

Pre-hospital and retrieval medicine from the junior doctor's perspective

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[emergency](#), [ontheponds](#), [rural and remote medicine](#)

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With Dr Patrick Gillespie, Advanced Trainee in Emergency Medicine at Cairns Hospital & Lifelight Retrieval Medicine and Dr John O’Neill, Emergency and Consultant at Cairns Hospital & Lifelight Retrieval Medicine, Queensland

Introduction

It is common for junior doctors to feel apprehensive about embarking upon a rural rotation. Apart from having to work in a new environment, rural rotations often require more independent decision-making, often without the resources available at large teaching hospitals. In Queensland may be first on call for Emergency Department presentations, so it is not uncommon for junior doctors to have to refer a patient from retrieval. In Queensland are coordinated by Retrieval Services Queensland other states. The principles discussed in this pod Queensland

1. What advice do you have for junior doctors who need to refer a patient to another facility?

- Local teams - nursing, administrative and their experience
- Ask for advice early; you are not alone
- There’s always a point of contact for further clinical advice (e.g. the clinical coordinator via phone or telehealth)
- When engaging with a retrieval service, take a moment to summarise the key points and
- You do not have to have made a diagnosis, but have a structured hand patient’s issues

2. What type of information will the retrieval coordinator request?

- Structure the hand
- Introd
- Provide the name, age, sex and
- Situation: e.g. A 65 year old haemod
- Don’t forget background

3. How does the retrieval coordinator make decisions regarding mode and urgency of retrieval?

- It is important for a retrieval coordinator to triage retrieval based on incoming traffic from other service providers
- Time to retrieval is based on acuity of patient and what assets are available
- Other aspects of the patient (e.g. patient weight, particular injuries) may have an impact on the patient's ability to fly on an aircraft
- If you have specific questions about ongoing treatment prior to retrieval, use retrieval resources
- Telehealth is also an asset in this setting

4. What can a junior doctor do to help prepare a patient for retrieval?

- The first priority is to focus on resuscitation: DRSABCD
- If possible, establish IV access (preferably 2x IVC)
- Photocopy any relevant documentation including ECGs, ABGs/VBGs, advanced care directives, etc
- Prepare the family and the patient - leaving a patient's hometown may be a big step particularly with elderly patients or Indigenous patients and retrieval may be a pre-terminal event
- Ensure it is appropriate for the patient to be transported - are their goals of care consistent with transfer?

5. What advice do you have for the junior doctor giving a handover when the team arrives?

- Keep handover systematic, succinct and simple
- Use ISBAR or similar
- Write down the key issues especially if the patient has been in hospital for a few days and their situation is complex
- Practice your handover to the nurses before the retrieval team arrives
- If you are unsure about why the retrieval team is doing something, ask - use the opportunity to learn

6. What are some of the factors the retrieval team considers for management of patients during transfer?

- The duration of the patient's transfer and expected or possible treatment requirements

- Retrieval team takes note of access and security of IVCs (harder to put in in the air)
- They may ask for some additional drugs to be prepared in the event of deterioration
- Factors around the retrieval itself - e.g. flying patients to altitude can exacerbate respiratory failure so retrieval team may have a lower threshold for intubating

Case 1 - A 50 year old patient has presented to your rural hospital at 10am with a 2 hour history of central, crushing chest pain. You are the sole doctor on site but there is a senior medical officer on call. One of the two nurses has performed an ECG which demonstrates an anterior STEMI. The referral hospital is a 2 hour drive away or a 30 minute flight by helicopter.

7. What should the junior doctor's next step be in this scenario?

- Resuscitate and call for help early
- If the patient is having a STEMI, expect them to become unstable - become hypotensive, develop an arrhythmia, etc. (even if they don't, you'll be prepared)
- Put pads on early, get IV access, give judicious fluid boluses (as clinically appropriate) and move them to the resuscitation bay
- May be appropriate to engage with the local cardiologist and send off the ECGs
- Start initial analgesia and antiplatelet therapy and oxygen if required
- If discussing with metropolitan colleagues, make it clear what investigations / management strategies are available to you at your rural facility
- The main question will be around time for reperfusion (primary PCI vs thrombolysis)
- Have other drugs prepared e.g. adrenaline

Case 2 - A 25 year old male has fallen off his motorbike at high speed at 2pm. He is brought in to the rural hospital where you are working. His vitals are: GCS 12, SaO₂ 100% on high-flow O₂, HR 100 and SBP 100. He has a head injury and, clinically, it looks as though he has a left-sided pneumothorax. On the basis of extensive bruising over the left upper quadrant of his abdomen, you're worried about a splenic injury. There are no apparent limb injuries. The retrieval team is only 5 minutes away because they were notified by the ambulance service.

8. What should the junior doctor do in this situation to resuscitate the patient and prepare them for transfer?

- Find an appropriate space for the patient - a resuscitation bay

- Arrange a team including other medical team members and nursing staff
- Organise equipment
- Call senior staff early
- If a pre-alert has not been made to a retrieval team, they should be notified immediately
- The algorithm for resuscitation of trauma is slightly different from the algorithm used for other resuscitation
 - Life-threatening haemorrhage is managed first: CABCD
- Maintain spinal precautions
- Splint any fractures
- Give good analgesia
- Prepare equipment for a chest drain
- The retrieval team assesses the haemodynamic stability of the patient and then performs a head to toe secondary survey

- If a patient has a pneumothorax need to be mindful of pressure changes when traveling at altitude
 - Consider Boyle's law and the changes of the volume of gas with pressure changes
 - Entrapped gas will expand with altitude particularly in a helicopter (unpressurised vehicle) - haemothorax may expand leading to instability
- Interventions on the ground (e.g. chest drain insertion) may be performed to avoid risks
- There is limited evidence to inform achieving the balance between time-critical and treatment-critical interventions
- Preparation is key: take time to secure IV access and stabilise the patient prior to transfer
- Analgesia is key: fentanyl +/- ketamine quite effective
- Sometimes patients need to be anaesthetised to achieve adequate analgesia

- After initial resuscitation, make a referral early
- Think ahead and pre-empt complications
- Practice handover before the retrieval team arrives and use a systematic format (e.g. ISBAR)
- Stay and be involved when the retrieval team arrives - use the opportunity to learn more

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