# Section 1: Case Summary

## Scenario summary

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| Scenario title | PACU emergency: Hypotension – pulmonary embolism |
| Keywords | PACU, Hypotension, Pulmonary Embolism, Venous Thromboembolism, Defibrillation |
| Brief description of case | After hours (1900 Friday)  64M post laparotomy for small bowel obstruction in PACU, extubated with arterial line in situ.  HMO review for pain management, complaining of epigastric pain.  Found SOB, agitated and hypotensive.  Eventually requires buzzer push for severe refractory hypotension and ALS + defibrillation + discussion regarding thrombolysis post-procedure. |

## Goals and objectives

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| Educational goal | Safe temporisation and escalation of care.  Recognition and management of thromboembolism in post-operative period. |
| Objectives | 1. Perform A-E assessment 2. Simultaneous temporisation and assessment to synthesise DDx of post-op hypotension and cardiac arrest 3. ALS shockable and non-shockable pathways 4. Safe management of defibrillation 5. Recognise complexity of decision making regarding perioperative thromboembolism treatment and destination planning |

## Learners, setting and personnel

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| Target learners | X Junior learners | | ☐ Senior learners | | X Staff | |
| X Physicians | X Nurses | | ☐ RTs | | ☐ Inter-professional |
| ☐ Other learners | | | | | |
| Location | X Sim lab | | ☐ In situ | | ☐ Other: | |
| Recommended number of facilitators | Instructors: 1 overseeing, +/- 1 mannequin voice | | | | | |
| Sim actors: 1 bedside nurse | | | | | |
| Sim techs: mannequin | | | | | |

## Scenario development

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| --- | --- |
| Date | 16/9/24 |
| Developers | Heidi Thies |
| Version | 1.0 |

# Section 2A: Initial patient information

1. Patient Chart

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| **Patient name**: Andrew Kelly | **Age**: 64 | **Gender**: M | **Weight**: 98kg |
| **Presenting complaint**  PACU arrival time 1800 (~1 hour prior) following prolonged laparotomy for large bowel obstruction. Initially drowsy but rousable. Now complaining of pain, increasingly agitated. | | | |
| **Triage note** | | | |
| **Allergies** NKDA | | | |
| **Past medical history**  T2DM  Hypertension  Hypercholesterolaemia  Smoker  Obesity | **Current medications**  Metformin 1000mg BD  Linagliptin 5mg daily  Rosuvastatin 40mg daily  Amlodipine 10mg daily | | |

# Section 2B: Additional patient information

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| Information that needs to be requested for by the learner |
| Admitted with small bowel obstruction yesterday. Has been unwell for several weeks with weight loss and increasing fatigue.  Found to have volvulus from cancer of small bowel. Prolonged resection, found to have large segment of dead bowel. Stoma formed.  Grade 2b intubation RSI (fentanyl 250mcg, propofol 80mg, suxamethonium 100mg). Given methadone 15mg intraoperatively + TAP catheters inserted by surgeons and loaded with 20mL 0.75% ropivacaine (10mL each side).  Metaraminol infusion run throughout, weaned at end of case. |

# Section 3: Technical requirements/Room vision

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| Patient | | | |
| X Manikin | ☐ Simulated patient | ☐ Task trainer | ☐ Hybrid |
| Special Equipment Required | | | |
| Adult mannequin with arms and legs. Intubation and COR required  Patient monitor: ECG, invasive BP, pulse-oximetry, capable of end tidal CO2.  ECG machine  Defibrillator (training or live)  IV pole with IV fluid  Airway trolley  Arrest trolley | | | |
| Medications Required | | | |
| 1L bag CSL  100mL bag 0.9% NaCl  10mmol MgSO4  10mL syringe fentanyl (10mcg/mL)  Metaraminol 10mg in 20mL  Adrenaline 1:1000 and 1:10 000  Propofol 20mL  Suxamethonium 2mL  Amiodarone 150mg amps x 2 | | | |
| Moulage | | | |
| Male wig  Honeycomb dressing midline laparotomy  Abdominal drain x1  Wound catheters x2  Patient monitoring connected:   * 3-lead ECG * Left radial arterial line with pressure bag + line * Left cub fossa peripheral IVC 18G with 1L bag of fluid connected * SpO2 * Hudson mask | | | |
| Monitors at Case Onset | | | |
| X Patient on monitor with vitals shown | | ☐ Patient not y et monitored | |
| Patient Reactions and Exam Findings | | | |
| **Cardio:**  Sinus tachycardia (~120bpm)  SBP 95 with narrow pulse pressure | | **Neuro:**  GCS 14 (E4, V4, M6) | |
| **Resp:**  Chest clear, RR 30 | | **Head/Neck:**  Normal | |
| **Abdo:**  Laparotomy wound, drain with blood-stained fluid, wound catheters | | **MSK/Skin:**  Warm peripheries  Right calf swollen | |
| **Other:** | | | |
| Exam findings that require manikin programming, or patient cues (eg. moaning when abdomen palpated)  Moaning when abdomen palpated  Speaking incomplete sentences | | | |

# Section 4: Sim Actor and Standardised Patients

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| Bedside | I | Hi, thanks for coming. I’m James/Jane, the PACU nurse looking after Andrew |
| S | Andrew is a 64yo man who has had a laparotomy for a small bowel obstruction this afternoon. He’s been here about an hour and is now complaining of pain. |
| B | He had a GA, methadone and wound catheters. He has a history of T2DM, hypertension and smokes. |
| A | He’s become increasingly agitated, and now complaining of worsening pain in his upper abdomen despite the fentanyl protocol. |
| R | Is there anything else we can give him for pain relief? |
| Patient |  | |

# Section 5: Scenario progression

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| **Patient vitals** | **Patient status** | **Learner actions/modifiers/triggers to progress** | | **Facilitator notes** |
| 1. **Baseline**   HR/Rhythm: Sinus tach, 120bpm  BP: 90/65  RR: 30  SpO2: 97% Hudson mask  Temp: 36.3  GCS: 14, pain 8/10 | Confused, agitated, difficulty breathing due to pain and SOB | Expected learner actions  ☐ receive ISBAR handover  ☐ Perform A-E assessment  ☐ Review anaesthetic chart  ☐ Give fluid bolus +/- metaraminol bolus  ☐ Give analgesia | Modifiers  BP transiently increases to 105 after fluid/metaraminol  Drops again after 1 minute or when gives analgesia  Triggers  Gives analgesia or 5 minutes passes | PACU nurse to press learner for more analgesia |
| 1. **State 2**   HR increase to 130 with ST segment elevation  BP drop to 75/40  SpO2 drop to 94% Hudson mask | Drowsy | Expected learner actions  ☐ recognise deterioration  ☐ reperform A-E  ☐ consider DDx  ☐ further fluid + metaraminol bolus  ☐ call for help – ISBAR to senior attendence | Modifiers  Triggers  5 minutes pass | PACU nurse to ask “why do you think he’s hypotensive?”  After 5 mins: PACU nurse to mention “his respiratory rate seems to be quite high”  With call for help 🡪 1 senior joins (anaesthetist in charge) |
| 1. **State 3** (PEA arrest)   HR 80 sinus  BP flat/CPR | unresponsive | Expected learner actions  ☐ Recognise arrest  ☐ Call for help  ☐ start CPR, allocate roles  ☐ rhythm check: non-shockable pathway (adrenaline)  ☐ Work through 4Hs and 4Ts | Modifiers  Triggers  5 minutes pass | With further call for help 🡪 The rest of the group joins  After ~5 minutes or if PE mentioned during 4H/4T: PACU nurse to mention “his right leg looks a bit bigger than his left” |
| 1. **State 4** (VF arrest)   VT  BP flat/CPR | unresponsive | Expected learner actions  ☐ Intubation  ☐ Rhythm check – shockable pathway  ☐ continue DDx 4Hs and 4Ts  ☐ investigations (ABG, TTE)  ☐ | Modifiers  Initial intubation no end tidal CO2 (unsuccessful)   * Either LMA insertion or 2nd intubation successful   Triggers  Successful intubation: rhythm check | After 1st ETT attempt: PACU nurse to ask “I can’t see any end tidal CO2, are you sure the tube is in the right place?” after 1st intubation attempt |
| 1. **State 5** (ROSC)   HR 120 SR with ST depression  BP 100/75  SpO2 94% on 100% FiO2  ET CO2 normal trace | Some spont breath attempts | Expected learner actions  ☐ A-E assessment  ☐ post-resuscitation care  ☐ destination planning/referrals  ☐ consideration of thrombolysis  ☐ | Modifiers  Triggers | Conclude sim |

# Appendix:

Anaesthetic chart

Investigation results