



Getting to Know Your Rural ER

WHERE IS THAT THING?

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CAREER LOCUM, FOREVER SEARCHING FOR THAT THING

Background

- ▶ I have been a locum in rural and remote BC since 2017
- ▶ I am often working in a new emergency room environment and having to orient myself to someone else's space
- ▶ I have personal experience with the breakdown in your ability to find things RIGHT IN FRONT of your face (ie- the importance of preparing in advance)

Disclosures

- ▶ None, no relationships with industry

Learning Objectives

- ▶ Recognize the critical equipment for approaching medical emergencies in a rural or remote emergency room.
- ▶ Demonstrate an approach to preparing yourself for work in an unfamiliar department.
- ▶ Identify the unique characteristics of a rural community (ex-geography, local resources) and how they impact rural medical care, especially with respect to patient transfers.

Outline

- ▶ Where is that thing: the things and where to find them
- ▶ What do I bring?
- ▶ What can we do locally?
- ▶ Where does this patient go? Who do I call?
- ▶ Questions and general discussion

Participant Poll

- ▶ What is your primary practice style?
- ▶ Work in rural/remote community full-time or contract
- ▶ Locum in rural/remote
- ▶ Provide virtual support to rural/remote
- ▶ No rural/remote practice

The things that you need

- ▶ Things you need right away
- ▶ Things you need often
- ▶ Things you need so infrequently that no one knows where they live

Things that you need STAT

- ▶ These are things you need to have pre-checked
 - ▶ “Making peace with the trauma room”
- ▶ You also need to make sure they are working
 - ▶ Lights, batteries (ex- can be dead in King LT if stored in machine)
- ▶ You may also need know what the local equipment variations are
 - ▶ Glidescope vs. King LT vs. direct laryngoscopy vs. C-MAC

Things that you need STAT

- ▶ Consider having “kit dumps” for common stat procedures to make sure trays are fully stocked
- ▶ You may be the most experienced provider and can modify what you have in stock with enough advanced planning
 - ▶ Ex- stocking gum elastic bougies if you like using them

Things that you need STAT: Airway

PRE-RSI CHALLENGE-RESPONSE

Monitoring - BP, ECG, SpO2, ETCO2 in situ ? CHECK

Nasal Specs PLUS Mask 15l O2 & PEEP valve ? CHECK

Pre-oxygenation for FOUR minutes ? CHECK

Suction & ETCO2 available AND working ? CHECK

IV & DRUGS

IV Cannula connected to fluid & running ? CHECK

NIBP on contralateral arm and BP seen ? CHECK

Spare cannula in situ ? CHECK

INDUCTION AGENT drawn up, dose checked ? CHECK

SUX or ROC drawn up, dose checked ? CHECK

VASOPRESSORS drawn up, labelled ? CHECK

POST INTUBATION drugs drawn up & labelled ? CHECK

INTUBATION EQUIPMENT

BVM connected to oxygen ? CHECK

Oro- & Nasopharyngeal airways available ? CHECK

Laryngoscope blade chosen, light working ? CHECK

ET tube size chosen, cuff tested ? CHECK

Alternate tube size chosen & cuff tested ? CHECK

Syringe for cuff inflation ? CHECK

Stylet & Bougie available ? CHECK

Gooseneck, filter, inline ETCO2 (or EasyCap) ? CHECK

Tube Tie / Tape & Lube available ? CHECK

Ventilator settings determined ? CHECK

Anticipated difficult airway plan's discussed ? CHECK

TEAM BRIEF

OPTIMISED - 360 access, ramped, occipital pad ? CHECK

In-line immobilisation & cricoid considered ? CHECK

Drug giver briefed ? CHECK

Agreed TRIGGERS to TRANSITION (SpO2, time etc) ? CHECK

Anticipated problems & post RSI care brief ? CHECK

FRONA BOUJIE with CUDE TIP and RAPI-FIT CONNECTORS

ETCO2 CHECKED?

USE PEEP VALVE
IF AGITATED,
USE NRBM
+ N/SPECS

DON'T FORGET
ApOx

15 l/min
O2

DRUGS

INDUCTION AGENT
SUX or ROC
VASOPRESSOR
FLUIDS RUNNING

PLAN IN CASE OF A FAILED AIRWAY ?

Rescue ventilate (SGA/BMV)
Videolaryngoscopy?
Intubate via SGA (Ascope)
Emergency Surgical Airway

LUBE **TAPE**

10 or 20 ml syringe

Difficult Airway Trolley Available?

SURGICAL AIRWAY KIT AVAILABLE & PREPARED TO USE IT ?

Things that you need STAT: Airway

- ▶ BVM
- ▶ Laryngoscope: check lights for DL, batteries for King LT, screen and blades for Glidescope
- ▶ ET tube
- ▶ Back up airway: iGel, King, LMA, oral airway
- ▶ ETCO2 monitor (colorimeter if LifePack/Zoll not compatible)
- ▶ 10mL syringe
- ▶ Lube
- ▶ Tape
- ▶ Bougie

STAT Things: Breathing

- ▶ BVM, preferably with PEEP valve
- ▶ Non-rebreather, nasal prongs
- ▶ End-tidal CO2 monitoring

- ▶ Hi-Flow or Optiflow
- ▶ Ventilator/CPAP/BiPAP: especially if LTV 1200-> have cheat sheet (and earplugs)
 - ▶ Have nearest large hospital's RT contact information to troubleshoot

STAT Things: Circulation

- ▶ Vascular access
 - ▶ Intraosseous drills
 - ▶ Central line gear if in your skill set
- ▶ Pressure infusor
- ▶ If you are a busy MD (or a lucky one): blood products and how to access them

Things that you need: Pediatrics

- ▶ Consider Broselow tape and bag setup if not already using
- ▶ Consider atomizer for IN administration
- ▶ PediSTAT app for medication dosing and sizing (can correlate to Broselow colours)
- ▶ NG tube for infant rehydration (especially if unable to establish IV)

Things that you need often

- ▶ Ultrasound
- ▶ Suturing: local anaesthetic, needles, trays, suture material
- ▶ Slit lamp: blow off the dust, check the light isn't burnt out
- ▶ Casting or splinting material (a few rolls of Dynacast)
- ▶ Dressing cart or dressing supplies

Things that you only need every once in a while, but really need them when you need them.

- ▶ This is often the realm of the “regular” staff member
 - ▶ Ask your nursing staff about re-stock checklists
- ▶ Eye pressure: Hopefully a working tonopen, know how to calibrate
- ▶ Slit lamp: know how to work it, make sure you turn it off
- ▶ Eye emergency medications: Glaucoma drops, burrs
- ▶ Posterior nosebleeds: Epistats or Merocel
- ▶ Premature rupture of membranes: Nitrazine, fetal fibronectin, do microscopes still exist?

What do I bring?

- ▶ External brain
 - ▶ Decant your apps, delete what you don't use
 - ▶ Have physical copies of things (ID badge cards, posters in room)
 - ▶ Develop your own resources (ex- quick reference notes on evernote)

Make Decision Patient Requires Intubation
(Protection, Predicted Course, ↓ pO₂, ↑ pCO₂)

Airway Assessment (Physiologic and Physical Challenges)

DRUGS

Intubation Agent

Ketamine 1 to 1.5 mg/kg push, half if comatose

Paralytic

Rocuronium 1mg/kg push, 2mg/kg if hypotensive

Post-intubation Sedation (see back)

OPTIMIZE PHYSIOLOGY

Pre-ox with 100% FiO₂ x 3 minutes *for all*

15L by nasal prongs during procedure *for all*

Consider avoiding supine positioning

Consider need for pressors for all (push or infusion)

Push dose Epi: 1mL crash cart Epi in 9mL of saline

Give 1mL every 1-5 minutes PRN

EQUIPMENT

Primary and Back-up Laryngoscope

Suction at Operator Right Hand

BVM with O₂ attached +/- PEEP valve

ET Tube (8 males, 7.5 female) with stylet

Empty 10cc syringe for tube cuff

Supraglottic Airway

Cric Kit (Scalpel, Bougie, Kelly Clamps)

Confirm IV Access Functional

10 second timeout

Verbalize Plan (Primary, Secondary, Rescue) to Team

Set Cue for Operator to End Attempt (Sats, Time)

"Sterile Cockpit" during procedure

POST-INTUBATION

Ongoing ETCO₂ monitoring

Secure tube and place bite block

Raise head of bed to 30 degrees

Two more tubes for all (NG and Foley)

Consider two more lines for all (art line, central line)

Check cuff pressure (20-30cm H₂O)

BVM stays at bedside

POST-INTUBATION SEDATION

Analgesic (for everyone)

Fentanyl 25mcg bolus, then 25-50mcg/hr infusion
(max 200mcg/hr)

Sedative (at least one)

Propofol 10-20mg bolus, then 0.3mg/kg/hr infusion
(max: 3mg/kg/hour)

Ketamine 0.05mg-0.1mg/kg bolus, then 0.05mg/kg/hr infusion
(max: 0.15mg/kg/hr)

INITIAL VENT SETTINGS

Volume Control Mode (Lung Protective Strategy)

1. Volume: 6mL/kg ideal body weight

400mL for typical adult

2. Rate: 16 breaths/min

Higher rate if acidotic, lower rates if air trapping (↑ exp. time)

3. Inspiratory Pressure: Controlled by patient

4. PEEP: 6-8 cmH₂O

Consider higher PEEP (up to 20 cmH₂O max) if CHF, ARDS

5. Ti: 0.9-1.0

Decrease if air trapping/asthma (increases exp. time)

Transfer to appropriate ongoing care

Team Debrief

What should I bring as a locum?

- ▶ Bring your own ultrasound
- ▶ Bring your own preferred equipment (ex- Epistat, PEEP valve)
- ▶ Require an orientation, request buddy shifts if uncomfortable
- ▶ Make sure your logins work before you start working

What can we do locally?

- ▶ Road, boat, or plane?
- ▶ Inpatient care?
- ▶ Local general or GP surgeon?
- ▶ After hours xray? Lab?
- ▶ Point of care labs? Troponin, VBG, lytes/Cr (ex- iSTAT), LFTs (ex- Piccolo)
- ▶ 24 hour nursing? (ie- am I in the land of the overnight hold?)

Where is my help?

- ▶ Are there other health care providers in town that can be accessed after hours (and how)
- ▶ Is there videoconferencing equipment (ie- tablet) available for accessing Real-Time Virtual Support (RTVS)? What is the login?

Where is the nearest?

- ▶ CT scanner
- ▶ ICU
- ▶ General surgeon
- ▶ Orthopedic surgeon
- ▶ Cath lab
- ▶ OB/GYN
- ▶ Inpatient Pediatrics, PICU
- ▶ Middle of the night surgery (Neurosurgery, vascular, thoracics)
- ▶ Mostly tomorrow morning surgery (Plastics, ENT, Urology, Ophtho)

Remote specific considerations

- ▶ Private vehicle vs. EHS
- ▶ “Schedivac” vs. medivac
- ▶ In province/territory vs. out of territory transfer
- ▶ Patient repatriation options (significantly impacts patient decision to leave community)

Summary



1. Know what equipment you have and where it is.
2. Prepare in advance for emergencies.
3. Organize yourself, especially your external brain.
4. Know what you can and can't do locally
5. Know where your help is and how to get it.
6. Be kind to yourself, it's a challenging job.



Questions/Comments