Disposable Laryngoscope Blades and Reusable Handles: What Combination Maximizes Light Intensity?

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Although all disposable blades delivered more than 500 lux with any handle, a reusable blade was best.

Disposable laryngoscope blades increasingly are used because of infection concerns and convenience. Clinical studies of light intensity through disposable blades have offered conflicting results and are difficult to compare because they used different methods to measure light output.

Researchers measured light delivered by nine models of disposable adult-sized plastic and metal laryngoscope blades paired with each of three standard, reusable laryngoscope handles (Vital Signs LED, Heine 2.5 V Xenon, and 3.5 V Xenon), using a custom-built chamber to measure light intensity directly from the handle source and the tip of each blade. With each handle, five new disposable blades of each type were compared to a Heine reusable stainless steel blade. The reusable blade outperformed all disposable blades, but all disposable blades met the minimum recommended standard light intensity of 500 lux when tested with any handle (range, 790 lux to 3846 lux). The overall light output was significantly higher with plastic than metal disposable blades, and with the 3.5 V Heine handle than other handle types.

**Comment:** Direct laryngoscopy relies on illumination of the glottic structures, and the reusable blade clearly delivered more light than its disposable counterparts. While this benchtop study has limited application to clinical practice, clinical studies also have demonstrated superior intubation success with reusable metal blades compared with disposable blades (NEJM JW Emerg Med Oct 12 2007; NEJM JW Emerg Med Feb 14 2006). This study provides one possible explanation by suggesting that light output (and thus, possibly visualization) is inferior with disposable blades. For those who cling to direct laryngoscopy despite compelling evidence supporting the superiority of video laryngoscopes, reusable blades are associated with a higher rate of success.

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