British Thoracic Society
Non-Invasive Ventilation Audit
National Audit Protocol and Instructions
January 2019

Aims and Objectives

The aim of the BTS audit programme is to drive improvements in the quality of care and services for patients with respiratory conditions across the UK. The BTS Non-Invasive Ventilation Audit seeks to identify where improvements could be made in this area to align practice to BTS Quality Standards and other guidance.

Audit Period and Scope

The audit should be overseen by a consultant respiratory physician. It is anticipated that a respiratory trainee will assist with data collection.

Audit period: 1 February 2019 – 31 March 2019

Data entry period: 1 February 2019 – 30 June 2019

Case definition: Patients with acute hypercapnic respiratory failure treated with acute NIV within the audit period.

Exclusions:

Patients under 18 years old.

Patients treated with continuous positive airway pressure (CPAP).

In the event that a patient stops NIV and then starts again, only the first episode should be recorded.

Use of NIV in a critical care environment within 48 hours of extubation (i.e. exclude if NIV is used to facilitate weaning from invasive ventilation or to prevent reintubation).

Transfer between hospitals: In the event that a patient is admitted to one hospital, and then transferred to another hospital, the case should be recorded at the admitting hospital, and should not be included in the audit at the second hospital.

If a home NIV patient is admitted for other reasons and there is no adjustment to their existing settings or time on NIV, they should not be included. **However,** if the patient is on home NIV but is admitted with **new acute or chronic hypercapnic respiratory failure**, they **should be included**.

Audit Standards

See Appendix 1 for further details.

Methodology

Data should be collected from patient notes and can be entered directly onto the BTS audit website. Alternatively, data collection sheets are provided to help with data collection but data must be entered online – paper/pdf returns cannot be accepted.

You should aim to enter all eligible cases. If it is not possible to enter all eligible cases you should try to ensure that there is no bias in selection e.g. by including consecutive cases. Please note that if low numbers of cases are entered, 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.

Please also complete one Part 2 questionnaire per hospital.

Accessing the BTS Audit Tools

Data should be entered onto the secure online data collection tool via the BTS audit system: https://audits.brit-thoracic.org.uk/. User registration is required (log in details should not be shared), and each hospital must complete a registration form confirming which staff should have access to the data entry for this audit.

Follow the links to "Adult Non-Invasive Ventilation" and then click on the Period Name "1 February 2019 – 31 March 2019 (national audit period)" and then "Add a new record" to access the data entry screens.

You can save the record you are working on and return to it at any point. When you have completed data entry please click "Commit" to submit your data to the database. At this point you can see the record but will not be able to edit the contents further.

Local Identifiers
Please note that the local identifier should be a unique reference number created for the audit. ***When records have been committed, the local identifier is wiped and will not appear on data exports.*** *We therefore recommend that data is exported before being committed for ease of reference. You may also want to keep a record of the NHS number to which each local identifier corresponds in case records need to be located in future.* ***Please do not enter NHS or hospital numbers****.*

Analysis and Reporting
Audit participants can generate local reports from the audit system which present their institution's data as a comparison to the national dataset, and reports comparing data from different audit periods. Click the 'Reports' link on the audit system home page, then select the type of report and the relevant audit period(s) from the links at the bottom of the reports page.

The national dataset is reviewed by the BTS clinical audit lead and a summary report providing an overview of the findings of the audit will be produced approximately six months after the close of the audit. An outlier review will also be undertaken and the outcomes from this may also be published.

Third parties may apply for access to data entered for this audit in accordance with the BTS Data Access Policy and may publish material using the audit data.

NHS England Quality Accounts List
This audit is on the 2018/19 List and should therefore be reported in English Trusts' Quality Accounts.

Contact
Any queries should be sent to: audittools@brit-thoracic.org.uk or 020 7831 8778.

Appendix 1

The standards used in this audit are:

The 2016 BTS/ICS Guideline for the ventilatory management of acute hypercapnic respiratory failure: https://www.brit-thoracic.org.uk/standards-of-care/guidelines/btsics-guidelines-for-the-ventilatory-management-of-acute-hypercapnic-respiratory-failure-in-adults/

The 2018 BTS Quality Standards for Acute Non-Invasive Ventilation: https://www.brit-thoracic.org.uk/standards-of-care/quality-standards/bts-niv-quality-standards/

The 2017 NCEPOD Report *Inspiring Change: A review of the quality of care provided to patients received acute non-invasive ventilation: http://www.ncepod.org.uk/2017niv.html*

Part 1 Standards

Audit Question	Standard	Ref
1.3-4 2.1-2 2.12-13 2.20-23	Patients who meet evidence-based criteria for acute NIV should start NIV within 60 minutes of the blood gas result associated with the clinical decision to provide NIV and within 120 minutes of hospital arrival for patients who present acutely.	QS4
2.1-2 2.12-13 2.20-23	Treatment with acute non-invasive ventilation (NIV) must be started within a maximum of one hour of the blood gas measurement that identified the need for it, regardless of the patient's location.	NCEPOD5
4.1-4.4	All patients should have a documented escalation plan before starting treatment with acute NIV.	QS5
3.10-11	Clinical progress should be reviewed by a healthcare professional with appropriate training and competence within four hours, and by a consultant with training and competence in acute NIV within 14 hours of starting acute NIV.	QS5
3.1-6	All patients treated with acute NIV should have blood gas analysis performed within two hours of starting acute NIV.	QS6
3.10-11	Failure of these blood gas measurements to improve should trigger specialist healthcare professional review within 30 minutes.	QS6
1.7 1.12-3	In line with current British Thoracic Society guidelines, patients with known chronic obstructive pulmonary disease, or other known risk factors for hypercapnic respiratory failure, should have an oxygen saturation of 88-92% maintained, both prior to admission and on admission to hospital. The device used for oxygen delivery, the concentration of oxygen administered and the target saturation should be documented in the relevant patient record.	NCEPOD4

Part 2 Standards

Audit Question	Standard	Ref
7.16-17	Hospitals must ensure there is adequate capacity to provide NIV to all eligible patients.	QS1
7.11-15	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.	QS2
7.11-15	All staff who prescribe/make changes to acute non-invasive ventilation treatment must have the required level of competency as stated in their hospital operational policy. A list of competent staff should be maintained.	NCEPOD8
7.5-6	All hospitals should have a clinical lead for their acute non-invasive ventilation (NIV) service. The clinical lead should have time allocated in their job plan with clear objectives, including audit and governance for this service.	NCEPOD1
7.1-2	Acute NIV should only be carried out in specified clinical areas designated for the delivery of acute NIV.	QS3
7.3-4	Acute non-invasive ventilation treatment should only be provided in clinical areas equipped with: a. Continuous pulse oximetry; b. Continuous ECG monitoring; and c. Rapid access to the results of blood gas analysis.	NCEPOD2
7.10	In all areas providing acute non-invasive ventilation (NIV), a minimum staffing ratio of one nurse to two acute NIV patients must be in place, as recommended in the British Thoracic Society guideline. The duration for which this should continue will be determined by each individual patient's response to ventilation.	NCEPOD6
7.1 – 7.10	All hospitals where acute non-invasive ventilation (NIV) is provided must have an operational policy that includes, but is not limited to: a. Appropriate clinical areas where acute NIV can be provided, and in those areas the minimum safe level of staff competencies; b. Staff to acute NIV patient ratios; c. Escalation of treatment and step down care procedures; d. Standardised documentation; and e. Minimum frequency of clinical review, and seniority of reviewing clinician. Compliance with this policy should be part of the annual audit process.	NCEPOD7