TRACHEAL TUBE LENGTH AND TIP POSITION IN VENTILATED PATIENTS AT SKMCH&RC ICU LAHORE: AN AUDIT

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BACKGROUND

According to a study,* oncological patients account for 15% of all the admissions to the Intensive care unit (ICU).

In ICU patients, endotracheal tubes (ETTs)may not always be inserted to the correct depth. This audit aims to ensure accurate mid-tracheal placement for the effective ventilation.

Proper positioning is crucial, as a misplaced tube can shift with head movement; entering a bronchus during head flexion or tube dislodgement/accidental extubation may occur during head extension, potentially causing serious complications.

Critically ill patients with cancer: A clinical perspective
https://pmc.ncbi.nlm.nih.gov/articles/PMC7643188/

AIM OF THE STUDY

To compare our ETT placement practices in the ICU patients on ventilation with The Royal College of Anesthetists (RCOA) standards given below:

- The ETT should be inserted to 23 cm in males and 21 cm in females, measured from the upper front teeth, in all the patients.
- Lung sounds should be checked with stethoscope on both sides after the intubation in all patients.
- Chest movement on both sides should be visually confirmed after intubation in all patients.
- A chest X-ray with a 45° head-up tilt should confirm that the ETT tip is lying midway between the vocal cords and carina in all patients.
- ETT depth (from the upper front teeth) should be recorded every nursing shift in all the patients.

TARGET

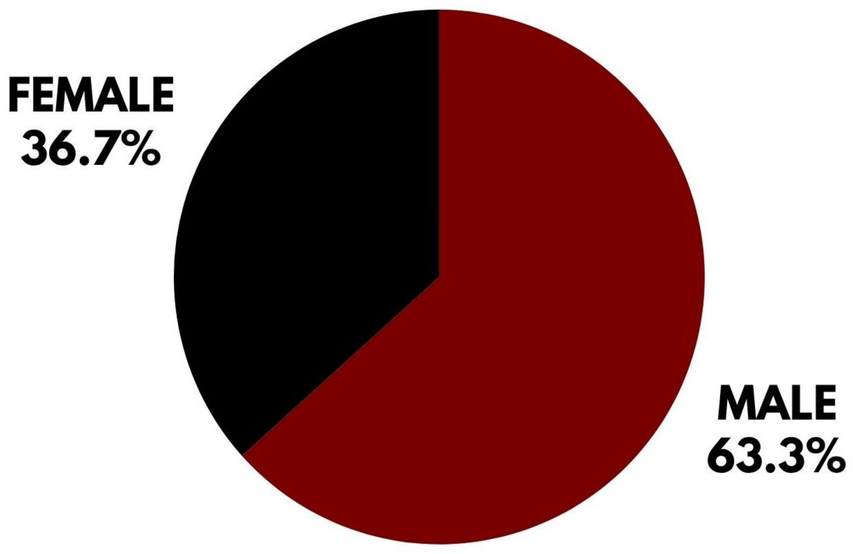
100% compliance with RCOA standards

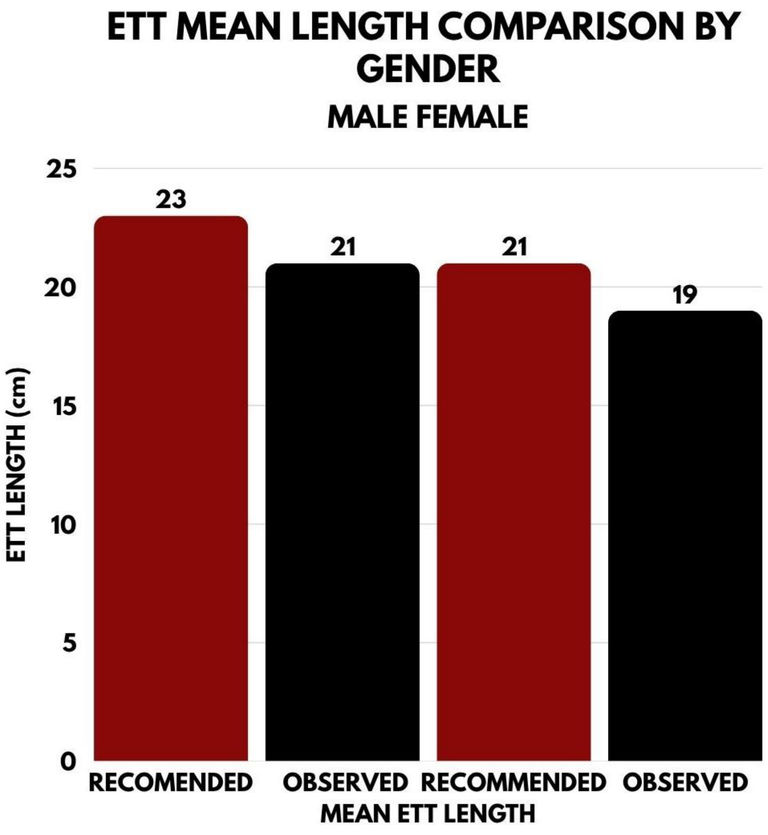
METHODOLOGY

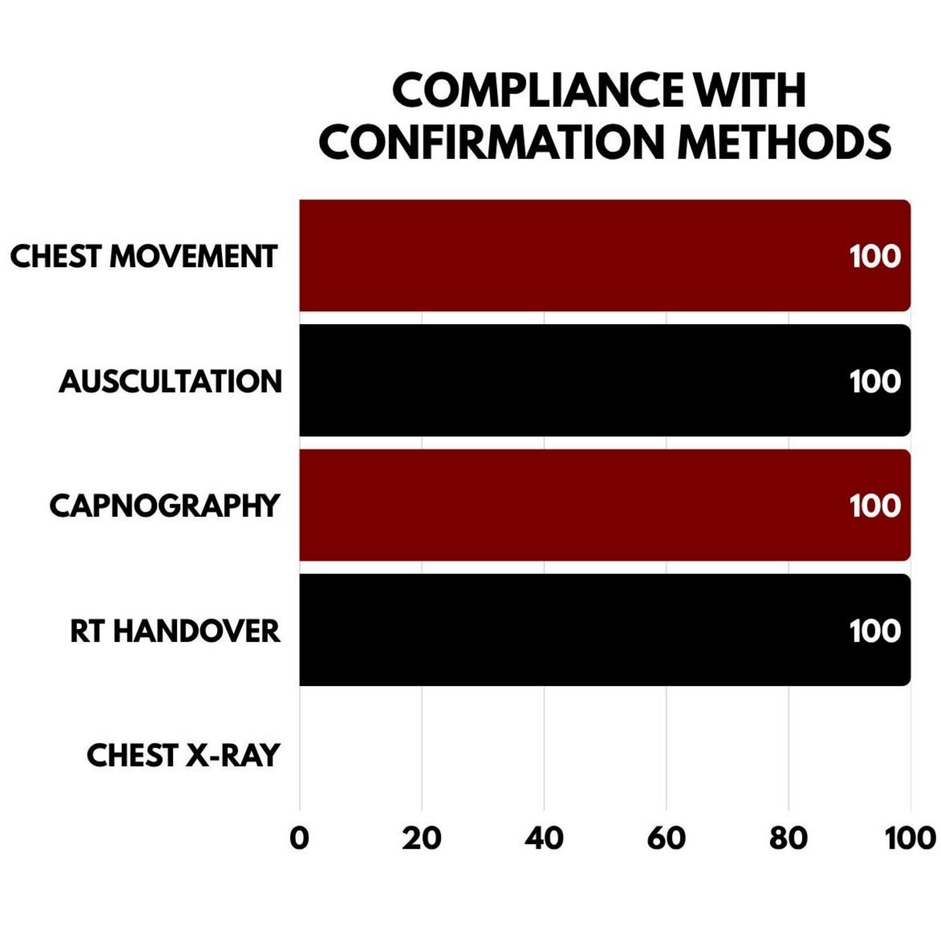
- Data was collected prospectively from 30 adult ICU patients over a 3-month period (Feb 1 – Apr 30, 2025).
- ETT length at the upper incisors was recorded through direct bedside observation.
- Additional data on the tube placement confirmation(chest movement ,auscultation ,capnography, chest X-ray and RT handover) was obtained from the hospital information system (HIS).

RESULTS

- Among the 30 intubated ICU patients studied, 11 (37%) were female and 19(63%) were male.
- In 91% of the female patients, the ETT length at the upper incisors deviated from the recommended 21 cm, with a mean of 19 cm. In all male patients, the ETT length differed from the recommended 23 cm, with a mean of 21 cm.
- In every case (100%), ETT placement was confirmed by the intubating physician using chest movement observation, auscultation, and capnography.
- A chest X-ray in the supine position was performed for all patients.
- ETT length was consistently documented during each respiratory therapist' handover.







RECOMMENDATIONS

1-Conduct teaching sessions for ICU staff to ensure that all ICU chest X-rays for ETT confirmation are done with a 45° head-up tilt, as this position improves visualization of the tracheal anatomy and accurate tube tip localization.

2-Schedule periodic training sessions and audits for ICU staff to reinforce correct ETT placement techniques and documentation practices.