

■ *Letter to the Editor*

Time to Act: Set Up for Non-Invasive ventilation in Tertiary Care Hospital

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Dear Editor,

Non-invasive ventilation (NIV) is the method of providing ventilator support through the patient's upper airway using a mask or similar device. This technique is called noninvasive because it does not bypass the upper airway.¹ In recent years there has been a rapid growth in the use of NIV in the management of patients with acute and chronic ventilator failure. NIV is one of the most important developments in pulmonology over the past 15 years.² There is a strong evidence that NIV prevents endotracheal intubation (ETI) in patient with acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD), acute cardiogenic pulmonary oedema, in immunocompromised patient and in weaning from invasive mechanical ventilation. There is a weak evidence to support the use of NIV for patients with post operative or post extubation acute respiratory failure (ARF), patient with ARF due to asthma exacerbation, pneumonia, acute lung injury or acute respiratory distress syndrome, during bronchoscopy, or as a means of pre-oxygenation before ETI in critically ill patients with severe hypoxaemia.^{3,4}

In developing countries, chronic respiratory diseases represent a challenge to public health because of their frequency, severity, projected trends, and economic impact. In a country like Nepal where respiratory disease burden is high and intensive critical care unit (ICU) limited, NIV can play an instrumental role in saving lives of patients.⁵ British Thoracic Society guidelines clearly states facilities for NIV should be available 24 hours per day in all

hospitals likely to admit such patients with clear indication for NIV. NIV may be undertaken as a therapeutic trial with a view to ETI if it fails, or as the ceiling of treatment in patients who are not candidates for intubation.¹

NIV service can be provided in a number of locations including ward, high dependency unit (HDU), or an ICU. HDU is defined as clinical area staffed by appropriately trained nurses at a level higher than that of a general ward, usually one member of staff for every two patients (level 2 care). There have been no comparisons between outcomes from NIV in the ICU and on general ward and it is unlikely that there ever will be such a trial. So each hospital should have a specific designated area with an available number of staff with appropriate experience, together with structures to ensure that patients requiring NIV can be transferred to this area with the minimum of delay. With designated area, it will help to facilitate staff training and to maximize throughput and skill retention.⁶ A protocol should be developed regarding the indications for NIV and how to initiate treatment. When setting of an acute NIV service, it is recommended that NIV be initiated and run by nursing staff in coordination with on call medical staff. All staff in an acute NIV service should receive appropriate training to their baseline knowledge and role in providing the service. The use of NIV is the subject of regular audit. In addition to collection of data on patients receiving NIV details of number of patients admitted should be recorded along with the use of invasive ventilation in these patients.⁷

In summary, NIV has a number of advantages, probably the avoidance of tracheal intubation with its associated morbidity and mortality from ventilator associated pneumonia. As pressure on intensive care bed is often high in Nepal, NIV can be cost effective treatment for many patients who need ventilator care.

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