

An Introduction to Anaesthesia

CPOM
Centre for Perioperative Medicine



the centre for
Anaesthesia **UCL**

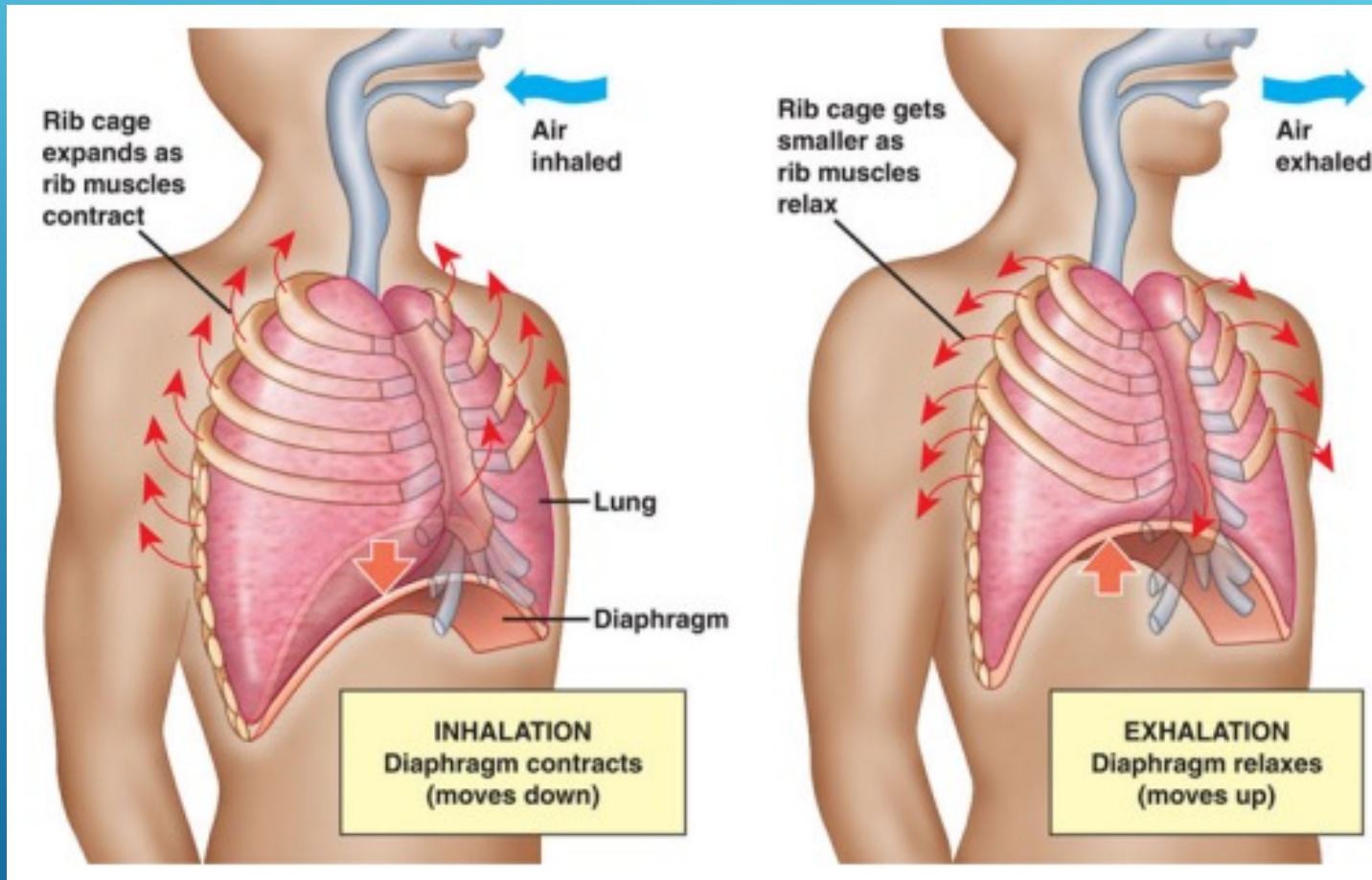
BREATHING

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FIVE THINGS I HOPE YOU WILL LEARN FROM THIS LECTURE

- ▶ How breathing is affected by anaesthesia?
- ▶ Who is most at risk of problems?
- ▶ Breathing / ventilation considerations throughout the perioperative period
- ▶ Ventilation & monitoring intra-op
- ▶ Common post-op problems

WHAT IS BREATHING?



HOW IS BREATHING AFFECTED BY ANAESTHESIA?

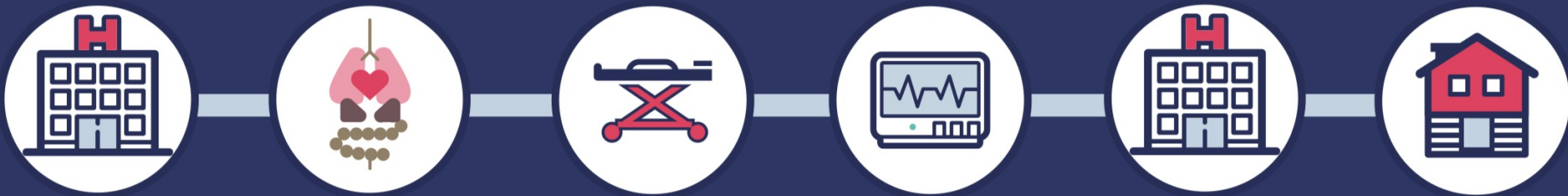


General Anaesthesia

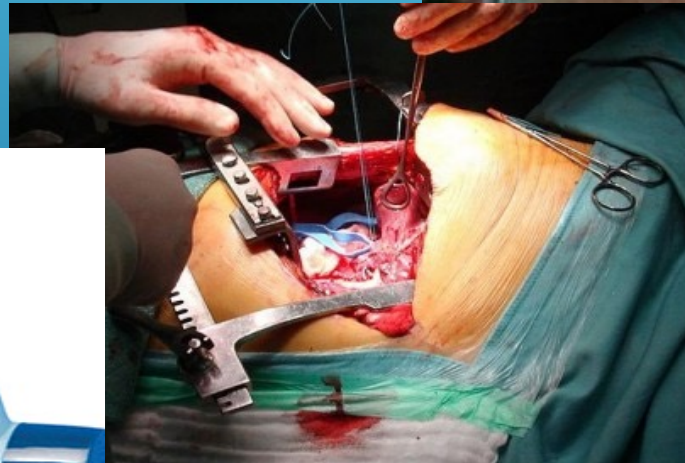
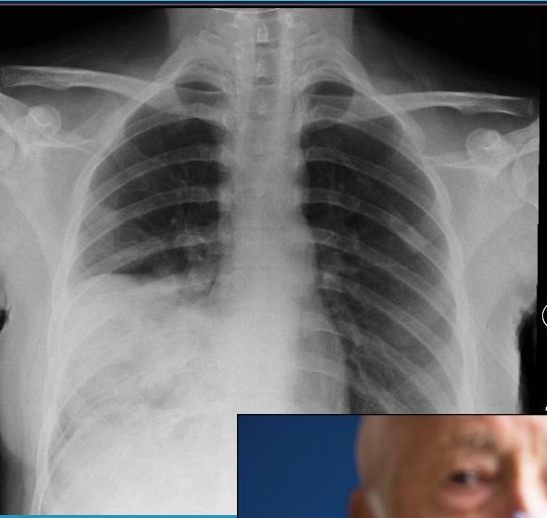
Regional Anaesthesia



WHAT CAN WE DO ABOUT IT?

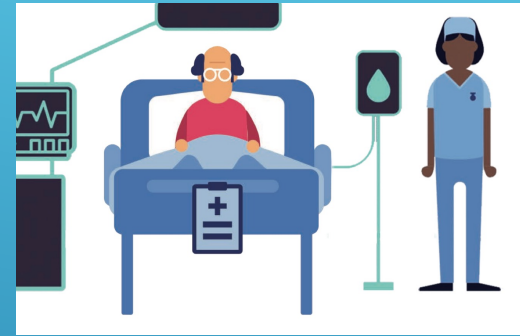


WHO IS MOST AT RISK?

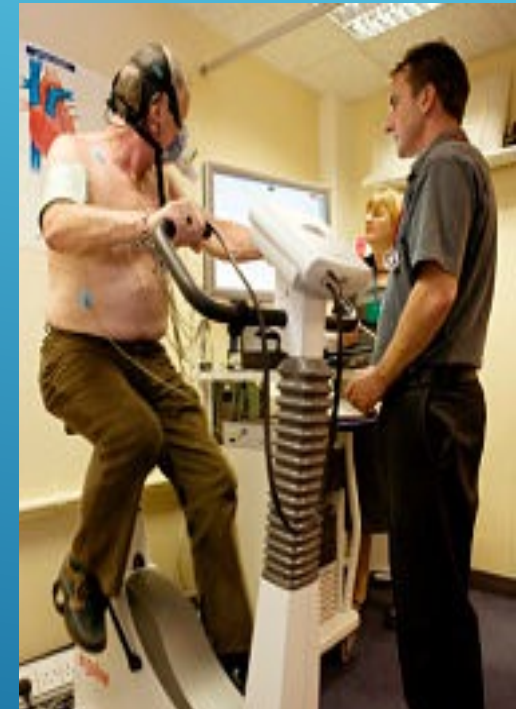
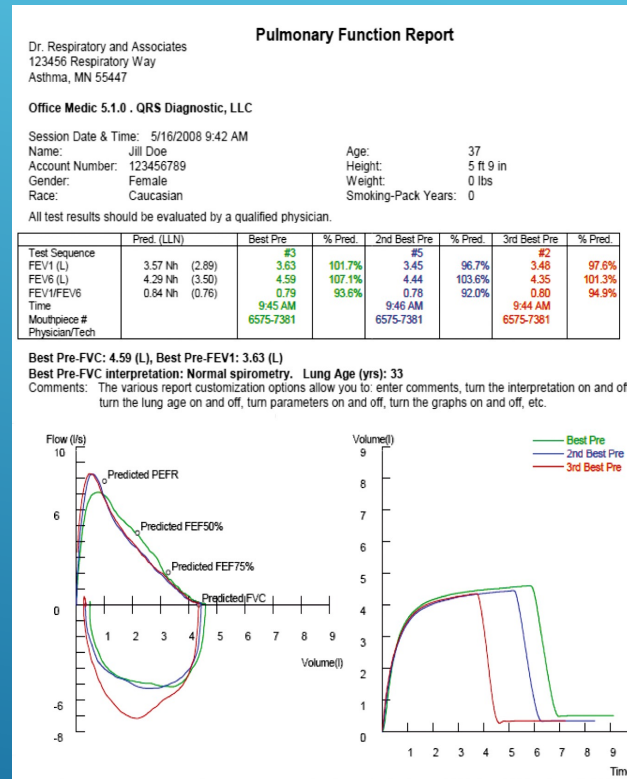


PREOPERATIVELY

- ▶ Assessment & Investigations
- ▶ Optimisation
- ▶ Pre-habilitation
- ▶ Other options
- ▶ Post-op destination



ASSESSMENT OF BREATHING



INTRAOPERATIVELY

- ▶ Most appropriate anaesthetic technique
- ▶ Oxygenate
 - ▶ Pre-oxygenation
 - ▶ Minimise periods of apnoea
- ▶ Ventilate
 - ▶ Avoid Airway obstruction
 - ▶ Lung protective ventilation



TYPES OF VENTILATION

SPONTANEOUS VENTILATION

- ▶ Physiological advantages
- ▶ Respiratory rate indicator of pain

BUT

- ▶ Prone to hypoventilation
- ▶ Some types of surgery require muscle paralysis

CONTROLLED VENTILATION

- ▶ More control of V_t / RR
- ▶ End-tidal CO_2
- ▶ Prevent atelectasis

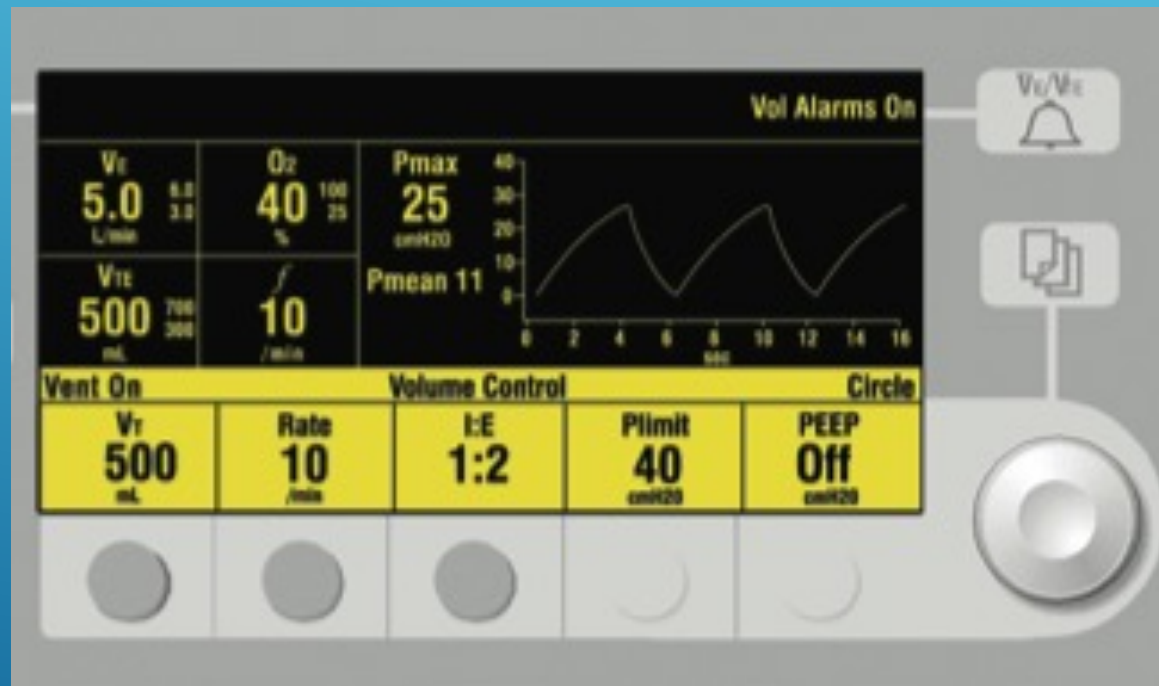
BUT

- ▶ Can cause barotrauma & volutrauma
- ▶ Muscle relaxant use

THE VENTILATOR

- ▶ Ensure adequate gas exchange
- ▶ Avoid lung trauma

- ▶ FiO₂
- ▶ Tidal Volume
(6-8ml/kg)
- ▶ Frequency



- ▶ I:E Ratio
- ▶ PEEP
- ▶ Pressure limits

ASSESSMENT OF VENTILATION

Anaesthetic Machine

Saturations

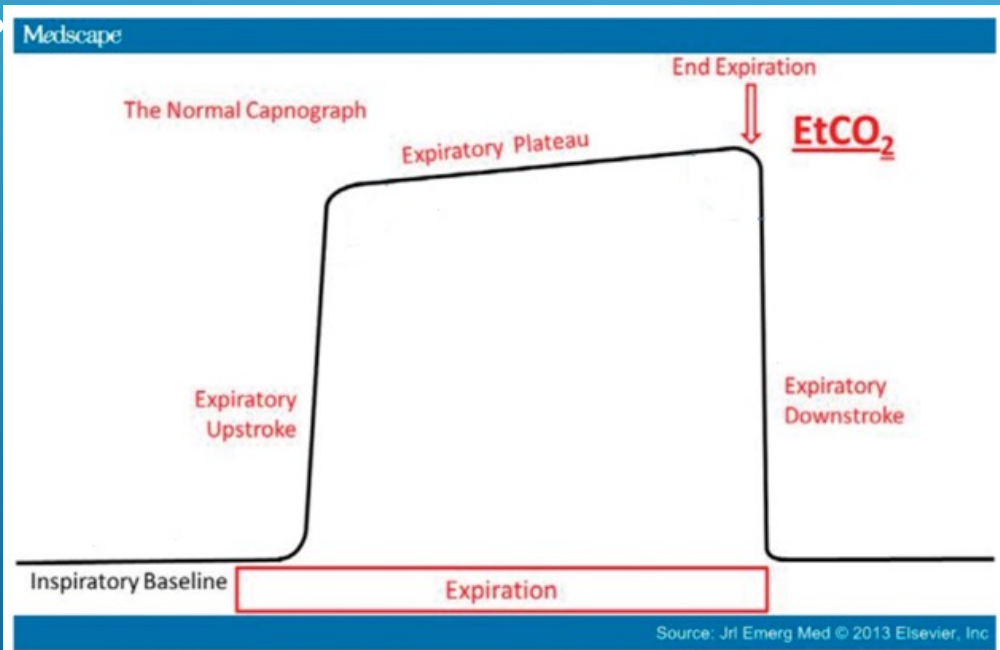
Inspired O₂

ETCO₂



CAPNOGRAPHY: END-TIDAL CO₂

- Immediate information
- Adequacy of ventilation
- Confirms circuit is intact



- Flat line:
failure of ventilation
- Slow rising initial phase:
airway obstruction

INTRAOPERATIVE – END OF SURGERY

- ▶ Reverse muscle relaxation
- ▶ Suction
- ▶ High flow & FiO₂ Oxygen
- ▶ Extubation

POSTOPERATIVELY

- ▶ Supplemental Oxygen
- ▶ Monitoring in recovery
- ▶ Chest Physiotherapy
- ▶ Medications
- ▶ Intensive Care



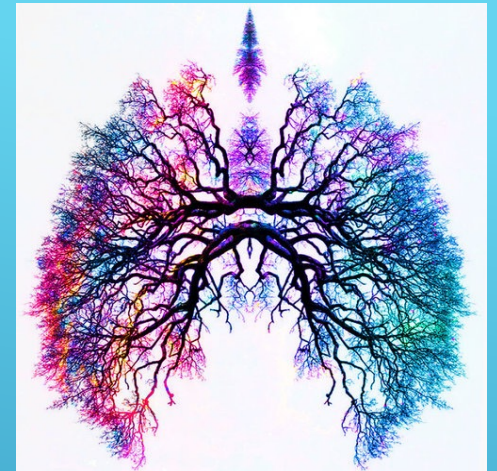
MOMENT TO THINK

POSTOPERATIVE PROBLEMS WITH VENTILATION

POSTOPERATIVE PROBLEMS WITH VENTILATION

- ▶ Atelectasis
- ▶ Analgesia causing hypoventilation
- ▶ Pain causing hypoventilation
- ▶ Poor mobility
- ▶ Pneumonia
- ▶ Chronic respiratory conditions

MY 'TOP TIPS'



1. **Oxygenation** is KEY
2. Capnography is **really** important
3. Consider patient, anaesthetic and surgical issues with ventilation
4. Optimise at each stage of perioperative journey
5. Prevention / early treatment of respiratory problems is better than a cure

THANK YOU FOR LISTENING.

ANY QUESTIONS?

