1.12 Management of obesity in the perioperative period

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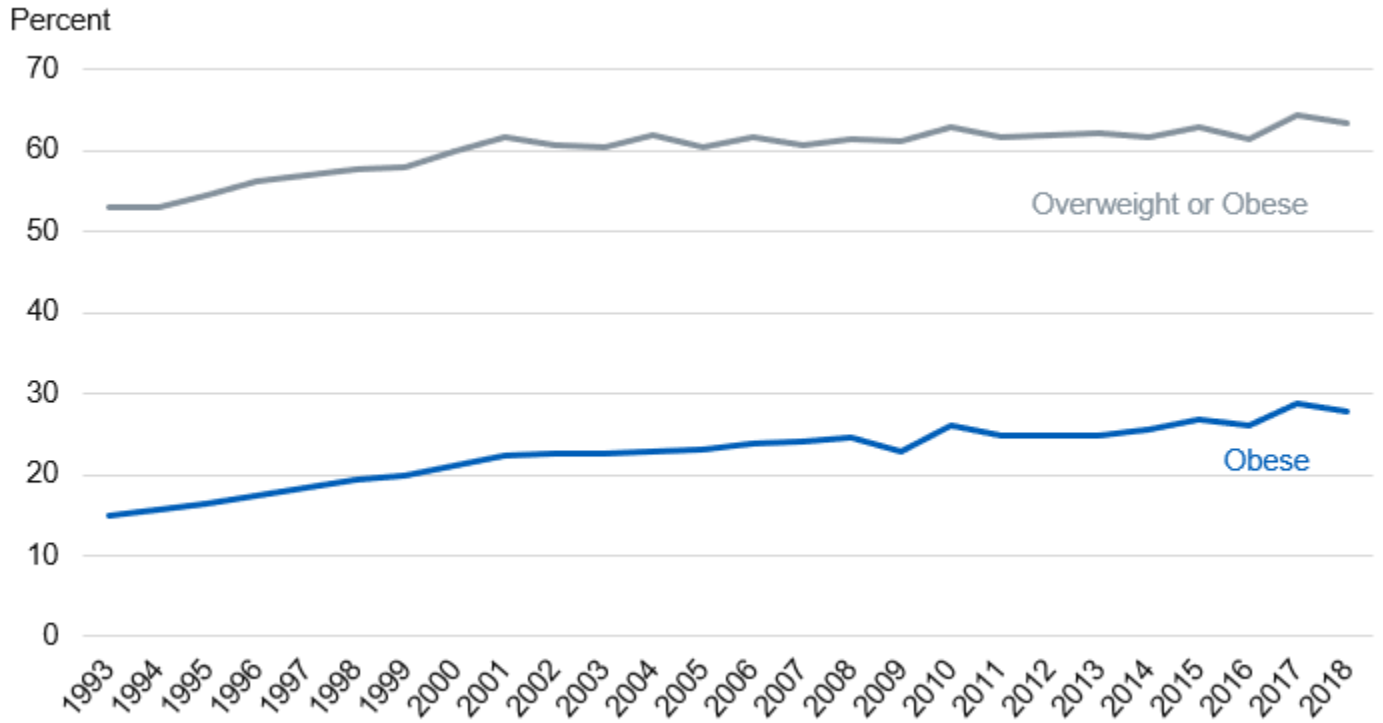
Obesity Prevalence by Year (England)



NHS Digital Statistics on Obesity, Physical Activity and Diet, England, 2020

Anaesthesia for the Obese Patient

Society for Obesity and Bariatric Anaesthesia

Pre-operative Evaluation

Red Flags

- Poor functional capacity
- Abnormal ECG
- Uncontrolled BP, CCF or IHD
- SpO2 <94% on air
- If bicarbonate >27, OHS likely
- Previous DVT/PE
- STOP-BANG ≥ 5
- OS-MRS >3
- Metabolic Syndrome
- High NSQIP ACS Risk

Yes →

Consider:
- Preoperative CPAP
- Blood Gases / Sleep Studies
- Echocardiogram
- Cardiorespiratory referral
- Experienced Anaesthetist
- Book HDU Bed

No →

- May be suitable for day-case surgery

OS-MRS Calculator
tools.farmacologiaclinica.info

NSQIP ACS Risk Calculator
riskcalculator.facs.org/RiskCalculator

STOPBANG Calculator
www.stopbang.ca

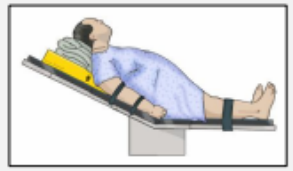
Central Obesity
(waist > half height)
- Difficult airway/ventilation more likely
- Greater risk of CVS disease/thrombosis
- Higher risk of metabolic syndrome

Peripheral Obesity
(Fat outside body cavity)
- Less co-morbidity
- Lower risk

Intra-operative Management

Suggested Equipment:
- Suitable bed/trolley and operating table
- Gel padding
- Wide strapping
- Table extensions/arm boards
- Forearm cuff or large BP cuff
- Device or equipment for ramping
- Step for anaesthetist
- Difficult airway equipment
- Videolaryngoscope
- Ventilator capable of PEEP & pressure modes
- Hover mattress or equivalent
- Long spinal, regional and vascular needles
- Ultrasound machine
- Appropriately sized calf compression devices
- Depth of anaesthesia monitoring
- Neuromuscular monitoring
- Sufficient staff to move patient

Ramping



- Tragus level with sternum
- Reduces risk of difficult laryngoscopy
- Improves ventilation and pre-oxygenation

Anaesthetic Technique:
- Consider premed antacid & analgesia
- Careful glucose control
- DVT prophylaxis
- Self-position on operating table
- Preoxygenate and intubate in ramped/sitting position
- Consider CPAP and HFNO
- Minimal induction to ventilation time
- Commence maintenance promptly
- Tracheal intubation recommended
- Caution with SAD in BMI >40
- Avoid spontaneous ventilation, use PEEP
- Use short-acting inhalationals or TIVA
- Short-acting opioids & multimodal analgesia
- PONV prophylaxis
- Ensure full NMB reversal
- Extubate and recover sitting up

Lean Body Weight: This exceeds ideal body weight in the obese and plateaus at:
- ≈100kg for a man
- ≈70kg for a woman

Ideal Body Weight: Broca formula
- Men: height (in cm) - 100
- Women: height (in cm) - 105

If in doubt, titrate and monitor effect

Suggested dosing for anaesthetic drugs

Lean Body Weight (Males Max 100Kg Females Max 70Kg)	Adjusted Body Weight (Ideal plus 40% excess)	Total Body Weight
• **Propofol induction** • **Thiopentone** • **Fentanyl and Alfentanil** • **Morphine** • **Non-depolarising NMBDs** • **Paracetamol** • **Local Anaesthetics**	• **Propofol Infusion** • **Neostigmine** (max 5mg) • **Sugammadex** (read pack insert) • **Antibiotics**	**Suxamethonium** **LMWHs** (titrate dose with Xa levels)

Post-operative Care

PACU discharge:
- Usual discharge criteria should be met
- SpO_2 should be maintained at pre-op levels with minimal O_2 therapy
- No evidence of hypoventilation

General good ward level practice includes:
- Multimodal analgesia
- Caution with long-acting opioids and sedatives
- Early mobilisation
- Robust thromboprophylaxis regime
- Experienced Consultant Review

OSA or Obesity Hypoventilation Syndrome:
- Sit up and avoid sedatives and post-op opioids
- Reinstate patient's own CPAP if applicable with additional time in recovery until free of apnoeas without stimulation
- Patients untreated, intolerant of CPAP or ineffectively treated (persistent symptoms) are at risk of hypoventilation
- In these cases, IV opioids should be avoided but where necessary, patient should have continuous SpO_2 monitoring and level 2 care must be considered

SOBAUK
The Society for Obesity and Bariatric Anaesthesia

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Suggested data to collect

Standards	Measures
Operating lists[2] and medical records should include the patients' weight and BMI.	■ Proportion of pre-operative assessment and/or operating lists that includes the patients' weight and BMI.
Experienced surgeons and anaesthetists should assess and manage patients who are obese.[2,3]	■ Grade of most senior anaesthetic and surgical staff seeing patient pre-operatively & in theatre.
Specialised equipment to assist in the safe management of obese patients (including properly fitting anti-embolism stockings[4]). Requirements should be included in the pre-operative team brief to ensure availability of specific equipment and staff.[2]	■ Availability of and compliance with local protocol and lists or 'obesity packs'[2] that outline equipment specific for the obese patient and their location in all theatre complexes; staff training compliance; proportion of cases in which specific requirements were discussed at WHO team brief.

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Screening for SDB.[2] High index of suspicion in patients with BMI >30. Routine use of STOP-BANG questionnaire should be used for screening; scores ≥3, should be pre-operatively assessed by a clinician, to risk stratify, plan further investigations and management.	■ Proportion of obese patients 1) screened for OSA; 2) assessed by a clinician for OSA and 3) managed according to risk stratification.
Appropriate prophylaxis against VTE and early mobilisation.[2]	■ 100% patients should be risk assessed for VTE and receive prophylaxis as per local protocol and receiving correct dose of pharmacological prophylaxis; compliance with enhanced recovery protocols eg time to mobilisation.

Quality improvement methodology

Preoperative record of patient's weight and BMI

- Can entering weight and BMI become a mandatory part of the ward pre-operative checklist/theatre booking form? When/where is it most helpful to record this?

Specialist equipment and staff trained to care for the obese patient

- Map the process for the pre-operative assessment team to inform the appropriate department(s) about specialist equipment are there steps that are unreliable or onerous? Can the process be simplified or automated? Could you do a 'check and challenge' drill or simulation of where to find specific guidelines or equipment?

Screening for sleep-disordered breathing

- Map the pre-operative assessment pathway – is the process to screen, identify, refer, assess and investigate for OSA simple and reliable? Are there multiple modalities to investigate for OSA? Look at a series of cases - how long does the entire process take? Are there any common features that can be improved on or steps made simpler or quicker? Are there sufficient resources (availability of clinician/sleep study slots) to support this pathway?

Mapping

ACSA standard: 1.1.3.4

Curriculum competences: OA_BK_07, OA_BK_08, IG_BK_03, PO_BK_11, GU_BK_11, PB_BK_88, EN_BK_03, DS_IS_01, AM_IK_08, EN_IK_04, PC_IK_18

CPD matrix code: 3A13

GPAS 2020: 2.3.22, 2.3.23, 2.3.24, 2.3.25, 2.3.26, 2.5.10, 2.5.16, 2.5.19, 3.2.18, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7, 4.3.24, 4.3.25, 5.3.15 5.3.16, 5.3.17

STANDARD

1.1.3.4 There is a policy for the management of morbidly obese patients.

EVIDENCE REQUIRED

A copy of the policy should be provided. The policy should outline local processes and equipment available for the treatment of morbidly obese patients, in line with national guidance.

PRIORITY

1

CQC KLoEs

Safe; responsive

HIW Domains

Safe and effective care

HIS Domains

Safe, effective and person-centred care delivery; policies, planning and governance

GPAS REFERENCES

3.3.3 Every hospital should nominate an anaesthetic lead for obese patients undergoing surgery.

3.3.4 Medical records should include the patients' weight and body mass index (BMI).

3.3.5 The safe movement and positioning of obese patients may require additional staff and specialised equipment. An operating table, hoists, beds, positioning aids and transfer equipment appropriate for the care of obese patients should be available and staff should be trained in its use. Additional members of staff should be available where necessary and manual handling should be minimised where possible.

3.3.6 Specialist positioning equipment for the induction of anaesthesia and intubation in the morbidly obese should be available.

3.3.7 There should be a policy for the clinical and technical management of the obese patient.

5.3.15 An operating table, hoists, beds, positioning aids and transfer equipment appropriate for the care of bariatric patients should be available and staff should be trained in its use.

5.3.16 Specialist positioning equipment for the induction of anaesthesia and intubation in the morbidly obese patient should be available.