

PEDIATRIC AIRWAYS PRINCIPLES AND PRACTICE

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Rural Rounds | Thu June 9 2022 | 0800-0900 PST



Please ensure your microphone is muted when not speaking

UBC CPD

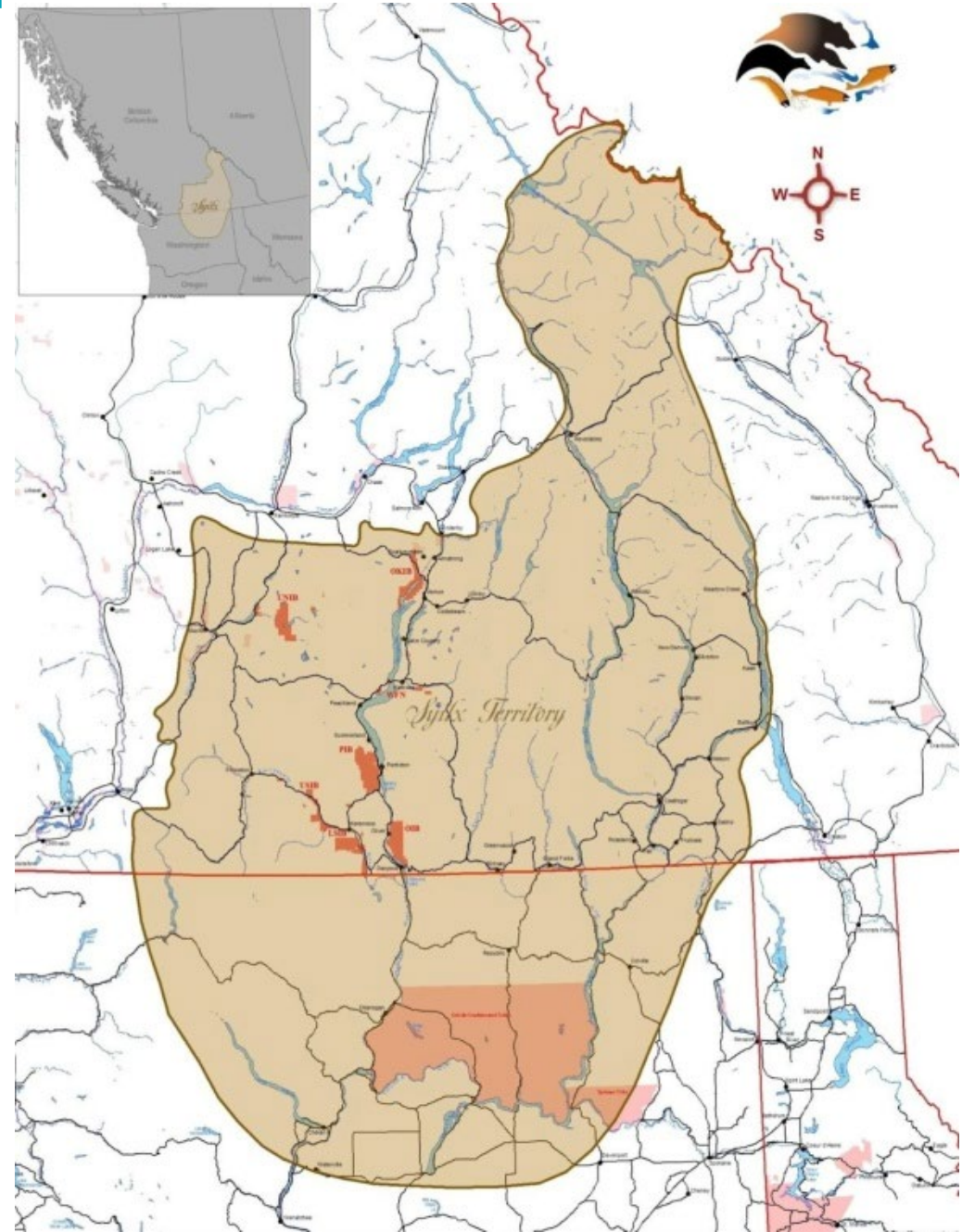


CONTINUING PROFESSIONAL DEVELOPMENT
FACULTY OF MEDICINE

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LAND ACKNOWLEDGMENT

Syilx Okanagan People's Territory



Disclosure

I receive sessional funding from RCCbc, BCPSQC and PainBC.



Mitigation of Bias

My discussion will not include any specific proprietary content.



Learning Objectives

- Demonstrate essential principles of airway management
- Review the anatomy, physiology and clinical context specific to pediatric airway management
- Discuss various airway tools and supports
- Identify important process elements
- Recommend options for individual and team support and training



CASE DISCUSSION

8 year old child presents to the ER with a 6 hour history of increasing cough and shortness of breath.

Known to the ER as that 'scary asthmatic kid' as she previously has required intubation and transport to the regional facility.



AIRWAY

The first letter 'ABC'

Anxiety provoking – especially in kids

Important but only one piece of the management puzzle

End goal is tissue oxygenation:

- Airway
- Ventilation
- Circulation



ANATOMY

Why kids have more challenging airways:

Large tongue

Tonsils/adenoids

Smaller diameter airways

Larynx – cephalad/anterior

Large head/occiput

Immature lung development (FRC)



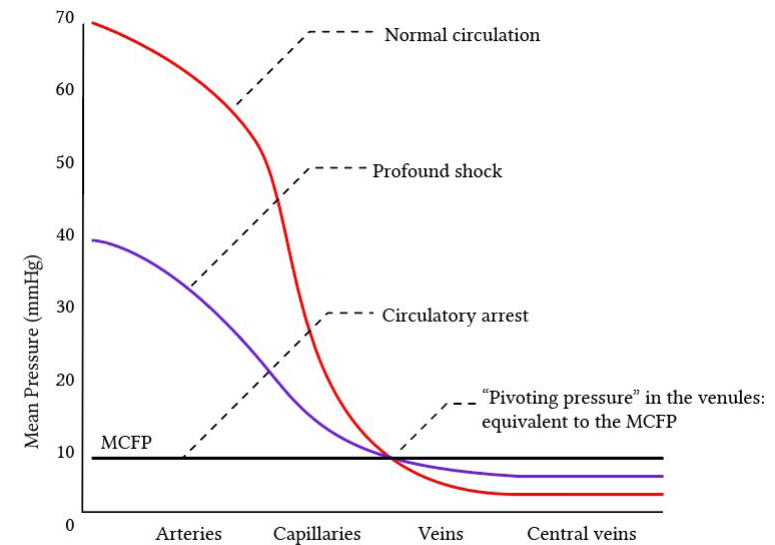
PHYSIOLOGY

High metabolic output
- oxygenation/hypoxia/acidosis

Cardiac rate dependent
- perfusion/oxygenation

Compensation curve

Temperature regulation

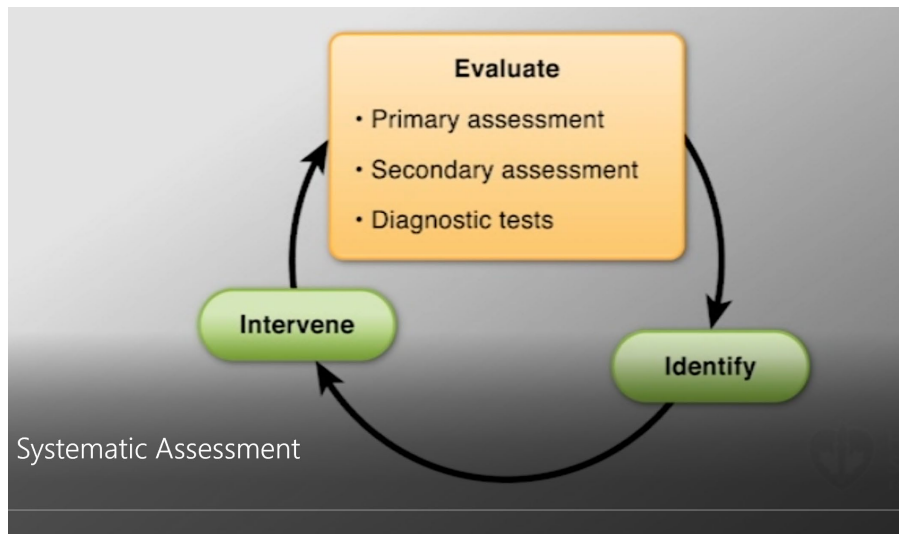


CLINICAL CONTEXT

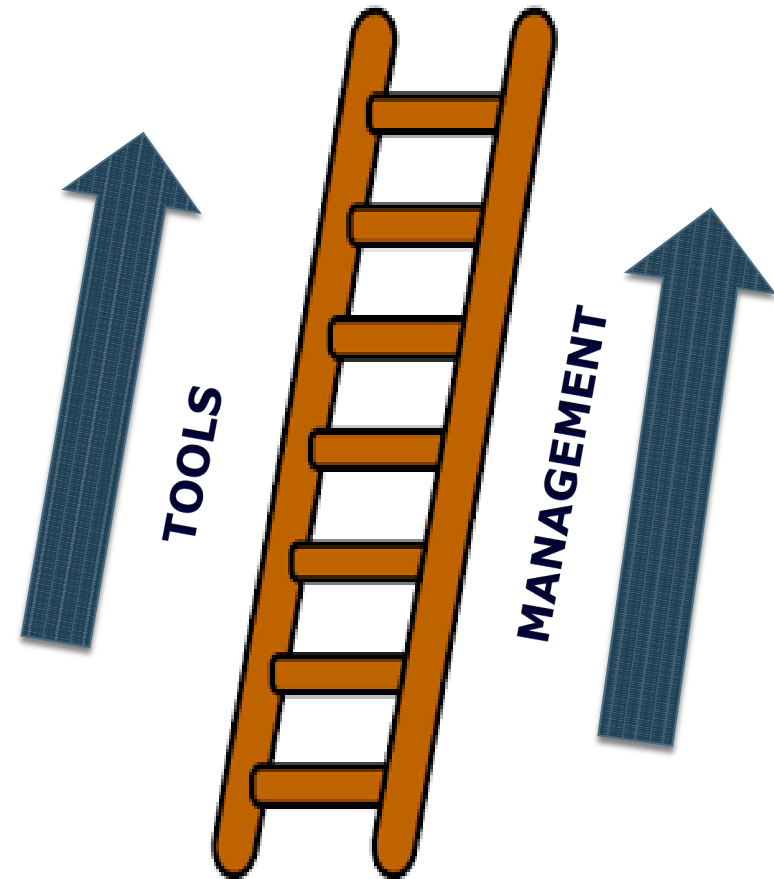


*Be Kind.
Be Calm.
And Be Safe.*

Dr. Bonnie Henry
B.C. Provincial Health Officer



INTUBATION VENTILATION



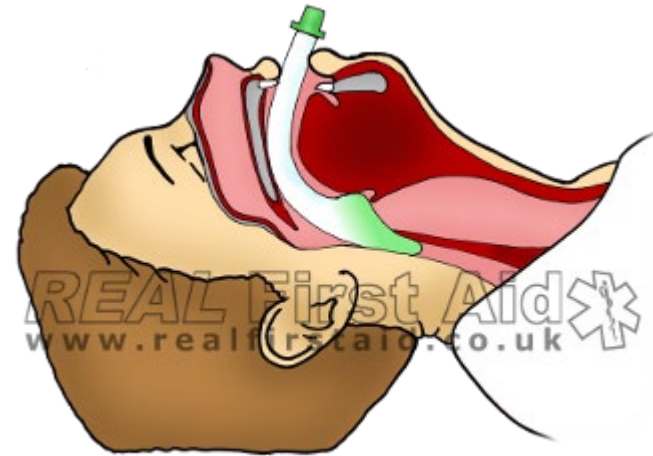
SPONTANEOUS



TOOLS

Oxygen delivery devices:

- NP
- O2 mask/non-rebreather
- CPAP/BIPAP
- BVM



Airway adjuncts:

- Nasal airway
- Oral airway

Advanced airway devices:

- King Airway
- iGel
- LMA
- ETT



TOOLS

Laryngoscopes

- Regular (Macintosh)
- Video (McGrath, Glidescope)

Intubation Assists

- Stylet
- Bougie
- Suction

Surgical Airway Kits (needle cric)

Drugs (*anxiolysis)

Cognitive Aids

Virtual Support



KIDS & DRUGS:

WHY DO WE USE THEM?

- sedation/anxiolysis
- analgesia
- amnesia
- anesthesia
- relaxation
- maintenance

WHAT DO WE NEED TO KNOW?

- indication
- dose
- limitations/SE





LET'S TALK DRUGS

KETAMINE FOR SEDATION

Dissociative anesthetic (antidepressant; general anesthetic)

NMDA receptor antagonist (blocks glutamate in cortex and limbic system)

Dose related effects: sedation, analgesia, anesthesia

Wide range: .25(iv) mg/kg – 8 mg/kg (po)

Kinetics:

Onset: IV (1 min) IM (5 min) IN(10 min) PO (30 min)

Liver metabolism (no dose adjustments needed)

Duration: 30 to 60 minutes

Secondary benefits:

Cardiovascular stability

Maintenance of airway reflexes (bronchodilation)

Adverse reactions: emergence, excess salivation, hypertension/tachycardia

PROCESS

Important to evaluate:

Patient

Provider

Environment

Ask the question:

Now or Later?

Me or Someone Else?

Here or Somewhere Else?

Be prepared!

Think through procedures/situations

Establish systems/protocols/ cognitive aids -checklists

Ask for help as a routine part of process (power of team)



PROCESS EXAMPLE – PROCEDURAL SEDATION

- Indications:** patient, physician and facility factors; Now or later? Me or someone else? Here or somewhere else?
- Setup:** think through the procedure (be prepared; YouTube; UpToDate)
- Tools:** **what** do I need; **where** should it be done; **who** do I need
- Drugs:** Learn 3 or 4 medications well. Need to understand basic effects and risks of each drug.

CHECKLIST: Once the decision to proceed with PSA has been made and consent given.

- Location: choose the best location for you and the patient. Move to a different location if required.
- Monitors: O2 sat, ECG, BP
- IV: choose NS or LR and have a running iv
- O2: supplement as needed
- Drugs: have drugs drawn up and labelled
- Airway equipment: have bag and mask, LMA, King tube and emergency airway equipment available
- Rescue medications and devices
- Assistant: have someone to monitor the patient or assist with the procedure as required
- Recovery Plan: determine ahead of time who will recover the patient and for how long
- Patient Disposition: plan for admission or transfer or discharge of the patient and the necessary logistics need to be considered prior to the PSA.



CRITICALLY ILL AIRWAY ALGORITHM



SUPPORT AND TRAINING



Real-Time Virtual Support Pathways

For rural health providers, friendly clinical help is just a click or call away.

Real-Time Virtual Support (RTVS) pathways are here to help for all urgent and non-urgent situations — including case consultations, second opinions and ongoing patient support, patient transport coordination, point-of-care ultrasound, and simulations. All you need is a Zoom licence, or telephone line.

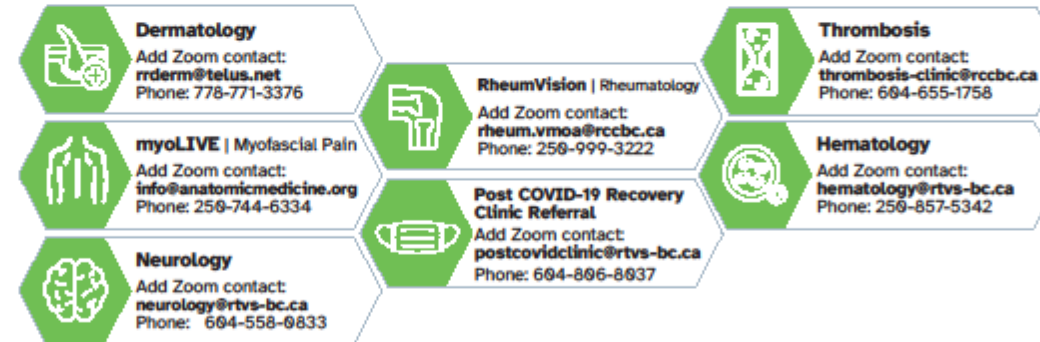
Instant Access Pathways

Available 24/7



Quick Reply Pathways

Available weekdays,
from 9am to late afternoon

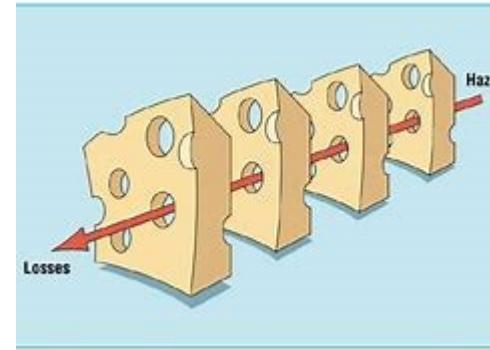


Visit rccbc.ca/rtvs to get started!

Please do not email the RTVS Pathway Zoom contact email addresses, provided above. Messages sent to these addresses will not be received. Please contact RTVS Technical Support if you need assistance at virtual@rccbc.ca.



Why mistakes happen...



Provider

Team

System



Sims are awesome!



TRAINING/CPD

Hands on

Simulation – onsite/virtual

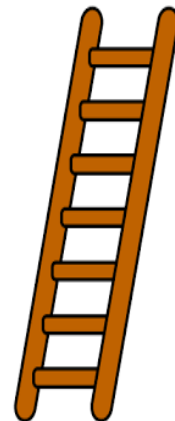
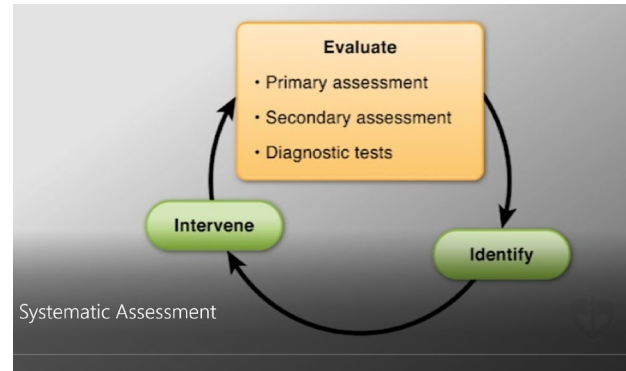
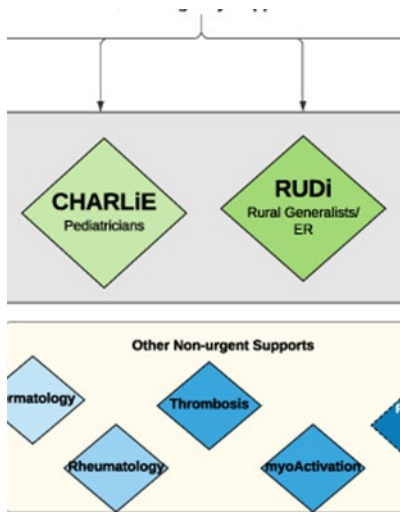
Resources:

- CME funds (individual/community/REEF)
- RCPD
- REAP
- GPSC – Divisions
- SSC – FE/PQI

Need to collaborate with local team (nurse educator) and create a regular schedule of interdisciplinary activities



Case discussion



SUMMARY

Airway principles

Clinical context determines approach

Tools

Process

Support/Training/CPD



Thank you for joining us for Rural Rounds

Please see the links below for the **online attendance and evaluation forms**:

Attendance Form:

<https://bit.ly/jun9attend>

Evaluation Form:

<https://bit.ly/jun9eval>

Financially supported by:

Rural Coordination
Centre of BC

