April 2018 onwards will be used. The policy includes a process for managing outliers and provides for more transparent reporting of audit data, including the results of any outlier analysis. Reporting and outlier management are overseen by the BTS Quality Improvement Committee. The Society is developing a Data Access Policy covering the BTS Audit Programme and other BTS data collection activities for publication in 2019. Data access requests from third party researchers will be considered by the BTS Information Governance Committee once the Policy is available.

1.2 NATIONAL AUDIT PROGRAMME 2018/19 AND 2019/20

BTS National Audit	Audit period	Data entry	Quality Accounts List
Adult Community Acquired Pneumonia	Dec 2018 – Jan 2019	Dec 2018 – May 2019	Yes
Adult Non-Invasive Ventilation	Feb 2019 – Mar 2019	Feb 2019 – Jun 2019	Yes
Smoking Cessation	Jul 2019 – Aug 2019	Jul 2019 – Oct 2019	TBC

Datasets and instructions for each national audit are published on the audit website approximately two months before the start of the audit. Hospitals are now required to complete a registration form giving details of an audit lead and audit delegates who will be responsible for the data entry. Registration forms for national and local audits are also available on the [BTS audit system website](#).

Local Audit

All BTS audits are available for local use outside of the national audit periods to allow users to monitor their practice at any point. Any data entered during local audits can be exported for local analysis and participants will also be able to generate reports comparing their results against any previous data entered for their hospital.



1.3 AUDIT PARTICIPATION

Participation levels in BTS audits have steadily increased over the years, in some cases supported by inclusion on the NHS England Quality Accounts List.

BTS	UK Hospitals	Records
Adult Asthma 2016	171 hospitals	4258 patient records
Adult Bronchiectasis 2017	105 hospitals	4845 patient records
Adult Bronchoscopy 2017	139 hospitals	5200 patient records
Adult CAP 2014/15	158 hospitals	6786 patient records
Adult NIV 2013	148 hospitals	2693 patient records
Emergency Oxygen 2015	180 hospitals	2473 wards (55,208 patients)
Pleural Procedures 2014	137 hospitals	1689 patient records
Smoking Cessation 2016	146 hospitals	14,750 patient records
Paediatric Asthma 2015	153 hospitals	5443 patient records
Paediatric Bronchiectasis 2017	34 hospitals	280 patient records
Paediatric Pneumonia 2016	144 hospitals	7302 patient records

While we are always pleased to see that these tools are being well used, high participation is important because it makes the data more robust on a local and national level. All audit reports now include the following advice on sample size: *If fewer than 100 records are submitted comparisons with the national data may be less reliable. To detect differences of 10% at least 100 cases are required. To detect differences of 20% at least 25 cases are required. The number of cases submitted should be taken into consideration when reviewing the data.*



PART 2 – BTS NATIONAL AUDITS

See below for brief summaries of the most recent round of each of our eleven national audits. These summaries are intended to provide a quick reference guide to all current national improvement objectives, and include updates on guidance and quality improvement initiatives. Full reports for each audit and hospital-level results are available on the [BTS audit system website](#).

2.1 ADULT AND PAEDIATRIC BRONCHIECTASIS AUDITS 2017

Clinical Lead: Professor Adam Hill, Edinburgh

These audits collected data on outpatient appointments in October and November 2017 and audit standards were derived from the BTS Guideline for non-CF Bronchiectasis (2010)¹ and the BTS Quality Standards for Clinically Significant Bronchiectasis in Adults (2012)².

National Improvement Objectives

1. Over 85% of paediatric and adult patients with bronchiectasis should have the following investigations for allergic bronchopulmonary aspergillosis (ABPA):
 - a. Full blood count
 - b. Total IgE
 - c. IgE to aspergillus or skin prick test to aspergillus
 - d. Up to date Chest X-ray or CT chest
2. Over 85% of paediatric and adult patients with bronchiectasis should have IgA, IgG, IgM investigations for common variable immunodeficiency. If IgG, IgA or IgM are raised, over 90% should have protein electrophoresis.
3. Over 90% of paediatric and adult patients with bronchiectasis should be taught chest clearance techniques by a specialist respiratory physiotherapist.
4. In adult patients with bronchiectasis with chronic sputum production, over 90% should have sputum or an appropriate sample be sent for routine microbiological testing annually whilst clinically stable.

Update

Updated BTS Guidelines for Bronchiectasis will be published in early 2019. We would recommend that services form a plan for disseminating the new Guideline recommendations.

2.2 ADULT BRONCHOSCOPY AUDIT 2017

Clinical Lead: Dr Jonathan Bennett, Leicester

This audit collected data on flexible bronchoscopy (FB) and endobronchial ultrasound (EBUS) procedures conducted during April and May 2017. Audit standards were derived from the BTS Guideline for Advanced Diagnostic and Therapeutic Flexible Bronchoscopy in Adults (2011)³; the BTS Guideline for Diagnostic Flexible Bronchoscopy in Adults (2013)⁴; and the BTS Quality Standards for Diagnostic Flexible Bronchoscopy in Adults (2014)⁵.



National Improvement Objectives

1. Annual Reporting of Bronchoscopic Outcome Data to include biopsy hit rate for histology, immunological and genetic mutation markers for both FB and EBUS at each institution.
2. Improve FB diagnostic biopsy rate to at least 85% for visible presumed tumour.
3. At least 95% of patients referred for bronchoscopy (FB and EBUS) for possible lung cancer have the procedure within 3 working days of the request.
4. Improve pre-procedure processes:
 - a. At least 95% of patients receive a bronchoscopy patient information document, with a standard list of risks explained.
 - b. At least 98% of patients have a patient safety checklist completed.
 - c. 100% of patients are consented by a trained bronchoscopist (Respiratory consultant, HST or nurse bronchoscopist) or reason consent is not taken is documented.

Update

The audit tool remains available to monitor performance against these objectives. FB and EBUS are also addressed in the Society's new National Safety Standards for Invasive Procedures (NatSSIPs) document, published in November 2018. We would encourage services to review this document together with any Local Safety Standards for Invasive Procedures (LocSSIPs) and local policies and consider any changes that could be made.

2.3 PAEDIATRIC PNEUMONIA AUDIT 2016/17

Clinical Lead: Dr Julian Legg, Southampton

This audit collected data on children over 1 year of age, admitted with a primary diagnosis of community acquired pneumonia between November 2016 and January 2017. Audit standards were derived from the BTS Guidelines for the management of community acquired pneumonia in childhood (2002)⁶.

National Improvement Objectives

1. Less than 5% of children with community acquired pneumonia should undergo blood investigations (e.g. white cell count or CRP) that are not indicated by either the BTS Community Acquired Pneumonia or NICE Sepsis Guidelines.
2. Less than 10% of children with community acquired pneumonia should have a CXR performed where there is no clinical evidence of severe or complicated pneumonia.
3. Less than 10% of children with community acquired pneumonia who are able to tolerate oral fluids should receive intravenous antibiotics where there is no evidence of septicaemia or complicated pneumonia.
4. Less than 5% of children with community acquired pneumonia should have hospital follow-up where there is no evidence of severe pneumonia, complications, round pneumonia or collapse.



Update

The BTS Quality Improvement Committee (QIC) has commissioned a working group to develop a QI Tool for Paediatric Pneumonia for publication in 2019. The tool will include guidance on how to approach quality improvement projects addressing the four quality improvement objectives set out above, and will also include guidance on the relationship between the BTS guidelines and the NICE Guideline on Sepsis: recognition, diagnosis and early management.

2.4 ADULT ASTHMA AUDIT 2016

Clinical Lead: Professor Stephen Scott, Chester

This audit collected data on adult patients admitted for acute asthma in September and October 2016, excluding patients seen in ED only. Audit standards were derived from the BTS/SIGN British Guideline for the management of asthma (2014)⁷ and the NICE Quality Standards for Asthma (2013)⁸.

National Improvement Objectives

1. All hospitals to have a specialist asthma service with a named medical lead
2. 95% of patients to receive a dedicated asthma discharge care bundle
3. 95% of patients to have a recorded peak expiratory flow performed on admission including post bronchodilator peak flow
4. 95% of patients admitted to hospital with an asthma attack to be discharged on inhaled corticosteroids

Update

An update to the Asthma Guideline was published in 2016⁹ and the next edition will be available in mid-2019.

Audits of adult asthma have been included in the HQIP-commissioned National Asthma and COPD Audit Programme (NACAP)¹⁰, which is led by the Royal College of Physicians. BTS will not run national asthma audits for the duration of NACAP. However, the audit tool will remain available for those who wish to use it (hospitals in Northern Ireland will not be eligible for the NACAP audits). Notwithstanding the pause on the BTS national audit, we would still encourage hospitals to work towards the national improvement objectives set out above.

2.5 SMOKING CESSATION AUDIT 2016

Clinical Leads: Dr Sanjay Agrawal, Leicester and Dr Zaheer Mangera, London

This audit examined hospital-based smoking cessation services in acute hospitals during April and May 2016. The audit covered inpatients across all specialties (excluding maternity and mental health) and asked the fundamental questions: was smoking status recorded and were smoking cessation services offered to smokers. The standards were drawn from the NICE Public Health Guideline Smoking: acute, maternity and mental health services¹¹, the NICE Quality Standard Smoking: supporting people to stop¹², and the BTS Recommendations for Hospital Smoking Cessation Services for Commissioners and Health Care Professionals¹³.



National Improvement Objectives

1. All hospital patients who smoke are supported with a referral to a specialist stop smoking service to discuss and explore the option of smoking cessation.
2. All hospital patients who smoke are prescribed nicotine replacement therapy to reduce symptoms of nicotine withdrawal and promote smoking cessation, unless contraindicated or patients wish to opt out.
3. All Trusts should have a senior clinician, with clinical programmed activity, to lead a Trust-based smoking cessation service and implement the core standards of secondary care-based smoking cessation services, as set out in NICE PH48 and the BTS recommendations for secondary care.
4. Trust boards should be held accountable by regulators in all four countries of the UK, to enforce smoke-free hospital policies that support quit attempts for patients, staff and visitors, and to reduce second-hand smoke exposure of staff and children.

Update

Following the audit, BTS has published a [Smoking Cessation QI Tool](#) to help healthcare staff design and implement changes to their services relating to the national improvement objectives from the audit. The QI Tool also contains information on QI methodology and template documentation for use in hospitals. A second national audit will take place between July and October 2019 and will allow services to measure progress since the last audit.

In June 2018, the Royal College of Physicians published a report by its Tobacco Advisory Group *Hiding in plain sight – Treating tobacco dependency in the NHS*¹⁴.

2.6 PAEDIATRIC ASTHMA AUDIT 2015

Clinical Lead: Dr James Paton, Glasgow

This audit collected data on paediatric acute asthma admissions during November 2015. Audit standards were derived from the BTS/SIGN British Guideline for the management of asthma (2014)⁷.

National Improvement Objectives

1. Demonstrate an improvement in the proportion of children who are recorded to have been given a written asthma action plan (Target in 2 years: 95%)
2. Demonstrate an improvement in the proportion of children with follow up arranged with their GP within two working days of discharge (Target in 2 years: 95%)
3. Demonstrate a reduction in the use of CXRs in children with wheezing/asthma (Target in 2 years: 15%)
4. Demonstrate an improvement in the proportion of children who have exposure to tobacco smoke documented within the medical record (Target in 2 years: 80%)

Update

An update to the Asthma Guideline was published in 2016⁹ and the next edition will be available in mid-2019.



Audits of paediatric asthma have been included in the HQIP-commissioned National Asthma and COPD Audit Programme (NACAP),¹⁰ which is led by the Royal College of Physicians. BTS will not run national asthma audits for the duration of NACAP. However, the audit tool will remain available for those who wish to use it (hospitals in Northern Ireland will not be eligible for the NACAP audits). Notwithstanding the pause on the BTS national audit, we would still encourage hospitals to work towards the national improvement objectives set out above.

2.7 EMERGENCY OXYGEN AUDIT 2015

Clinical Lead: Dr Ronan O'Driscoll, Salford

This hospital-wide audit collected data on adult inpatients between 15 August and 1 November 2015. Audit standards were derived from the BTS Guideline for emergency oxygen use in adult patients (2008)¹⁵. The audit has run seven times in total since the first audit in 2008 and although there have been improvements in prescribing practice over that time, there is still some way to go towards achieving the national improvement objectives.

National Improvement Objectives

1. 90% of patients using oxygen to have oxygen signed for at the most recent drug round.
2. 95% of patients using oxygen to have a valid prescription with target saturation range.
3. 100% of nursing and medical staff to be trained in the safe use of oxygen according to local trust/health board oxygen policy.

Update

The BTS Guideline for oxygen use in healthcare and emergency settings (2017)¹⁶ replaces the 2008 Guidelines and includes a number of appendices to help translate the new Guideline recommendations into practice. Resources include oxygen alert cards, teaching slide sets and a template local oxygen policy. Information is tailored to range of audiences from patients to hospital, ambulance and primary care staff.

2.8 PLEURAL PROCEDURES AUDIT 2014

Clinical Lead: Dr Clare Hooper, Worcester

This was an audit of chest drain insertions during June and July 2014. Audit standards were derived from the National Patient Safety Agency Rapid Response Report on risk of chest drain insertion¹⁷; the Pleural procedures and thoracic ultrasound: BTS pleural disease guideline 2010¹⁸; and the Management of a malignant pleural effusion: BTS pleural disease guideline 2010¹⁹.

National Improvement Objectives

1. Written consent should be taken for greater than 95% chest drains inserted (excluding those placed in an acute emergency)
2. Greater than 95% of Chest drains should be placed in a dedicated clean area (procedure room), away from the patient bedside.
3. Patients with chest drains should be nursed on wards with staff specifically trained in chest drain care, in more than 95% of cases.



Update

There are no current plans to run this audit as a national audit in the near future but as with all BTS audits, the online data collection tool remains available for those wanting to audit their practice locally. Any data entered can be exported for local use and participants will also be able to generate reports comparing data against any data previously entered for their hospital.

2.9 ADULT COMMUNITY ACQUIRED PNEUMONIA AUDIT 2014/15

Clinical Lead: Professor Wei Shen Lim, Nottingham

This long-running audit first took place in the winter of 2009/10 and collects data on pneumonia admissions during December and January. Audit standards are derived from the BTS Guidelines for the management of community acquired pneumonia in adults (2009)²⁰.

National Improvement Objectives

1. Demonstrate an increase in the proportion of adults with CAP, who have a chest radiograph within 4 hours of admission. (Target in 3 years: 90%)
2. Demonstrate an improvement in the proportion of adults with CAP who receive the first dose of antibiotic therapy within 4 hours of admission. (Target in 3 years: 85%)
3. Demonstrate an improvement in the proportion of adults with moderate and high severity CAP administered combination β -lactam and macrolide antibiotic therapy. (Target in 3 years: 85%)
4. Demonstrate an improvement in the proportion of coded cases of pneumonia, who have CXR confirmed pneumonia. (Target in 3 years: 85%)

Update

The 2018/19 national audit of pneumonia will allow hospitals to assess progress against these objectives and for the first time will include analyses of variation of care. The audit has permission from the Health Research Authority Confidentiality Advisory Group to collect patient identifiers in order to link to HES and ONS data held by NHS Digital to further investigate variation and outcomes.

2.10 ADULT NON-INVASIVE VENTILATION AUDIT 2013

Clinical Lead: Dr Michael Davies, Cambridge

The BTS audit of acute non-invasive ventilation (NIV) ran annually between 2010 and 2013 using standards derived from the BTS/RCP/ICS Guidelines for the use of NIV in the management of patients with COPD admitted to hospital with acute type II respiratory failure (2008).²¹

The BTS audits identified sub-optimal outcomes, including increasingly high mortality rates (up to 34%), which compared unfavourably to UK trial data and international audit outcomes. There was also significant variation in outcome, both at institutional level and according to location of care. These findings led BTS to propose NIV as a topic to the National Confidential Enquiry in Patient Outcome and Death (NCEPOD). An NCEPOD study was commissioned to identify and explore the avoidable and remediable factors in the process of care for patients treated acutely with NIV. Findings from the study were published in July 2017 in the report *Inspiring Change*²².



National data collections for the BTS audit were not scheduled pending the outcome of the NCEPOD study. An updated guideline, the BTS/ICS Guidelines for the Ventilatory Management of Acute Hypercapnic Respiratory Failure in Adults, was published in June 2017²³ and BTS Quality Standards for NIV²⁴ followed in April 2018. Overlap between the Quality Standards authors and the NCEPOD study team ensured alignment with the NCEPOD recommendations.

Quality Standards for NIV

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 60min of the blood gas result associated with the clinical decision to provide NIV and within 120min 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 4hours and by a consultant with training and competence in acute NIV within 14hours of starting acute NIV.
6. All patients treated with acute NIV should have blood gas analysis performed within 2hours of starting acute NIV; failure of these blood gas measurements to improve should trigger specialist healthcare professional review within 30min.

Update

The next national NIV audit will take place in February and March 2019. The audit questions have been updated to take account of the new quality standards and NCEPOD recommendations and will also allow participants to assess changes in performance since the last audit. BTS has also produced a QI Tool for NIV which includes guidance on how healthcare staff can approach local quality improvement projects addressing the recommendations from the recent guidance in this area.



ACKNOWLEDGEMENTS

The Society would like to thank the following individuals and organisations for their contributions to the BTS Audit Programme and most recent rounds of national audit:

Dr James Calvert	Audit Programme Director
Dr Sanjay Agrawal	Joint Clinical Lead: Smoking Cessation
Dr Jonathan Bennett	Clinical Lead: Bronchoscopy
Dr Michael Davies	Clinical Lead: NIV
Professor Adam Hill	Clinical Lead: Adult and Paediatric Bronchiectasis
Dr Clare Hooper	Clinical Lead: Pleural Procedures
Dr Julian Legg	Clinical Lead: Paediatric Pneumonia
Professor Wei Shen Lim	Clinical Lead: Community Acquired Pneumonia
Dr Zaheer Mangera	Joint Clinical Lead: Smoking Cessation
Dr Ronan O'Driscoll	Clinical Lead: Emergency Oxygen
Dr James Paton	Clinical Lead: Paediatric Asthma
Professor Stephen Scott	Clinical Lead: Adult Asthma

Participants in National Audits

ABM University Health Board

Morrison Hospital
Princess of Wales Hospital
Singleton Hospital

Aintree University Hospital NHS Foundation Trust

University Hospital Aintree

Airedale NHS Foundation Trust

Airedale General Hospital

Alder Hey Children's NHS Foundation Trust

Alder Hey Children's Hospital

Aneurin Bevan University Health Board

Nevill Hall Hospital
Royal Gwent Hospital

Ashford and St Peter's Hospitals NHS Trust

St Peter's Hospital

Barking, Havering and Redbridge University Hospitals NHS Trust

King George Hospital
Queen's Hospital

Barnsley Hospital NHS Foundation Trust

Barnsley Hospital

Barts Health NHS Trust

London Chest Hospital
Newham University Hospital
Royal London Hospital

St Bartholomews Hospital

Whipps Cross University Hospital

Basildon and Thurrock University Hospitals NHS Foundation Trust

Basildon University Hospital

Bedford Hospital NHS Trust

Bedford Hospital

Belfast Health and Social Care Trust

Belfast City Hospital
Mater Hospital
Musgrave Park Hospital
Royal Belfast Hospital for Sick Children
Royal Victoria Hospital

Betsi Cadwaladr University Health Board

Glan Clwyd Hospital
Wrexham Maelor Hospital

Trusty Gwynedd

Birmingham Children's Hosp NHS Foundation Trust

Birmingham Children's Hospital

Blackpool Teaching Hospitals NHS Foundation Trust

Victoria Hospital

Bolton NHS Foundation Trust

Royal Bolton Hospital

Bradford Teaching Hospitals NHS Foundation Trust

Bradford Royal Infirmary

**Brighton and Sussex University Hospitals NHS Trust**

Princess Royal Hospital
Royal Alexandra Children's Hospital
Royal Sussex County Hospital

Buckinghamshire Healthcare NHS Trust

Stoke Mandeville Hospital

Calderdale and Huddersfield NHS Foundation Trust

Calderdale Royal Hospital
Huddersfield Royal Infirmary

Cambridge University Hospitals NHS Foundation Trust

Addenbrookes Hospital

Cardiff and Vale University Health Board

University Hospital Llandough
University Hospital of Wales

Chelsea and Westminster Hospital NHS Foundation Trust

Chelsea and Westminster Hospital
West Middlesex University Hospital

Chesterfield Royal Hospital NHS Foundation Trust

Chesterfield Royal Hospital

City Hospitals Sunderland NHS Foundation Trust

Sunderland Royal Hospital

Countess of Chester Hospital NHS Foundation Trust

The Countess of Chester Hospital

County Durham and Darlington NHS Foundation Trust

Bishop Auckland General Hospital
Darlington Memorial Hospital
University Hospital North Durham

Croydon Health Services NHS Trust

Croydon University Hospital

Cwm Taf University Health Board

Prince Charles Hospital
Royal Glamorgan Hospital

Dartford and Gravesham NHS Trust

Darent Valley Hospital

Doncaster and Bassetlaw Hospitals NHS Foundation Trust

Doncaster Royal Infirmary

Dorset County Hospital NHS Foundation Trust

Dorset County Hospital

East and North Hertfordshire NHS Trust

Lister Hospital
Queen Elizabeth II Hospital

East Cheshire NHS Trust

Macclesfield District General Hospital

East Kent Hospitals University NHS Foundation Trust

Kent & Canterbury Hospital
Queen Elizabeth The Queen Mother Hospital
William Harvey Hospital

East Lancashire Hospitals NHS Trust

Royal Blackburn Hospital

East Suffolk and North Essex NHS Foundation Trust

Colchester General Hospital
Ipswich Hospital

East Sussex Healthcare NHS Trust

Eastbourne District General Hospital
Conquest Hospital

Epsom and St Helier University Hospitals NHS Trust

Epsom General Hospital
St Helier Hospital

Frimley Health NHS Foundation Trust

Frimley Park Hospital
Wexham Park Hospital

Gateshead Health NHS Foundation Trust

Queen Elizabeth Hospital

George Eliot Hospital NHS Trust

George Eliot Hospital

Gloucestershire Hospitals NHS Foundation Trust

Cheltenham General Hospital
Gloucestershire Royal Hospital

Great Western Hospitals NHS Foundation Trust

The Great Western Hospital

Guy's and St Thomas' NHS Foundation Trust

Evelina Children's Hospital
Guy's Hospital

St Thomas' Hospital

Hampshire Hospitals NHS Foundation Trust

Basingstoke & North Hampshire Hospital
Royal Hampshire County Hospital

Harrogate and District NHS Foundation Trust

Harrogate District Hospital

Heart of England NHS Foundation Trust

Birmingham Heartlands Hospital
Solihull Hospital

Homerton University Hospital NHS Foundation Trust

Homerton Hospital

Hull and East Yorkshire Hospitals NHS Trust

Castle Hill Hospital
Hull Royal Infirmary

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Bronglais General Hospital
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Imperial College Healthcare NHS Trust

Charing Cross Hospital
Hammersmith Hospital
St Mary's Hospital

Isle of Wight NHS Trust

St Mary's Hospital



James Paget University Hospitals NHS Foundation Trust

James Paget Hospital

Kettering General Hospital NHS Foundation Trust

Kettering General Hospital

King's College Hospital NHS Foundation Trust

Princess Royal University Hospital

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Kingston Hospital NHS Trust

Kingston Hospital

Lancashire Teaching Hospitals NHS Foundation Trust

Chorley & South Ribble Hospital

Royal Preston Hospital

Lewisham and Greenwich NHS Trust

Queen Elizabeth Hospital

Lewisham Hospital

Liverpool Heart and Chest NHS Foundation Trust

Liverpool Heart and Chest Hospital

London North West University Healthcare NHS Trust

Central Middlesex Hospital

Ealing Hospital

Northwick Park Hospital

Luton and Dunstable University Hospital NHS Foundation Trust

Luton & Dunstable Hospital

Maidstone and Tunbridge Wells NHS Trust

Maidstone Hospital

Tunbridge Wells Hospital

Manchester University NHS Foundation Trust

Manchester Royal Infirmary

Royal Manchester Children's Hospital

Trafford General Hospital

Wythenshawe Hospital

Mayday Healthcare NHS Trust

Mayday Hospital

Medway NHS Foundation Trust

Medway Maritime Hospital

Mid Cheshire Hospitals NHS Foundation Trust

Leighton Hospital

Mid Essex Hospital Services NHS Trust

Broomfield Hospital

Milton Keynes Hospital NHS Foundation Trust

Milton Keynes General Hospital

Moorfields Eye Hospital NHS Foundation Trust

Moorfields Eye Hospital

NHS Ayrshire & Arran

Crosshouse Hospital

NHS Borders

Borders General Hospital

NHS Forth Valley

Forth Valley Royal Hospital

NHS Grampian

Aberdeen Royal Infirmary

Royal Aberdeen Children's Hospital

NHS Greater Glasgow & Clyde

Gartnavel General Hospital

Glasgow Royal Infirmary

Queen Elizabeth University Hospital

Royal Alexandra Hospital

Royal Hospital For Children, Glasgow

Stobhill Hospital

Yorkhill Hospital

NHS Highland

Raigmore Hospital

NHS Lanarkshire

Monklands District General Hospital

Wishaw General Hospital

NHS Lothian

Royal Infirmary of Edinburgh

St John's Hospital at Howden

The Royal Hospital for Sick Children

Western General Hospital

NHS Tayside

Ninewells Hospital & Medical School

Norfolk and Norwich University Hospitals NHS Foundation Trust

Norfolk and Norwich University Hospital

North Bristol NHS Trust

Southmead Hospital

North Cumbria University Hospitals NHS Trust

Cumberland Infirmary

West Cumberland Hospital

North Middlesex University Hospital NHS Trust

North Middlesex University Hospital

North Tees and Hartlepool NHS Foundation Trust

University Hospital of Hartlepool

University Hospital of North Tees

North West Anglia NHS Foundation Trust

Hinchingbrooke Hospital

Peterborough City Hospital

Northampton General Hospital NHS Trust

Northampton General Hospital

Northern Devon Healthcare NHS Trust

North Devon District Hospital

Northern Health & Social Care Trust

Antrim Hospital

Northern Lincolnshire and Goole Hospitals NHS Foundation Trust

Diana Princess of Wales Hospital

Scunthorpe General Hospital

Northumbria Healthcare NHS Foundation Trust

North Tyneside General Hospital



Northumbria Specialist Emergency Care Hospital

Wansbeck General Hospital

Nottingham University Hospitals NHS Trust

Nottingham City Hospital

Queens Medical Centre Nottingham

Oxford University Hospitals NHS Foundation Trust

Horton Hospital

The Churchill

The John Radcliffe

Plymouth Hospitals NHS Trust

Derriford Hospital

Poole Hospital NHS Foundation Trust

Poole Hospital

Portsmouth Hospitals NHS Trust

Queen Alexandra Hospital

Royal Berkshire NHS Foundation Trust

Royal Berkshire Hospital

Royal Brompton & Harefield NHS Trust

Royal Brompton Hospital

Royal Cornwall Hospitals NHS Trust

Royal Cornwall Hospital

Royal Devon and Exeter NHS Foundation Trust

Royal Devon & Exeter Hospital

Royal Free London NHS Foundation Trust

Barnet Hospital

Chase Farm Hospital

Royal Free Hospital

Royal Liverpool and Broadgreen University Hospitals NHS Trust

Royal Liverpool University Hospital

Royal Papworth Hospital NHS Foundation Trust

Royal Papworth Hospital

Royal Surrey County Hospital NHS Foundation Trust

Royal Surrey County Hospital

Royal United Hospital Bath NHS Trust

Royal United Hospital

Salford Royal NHS Foundation Trust

Salford Royal Hospital

Salisbury NHS Foundation Trust

Salisbury District Hospital

Sandwell and West Birmingham Hospitals NHS Trust

City Hospital

Sandwell General Hospital

Sheffield Children's NHS Foundation Trust

Sheffield Children's Hospital

Sheffield Teaching Hospitals NHS Foundation Trust

Northern General Hospital

Sherwood Forest Hospitals NHS Foundation Trust

Kings Mill Hospital

South Devon Healthcare NHS Foundation Trust

Torbay District General Hospital

South Eastern Health & Social Care Trust

Lagan Valley Hospital

The Ulster Hospital

South Tees Hospitals NHS Foundation Trust

The James Cook University Hospital

Friarage Hospital

South Tyneside NHS Foundation Trust

South Tyneside District Hospital

South Warwickshire NHS Foundation Trust

Warwick Hospital

Southend University Hospital NHS Foundation Trust

Southend Hospital

Southern Health & Social Care Trust

Craigavon Area Hospital

Daisy Hill Hospital

Southport and Ormskirk Hospital NHS Trust

Southport & Formby District General Hospital

St George's University Hospitals NHS Foundation Trust

St George's Hospital

St Helens and Knowsley Teaching Hospitals NHS Trust

Whiston Hospital

Stockport NHS Foundation Trust

Stepping Hill Hospital

Surrey and Sussex Healthcare NHS Trust

East Surrey Hospital

Tameside and Glossop Integrated Care NHS Foundation Trust

Tameside General Hospital

Taunton and Somerset NHS Foundation Trust

Musgrove Park Hospital

The Christie NHS Foundation Trust

The Christie Hospital

The Dudley Group NHS Foundation Trust

Russells Hall Hospital

The Hillingdon Hospitals NHS Foundation Trust

Hillingdon Hospital

The Leeds Teaching Hospitals NHS Trust

St James University Hospital

Leeds General Infirmary

The Mid Yorkshire Hospitals NHS Trust

Dewsbury & District Hospital

Pinderfields General Hospital

Pontefract General Infirmary

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Freeman Hospital

Royal Victoria Infirmary

The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust

The Queen Elizabeth Hospital

The Pennine Acute Hospitals NHS Trust

Fairfield General Hospital



North Manchester General Hospital

Rochdale Infirmary

The Royal Oldham Hospital

The Princess Alexandra Hospital NHS Trust

Princess Alexandra Hospital

The Rotherham NHS Foundation Trust

Rotherham Hospital

The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust

The Royal Bournemouth Hospital

The Royal Wolverhampton NHS Trust

New Cross Hospital

The Shrewsbury and Telford Hospital NHS Trust

Royal Shrewsbury Hospital

The Princess Royal Hospital

The Whittington Hospital NHS Trust

Whittington Hospital

United Lincolnshire Hospitals NHS Trust

Lincoln County Hospital

Grantham & District Hospital

Pilgrim Hospital

University College London Hospitals NHS Foundation Trust

University College Hospital

University Hospital Southampton NHS Foundation Trust

Southampton General Hospital

University Hospitals Birmingham NHS Foundation Trust

Good Hope Hospital

Queen Elizabeth Hospital Birmingham

University Hospitals Bristol NHS Foundation Trust

Bristol Royal Hospital for Children

Bristol Royal Infirmary

University Hospitals Coventry and Warwickshire NHS Trust

University Hospital

University Hospitals of Derby and Burton NHS Foundation Trust

Queen's Hospital

Royal Derby Hospital

University Hospitals of Leicester NHS Trust

Glenfield Hospital

Leicester General Hospital

Leicester Royal Infirmary

University Hospitals of Morecambe Bay NHS Foundation Trust

Furness General Hospital

Royal Lancaster Infirmary

Westmorland General Hospital

University Hospitals of North Midlands NHS Trust

Royal Stoke University Hospital

County Hospital

Walsall Healthcare NHS Trust

Walsall Manor Hospital

Warrington and Halton Hospitals NHS Foundation Trust

Warrington Hospital

West Hertfordshire Hospitals NHS Trust

Watford General Hospital

West Suffolk NHS Foundation Trust

West Suffolk Hospital

Western Health & Social Care Trust

Altnagelvin Area Hospital

Erne Hospital

South West Acute Hospital

Western Sussex Hospitals NHS Foundation Trust

St Richards Hospital

Worthing Hospital

Weston Area Health NHS Trust

Weston General Hospital

Wirral University Teaching Hospital NHS Foundation Trust

Arrowe Park Hospital

Worcestershire Acute Hospitals NHS Trust

Alexandra Hospital

Worcestershire Royal Hospital

Wrightington, Wigan and Leigh NHS Foundation Trust

Royal Albert Edward Infirmary

Wye Valley NHS Trust

Hereford County Hospital

Yeovil District Hospital NHS Foundation Trust

Yeovil District Hospital

York Teaching Hospital NHS Foundation Trust

Scarborough General Hospital

York Hospital



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