

00053 **Is NEX Good Enough? Exploring the Adequacy of Different Measurement Methods to Determine Nasogastric Tube Insertion Lengths**

Fan Peijin Esther Monica, Tan Siok Bee, Farah Gillan Irani, Ang Shin Yuh

Singapore General Hospital

Aims: This study aimed to evaluate four available formulae in the literature and Nose - Earlobe - Xiphisternum (NEX) in determining the internal length of the NGTs for optimal positioning.

Methodology: This was an observational study. Upon insertion of NGT, its external length was measured and corresponding internal lengths were calculated. Several anatomical measurements were also taken as required in the four formulae.

The formulae were:

1. $(NEX \div 2) + 25\text{cm}$
2. $29.38 + 4.53 * \text{gender} + 0.34 * \text{NUF} - 0.06 * \text{weight}$ (gender = 1 for male, and 0 for female; NUF= Noseumbilicus with head flat on bed)
3. $XEN + 10\text{cm}$ (XEN=Xiphisternum - earlobe - nose)
4. $EXU - NE$ (EXU=Earlobe - xiphisternum - umbilicus, NE= Nose - earlobe)

Chest x - rays of patients were examined to evaluate the actual position of the tube. Optimal position was defined as the tip of NGT, being in the middle or lower third of the stomach without any upward bending.

Result: A hundred and six patients were recruited. Data from 92 patients were available for analysis. The average age of the participants is 62.9 years old and 54% were male.

Twenty five (27.1%) had the tube in the optimal position; 13 (14.1%) had it too short (tip of NGT at upper one third of the stomach or at the gastroesophageal junction); and 54 (58.7%) had it too long (tip of NGT inserted into the duodenum, upward bending or coiling of the tube or tip below the hemidiaphragm but not seen in the CXR).

For patients who had their tubes in the optimal position, the formula $XEN + 10$ provided the best estimate of the internal length of NGT (ie the least difference with the actual internal length)(Mean difference= - 1.83, 95% range= - 22 to 14).

Conclusion: $XEN + 10$ was best at predicting the internal length of NGT required to be at the optimal position.