Optimising Airway Safety in Obstetrics: A Five-Year Quality Improvement Project Using First-Line Video-Laryngoscopy in Over 1,000 Patients

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Background

General anaesthesia (GA) in obstetric patients has higher rates of difficulty than the general population. Recent estimates for difficult intubation vary between 1 in 19 to 1 in 49 and failed intubation rates between 1 in 180 to 1 in 808.

Video-laryngoscopy has been shown to have many benefits;
- reduces trauma
- improves glottic view
- Improves first-attempt success [1].

Our hospital is a tertiary centre with an average of 6000 deliveries per year. We adopted the McGrath MAC video-laryngoscope (MMVL) as the first-line intubation device for obstetric GA's in November 2020, embedded within a standardised intubation checklist .

Updated 2025 Difficult Airway Society guidelines now recommend video-laryngoscopy first-line for all airway management [2].

Methodology

Prospective QI dataset (Dec 2020–Nov 2025): All obstetric general anaesthetics included (Caldicott-approved)

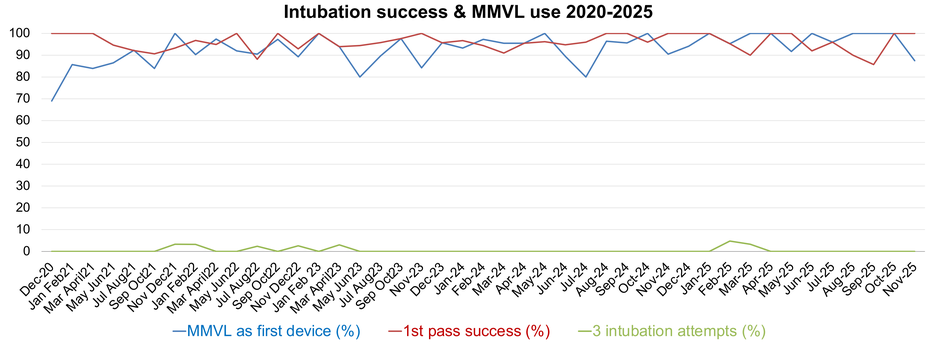
Data captured: Intubator grade, number of intubation attempts, laryngoscope type, urgency (elective/emergency), timing (in/out of hours), BMI, and airway adjunct use

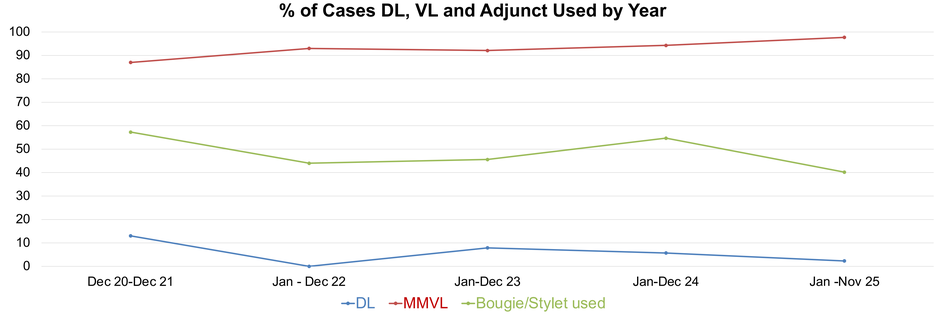
QI interventions: Introduction of a structured intubation checklist mandating MMVL as first-line device, alongside ongoing multidisciplinary education for anaesthetists and ODP staff

Results

Data was captured for 1200 of 1,399 GA's performed (85.8%).

Case mix: 95% emergencies; 62% out-of-hours
Patient factors: 25.6% BMI >30
Operator profile: Residents performed 80% of intubations
MMVL practice change: MMVL use rose significantly from 87% (2021/22) to 97.7% (2025), 92.8% overall (p<0.01)
First-pass success: 95.6% (1,148 cases)
Repeat attempts: 3.0% second attempt; 0.5% third attempt
Failed intubation: 0.41% (n=5), all successfully managed with supraglottic airway devices
Adjunct use: Bougie/stylet used in 48.3% of intubations





Conclusion

The introduction of first-line video-laryngoscopy within a structured quality improvement programme led to a statistically significant increase in use over time and was associated with consistently high first-pass intubation success rates.

Along with regular multidisciplinary training, these interventions have improved the safety of airway management in this high-risk population.

References:
[1] Priya D, Nico Z. Difficult and failed intubation in obstetric anaesthesia. Anaesth Intensive Care Med. 2025;26(6):295–303.
[2] Ahmad I, El-Boghdadly K, Iliff H et al. Difficult Airway Society 2025 guidelines for management of unanticipated difficult tracheal intubation in adults. Br J Anaesth. 2025;136(1):283–307.