

Introduction of an NIV Retrieval Service to a District General Hospital

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Background

Acute Non-Invasive Ventilation (NIV) is an effective treatment for Type II Respiratory Failure in patients with chronic obstructive pulmonary disease, neuromuscular deficits and obesity hypoventilation syndromes [1].

The NCEPOD report: Non-Invasive Ventilation – Inspiring Change [2], made a number of recommendations on acute management of patients who require non-invasive ventilation.

In 2017 the Royal Gwent Hospital, introduced an NIV retrieval service (NRS), Monday to Friday 09:00 – 17:00. The NRS team consists of a clinical fellow specialising in NIV, advanced nurse specialist and an intensive care unit (ICU) doctor.

Aim

The aim of the NRS was to facilitate efficient and optimal management of patients requiring NIV, in line with the NCEPOD report [2].

Method

Patients were identified from a ward based NIV database. We compared pre-pilot data collected in August – September 2017, to pilot data collected over a twelve month period following introduction of the NRS.

The pilot data was then divided into 'in hours' (Monday to Friday 09:00 – 17:00) and 'out of hours'.

Inclusion Criteria:

- Patients were included in the 'in hours' if they triggered the NRS
 - Patients were included in the pre-pilot and 'out of hours' if they were initiated acutely on NIV
- Patients admitted directly to ICU were not included.

Data was collected prospectively, including;

1. Time from need for NIV identified to commencing NIV or 'Gas to mask time'
2. Time to optimal place of care (OPC)
3. Time from need for NIV identified to a pH value ≥ 7.35

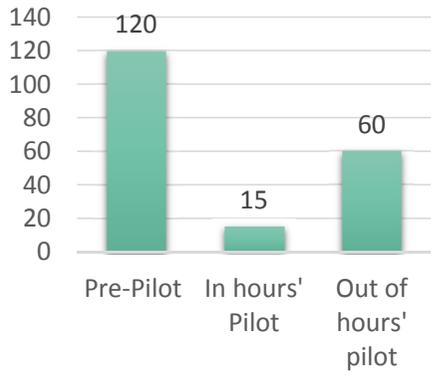
Results

15 patients were identified in the pre-pilot period and 119 in the pilot (49 'in hours', 70 'out of hours').

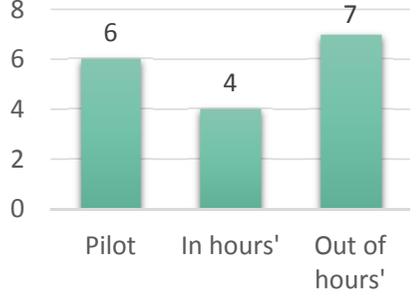
31% of patients in hours who triggered the NRS did not meet NIV criteria and were managed alternatively.

Median pre-pilot 'Gas to mask time' was 120 minutes. Pilot median time reduced to 15 minutes 'in hours' and 60 minutes 'out of hours'.

Graph 1: 'Gas to mask time' (minutes)



Graph 3: Time to normalised pH (hours)



Discussion

Patients reviewed by the NRS were commenced on NIV sooner, in line with the NCEPOD report recommendation, within one hour of the blood gas measurement that identified the need for NIV.

In addition patients reviewed by NRS reached their OPC sooner, which afforded them more specialised care in the most appropriate environment. This was reflected in a reduced median time to a pH value ≥ 7.35 .

The NRS has met with favorable feedback from the medical and emergency department teams. The majority of patients were initially managed in the resus bay of the emergency department. Improved time to OPC results in increased availability of resus beds.

References

1. Davidson et al. BTS/ICS, guideline for: ventilator management of acute hypercapnic respiratory failure in adults. Thorax 2016
2. Juniper M et al. NCEPOD – Non-Invasive Ventilation – inspiring change 2017.
3. Royal College of Physicians, British Thoracic Society, Intensive Care Society Chronic obstructive pulmonary disease: non-invasive ventilation with bi-phasic positive airways pressure in the management of patients with acute type 2 respiratory failure. Concise Guidance to Good Practice series, No 11. London RCP, 2008

