haemodynamic changes seem reliable and as this ABF echo-Doppler device is greatly cheaper and easier to handle than a TEE device, we believe that this method of non-invasive continuous ABF measurement could be valuable for infants (and for adults) during anaesthesia in most general hospitals.

P.-Y. Gueugniaud MD

R. Muchada MD

Department of Anaesthesiology

Edouard Herriot Hospital and Claude Bernard

University

Lyon, France

REFERENCE

- 1 Gueugniaud P-Y, Muchada R, Moussa M, Haro D, Petit P. Continuous oesophageal aortic blood flow echo-Doppler measurement during general anaesthesia in infants. *Can J Anaesth* 1997; 44: 745-50.

Modifications to the Bullard laryngoscope; when time is short

To the Editor:

A number of modifications to the Bullard laryngoscope (BL) have been previously described which improved ease of use.¹ As a result of reducing the terminal angulation of the dedicated intubating stylet (to 15°), the ETT is positioned more centrally in the glottis and rarely is the right arytenoid cartilage an obstruction to tube passage as has been previously reported. An oxygen tubing is attached to the luer lock of the BL suction port using a double male Luer-lok adapter (Figure 1). Continuous oxygen insufflation through the port (6-10 L·min⁻¹ flow) preserves patient oxygen saturation and both maintains the viewing aperture clear of secretions and clears fogging of the scope.

Further modifications have now been made and subsequent experience has been sufficiently positive to warrant mention. To adapt the BL for use with fiberoptic direct laryngoscope handles, the centre of the bulbrigg which holds the lightbulb when the BL is used with a standard handle light source was drilled out, removing the thread and increasing the ring opening from 3 mm to 5 mm in diameter. Using a stainless steel fiberoptic handle (Lynx © Rusch Inc.), the illumination provided is more than adequate for direct endoscopy but is not sufficient for operative video cameras. The weight of this configuration (643 g) can be further reduced to 484 gm with the use of a fiberoptic penlight handle (Figure 2). Illumination with the penlight source is decreased compared to the full-sized battery handle but has been ade-

FIGURE 1 Oxygen tubing secured to BL with Luer-lok connection.

FIGURE 2 The BL configured with a fiberoptic penlight handle, oxygen tubing and an ETT mounted on the dedicated stylet.

quate during clinical applications. The obvious advantage of this configuration is that set-up is virtually instantaneous in urgent situations.

I hope that the suggestions offered are found to be useful by those readers now gaining experience with the Bullard laryngoscope.

Edward T. Crosby MD FRCPC
Department of Anaesthesia
Ottawa General Hospital
501 Smyth Road, Ottawa, Ontario, Canada K1H 8L6

REFERENCE

- 1 Crosby ET. Techniques using the Bullard laryngoscope (Letter). *Anesth Analg* 1995; 81: 1314-5.

A modified Williams airway intubator to assist fiberoptic intubation

To the Editor:

The Williams airway intubator¹ is found by many authors to be the preferred conduit to facilitate fiberoptic tracheal intubation.^{2,3} Because it was originally designed to assist blind orotracheal intubation, it offers easy access for the fiberoptic scope to pass through the glottis into the trachea while the endotracheal tube can be threaded through its circular lumen. However, to remove the Intubator after successful intubation is cumbersome: it can be extracted only through the proximal end of the endotracheal tube with the connector detached. To overcome this difficulty, I have modified the intubator by cutting a 7 mm wide slot in its anterior wall (see Figure below). With this slot, the fiberoptic scope can be eased out of the intubator once it is in position before the

endotracheal tube is advanced into the trachea. Before settling on this modification, I have also considered the option of a side slot. During awake fiberoptic intubation, the intubator also functions as a bite block and structural integrity in the anteroposterior dimension is important. A side slot will compromise this integrity.

David C. Chung MD FRCA FRCPC FHKCA
Department of Anaesthesia & Intensive Care
Prince of Wales Hospital
Shatin, Hong Kong, China

REFERENCES

- 1 Williams RT, Maltby JR. Airway intubator (Letter). *Anesth Analg* 1982; 61: 309.
- 2 Palazzo MGA, Soltice NJ. A new aid to fiberoptic bronchoscopy (Letter). *Anaesth Intensive Care* 1983; 11: 388-9.
- 3 Rogers SN, Benumof JL. New and easy techniques for fiberoptic endoscopy-aided tracheal intubation. *Anesthesiology* 1983; 59: 569-72.

LMA-FasTrach™

To the Editor:

A 51-yr-old, 120-kg, female patient was scheduled for a three-hour percutaneous nephrolithotomy in the prone position. The patient was known to have a difficult airway but had not been intubated for 25 yr. Three days before scheduled surgery, a senior colleague attempted laryngoscopy four times and decided the patient was an impossible intubation. A fiberoptic awake technique was strongly recommended for any further airway management. On the day of scheduled surgery, it was decided to attempt intubation using the new LMA-FasTrach™.

Preoperative sedation of 5 mg diazepam *po* was given. Induction of anesthesia was accomplished using 2 mg midazolam, 0.625 mg droperidol, 250 µg fentanyl and 200 mg propofol. The patient was allowed to breathe sevoflurane until all reflexes were obtunded and deep anaesthesia obtained. At that point the LMA-FasTrach #4 airway was introduced without difficulty. The patient was allowed to breathe spontaneously through the mask while deep anaesthesia was maintained. At this point, a well lubricated straight silicone reinforced 8 mm cuffed endotracheal tube was passed without difficulty through the FasTrach into the patient's trachea. Successful intubation was confirmed with endtidal CO₂. Throughout the procedure O₂ saturation remained between 98-100%. Once the airway was secured, the FasTrach was removed and the endotracheal tube was left *in situ*.

FIGURE