# A Utilization of Anchor Fast Oral Endotracheal Tube Fastener to Reduce the Incidence of Lip Ulcers

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### Introduction

Oral endotracheal intubation is a common clinical intervention in the critical care environment. Unfortunately, endotracheal intubation is not without complications, even when executed with expertise and diligently maintained. One of the complications of endotracheal intubation is the development of lip ulcerations secondary to maintaining a patent and secure airway. The development of lip ulcers has been identified as both a patient safety issue and an added financial burden. Another concern is the time requirement placed on the clinical team to apply and change tape or commercial tube fasteners.

1 Lyder CH, Ayello EA. Pressure ulcers: a patient safety issue. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. www.ahrq.gov/qual/nursehdbk/docs/lyderc\_pupsi.pdf. Accessed November 3, 2009.

# **Methods**

Anchor Fast Oral Endotracheal Tube Fastener (Hollister Incorporated, Libertyville, IL) was used instead of tape on sixteen patients during the months of August and September, 2008. Patients were adults with anticipated intubation of 24 hours or longer. In October, after the pilot evaluation, the product was made widely available in our hospital. The Respiratory Therapists decided when to use the Anchor Fast Tube Fastener, or traditional taping to secure the endotracheal (ET) tube. We tracked the incidence of Ventilator-Associated Pneumonia (VAP), lip ulcers, tape changes, and ventilator days on a monthly basis. Data from the months following adoption of the Anchor Fast Tube Fastener are shown in bold.

| $\rightarrow$ |
|---------------|
| (42)          |
| (8)           |
|               |

|                            | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|----------------------------|------|------|-------|-------|-----|------|------|------|-------|------|------|------|
| VAP                        | 0    | 0    | 0     | 0     | 0   | 0    | 0    | 0    | 0     | 0    | 0    | 0    |
| Lip Ulcer                  | 1    | 1    | 2     | 2     | 1   | 4    | 1    | 3    | 2     | 1    | 0    | 0    |
| Tape changes               | 34   | 41   | 77    | 49    | 71  | 52   | 71   | 76   | 75    | 57   | 40   | 38   |
| Vent Days                  | 186  | 158  | 183   | 212   | 202 | 175  | 158  | 162  | 205   | 189  | 109  | 177  |
| Inadvertent<br>Extubations | 0    | 1    | 1     | 1     | 1   | 0    | 2    | 0    | 1     | 1    | 0    | 0    |

Figure 1 2008 Data

# **Traditional Methods of ET Tube Securement**

- Cloth tape
- Velcro tube holder
- Other commercial tube holders

# **Problems Associated with Taped ET Tubes**

- · Lip and skin breakdown
- Low compliance with moving the ET tube (Q4 hours)
- · Poor visualization of skin integrity under the tape



Figure 2 Lip pressure ulcers associated with use of tape.



Figure 3 Anchor Fast Oral Endotracheal Tube Fastener





# **Key Improvement Steps**

- · Development of Safety Committee
- · Chart reviews to record baseline data
- Instituted electronic documentation
- Evaluation and implementation of new product:
  - Anchor Fast Oral Endotracheal Tube Fastener

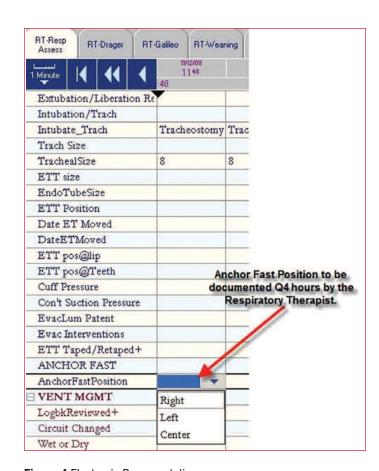


Figure 4 Electronic Documentation

### Results

After institution of the new product, clinicians noted an apparent reduction in the occurrence of lip ulcers in the assigned patient population. Incidence of VAP and ventilator days remained unchanged. We also noted a reduction in tape changes implying a possible time savings for clinicians. There was no increase in inadvertent or accidental extubations. The advantages of this product change included:

- Observed reduction in lip ulcers
- Enhanced ability to move the ET tube
- Same stability as tape.

### Conclusion

Based on our clinical evaluation, the Anchor Fast Oral Endotracheal Tube Fastener may offer advantages over tape when securing an oral ET tube. We observed a reduction in lip ulcers with no increase in extubation or VAP. With proper product application and adherence to institutional policy for moving the ET Tube, the product may help reduce clinician time needed to re-adjust or re-apply ET tube holders or tape.

### Recommendations

We plan to implement use of this device at our main hospital campus, then track outcomes over a longer time frame on this larger sample. Future studies should be conducted with larger sample sizes.







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