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
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| Documents and Forms* Triage Sheet
* Nursing Assessment Form
* Pathology/Radiology forms
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| 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 resusPatient sitting upright with nebuliser onchest - slight wheeze, essentially silentTemp – 37CPulse – 160Resp – 26 (spont)BP – 140/70SpO2 – 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
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| Scenario specific questions:* What was wrong with this patient?
* What medications / investigations may be required, where do they need to go?
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| 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
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