Dis-asthma. Scenario Run Sheet

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| Scenario Overview | |
| Estimated scenario time: | 30 minutes |
| Estimated guided reflection time: | 30 minutes |
| Target group: | ED registrars and resus nurses |
| Brief summary: | 2AM: 28M self-presents with critical asthma in context of 2 days viral URTI. No relief with own seretide/ventolin/prednisolone - peri arrest on arrival - PEA arrest without prompt intubation - subsequent issues with ventiation, requiring frequent hand-bagging, sloooooow vent strategy & eventual instability with breath stacking & **R**ight tension PTx - arrests if not promptly decompressed - poor sats should prompt consideration of ECMO |

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| Learning Objectives | |
| General: | Being an ED doc/nurse |
| Scenario Specific: | * Recongnition of pre-arrest asthma * General management of critical asthma * Advanced airway/ventilation in asthmatic * Approach to post-induction desaturation * Permissive hypercapnoea/obstructive vent strategy * Approach to crashing intubated patient; “DOPES” or similar * Recognition of vent difficulty/hypoxia even with optimal vent strategy = ECMO |

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| Equipment Checklist | |
| Equipment   * Adult SimMan - sitting up with neb on * Patient trolley * Monitoring equipment / ECG * IV access * Defibrillator * SIM Resus Trolley * Stethoscope * OxyLog for use as CPAP & ventilator * ICC tray/kit * Long cannulas - 14 & 16G with 3 way tap   NB: if asks for ultrasound or video laryngoscope - **broken** | Medications and Fluids   * IV fluid+Mg infusion+salb infusion+adren inf * atrovent, salbutamol, adrenaline nebs * IV hydrocortisone, dexamethasone * propofol, sux, roc, midaz, fent, ketamine * infusions of above available |
| Documents and Forms   * Triage Sheet * Nursing Assessment Form * Pathology/Radiology forms |
| Diagnostics available   * ECG: Sinus tachy at 160 * if ask for repeat ECG when arrests = same * ABG (lmixed resp failure with low K & high lactate due to ventolin ++) * CXR - hyperinflated, peribronch cuffing * if asks for CXR when arrests - large R PTx |

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| Scenario Preparation / Baseline Simulator Parameters | |
| Initial parameters in resus  Patient sitting upright with nebuliser on  chest - slight wheeze, essentially silent  Temp – 37C  Pulse – 160  Resp – 26 (spont)  BP – 140/70  SpO2 – 86% (oxygen driven neb)  Alert, gasping, unable to speak, eyes open to voice (to command “open your eyes”) | Initial Progress   * sats to drop to 80 over 4-5mins unless CPAP/BiPAP applied - or BVM IF there is some assistance with ventilation * sats will stabilise at 85% if above done with 100% oxygen * if not promptly intubated -> GCS drops, RR drops & eventual PEA arrest with sats 60% & HR 160ST |

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| Number of Participants | |
| Medical Staff x 3 (TL, airway, procedures)  Nursing staff x 3 (Scribe, airway, circulation, meds etc)  - scenario to begin with x2 resus nurses who will have initial history from triage nurse and call docs & an extra nurse in ASAP | Instructor Roles   * x1 = patient being breathless * “wizard” provides specific feedback over loudspeaker * ICU consultant: walks in and saves the day - depending on team progress could help guide scenario to a happier ending |

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| Additional Information / Medical History | |
| Patient Demographics: | 28M visiting from Adelaide on holiday |
| History of Presenting Complaint: | - Unwell for 3 days with dry cough, slight sore throat and increasing dyspnoea & wheeze  - Self initiated prednisolone 50mg yesterday  - Used x2 whole ventolin puffers last 24hrs; too SOBOE to shower  - No PE symptoms/risk factors, no rigors/fevers  - Partner drove him to ED when ran out of ventolin  - Partner gone to park car from triage - unavailable in scenario |
| Previous Medical History: | - Asthma ; maybe ICU as a child - unclear-, uses ventolin 3-4x week  - Seretide + ventolin ; NKDA  - Usually fit & well |

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| Proposed Scenario Progression |
| * BACKGROUND: Patient arrives in middle of night and is wheelchaired in from triage as a cat 1; scenario to begin with x2 nurses in the room who receive some background/handover from triage nurse with basic info as aove; triage nurse states partner knows more but has gone to park car :: these nurses should be briefed as above - they have 1-2mins of “own time” before reinforcements arrive   + get x2 IV access, send bloods, get ABG, hook up monitor   + start nebs, prepare airway trolley etc * Triage sheet available to team ; docs & nurse outside will be told it is nightshift and they hear a “CAT2 resus now” over the loudspeaker - x1 doc & x1 nurse arrives ; a minute later then x2 docs arrive (ie. from paeds/Ft area when they hear about ‘the dude in resus’ * Initial ABCD assesment should be c/w asthma   + own airway initially; if not secured gets drowsy, RR drops and snores   + tachypnoea but **tired**, wheeze but poor air entry (ie. near silent chest), tachycardia, BP ok   + no lower limb swelling/oedema   + will gasp “NO” if asked about pain/recent travel/surgery/prev PE/DVT * ED consultant is 30 mins away, ICU consultant has tubed someone at the private and has no ETA * Anaesthetics - in theatre can’t leave   + the scenario should ideally push the team to realise they they need to do something NOW - unless it’s in the room, it’s too far away * early recognition of need to intubate ; steroids, magnesium, adrenaline/salbutamol infusion in meantime while prepping * sats will drop to 78ish on paralysis - ideally should abort laryngoscope attempt - slow bagging will incr sats to 90   + rapid bagging at this point will cause ventilation to become harder & harder & BP to drop to 80/-   + BVM with guerdel/NPA will work, LMA will work -> sats 90   + if plans to let sux wear off or reverse roc + wait for help-> gets a spent RR of 20, volume 80mls, sats 70% and then PEA -> pneumo -> death * airway grade I - easy to intubate, immediate end tidal noted * obstructive vent strategy -> lung protective volume (70kg male), RR8-10 or less, no PEEP * recognise role for deep analgo-sedation (M&M, props & vent) and long acting paralysis * regardless of post tube care, patient will drop BP & sats ; WIZARD can call a “low volume/hi pressure” vent alarm - subsequent PEA arrest with HR 170 - if appropriate setting will take 6-8mins, if PEEP or rate >12 -> happens quickly ie. 2-3 mins * if disconnects and compresses chest - gets a BP back at 60 systolic with faint pulse, sats 70% * auscultation will show NO air entry on right ; if asks re. trachea - WIZARD states deviated to left * needle decompression/finger thoracostomy will result in ROSC - WIZARD to announce a HISS from needle/incision ; now bilateral AE with wheeze * should then do ICC, manually bag ; sats will never go above 82% which should prompt ECMO question * scenario end with arrival of ICU consultant either to:   + 1) stable patient with right ICC and slow vent strategy; sats never above 82%   + 2) CPR in progress on PEA arrested chap (if no needle decamp or ICC) |

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| Debriefing / Guided Reflection Overview |
| General opening questions:   * How was the scenario? (each team member reflects) * What happened in the scenario -> ie. relate the story to a workmate who wasn’t there |
| Scenario specific questions:   * What was wrong with this patient? * What medications / investigations may be required, where do they need to go? |
| General wrap-up questions:   * What did you find most beneficial about this scenario? * What was the most challenging point within this scenario? * What would you do differently next time? |

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| Case Considerations: |
| * critical tiring asthma - considering differentials PE , Ptx, pneumonia would be good * interim Mx - adrenaline, mag, steroids +/- salbutamol infusion (either pre or post tube) * intubation of very hypoxic patient - NIV, sitting up as long as possible, big dose paralytic * ketamine as optimal induction agent in bronchospasm * cricoid -> don’t care * strategy when desats at induction -> stops trying to tube & oxygenates somehow   + “slow & low” bagging - low rate / vol as worried about O2 not pH, low P so as not to overcome gastro-oesophageal sphincter * obstructive vent strategy / permissive hypercarbia (target low ETCO2)   + recognises that normal ETCO2 post tube is bad as reflects relative hyperventilation * approach to crashing patient post tube ; DOPES or similar * recognises breath-stacking & PTx as complications of ventilating asthmatics * needle decomp -> ICC or finger thoracostomy * recognises ECMO as strategy in recalcitrant hypoxia/vet problems in asthma * ACLS if applicable |