

# Macgyver Fixes In Rural Medicine

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Rural and Remote 2019

Halifax, Nova Scotia

# Who am I?

- Rural family physician locum and surgical assistant
- I have worked in Northern Ontario and South Western Ontario
- OR assist, Emergency, Clinics and Cardiac Rehab
- Based in Kitchener , Ontario
- I have no declarations
- Mom of 2, James and Elizabeth



# Objectives

1. Share techniques used by other rural and urban physicians with limited resources
2. Discuss techniques used by attendees
3. Try some of these techniques

# Topics

- Tubes and catheters
- Containers large and small
- Warming and cooling
- Dental procedures
- Closures/securing techniques
- Uses of tape
- Other techniques
- Resources outside the Emergency Department

# Tubes, IVs and Catheters

## Foley Catheter

- Place in gunshot/ stab wound and inflate balloon or fill with saline to adjust pressure.
- Also apply under clavicle to apply pressure with stab wounds. Fill with saline to tamponade bleeding
- Suction ET tubes or newborn oropharynx
- Umbilical catheter
- Nose bleeds

# Tubes, IVs and Catheters

ET tube for surgical air way



14-16 gage IV for spike  
tracheotomy

- Attach 20ml syringe with no plunger.
- Place endotracheal tube in syringe and seal with balloon.
- Hard to ventilate.

Tube to bag adapter of  
a 7 ET tube fits 3 ml  
syringe with plunger  
removed.

IV bag spike

<https://www.youtube.com/watch?v=oln245TPzAI&authuser=0>



# Other uses of tubes

- Fold IV tubing to set off alarm on pump to attract nursing attention when bed side buzzer not working.
- (very affective according to one unnamed patient / doctor)

# Containers Large and Small

- Aerochambers
- Chest tube reservoirs
- Irrigation protection

# Aerochambers

- Styrofoam or paper cups
  - Opening to face and inhaler in base
  - Adjustable to face size and shape
- Pop bottle
  - Cut a hole in the base and mouth around the opening
  - Place thin wire around the opening of the inhaler and warm to melt into the bottle a perfect fit.

# Aerochambers

- <https://www.youtube.com/watch?v=NBszxJvczYM>

# Chest tube

- Place free end of tube (possibly a foley with fenestrations cut into it used as a chest tube) into a pop bottle full of water.
- Tape the tube with large amounts of tape to keep it in place.
- Condom with a hole in the tip for a one way valve on a chest tube.
  - Cover with vaseline/muco
  - A pen can be used for tube

# Other

- Medicine cups with a hole in the bottom big enough to place a 20 cc syringe.  
creates protection from irrigation

# Warming and Cooling

- No incubator or warming cupboard? Warm blankets in the dryer
- Bucket of warm water boiled in kettle. Check temperature and top up with further water.
  - Place bags of saline in water to warm

# Dental Procedures

## Coverage for broken teeth

- Bone wax or cheese wax
- Tissue glue
- Blue tac

## Splint

- Bendy metal nose piece from mask.
- Secure to replaced tooth and 2 adjacent teeth with skin glue.

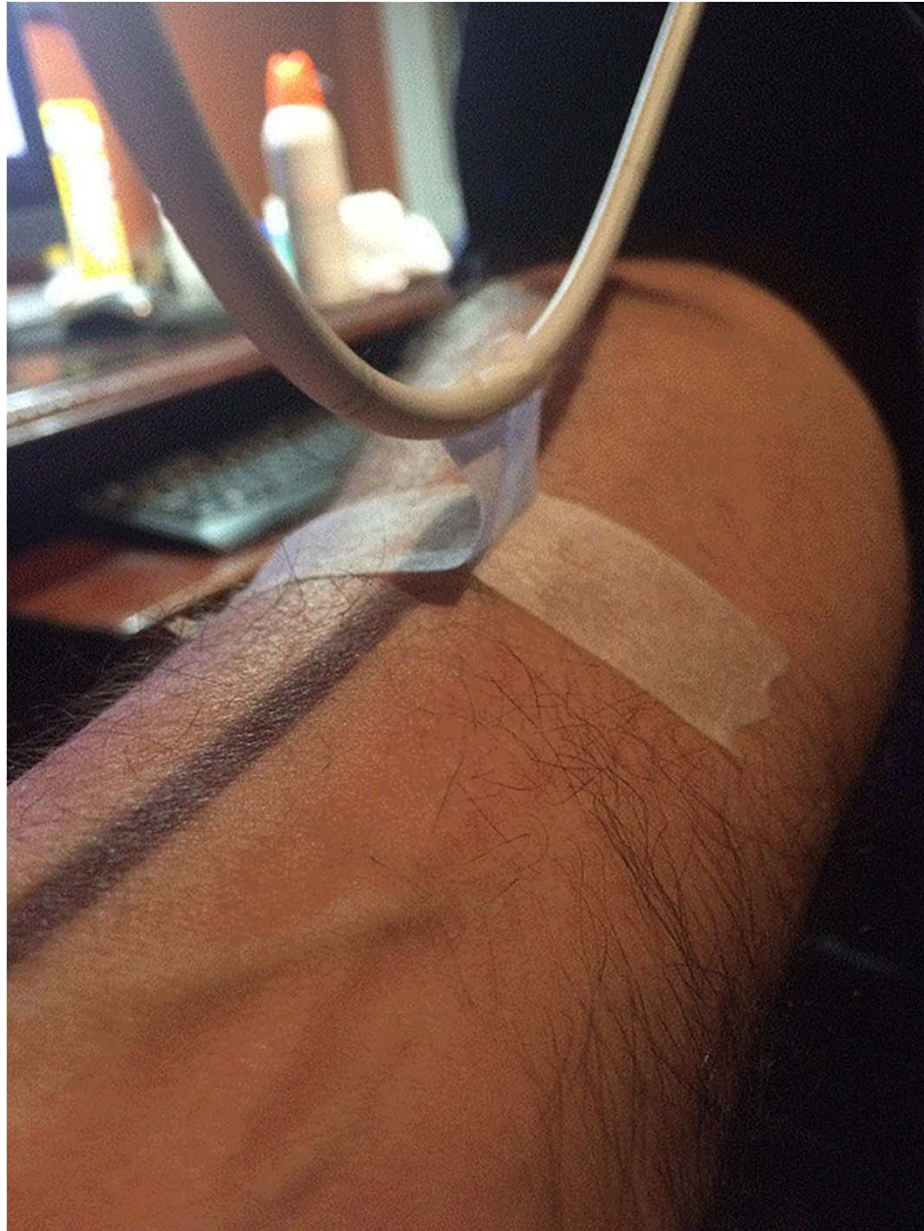


# Securing Techniques

- IO stabilizer to hold the endotracheal tube in place if you've cricked someone — fits 5.5F very nicely.
- 3.0 suture through chest tube and patients skin..and tie in position
- Use ceiling cross bars to hang IV bags

More secure  
than direct on  
skin.

Wider tape  
used



# Securing

- Tie hair in knots to bring skin edges together after winding several strands together
  - 2 hand tie easier than instrument tie, but wet hair helps
- Can do the same with short strands, but glue after twisting.
- Add friars balsam for further seal, but will need to be cut.

# Other Techniques

- Tongue depressor clamp for epistaxis.
  - 6 tongue depressors and wrap half inch tape at the bottom to tape all 6 together then apply another wrap leaving about a half inch between.
  - Apply to a bleeding nose rather than using ones fingers (that run out of ATP) and you have a simple and cheap way of managing minor epistaxis. Leave on for 20 minutes



# Other uses for tongue depressors

- Place in teeth and ask the patient to bite down. Flick tongue depressor. If not pain, jaw not likely broken

# Splints

- Long card board box
- Birch bark
- Sticks
- Real beer can for splinting position

# Ring Removal

- . <https://youtu.be/kGGwX2lY4rc>
- Use wrist block rather than ring block to reduce distortion and swelling from fluid
- Use dental tape instead of the suture material
- Squeeze to exsanguinate the finger
- Wrap distal to proximal



# Light Sources

- Head lamp: useful to have in the car
- Torch feature on cell phone.
- Small pen light taped to tongue depressor
  - Or ask patient or parent to hold the light.

# Tape

- Can be used to remove small items such as nettles, slivers, stingers etc.
- Cheap version to remove hair after shaving
- Treatment for over grown skin on toe nails

# Other Techniques

- Use a straw or pen lid to mark skin before preparing for techniques. This is not washed off with prep.
- Bed sheet pelvic binders
- Plastic sheet stretcher
- Gauze wrapped with tape for mouth block.
- Make a loop in a splint to pass a cord/rope through so it can be hung on bed post at night

# Other Techniques

- Bone Rongeurs for cutting thick toe nails
- Drop your IUD plunger? No problem
  - Tape 2 q tips together with steri strips and remove cotton buds. Just long enough.
  - ? Would the longer C & S swab work?
  - Careful strings don't get caught in appliance
- 4-5 mm punch biopsy needle as a skin currette

# Medications

- Chew amox-clav if no iv antibiotics in awake septic patient and long transport time
- IV dex and acyclovir in juice for children
- Dexamethasone to reduce dental abscess pain. Can drink IV formula

## Learn

- Dental blocks and regional blocks

# Warming Blanket



# Warming Blanket



# Warming Blanket

- Recommended only for use for short cases
- Leaves arms free
- Cannot place items on top as no sections for air. Warn surgeon
- Can place a blanket underneath to protect from collapses



# Umbilical bandages

- For use when bandage placed over a gap
- May cause negative pressure



# Resources outside the ER

- Does your hospital have a dremel?
- Vice in maintenance room to secure bolt
  - Fiberglass blade from cast room to cut with saline drip to keep cool
- Finger in a metal plate with a hole in it.
  - Called in local man with shop who came to cut plate

# Other resources outside the ER

- Water and warm body
  - Burns/scalds in camp placed patient in water for almost an hour. Other person kept patient warm from behind. Changed shirts to keep upper body warm.

# Seasonal variation out of ER

- Eggs for vagal maneuver
  - Pin hole in top and bottom of eggs
  - Blow egg content out.
  - Can decorate egg afterwards

Other Suggestions?

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