Whittington Health NHS

Ward-based Non-Invasive Ventilation (NIV) for Acute Exacerbations of COPD

Subject:	NIV – ward-based, acute use in exacerbations of COPD
Policy Number	N/A
Ratified By:	Clinical Guidelines Committee
Date Ratified:	February 2009 (v1) Reviewed 2015
Version:	4.0
Policy Executive Owner:	ICAM Divisional Director
Designation of Author:	Dr L Restrick (Integrated Consultant Respiratory Physician, Whittington Health and Islington CCG London Respiratory Network Lead Dr S Lock, Consultant Respiratory Physician Kanakaraj Roberts, Lead Respiratory Physiotherapist
Name of Assurance Committee:	As above
Date Issued:	September 2015
Review Date:	3 years hence
Target Audience:	Consultant Physicians, Acute medical teams, Emergency Department, ICU team including Critical Care Outreach Team, Respiratory team & Physiotherapy team
Key Words:	Non-invasive ventilation, Type 2 Respiratory Failure, Chronic Obstructive pulmonary disease (COPD), Ward-based

Version Control Sheet

Version	Date	Author	Status	Comment
3.0	Feb 09	Dr L Restrick	Off line	Approved at CGC
4.0	April - June 2015	Dr L Restrick Dr S Lock, Consultant Respiratory Physician Kanakaraj Roberts, Lead Respiratory Physiotherapist	Current	Reviewed, June 2015

➢ Criteria for use

Patient admitted using COPD proforma:

http://whittnet/document.ashx?id=5970

To be used on the ward for the management of Type 2 respiratory failure due to acute exacerbations of COPD or severe COPD itself.

Exclusions: Ward-based NIV not appropriate for treatment of other causes of respiratory failure e.g. pneumonia in patients with COPD unless pre-existing treatment escalation plan agreed with patient and respiratory consultant with ward-based NIV as ceiling of treatment.

(See: '**Patients not meeting the criteria of this guideline' section below)**

➢ Diagnosis: *need chest x-ray and arterial blood gases (ABGs) on air if possible.*

- At presentation, patients must have Type 2 respiratory failure with **moderate** respiratory acidosis on first arterial blood gas result, i.e.

  • PaO_2 <8 kPa $PaCO_2$ >6.5 kPa pH 7.25 - 7.35 HCO_3 >28mmol/l*

  and:

  • COPD without **new** focal x-ray changes

- Patients must have been seen and assessed by DMR or consultant.

➢ Patients not meeting the criteria of this guideline

- Patients with pH less than 7.25 who are for active management must be discussed with ICU and the Critical Care Outreach Team including those who have had treatment started in the Emergency Department.

- Patients with pH less than 7.25 where NIV would be ceiling of treatment must be discussed with a Respiratory Consultant, including those who have had treatment started in the Emergency Department.

- Patients with pH 7.25 – 7.35 and other diagnoses e.g. pneumonia must be discussed with a Respiratory Consultants, including those who have had treatment started in the Emergency Department.

- Patients with an established diagnosis of dementia, current cognitive impairment or delerium must be discussed with a Respiratory Consultants including those who have had treatment started in the Emergency Department.

Dr Restrick or Dr Lock should be contacted via Cencom, **including out-of-hours.**

Discussing possible off-protocol NIV with a respiratory consultant

The DMR or Core Medical Trainee, who has seen and assessed the patient, should contact Cencom and ask to be put through to the named respiratory consultant for NIV.

The physiotherapist check list (Appendix 2) may also be useful for the medical team as similar information needed by the respiratory consultant in decision making for off-protocol use.

Dr Restrick or Dr Lock are the consultant NIV leads and are available for NIV advice **including out of hours**.

For weekends where one of the respiratory consultants is the consultant on call they should be contacted for NIV advice

➢ Initial management of exacerbation: *Please use COPD proforma*

Oxygen toxicity

This must be regarded as a ‘never event.’

If a patient with COPD and Type II Respiratory failure has a PaO_2 >9 on an ABG, this should be considered as oxygen toxicity.

Immediate actions:

1. Turn down oxygen to target saturation range (88 – 92%)
2. Manage as per NIV guideline
3. Complete DATIX
4. Inform respiratory team of any patients with oxygentoxicity who do not have a Patient Specific Protocol (PSP) with the London Ambulance Service.

Patients with known chronic Type II Respiratory failure i.e. a raised bicarbonate, should have a PSP for safe transfer into hospital. This should also be used to guide treatment in the Emergency Department

	Please also see Whittington Health Guidelines: **COPD guideline and COPD proforma on intranet**

- **Controlled oxygen therapy:**
  - Prescribe range of percentages e.g. 24 – 28% or flows 0.5 – 2 l/min on drug chart and target saturation range (initially 88 –92%)
  - Venturi mask: 24% (blue) 28% (white) **or**
  - Nasal cannulae: 1 litre/ min = 24%, 2 litres/ min = 28%

- **Nebulised bronchodilators:**

  - Both salbutamol 2.5 or 5mg 2 - 6 hourly and ipratropium bromide 0.5mg 6 hourly

  - Driven by air: mouthpiece + O_2 mask or nasal cannulae + nebuliser mask

- **Antibiotics:**
  - Amoxycillin, doxycycline, co-amoxiclav or clarithromycin

- **Corticosteroids:**
  - Oral prednisolone 30mg
  - NB Intravenous (IV) hydrocortisone 100mg **only** if unable to take by mouth, if vomiting, unconscious or unsafe swallow

- **Diuretics:**
  - If swollen ankles due to cor pulmonale

- **VTE assessment**

  - Prescribe Tinzaparin according to VTE assessment.

- **Smoking cessation medication**

  If current smoker, prescribe NRT patch 25micrograms and inhalator

➢ Non-invasive ventilation (NIV)

Consider *if the patient is not improving clinically within one hour and still satisfies criteria*:

PaO_2 <8 kPa, $PaCO_2$ >6.5 kPa and pH 7.25 – 7.35 despite controlled oxygen.

Chest x-ray done and reviewed: no new focal problem.

If long-standing abnormal chest x-ray suspected, previous chest x-rays must be reviewed on PACS for comparison.

NOTE: Low pH may be due to respiratory, metabolic, or mixed acidosis

➢ Treatment Escalation Plan and documentation

Before referring for and starting NIV a treatment escalation plan in the event of NIV failure must be made by the DMR or Consultant. The agreed appropriate escalation must be recorded in the notes, see choices below.

1. Requiring immediate intubation and ventilation. Contact Critical Care.
2. Appropriate for NIV on ICU but not on Ward due to:

   - Severity of respiratory failure;
   - Other causes of respiratory failure than exacerbation

3. Appropriate for ward-based NIV and escalation for intubation and ventilation if required. Critical Care must be informed of patients starting NIV on the ward, with a plan to escalate as required
4. Appropriate for ward-based NIV but not appropriate for escalation for intubation and ventilation i.e. ward-based NIV ceiling of treatment
5. Not appropriate for ward-based NIV but appropriate for all other active medical management i.e. ceiling of treatment below NIV
6. Appropriate for symptom based and end of life care.

➢ Setting up non-invasive ventilation

Patient and Ward Criteria:

- Patient on Mary Seacole North or South or Nightingale Wards **NOT** in ED
- **Acute exacerbation of COPD only.** Not pneumonia, pneumothorax, lung cancer, heart failure.
- Conscious
- Co-operative
- Able to protect airway
- Secretions not a problem
- PaO_2 < 8 kPa, $PaCO_2$ > 6.5 kPa and pH 7.25 – 7.35 despite controlled oxygen (If pH <7.25 see "*Patients not meeting the criteria of this guideline"* section)

Set-up:

- Baseline ABGs taken by doctor within 1 hour before starting NIV stating oxygen flow or %
- Oxygen flow or percentage may need adjusting with NIV. Maintain target saturation SpO_2 85 – 92%
- Repeat ABGs 1 hour after starting NIV by referring doctor or at request of physiotherapist or respiratory team, stating pressure settings and oxygen flow.
- Patients referred for transfer onto a ward NIV machine, who have been set up on an ED NIV machine, **whose presenting ABG met the criteria** of **this guideline, DO NOT** need repeat ABGs provided repeat ABG shows improvement.

➢ Aims of NIV

At one hour:

- 0.5 kPa decrease in $PaCO_2$
- pH stable or increased
- PaO_2 stable or increased; aim for $PaO_2 \leq 8$kPa.

Monitoring and continuing NIV:

- If $PaCO_2$ acceptable on NIV, follow by SpO_2 and venous bicarbonate rather than ABGs
- Maximum target saturation range 88 – 92%; may need to be as low as 84 – 88%.
- ABGs only repeated if:
  - deterioration in clinical condition
  - 1 hour after any change in NIV pressures
- NIV as much as possible in first 24 hours.

➢ Whittington Health Ward-based Acute NIV Service

- Round the clock service for patients fulfilling above criteria.
- Physiotherapists set up NIV and make any changes to pressures needed and entrained oxygen.
- Physiotherapists document plan for use.
- Patient information leaflet given to patient and family by physiotherapist at set-up. **(Appendix 1)**

0830-1945 hours - weekdays bleep 2825, Respiratory Physiotherapist
0830-1630 hours- weekends bleep 2825, Respiratory Physiotherapist
All other times bleep on-call Physiotherapist via Cencom.

See Appendix 2 for Physiotherapist Checklist
Please ensure that you have the required information for NIV referral, prior to contacting the physiotherapist.

- Respiratory team must be informed of **ALL** patients using this ward-based NIV service and **any patient on whom NIV has been attempted using this service** (regardless of outcome) the following morning or Monday after the weekend. Bleep the respiratory specialist registrar, bleep 3049 (or if not available 3359) or contact one of the respiratory consultants.
- Patients being setup on ward-based NIV need high dependency nursing care.
- Ward-based NIV using this service can **ONLY** be set up on Nightingale and Mary Seacole North and South
- **Masks, tubing etc are single use ONLY**
- ABGs are the responsibility of the doctor looking after the patient

➢ Summary of management of Type 2 Respiratory Failure in exacerbations of COPD

- Appropriate clinical management with controlled oxygen. Many patients have and are still receiving inappropriately high-flow oxygen, which contributes to their acidosis, when NIV is first considered as a treatment,
- Senior clinical decision on appropriate treatment escalation plan
- Non-invasive ventilation if patient remains acidotic despite appropriate treatment.

NB. CPAP is NOT a treatment for Type 2 Respiratory Failure. Aim of treatment is ≤ PaO_2 8kPa maximum. A higher PaO_2 may lead to deterioration.

➢ Contacts (inside and outside the Trust including out-of-hours contacts)

- Respiratory Consultant NIV leads Dr Restrick and Dr Lock, via Cencom including out-of-hours.

- 0830-1945 hours - weekdays and 0830-1630 hours- weekends Respiratory Physiotherapist (bleep 2825)
  Out-of-hours bleep on-call Physiotherapist via switchboard

- Respiratory specialist registrar (bleep 3049, or if not available 3359)

➢ References (evidence upon which the guideline is based)

Acidosis, non-invasive ventilation and mortality in hospitalised COPD exacerbations. Roberts CM, Stone RA, Buckingham RJ, Pursey NA, Lowe D on behalf of the National Chronic Obstructive Pulmonary Disease Resources and Outcomes Project (NCROP); Thorax 2011;**66**:43-48. doi:10.1136/thx.210.153114

Roberts CM, Brown JL, Reinhardt AK, Kaul S, Scales K, Mikelsons C, Reid K, Winter R, Young K, Restrick L and Plant PK (2008) Non-invasive ventilation in chronic obstructive pulmonary disease: management of acute type 2 respiratory failure. *Royal College of Physicians, Clinical medicine Vol 8 No 5 October 2008*

Plant PK, Owen JL, Parrott S, Elliott MW. Cost effectiveness of ward based non-invasive ventilation for acute exacerbations of chronic obstructive pulmonary disease: economic analysis of randomised controlled trial. *BMJ* 2003; 326:956.

Ram FSF, Lightowler JVJ, Wedzicha JA. Non-invasive positive pressure ventilation for treatment of respiratory failure due to exacerbations of chronic obstructive pulmonary disease. (Cochrane Review).
The Cochrane Library.Oxford: Update Software 2003;Issue 3.

Plant PK & Others (2000) Early Use of Non Invasive Ventilation for Acute Exacerbations of Chronic Obstructive Pulmonary Disease on General Respiratory Wards: A Multi Centre Randomised Trial. *The Lancet* 355; 1931-1935

- **Compliance with this guideline (how and when the guideline will be monitored e.g. audit and which committee the results will be reported to) Please use the tool provided at the end of this template**

Compliance with this guideline will be monitored by participation in BTS National NIV Audit and Whittington Health NIV Service audits.

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and	Yes	

	Title of document being reviewed:	Yes/No	Comments
	effectiveness of the document?		
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	Who will lead on this aspect of monitoring? Name the lead and what is the role of the multidisciplinary team or others if any.	What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?	How often is the need to monitor each element? How often is the need complete a report ? How often is the need to share the report?	What committee will the completed report go to?
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**
Clinical use and outcomes of ward based NIV usage.	**Physiotherapy team** **Respiratory team**	**BTS national audit** **COPD audit** **Local clinical audit**	**As per requirements.**	**BTS audit group** **Medicine, frailty and networked service unit leads** **Physiotherapist and respiratory meetings**

Appendix 1 NIV patient leaflet

To start with, you need to wear the mask as much as possible for the first 24 hours. It can be removed for short periods to enable you to eat and drink as normal and for your medicines and nebulisers.

To monitor your progress, a peg-like probe will be placed on your finger.

Also a blood test will need to be taken after the first hour to check that your oxygen and carbon dioxide levels are getting better.

Your normal treatments for your breathing condition, such as nebulisers, antibiotics and steroids will continue alongside using the NIV.

- **Generally people need to stay on NIV for a few days, but everybody is different.**
- **After the first 24 hours you will usually be asked wear it for two hours in the morning and afternoon as well as overnight and then we will cut it down to overnight only.**
- **Your doctor will discuss your treatment with you. The length of time you need it will depend on how quickly the oxygen and carbon dioxide levels in your blood improve.**

If you have any further questions please do not hesitate to ask any of the people involved in your care and they will be happy to help.

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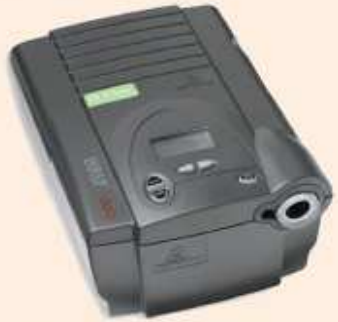
The Whittington Hospital NHS
NHS Trust

Non Invasive Ventilation: the treatment explained

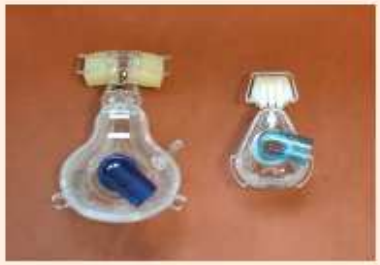
A document planned for our patients as a result of patient consultation, support and action.

...the hospital of choice for local people

Non Invasive Ventilation (NIV) is a machine that is designed to help your breathing and might be used when you are having a flare-up of your breathing problem.



- **At this time your breathing becomes hard work and your muscles can get tired.**
- **This sometimes leads to a build-up of waste gas (carbon dioxide) and not enough oxygen getting into your blood.**
- **NIV supports your breathing to give your muscles a rest and allow them time to recover.**
- **It doesn't breathe for you, but gently assists each breath that you take.**
- **This can help to get your oxygen and carbon dioxide levels back to normal.**



You will need to wear a facemask, which fits firmly but not tightly. This is so the air from the machine doesn't leak out but can support your breathing.

As you take a breath in you will feel a flow of air from the machine, then as you breathe out there will be a little resistance to help keep your lungs open.

It can feel a bit strange or even uncomfortable to start with, however most people find that they get used to it fairly easily.

The physiotherapist will set the machine up and make sure that it is as comfortable for you as possible.

- **The nursing staff will check on you frequently so if you do find it uncomfortable they can help.**
- **You will have your buzzer near by to call for help at any time.**

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CHECK LIST & DATA COLLECTION SHEET FOR NIV

Patient Name:

DOB:

Hospital Num:

Date: / / **Time of call out: ..... (24hr clock)**

Name of referring Doctor: _____

CT/FY2 / Registrar / Consultant

Bleep number:

Diagnosis of acute exacerbation of COPD Yes ☐ No ☐

Off-protocol use must be approved by the Respiratory Consultants Dr. Restrick/ Dr. Lock

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Patient has been reviewed by medical registrar Yes ☐ No ☐

Print Registrars Name: Bleep num:

Recorded Intubation/Resuscitation decision Yes ☐ No ☐

1. Suitable for NIV and escalation (intubation and ventilation) if required ☐
2. Suitable for NIV but not for escalation (intubation and ventilation) ☐

CXR consistent with exacerbation of COPD Yes ☐ No ☐
(No Consolidation/Pleural effusion/Pneumothorax)

Patient has no contraindications to NIV Yes ☐ No ☐

Patient is in uncompensated acute on chronic type II Yes ☐ No ☐
Respiratory failure
pH < 7.35 > 7.25 PaO2 < *8* PaCO2 > *6.5*

Patient is on controlled oxygen: Venturi mask ☐ Nasal cannulae ☐

Patient located in a designated NIV Ward

Nightingale ☐ Mary Seacole North ☐ Mary Seacole South ☐ ITU ☐ (*awaiting transfer*)

Whittington Health NHS

CHECK LIST & DATA COLLECTION SHEET FOR NIV

Patient Name:
DOB:
Hospital Num:

NIV instituted by: Name: _____

Designation: _____

Arrival time: _____

Set-up time: _____

Ventilator: Focus ☐

Initial setting: IPAP ☐ EPAP ☐

Final setting: IPAP ☐ EPAP ☐

Entrained O_2: Yes ☐ Litres ☐ No ☐

Target SpO_2 range: ☐

ABGs Time	Prior NIV	Post NIV (1 hour)			Discharge
PH					
PaCo2					
PaO2					
HCO3					
BE					
Sa02					
RR					

NIV patient information leaflet given ☐

To do:
- Ensure Adult NIV monitoring chart is in use
- Guidelines re. SpO_2 (88-92Max)
- Notify NIV Physio

Whittington Health NHS

ADULT NON INVASIVE VENTILATION (NIV) MONITORING CHART

Patient Name:

Hospital No: DOB:

Ward: Consultant

REGIME:

Highlight any changes to settings in **RED** ink & write across the whole line of the chart

Date	IPAP	EPAP	O_2 L/min	Tubing correct	Time on	Time off	Total time	O_2 Sats	RR	HR	Signature	Print name	Job title

Associated core care plans

Non invasive ventilation
Pressure ulcer high risk
Reduced mobility
Personal hygiene assistance
NG/PEG feeding

NIV EQUIPMENT/ADVICE:

- NIV set up or changes that are required contact lead NIV physiotherapy bleep 2825/2801 between 08:30-19:45hrs (out of hours bleep on-call physiotherapist via Cencom)

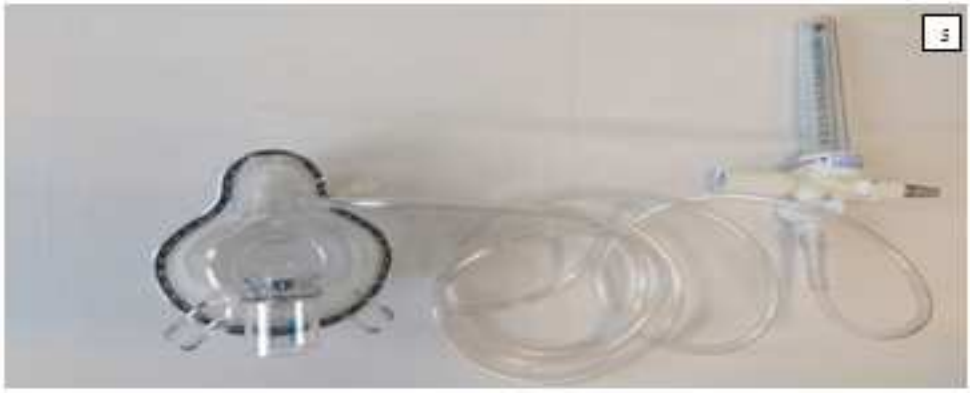
Whittington Health NHS

Non invasive ventilation
Oxygen mask and tubing connections

When NOT on oxygen therapy keep the O2 port closed – shown in fig 2

When having oxygen therapy

To connect nasal tubing to NIV mask: cut nasal cannula tubing as per **figure 3** and connect to mask and O_2 flow meter as in **figures 4 and 5**



NHS England

Patient Safety Alert

Stage One: Warning

Risk of severe harm and death from unintentional interruption of non-invasive ventilation

13 February 2015

Alert reference number: NHS/PSA/W/2015/003

Alert stage: One - Warning

Non-invasive ventilation (NIV) is increasingly being used in acute hospitals and a recent audit[1] has highlighted the importance of giving NIV in an appropriate environment by appropriately trained staff.

A particular risk relating to the delivery of NIV has been identified. A serious incident reported to the National Reporting and Learning System (NRLS) described that a mask for non-invasive ventilation (NIV) was attached to a patient's face but the ventilation machine had not been switched on. The patient became severely hypoxic and died. A similar case has also been reported to MHRA.

A review of NRLS data since 2012 identified three additional fatal incidents in which the oxygen supply was found to be disconnected when patients were receiving NIV. In these cases, the length of time that the oxygen tubing was detached was unknown as no regular checking of oxygen tubing was completed, and no patient observations were recorded.

Unlike ventilators that provide life-sustaining ventilation, non-invasive ventilators may lack features to warn staff of delivery problems, such as disconnection and loss of gas supply. Where devices delivering NIV have an alarm facility, this function has sometimes been disabled by staff. Devices also differ in their modes of operation; for example, following a pause in NIV therapy, some machines automatically revert to ventilation support when the mask is re-fitted; others need to be manually reactivated.

Review of incidents reported to the NRLS suggest that risks are increased when:

- patients, especially those with limited ability to summon help, are not closely monitored;
- staff are not familiar with the equipment and its correct use (e.g. unclear about when to use vented or non-vented masks, or patients bringing devices from home); and
- a new make and model of device is implemented; staff, even when they have been trained on the new device, may instinctively expect the device to work in the same way as the previous make and model in use.

NHS England and MHRA will continue to review risks relating to NIV and will provide further advice if required.

Actions

Who: All providers of NHS funded care

When: To commence immediately and be completed by no later than 27 March 2015

1. Identify if unintentional interruption of NIV has occurred, or could occur, in your organisation.
2. Consider if immediate action needs to be taken locally, and ensure that an action plan is underway if required, to reduce the risk of further incidents occurring.
3. Distribute this Alert to all relevant staff who are involved in the setup of NIV devices and/or care for NIV patients.
4. Share any learning from local investigations or locally developed good practice resources by emailing patientsafety.enquiries@nhs.net.

Publications Gateway Reference: 03024

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Alert reference number:	NHS/PSA/W/2015/003
Alert stage:	One - Warning

Technical notes

NRLS search dates and terms

The National Reporting and Learning System (NRLS) was searched on 12 January 2015 for incidents, which were reported since 1 January 2012 as resulting in severe harm or death and which contain the keywords [NIV, non_invasive_ventilation, BIPAP or CPAP]. In total, 206 incidents were found and all were reviewed. In addition to the trigger incident, four reports were identified describing oxygen disconnections during non-invasive ventilation. Three of the patients involved have died.

Stakeholder engagement

The Patient Safety Alert was developed with advice from MHRA, the British Thoracic Society (BTS) and the NHS England Medical Specialties Patient Safety Expert Group (see www.england.nhs.uk/patientsafety/patient-safety-groups/ for membership details) who fully supported the publication of this alert.

Useful resources

[1]*COPD: Who cares?* National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Resources and organisation of care in acute NHS units in England and Wales 2014. National COPD Audit Programme, November 2014. Available at https://www.rcplondon.ac.uk/projects/national-copd-audit-programme-starting-2013

The use of NIV in the management of patients with COPD admitted to hospital with acute type II respiratory failure (2008). Joint British Thoracic Society/ Royal College of Physicians/ Intensive Care Society publication. Available at https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/non-invasive-ventilation-(niv)/

NIV in COPD: Management of acute type 2 respiratory failure: National guidelines. (Royal College of Physicians, 2008). Available at https://www.rcplondon.ac.uk/resources/concise-guidelines-non-invasive-ventilation-chronic-obstructive-pulmonary-disease

Publications Gateway Reference: 03024

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