

MONITORING NASOGASTRIC TUBE (NGT) DISPLACEMENT USING CHEST X-RAY (CXR) REQUESTS: INFLUENCE OF TUBE FIXATION.

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Introduction

- Unplanned removal of NGTs is common and associated with multiple complications [1]. Methods used to secure these tubes may influence removal rates [2].
- Following national guidance [3], we confirmed all NG tube placement by CXR.
- We used the text of CXR requests to estimate the rates of NGT placement and to see how these were influenced by changing how NGTs were secured.
- We also used similar methodology to review changes to CXR requests mentioning central lines (CVCs) and endotracheal tubes (ETT).

Objective

- To see how the numbers of CXR requests for NGT placement were influenced by changing the method used to secure these tubes

Methods

- In a 40 bedded mixed general and neurosurgical unit, in November 2019 we changed the method to secure NGTs from Hollister feeding tube attachment devices (Hollister, IL, USA) to handcrafted slings made from Micropore (3M, MN, USA) 1.25cm Surgical Tape4 (Figure 1).
- The text of CXR requests between October 2017 and July 2021 were analysed using “search” and “find” functions in “Excel” for text associated with NGTs, central lines (CVCs) and endotracheal tubes (ETTs).
- The number of bed days was calculated for each month from October 2017 and CXR rates per 100 bed days were calculated.
- Mann-Whitney U tests were used to establish if CXR rates changed significantly after November 2019 and after admitting patients with Covid-19 in March 2020.
- Distributions are shown as medians with [IQR].



Figure 1. NG tube secured with nasal sling (method described in reference 4).

Results

- There were 15239 CXRs, a median of 330 [IQR 303-357] CXRs requested a month.
- The fraction mentioning each device was: ETT: 8%, CVC: 13%, NGT: 38% (18% of these also mentioning another device).
- The rates per 100 patient days per month for each device were:
 - For NGTs pre-Nov 2019: 15.9 [15.0-16.4], post-Nov 2019 11.6 [10.1-12.7] ($p < 0.001$). Nov 2019 to February 2020: 12.0 [8.0-13.3], vs Pre Nov 2019 ($p = 0.008$).
 - For CVCs pre-March 2020: 4.1 [3.6-4.6], post March 2020: 5.2 [4.6-5.9] ($p < 0.001$).
 - For ETTs pre-March 2020: 2.8 [2.0-3.3], post March 2020: 3.1 [2.4-3.7].
- Changes in monthly rates are shown in the run chart (Figure 2).

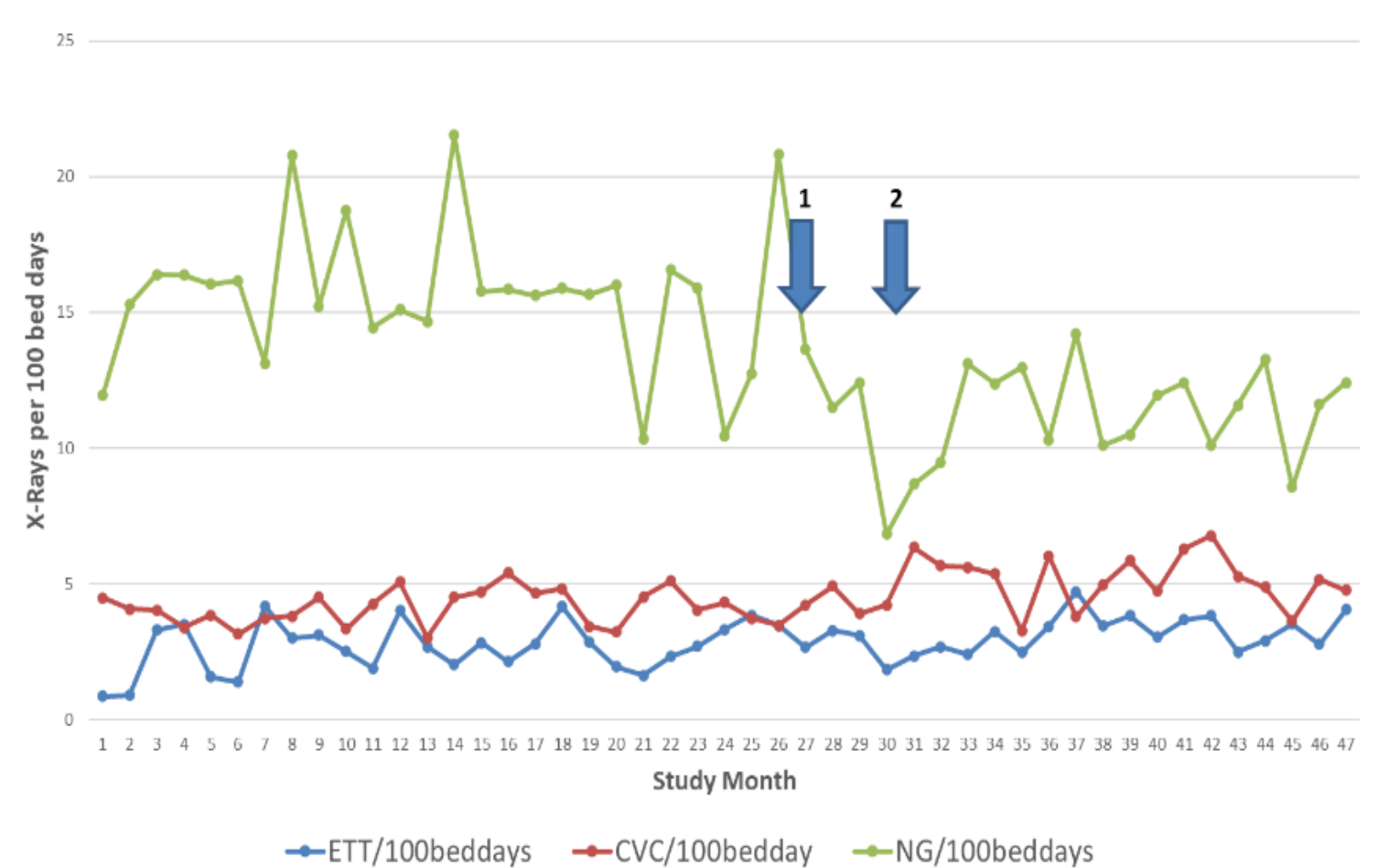


Figure 2. Numbers of X-Rays each study month per 100 bed days for each device. Arrows show: 1. Change to Hammock Dressings to secure NG tubes (November 2019) and 2. The start of the COVID-19 pandemic (March 2020)

Conclusions

- Changing the method of securing NGTs resulted in a reduction of CXR requests mentioning NGTs, and reviewing CXR requests can be used to monitor NGT displacements.
- The rate of CVC requests increased following March 2020, this may have reflected changes in patients' dependency following the Covid-19 pandemic.

References

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4. S.Brown, Hannah Sapir: The Hammock method of NG fixation. <https://www.youtube.com/watch?v=sXB-IEPTV44> (2019, accessed 16th August 2021)