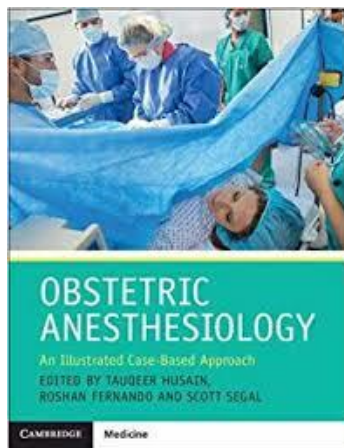
	Oxford HELP® CITATIONS, ACADEMIC REFERENCES AND ALGORITHMS			
Staff name: EJB	Rev: 00	Status: Authorised	Date: 1/5/20	E-doc controlled

ACADEMIC TEXTBOOKS OF ANAESTHESIA

Obstetric Anesthesiology: A Case-Based Approach
 Edited by Tauqeer Husain, Roshan Fernando, Scott Segal
 CUP 2019



Chapter 15 Obesity in Pregnancy

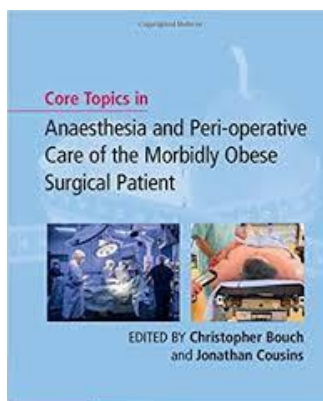
Thunga Setty and Sohail Bampoe

Case Study

A high-risk nulliparous woman with a body mass index (BMI) of 45 kg/m² at booking, and now estimated to be 55 kg/m², presented to the labor ward at 39 weeks' gestation. On arrival, she was in spontaneous labor and contracting three times in 10 minutes. Vaginal examination revealed that her cervix was 3 cm dilated. The woman had been reviewed in the antenatal clinic by an obstetric anesthesiologist, who had advised her to consider an early epidural and had warned her that epidural insertion may be technically challenging. Airway assessment demonstrated a Mallampati grade 3

Because the patient had an anticipated difficult airway, an airway strategy had already been devised. Plan A consisted of using a videolaryngoscope. She was placed on an Oxford Head Elevating Laryngoscopy Pillow (HELP) pillow, given antacid prophylaxis, and underwent a rapid-sequence induction with preoxygenation and cricoid pressure. On induction of anesthesia, IV propofol 3 mg/kg and rocuronium 1.2 mg/kg were administered. After a Cormack-Lehane grade 1 intubation, anesthesia was maintained with 50% nitrous oxide in oxygen and sevoflurane.

Core Topics in Anaesthesia and Perioperative Care of the Morbidly Obese Surgical Patient
 Edited by Christopher Bouch, Jonathan Cousins
 CUP 2018



However, elective insertion of supraglottic devices should, wherever possible, be avoided in the obese patient, except as part of airway rescue techniques.

Tracheal Intubation

Proper patient positioning is crucial to successful tracheal intubation in the obese. Adjusting the head height to place the patient in a ramped position so that the tragus and sternum are at the same level helps to improve laryngoscopy view and maximise safe apnoea time (Figures 21.1 and 21.2). This can be achieved very simply by elevating the head end of the operating table and use of pillows. Purpose-built devices such as the Oxford Head Elevating Laryngoscopy pillow/Troop Elevation Pillow can also be used.

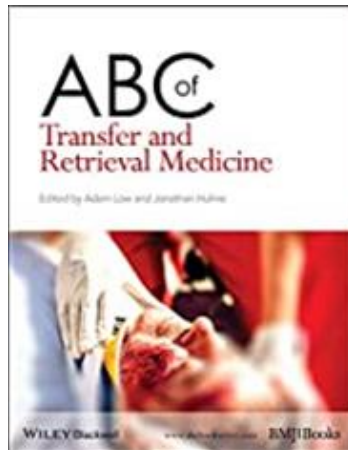
An appropriate dose of muscle relaxant should be administered to optimise intubating conditions. Suxamethonium should be dosed based on total body



Figure 21.1
(Courtesy of)

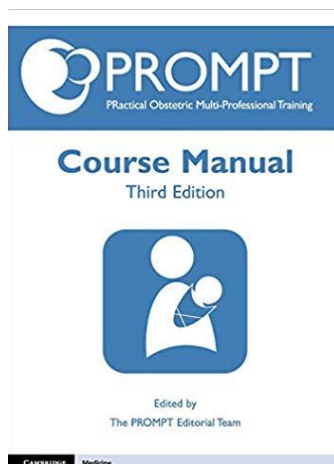


ABC of Transfer and Retrieval Medicine (ABC Series)
 Edited by Adam Low, Jonathan Hulme
 BMJ Books 2017



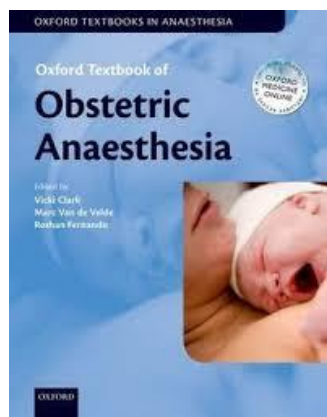
<p>Physiological effects</p> <p>Airway Bariatric patients have an increased incidence of difficult intubation (Box 41.1). These anatomical changes can impede the view at laryngoscopy. There is also a high incidence of gastro-oesophageal reflux and delayed gastric emptying which increases the risk of aspiration. The airway of all bariatric patients must be carefully assessed, and secured in any patient with the potential for compromise.</p> <p>When positioning the patient prior to intubation, view at laryngoscopy can be improved by adopting the 'ramped' position. This involves maintaining a 30° head-up tilt during pre-oxygenation</p>	<p>and padding under the patient's shoulders and head with additional pillows or blankets until the auditory meatus is in line with the sternal notch (Figure 41.1). Alternatively, the Oxford Head Elevation Laryngoscopy Pillow (HELP, Alms Medical Oxford, UK) may be used.</p> <p>If available, access to a difficult airway trolley is advised. Video laryngoscopes can be particularly helpful especially if the cervical spine is immobilised. Uncut endotracheal tubes should be used and tied securely.</p> <p>Breathing Patients have increased work of breathing, increased oxygen con-</p>
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PROMPT Course Manual
 Edited by Cathy Winter, Timothy Draycott, Neil Muchatuta,
 Jo Crofts (Author)
 CUP 2017



In pregnant women, and in particular those with large breasts or who are obese, it can be useful to adopt the 'ramped' position. This has been shown to improve the view of the vocal cords at laryngoscopy, making intubation easier.⁸ The ramped position aims to create a horizontal line between the sternal notch and the external auditory meatus (ear canal), as shown in Figure 4.2. The position can be achieved using purpose-made pillows such as the Oxford HELP (Head Elevating Laryngoscopy Pillow) or by adjusting the operating table and using extra pillows and wedges.

Oxford Textbook of Obstetric Anaesthesia - Oxford Textbooks in Anaesthesia
 Edited by Vicki Clark, Marc van de Velde, Roshan Fernando
 OUP 2016



other factors may need to be considered.⁹¹

Sitting patients in a 30° head-up position increases FRC and decreases the restriction caused by large breasts. Other methods which have been shown to improve laryngoscopic view especially in the obese patient is the 'ramped' position in which the patient's upper body and head are elevated to create a horizontal alignment between the external auditory meatus and the sternal notch. Collins and colleagues demonstrated that the 'ramped' position was superior to the standard 'sniffing position' for direct laryngoscopy in morbidly obese patients.⁹² The ramped position can also be achieved using commercial devices such as the **Oxford H.E.L.P.** (Head Elevating Laryngoscopy Pillow)^{93,94} (see Figure 39.3 in Chapter 39). In patients with braided hair or knotted scarves, these should be undone or removed as they may limit neck extension.⁹⁵

Preoxygenation

An end-tidal O₂ of 0.9 is regarded as the gold standard⁹⁶ for optimal preoxygenation. As a result of reduced FRC and increased oxygen consumption, oxygen reserves in the pregnant woman

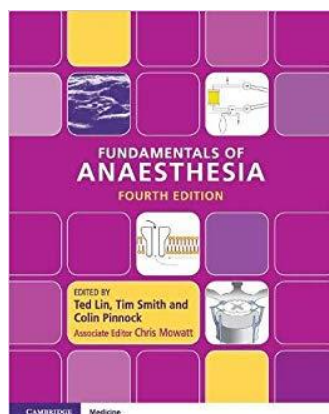
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Fundamentals of Anaesthesia

(Chapter 2 - Conduct of anaesthesia
 from Section 1 - Clinical anaesthesia)

By Chris Mowatt. Edited by Ted Lin, Tim Smith, Colin Pinnock
 Cambridge University Press 2016



Direct laryngoscopy In this position the head is extended 15° and the neck flexed at 35°, which can be helped by elevating the head on one pillow. ... Adjuncts such as the **Oxford HELP** (head elevating laryngoscopy pillow) system (see Figure 5.27) are useful in obese patients.

Obstetric Anaesthesia

Prepare for the FRCA E-Book: Key Articles from the Anaesthesia and Intensive Care Medicine Journal

Edited by Nicholas Pace, Mick Serpell
Elsevier 2015

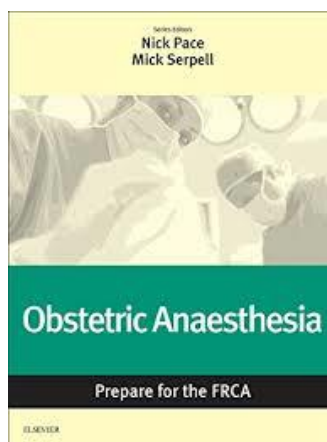


Table 2

General anaesthesia and maternal comorbidity

Obesity

Morbidly obese women (BMI >40 kg/m² at booking) have increased morbidity relating to GA and increased risk of conversion to GA during caesarean section.^{1,2}

Obese parturients often receive prophylactic low-molecular-weight heparin antenatally as VTE prophylaxis. This may make GA mandatory for emergency surgery as RA is contraindicated within 12 hours of prophylactic dosing and within 24 hours of treatment dosing.

Ramping with additional pads or Oxford HELP pillow optimizes head position for intubation. Arterial desaturation during intubation may be minimized by insufflation of 5 litres/minute oxygen via a nasal cannula.³

Pre-eclampsia

Women with pre-eclampsia have an increased risk of intracerebral haemorrhage under GA. The transient response to intubation may be minimized by insufflation of 5 litres/minute oxygen via a nasal cannula.³

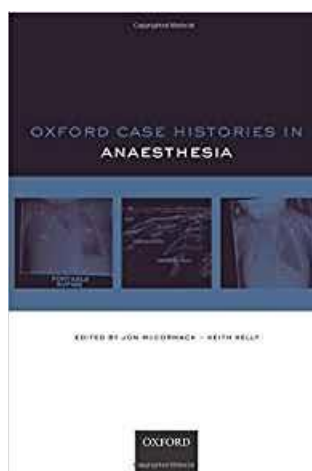
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Oxford Case Histories in Anaesthesia

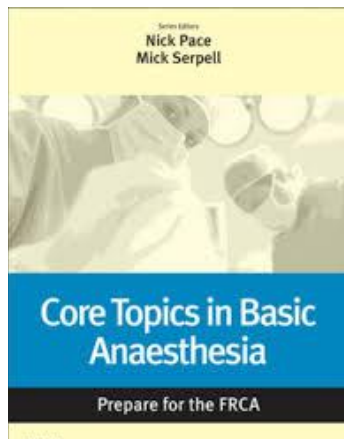
Edited by Jon McCormack, Keith Kelly
OUP 2015



P. 151 Case 5.3

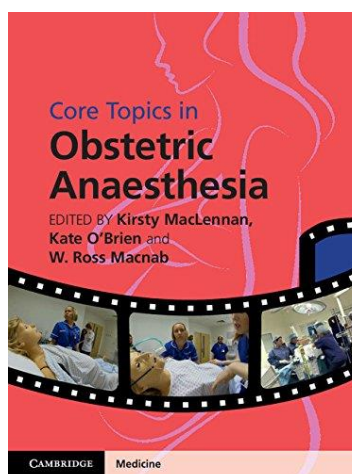
Use a head-up tilt, with a pillow ramp or a proprietary device such as the Oxford HELP pillows, even with regional anaesthesia. This will help the block from spreading to cephalic and also places the patient in an ideal ramped position, should she require a general anaesthesia.

Core Topics in Basic Anaesthesia
Prepare for the FRCA: Key Articles from the Anaesthesia and Intensive Care Medicine Journal
Edited by Nicholas Pace, Mick Serpell
Elsevier 2015



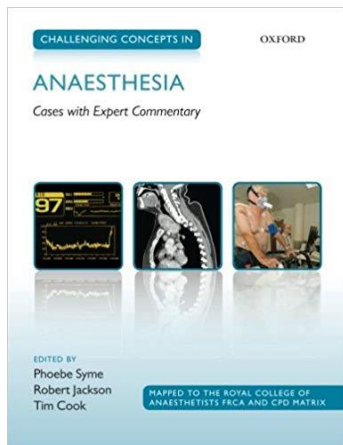
patient should breathe 100% oxygen using a well-fitting face-mask for about 3 minutes. Obese patients and those with a reduced safe apnoea time benefit from the use of the expiratory valve to produce positive end-expiratory pressure (PEEP) and by 20–30° head up tilt or the use of the Oxford 'Help' pillow. Anaesthesia should be induced with a sleep dose of propofol, thiopentone, ketamine, or etomidate. Assessment of loss of consciousness is by different means depending on the agent

Core Topics in Obstetric Anaesthesia
Edited by Kirsty MacLennan, Kate O'Brien, W. Ross Macnab
CUP 2015



Positioning before induction of general anaesthesia remains critical for the morbidly obese parturient, and time should be taken to do this even in an emergency situation. The optimal position is the 'ramped' position, where the head and neck are elevated until the external auditory meatus is in a horizontal plane with the sternal notch, when assessing the patient from the side view. This can be accomplished by using either a stack of blankets or a commercially available pillow such as the Oxford Head Elevating Laryngoscopy Pillow (HELP) (Alma Medical, Oxford, UK).

Challenging Concepts in Anaesthesia: Cases With Expert Commentary
 Phoebe Syme (Author), Robert Jackson (Contributor), Timothy Cook
 (Contributor)
 OUP 2014

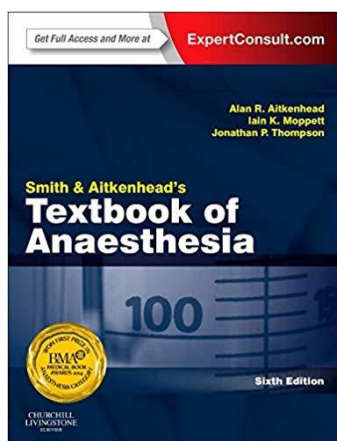


Other relevant adjuncts include the range of head and neck supports to aid ideal positioning of the patient, particularly if obese, prior to intubation, the Oxford HELP pillow (Head Elevating Laryngoscopy Pillow, Alma Medical, UK) being one such device (Figure 5.5).



Figure 5.5 The Oxford help pillow. Copyright Alma Medical 2005.

Smith and Aitkenhead's Textbook of Anaesthesia
 Edited by Aitkenhead BSc MD FRCA, Alan R, Jonathan Thompson, Rowbotham
 MD MRCP FRCA, David J, Iain Moppett
 Churchill Livingstone Elsevier 2013



Head-Elevating Laryngoscopy Position Devices

Many studies have been conducted over the last ten years investigating the effect of a head-elevated position or ramping on laryngeal view. An imaginary line drawn between the patient's sternal notch should be in line with the auditory meatus in order to maximize the laryngeal view. Ramping or the head-elevated laryngoscopy position has been shown to improve the laryngeal view, particularly in obese patients. This has led to the development of devices such as the Oxford Head-Elevating Laryngoscopy Pillow (Oxford HELP) (Fig. 15.86). This device can be inserted and removed much faster and with less difficulty than using standard hospital pillows.

The Future of General Anaesthesia in Obstetrics

RS Chaggar, BMedSci (Hons) MBBS FRCA, JP Campbell,
MBChB (Hons) MRCS FRCA

BJA Education, Volume 17, Issue 3, March 2017, Pages 79–
83, <https://doi.org/10.1093/bjaed/mkw046>

Published: 14 July 2016



Positioning

It is essential that the woman is in the optimal position before induction of general anaesthesia in obstetrics. Airway management (including application of cricoid pressure, insertion of laryngoscope, view at intubation, ease of ventilation, safe apnoea time, and front of neck access) may be improved by the woman being in the head elevated (ramped) position (in which the external auditory meatus is in the same horizontal line as the suprasternal notch). This position may also increase functional residual capacity in parturients, which may increase the time to desaturation after the onset of apnoea. The ramped position can be achieved with the use of pillows or specific devices [e.g. Oxford Head Elevating Laryngoscopy Pillow (HELP) System[®]].



General anaesthesia for caesarean section: an audit of practice and survey of preferences

P. Balfour, T. Kasianandan and S. Bourke

Guy's and St Thomas' NHS Foundation Trust

General anaesthesia for caesarean section (CS) is a core skill being performed with decreased frequency and remains associated with increased risk for the mother [1]. There are Difficult Airway Society guidelines regarding safe practice of general anaesthesia for CS [2]. An audit was designed to analyse general anaesthesia technique in the Hospital Birth Centre (HBC) and a survey to assess staff preferences.

Method

Details of general anaesthesia technique in the HBC over 1 year were analysed retrospectively. Patients, identified from the theatre logbook as receiving general anaesthesia, had their anaesthetic charts reviewed. Data collected included indication for general anaesthesia, drugs and equipment used, laryngoscopy grade, time of day and grade of anaesthetist. A survey of anaesthetists working in the HBC was then performed. Questions were designed to elucidate practitioners' preferences regarding equipment, drugs and emergency planning in relation to the conduct of general anaesthesia for CS.

Results

Fifty-eight CS were performed under general anaesthesia (approximately 1.8% of all CS). Forty-nine (84%) were emergency procedures and nine (16%) elective. Frequent indications for general anaesthesia were urgency (39.7%), failed regional anaesthesia (RA; 31%) and contraindications to RA (12.1%). Propofol was used in all cases. Drugs for paralysis were suxamethonium (55%), rocuronium (26%), none (2%), or not recorded (17%). Opioids were given at induction in 50%. Intubation was achieved with direct laryngoscopy in 81%. One patient had a known difficult airway requiring awake fiberoptic intubation and one had failed intubation and the case proceeded using an iGel. Sixty-nine per cent were Cormack–Lehane grade 1 or 2a views. Twelve per cent were grade 2b or above (not recorded 19%). Fifty-six per cent of cases took place out of hours. A consultant anaesthetist was present for all cases in normal working hours and 22% of cases out of hours. There was one use of Optiflow™ and one use of the HELP® pillow. Our survey had 30 respondents.

Table 1 Survey results:

	Yes	No
Would you use Optiflow™ if it was ready?	18 (60%)	12 (40)
Would you prefer to use the HELP® pillow ?	29 (96.7%)	1 (3.3%)
Do you routinely discuss airway plan B with theatre team?	16 (53.3%)	14 (46.7%)
Do you routinely discuss failed intubation plan with theatre team?	13 (43.3%)	17 (56.7%)
Drug preferences for GA CS:		
Hypnotic	Opioid	Muscle relaxant
Propofol–25 (83.3%)	Fentanyl–6 (20%)	Suxamethonium–17 (56.7%)
Thiopental–5 (16.7%)	Alfentanil–14 (46.7%)	Rocuronium–13 (43.3%)
Other–0	None–10 (33.3%)	Other–0

Discussion

Our audit has identified that equipment to improve safety of general anaesthesia in obstetric patients is not commonly being used. It has shown contrast between practice and preference in relation to general anaesthesia drugs. Reassuringly, consultant presence for CS under general anaesthesia was universal in normal working hours and common out of hours. We feel that the key element of managing high-risk events is clear planning, and unfortunately, emergency plans were not always discussed with the theatre team. Using these data we have designed an emergency CS under general anaesthesia protocol to be used as recommended practice for the on-call anaesthetist.

References

- McGlennan A. General anaesthesia for caesarean section. *Continuing Education in Anaesthesia, Critical Care & Pain* 2009; 9: 148–51.
- Mushambi MC, Kinsella SM, Popat M, et al. Obstetric Anaesthetists' Association and Difficult Airway Society guidelines for the management of difficult and failed tracheal intubation in obstetrics. *Anaesthesia* 2015; 70: 1286–306.



Obstetric Airway Management

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Published 14 December 2018

Patient Positioning

Optimal patient positioning is essential prior to induction of GA in all patients but especially in pregnant patients. A 20° to 30° head-up position may facilitate insertion of the laryngoscope, improve the view of the glottis, increase functional residual capacity (FRC), and reduce the risk of gastric regurgitation. Aligning the external auditory meatus with the suprasternal notch may be superior to the typical 'sniffing' position and is particularly helpful in the obese patient. This ramped position can be achieved with the use of specific equipment (eg Oxford HELP Pillow; Alma Medical, London, UK) or by pillows placed under the patient's shoulders and head⁷ (Figure 2).

HOSPITAL AND TRUST CLINICAL ALGORITHMS AND PROTOCOLS

Sheffield 
Teaching Hospitals
NHS Foundation Trust

Sheffield Teaching Hospitals 
NHS Foundation Trust

The Jessop Wing Obstetric Emergency GA Induction Checklist **Are you HAPPE to continue?**

History and **H**elp

- Relevant medical and obstetric history?
- GA still necessary? CTG reviewed?
- Experienced help required? Available?

Airway Assessment

- Difficult airway risk factors present? If multiple risk factors consider getting help and/or reconsider regional anaesthesia
- Prepare for difficulty if risk factors present and GA required

Positioning and cricoid

- Ramped Position? Correct position on Oxford Pillow?
- Check hair/accessories?
- Cricoid Pressure (BURP manoeuvre)
- Remember to adjust or release cricoid pressure if difficulty encountered at any stage

Royal
Berkshire 
NHS Foundation Trust

Obstetric failed intubation (GL774) 2016

Overview: The incidence of failed intubation is 1:3902 in obstetric patients. However, morbidity and mortality is caused not by failure to intubate but by failure to oxygenate. The causes for the increased incidence of failed intubation in the obstetric population cf. non-obstetric population is multifactorial and the new OAA/DAS guidelines address many of these challenges, emphasising the influence of human factors and the value of greater simplicity in decision-making. The focus in the guidelines is on planning and preparation, with the importance of pre-oxygenation and positioning emphasised. Factors to consider when deciding whether to continue general anaesthetic (GA) or wake patient up postfailed intubation are helpfully summarised in table 1 in the OAA/DAS guidelines¹.

5. Ensure optimal positioning of patient. Consider use of the Oxford HELP Pillow, 3- 5 'normal' pillows, ramping using the theatre table and head up.

NAP4 Findings:

Aspiration biggest cause of death

Obesity major risk factor for airway complications

Planning and assessment – airway assessment – planning for failure

Issues with...– Multiple repeated attempts at intubation – Awake fiberoptic intubation – Obstructed airway – Capnography trace interpretation – Needle cricothyroidotomy

Emergence or recovery – one third of events • ICU and ED – Continuous capnography – Displaced tracheostomies and tracheal tubes – Rapid sequence induction

2.9 million anaesthetics per year • Risk of airway complication resulting in death or brain death – 1 in 151 000 overall

Risk of death or brain death depending on location: Theatres 14% ED 33% ICU 61%

In Bath Hospital ED and ICU:

Airway complications more common • Airway complications more likely to lead to harm

Because:

True emergency – less time for planning and preparation • Full stomach • Equipment • Staff – Junior doctors – Consultants – ICU and ED nurses

Out of hours work.

OBESITY

Pages 41,42,43

• Preop assessment – anaesthetic review if BMI > 40 +other comorbidities • **Oxford Head Elevation Laryngoscopy Pillow (HELP)** • Videolaryngoscopy

OBSTETRIC ANAESTHESIA

Page 47

• Dedicated CMAC • **Dedicated HELP pillow** • Manujet plugged in at all times

OBSTETRIC ANAESTHETIC HANDBOOK 2014

Revision date March 2019 p. 22

OBSTETRIC ANAESTHETIC HANDBOOK 22 Caesarean section in morbidly obese • Senior help • Appropriately sized equipment and staff available for moving • Preoperative ranitidine • Increased risk of bleeding so consider two large-bore cannulae • Difficult intubation $\geq 10\%$ so avoid if possible • Consider CSE if no epidural in situ o In the morbidly obese consider inserting epidural first and securing and then performing spinal at different interspace (To reduce risk of dislodging epidural during positioning) • Ramped intubating position may be useful in morbidly obese (see fig. 1) • Use Oxford HELP pillow which is now available at both sites (see fig. 2) • Consider uncut size 7 ETT • Consider arterial line for BP monitoring Figure 2. **The Oxford HELP pillow** in the high position

Management of Failed Adult Intubation on the Maternity Unit 2013

4.4 Full monitoring should be established and the patient positioned in the optimal intubating position (“sniffing the morning air”, ideally with two pillows). **The OXFORD HELP pillow** must be used in obese patients to aid optimal positioning.

Conduct of Anaesthesia for Caesarean Section 2016

91. Ensure optimum positioning for intubation. In the obese, use the “ramped” position; **the Oxford Head Elevating Laryngoscopy Pillow (HELP)** is kept in the Theatre Store Room.

REFERENCES BY GOVERNING BODIES



ROYAL COLLEGE OF ANAESTHETISTS

ACCREDITATION STANDARDS 2016

STANDARD 1.1.1.9 There is a policy for the management of morbidly obese patients

EVIDENCE REQUIRED A copy of the policy should be provided PRIORITY 1 CQC KLoEs Safe Responsive

GPAS REFERENCES 9.2.12 The maximum weight that the operating table can support must be known and alternative provision made for women who exceed this. It is recommended that the obstetric operating table should be able to safely support a minimum weight of 160 kilograms in all positions.

9.2.13 Equipment to facilitate the care of the morbidly obese parturient including specialised electrically operated beds, aids to assist patient positioning, for **example Oxford head elevating laryngoscopy pillow (HELP)**, weighing scales, sliding sheets and hoists, should be readily available and staff should receive training on how to use the specialist equipment.

HELPNOTE See Note 2 for an explanation of what is meant by the term 'policies'.



ACSA standards with full GPAS references 2016 [PDF]

Remove: [Royal College of Anaesthetists](#) source - 31 August 2016

...assist patient positioning, for example **Oxford head elevating laryngoscopy pillow (HELP)**, weighing scales, sliding sheets and hoists...undertaken in the main theatre suite. This arrangement may be more flexible for complex work and avoids duplicating theatre skills and...

See below for full citation

Guidelines for the Provision of Anaesthetic Services (GPAS) 2014 [PDF]

Remove: [Royal College of Anaesthetists](#) source - 18 June 2014

...suite. This arrangement may be more flexible for complex work and avoids duplicating...positioning, for example **Oxford head elevating laryngoscopy pillow**



NIAA Academic Trainee Report 2013-2014

DR FIONA KELLY

IMPLEMENTATION OF NAP4 IN A DGH

Summary:

1. Beware aspiration and obesity
2. Many NAP4 cases occurred following lack of detailed airway assessment and lack of planning for failure
3. Remember airway management in ICU and ED is high risk
4. Use of continuous capnography monitoring for ventilated patients can significantly improve safety
5. Regular training in airway management and human factors is essential - for consultants, junior doctors, ODPs and anaesthetic nurses and ICU/ED nurses

Measures in ICU and ED:

- Airway alert forms and RSI intubation checklist
- Algorithms for displaced tracheostomies and tracheal tubes and tracheostomy bed head signs
- Posh hats are good in Bath: 'hats and caps' capnography training
- Videolaryngoscopes

Measures in theatres:

- Revised anaesthetic charts
- Obesity – HELP pillows and Cmacs, SOBA single sheet guidelines, preop assessment
- Second generation supraglottic airways as default
- Standardised airway trolleys

Training and education

- Airway workshops
- Simulation
- ICU nurses

Top tips:

1. Find some friends – you can't do this on your own
2. Start small and work up
3. Give well defined projects to your trainees
4. Link up with other hospitals in the region
5. Airway workshops are definitely worth the effort