



A Picture is Worth 1000 Words: Perils of Incomplete Medical Records in Airway Management



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Introduction

Health Information Exchange Platforms

- *Goal:* Envisioned as a complete, centralized data hub that enables instantaneous access to comprehensive medical information across multiple locations. Theoretically, this can provide more information for physician decision making, improve continuity of care, and reduce errors.
- *Challenges*
 - Data interoperability - systems differ in data format, causing incomplete records, which is especially impactful in cases of missing imaging or procedural notes.
 - *Legal and privacy concerns*- HIEs must comply with privacy and consent laws, often limiting access to patient records or delaying their timely uploads. Variations in institutional participation and data-sharing agreements further exacerbate these limitations.

Anesthesia for Base of Tongue Masses

- *Location, location, location:* Geographical location can pose significant risk of airway obstruction depending on the proximity to the epiglottis or glottic inlet. Airway management can become challenging as even minute shifts or swelling can obstruct airflow. Detailed imaging is crucial in evaluating the size, extent, and exact location of masses to inform intubation approach.
- *General Anesthesia vs Awake Tracheostomy:* large and distal masses increase the possibility of airway obstruction. In these instances, awake tracheostomy or fiberoptic intubation under local anesthesia may be safer than induction with general anesthesia in minimizing induction risks.

Case Description

- A **57 year old male** with history of obesity, hyperlipidemia, and osteoarthritis presented with 3 months of **dysphagia** and a **right base of tongue mass** to undergo direct laryngoscopy with biopsies.
- Pre-operative imaging was obtained at a partner facility and was theoretically available via Care Everywhere. Though the imaging report was available, no images could be accessed pre-operatively.
- After discussion with the surgeon, taking the preoperative exam, imaging report, and notes describing the mass into account, initial intubation was attempted by the resident physician utilizing a CMAC and metal D-blade.
- The mass was more distal than indicated and included the epiglottis. Due to friability, the view was quickly limited by bleeding and an endotracheal tube was not placed.
- Multiple attempts were made by both the anesthesiologist and the otolaryngologist- endotracheal intubation was eventually achieved.
- Resection of the mass was completed, and an unplanned intraoperative tracheostomy was performed under general anesthesia. The endotracheal tube was removed, and the patient emerged without further complications. The patient was taken to the post anesthesia care unit for recovery.

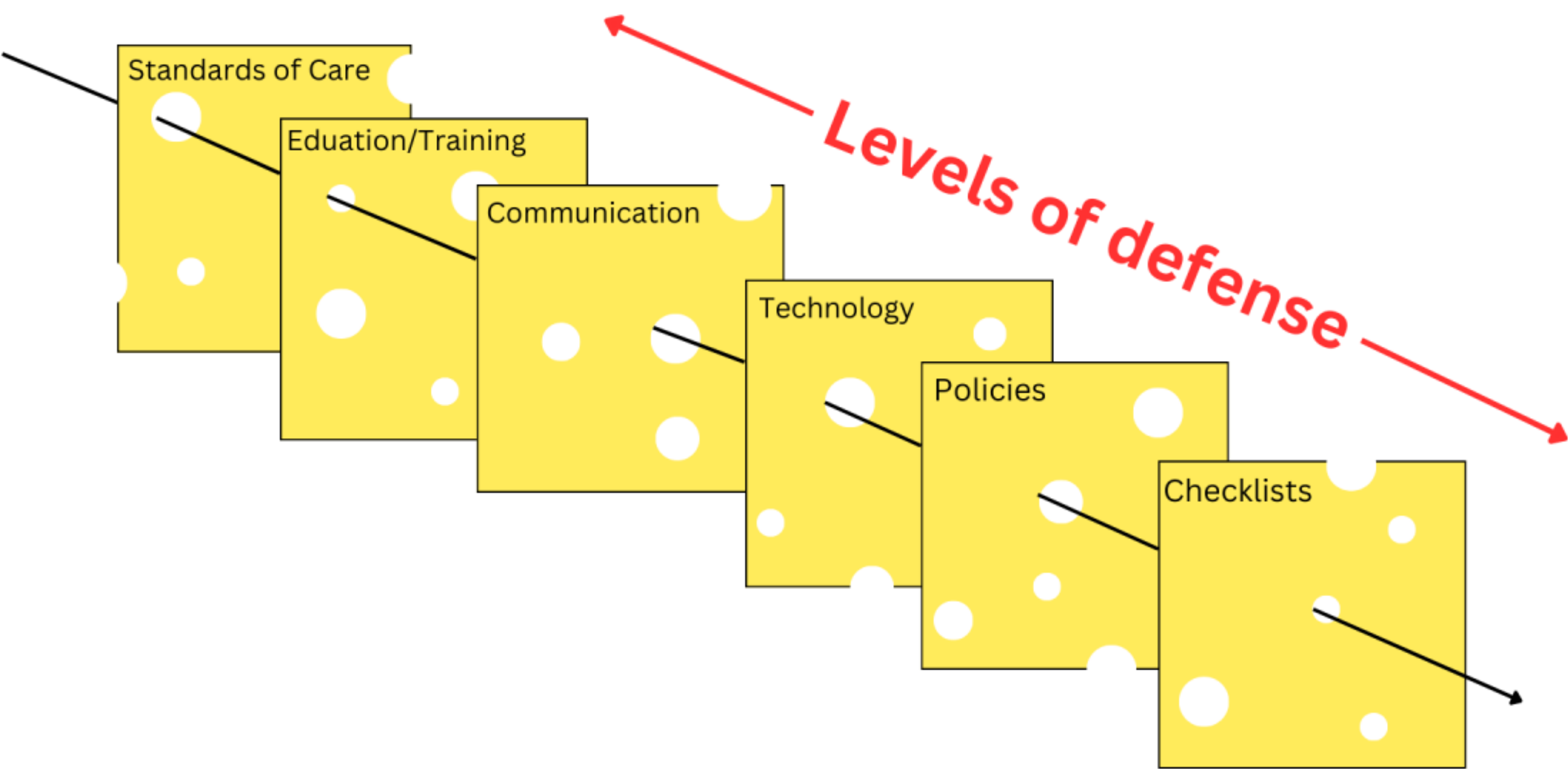
Pre-Operative Assessment

Airway:

- Mallampati: III
- TM distance: > 3 FB
- Neck range of motion: limited
- No pre-existing airway in place
- Dental implants

ASA Class III

- METS >4
- No history of previous anesthesia complications, hyperthermia, or postoperative nausea and vomiting



Swiss Cheese Model

Discussion

Intent Versus Impact

- Care Everywhere and other HIEs are designed to facilitate enhanced access to the comprehensive information, aiming to support more informed clinical decision-making. However, limitations within these platforms create significant gaps in crucial information.
- Missing or incomplete records can lead to suboptimal care and increased risk of adverse events, posing both safety and liability concerns for anesthesiologists.
- In this case, a poorly representative imaging report impacted decision calculus regarding intubation approach.
- On physical exam, the patient lacked hoarseness, stridor, or other warning signs that the mass was more distal than the tongue base or that it involved the epiglottis.

Quality Improvement Projects:

This case highlights an opportunity to establish standardized protocols across facilities. There are several areas that a QI project could focus on.

- **Standardizing imaging availability:** Agreements can require full imaging data, not just reports, to be uploaded and accessible via HIE's, especially for any case requiring intubation.
- **Creating minimum information requirements:** define essential data elements for specific cases and require records like prior anesthesia assessments, full imaging, and allergy history be accessible and up-to-date
- **Improving interoperability:** Advocate for increased interoperability through co-created standardized templates between facilities so that data formatting does not result in missing records. These could be national data standards that improve flow between platforms.
- **Role of Machine learning (ML) or artificial intelligence(AI):** ML or AI can be integrated within HIEs to automatically perform data completeness checks days prior to scheduled procedures, especially for high-risk procedures. This could identify missing information such as imaging data or lab results and generate notices within the EMR, giving teams enough notice to obtain missing records from external facilities as needed. This could proactively address information gaps, improve procedural preparation, and enhance patient safety.

References

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