

In summary, we found the universal introduction of single-use LMs in hospitals in England over the past 4 years but they have far from replaced reusable LMs. The majority of hospitals still routinely use reusable devices and, in some, single-use LMs as well as reusable LMs are employed. These confusing observations might represent a gradual transition to the routine use of single-use LMs in all hospitals. However, many departments justified reusable devices on cost and anaesthetists' preference despite conflicting recommendations by relevant government and professional bodies. We noted wide variation in purchasing single-use LM brands and in behaviour selecting these brands. We are uncertain of the quality of assessments of single-use LMs revealed by the survey. We would exercise great caution in interpreting these data and extrapolating measures of satisfaction from them. Some departments reported evaluations of only one brand before proceeding with purchasing. The apparently successful results of such a 'trial' may indicate the adequacy of a device, not excellence. We would be interested in similar data from other countries.

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## Videolaryngoscopy – an answer to difficult laryngoscopy?

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### EDITOR:

We would like to report the findings of a series of 57 difficult laryngoscopies in which videolaryngoscopy was shown to significantly improve the glottic view, enabling successful intubation.

Videolaryngoscopy has previously been compared with direct laryngoscopy and shown to have potential advantages in the glottic view obtained [1,2]. Videolaryngoscopes have an intense light source and a fibre-optic camera built into a range of blades. The blade is inserted in the same way as in conventional laryngoscopy but the view is observed on a screen rather than directly. Fibre-optics relay the image from beyond the curvature towards the tip of the blade. This, combined with the image being magnified on the screen, is largely the reason for the improved view of the glottis. External manipulation of the larynx by an assistant viewing the image on the

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screen can enable further improvement. Viewing the endotracheal tube passing through the cords allows immediate and direct confirmation of successful intubation. At our institution, we routinely use videolaryngoscopy (X-lite, Rusch, Germany) in cases of anticipated or unexpected difficult laryngoscopy and anecdotally it appeared to improve the glottic view. We set out to see whether this was actually the case, by comparing the direct glottic view with video laryngoscopy when we were faced with difficult laryngoscopies (Grade III/IV Cormack and Lehane (CL) views [3]).

Over a 6-month period, 57 patients with CL Grade III or IV at direct laryngoscopy were subsequently intubated using videolaryngoscopy. In each case, a consultant anaesthetist confirmed that the view at direct laryngoscopy was Grade III or IV and then the view was assessed at videolaryngoscopy (prior to intubation), which was performed either by themselves or by another anaesthetist. The patients were from a cross-section of surgical specialties – 61% ENT, 19% general surgery, 11% maxillofacial and 9% orthopaedic. The procedures being undertaken were elective in

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Table 1. Change in glottic view, grade of anaesthetist and prior experience of using videolaryngoscopy.

	View at standard laryngoscopy		All patients
	CL Grade III	CL Grade IV	
CL improvement with VL (mean $\pm$ SD)*	1.8 $\pm$ 0.4	2.6 $\pm$ 0.7	2.1 $\pm$ 0.6
Seniority of intubating anaesthetist using VL (Consultant, SpR/Staff Grade, SHO)	19, 13, 5	12, 6, 2	31, 19, 7
Prior use of VL (0, 1–3, $\geq$ 4)	7, 12, 18	1, 8, 11	8, 20, 29

CL: Cormack and Lehane view; VL: videolaryngoscopy.

\*Improvement in intubation view  $P < 0.0001$ .

the majority (84%) of cases, 11% were urgent and 5% were emergency. Their ages ranged from 18 to 84 yr, 60% were male. The factors contributing to difficult laryngoscopy included neck or airway haematoma/tumour, limited mouth opening, previous radiotherapy to the neck/airway, fixed cervical spine and anatomical variation such as underbite or morbid obesity.

Intubation was successful in all 57 patients. In the majority of patients, the direct laryngoscopy view was changed to Grade I by videolaryngoscopy – this was the case in 78% of the Grade III group and in 65% of the Grade IV group. For all patients there was a statistically significant improvement in CL grade using videolaryngoscopy compared with direct laryngoscopy ( $P < 0.001$ ). The mean improvement in CL view with videolaryngoscopy was 1.8 in the Grade III group and 2.6 in the Grade IV group (see Table 1). A gum elastic bougie was used in 18 out of 57 cases. In 8 cases, videolaryngoscopy was performed by anaesthetists with no prior experience of videolaryngoscopy. In 20 cases, the intubating anaesthetist had used videolaryngoscopy 3 or fewer times before. The seniority of the anaesthetist performing videolaryngoscopy was a Consultant in 31 cases, a Specialist Registrar/Staff Grade in 19 cases and a Senior House Officer in 7 cases. The improvement in CL grade with videolaryngoscopy was independent of both the seniority of the intubating anaesthetist and their prior use of videolaryngoscopy. Two of the Grade IV group trainees who had used videolaryngoscopy only once or twice before were able to successfully intubate the patient.

There have been a number of studies regarding the use of videolaryngoscopy in predicted difficult laryngoscopies [2,4–6]. To date, these have involved only limited numbers of patients who often proved to have better laryngoscopic views than predicted from preoperative airway evaluation. Also, they have tended to involve anaesthetists with considerable prior experience in anaesthesia and/or videolaryngoscopy. In 57 cases, our observations of the improved glottic view with videolaryngoscopy were of actual difficult direct laryngoscopy and involved anaesthetists of different grades of

seniority with varying levels of prior experience with videolaryngoscopy.

We believe that videolaryngoscopy is an easily learnt technique, which should be considered for the management of difficult laryngoscopies by all grades of anaesthetists. We propose that it should be available as an alternative to the conventional strategies such as the intubating laryngeal mask airway or fibre-optic intubation, which requires considerably more training and expertise. There is increasing concern over the adequacy and competency of airway training, possibly as a result of reduced training time and the increased use of supraglottic airways [7]. A device that provides a straightforward way of dealing with difficult laryngoscopies could help prevent the serious sequelae of a failed intubation.

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