How should clinical outcomes factor into purchasing decisions about Macintosh-style laryngoscopes?

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Objective
• Intubation with a Macintosh blade is a routine procedure in perioperative care and evidence demonstrates that video laryngoscopy (VL) improves intubation success versus direct laryngoscopy (DL).¹
• We wish to understand the type of health-economic analysis required to inform purchasing decisions between the two common VL devices, C-MAC* and McGrath MAC*.

Methodology
• We reviewed the studies included in a 2022 Cochrane review comparing VL versus DL.¹
• Only studies that compared McGrath MAC* VL or C-MAC* VL with Macintosh* DL in perioperative care were selected.
• Outcomes assessed were:
  • First-pass success
  • Failed intubation
  • Esophageal intubation
• Meta-analyses were performed using RevMan 5.4.
• Failed and esophageal intubations as rare events were assessed using the Peto odds ratio (OR).
• The risk ratio (RR) was used for first-pass success.
• The Metafor R package for comparing estimates of independent meta-analyses was used to assess whether the outcomes for McGrath MAC* and C-MAC* were statistically different.

Results
• First-pass success was significantly improved using either VL in comparison to DL:
  • McGrath MAC*: RR 1.07 [1.01, 1.15]
  • C-MAC*: RR 1.04 [1.00, 1.09]
• Failed intubations were significantly decreased:
  • McGrath MAC*: OR 0.33 [0.12, 0.92]
  • C-MAC*: OR 0.37 [0.18, 0.77]
• There was no significant difference between meta-analyses for McGrath MAC* and C-MAC* for both outcomes.
• A non-significant reduction for esophageal intubation was identified for McGrath MAC* with OR 0.23 [0.04, 1.15], however, no overall effect could be estimated for C-MAC*.

Conclusions
• No difference in clinical efficacy was determined between McGrath MAC* and C-MAC* although their superiority to DL was confirmed.
• A cost-minimization analysis is likely sufficient to inform purchasing decisions.
• The purchase cost could present a key factor when choosing a device without compromising patient safety.

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References

Figure 1 Evaluation of clinical outcomes for Macintosh* DL compared to McGrath MAC* VL and C-MAC* VL respectively.