

## Noninvasive Ventilation (NIV) Utilization in an Academic Emergency Department (ED)

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**Background:** Noninvasive ventilation (NIV) is a valuable therapeutic modality for subjects presenting to the emergency department (ED) with acute respiratory failure due to chronic obstructive pulmonary disease or cardiogenic pulmonary edema. NIV is increasingly being used for acute respiratory failure caused by other disease entities. The purpose of this report is to analyze NIV utilization in our academic medical center ED.

**Methods:** Subjects were identified through an IRB approved electronic records search of patients who received NIV in the ED between January 1, 2010 and June 30, 2012. Data tracked included: NIV used as life support (defined as “respiratory compromise would occur if NIV is removed”), indication for NIV and endotracheal intubation (ETI) requirement. Subjects were grouped into six month intervals for analysis.

**Results:** Eight hundred and ninety-seven subjects (mean age 65 years) were included. There was a trend towards increasing use of NIV over the study period (in chronological order: 159, 173, 187, 172 and 206 patients receiving NIV for each 6 month interval). 77% of NIV usage was considered life support.

**Table 1**

|   | <b>Number</b> | <b>Life Support</b> | <b>Non-Life Support</b> | <b>Intubation (% non DNI)</b> |
|---|---------------|---------------------|-------------------------|-------------------------------|
| <b>All Patients</b>                             | 897           | 689 (77%)           | 208 (23%)               | 13%                           |
| <b>Accepted Indications</b>                     | 626 (70%)     | 446 (71%)           | 180 (29%)               | 12%                           |
| <i>COPD</i>                                     | 200 (22%)     | 145 (73%)           | 55 (27%)                | 12%                           |
| <i>CHF</i>                                      | 204 (23%)     | 158 (77%)           | 46 (23%)                | 8%                            |
| <i>COPD&amp;CHF</i>                             | 165 (18%)     | 124 (75%)           | 41 (25%)                | 13%                           |
| <i>Immunocompromised/Neuromuscular Weakness</i> | 8 (0.9%)      | 6 (75%)             | 2 (25%)                 | 67%                           |
| <i>Obstructive Sleep Apnea</i>                  | 49 (5.5%)     | 13 (27%)            | 36 (73%)                | 8%                            |
| <b>Other Indications</b>                        |               |                     |                         |                               |
| <i>Asthma</i>                                   | 44 (5 %)      | 43 (98%)            | 1 (2%)                  | 7%                            |
| <i>Other diseases</i>                           | 227 (25%)     | 200 (88%)           | 27 (12%)                | 15%                           |

**Conclusion:** The use of NIV in our ED increased during the time period evaluated. The majority of NIV use in the ED was considered life support. Interestingly, intubation rates were remarkably similar among patient groups.