Core Topics York

Friday 7 February 2020

Welcome

Association of Anaesthetists

This seminar is sponsored by:

PHARMACOSMOS
Committed to Quality

Anaesthesia for morbid obesity

Jon Redman
SOBA Chairman
AAGBI Core Topics
York 2020

Association of Anaesthetists

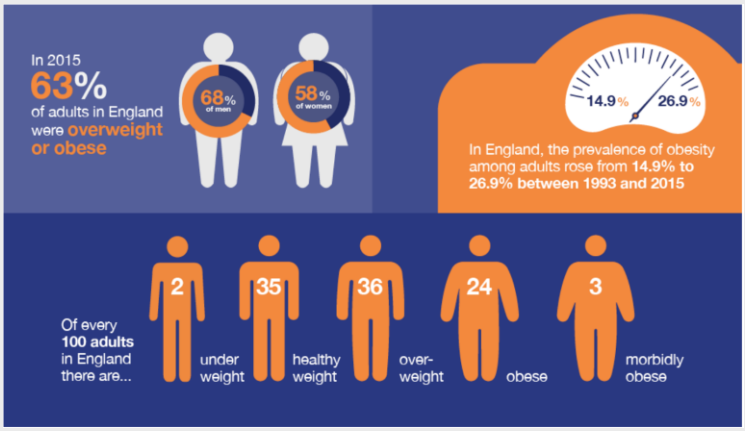
SOBAUK
THE SOCIETY FOR OBESITY & BARIATRIC ANAESTHESIA

Association of Anaesthetists

SOBAUK
THE SOCIETY FOR OBESITY & BARIATRIC ANAESTHESIA

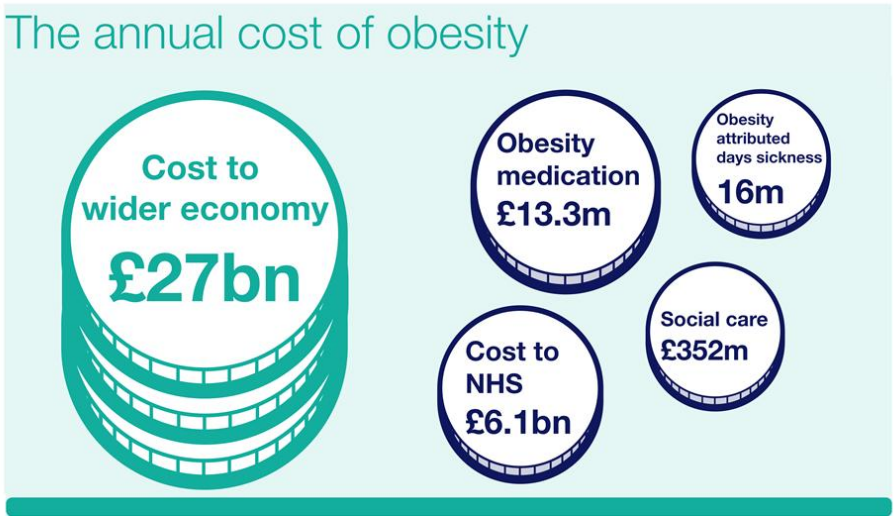
Declarations	• Current SOBA Chairman • MSD Honorarium

Over 13,000 people with BMI > 40 living within catchment area of average DGH



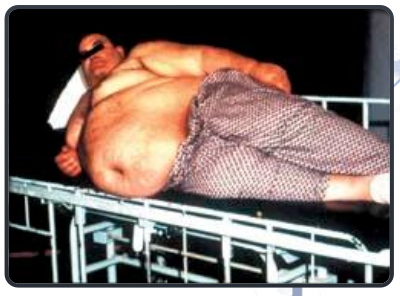
Obesity the wider cost to the UK

Public Health England



Preoperative Redflags

- Weight/BMI ?
- METS
- OSA/OHS
- Risk scoring tools
- Heart Failure



BMI >30 HR 1.5

BMI >35 HR 2.0

BMI >40 HR 2.5

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Body-Mass Index and Mortality in Korean Men and Women

Sun Ha Jee, Ph.D., Jae Woong Sull, Ph.D., Jungyong Park, Ph.D., Sang-Yi Lee, M.D., Heechoul Ohrr, M.D., Eliseo Guallar, M.D., Dr.P.H., and Jonathan M. Samet, M.D.

ORIGINAL ARTICLE

General and Abdominal Adiposity and Risk of Death in Europe

T. Pischon, M.D., M.P.H., H. Boeing, Ph.D., M.S.P.H., K. Hoffmann, Ph.D.,* M. Bergmann, Ph.D., M.B. Schulze, Dr.P.H., K. Overvad, M.D., Ph.D., Y.T. van der Schouw, Ph.D., E. Spencer, Ph.D., K.G.M. Moons, Ph.D., A. Tjønneland, M.D., Ph.D., Dr.Med.Sci., J. Halkjær, Ph.D., M.K. Jensen, Ph.D., J. Stegger, M.D., F. Clavel-Chapelon, Ph.D., M.-C. Boutron-Ruault, Ph.D., V. Chajes, Ph.D., J. Linseisen, Ph.D., R. Kaaks, Ph.D., A. Trichopoulou, M.D., Ph.D., D. Trichopoulos, M.D., Ph.D., C. Bamia, Ph.D., S. Sieri, Ph.D., D. Palli, M.D., R. Tumino, M.D., P. Vineis, M.D., M.P.H., S. Panico, M.D., M.Sc., P.H.M. Peeters, M.D., Ph.D., A.M. May, Ph.D., H.B. Bueno-de-Mesquita, M.D., Ph.D., M.P.H., F.J.B. van Duijnhoven, Ph.D., G. Hallmans, M.D., L. Weinehall, M.D., Ph.D., J. Manjer, M.D., Ph.D., B. Hedblad, M.D., Ph.D., E. Lund, M.D., Ph.D., A. Agudo, Ph.D., L. Arriola, Ph.D., A. Barricarte, Ph.D., C. Navarro, M.D., Ph.D., C. Martínez, M.D., J.R. Quirós, M.D., T. Key, D.Phil., S. Bingham, Ph.D., K.T. Khaw, M.B., B.Chir., P. Boffetta, M.D., M.P.H., M. Jenab, Ph.D., P. Ferrari, Ph.D., and E. Riboli, M.D., M.P.H., Sc.M.

Does obesity affect outcome?

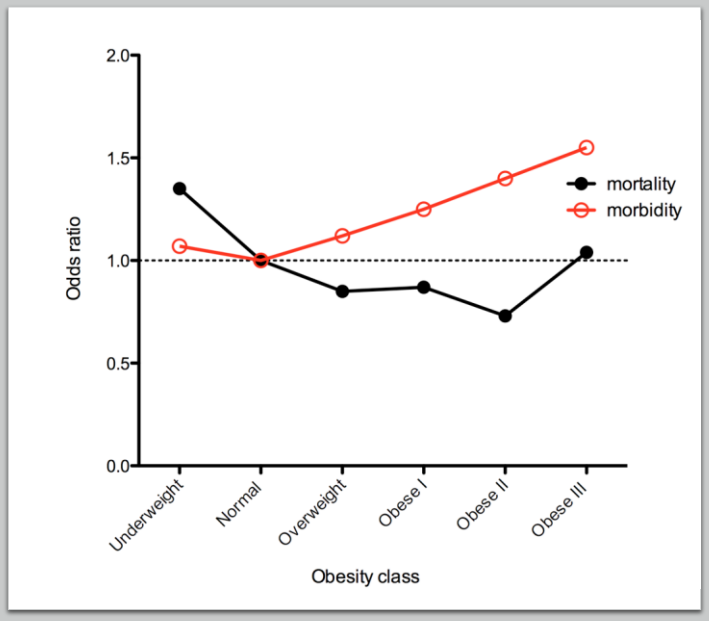
Obese having surgery

RETROSPECTIVE

UNDERPOWERED

NO MENTION OF DEATH

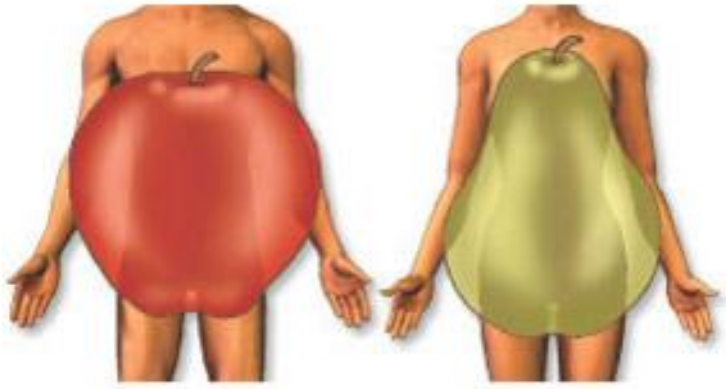
Obesity Paradox



Mullen. Annals of Surgery 2009;250:166+172

Patient Risk Factors

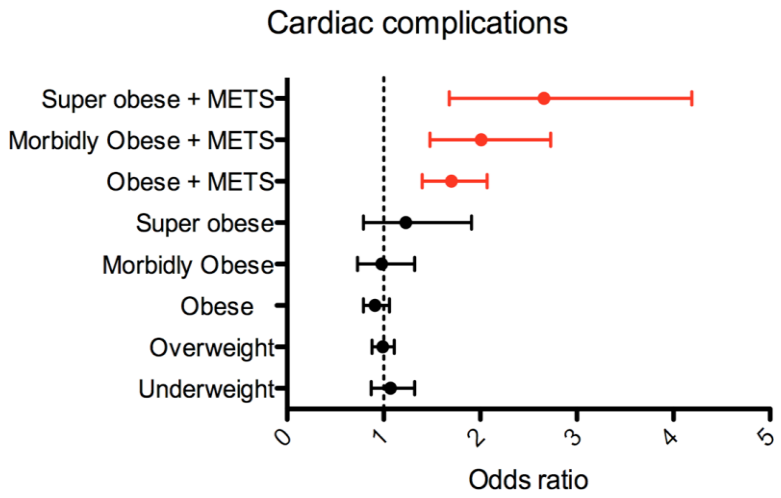
- **BMI**
- **Waist circumference**
- **Waist/hip ratio**
- **Waist/height ratio**



Metabolic Syndrome

Criteria	Essential	Central Obesity	Insulin Resistance	Lipid Profile	Hypertension	Others
WHO	DM or insulin resistance and 2 others	Waist to hip ratio: M>0.9, F>0.85		TAG≧150 mg/dl and/or HDL-C : M<35 mg/dl F<39 mg/dl	≧140/90	Urine albumin> 20 mcg/min
NCEP	Any three of the following	Waist circumference: M>102 cm F>88 cm	Fasting glucose ≧ 110 mg/dl	TAG≧150 mg/dl HDL-C: M<40 mg/dl F<50 mg/dl	SAP>130 DAP> 85	
IDF	Waist circumference and any 2 other risk factors	Waist circumference: M>94 cm F>80 cm	Fasting glucose ≧ 110 mg/dl or type II DM	HDL-C: M<40 mg/dl F<50 mg/dl or treatment for HDL dyslipidaemia	SAP>130 DAP> 85 or previous HTN treatment	

Implications of MET



Glance.Anesthesiology 2010; 113:859-72

Obstructive Sleep Apnoea

S	**Snoring** -do you snore loudly (louder than talking or heard through a door?)	Y	N
T	**Tired** -do you often feel tired or fatigued during the day?	Y	N
O	**Observed** - Has anyone observed you stop breathing during sleep ?	Y	N
P	**Blood Pressure**- Do you have or are you being treated for high blood pressure ?	Y	N
B	**BMI** > 35Kg/m2	Y	N
A	**Age**: > 50	Y	N
N	**Neck**: > 16cm	Y	N
G	**Gender**: male	Y	N

Risk Scoring Tools

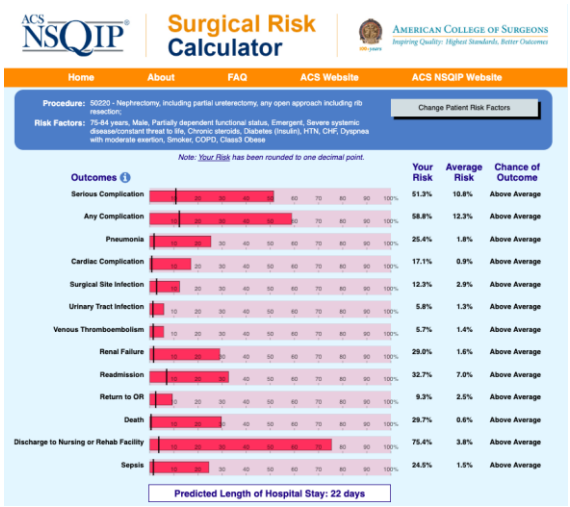
P-POSSUM

SORT

LRCI

EOSS

NSQIP ACS



ACS NSQIP

- **INPUT**
  - Surgery
  - Co morbidities
  - Weight
  - Height
- **OUTPUT**
  - Morbidity
  - Mortality
- https://riskcalculator.facs.org/

OBESITY SURGERY MORTALITY RISK SCORE (OSMRS)

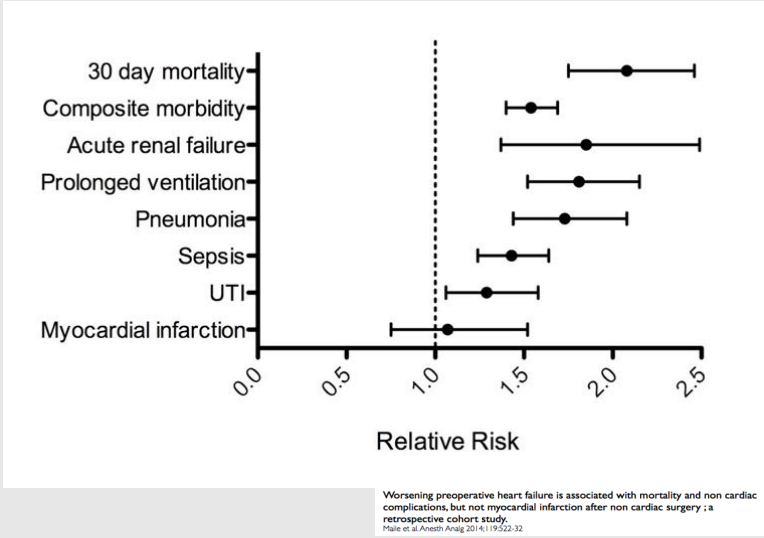
- BMI>50 kg/m^2
- Hypertension
- Male
- Age>45
- PE risk

CLASS A 0-1 points
CLASS B 2-3 points
CLASS C 4-5 points

Class	De Maria 2007	De Maria 2009	Efthimiou 2009	Dimitrious 2010	Sarela 2011	Agrawal 2011	Mortality	No.of subjects
A	0.31%	0.23%	0.36%	0%	0%	0%	0.26%	4912
B	1.9%	1.17%	1.49%	0.69%	0%	0%	1.33%	4124
C	7.56%	2.4%	3.08%	0%	6.67%	0%	4.34%	346
Total	1.49%	0.74%	0.8%	0.33%	0.26%	0%	0.88%	9382

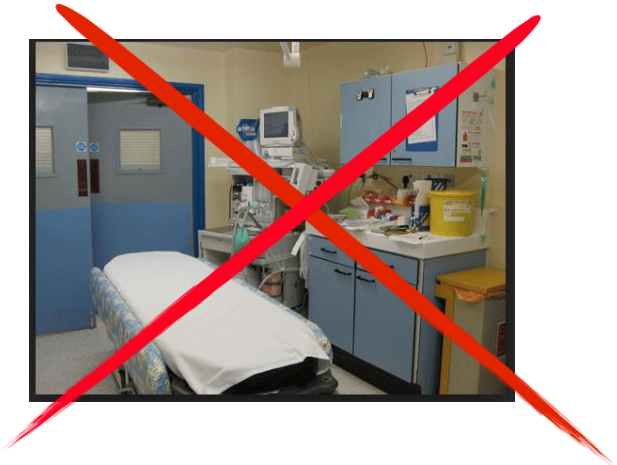
OBESITY SURGERY MORTALITY RISK SCORE (OSMRS)

Heart Failure



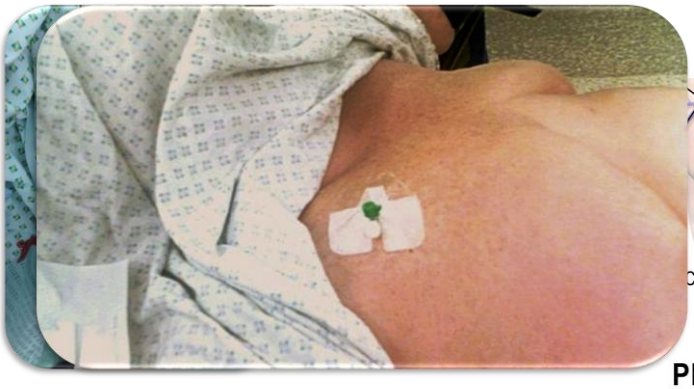
Worsening preoperative heart failure is associated with mortality and non cardiac complications, but not myocardial infarction after non cardiac surgery ; a retrospective cohort study.
Maile et al. Anesth Analg 2014;119:522-32

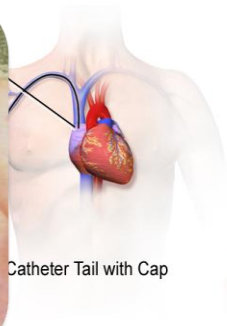
Where do we start?



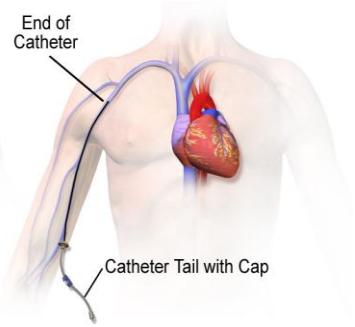
- Movement - walk
- Self-positioning
- Awareness ↓
- Double sets of kit
- Staff division

Vascular Access



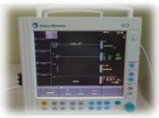
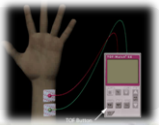


PICC Catheter



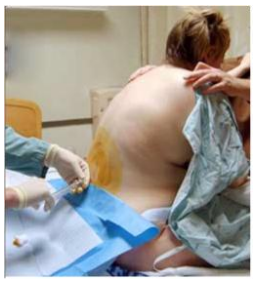
Midline Catheter

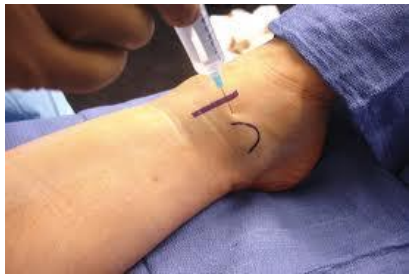
Monitoring

- Routine 
- Forearm NIBP 
- NMB / TOF / PTC 
- Depth of Anaesthesia 
- Venous Bicarbonate 

Anaesthesia Volume 70, Issue 7 July 2015 Pages 859–876

Choice of anaesthetic technique



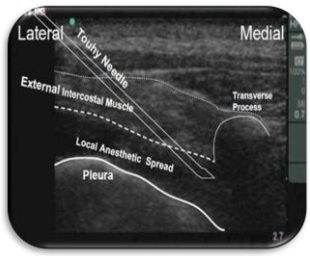


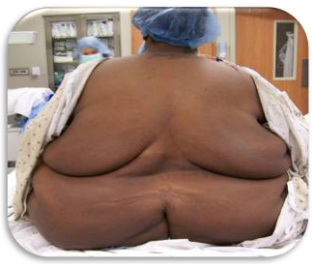
Regional blocks

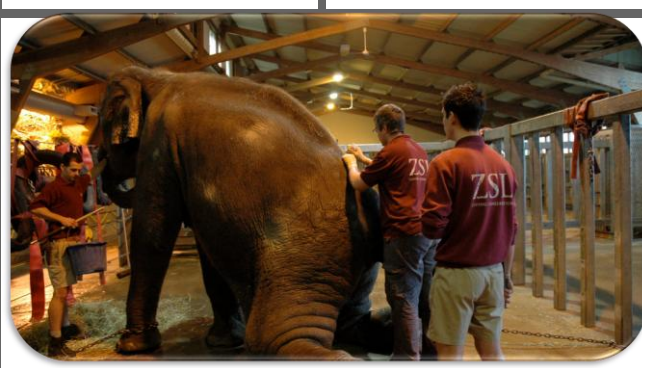
- Awake
- Special equipment
- Mobility restricts ERAS
- Success issues
- NAP 4…….

2013 http://bariatrictimes.com/regional-anesthesia-for-bariatric-surgery/

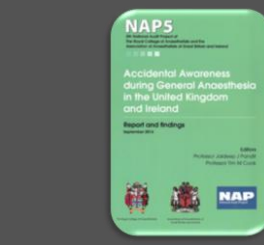
BJ Pain Vol 13; 2: 106-111

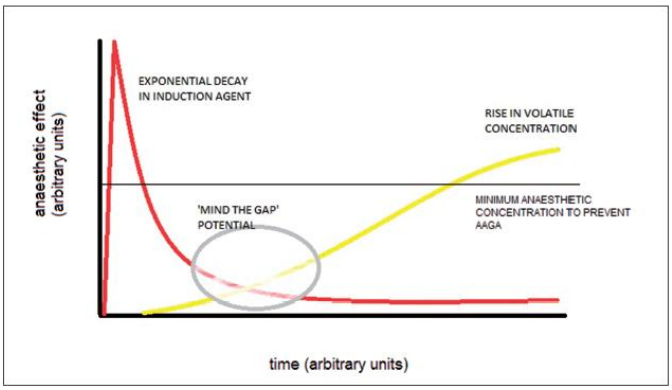






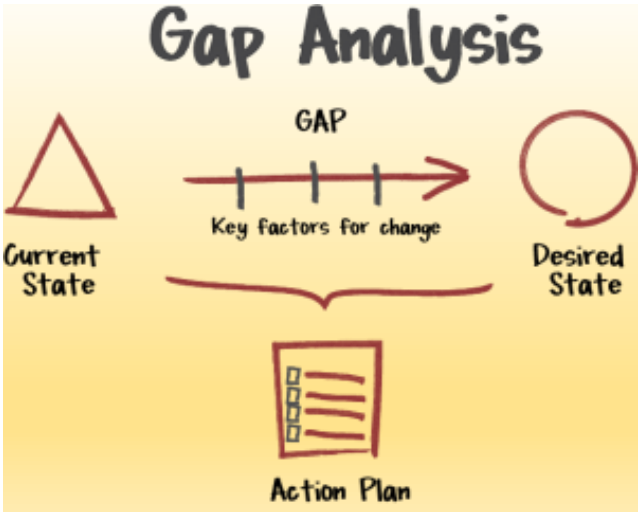
Induction and the 'gap'



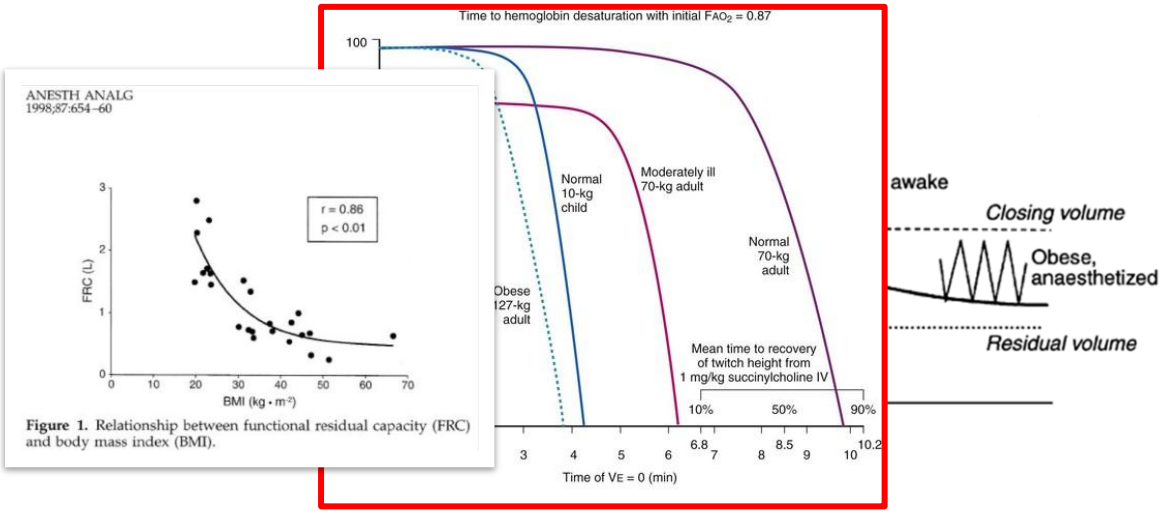


Avoiding awareness

- Theatre for Induction
- Rocuronium – Airway
- BMV ? not RSI
- Bolus Propofol for intubation
- DoA/EEG monitor from start

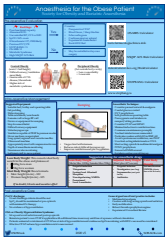


Some Respiratory Physiology

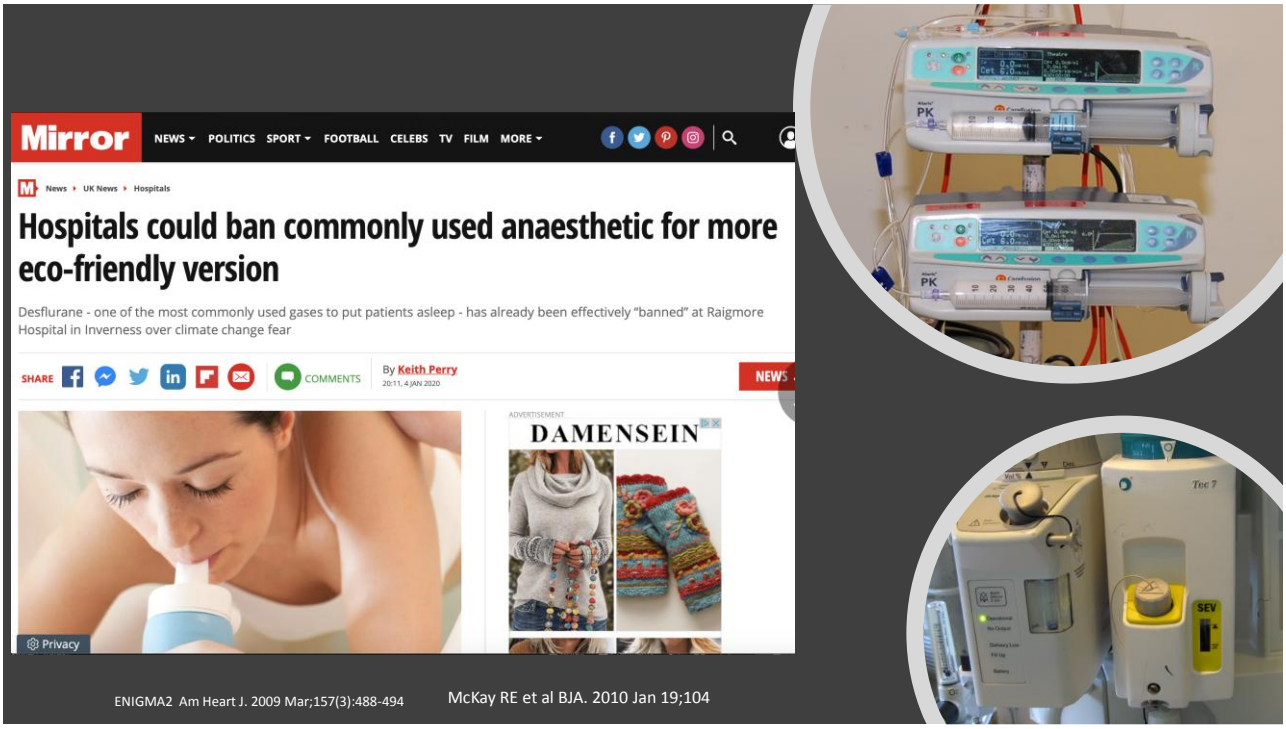


Correct Drug Doses

Lean is my Weight Scalar → Limit F to 70kg → Limit M to 100kg → USE the drug table



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)



ENIGMA2 Am Heart J. 2009 Mar;157(3):488-494

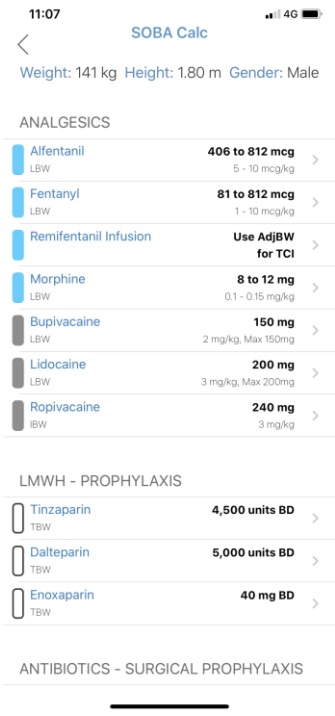
McKay RE et al BJA. 2010 Jan 19;104

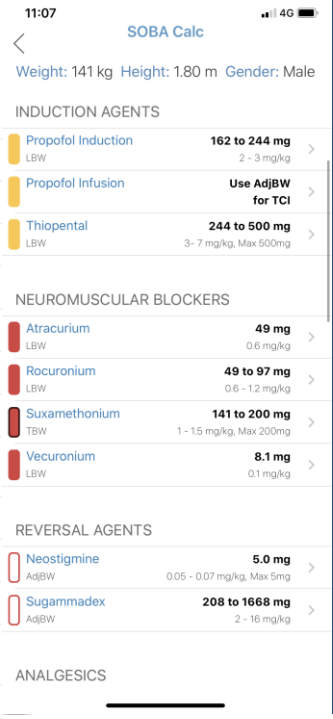
Ventilation & Extubation

- Pre-Oxygenation ?
- Pressure vs Volume
- PEEP
- Recruitment
- Avoid SV modes Beware SGA
- Nasal Airway
- Failure Planning
- Recovery

Reversal of NMB

- Monitor recovery of NM Block
- Quantative Assessment
- Neostigmine to 5mg
- Consider Sugammadex





- Prop/Fent/Roc
- Ketamine
- High dose Paracetamol
- iv NSAIDs
- IPLA Lignocaine/Bupivacaine
- or iv Lidocaine / Mg
- Minimal opioids / OFA
- Dexmedetomidine avoiding PCA
- Tramadol
- Full reversal of NMB for fast recovery
- CPAP or HFNO in recovery

Eipe, N., S. Gupta, and J. Penning. "Intravenous lidocaine for acute pain: an evidence-based clinical update." *BJA Education* (2016): mkw008.

An 'OSA-safe' anaesthetic

Peri-op

- Avoid long-acting drugs
- Reduce Opioids/OFA?

WARD Care

- Sit up
- NIV
- Monitored
- ERAS and Mobilise/VTE
- Multimodal anti-emesis
- Non opioid adjuncts
- Oxygen post-op to SpO_2>94%
- Appropriate location

PRE-OP
RED FLAGS

RAMPED AIRWAY

LBW AND TITRATE

THEATRE
INDUCTION

REVERSE NMB

MINIMIZE
OPIOIDS

MOBILISE

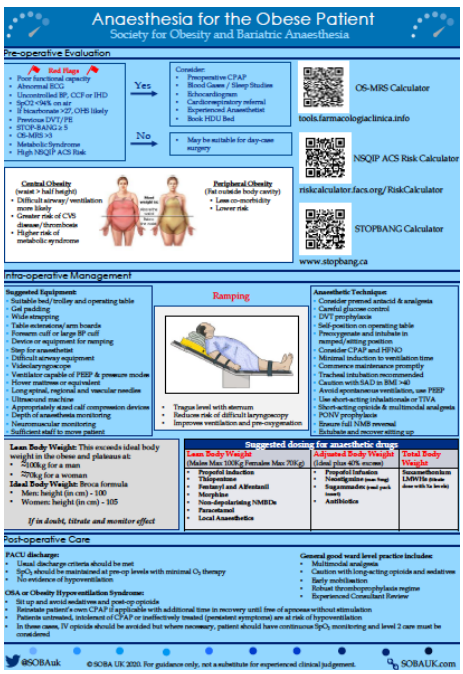
Summary

Resources

- Single Sheet Guide
- AAGBI/SOBA UK Guidelines
- Core Topic Textbook
- Obesity Theatre DVD
- ESPCOP
- SOBA

www.espcop.org
www.sobauk.com

New Single Sheet



Questions?

Thank-you

Anaesthesia for morbid obesity

Jon Redman
SOBA Chairman
RCOA Updates
Nottingham 2020

Royal College of Anaesthetists

SOBAUK
THE SOCIETY FOR OBESITY & BARIATRIC ANAESTHESIA

Declarations

- Current SOBA Chairman
- MSD Honorarium