PEARLS FOR PEDIATRIC RMT

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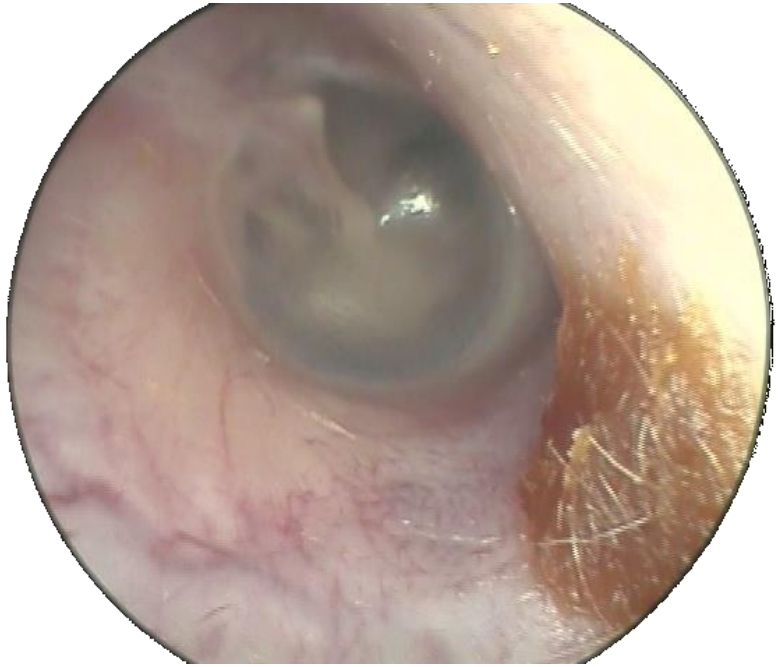
Objectives

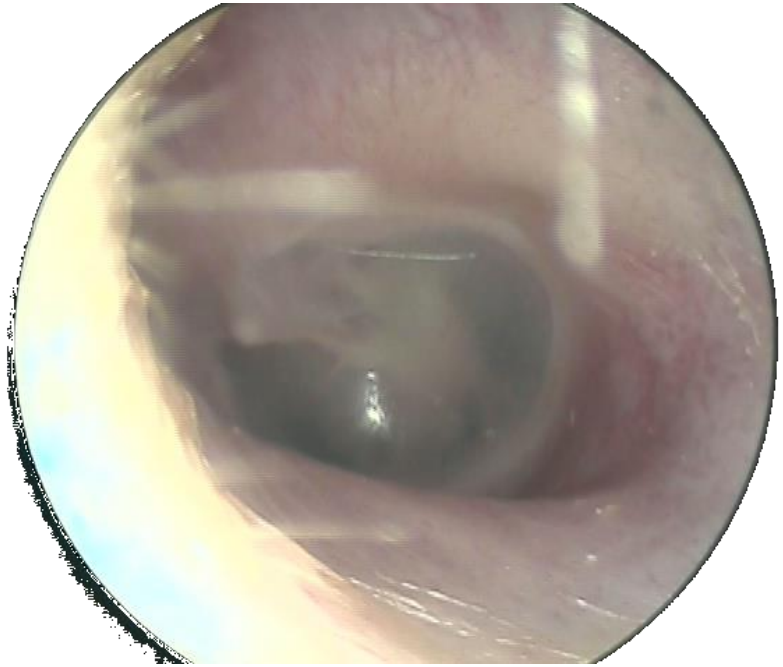
- Foster discussion about difficult RMT scenarios
- Explore the pediatricians' thought processes (OH, the dark and scary recesses of our minds!!)
- Highlight some key areas of our guidelines that can be really helpful
- Discuss how to most effectively consult pediatrics

The Golden Rule of Pediatric RMT

- When in doubt, send a child in.
  - If a child has been seen 2-3 times and isn't getting better…
  - If a child's caregivers are very concerned…
  - If a health aide is very concerned…
  - If there's something off in the history or exam…
  - If weather has been (or is about to be) an issue and the problem has a high likelihood of getting worse and needing intervention…

Leslie's TMs





AOM

- Any child <90 days with AOM and/or a fever MUST come to the Bethel ER for further evaluation!!
- Probably over-diagnosed in the villages.
- We have a CRAP TON of AOM. Theories of why include:
  - Poverty, less educated parents, crowded housing, tobacco smoke, heating smoke
  - Pneumococcal vaccine-resistant serotypes are more common
  - Anatomical differences in the bony segment of the eustachian tube in our population
- If we treated every red ear, many kids would be on continuous antibiotics! This would be bad for the child (side effects, etc.) and for antibiotic resistance!
- The top cause of AOM is viruses.

AOM: when to watch & wait

- 6-24 month old with mild, uncertain, or unilateral AOM
- >24 month old with mild/moderate (non-bulging) AOM
- Caregiver comfortable withholding antibiotics
- Follow-up assured
- Antibiotics can be started promptly if symptoms persist or worsen
- No fever >102°F and only mild otalgia

AOM: oral treatment

- If antibiotics are to be given, we start with narrow-spectrum and then broaden.
  - First-line: Amoxicillin
  - Second-line: if amoxicillin was taken in last 30 days (eg prescription was written <40 days ago) → Augmentin
  - Third-line: if Augmentin was taken in last 30 days (eg prescription was written <40 days ago) → cefdinir
- TRY TO AVOID CEFDINIR AND CEFTRIAXONE:
  - Broad-spectrum = BAD for antibiotic stewardship!
  - Once you get there, you're in the weeds about what to use next. When the child comes back in two weeks with pneumonia or another ear infection, WHAT DO WE GIVE?
  - Less effective than amoxicillin and Augmentin at treating the top three bacterial causes of AOM in children.
  - Takes up to five days to reach the villages.

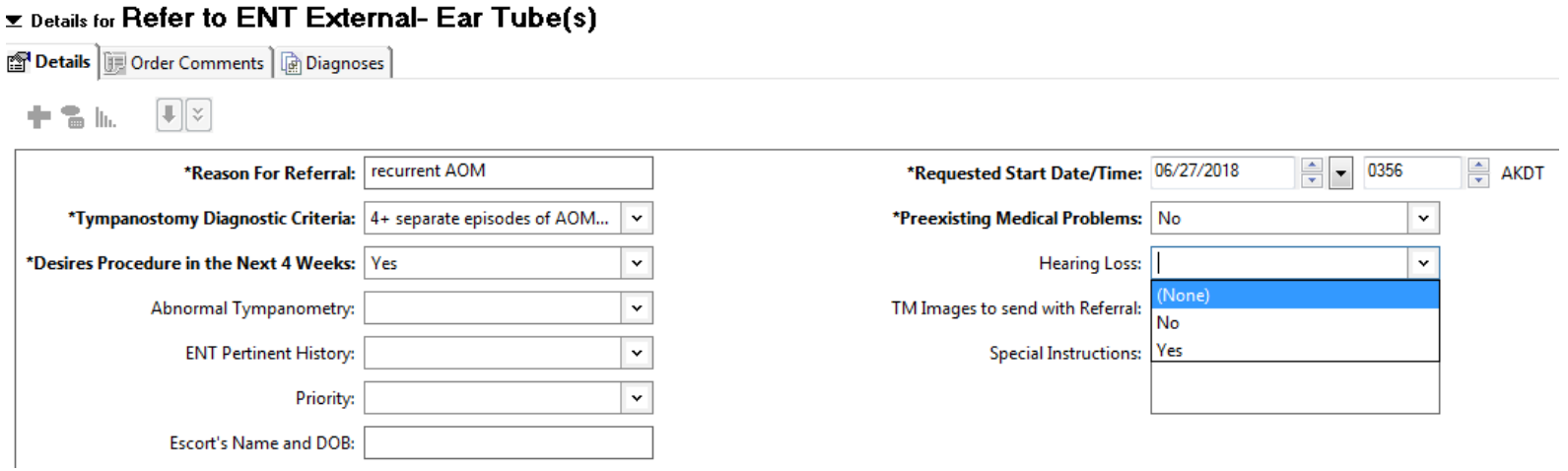
AOM: otic treatment

- WICK EARS PRIOR TO GIVING DROPS!!
  - Explain to parents it's like draining a boil; if you don't get the drainage out, it will fester.
  - If you don't get the drainage out, the drops don't get to the source of infection!
  - Quote from an email from Dr. Kokesh:

    "Unfortunately, the studies so [*sic*] probably no benefit from the steroids, and no benefit from antibiotic drops over acetic acid or even saline. Sorry, that's what they show. It may actually be the cleaning and the washing effect that makes the difference."
- First-line: ofloxacin 3-5 drops BID x10 days
- Second-line: Ciprodex 3-5 drops BID x10 days

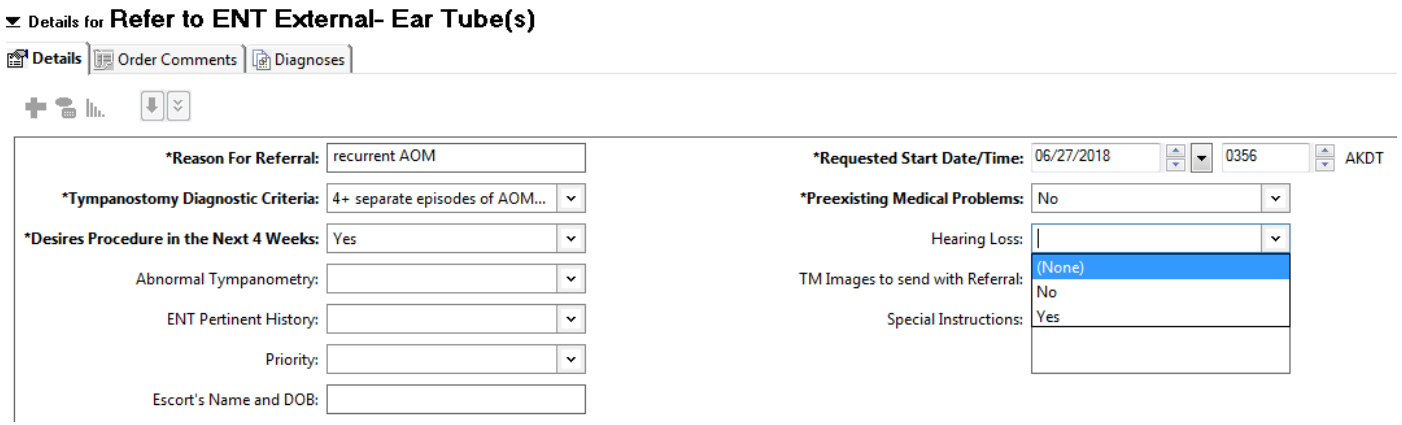
AOM: when to refer to ENT?

- 3 episodes of AOM in 6 months
- 4 episodes of AOM in 12 months
- OME or otorrhea for ≥3 months
- Hearing loss >20 dB



Referring to ENT: YOU HAVE THE POWER

- You can count up the number of AOMs or ask the health aides to!
- Here's the form!



Sinusitis

GREEN/YELLOW SNOT DOES NOT NECESSARILY = BACTERIAL INFECTION

-consider:

- foreign body
- seasonal/environmental allergies
- recurrent/back-to-back viral rhinitis!!! or nasopharyngitis

Sinusitis

- Indications to treat:
  - Persistent illness: >10 days of symptoms with no improvement
  - Worsening course: initial improvement followed by one week of worsening nasal discharge, daytime cough, and fever
  - Severe onset: fever >102 and purulent nasal discharge for >3 days
- Treatment: same drugs and dosing as AOM but for 14 days

Sinusitis

Take home message?

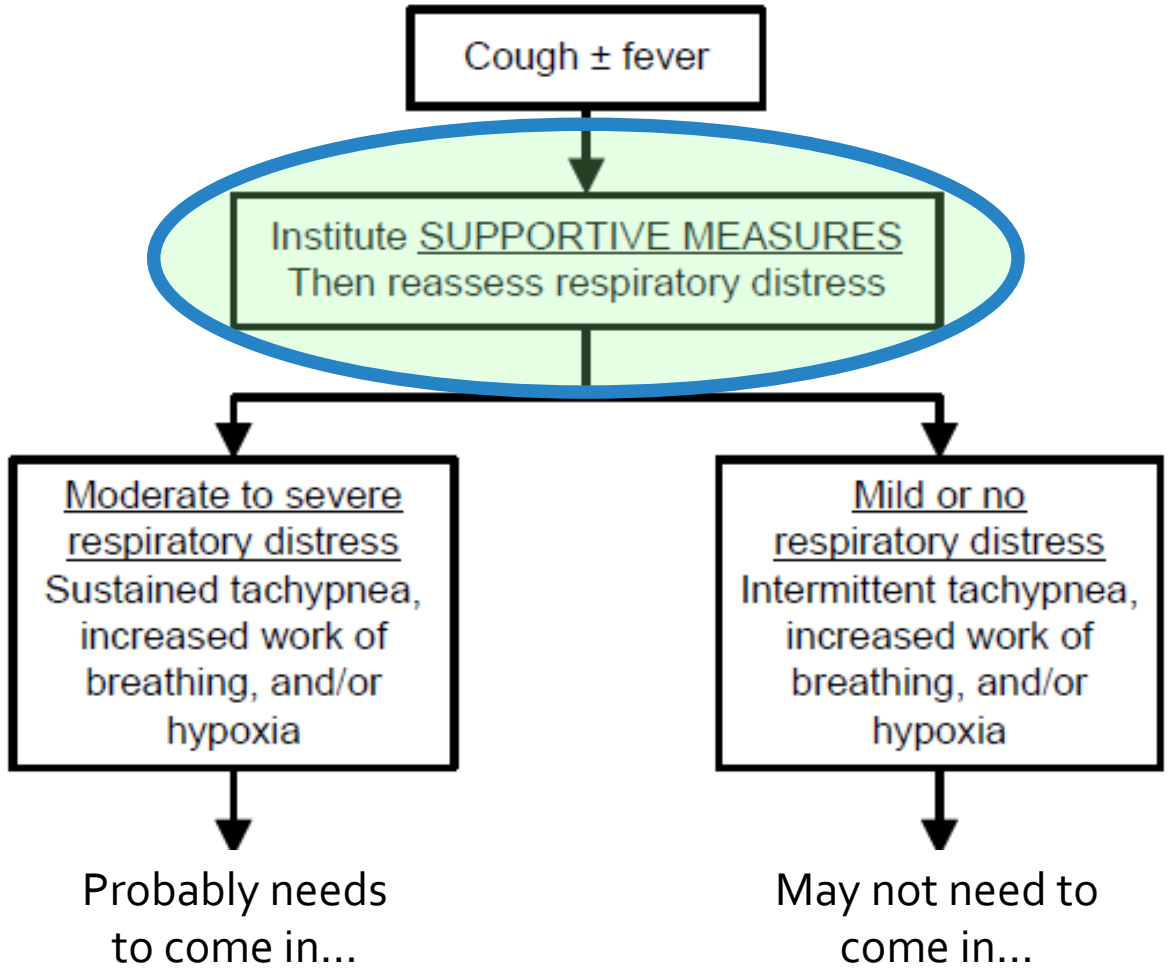
Little kid anatomy is different from adults, so we can’t treat them like one!

Pneumonia

- VERY high incidence in the YK Delta
- Recurrent PNA → chronic lung disease → bronchiectasis
- We probably over-diagnose bacterial pneumonia in our population. However, with the risk of CLD and bronchiectasis in our population, the negative consequences of over-diagnosis and over-treatment are debatable…

Pneumonia

- Fever, nasal congestion, and bronchospasm often exacerbate respiratory distress in children.
- Before deciding disposition, institute supportive measures and watch for effect:
  - Anti-pyretics
  - Nasal suction
  - Albuterol x2-3
  - Saline nebs
  - Hydration
- These measures often change your disposition plan.



Pneumonia: a clinical diagnosis…or not?

To quote Dr. McClure:

- Diagnosing pneumonia in the village is especially difficult because they ALL seem like they have pneumonia with crackles, fever, tachypnea, and increased WOB.
- Pay attention to how the child actually looks…smiling, playing, not significant distress
- How long have they been sick and how high is the fever?
- If sick for a short time and they look better with fever down and otherwise drinking and eating, negotiate a day or two of follow up and send in if worse or not improving…
- We shouldn't send everyone in, but it is preferable with the village kids under five to get clinical confirmation and/or an X-ray in Bethel before starting antibiotics…
- OTHERWISE all respiratory kids with a fever will be on antibiotics.

Lymph Nodes

-look for source => OM or pharyngitis or localized infection (for example, impetigo)

-presence of fever?

-length of symptoms?

-overlying redness?

-rapid progression?

-airway involvement?

Lymph Nodes: who to send in?

- See our very helpful Cervical Lymphadenitis guideline!
- FLUCTUANT of any size (ask the health aide what it feels like – is it bouncy to the touch? Is it exquisitely tender?) → send to Bethel ER
- Size < 2 cm → follow-up in village in 10-14 days. If no improvement → outpatient clinic evaluation.
- Size 2-6 cm → outpatient evaluation within 1-3 days
- Size > 6 cm → send to Bethel ER

- Any size → consider PPD

Skin & Soft Tissue Infections

Yes, we are surrounded by MRSA (and MSSA)!

Skin & Soft Tissue Infections

- If the child looks well (non toxic and afebrile) and the abscess is small => start with hot packs and follow up the next day
- If child looks well (non toxic and afebrile) and abscess is larger than ? => start with hot packs and antibiotics
- Amy usually starts with Septra, some providers start with Keflex –our guideline separates out cellulitis and abscess. In reality, sometimes not always clear which you have.
- If the child is no better in 24 hours, send in to ER

Skin & Soft Tissue Infections

- If the abscess is small but has an associated significant cellulitis, send to the ER
- The younger the age, the higher the fever, and the more extensive the presentation, or if there is rapid progression → send in to the ER
- If the child has a rapidly progressing cellulitis/abscess or associated systemic symptoms (fever, listlessness, lethargy, etc.) consider covering Haemophilus influenzae type A/B with ceftriaxone 75 mg/kg IV/IM and CONSULT PEDS

Resolved Seizures

- Is the child back to baseline? COMPLETELY back to baseline?!?!
- CHECK A BLOOD GLUCOSE if the seizure happened <4 hours ago.

Box 1: Detailed History
-When/where did it occur? Awake or asleep?
-What proceeded the event (eg head trauma, crying, etc.)?
-How long did it last?
-Ask caregiver to recount, step-by-step, what happened.
-Type of movement and what part of body? Symmetric?
-Interventions?
-Incontinence?
-Behavior after event?
-How long till back to baseline?
HPI
-Intercurrent illness/fevers
-Medications
-Recent intake, including free water and diluted formula
-Ingestions
-Trauma
PMH
-Prior history of seizures
-History of breathholding
Family History
Seizures, febrile seizures, breathholding, etc.

If it sounds like a febrile seizure…

Box 2: Low risk febrile seizure criteria

1. 6 months to 4 years of age.
2. Fever present.
3. Seizure generalized (nonfocal).
4. Seizure duration <5 minutes.
5. Child has normal neurologic examination.
6. Child has no history of previous neurologic or CNS abnormality.
7. Only one seizure in a 24 hour period.
8. Child has returned to baseline.
9. No meningeal signs:
   - -Irritability or inconsolability
   - -Nuchal rigidity
   - -Bulging fontanelle
   - -Lethargy or somnolence
   - -Focal neurologic findings
10. Child has NOT received antibiotics in the past 72 hours.

Village Management

-Always check blood glucose.

-Patients <18 months with first-time febrile seizure or any patient with first-time non-febrile seizure should come to Bethel by commercial flight.

-Patients ≥18 months meeting all low-risk febrile seizure criteria with identified low-risk source of infection (eg AOM) may stay in village until outpatient appointment available. Ensure close village follow-up.

-Strongly consider medevac if child is not back to baseline, has signs of meningitis, had an atypical seizure, or presented in status epilepticus.

Who to send in

- Any child of any age with first-time non-febrile seizure.
  - He/she needs a work-up (labs, EKG, etc.).
  - He/she may need to be referred to neurology.
  - If seizure has resolved AND child is back to baseline with reliable caregivers, this may occur via commercial flight to the ER or to an outpatient appointment within a couple days.
- A child <18 months with first-time febrile seizure.
  - Meningeal signs are less reliable in this age group.
  - Signs of meningitis can be more subtle.
  - He/she MAY need further work-up.
  - If seizure has resolved AND child is back to baseline with reliable caregivers, this may occur via commercial flight to the ER.

Fever < 90 days

- Please be familiar with our guideline. All well-appearing infants <90 days with fever should be sent in to Bethel on the next commercial flight (with one exception – see **below)
- Always include in instructions to HA: "Contact me if unable to make it in on the next flight so we can devise an alternative treatment plan." Depending on the age or clinical scenario or anticipated delay, the infant might need treatment with antibiotics.
- If weathered in, the younger the age, the lower the threshold for treating with antibiotics OR the longer the anticipated weather delay, the lower the threshold for treating with antibiotics
- General appearance, as always, is important: behavior, PO intake, consolable, etc.
- Give the total dose of ceftriaxone in mg (100 mg/kg) to the HA , not the "per CHAM" dosing as that is an inadequate dose
- **If they've had IZ within 24 hours and fever is < 101, baby is well appearing, no work up necessary but must follow up in VC or Bethel within 12-24 hours. This is the only time that it MAY be okay to not send the child to Bethel.

Fever < 90 days

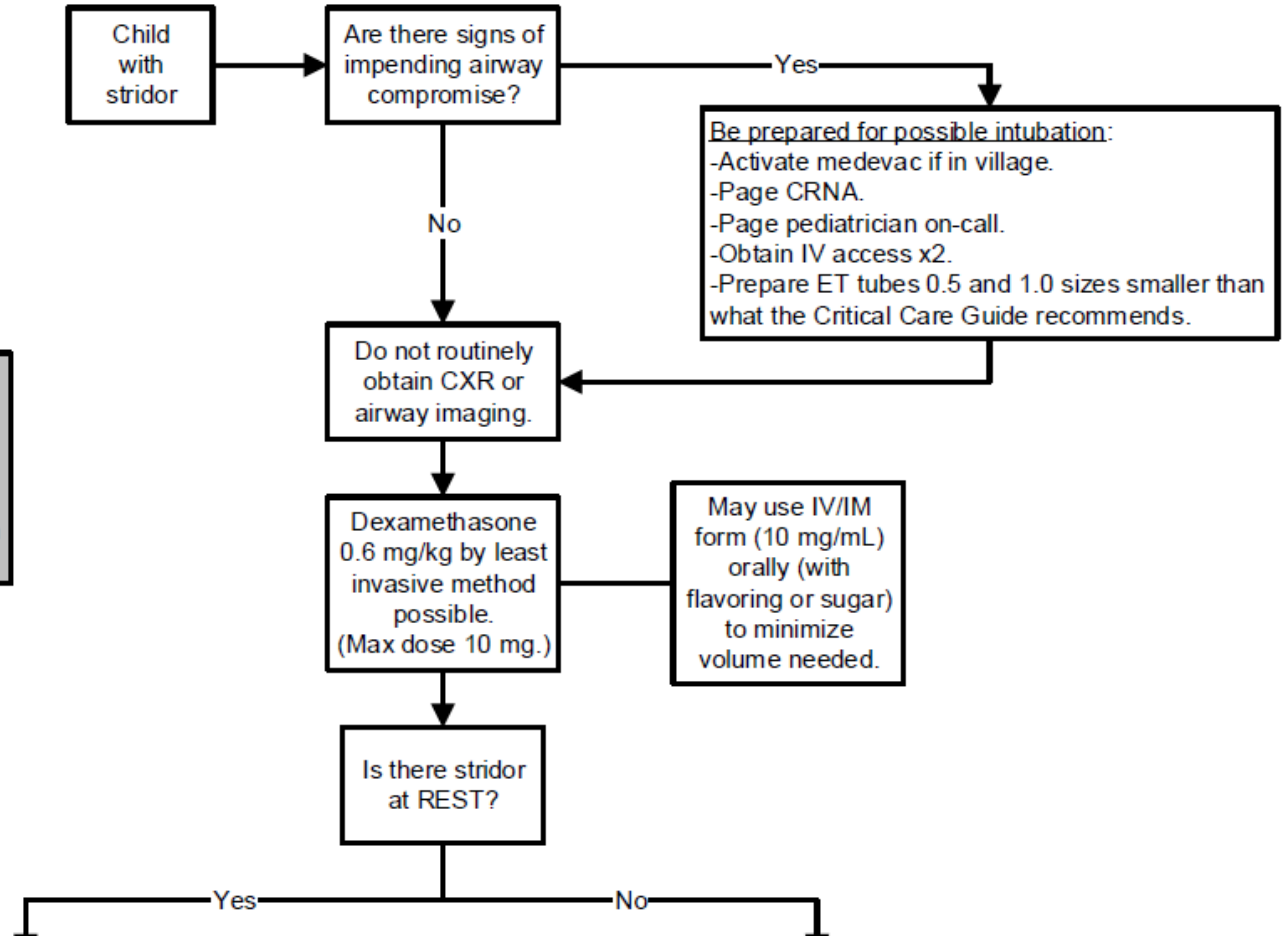
When in doubt, consult peds!!

Croup/Stridor

Signs of Impending Airway Compromise
-drooling
-lethargy
-tripod position
-marked retractions
-tachycardia
-cyanosis or pallor
-rapid progression of symptoms

Important Supportive Measures
1. Keep child upright.
2. May take child outside for cool air.
3. Minimize invasive measures – keep child CALM!
4. Do NOT give albuterol; this can worsen croup.

DDx Stridor
-croup (most common in ages 6 months to 3 years)
-foreign body
-tracheomalacia
-angioedema
-tracheitis
-epiglottitis
-abscess



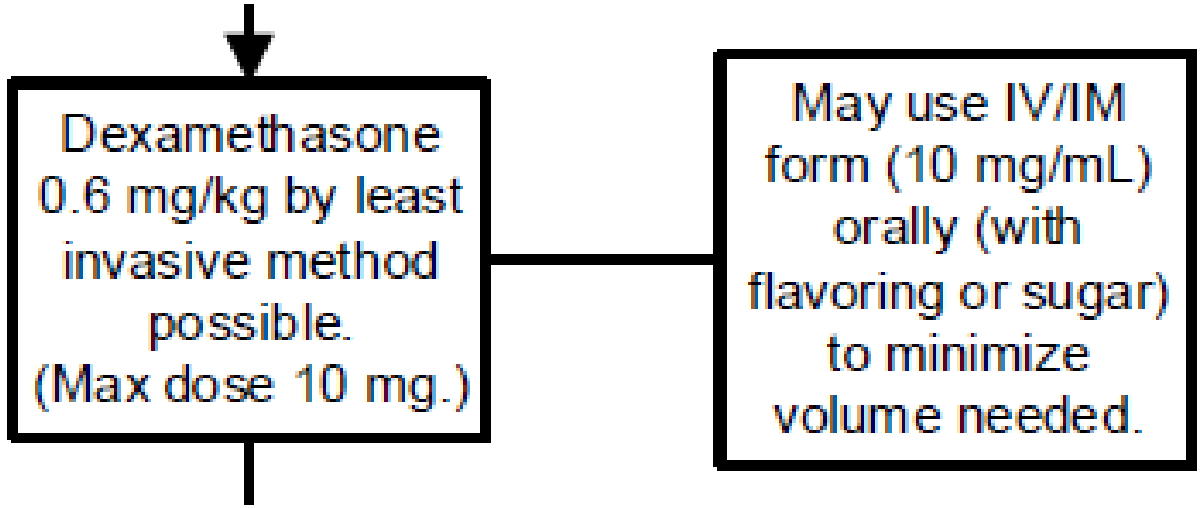
Croup/Stridor

- NO ALBUTEROL!! It is a smooth muscle relaxant and can make croup drastically worse!!
  - Keep this in mind if you have a wheezing child get drastically worse after an albuterol neb – was it actually wheezing, or could it have been stridor masquerading as wheezing?
- Keep the child caaaaaaaaalm…

Important Supportive Measures
1. Keep child upright.
2. May take child outside for cool air.
3. Minimize invasive measures – keep child CALM!
4. Do NOT give albuterol; this can worsen croup.

Great. They're calm. Now what?

- DEX!!
  - It takes up to four hours to kick in, so when in doubt, give dex early when suspecting croup.
  - Better to err on the side of over-ordering dex in these circumstances than under-ordering it.

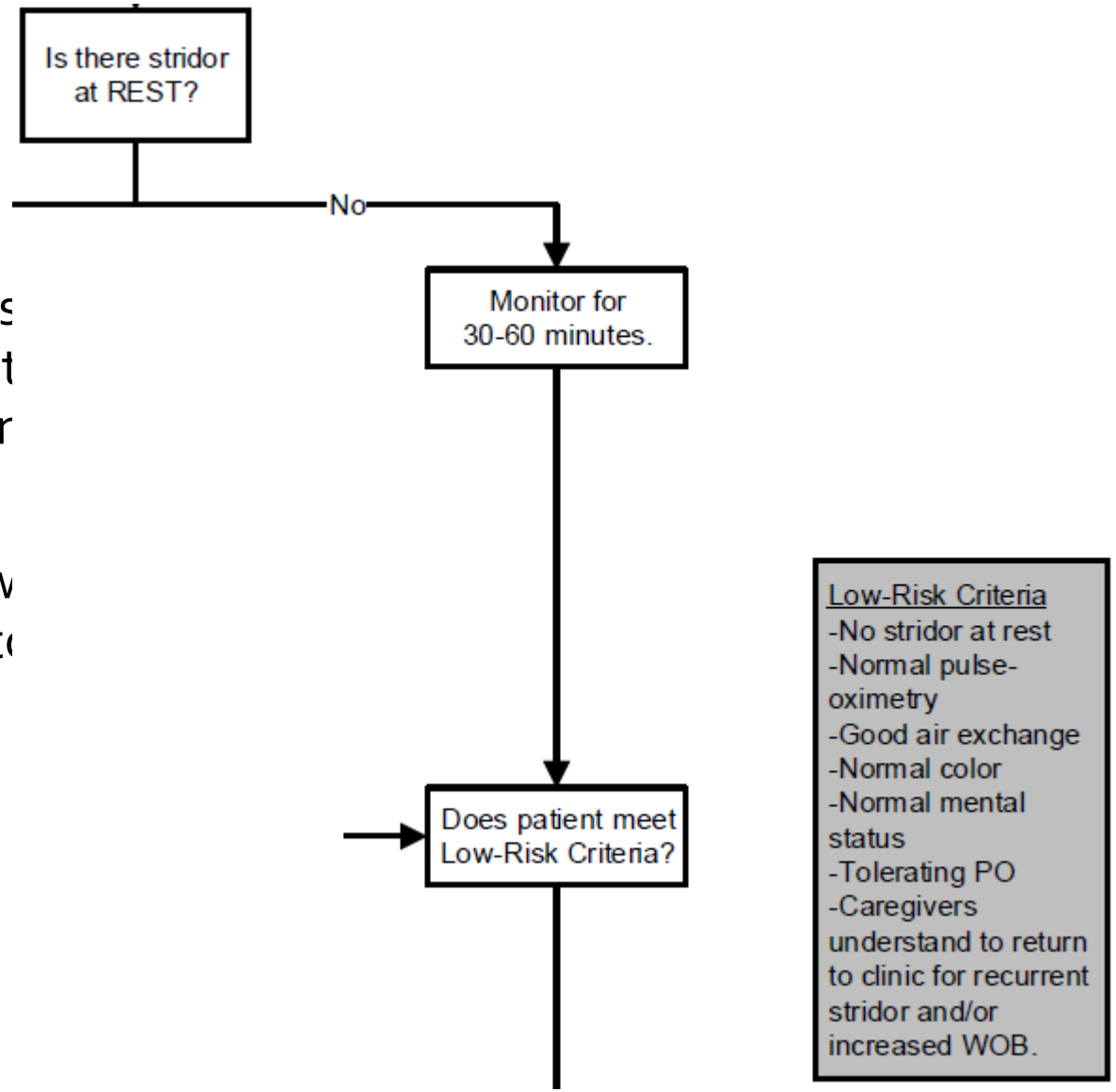


DO NOT ORDER “dexamethasone per CHAM”

- CHAM drastically under-doses dex AND it uses the 4 mg/mL concentration. (We are working on this.)
- The dose is 0.6 mg/kg.
- Give the health aide the dose in mg. It also helps if you discuss the correct concentration and the correct mL as well as the route you are ordering (PO is preferred). Be very clear.

Croup/Stridor

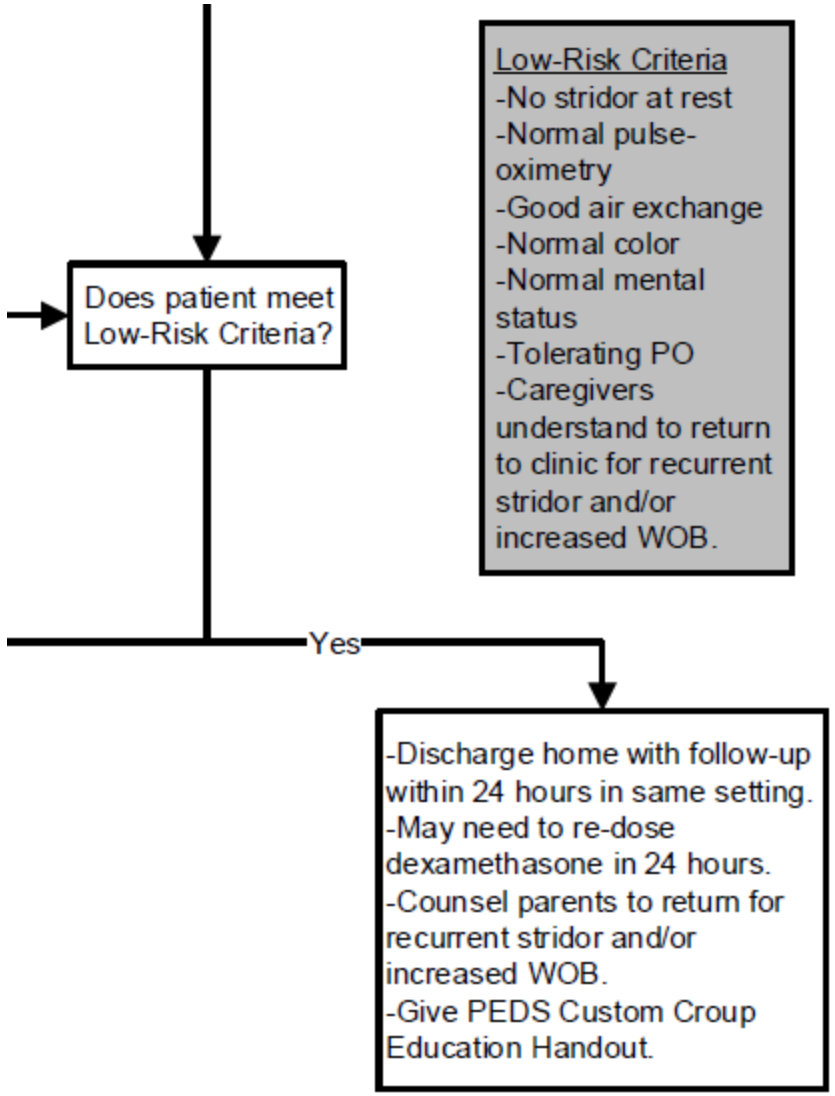
- Stridor AT REST with associated res
  distress is a key finding. Stridor that
  when a screaming child calms dowr
  less concerning.
- If there is stridor at rest, this child w
  require more care than is possible t
  regular RMT with the volume. T
  referred to the pediatric hospita
  emergency RMT to further man



Yay! Send them home!

Prior to discharge, ensure:

- Reliable caregiver.
- Close follow-up (the child may need a second dose of dex in 24-48 hours).
- Good education about what to come back for.

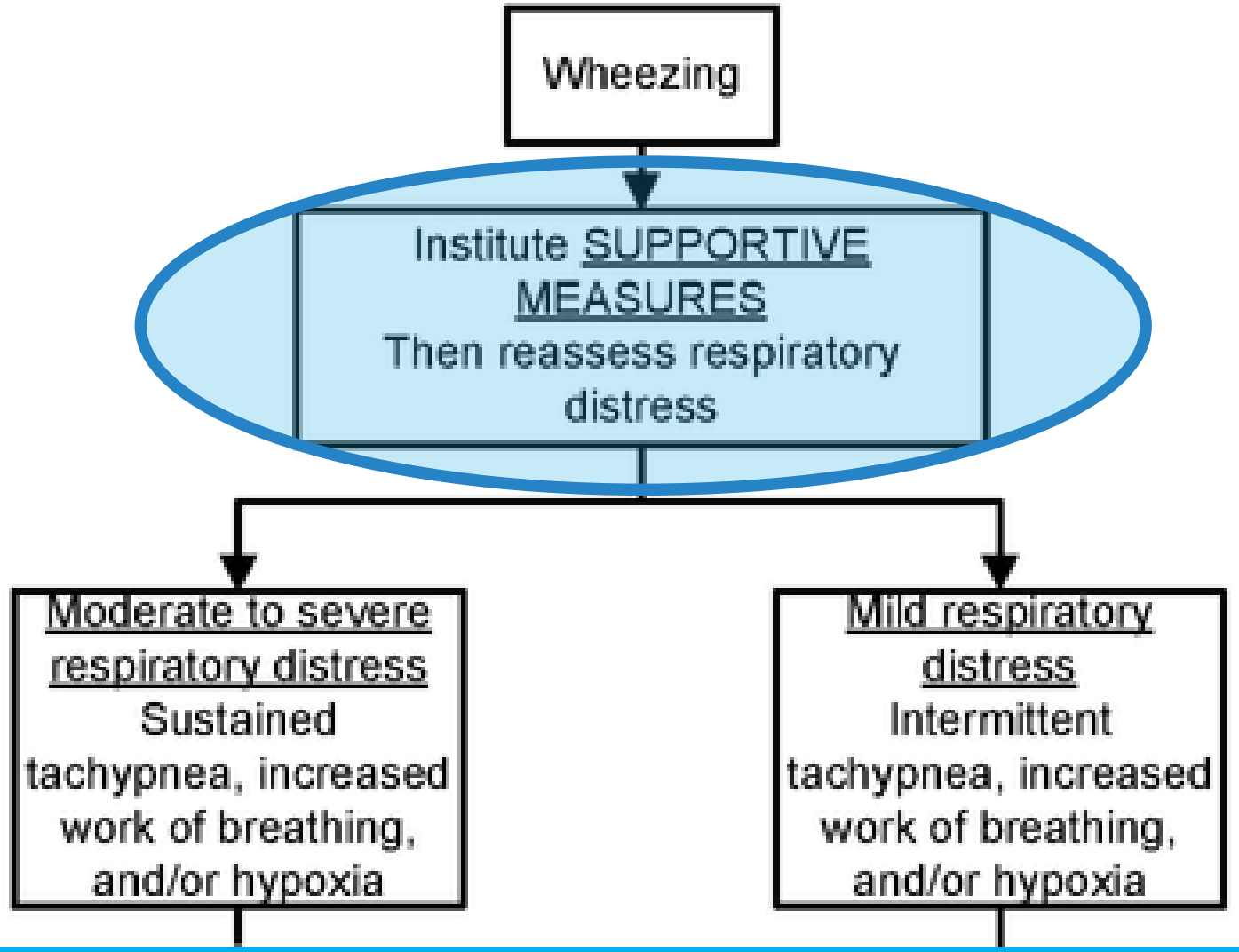


Bronchiolitis

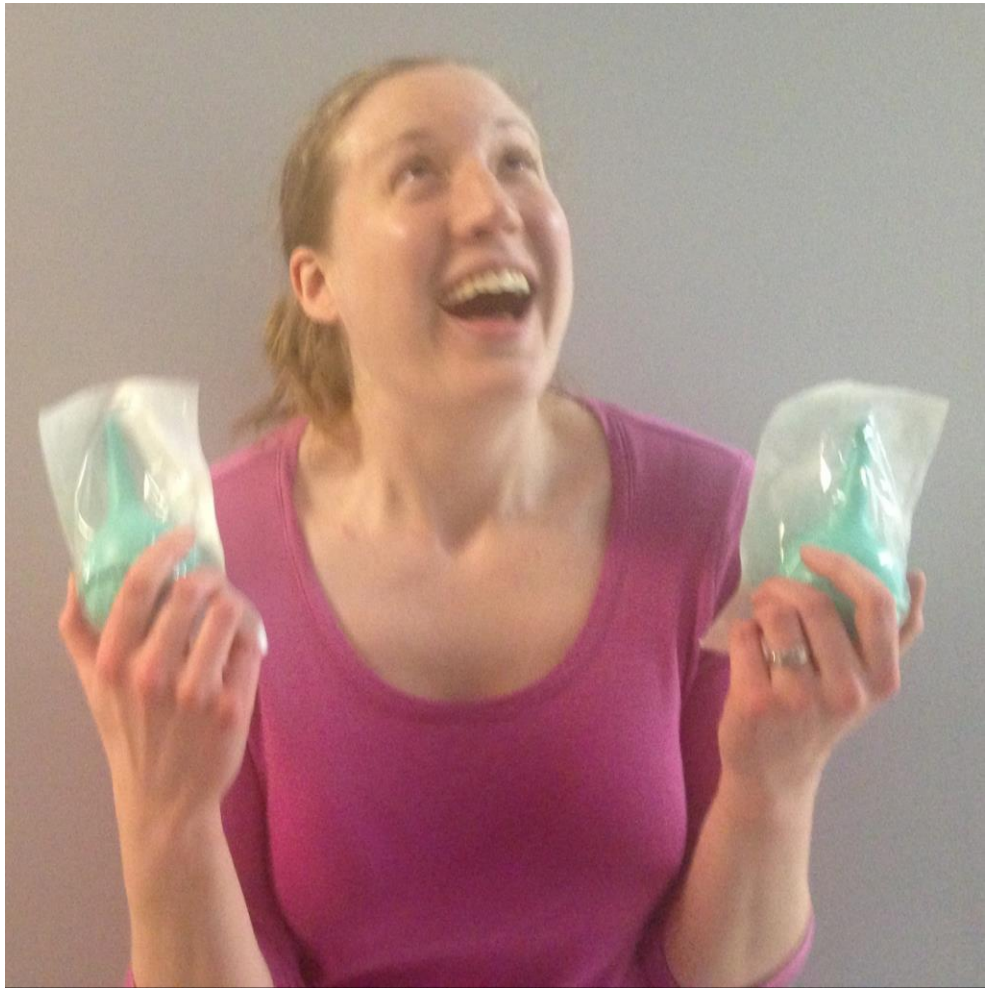
- *cue collective groan*
- The nose represents half the total airway resistance in infants/children, so gentle suction with saline drops. Suction, and suction again!
- Maybe suction some more.
- Saline versus albuterol (next slide)
- Treat the fever and reassess
- Are they responding to supportive measures? May continue observation in village with close follow up and education.
- So, you've tried all of the above but you're not happy with the clinical picture… you want to bring them to Bethel.
  - Medevac vs Commercial: vital signs are important but patient's behavior is important too.
  - If on VTC, patient is happy/playful/interactive, I'm less concerned about their respiratory rate.
  - We have two alternative diagnoses in the Delta: "happy tachypnea" and "happy wheezer"

Bronchiolitis

- Fever, nasal congestion, and bronchospasm often exacerbate respiratory distress in children.
- Before deciding disposition, institute supportive measures and watch for effect:
  - Anti-pyretics
  - Nasal suction
  - Albuterol x2-3
  - Saline nebs
  - Hydration
- These measures often change your disposition plan.



SUCTION!!



Head Injury

- Head injury - who should be sent in? How long should you observe in the village vs send in?
- This can be tricky, but we have a helpful guideline, so don't forget to use it!
- Most important questions:
  - Mechanism of injury is probably THE most important piece of information
  - Loss of consciousness?
  - Length of time since injury?
  - Vomiting?
  - Mental status changes?

Observation in village vs Bethel
Concussion handout?

**<u>Severe Mechanism of Injury</u>
-fall >3 feet
-Motor vehicle accident with ejection, rollover, or fatality
-Unhelmeted bike/pedestrian vs vehicle
-Struck by high-impact object

UTI

- Lots of things are called UTIs and aren't.
- Lots of things are called something else and are actually UTIs.

Differential Dx for Dysuria
-UTI
-vulvovaginitis
-Candida infection
-poor hygiene
-sexual abuse
-age-appropriate self-exploration

Signs and Symptoms of UTI
-fever
-dysuria
-vomiting
-abdominal pain
-new daytime or nighttime wetting
-increased frequency of voiding
-malodorous urine

Suspected UTI

- Village U/As are VERY unreliable.
- Never treat a child under five for a UTI without a culture pending.
- Please follow-up on the culture.
  - Children are commonly labelled "recurrent UTI" and sometimes have never actually had one!
  - Call family or health aide to stop antibiotics if culture is negative.
  - Antibiotics may need to be adjusted when sensitivities return.

Village Management

- Do not treat any child under 5 years of age empirically in the village.
- If patient has dysuria, increased frequency, enuresis, and/or abnormal clean catch urinalysis, consider further evaluation in Bethel.

DO NOT …

- treat any child under 5 years of age empirically in the village.
- routinely collect urine via bag.
- treat a UTI without a culture in progress.
- routinely perform a test of cure.
- routinely start UTI prophylaxis.

Okay, so probably not a UTI…now what?

- History and supportive care.
- Have a low threshold to ask about sexual abuse.

Symptomatic Care
If dysuria, irritation, etc. recommend A+D ointment and instruct family to do soaks/baths with warm water and no soap. May consider baking soda ¼ cup per tub.

Suspected Abuse

- Our guideline has the number of the three agencies who need to be called AST/BPD, CAC, OCS.
- If the child is medically stable, make sure the health aide has called the troopers.
- Make sure the child has a safe place to go pending further actions by law enforcement.
- Tell everyone NOT TO ASK THE CHILD ANY MORE QUESTIONS. Further questioning at this point can contaminate the forensic interview later.
- Tell the health aide to do a minimal exam - just make sure there's nothing that requires immediate medical attention, and then tell the parents to await more instructions from law enforcement.

Phone Numbers

- Sexual Abuse Response Unit (SARU) on-call phone: 545-4273 (if no answer, ER can page the on-call SARU nurse)
- Office of Children's Services (OCS): (800) 478-4444
- Alaska State Troopers (AST): 543-2294
- Bethel Police Department (BPD): 543-3781
- Child Advocacy Center (CAC): 543-3144 or 543-3456
- Alaska CARES: (907) 561-8301

Suspected Abuse

- Remember, OCS must be contacted as well. They will ask for the name of the caretaker, their phone number, the name of abuser (if known). They often ask for the name and ages of the other people in the household. It's a lot easier to have this information on hand before calling OCS.

- Mandatory Reporters include: Medical providers, nurses, health aides, teachers, social workers, law enforcement officers, and mental health professionals.
- Report should be made by the professional who was made aware of the concern.

Developmental Delay

- If a parent has a concern, they may be referred to FIT WITHOUT seeing a pediatric provider first.
  - You may place the referral via this order:

  OR

  - The parents may self-refer by calling 543-3690.

Reported Drug Allergies

MANY, MANY patients are listed as allergic to amoxicillin, Augmentin, and other drugs.

- Highly over-reported.
- VERY common for any rash that ever appears ever to be labelled an amoxicillin allergy.
- EVERY rash is called hives.
  - GET A DESCRIPTION!!
  - Were they large welts the size of a pencil eraser or dime that came and went or was it a whole body rash of tiny pinpoint red dots?
- Diarrhea is often the listed reaction for Augmentin.
- The literature consistently shows that >90% of patients who report a penicillin allergy have negative skin testing and may safely receive penicillins. (UTDOL)

True Drug Allergies

- Type 1 hypersensitivity reactions:
  - IgE-mediated.
  - Usually begin within one hour of dose.
  - This is the reaction we're all afraid of: itching, flushing, hives, angioedema, bronchospasm, laryngeal edema, hypotension.
  - I am NOT ADVOCATING allergy trials in these patients.
- Non-Type 1 reactions
  - Non-IgE-mediated.
  - Usually begin days into treatment and can occur up to several days after course is complete.
  - Most commonly includes rash and CAN include hives.
  - There is a small subset of non-Type 1 reactions that includes urticaria + angioedema but NOT anaphylaxis.
- Penicillin-induced anaphylaxis is uncommon, occurring with an incidence of between one and four episodes per 10,000 administrations. (UTDOL)

Allergy Trials: Fantasy-Land vs. Reality

- You can do allergy trials on RMT!
  - Get a good history that the reaction is very unlikely to be a Type 1 Hypersensitivity reaction. (Past photos can help.)
  - If reassuring history, give a dose of the drug in the clinic and monitor with VS Q15min x1 hour. If all is well, declare the child allergy-free and prescribe the full course of the drug!
- I get it. You are BUSY. You really don't have time to do that.
- Please DON'T just prescribe ceftriaxone or cefdinir!!
  - This is bad for antibiotic stewardship.
  - This makes future treatment more challenging.
  - It takes up to five days for cefdinir to get there anyway!
- Instead, please send the child in to Bethel for evaluation by a provider.
  - Maybe the allergy will be trialed.
  - Maybe the provider's exam will reveal the child doesn't actually need the antibiotic!
  - If the allergy is deemed too risky to trial, then:
    - The child will be referred for allergy testing.
    - The child will get cefdinir MUCH more quickly this way!

Consult Us!!

- Be clear about what you want - do you have a question? Do you want the pediatrician to take over management?
- Don't just forward the RMT to Chronic Peds RMT - then it goes in the bottom of our queue, and the health aide and patient now have to start the waiting process all over. Also, we don't know what's going on - did it get sent to me by accident? I often "re-educate" the health aide and then discover that the health aide did it right to begin with.
- If you want the pediatrician to take over management, please don’t continue to manage the patient! (This actually happens often.) Again, be clear about what you want us to do. We are happy to help. Just tell us how you want us to be helping.
- If a patient sounds sick, make sure you send us a TT so we know (1) what you did and (2) that this is important. Then you have also transitioned care so there is a time of transition - it will be clear that you were managing until 12:15 when you communicated with the pediatrician, who assumed care at 12:16…or whatever.

Dental Pre-ops

- All village “pre-ops” for clearance for travel may be forwarded directly to peds.

A less-than-optimal example

2 pm: 3 mo baby presented to village clinic with fevers and tachycardia.

3:24 pm: RMT note completed and sent to regular RMT.

5:19 pm: forwarded to Chronic Peds RMT without a TigerText or phone call.

5:49 pm: day pediatric hospitalist saw the RMT and ordered Tylenol.

6 pm: night pediatric hospitalist takes over.

7:15 pm: recheck VS are fine, and patient sent home with recheck the next day.

Another less-than-optimal example

Addendum by RMT Provider on July 06, 2018 5:03 PM AKDT (Verified)
Viewed pix again. There may be soft tissue swelling but I recommend that you get second opinion. Send RMT to chronic peds RMT.

Addendum by Health Aide on July 06, 2018 3:36 PM AKDT (Verified)
Only soft tissue is tender to touch. Now has red streak going up top of foot.

Addendum by RMT Provider on July 06, 2018 3:31 PM AKDT (Verified)
Not just the toe but the bone of the foot.

Addendum by Health Aide on July 06, 2018 1:54 PM AKDT (Verified)
Palpated toe, did not feel grinding and no cracking.

Addendum by RMT Provider on July 06, 2018 1:27 PM AKDT (Verified)
VSS. Viewed pix in CAMM sent to bethel RMT provider to assist CHA with Dx and Tx. 6 yo F states that she slipped while playing outdoors 2 days ago. The right 5th toe does appear mildly swollen and pink-red compared to the left. DRedness appaers to extend to the distal lateral MTP also. I recommend palpating the toe and the 5th bone of the foot for crackling/grating. You can either resend the RMT or send me a Tiger text with exam findings.

RMT was then sent to Chronic Peds RMT without a TigerText or phone call.

It was not seen until 6:30 pm when the night pediatric hospitalist came in. The patient had been sent home, and nothing could be done until the next day.

Please pay attention to vaccines!!

General Appearance: Awake, Alert, Oriented X3, Looks Healthy, Skin: pink/ warm, Active, Smiling, Playful

Are You Up-To-Date With Your Immunizations: Vaccines Due

Telemed:YES, PLEASE REVIEW IN CAMM (MULTIMEDIA MANAGER)

This was from an RMT on a 17 mo boy who had received vaccines only twice. Every RMT appropriately said that vaccines were due, but it was never addressed.

Anemia

- Stay tuned for updated guidelines!
- Until then, please keep in mind that “iron per CHAM” drastically underdoses children with anemia.
- Changes are in progress!!
- Until then, please make sure children with Hgb<9 are followed in Bethel.

Thank you!