Evaluation of a Novel Mask Adapter to Improve Patient Comfort and Provide Oral Care in Patients on Non-Invasive Ventilation

C. Reddy[1], M. L. Martinez[2], C. Nietodelriodeastis[3]; [1]Pulmonary and Critical Care Medicine, University of Utah Health Sciences Center, Satl Lake City, UT, United States, [2]KPC Promise Hospital, Salt Lake City, UT, United States, [3]Pulmonary and Critical Care Medicine, St. Marks Hospital, Satl Lake City, UT, United States.

Corresponding author's email: c.reddy@hci.utah.edu

Rationale: Oral care decreases the risk of healthcare-associated pneumonia (HCAP) and is the standard of care for mechanically ventilated patients. However, it is rarely performed in patients on non-invasive ventilation (NIV) because of the technical challenges of removing the mask and the tenuous respiratory status of the patients. For the patients, discomfort and mouth dryness are major concerns with NIV, which contribute to non-compliance. We aimed to test a novel, FDA-approved adapter that fits as an elbow on an NIV mask, and allows easy access to the oral cavity, while maintaining positive pressure. We evaluated its feasibility and utility in providing oral care and improving patient-experience. Methods: Patients requiring NIV support for more than 12 of the last 24 hours were identified. Patients with declining respiratory status as evidenced by an increasing FiO_2 and positive pressure support requirement, or as determined by the clinicians, were excluded. For patients who consented to the intervention, the adapter was fitted on the mask. Education was provided to the patients and the care providers on its proper use. Chart review was performed to assess compliance with the institution's oral care protocols in the 24 hours before and 48 hours after the intervention. A quantitative survey of the patients was performed immediately before and 24 to 48 hours after intervention using a Likert 5-point scale to assess satisfaction on NIV. A survey of the providers was performed immediately before and 24 to 48 hours after intervention using a Likert 5-point scale to assess the ease of use of the adapter. Results: Ten patients were tested on the new mask and these patients along with 22 care providers (nurses and respiratory therapists) were surveyed. Pre-intervention, none of the patients received any oral care. Post-intervention, 8 patients received oral care according to institutional protocol. For patient comfort, dry mouth and sense of being in control of their care, all patients reported an improvement with the new adapter (table 1). All the care providers reported that the adapter was easy to use (Mean score: 4.54; SD 0.50; Top box 54.5%). No patient-related complications, such as aspiration, were noted. Conclusion: In this feasibility study, the novel mask adapter provided easy access to the oral cavity and allowed for oral care in patients on NIV who were not otherwise receiving this care. It may improve patient comfort and autonomy; however, a larger sample size is needed to confirm this.

Table 1: Patient survey with Likert 5-point scale. 0=most negative; 5=most positive experience			
	Pre-intervention Mean score (SD)	Post-Intervention Mean score (SD)	
Comfort	2.7 (0.94)	4.3 (0.82)	
Dry mouth	1.9 (0.73)	4.3 (0.67)	
Sense of control	2 (0.66)	3.7 (0.67)	

This abstract is funded by: None