The Faculty of Intensive Care Medicine

Fire Simulation 1:

Set-up:	
Lines/access:	RIJ CVC, Left radial arterial line, one peripheral cannula
Infusions:	Sedatives, 1L crystalloid.
Airway:	Own, HFNO Nasal Prongs
Ventilator:	NFNO FiO2 0.6, Flow rate 60L/min
Other:	Mapleson C (Waters circuit), CD O2 cylinders, transfer bag, torch. Fire equipment – fire blanket, fire extinguishers, assembly point sign. Fire action cards and evacuation policy.

Clinical setting

I: You are the nurse / doctor looking after the patient in a side room on ICU, currently the only patient on the unit.

S: It is 0200, and the patient is delirious and agitated. You step out to draw some sedation.

B: 82 year old lady with COVID.

A: An oxygen cylinder explodes destroying the wall next to bed 6. Flames and smoke are billowing into the ICU.

R: You see and hear the explosion from the nurses station.

Potential Clinical Course:

- Initially
  - A Patent, own
  - B SpO2 90%, FiO2 0.6, Flow 60L/min. RR 25.
  - C HR 105 bpm sinus, BP 155/99mmHg unsupported
  - D agitated
- Bedside nurse currently outside room getting drugs. Notices explosion taking out wall.
- Large fire, unsuitable for fire extinguisher attempts.
- Decision needs to be made whether to evacuate or stay put in side room.
  - Ultimately they should evacuate as the fire is advancing.
- Patient cannot be evacuated to another level 2/3 setting as route blocked so must be taken to another ward
- This decision needs to be communicated to site manager to make room on ward / alert them.

This Simulation Scenario has been adapted by Dr Jonathon Wong and Dr David Melia, originally written by Dr Sarah Marsh, the document has been produced by Dr Melia and approved by the FICM Education Sub-Committee. If you have any queries, please contact FICM via contact@ficm.ac.uk.

- Patient desaturates to 60% when taken off HFNO, the only way to keep SpO2 >90% is with waters circuit and face mask.
- Oxygen stop valve should be turned off to prevent oxygen from ICU feeding fire. This is the only patient on the unit so can be done as soon as on Waters circuit. Would need further discussion if multiple patients on wall oxygen.
- On evacuation from room patient becomes tachypnoeic, hypotensive, tachycardic. Absent breath sounds on right, hyper-resonant to percussion on right, trachea deviation to left – requires needle decompression.
    - This resolves tension pneumothorax and gives sufficient stability to allow evacuation to continue without chest drain.
- Evacuate the patient to ward using Mapleson C. Ensure NFNO / CPAP is brought down to ward and establish patient on this.
- Assess ABC once place of safety on ward.
- Assess staff for injuries – send to ED if necessary.

Key steps

- The nurse should call for help either by pulling the arrest buzzer or shouting for help - FIRE
- Help should arrive and leave to activate fire call point, get evacuation reference cards
- Nurse in charge – evacuation coordinator/fire warden
- Plan the evacuation
- Consider oxygen use – locate oxygen cylinders to aid evacuation, shut off valves, Waters circuit/transport ventilator. Need multiple cylinders.
- Alert relevant staff – evac fire card – COTD, ICU cons, theatre coordinator
- Ensure somebody communicates to the ward (site manager)
- Close fire doors if not already
- Plan unit evacuation

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Info Sheet For Faculty:

- Initial settings: SpO2 90% on FiO2 0.6

  RR25

  Reduced breath sounds both bases

  HR 105bpm sinus

  BP 155/99

- On transfer:

  SpO_2 to 100% if using FiO2 1.0 or Mapleson C (Waters Circuit)

  SpO2 drops to 85%

  RR35

  Reduced breath sounds right side, hyper resonant on percussion.

  HR 150bpm

  BP 85/60

- After transfer to PACU

  SpO_2 to 90 on FiO2 1.0

  $ETCO_2$ 4.0kPa

  RR - 25

  HR 100bpm sinus

  BP 140/90

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Faculty Roles:

Bedside Nurse 1:

- You are an experienced ITU Nurse
- You have stepped out of the sideroom to draw some medication
- See an explosion that destroys a wall in the ICU, with flames and smoke pouring into the unit.
- You call for help when instructed.

Nurse in charge:

- You are also a fire warden.
- You hand out fire evacuation policy and action cards
- You confirm there is fire and relay this information to switchboard via 2222 / fire call point when directed
- You can operate the oxygen shut off valves if needed.
- You explain horizontal evacuation destination is PACU.

ICU consultant:

- Arrive and offer help, take handover

HiLLO: 1, 2, 4, 5

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