Yukon-Kuskokwim HEALTH CORPORATION

CLINICAL RESOURCE BOOK

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CLINICAL GUIDELINES

Arranged by system, and then alphabetical.

Yukon-Kuskokwim HEALTH CORPORATION

CLINICAL RESOURCE BOOK

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Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Consultations

Phone Numbers

ANMC: Consult: *97 or (907) 563-2662
Transfer: (907) 729-2337
PICU Cell for urgent consults: (907) 297-8809
Providence: ED for on-call specialist: (907) 212-3111
Trauma: (907) 212-2525
Alaska Regional Hospital Access Center: (844) 880-5522
VA/JBER: ED: MD consult number (907) 580-5556
Transfer: (907) 580-6420
Admissions 24/7: (907) 580-6423
Operator: (907) 552-1110
Harborview Seattle (burns): (888) 731-4791

Remember: Unless you transfer care of the patient, YOU are responsible for orders, documentation, and notifying the patient and family of the plan of care.

SRC and village itinerant providers do not have the luxury of paging the provider STAT to bedside. However, the SBAR case presentation and the documentation requirements listed on this protocol still apply.

Provider needs consultation about patient at YKHC

Consulting provider located in Bethel?

No

Page the appropriate provider:
1. ANMC for beneficiaries.
2. Providence Hospital or Alaska Regional Hospital for non-beneficiaries.
3. Alaska Regional for prison inmate.
4. VA or JBER (Joint Base Elmendorf/Richardson) for veterans.

Be prepared with the following information:
1. State your name, title, and department (e.g. ED physician, outpatient NP, second year resident, etc.)
2. State purpose of call (e.g. quick question, possible admission, management advice, etc.)
3. Provide name, age, DOB, and location of patient. If the patient is pregnant, give gravity and parity and gestational age in initial sentence. If the patient is a child, give the age in the initial sentence.
4.Use SBAR (see box).
5. Ask a **specific question** about management.
6. If patient is to be transferred, state whether you think that the patient can travel by commercial flight or will require air medevac.
7. If there is a problem getting an accepting physician for a medevac/transfer or with patient management decisions, see NOTE below.

Document consultant advice in the medical record, include date, time, first and last name of consultant and a summary of the advice given.

Yes

Patient is critically ill and the consultant is required at bedside?

No

Page the appropriate provider. Be prepared with the following information:
1. State your name, title, and department (e.g. ED physician, outpatient NP, second year resident, etc.)
2. State purpose of call, including if you want a formal consult (e.g. quick question, possible admission, management advice, etc.)
3. Name, MRN, age, DOB. If the patient is pregnant, give gravity and parity and gestational age in initial sentence. If the patient is a child, give the age in the initial sentence.
4.Use SBAR (see box).
5. Ask a **specific question** about management.

Provider requesting consult must document consultant's advice in the medical record. Include date, time, first and last name of consultant, and a summary of the advice given.

Note: consultants are encouraged to document their recommendations in a separate note or as an addendum to the provider note. If done, this note does not obviate the initial provider's documentation requirements.

At any time in the process, if the primary provider wants support at the bedside, page the consultant and ask them to come to bedside and provide support.

Clear role delineation must occur establishing who is the primary managing provider.

Yes

Page provider STAT to come to bedside and assist in management.

If on-going management is required, a decision must be made immediately and communicated to the team about who will be the primary managing provider giving orders and documenting in the medical record.

Once patient is stabilized, discussion will occur between the primary provider and the consultant regarding further documentation and ongoing management.

SBAR

Situation: a concise statement of the problem, a "one-liner"
"This is a 3 year old otherwise healthy girl with a fever…"
"My patient is a 20 year old G3P2 at 26 weeks with vaginal bleeding…"
"I'm taking care of a 21 year old male with fever and abdominal pain…"

Background: pertinent and brief information related to the situation
"The labs are normal and CXR shows no infiltrate but her pulse is elevated…"
"I have performed a sterile speculum exam and there is frank blood in the vault…"
"The patient's CT show appendicitis and the patient is vomiting all intake…"

Assessment: analysis and consideration of options, what you found/think
"I think she needs a fluid bolus but I am wondering if she also needs a UA…"
"I think this patient might have an active abruption…"
"I think this patient has appendicitis and needs to be transferred to ANMC…"

Recommendation: action requested, what you want
"I want your opinion on how much fluid and the need for a UA…"
"I want you to come in and assess this patient in person…"
"I would like to transfer this patient via medevac to ANMC…"

Note about Disagreements

If there is a disagreement regarding the management of a patient and a consensus cannot be reached, a third opinion shall be obtained. This can either be from another YKHC provider or from a provider from another facility. At any time, the Clinical Director on call can also be notified to assist.

This protocol is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23.
Click here to see the supplemental resources for this guideline.
If comments about this protocol, please contact Ellen_Hodges@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol
Pediatric Consults

EMERGENT Consults

• Need a call back immediately.
• Examples: Child is in status epilepticus or impending respiratory failure.

• Send priority message via Tiger Connect to Peds Wards on Duty using format below.

URGENT Consults

• Need a call back within one hour.
• Examples: Advice on antibiotic choice or questions about a rash.

• Send message via Tiger Connect to Peds Wards on Duty using format below.

NOT URGENT Consults

• Question can wait until the end of the day/next morning.
• Examples:
- "Noted that weight percentile has decreased by >2 major percentiles on weight growth chart. Forwarding note to pediatrician for recommendations on further work-up and management for failure to thrive."
- "During this WCC, reviewed PMH and noted child has not seen neurologist in several years and is off anti-epileptics. Forwarding note to pediatrician for recommendations on further management of seizure disorder."

• Do not send a message via Tiger Connect.
• Complete note and forward to "Chronic Peds, RMT" box via Message Center. Note MUST include a specific question for the pediatrician in the plan.
• Note reviewed by inpatient pediatrician, who will addend the note with recommendations and send it back. It will be addressed with the same triage principles we use to prioritize RMT. Goal will be response by the end of the day, but if there is critical care, the night pediatrician will address it by the next morning.

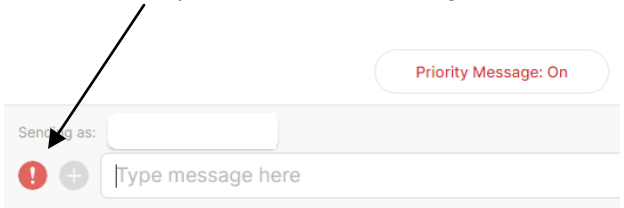
Tiger Connect Message Format for **EMERGENT** and **URGENT** Consults

NOTE: If true emergency, limit message to #2 and #4.

1. Urgency of consult: need call back ASAP or within one hour.
2. Name of provider, location, role, and phone number.
3. Name and MRN/DOB of patient.
4. One-liner about patient. Here are some examples:
   - "4 yo girl with h/o seizures here for prolonged seizure."
   - "3 month old boy with h/o respiratory failure requiring ICU care here with increased work of breathing."
5. Specific question. Here are some examples:
   - (**EMERGENT**) "The seizure is now >5 minutes and needs medication to stop it. What drug and dose should I give?"
   - (**EMERGENT**) "This child has a RR of 80 and hasn't improved with albuterol or nasal suction. I would like to discuss if a medevac is appropriate."
   - (**URGENT**) "I think this child needs antibiotics, and I'd like to discuss an appropriate choice."
   - (**URGENT**) "This child may require further evaluation in Bethel, and there is a commercial flight landing in two hours. I'd like to discuss whether the child should be sent to Bethel on that flight."

How to Send a Priority Message in Tiger Connect

Click the exclamation point to the left of the message box. It will turn red.



This protocol is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23.
Click here to see the supplemental resources for this guideline.
If comments about this protocol, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Guideline Guideline

Miscellaneous

- Goal is guidelines are to be reviewed every two years with revisions and updates as appropriate. Updates may happen sooner as needed.
- If a guideline has not been reviewed in the past five years, it will be decommissioned until it is revised.
- Deadlines for feedback will generally be a period of two weeks.
- At any time, anyone may send feedback on a guideline. This feedback will be saved for the next guideline revision.
- Minor changes including (but not limited to) correction of typos, changes in test names, small additions, updating hyperlinks, and changes in contact information may be made and published without committee approval.

Topic identified for new guideline
OR
Guideline due for an update/revision

↓

A member of the clinical staff is identified to be the point person for the new guideline/revision.

↓

The point person works on the guideline in partnership with a member of the Clinical Guideline Committee.

↓

When a draft has been completed, the pdf is sent to a small group of interested parties.

↓

Feedback is gathered, and revisions are made.

↓

The next draft is sent to the entire medical staff as well as other clinical groups (including pharmacy, RT, and nursing), as appropriate.

↓

Feedback is gathered, and revisions are made.

↓

Final draft is approved by Clinical Guidelines Committee.

↓

Date of approval is recorded on the guideline, which is published on the wiki and in the Clinical Resource Book.

↓

Final draft is emailed to medical staff and interested parties with description of new/ updated guidelines.

Wiki Supplements

- The long-term goal for the guidelines is for every guideline to have a corresponding supplement page on the wiki.
- The guideline will be information needed to take care of a patient in the moment.
- The wiki supplement will include references, resources, historical background, past versions, and other information.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Process to Update the EHR to Match Guidelines

Contact

If any members of the medical staff identify orders that are discrepant with an approved clinical guideline, they should email Clinical_Guidelines@ykhc.org. The Clinical Guideline Committee will review the request and begin the process outlined here.

A clinical guideline is created or updated.

↓

Point person for guideline reviews all related Power Plans and orders in the EHR.

↓

Point person sends the guideline and relevant Power Plans and orders to Super User with summary of needed changes.

↓

Super User makes screenshot of Power Plans and orders in CERT prior to making changes.

↓

Super User makes requested changes in CERT.

↓

RAVEN team reviews changes in CERT.

↓

Point person for guideline validates changes.

↓

RAVEN team moves changes to PROD.

↓

RAST committee is notified of changes.

Rationale

- The YKHC Clinical Guidelines are the agreed-upon standard of care for the YKHC medical staff.
- This standard of care should be reflected in the available orders and Power Plans in the EHR.
- As such, if orders in the EHR do not match a clinical guideline, these orders may be changed without getting approval from the RAST committee. The RAST committee will be notified of these changes.
- This guideline outlines the process by which EHR changes based on updates in clinical guidelines may be made.

Definitions

- CERT: domain for testing changes to the EHR.
- PROD: Live domain used by staff to access the EHR.

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Yukon-Kuskokwim HEALTH CORPORATION

Critical Care & Emergency Medicine Guidelines

Critical Care & Emergency Medicine

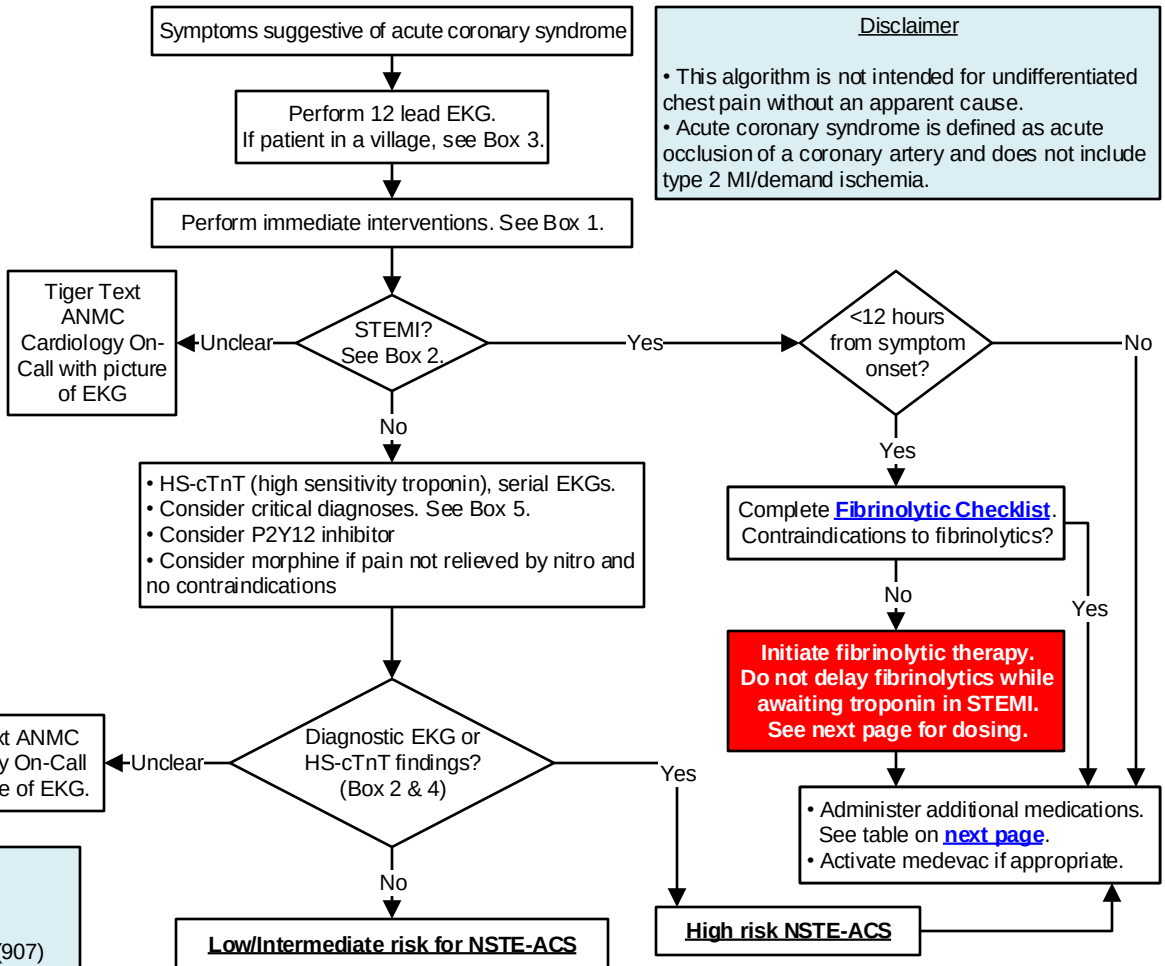
Adult Critical Care Guide:
https://ykhc.ellucid.com/documents/view/39909

Pediatric Critical Care Weight-Based Guide:
https://yk-health.org/wiki/File:Pediatric_critical_care_guide.pdf

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management



Box 1: Immediate Interventions

- Supplemental oxygen *prn* to maintain SpO_2 90-96%.
- Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin).
- Nitroglycerin 0.4 mg sublingual *prn* pain (up to three times as BP permits) unless contraindicated. Contraindications: recent phosphodiesterase use, sBP <90, right ventricular infarct (consider when evidence of inferior wall ischemia).

NOTE: pain relief with nitroglycerin (or lack thereof) is not diagnostic of cardiac ischemia.

Disclaimer

- This algorithm is not intended for undifferentiated chest pain without an apparent cause.
- Acute coronary syndrome is defined as acute occlusion of a coronary artery and does not include type 2 MI/demand ischemia.

Consulting Cardiology

- For all STEMI patients, consult PAMC Cardiology by calling the PAMC ED at (907) 212-3433 and asking for the cardiologist on call. For beneficiary patients, ANMC Cardiology should be made aware of the transfer on a non-urgent basis.
- For NSTE-ACS patients, consult ANMC Cardiology for beneficiary patients and PAMC Cardiology for non-beneficiary patients.

Box 2: EKG Criteria

STEMI:
- ST elevation in 2 contiguous leads of >0.2mV in V2-V3 OR >0.1mV in all other leads
- New or presumably new LBBB
- Positive Sgarbossa criteria for pre-existing LBBB

High risk Non-ST elevation ACS (NSTE-ACS):
- Dynamic T wave inversions
- Transient ST elevation

Box 3: Village Management

- If EKG meets high risk criteria in Box 2, review with ED Physician and activate medevac. Perform interventions in Box 1.
- ED physician coordinates with ANMC/PAMC regarding whether to have LifeMed give lytics and whether to stop in Bethel or ramp transfer to Anchorage.

- If EKG or health aide not available, use clinical history and validated tool such as EDACS to stratify risk for ACS. Consult with ED Physician and/or CD on call regarding appropriateness of medevac for risk factors alone.

Box 4: HS-cTnT Evaluation for Acute Cardiac Injury

The lowest reported value is "<6 ng/L," which equates to "undetectable."
FDA-approved normal values (99th percentiles in healthy subjects) are:
- Men: <22
- Women: <14
- Change in one hour (Δ1h) : <3

Cutoffs are arbitrary and do not correspond to any evidence-based positive-predictive value for ACS.
For patients with elevated troponins and clinical history consistent with ACS, consult cardiology.
This information is from data available February 2020. Please see wiki page for further information.

Box 5: Critical Differential Diagnosis

- Aortic dissection
- Tension pneumothorax
- Pulmonary embolism
- Perforated peptic ulcer

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Approved by Clinical Guideline Committee 3/24/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

Nitroglycerin (NTG)
• Contraindications: PDE-inhibitor use, cardiogenic shock, RV infarct, sBP<90, marked tachycardia or bradycardia.
• Sublingual dosing: 0.4 mg SL Q5 minutes up to three doses
• IV dosing: start at 10-20 mcg/min, titrate Q3-4 minutes to typical range 60-100 mcg/min

Beta-Blockers
• No evidence of benefit from routine immediate beta-blocker.
• Indicated for HTN and/or ongoing ischemia refractory to NTG.
• Contraindications: cardiogenic shock, RV infarct, symptomatic asthma.
• Cautions: risk for cardiogenic shock (bradycardia, HR>110, sBP<120, age>70, increased time since STEMI onset), inferior MI, controlled asthma.

Emergency Department Medication Summary

	STEMI <12 hours	STEMI >12 hours	NSTE-ACS
Oxygen	Maintain SpO_2 90-96%	Maintain SpO_2 90-96%	Maintain SpO_2 90-96%
Nitrates (*prn* pain, HTN)	Sublingual or drip	Sublingual or drip	Sublingual or drip
Fibrinolytic	Tenecteplase See below.	Not indicated	Not indicated
Antiplatelet agents: Aspirin	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)
Antiplatelet agents: $P2Y_{12}$ receptor blocker	Clopidogrel Age ≤75: 300 mg PO Age >75: 75 mg PO	Clopidogrel 600 mg PO	Consult cardiology.
Anticoagulation	Enoxaparin (see table for dose)	Enoxaparin (see table for dose)	Enoxaparin (see table for dose)
Beta-blocker	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)
Morphine	No longer routinely given; associated with increased mortality. Reserve for significant pain refractory to NTG and beta-blocker.		

At time of Dx unless contraindicated

Fibrinolytic Therapy (Tenecteplase)

Goal: administer ≤ 30 minutes from arrival.
Rapidly complete the fibrinolytic checklist and consent.

Dosing:
• <60 kg: tenecteplase 30 mg IV bolus
• ≥60 kg to <70 kg: tenecteplase 35 mg IV bolus
• ≥70 kg to <80 kg: tenecteplase 40 mg IV bolus
• ≥80 kg to <90 kg: tenecteplase 45 mg IV bolus
• ≥90 kg: tenecteplase 50 mg IV bolus

Administer concurrent aspirin, clopidogrel, and anticoagulant therapy, per table above.

Enoxaparin Dosing

	Age <75 years and STEMI	Age ≥75 years and STEMI	Any age and NSTE-ACS
Creatinine clearance ≥30 mL/min	30 mg IV + (1 mg/kg SC now then Q12h) Max dose 100 mg	0.75 mg/kg SC Q12h Max dose 75 mg	1 mg/kg SC now then Q12h
Creatinine clearance <30 mL/min	30 mg IV + (1 mg/kg SC now then Q24h) Max dose 100 mg	1 mg/kg SC Q24h Max dose 100 mg	1 mg/kg SC now then Q24h

NOTE: Enoxaparin and unfractionated heparin are NOT dialyzable; ESRD/dialysis patients should receive fondaparinux, which is not on the YKHC formulary. Discuss with cardiologist if appropriate.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

Fibrinolytic Checklist

INDICATIONS *(initial yes or no)*		
YES	**NO**	
		Presentation consistent with acute coronary syndrome (coronary artery occlusion)
		AND at least one of the following: • 1 mm J-point elevation in two contiguous leads (other than V_2-V_3) • In leads V2-V3 Men ≥ 40 years: ≥ 2 mm J-point elevation Men <40: ≥ 2.5 mm J-point elevation Women: ≥ 1.5 mm J-point elevation
ABSOLUTE CONTRAINDICATIONS *(initial yes or no)*		
YES	**NO**	
		History of any intracranial hemorrhage
		History of prior ischemic stroke, significant closed head injury or facial trauma, or intracranial or spinal surgery in the previous three months
		Presence of a cerebral vascular malformation
		Presence of a primary or metastatic intracranial malignancy
		Symptoms or signs suggestive of an aortic dissection
		Any bleeding diathesis
		Any active bleeding that is severe or has high potential for life-threatening blood loss; this does not include menstrual bleeding
		sBP > 180 and/or dBP >110 at presentation in patient at low risk of cardiac death (age < 55, no prior MI, and Killip class I).
		Terminal illness, defined as end of life care or documented/expressed patient wish to abstain from high risk or invasive procedures
RELATIVE CONTRAINDICATIONS *(initial yes or no) – If any of below are present, used shared decision making with patient.*		
YES	**NO**	
		Age 65-74 (ICH relative risk 3.12 [2.54-3.83]); Age ≥ 75 years (ICH relative risk 5.40 [4.40-6.63])
		History of chronic severe poorly controlled HTN
		sBP > 180 and/or dBP >110 at presentation in patient at high risk of cardiac death (age ≥ 55, Hx prior MI, or Killip class ≥ II).
		History of ischemic stroke more than three months ago
		Dementia OR any known intracranial disease that is not an absolute contraindication
		Traumatic or prolonged (>10 minutes) cardiopulmonary resuscitation
		Major surgery in the previous three weeks
		Internal bleeding in the previous 2-4 weeks
		Active peptic ulcer
		Non-compressible vascular punctures
		Pregnancy
		Current warfarin therapy (the risk of bleeding increases as the INR increases)

This checklist is advisory for clinical decision-making and may not be all-inclusive. Risks and benefits will need to be assessed individually.

Physician signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

PROCEDURE CONSENT

I hereby authorize _____ and such assistants as he/she may designate, to perform the following operation or procedure:

TECHNICAL DESCRIPTION	Intravenous thrombolytic therapy for acute STEMI (ST-elevation myocardial infarction).
LAY DESCRIPTION	Give clot-dissolving medication through an IV to dissolve the clot which is causing a heart attack.

_____ has discussed with me the information briefly summarized below:

BENEFITS	• When PCI is not available within two hours, thrombolytic medication is the "standard of care" for achieving coronary reperfusion within 12 hours of acute STEMI onset. • When administered within 6 hours of pain onset, about 1 in 40 persons will have their life saved. • When administered between 6-12 hours after pain onset, about 1 in 60 persons will have their life saved. • Decreased risk of developing heart failure. • A STEMI patient who receives thrombolytic medication is about 3-5 times more likely to have their life saved than to have brain bleeding (see below).
RISKS *(some, but not all)*	• About 1 in 100 persons will experience non-life-threatening bleeding. • About 1 in 100-250 persons will experience bleeding into the brain which usually results in either death or significant disability.
RISKS OF NOT HAVING THE PROCEDURE	• Higher risk of death. • Higher risk of developing heart failure.
ALTERNATIVE TREATMENTS	None are available at this facility.

Patient signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Physician signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

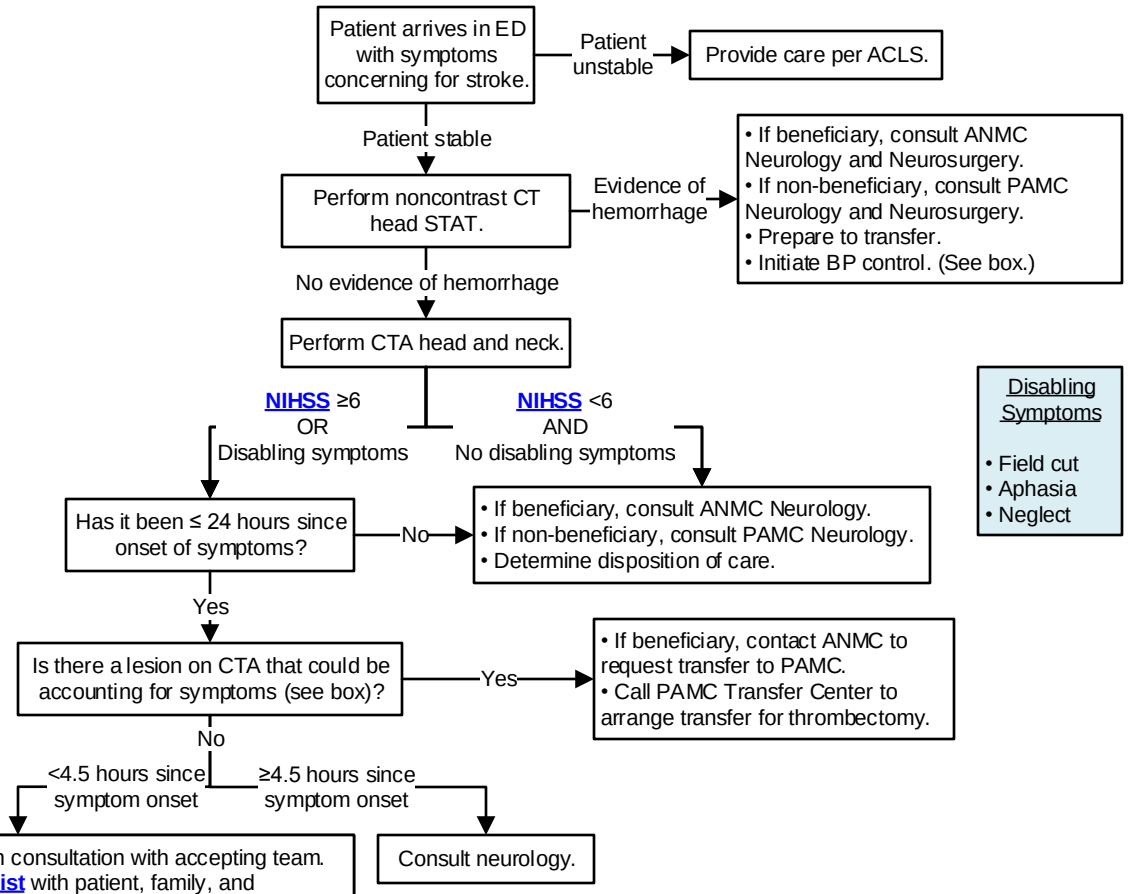
Cerebrovascular Accident

Immediate Management (in village, en route, or upon arrival)

- Consider ASA 81 mg (PO or PR) if no headache or vomiting.
- Blood glucose.
- EKG, if possible.
- Place two large-bore IVs.
- Notify radiology tech and radiologist.
- Have appropriate staff on standby.
- Have tenecteplase ready.
- Transport directly to CT, if stable.
- COVID screen/BINAX.
- Calculate **NIHSS**.

General Care for Strokes

- Supportive care for airway, breathing, circulation
- VS including weight
- Telemetry
- Appropriate neurologic status documentation and repeat checks
- Glucose goal 140-180; repeat glucose checks if NPO.
- Maintain normothermia (eg acetaminophen PR as needed)
- NPO until swallow study
- BP control (see box)



Disabling Symptoms

- Field cut
- Aphasia
- Neglect

BP Control

BP Goals
- Acute ischemic stroke or TIA: <220/120 mm Hg
- Acute ischemic stroke s/p thrombolytics: <185/110 mm Hg
- Intracerebral hemorrhage: <180/90 mm Hg
- Subarachnoid hemorrhage: <140-160/90 mm Hg

Patient eligible for reperfusion therapy except if BP>185/110; lower BP by below regimen, then proceed:
- Nicardipine 5 mg/hour IV, titrate up by 2.5 mg/hour every 5 to 15 minutes, max 15 mg/hour; adjust to maintain proper BP (nicardipine is preferred)

OR
- Labetalol 10 to 20 mg IV over 1 to 2 minutes, may repeat x1

OR
- Hydralazine or enalaprilat may also be considered.

If blood pressure is not maintained at or below 185/110 mmHg, do **not** administer tenecteplase.

During and after reperfusion therapy to maintain BP <180/105:
- Labetalol 10 mg IV then continuous infusion 2 to 8 mg/min
- Nicardipine 5 mg/hour IV, titrate to desired effect by 2.5 mg/hour every 5 to 15 minutes, max 15 mg/hour

Phone Numbers

- Providence Transfer Center: (907) 212-7363, press 1 for STEMI/stroke
- ANMC Transfer Center: (907) 729-BEDS or Tiger Connect the Transfer Center
- ANMC Neurology: Tiger Connect

Thrombolytics at YKHC

- Tenecteplase is the only thrombolytic stocked in the ED at YKHC. Dose for CVA is 0.25 mg/kg IV once (max 25 mg).
- Alteplase must come from the pharmacy, if desired.

If giving thrombolytics

- Goal time from door to drug: <60 minutes.
- Attempt to place all lines and tubes (ETT, Foley, NG) prior to administering drug.
- Monitor until transfer: frequent VS and neuro checks.
- BP control per box.
- If any neurologic worsening, repeat head CT.

Criteria for Possible Thrombectomy

- <24h since last well
- NIHSS ≥ 6 or disabling symptoms such as aphasia, neglect, field cut
- Good previous function
- **ASPECTS** >6
- Lesion in carotid, M1, M2, basilar, P1, or A1 arteries

Note about Disposition

- Most patients with stroke should be transferred, either for intervention at PAMC or for work-up and therapy.
- Consider NOT transferring:
  - Patients who decline transfer.
  - Patients with resolved symptoms. (Calculate **Canadian TIA** or **ABCD²** score).
- **You may need to advocate for your patients to receive the standard of care.**

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 2/1/22. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact EPeek_Ehlinger@ykhc.org or Jeremy_Wood@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Cerebrovascular Accident

Thrombolytic Checklist

INDICATIONS *(initial yes or no)*		
YES	**NO**	
		Less than 4.5 hours since onset of symptoms or last known normal.
		NIHSS greater than 5 (or less than 5 with disabling symptoms).
		Symptoms are NOT rapidly improving.
		Symptoms are NOT due to untreated hypoglycemia (BG<50).

ABSOLUTE CONTRAINDICATIONS *(initial yes or no)*		
YES	**NO**	
		CT evidence of hemorrhage OR extensive area of hypodensity (irreversible injury).
		GI/GU bleed in the last 21 days.
		Severe, uncontrolled, hypertension >185/110.
		Current intracranial neoplasm.
		Active internal bleeding or known aortic dissection.
		Any bleeding diathesis.
		Presentation suggestive of SAH or endocarditis (not septic emboli).
		History of intracranial hemorrhage.
		Anticoagulation (warfarin or DOAC in the last 48 hours or therapeutic-dosed heparinoids).
		Any of the following in the last three months: ischemic stroke, intracranial surgery, intraspinal surgery, or serious head trauma.

RELATIVE CONTRAINDICATIONS *(initial yes or no) – If any of the following relative contraindications are present, consider expert consultation prior to giving thrombinolytic and/or consider these with consent and shared decision-making.*		
YES	**NO**	
		History of GI or GU hemorrhage.
		Arterial puncture in a non-compressible site in the last seven days.
		Seizure at onset with postictal neurologic impairment.
		Major surgery in the last 14 days.
		Pregnancy.
		Onset 3-4.5 hours with NIHSS >25 (higher bleeding risk) or age >80 (higher bleeding risk).
		Untreated AVM or aneurysm.
		Systemic malignancy.
		History of arterial dissections.
		Blood glucose greater than 400 (associated with worse outcomes).

This checklist is advisory for clinical decision-making and may not be all-inclusive. Risks and benefits will need to be assessed individually.

Physician signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Consent

Cerebrovascular Accident

PROCEDURE CONSENT

I hereby authorize _____ and such assistants as he/she may designate, to perform the following operation or procedure:

TECHNICAL DESCRIPTION	Intravenous thrombolytic therapy for acute ischemic stroke.
LAY DESCRIPTION	Give clot-dissolving medication through an IV to dissolve the clot which is causing a stroke.

_____ has discussed with me the information briefly summarized below:

BENEFITS	• Thrombolytic medication is a treatment that may restore blood flow to the brain. • In studies, if these drugs were given less than three hours after the stroke started, 33% of patients given thrombolytic drugs had a good outcome. In patients who did not get thrombolytic drugs, 23% got better. Ten people would have to get the drug to help one person have a better outcome. • If these drugs were given between three and four and a half hours after the stroke started, 35% of patients given thrombolytic drugs had a good outcome, and 30% of patients who didn't get the drug also got better. Twenty people would have to get the drug to help one person have a better outcome. • Patients who receive this drug within three hours of the stroke starting have a 10% increase in chance of disability-free survival. • Patients who receive this drug between three and four and a half hours from the stroke starting have a 5% increase in chance of disability-free survival.
RISKS *(some, but not all)*	• In a large study of stroke patients, 6.8% of them had bleeding in their brain after receiving thrombolytic drugs for stroke, compared to 1.3% of those stroke patients who did not receive the drug. If we give this drug 18 times, it will probably make one person have bleeding in their brain. • Among all people given this drug, 2% die from a hemorrhage.
RISKS OF NOT HAVING THE PROCEDURE	• Higher risk of developing permanent, disabling stroke symptoms.
ALTERNATIVE TREATMENTS	No other treatments available at this facility. Only monitoring symptoms and rehabilitation.

Patient signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Physician signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Expected Death Protocol

Patient with serious illness with expected death.

Preparation

In hospital:
- Complete **Physician Orders for Life-Sustaining Treatment (POLST)** order form. Review with patient and family regularly.
- Review DNR/DNI status at least once an admission. Remember, all decisions regarding end-of-life care may be modified at any time per patient and family wishes.
- Place DNR/DNI order in RAVEN. Update code status on RAVEN banner by going to Ad hoc → Code Status form.
- When discharging home, ensure all support is in place, including family care plan, comfort meds (consider sublingual morphine and lorazepam), incontinence supplies, etc.

In village:
- Discuss and document goals of care, code status, wishes for medevac/hospitalization with patient and family. Update code status in RAVEN as above.
- Complete **Expected Home Death** form and send to AST/BPD.
- Place on RAVEN banner by going to AdHoc → Patient Registries and check off "Expected Home Death."
- Communicate with village health aides.

After a home death has occurred

- Medical providers can pronounce death remotely after speaking with a qualified representative, which includes health aides. Representative must ascertain that there is no heart beat or spontaneous breathing.
- Send **Expected Home Death** form to the State Medical Examiner and AST/BPD. If this form was not completed prior to death but would have been indicated, it is acceptable to fill it out after death. This will expedite things for the family.

If this is an expected neonatal death, go to **page 3**.

Required Notifications

Ensure you have next of kin's name and phone number prior to making these calls.

In hospital:
- Bethel Police Dept 907-543-3781 Even if Expected Death form has been completed.
- Life Alaska 888 543-3287. Required by CMS for all hospital deaths.
- State Medical Examiner 888 332-3273. Please review page 3 for ME notification requirements.

In village:
- Alaska State Troopers 800 478-9112
- State Medical Examiner 888 332-3273 Please review page 3 for ME notification requirements.
- Optional: Life Alaska 888 543-3287. Deceased individuals in villages may still be candidate for tissue donation.

Documentation

- Death Note in RAVEN should be an Alert Note using autotext "..death" which fulfills all documentation requirements.
- Forward death note to Chief of Staff and designated Medical Records representative.
- Complete highlighted portions of Death Certificate and place in Medical Records basket.
- If death occurred in the hospital, complete **Notification of Death** form.

Helpful Forms

Note: Copies of the death packet are also kept on the inpatient unit.
- **Physician Orders for Life-Sustaining Treatment (POLST)**
- **Expected Home Death**
- **Death Certificate Worksheet**
- **Notification of Death**

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Unexpected Death Protocol

Unexpected patient death occurs.

Fetal/neonatal death

See page 3.

Death due to known medical cause

- Communicate with nurses or health aides and family. Consider using speaker phone or Zoom.
- Be supportive of staff, especially health aides. Be as present as possible.
- Medical providers can pronounce death remotely after speaking with a qualified representative, which includes health aides. Representative must ascertain that there is no heart beat or spontaneous breathing.

It is acceptable to delegate notifications to law enforcement and Life Alaska to other staff (CHA or RN) and to ask RN to complete notification of death form though physician must sign it.

Required Notifications

Ensure you have next of kin's name and phone number prior to making these calls.

In hospital:
- Bethel Police Dept 907-543-3781
- State Medical Examiner 888 332-3273
- Life Alaska 888 543-3287

In village:
- Alaska State Troopers 800 478-9112
- State Medical Examiner 888 332-3273

Unknown cause of death (found at home, sudden unexpected infant death (SUID), etc.) or Other cause of death (trauma, homicide, suicide, etc.)

- Leave all medical devices (airway, IV, AED, etc.) in place.
- If in Bethel, notify Bethel Police Department and follow their instructions.
- If in a village, ask if village law enforcement is available. If not, ask a health aide to be the point person for the troopers. Ensure that the scene is safe. Instruct the CHA/P to make sure no one touches or covers the body or anything around it. Call the Alaska State Troopers and make a report. Give the CHA/P's cell phone number to the troopers.
- Whenever possible, talk to the family directly. Express condolences and tell them that no one may touch, cover, or move the body. Explain that this is so that we can help them find answers about what happened.
- If other people in the home may be at risk, notify OCS or APS, as appropriate.

Documentation

- Death Note in RAVEN should be an Alert Note using autotext "..death" which fulfills all documentation requirements.
- Forward death note to Chief of Staff and designated Medical Records representative.
- If it is NOT an ME case, complete highlighted portions of Death Certificate and place in Medical Records basket.
- If death occurred in the hospital, complete **Notification of Death** form.

Helpful Phone Numbers

- Alaska State Medical Examiner: 888 332-3273
- Life Alaska: 907 562-5433
- Alaska State Troopers (AST): 800 478-9112
- Bethel Police Department (BPD): 543-3781
- State Epidemiology: 907 269-8000
- OCS Intake (for reports): 800 478-4444
- APS Intake (for reports): 800 478-9996

Regarding Life Alaska

It is a CMS and TJC requirement to notify designated organ donation organization (Life Alaska) for all in hospital deaths. We are not mandated to contact Life Alaska for village deaths; however, individuals who die in villages may still be candidates for tissue donation. Additionally, if the death will become an ME case, Life Alaska must be notified.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 7/14/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Fetal/Neonatal Death & ME Notification

Note: This guideline applies to fetuses ≥ 21 weeks. Do not follow this guideline for miscarriage prior to 21 weeks.

Fetal/neonatal death: Was there a heartbeat at birth?

No

≥ 21 weeks AND > 500 grams?

No

Diagnosis is miscarriage. Follow appropriate protocols and document in mother's chart.

Yes

Diagnosis is fetal demise. Document in mother's chart. No birth certificate is generated.

- Notify Medical Examiner.
- Notify State Epidemiology.
- Examine fetus. Document exam in mother's chart using Free Text template and autotext "..fetaldemise" for a fillable note.
- Examine placenta, membranes, and cord. Send for pathology.
- Review box regarding autopsy and genetic testing.
- Disposition of fetus is per family wishes. Contact social worker if family does not want to take the body.

Yes

Diagnosis is neonatal death. RAVEN chart made. Birth certificate generated.

- If EGA is <21 weeks but the fetus had a heartbeat, it is at the provider's discretion to make diagnosis neonatal death vs miscarriage. If considered to be miscarriage, move to the flow at left.
- Follow guideline for unexpected death on previous page, including notifications and documentation.
- Review box regarding autopsy and genetic testing.
- Disposition of neonate is per family wishes. Contact social worker if family does not want to take the body.

<u>Regarding Autopsy and Genetic Testing</u>

- Provider will offer and consent family for autopsy and/or genetic testing if they wish. Note autopsy would be at family's expense.
- See **Stillbirth Procedure** regarding autopsy
- For genetic testing, a fresh cell sample must be taken (don't just put the whole fetus in formalin). Contact lab for detailed instructions.

<u>Medical Examiner Notification</u>

Per YKHC and State of AK policy, the Medical Examiner must be notified when the death appears to have:

1. Been caused by unknown or criminal means, during the commission of a crime, or by suicide, accident, or poisoning.
2. Occurred under suspicious or unusual circumstances or occurred suddenly when the decedent was in apparent good health.
3. Been unattended by a practicing physician or occurred less than 24 hours after the deceased was admitted to a medical facility.
4. Been associated with a diagnostic or therapeutic procedure.
5. Resulted from a disease that constitutes a threat to public health.
6. Been caused by a disease, injury, or toxic agent resulting from employment.
7. Occurred in a jail or corrections facility owned or operated by the state or a political subdivision of the state or in a facility for the placement of persons in the custody or under the supervision of the state.
8. Occurred in a foster home.
9. Occurred in a mental institution or mental health treatment facility.
10. Occurred while the deceased was in the custody of, or was being taken into the custody of, the state or a political subdivision of the state or a public officer or agent of the state or a political subdivision of the state
11. Been of a child under 18 years of age or under the legal custody of the Department of Health and Human Services, unless the child's death resulted from a natural disease process and was medically expected and the child was under supervised medical care during the 24 hours before the death.

Approved by Clinical Guideline Committee 7/14/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Head Injury in Patients < 18 Years Old

Head injury in a child <18 years.

If GCS ≤ 8, intubate and refer to PALS stabilization algorithms.

Low Risk

GCS=15
AND
No risk factors (see Intermediate and High Risk boxes)

Discharge with return precautions and competent caregiver.

Intermediate Risk

GCS=15
AND one or more of the following:
- Occipital, parietal, or temporal scalp hematoma
- Loss of consciousness > 5 seconds
- Not acting normal per parent
- **Severe mechanism of injury****
- If older than 2: vomiting or severe headache
- Amnesia

High Risk

One or more of the following:
- GCS≤14
- **Altered mental status***
- Signs of skull fracture
- Focal neurological deficits
- Seizure
- Loss of consciousness > 1 minute
- Suspected non-accidental trauma

***Altered Mental Status**

- Agitation/irritability
- Inconsolability
- Somnolence/lethargy
- Slow response
- Repetitive questions

****Severe Mechanism of Injury**

- Fall: >3 feet if younger than 2 years, >5 feet if older than 2 years
- Motor vehicle accident with ejection, rollover, or fatality
- Unhelmeted bike/pedestrian vs vehicle
- Head struck by high-impact object

Factors to consider when deciding to observe vs perform head CT:

- Provider experience
- Multiple vs isolated findings
- Worsening signs/symptoms
- Age <3 months
- Parental preference

In all pediatric trauma:

- Remember to complete full trauma survey to identify other injuries.
- Consider further evaluation for non-accidental trauma (skeletal survey, dilated eye exam, etc.). See **Suspected Physical Abuse Procedure**.

Observation
- Observe in the ER 4-6 hours post-injury.
or
- If presenting >4 hours post-injury AND not improving per caregiver, observe 4 hours.

Not improved → CT Scan: Perform noncontrast head CT with spinal motion restriction

Improved → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

CT Scan → Normal / Abnormal

Normal → Is patient improving? Yes → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

Is patient improving? No → Consult PICU and trauma service.

Village Management

- If Low Risk: Discharge with competent caregiver with clear return precautions. Do not send to Bethel unless otherwise indicated.
- If Intermediate Risk: Consider medevac vs observation with Q1h VS and neuro checks. If any worsening or no improvement over 4 hours, activate medevac.
- If High Risk: Activate medevac.

Plain films of the skull are not recommended.

Concussion Management

- Complete **Acute Concussion Evaluation** at every visit.
- Follow-up in outpatient clinic in 1-2 weeks.
- Consider **Sport Concussion Assessment Tool (SCAT)** at follow-up.
- Consider balance testing.
- Avoid medications that can worsen somnolence.
- If symptoms persist >3-4 weeks, consider referral to neurologist, psychologist, physical therapy, etc.
- Return to school per **CDC Heads Up Protocol**.
- Return to play per **ASAA Guidelines**.

C-spine Injury

Please see the **YKHC Spinal Cord Injury Management guideline** for pediatric C-spine resources.

Pediatric Glasgow Coma Scale (GCS)

	Infant	Child	
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain	To pain	2
	No response	No response	1
Best verbal response	Coos, babbles	Orientated, appropriate	5
	Irritable cry	Confused	4
	Cries to pain	Inappropriate words	3
	Moans to pain	Incomprehensible sounds	2
	No response	No response	1
Best motor response	Moves spontaneously	Obeys commands	6
	Withdraws to touch	Localizes painful stimulus	5
	Withdraws to pain	Withdraws to pain	4
	Flexion to pain	Flexion to pain	3
	Extension to pain	Extension to pain	2
	No response	No response	1

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

High-Flow Nasal Cannula (Pediatric)

Patient with moderate to severe sustained retractions or sustained hypoxia <88% not improved with SUPPORTIVE MEASURES (see box) and 2 LPM conventional nasal cannula or infant with apnea responsive to stimulation. (See box.)

↓

• Page respiratory therapist.
• Page pediatric hospitalist.

↓

• Activate medevac.
• PREPARE PATIENT. (See box.)

↓

• RT to start high-flow nasal cannula with pediatrician consultation.
• Low-flow cartridge to be used with neonatal/ infant cannula and produces flow rates of 1-8 LPM. This should only be used in patients ≤ 4 kg.
• High-flow cartridge to be used with larger cannula and produces flow rates of 5-40 LPM.

↓

Initial Settings
See Flow Rates box to left.
FiO2 50%, 37°C.
For newborns, consult neonatologist.

↓

Titrate flow by 1 LPM increments over first 3 minutes until improvement in WOB.
If patient is worsening on high flow rates, consider a lower flow rate.

↓

Titrate FiO2 to maintain sats >92%.

↓

Frequent gentle nasal suction as needed.

↓

Reassess at least every 20-30 minutes.

↓

Signs of Clinical Improvement
• ↓RR
• ↓retractions
• ↓irritability
• improved air movement
• decreased apnea

↓

Maintain current settings until medevac arrives.

If no improvement, consider obtaining ANMC PICU consult, checking blood gas, increasing supportive measures, intubation, etc.

REMEMBER:

• No pediatric patient may be kept at YKDRH on HFNC unless medevac is on weather-hold.
• Maintain patient on HFNC until medevac arrival.
• Requirements for HFNC:
  □ The patient must have 1:1 nursing care until he/she has stabilized. After stabilization, nursing care may be 2:1 until medevac arrival.
  □ The patient must have a respiratory therapist at bedside until stabilized.
• All newborns on HFNC must remain in the nursery.

Apnea

If patient has apnea with poor or worsening response to stimulation, prepare for intubation.

Flow Rates

Titrate flow to 0.5-2 LPM/kg.
Younger patients often require higher flow rates per kilogram.
Consult the PICU for any patient requiring >1 LPM/kg.
Listen to lungs with each adjustment. If child is unable to easily exhale or complete an exhalation, decrease flow rate until exhalation is adequate.

Troubleshooting

• Consider NG/OG-tube for decompression.
• Use a pacifier to keep the patient's mouth closed and prevent loss of pressure. Consider Sweet-Ease.
• Try environmental changes to comfort a fussy baby: caregiver may hold patient in semi-recumbent position, patient may be swaddled, patient may be fanned if hot, lights may be dimmed, etc.
• Consider mild anxiolysis in consultation with medical control.
• Consider higher levels of flow to improve washout.

SUPPORTIVE MEASURES

• Control fever, as it can be an independent cause of respiratory distress.
• Nasal suction ± nasal saline or saline nebs.
• IV hydration.
• Consider back-to-back or continuous albuterol.
• Consider phenylephrine 0.25%, 1 spray to each nostril once.

PREPARE PATIENT

• Make patient NPO.
• Ensure reliable IV access.
• Suction nares well.
• Choose a nasal cannula with prongs that do not occlude more than 50% of the nares.
• Position patient: optimal patient position is semi-recumbent, not supine or upright. Consider using blue seat (stored in the ED) with adjustable angle. Use blankets and towels for shoulder rolls and to support position and ensure patient is not slumping over. Caregivers may hold the child if it helps keep him/her calm as long as the child is at a ~45 degree angle.
• To prevent condensation causing problems, place patient at a higher level than unit and clip tubing to patient's clothing.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Click here to see the supplemental resources for this guideline.
Approved by Clinic Guidelines Committee 11/27/22.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypothermia

Hypothermic patient.

- Palpate for a pulse for a full minute.
- If able, use ultrasound to assess for cardiac activity. If cardiac contractions seen, do not do CPR, as this can provoke a lethal arrhythmia.

Pulse or cardiac contractions present

- Obtain core temperature. Insulate to prevent further heat loss.
- Remove cold/wet clothing. Consider placing defibrillator pads.
- POC glucose and labs. Insert large bore IVs.

No pulse or cardiac contractions

- No obvious lethal injury.
- Chest not too stiff for chest compressions.
- No clear history of arrest before hypothermia.

Initiate ACLS:
CPR, ET intubation, rhythm check.
Place large-bore IVs.
POC glucose and labs.

- If VT/VF, defibrillate once at 200 J.
- Administer one round of ACLS drugs.

- If no ROSC, initiate active internal rewarming to 30 – 32 °C (86 – 89 °F), then re-evaluate.
- No further meds or shocks until temp >30°C (86°F).
- When temp 30 – 35 °C (86 – 95 °F), resume defibrillation per ACLS and give ACLS medications at regular doses but double the typical interval between administration.
- When temp >35, resume regular dosing intervals.
- If ROSC, rewarm per pathway to left.

Mild
32 – 35 °C
(89.6 – 95 °F)

- Passive external rewarming.
- If trauma present, give volume resuscitation per ATLS and add active external rewarming.

Moderate
28 – 32 °C
(82.4 – 89.6 °F)

- Passive and active external rewarming.
- Consider warm IV fluids and oxygen.
- Volume replacement.

Severe
< 28 °C
(< 82.4 °F)

- Place defibrillator pads.
- ET intubation.
- Volume replacement.
- Active external rewarming.
- Active internal rewarming.
- If hemodynamically unstable, rewarm to 30 °C, then re-evaluate.

Village/SRC Management

- Hypothermia with a pulse: Passive external rewarming. Add Bair Hugger if SRC. POC glucose. Consider medevac for moderate or severe.
- Hypothermia with no pulse: Perform CPR for at least 30 minutes (or longer per team discretion).

Core Temperature

Esophageal probe preferred over rectal in intubated patients. Place after intubation and verify placement with CXR. Preferred location is distal third of esophagus. Estimate insertion length using OG landmarks but end at mid-sternum rather than xyphoid. Oral insertion route preferred.

Contact

ANMC Trauma Surgeons are the consultants of choice. Contact them via Tiger Connect ANMC On-Call General Surgery/Trauma Attending.

Rewarming Methods

If goal rewarming rate not met after one hour, escalate to next level.

Rewarm trunk first and minimize movement (especially of extremities) to avoid increasing the return of cold blood to central circulation, which can lead to hemodynamic instability and cardiac arrest (known as core afterdrop).

- Passive external rewarming: Remove cold stress and wet clothing. Place in warm, dry environment. Provide insulation with warm blankets. Allow shivering.
  Goal increase 0.5 °C/hour (~1 °F/hour).
- Active external rewarming: Add exogenous heat via forced-air rewarming device (Bair Hugger™), external temperature control system (Arctic Sun™), or radiant warmer for young children.
  Goal increase 2 °C/hour (~3.5 °F/hour).
- Active internal rewarming:
  - Warm IV fluids: Use normal saline and not LR, as hepatic metabolism of lactate is impaired. IVF should be 40 – 42 °C (104 – 107 °F). If no warmer available, place a 1L bag of NS in a conventional microwave for 30 second intervals until temperature 40 °C/104 °F. Do not do this with blood products, dextrose-containing fluids, or glass bottles.
  - **Thoracic cavity lavage**
  - **Peritoneal lavage**

When to Cease Resuscitative Efforts

- If potassium >10.
- If temperature >32°C (89°F) and no ROSC.

Decision to continue resuscitative efforts must be based on clinical judgment and available resources. Providers are encouraged to contact the CD on call or clinical ethicist early in resuscitative efforts for guidance. In a mass casualty event or when the number of critically ill patients requiring treatment exceeds the capability of the available staff and resources, consultation with CD on call and the clinical ethicist should occur promptly.

Pitfalls & Pearls

- Avoid transporting in hospital until patient is rewarmed to 30 – 32 °C (86 – 89 °F).
- If passive external rewarming fails to rewarm a mildly hypothermic patient, strongly consider antibiotics, as infection can contribute to slowed/failed rewarming.
- Pupils can be fixed and dilated below 27 °C (80 °F) without associated neurologic deficit.
- Bradycardia is expected in moderate or severe hypothermia. Normal heart rate should be considered relative tachycardia in these patients.
- Hyperkalemia can be present without EKG changes. Potassium levels can fluctuate rapidly during rewarming.
- If placing CVL, femoral line preferred to avoid irritating heart.
- YKHC ventilators cannot warm air. High-flow nasal cannula, BiPAP, and CPAP can warm air.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Intubation (Adult and Pediatric)

Prepare

Predict difficult airway and post-intubation hypotension (See below for Push-Dose Epinephrine):
1. Shock Index (SI) = HR/sBP. If >0.8, high likelihood of post-intubation hypotension. Optimize resuscitation with fluids/blood prior to intubation if possible.
2. Have at bedside: BVM with correct size mask, OPA/NPA, suction, LMA/i-Gel, bougie, push-dose epinephrine (see below).
3. Predictors of difficult intubation: see next page. ***Consider contacting anesthesiology if difficult airway is anticipated!***
4. Prepare several doses of all medications, including an extra dose of paralytic and boluses of post-intubation sedation.
5. Optimize positioning: shoulder roll for infants and children, ramp positioning for obese patients.

Pre-oxygenate

Goal SpO_2 > 93% for three minutes. Mask *and* NC in all patients.
Non-rebreather with flush rate O_2 if spontaneously breathing.
Bag-mask ventilation if no spontaneous breathing.
Non-invasive PPV if in ARDS.

PUSH-DOSE EPINEPHRINE
- Mix 9 mL of NS with 1 mL of epinephrine 1:10,000 (or 0.1 mg/mL) to make epinephrine 10 mcg/mL.
- Adult dose is 0.5-2 mL Q 2-5 minutes (5-20 mcg).
- Pediatric dose is 0.1 mL/kg, max 2 mL.

Pre-medicate (optional)

ADULTS, may choose one or more:
1. Fentanyl 2 mcg/kg
2. Ketamine 0.1-0.3 mg/kg
3. Rocuronium 0.1 mg/kg

PEDIATRICS:
Atropine – onset <1 minute. Use for <1 year or if using ketamine. Use doses on Pediatric Critical Care Guide (code sheets).
Consider using in any patient at risk for bradycardia associated with airway manipulation, shock, hypoxia, acidosis, or severe electrolyte abnormalities.

Induce

ADULTS, choose one agent. Reduce doses if risk of hypotension.
1. Etomidate 0.3 mg/kg: first line for most patients.
2. Ketamine 1-2 mg/kg.
3. Propofol 2 mg/kg.
4. Midazolam 0.1-0.3 mg/kg.

PEDIATRICS:
Midazolam AND fentanyl, using doses on Pediatric Critical Care Guide (code sheets).
May need to repeat fentanyl dose.

Paralyze

ADULTS, choose one:
1. Rocuronium 1-2 mg/kg: duration 30-40 minutes.
2. Succinylcholine 1-2 mg/kg: duration 3-5 minutes; see warning on next page.
3. Vecuronium 0.1 mg/kg: duration 45-65 minutes.

PEDIATRICS:
Rocuronium, using doses on Pediatric Critical Care Guide (code sheets).
DO NOT USE SUCCINYLCHOLINE.

Perform video or direct laryngoscopy

Fails → **Bag-mask ventilation ± OPA or supraglottic airway (LMA/i-Gel)**

Succeeds → Consider making changes:
- Try other form of laryngoscopy.
- Change provider doing the procedure.
- Contact anesthesia.
- Change patient position.
- Use bougie.

Succeeds

Fails → **Cricothyrotomy**

Succeeds

Confirm placement:
1. Visualize tube through cords.
2. End tidal CO2 detector turns and remains yellow after 6 breaths.
3. Bilateral breath sounds.
4. No noise over epigastrium.
5. *Normal waveform on $EtCO_2$ capnography (gold standard).*
6. Confirmation on CXR.

PEDIATRICS:
- Secure tube with silk tape.
- Do not use a commercial tube holder device for tubes 5.0 and smaller.
- Always place NG/OG tube for decompression.

Continuing sedation/analgesia

ADULTS:
1. Fentanyl 1-4 mcg/kg/hour, bolus 50-100 mcg.
2. Midazolam 0.02-0.1 mg/kg/hour, bolus 1-5 mg.
3. Propofol 5-80 mcg/kg/minute, bolus 1-2 mg/kg.
4. Ketamine 0.5 mg/kg/hour, bolus 1-2 mg/kg.

PEDIATRICS:
- Fentanyl continuous infusion with boluses Q15minutes *prn*, using doses on Critical Care Guide. Give bolus prior to starting drip.
- Consider midazolam boluses if needed. Consider continuous infusion if needed. Watch for hypotension.

Post-intubation care

- Obtain ABG.
- Place NG/OG tube.
- Elevate head of bed 30-45°.
- BP Q3 minutes x30 minutes.
- Place in-line suction.
- Consider nebulized treatments.
- Consider C-collar.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 12/7/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org or Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

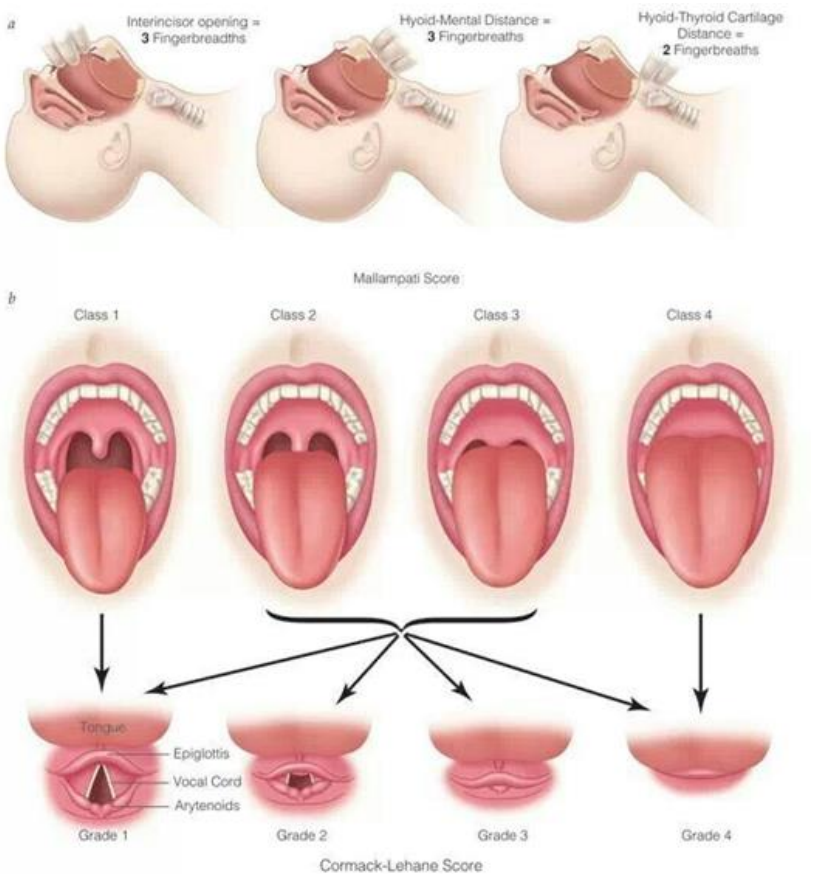
Clinical Guideline

Intubation (Adult and Pediatrics)

Predictors of Difficult Intubation

Predictors of Difficult Intubation

- Mallampati grade 3 or 4
- Cormack & Lehane grade 3 or 4
- Wilson score of > 2
- LEMON system; objective/subjective scoring



Wilson Score			
	0	1	2
Weight (kg)	< 90	90-110	> 110
Head and neck movement	> 90°	~ 90°	< 90°
• Inter-incisor gap (cm) • SL (maximum forward protrusion of lower incisors beyond uppers)	> 5 > 0	= 5 = 0	< 5 < 0
Receding mandible	None	Moderate	Severe
Buck teeth	None	Moderate	Severe

LEMON System	
L	**L**ook: trauma, large tongue
E	**E**valuate 3:3:2 rule.
M	**M**allampati score ≥3
O	**O**bstruction
N	**N**eck mobility (limited)

Helpful Resource: **the Difficult Airway App**

Use of Succinylcholine

Absolute contraindications:
Family / personal history of malignant hyperthermia
Hyperkalemia; if unknown K, obtain EKG for peaked T's
Upper motor neuron injury, denerving neuromuscular disease
Use after acute phase of burns, major trauma, crush injury

Relative contraindications:
Elevated ICP
Pseudocholinesterace deficiency

Treatment of malignant hyperthermia:
Dantrolene 2.5 mg/kg IV, redosing based on expert guidance

Difficulty with BVM

Predictors of Difficulty with BVM	
R	**R**adiation/**R**estriction
O	**O**bstruction/**O**besity/**O**SA
M	**M**ask seal/**M**ale/**M**allampati ≥3
A	**A**ged
N	**N**o teeth

Options if having difficulty with BVM

- 2-hand technique with 2 providers
- Oral/nasal airways
- Positioning
- Consider no paralytics

Resources: Guideline adapted from Strayer Airway Algorithm, Austin Hospital Airway Algorithm, Difficult Airway Course
Predictors of Difficult Intubation: **http://medind.nic.in/iad/t05/i4/iadt05i4p257.pdf**

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC12/7/21.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Initial Ventilator Settings for an Intubated Adult

ADULTS: ARDS/Protective Ventilation Protocol (appropriate for most patients without indication for alternate ventilation)

Initial Ventilator Settings:
(1) Set Tidal volume (Vt) = 6-8 mL/kg using Ideal Body Weight. See MDCalc Tidal Volume Calculator.
(2) Reduce Vt by 1 mL/kg every 1-2 hours until Vt 6 mL/kg.
(3) Set initial rate to 18-35 bpm based on pre-intubation rate.
Obstructive lung disease: Consider lower RR to maximize expiratory phase.
(4) Set initial PEEP at 5 cm H2O.
• If BMI > 30, set PEEP to 8 cm H2O.
• If BMI > 40, set PEEP to 10 cm H2O.
(5) Set initial FiO2 at 30-40%; adjust to SpO2 88-95%.
(6) Set inspiratory flow rate 60-80 lpm.
Obstructive lung disease: Consider inspiratory flow rate 80-100 lpm

Adjust settings based on patient status, blood gases, CXR, and expert consultation.

Oxygenation goal: PaO_2 55-80 mmHg or SpO_2 88-95%.
Use a minimum PEEP of 5 cm H_2O. Consider use of incremental FiO_2/PEEP combinations such as shown below (not required) to achieve goal.

PEDIATRICS: Suggested Starting Ventilator Settings

1. Set FiO_2 to 1.0 and titrate to maintain SpO_2 92-94%. Goal is to decrease FiO_2 to <0.5 if possible.
2. Set Tidal Volume (Vt) at 8-10 mL/kg. If concern for ARDS, set Vt to 6-8 mL/kg.
3. Goal is inspiratory plateau pressures <30 cm H_2O.
4. Set respiratory rate by age, increasing or decreasing based on disease process:
   Adolescents 12-15 breaths/minute
   Children 15-20 breaths/minute
   Infants 20-25 breaths/minute
   Neonates 25-30 breaths/minute
5. Set PEEP to 5 cm H_2O to optimize alveolar recruitment.
6. Set inspiratory time by age:
   Adolescents 1.0 second
   Children 0.7 second
   Infants/neonates 0.5 second
7. If using pressure support, set at 5-10 cm H_2O.
8. Get a blood gas ~30 minutes after any changes to ventilator settings.

Call PICU at (907) 297-8809 immediately to help troubleshoot any problems.

For All Modes of Ventilation

• Initial vent setting are based on patient presentation.

• Vent settings are adjusted based on patient tolerance of mechanical ventilation and ABG results.
For high PCO_2: increase rate and Tidal Volume
For low PO_2: increase FiO_2 and PEEP

• Obtain ABG prior to intubation, 30 minutes following intubation, and 30 minutes after vent changes.

• Goal plateau pressure < 30 cm H_2O; decrease Vt to lower plateau pressure.
Obese patients may require higher plateau pressure.

• Target pH > 7.30; increase RR to control hypercapnia.

• Avoid intubation if possible in patients with obstructive lung disease; maximize use of NIPPV.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 12/7/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org or Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Medevac Activation: Village to YKHC

Indications for medevac:
- Patient is in danger of losing:
  - -Life
  - -Limb
  - -Eyesight
- Preterm labor

NOTE: In the event of multiple medevacs, the ED physician in collaboration with medevac dispatch prioritizes the medevacs.

Occasionally, a charter may be able to fly when a medevac cannot. Consider this option if on weather-hold.

May also consult **Military Transport for Emergencies** guideline.

Health Aide or Provider in village consults Wards Hospitalist/Emergency RMT for initial management and possible medevac of critically ill patient.

Notify pediatric hospitalist when activating a medevac for any child <12 years old.

Hospitalist consults ED Doctor on Duty to confirm appropriateness.

If patient is NOT a beneficiary, ask if they have a preferred medevac company. If not, suggest they **register for LifeMed insurance online**.

Activation of Medevac

Activating provider calls medevac dispatch with patient's name, DOB, village, and diagnosis. If applicable, dispatch will ask for escort's name and weight.

LifeMed Dispatch 1-800-478-5433

Complete the Patient Transport Order (PTO) and ensure it is faxed to **5-543-1262** and **x6099.**

Village Management:

Explicitly clarify whether ED Physician or Hospitalist will continue managing the patient with the health aide. (Typically this will be the ED physician)

Managing physician calls village Health Aide for updates, continues active management of the patient, and documents in EMR.

Managing physician updates ED physician & charge RN.

Blood Products

If appropriate, consider sending LifeMed crew with blood products. If this is anticipated:
1. Notify dispatch of plan, confirm whether LifeMed has available blood at hangar.
2. If no blood at hangar, contact YK bloodbank to request 2 units of "emergency release" blood to be prepared immediately.

Preterm Labor

1. See the **Labor Patient in a Village** and **Village Deliveries** guidelines.
2. Notify pediatrician. Take "go bag" from L&D with surfactant.
3. Remember to notify ED physician and OB charge RN.
4. If appropriate, consider contacting facilities in Anchorage to discuss suitability of ramp transfer.
5. Hospitalist remaining at YK will cover all emergency RMT for adults and peds, AND continue managing the preterm labor patient. Ask for help if needed (E1/E2, experienced clinic providers, CD on call, etc.).

Dispatch Process

1. Selected medevac dispatch notifies their medevac team.
If medevac cannot launch (weather, runway lights, etc.) dispatch will notify managing physician. Pilot will continue to check weather.

2. Receiving unit clerk faxes PTO and face sheet to medevac crew.

3. Medevac crew contacts health aide and managing physician as needed.

4. If there is a prolonged delay, medevac crew will contact the managing physician and health aide.

Consider Medevac Direct to Anchorage

Indications:
1. Obvious need for acute surgical intervention (e.g. hip fracture)
2. STEMI, obvious acute CVA
3. Intubated in field

MUST also be hemodynamically stable (not require stabilization at YK before transfer)

Notify LifeMed Dispatch immediately if considering.
Discuss with receiving facility specialist (e.g. orthopedics, ICU) and ER if needed.
Consult LifeMed regarding logistics of ramp transfer.

In the event that a medevac is cancelled (patient deemed stable to come in on scheduled flight) medevac dispatch and receiving department must be notified by the managing physician immediately.

Medevac launches

1. Once in village, medevac crew calls managing physician to give report, establish treatment plan, and give ETA in Bethel.

2. Managing physician keeps receiving charge nurse informed of patient status/ETA of medevac.

Arrival in Bethel

Patient care is transferred to receiving unit and medevac crew gives report to staff.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Medevac Activation: YKHC to Anchorage

If patient is an inmate: Physician must contact the Department of Corrections to determine accepting facility and so that arrangements can be made for public safety.

Patient in Bethel requires emergency transfer to higher level care.

Is patient a beneficiary?

Yes → Managing provider contacts ANMC transfer center (see below) to consult relevant department.

- ANMC physician accepts patient or authorizes transfer to alternate facility.
- If needed, managing provider arranges accepting physician at alternate facility (may be ED physician).

Managing provider activates LifeMed and completes Patient Transport Order (PTO) and consent for transfer.

No → • Managing provider elicits patient preferences for medevac company and accepting facility.
• If no preference, suggest he/she **register for LifeMed insurance online**.

- Managing provider arranges accepting physician at selected facility.
- If patient is going to an ED, managing provider must arrange accepting ED physician.
- Note: Accepting Physician for Elmendorf must either be a Military or VA Physician.

Managing provider activates selected medevac dispatch and completes Patient Transport Order (PTO) and consent for transfer.

Information to Have Prepared for Dispatch
- Patient's name, DOB, weight, and diagnosis.
- Any drips or special equipment.
- Accepting provider and hospital.
- Escort's name and weight.

If indicated, managing provider notifies dispatch of need for neonatal team.

Medevac dispatch determines the availability of aircraft. If there will be a medically threatening delay, managing provider may request that dispatch explore other options, which may include other medevac companies.

Medevac dispatch may arrange consultation between managing provider and medevac medical control.

If desired hospital is full, consult the AK Hospital Status dashboard: **https://alaska-dhss.maps.arcgis.com/apps/dashboards/8edf91ce0e474126a8c6ace0250f952c**

Managing provider notifies YKHC ED physician for centralized medical control and prioritization of medevacs.

Medevac dispatch notifies referring unit regarding ETA and/or delays.

Upon arrival in referring unit, medevac team assumes care. Managing provider may request consultation with medevac medical control physician.

- Copies of the PTO, consent for transfer, radiology studies, and patient chart accompany the patient.
- Consider faxing relevant information to receiving unit prior to arrival.

Phone Numbers

- LifeMed Dispatch: *96 or (800) 478-5433
- Alaska Native Medical Center: Main operator: *97 or (907) 563-2662
  - Transfer Center: (907) 729-2337 or Tiger Text ANMC Transfer Center Coordinator
  - ED: (907) 729-1729
- Providence Alaska Medical Center: Main operator: (907) 562-2211
  - Transfer Center: (907) 212-7363
  - Trauma on call: (907) 212-2525
  - ED: (907) 212-3111
- Alaska Regional Hospital: Main operator: (907) 276-1131
  - Transfer Center: (844) 880-5522
- Fairbanks Memorial Hospital: Main operator: (907) 452-8181
  - House supervisor pager: (800) 607-3974
- Mat-Su Regional Medical Center: Main operator: (907) 861-6000
  - Transfer Center: (907) 861-6440
- Joint Base Elmendorf Richardson Hospital:
  - ED: (907) 580-5556
  - House supervisor: (907) 580-6413
- Department of Corrections On Call: (844) 751-4588

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Military Transport for Emergencies

Medevac has been activated for a sick patient in a village, but LifeMed cannot accept the flight.

Is the patient is in danger of losing life, limb, or eyesight (LLE)?

Yes

Explore other options:
- Ask health aides about transport to SRC or other villages with more resources or better accessibility.
- Explore if chartering a plane is an option.
- See if travel by boat, snow machine, or ATV is possible.
- Ask LifeMed dispatch to talk to the local crew about other creative ideas.
- Discuss with seasoned YK providers to ask for ideas.
- Discuss options with ER physician.

No other option is viable

- Notify Clinical Director (CD) on call and discuss transport options.
- Is activating the Rescue Coordination Center (RCC) appropriate?

No

- Make a plan with the health aides to provide appropriate care for the patient until a regular transport can be safely arranged.
- Plan for frequent reassessments.
- Prepare to change the plan if the patient's status deteriorates.

Yes

Call the RCC at (800) 420-7230 to begin the process of activating military transport.

Call LifeMed Dispatch to ask if LifeMed crew will be able to go with the military on the flight. **DO NOT CALL THE CREW DIRECTLY.**

Can LifeMed crew go?

Yes → Communicate with LifeMed per usual procedures.

No

Ask RCC about medical capabilities of the anticipated crew. GET DETAILS.

Do arrangements sound appropriate to deliver the necessary level of care?

Yes → Proceed with plan per RCC. Communicate appropriately.

No

- Discuss with CD on call.
- Consider sending YKHC clinical staff.
- If approved, ask for volunteers with appropriate backgrounds.
- Strongly consider calling local LifeMed crew to help assess the risk and safety of the plan.

Things to Consider

The local LifeMed team can sometimes go on a military flight. This decision is up to the local team and their administration and depends on many factors.

If the transport team is all military:
- Will military transport inappropriately lower the level of care the patient is receiving?
- What are the capabilities of the military team? Are they pararescue jumpers (PJs), paramedics, EMTs, etc.?
- What kind of equipment will the military team have?
- Does the military team have pediatric experience and equipment, if applicable?

If you are sending a team from YK:
- Will sending a team of YK employees impact the normal operations of the hospital? (You should avoid sending anyone scheduled to work the current or next shift.)
- An ideal YK team includes an ER RN and/or paramedic. Transport/EMS experience is a must.
- **A YK team must be entirely voluntary.**
- Ensure the team will have all appropriate drugs, weight-based equipment, monitors, pumps, stretchers/backboards, etc.
- Make a plan to keep the patient warm – the military will usually not supply blankets, Doctor Downs, etc.
- **If military transport is used, no YK trainees (residents, students, visitors, etc.) or other "ride-alongs" are allowed to go.** Ride-alongs may only go on LifeMed transports with the local team on their fixed wing aircraft.

Things to Know

- The RCC coordinates military missions. They will connect you with the appropriate people from the branch responding, which may be the National Guard, the Coast Guard, or the Air Force.
- You may have to retell the story to several people, including people with minimal medical knowledge. It helps to involve another provider to help coordinate the many phone calls without negatively impacting patient care.
- **The process often takes 6-8 hours or more.** If the Blackhawk and a full crew are not physically in Bethel, the military may have to send aircrafts from elsewhere in Alaska, which can lengthen the process to 10-12 hours.

Definitions

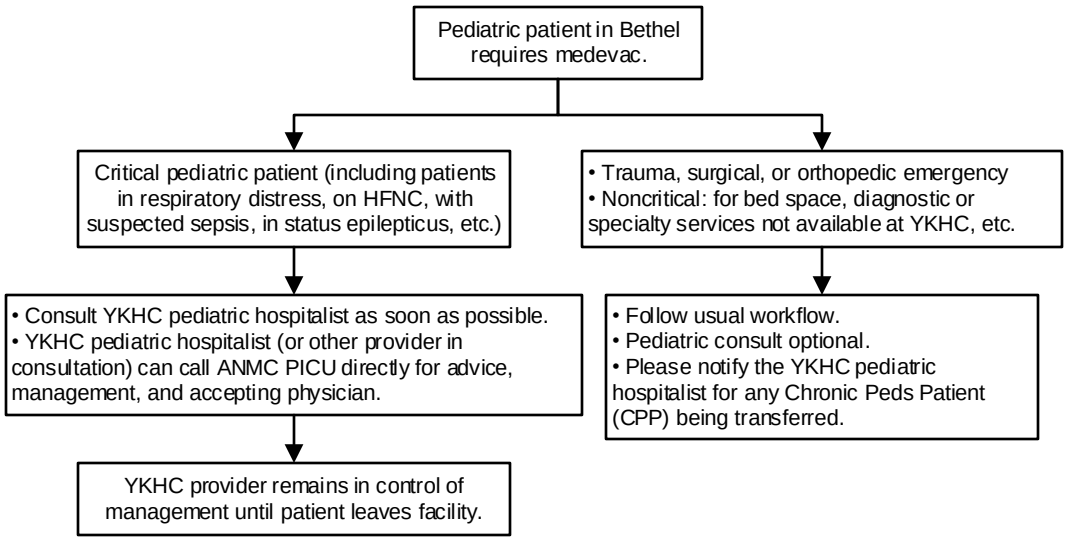
LLE: life, limb, or eyesight in danger
CD: clinical director
RCC: Rescue Coordination Center
PJ: pararescue jumpers. These are military medics with ACLS and ATLS training who are not trained to provide further critical care. (For example, neonatal care, ventilator management, and infusion of medications are not typically part of their scope of practice.)

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 11/2/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Ellen_Hodges@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Pediatric Medevacs: Bethel to Anchorage



Contact YKHC pediatric hospitalist via Tiger Connect "Peds Wards On Duty" for all potentially critical pediatric patients.

Use the **Pediatric Critical Care Guide** and ED Peds Critical Care PowerPlan.

Surgical Patients

• For all pediatric trauma cases and surgical cases in children >4 years, call the ANMC general surgeon on call.
• For surgical cases in children ≤4 years, call the pediatric surgeon on call through the ANMC operator or their office at (907) 929-7337.

Non-beneficiary Patients

• Non-beneficiary patients are transferred to Providence Alaska Medical Center via the PAMC Transfer Center. If you are told there is no bed, ask to speak to the physician (hospitalist or PICU). Arrangements can often be made to accept a patient even if a bed is not immediately available.
• Ask about medevac insurance coverage. May suggest family **register for LifeMed insurance** online, which can be done just prior to activation.

Neonatal Transfers

Contact PAMC neonatologist at (907) 212-3614 for advice, management recommendations, etc.
Notify ANMC pediatric hospitalist on-call for any beneficiary infant transferred to PAMC NICU.
After obtaining accepting physician, YKHC physician is responsible for activating Lifemed and discussing patient with neonatologist, if needed.

When to Transfer to PAMC NICU:
• GA <32 weeks
• BW <1500 grams
• Any newborn who required intubation
• Newborns requiring prompt surgical or medical subspecialty care
• No beds available at ANMC or non-beneficiary infant requiring transfer
• Discretion of NNP

When to Transfer to ANMC NICU:
• GA ≥32 weeks
• BW ≥1500 grams
• Any baby who meets criteria for transfer per the **Late Preterm guideline**
• Term or early term babies with temperature instability, respiratory distress, supplemental O_2 requirement, hypoglycemia requiring IV treatment, need for IV antibiotics, etc.

Contact

• ANMC PICU (physician or NP): (907) 297-8809 – may request to speak with physician.
• ANMC Transfer Center: (907) 729-2337 or Tiger Connect Transfer Center Coordinator.
• LifeMed: *96 or (800) 478-5433
• PAMC Transfer Center: (907) 212-7363
• PAMC PICU:212-3133
• PAMC NICU: (907) 212-3614
• Alaska Pediatric Surgery: (907) 929-7337

LifeMed is the preferred medevac company for children younger than 3 years old. If any difficulty, call CD on call to discuss.

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Approved by Clinical Guideline Committee 6/1/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Protocol

Procedural Sedation and Analgesia Outside the OR

Does provider have privileges for procedural sedation?
- No → Seek out colleague with privileges or Page CRNA on call.
- Yes ↓

Patient has a condition that meets indications.

There are no contraindications.

Perform Airway Risk Assessment. See box. Determine Expected Sedation Risk Level and plan accordingly. See box.

Discuss risks and benefits of procedural sedation with patient/guardian. Obtain written consent.

Ensure all equipment is present for Expected Sedation Risk Level. (See box.)

Choose appropriate sedation medication. See page 2. Calculate appropriate dose and confirm with team.

Perform time out:
- Correct patient
- Correct procedure
- Correct site

Administer medication.

RN documents medication administration time and effect and patient assessments on flowsheet.

Perform procedure.

Monitor patient through recovery. RN remains at bedside until patient is fully alert.

Indications for Procedural Sedation

Any procedure that cannot be accomplished with patient's current level of cooperation or pain tolerance.

Examples:
- Nonemergent chest tube placement
- Cardioversion
- I&D
- Laceration repair
- Fracture or joint dislocation reduction
- Pediatric foreign body removal
- Imaging

Contraindications

- Patient or caregiver refusal
- Hemodynamic instability
- Respiratory distress

Note: if benefits of procedure outweigh risk despite contraindications, refer to higher level of care or consult a local airway expert and discuss risks with patient/caregiver.

Airway Risk Assessment

See **Intubation guideline** for resources.

High-Risk History
- Stridor
- Obstructive sleep apnea
- Hx Trisomy 21
- Dysmorphic facial features
- Active respiratory tract infection
- Hx of difficult intubation
- Hx of cervical spine pathology

Exam
- Check that patient can open mouth fully and that TMJ function is normal.
- Look for micrognathia, loose teeth, dental appliance, and craniofacial abnormalities.
- Check that patient is able to extend neck >70°.
- Determine Mallampati Score and check 3-3-2 rule (in adults).

Note: Per ACEP, NPO times should not affect decision-making about procedural sedation.

Expected Sedation Risk Level

Airway Risk Assessment combined with expected depth of sedation should guide level of rescue preparation.

1. No risk factors present: No high risk findings in airway assessment and exam, ASA I-II.
Plan: standard monitoring and equipment, including:
- Cardiopulmonary monitor (three lead ECG & RR)
- Pulse-oximetry
- Supplemental oxygen should be prepared but not given unless otherwise indicated.
- BVM in room.
- Suction.
- End-tidal CO_2 monitor
- Reversal agents in room.

2. Risk factors present: some concern for airway status based on airway assessment and exam, but patient not expected to decompensate, and benefits of sedation outweigh risks.
Plan: discuss risks with patient/caregiver.
In addition to standard monitoring and personnel, the following must also be present:
- A healthcare provider dedicated to airway management (preferably an RT)
- Oral airway – correct size open and at bedside
- Nasal trumpet – correct size open and at bedside
- BVM with appropriately-sized mask should be open and prepared at bedside

Note: Consider CRNA at bedside.

Levels of Sedation

- Moderate sedation: patient responds to light tactile stimulation. Spontaneous ventilation is adequate. An IV is required only if IV medication is to be given. (For example, if ketamine is to be given IM with no IV agents planned, an IV is not necessary.)
- Deep sedation: noxious stimuli are required to elicit a response. Spontaneous ventilation and ability to maintain airway may be impaired. Not routinely performed in the ED outside of life-threatening situations.

Other Scenarios

Use of a single, non-dissociative agent is not considered sedation. This protocol does not apply to the following:

- Anxiolysis with a benzodiazepine: patient may be drowsy but responds appropriately to verbal commands.
- Analgesia with opioids: pain control with intact decision-making.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 4/6/21. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Tara_Lathrop@ykhc.org.

Agent	Bolus Dose	Titration Dose	Onset	Duration	Reversal Agent	Comments
Etomidate	Patients >10 years: 0.2 mg/kg Patients ≤10 years: 0.2 mg/kg (0.1-0.3 mg/kg) Slow IV push over 30-60 seconds.	0.05 mg/kg Q3-5 min 0.05 mg/kg Q3-5 min	30-60 seconds 30 seconds	3-5 minutes 2-10 minutes	Time	• No analgesic effect. • Use IBW if BMI>30. • Consider lower dose (0.1 mg/kg) for age >60 years, concurrent opioids, or if recent alcohol use. • Administer via larger vessel. (antecubital or larger). • Precautions: 30% have myoclonus with transient skeletal/eye movements.
Ketamine	Adults: 1-2 mg/kg IV over 1-2 min 4-5 mg/kg IM Children >3 mo: 1-2 mg/kg IV over 1 min 4-5 mg/kg IM 5 mg/kg PO		30 seconds 3-4 min 30-120 seconds 5-10 min 20-45 min	10-20 min 20-30 min 20-60 min 30-90 min 60-120 min	• Time • For laryngospasm: Succinylcholine 0.25-0.5 mg/kg IV or 3-4 mg/kg IM	• Local anesthetic (eg. lidocaine) can increase effective duration. • Consider lower dose range for >60 years, concurrent opioids/alcohol. • Consider dosing by adjusted body weight if BMI>30. • Precautions: emergence reactions (treat with benzodiazepines), nausea/vomiting (pre-treat with ondansetron), transient increase in salivation. • Contraindications: pregnancy, age <3 months.
Propofol	Patients >2 yrs: IV load 0.5-1 mg/kg Children 6 mos – 2 yrs: IV load 1-2 mg/kg	Repeat 0.1-0.3 mg/kg Q30-60 seconds Repeat 0.1-0.3 mg/kg Q30-60 seconds Max cumulative dose 3 mg/kg	30-60 seconds	3-10 min	Time	• No analgesia. • Consider low dose for age >60, concurrent opioids/alcohol. • Consider dosing by adjusted body weight if BMI>30. • Separate administration of opioid and propofol by >20 minutes to decrease respiratory depression. • Pre-oxygenate with high flow supplemental oxygen at least 3 minutes prior to procedure. • Precautions: burning sensation during administration, hypotension, ↓CO, or bradyarrhythmias. • High risk of respiratory depression/failure. • Contraindications: allergies to egg, soybean, fat emulsion.
Morphine	Adults: 1-4 mg IV 10 mg PO Pediatrics: 0.05-0.1 mg/kg IV Max 4 mg		5-10 min IV 30 min PO 5-10 min	3-5 hours 2-3 hours	Naloxone 0.1 mg/kg IV. May repeat Q2 minutes.	• Reduce dose when combining with a benzodiazepine. • As opioids provide sedation and analgesia, administer them prior to benzodiazepines.
Fentanyl	Adults: 0.5 mcg/kg if given with other sedatives 0.5-1 mcg/kg Max 100 mg Pediatrics: 1 mcg/kg IV up to 50 mcg/dose	May repeat dose Q2min until desired sedation and analgesia achieved	<1 min 3-5 min	30-60 min	Naloxone 0.1 mg/kg IV. May repeat Q2 minutes.	• Reduce dose when combining with a benzodiazepine. • As opioids provide sedation and analgesia, administer them prior to benzodiazepines.
Midazolam	Adults: 2-5 mg IV Pediatrics (6 mos - 12 yrs): 0.2-0.3 mg/kg/dose IN 0.05 mg/kg IV	May repeat dose Q2min until adequate sedation. Max 0.3 mg/kg. May repeat dose Q5min until max dose of 0.5 mg/kg is reached. Age <5 max 6 mg; age >5 max 10 mg.	3-5 min	15-20 min	Flumazenil 0.01 mg/kg (up to 0.2 mg) IV over 15 seconds. May repeat Q1 minute.	• No analgesia. • Consider lower dose range for >60 years, concurrent opioids/alcohol. • Watch for dose-related hypotension.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Sepsis (Adult)

Sepsis:
Suspected infection plus systemic inflammatory response.
Can use SIRS or qSOFA.
General signs:
- Temp > 100.4° or < 96.8° F
- HR > 100
- RR > 22
- Systolic BP < 100
- WBC > 12,000 or < 4,000

Severe Sepsis:
Sepsis plus evidence of end-organ damage. Can include:
- Hypotension (SBP < 90, MAP < 65, baseline drop in SBP > 40)
- Cool extremities, delayed cap refill
- Altered mental status (GCS < 15)
- Poor urine output
- New need for respiratory support (high flow oxygen, NIPPV)
- Lab indicators can include:
  - Lactate > 2
  - INR > 1.5, platelets < 100,000
  - Creat > 0.5 over baseline value
  - Bilirubin > 4

Septic Shock:
Severe sepsis persisting/worsening despite initial resuscitative measures.

COULD THIS PATIENT BE SEPTIC?

Initial Supportive Measures

- IV, O_2 if needed, monitors.
- Keep patient warm, supine if possible.
- Consult ER/Emergency RMT physician early.
- Treat fever with acetaminophen.

Concurrent Resuscitation

- IV fluids. Unless clinically fluid overloaded, at least 500 mL IVF.
- Empiric antibiotics. See medications.
- Source control.

and Evaluation

- Complete but expeditious H&P.
- Labs including CBC/diff, CMP, CRP, lactate, procalcitonin, PT/INR, blood cultures, VBG/ABG, UA.
- Imaging as indicated.

Ongoing Reassessment

Monitor multiple parameters to assess response to treatment and/or need for escalation of care:
- Vital signs, shock index (HR/SBP > 0.7 is concerning).
- Urine output (< 0.5 mL/kg/hour over 2 hours is inadequate).
- Clinical exam (mental status, cap refill).
- Lab parameters (lactate, blood gas, electrolytes).
- Bedside US for IVC.

Persistent evidence of end-organ damage despite initial interventions?

Yes

In Bethel:
- Start pressors (see medications).
- Move toward central line placement, but ok to start first pressor peripherally.
- Consult ICU and move toward transfer.

In Village/SRC:
- Activate medevac if not done already.
- Consult ED physician for further management, including ongoing fluids, antibiotics, and pressors if available in SRC.

No

Continue close monitoring.

In Bethel:
- Move toward definitive care (YK admission or transfer).

In Village/SRC:
- Discuss route of transfer with Emergency RMT Physician (commercial/charter vs medevac).

IV Fluids in Sepsis

Historical consensus was every septic patient needed 30 mL/kg IVF as quickly as possible. There is not good evidence that this improves mortality. Likewise, fluid resuscitation guided by lactate alone is not associated with improved mortality. There is evidence of harm in over-fluid resuscitating patients, and in delay to initiating pressors if appropriate.

General Fluid Management Recommendations

- If hypovolemic, give fluids.
- If euvolemic, don't give excessive fluids.
- If progressive respiratory distress and pulmonary edema, stop fluids.
- Give smaller boluses 500-1000 mL and assess response.
- If CHF/renal failure/volume overload, fluids are not wrong but low threshold to consult ICU for assistance.

Intubation in Sepsis

- Higher risk for periintubation arrest due to hypotension, acidosis, etc.
- Strive for fluid resuscitation and/or pressors before intubation.
- Consider lower dose of induction agent (consult pharmacy or ICU).
- Vent settings: TV 6 mL/kg IBW, plateau pressures < 30.

Medications Outside Bethel

Village formulary:
- Ceftriaxone 1-2 grams IM (for most cases)
- Metronidazole 500 mg PO (abdominal source, necrotizing SSTI, other need for anaerobic coverage)
- Azithromycin 500 mg PO (CAP)
- Clindamycin 900 mg PO (for anaerobic coverage, toxins in necrotizing infections)

SRC formulary:
- Ceftriaxone 1-2g IV/IM (for most cases)
- Levofloxacin 750mg IV (for pseudomonas coverage)
- Clindamycin 900 mg IV (for anaerobic coverage, toxins in necrotizing infections)
- Vancomycin 25 mg/kg or 2.5 g max IV (for MRSA)
- Pressors: epinephrine – consult pharmacist if considering.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/13/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Sepsis Antibiotics (Adult)

Empiric Antibiotic Recommendations by Source of Infection

If possible, first dose of antibiotics should be administered as a 30 minute infusion to reduce time to therapeutic concentration.

Unknown Source

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

AND

Cefepime 2 grams IV Q8h.

Community-Acquired Pneumonia

Ceftriaxone 1-2 grams IV Q24h.
OR
Ampicillin-sulbactam 3 grams IV Q6h.

AND

Azithromycin 500 mg IV Q24h.
OR
Doxycycline 100 mg IV Q12h.

If at risk for aspiration, consider adding:

Metronidazole 500 mg IV Q8h if not on Unasyn.

Hospital-Acquired Pneumonia or High Risk for Multi-Drug Resistant (MDR) Organisms

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

AND

Cefepime 2 grams IV Q8h.

Meningitis

Dexamethasone 10 mg IV prior to antibiotics.

AND

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500mg.

AND

Ceftriaxone 2 grams IV Q12h.

If >50 years, ADD

Ampicillin 2 grams IV Q6h.

Urinary Tract Infection

Ceftriaxone
1-2 grams IV Q24h.

If urological interventions or MDR risk factors, consider adding:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Cefepime 2 gram IV Q8h.

If at risk of ESBL, ADD:
Meropenem[3] 500 g IV Q8h.

Intra-abdominal or Pelvic Infection

Piperacillin-tazobactam 4.5 grams IV Q6h.

OR

Cefepime 2 grams IV Q8h.
AND
Metronidazole 500 mg IV Q6h.

OR

Ciprofloxacin 400 mg IV Q12h.
AND
Metronidazole 500 mg IV Q8h.

Skin and Soft Tissue or Necrotizing Infections

IF PURULENT:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

IF NON-PURULENT:
Cefazolin 2 grams IV Q8h.
OR
Ceftriaxone 1-2 grams IV Q24h.
OR
Ampicillin-sulbactam 3 grams IV Q6h.

IF NECROTIZING:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500mg.
AND
Piperacillin-tazobactam 4.5 grams IV Q6h.
AND
Clindamycin 900 mg IV Q8h.

Neutropenic Cancer Patients (ANC <500)

Cefepime 2 grams IV Q8h.
OR
Piperacillin-tazobactam 4.5 grams IV Q6-8h.

AND

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

If concerned for HSV or VZV, consider adding:

Acyclovir
10 mg/kg Q8h.
Consult pharmacy for max dosing.

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[1] Consult pharmacy for subsequent dose/schedule.
[2] Linezolid may be substituted for vancomycin in patients with relative contraindication to vancomycin for high risk for acute kidney injury. Pharmacy consult required.
[3] Pharmacy consult required.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sepsis Vasoactive Medications (Adult)

Vasopressors

Central venous access is preferred for administration of vasopressors, but these may be administered through peripheral IV if unable to obtain central access. If in an SRC, pressors may be available. Consult ED physician.

• Norepinephrine 2-80 mcg/min IV initial infusion rate.	First-line vasopressor of choice in sepsis.
• Vasopressin 0.03-0.04 units/min.	May be added to norepinephrine to increase MAP or decrease norepinephrine dose. DO NOT use as a single agent.
• Epinephrine 1-40 mcg/min initially, titrated to effect.	May be added or used in place of norepinephrine to maintain adequate BP.
• Dopamine 2-20 mcg/kg/min.	Second-line option in highly select patients as it causes more tachycardia.
• Phenylephrine 40-160 mcg/min IV initial infusion until stabilized. Titrate to usual range of 20-400 mcg/min.	Can be used as salvage therapy for refractive hypotension associated with tachycardia.
• Dobutamine 2-20 mcg/kg/min IV infusion.	May be used for inoptropic support in the presence of severe myocardial dysfunction or hypoperfusion with depressed cardiac output.

Corticosteroids

Corticosteroids should NOT be administered for the treatment of sepsis in the absence of shock.
If considering use of corticosteroids for septic shock refractory to pressors after euvolemia and appropriate antibiotic therapy achieved, consult ICU.
The exception is giving dexamethasone prior to first dose of antibiotics for meningitis.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Sepsis (Pediatric)

Severe Sepsis/Shock Criteria

2 or more of the following:

- Temp <96.8 or >100.4
- Abnormal WBC count (<5 or >15)
- Abnormal HR
- Abnormal RR

AND

Signs of End-Organ Involvement:

- Altered mental status
- Delayed cap refill
- Cold/mottled extremities
- Weak pulses
- Difference between central and peripheral pulses
- Significantly decreased UOP
- Hypotension
- Bounding/brisk pulses with rapid cap refill

Patient meets criteria for severe sepsis/shock → Contact pediatric hospitalist. Page RT. → Consult PICU by direct line: (907) 297-8809. Request medevac.

Place on CR monitor. Bedside glucose.
Start supplemental oxygen. Prepare BVM.
Get access: IV/IO x2.
Bolus: NS 20 mL/kg x2 over ≤ 10 minutes.
Reassess volume status after each bolus.

Order empiric antibiotics STAT.

Labs: blood culture, electrolytes, CBC, lactate, ionized calcium, procalcitonin.

Is patient maintaining airway without support?
- No → Intubate per Intubation Guideline.
- Yes

If not improving, give third bolus of NS 20 mL/kg.
Correct hypoglycemia.
Correct significant hypocalcemia.

Is there continuing hypotension, poor pulses, change in mental status, or delayed cap refill?
- Yes → Start vasopressor and consider methylprednisolone for fluid-refractory shock in consultation with the PICU.
  - Continue to reassess and give boluses of NS 20 mL/kg unless patient develops rales, respiratory distress, hepatomegaly, or a gallop.
    - If shock persists, consider a second pressor, calcium chloride, etc. in consultation with PICU.
- No → Monitor closely per Continuing Management Box while awaiting medevac.

Use the Pediatric Critical Care Guide and ED Peds Critical Care PowerPlan for all medication dosing.

Village Management

- Consult pediatric hospitalist.
- Aggressive hydration: IV or PO.
- Supplemental oxygen via nasal cannula.
- Monitor glucose.
- Treat hypoglycemia with Insta-Glucose tubes buccally – NOT rectally.
- Ceftriaxone 100 mg/kg IM.
- Activate medevac.
- Consider VTC.

See Wiki RMT Section for more detailed recommendations.

See this resource for a helpful table comparing the presentation and findings in sepsis, acute COVID, and MIS-C.

Continuing Management

- VS (including BP) at least Q15min.
- Blood glucose Q30 min.
- Maintenance IVF with D5 + NS.
- Consider Foley.

Goals

- Cap refill <2 sec
- Normal BP for age
- Normal pulses
- Warm extremities
- UOP > 1 mL/kg/hour
- Normal mental status

Empiric Antibiotic Choice

≤28 days
Ampicillin 75 mg/kg AND gentamicin 5 mg/kg. If concern for meningitis, give cefepime 50 mg/kg IV.
If concerned about HSV or neurologic impairment, add acyclovir 20 mg/kg.

>28 days
Ceftriaxone 100 mg/kg (max 2000 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If CVL in place, immunocompromised, or significant Hx antibiotics in past 30 days
Cefepime 50 mg/kg (max 2000 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If allergic to PCN
Meropenem 15 mg/kg (max 500 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If suspecting Staph or Strep
Consider adding clindamycin 13 mg/kg IV for anti-toxin effect.

Vital Signs for Age
(Source: Harriet Lane Handbook)

Age	Heart Rate (beats/min)	Respiratory Rate (breaths/min)	Blood Pressure (mm Hg)	Mean Arterial BP (mm Hg)
0-3 months	110-160	30-60	65-85 / 45-55	50th percentile 55 + (age x 1.5)
3-6 months	100-150	30-45	70-90 / 50-65	
6-12 months	90-130	25-40	80-100 / 55-65	
1-3 years	80-125	20-30	90-105 / 55-70	5th percentile 40 + (age x 1.5)
3-6 years	70-115	20-25	95-110 / 60-75	
6-12 years	60-100	14-22	100-120 / 60-75	
>12 years	60-100	12-18	100-120 / 70-80	

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Approved by MSEC 2/1/22.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Spinal Cord Injury (SCI) Management

Trauma patient presents for care.

• ABCs.
• Apply SMR to entire spine on patients at risk for SCI (see box).

• If intubation required, see Intubation Guideline.
• Maintain SMR.

Trauma primary survey indicates spinal injury OR high risk mechanism in obtunded/unevaluatable patient.

Yes → Obtain non-contrast CT of C/T/L spine.

No SCI → **Discontinue SMR.

Evidence of SCI → Maintain appropriate SMR.

No

Is patient an awake, asymptomatic adult with normal neurologic exam, no high-risk mechanism, no neck TTP and free range of motion of neck?

Yes → • Discontinue CMR. • Perform secondary survey.

No → Obtain non-contrast CT C-spine.

No SCI → • Discontinue CMR. • Perform secondary survey.

Evidence of SCI → Maintain appropriate SMR.

Evidence of T/L spine injury during secondary survey, distracting injuries, or depressed level of consciousness?

Yes → Obtain contrast CT abdomen/pelvis with reconstruction of T/L spine.

No SCI → **Discontinue SMR.

No

**Discontinue SMR.

• Ensure two large bore IVs.
• Place central line and start pressors if signs of neurogenic shock (bradycardia, hypotension, warm extremities).

• CT entire spine if not already obtained.
• CT angiography neck if C-spine fracture to exclude BCVI.

Consider methylprednisolone only if advised by neurosurgeon and if within 8 hours of injury.

• If polytrauma, discuss case with ANMC trauma surgery.
• If isolated SCI, discuss case with ANMC Neurosurgery.
• Transfer by medevac to level I/II trauma center.
• Continue frequent reassessments until transferred.
• ISNCSCI documentation if time permits (see next page).
• If prolonged delay in transfer consider starting LWMH.

Risk Factors for SCI

Mechanism	Clinical Condition
• MVC	• Depressed GCS
• Fall	• Midline neck or back pain
• GSW	• Spinal deformity
Patient Factors	• Distracting circumstances or injury (includes alcohol intoxication)
• Advanced age	
• Osteoporosis	

If uncertain, apply Canadian C-spine Rules:

• Age < 65, no paresthesia, no dangerous mechanism (fall >/= 3 ft, axial load injury, high speed MVC / rollover / ejection, pedestrian or cyclist vs MVC, ATV / snowmobile accident).
• Low risk factors present: sitting position in ED, ambulatory at any time, rearend MVC, no midline spinal TTP, neck pain delayed (not immediate).
• Patient can rotate neck 45° left and right without pain.

Village Management

• Consult with ED physician early in management.
• If evidence of SCI, instruct health aides to begin SMR. Activate medevac.
• Consider XR if available. If XR shows fracture, consult ED physician if direct transfer to Anchorage is indicated. If XR does not show fracture, DO NOT discontinue SMR.

Methylprednisolone

• Methylprednisolone IV bolus 30 mg/kg over 15 minutes.
• Continue IVF x45 minutes.
• Methylprednisolone IV maintenance 5.4 mg/kg/hour for 23 hours.

**Special Circumstances

If objective examination evidence of significant neurologic deficits with negative CT, discuss utility of MRI with ANMC Neurosurgery. A negative CT in an obtunded or unevaluable adult patient is considered sufficient to rule out SCI; however, if a patient is intubated in the setting of massive trauma it is reasonable to maintain SMR pending transfer to higher level of care regardless of imaging results.

Abbreviations

SCI: spinal cord injury
SMR: spinal motion restriction
TTP: tenderness to palpation
CMR: cervical motion restriction
MVC: motor vehicle collision
GSW: gunshot wound
GCS: Glasgow coma scale
CCR: Canadian C-spine Rules
BCVI: blunt cerebrovascular injury
ISNCSCI: International Standards for Neurologic Classification of Spine Cord Injury

Pediatric Considerations

• The above algorithm was designed for adults and patients ≥14 years old.
• The Clinical Guideline Committee recommends the following resources in evaluating for a pediatric spine injury:
- The Royal Children's Hospital Melbourne Clinical Practice Guideline for Cervical Spine Assessment
Note: In the US, rigid collars are recommended, not soft collars shown here.
- American Academy of Pediatrics Pediatric Cervical Spine Clearance Working Group Algorithm

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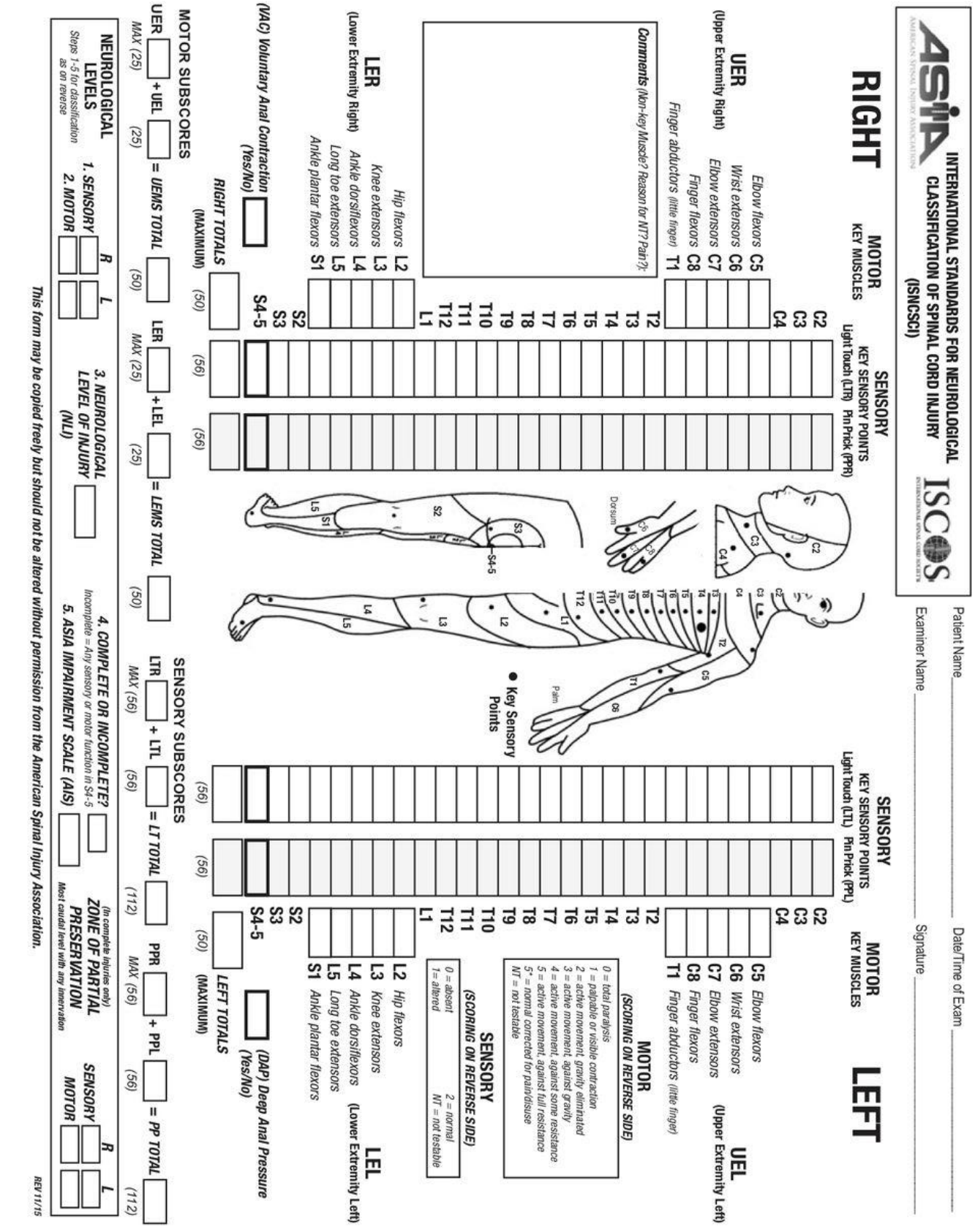
Approved by Clinical Guideline Committee 3/24/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Spinal Cord Injury (SCI) Management



If time allows, please print this, complete it, scan it into the patient's MultiMedia Manager, and send with patient at time of transfer.

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Approved by Clinical Guideline Committee 3/24/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Status Epilepticus Treatment (Adult)

Definitions

- **This guideline is indicated for the emergent treatment of convulsive status epilepticus.**
- For atypical seizure-like presentations without evidence of impending hemodynamic instability, consult Neurology on call at ANMC or PAMC.
- Convulsive status epilepticus:
  - Seizure that lasts >5 minutes or occurs multiple times without regaining consciousness.
  - Diffuse, often tonic-clonic motor activity AND loss of consciousness.

Adult patient with seizure.

- ABCs and neurologic exam.
- **Bedside glucose STAT.**
- Obtain PIV x 2, continuous SpO_2, & cardiac monitor.
- Ensure BVM and suction at bedside.
- If possible, obtain labs (see box).
- Get AMPLE history.

After five minutes of seizure activity, patient meets criteria for treatment of convulsive status epilepticus (see Definitions box).

Village Management

See Emergency RMT Seizure Scenario on the wiki.

- ABCs. Prepare BVM and suction.
- Place patient on floor with space around.
- **Bedside glucose STAT.** If unable to get a glucose measurement, give glucose buccally.
- Follow flow for no IV in place.
- Discuss with E1/E2 and activate medevac.
- If seizure resolves, place patient in recovery position.

If IV access unsuccessful, begin treatment with "No IV" pathway while continuing to attempt access and/or placing IO.

Labwork

Labs: BMP, Mg, Phos, CBC, lactate, EtOH, UDS, U/A, hCG. If concern for infection, send blood cultures and pro-calcitonin. Consider CK to trend over time.

IV in place

- Lorazepam 0.1 mg/kg IV @ 2 mg/min
  AND
- Levetiracetam 60 mg/kg IV (max 4500 mg). Give over 15 minutes.

Seizure continues 5 more minutes after lorazepam given.

- Lorazepam 0.1 mg/kg IV @ 2 mg/min.
- Prepare for intubation.

Seizure continues 5 more minutes.

Fosphenytoin 20 mg PE/kg IV (max 1500 mg). Give over 10 minutes. If seizure continues, give additional 10 mg PE/kg IV over 5-10 minutes.

- Contact ICU and activate medevac.
- **Intubate** patient.
  - Induction (choose ONE): Propofol 2 mg/kg OR midazolam 0.2 mg/kg.
  - Paralysis: Rocuronium 0.6 mg/kg (preferred over succinylcholine due to risk of rhabdomyolysis and hyperkalemia, but recommend this lower dose)
  - Consider sugammadex following intubation to avoid masking seizure activity. Discuss with intensivist.
- Be prepared to give vasopressors or push-dose epinephrine if needed.

Choose ONE:

- Propofol drip 20 mcg/kg/min, titrate to effect with goal 50-80 mcg/kg/min. Watch BP closely.
- Midazolam drip 0.1 mg/kg/hr gtt, titrate to effect

- Discuss further management with ICU.
- Prepare for medevac.
- Continue active management until patient leaves, including continuous VS, frequent labs, and monitoring of UOP.

No IV in place

Benzodiazepine (choose ONE):

- Midazolam 0.2 mg/kg IM (max dose 10 mg) x1.
- Diazepam 0.2 mg/kg (max 20 mg) PR x1.
- Diastat home dose x1.

AND

- Levetiracetam 60 mg/kg (max 4500 mg) PO (if able) or PR. To give PR, give tablets as well as one packet of water-soluble lubricant.

Seizure continues 20 more minutes.

- Activate medevac if in village.
- Fosphenytoin 20 mg PE/kg IM (max 1500 mg).

Seizure continues 20 more minutes.

Repeat benzodiazepine dose.

Seizure continues 20 more minutes.

Phenobarbital 20 mg/kg IM (max 1000 mg).

Treatments for Provoked Seizures

- Hypoglycemia: Dextrose 50% IV. Give 25 grams IV push.
- Hyponatremia: Sodium chloride 3% 100 mL infusion over 10 minutes.
- Hypocalcemia: Calcium gluconate 1-2 gram IV push.
- Eclampsia: Magnesium sulfate 4-6 grams IV over 20 minutes followed by 1-2 gram/hour.
- Alcohol withdrawal: Phenobarbital 260 mg IV push followed by 130 mg Q30-60 minutes.

Post Seizure Care

- Seizure recurrence typically occurs within 2-6 hours.
- If history of seizures, may discharge with responsible adult if patient is improving. If first-time seizure, monitor in ED or clinic until mentation is at baseline. No air travel until >6 hours from event.
- Consider admission for prolonged post-ictal state or if concern for persistent metabolic abnormalities.
- Place urgent referral to Neurology if first-time seizure without known cause. Consult Neurology if considering urgent neurologic evaluation or medication initiation or adjustment.

Notes

- If seizure occurs in outpatient clinic, place patient on floor with space around and call a Rapid Response.
- Avoid using lorazepam IM due to erratic absorption.
- Avoid mixing different benzodiazepines.
- Monitor CK and renal function. Patient may require aggressive IV fluid administration if risk for rhabdomyolysis.
- Obtain neuroimaging if any focal abnormalities on neuro exam.
- Perform LP if unable to exclude intracranial infection. (Perform CT prior to LP.)

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If comments about this guideline, please contact Megan_Young@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Status Epilepticus Treatment (Pediatric)

Use the Pediatric Critical Care Guide and ED Peds Critical Care PowerPlan to check all medication dosing.

- ABCs. Ensure BVM at bedside and pediatric code cart within reach.
- **Bedside glucose STAT.**
- Obtain IV.
- Consult pediatrics.
- Obtain brief history.
- Prepare first-line medication. If in the ED or NW, get the Peds Seizure Kit (see box).

Seizure lasting ≥3 minutes
OR
More than one seizure in 24 hours without return to baseline.

No → Go to Pediatric Post-Seizure Evaluation guideline.

Yes

Benzodiazepine (choose ONE)
- Midazolam 0.2 mg/kg IN/IM (max dose 10 mg) – single dose only.
- Lorazepam 0.1 mg/kg IV/IO (max dose 4 mg) – up to two doses Q5 minutes.
- Diastat home dose – up to two doses Q5 minutes.

Seizure continues 5 more minutes.

Consult ANMC PICU at (907) 297-8809.

Age ≤ 2 months

Phenobarbital 20 mg/kg IV/IM.
If IV, give over 15 minutes or
1 mg/kg/minute (max 60 mg/min).

Seizure continues 5 minutes after infusion complete.

Phenobarbital 10 mg/kg IV/IM.
If IV, give over 15 minutes or
1 mg/kg/minute (max 60 mg/min).

Seizure continues 5 minutes after infusion complete.

Levetiracetam 40 mg/kg IV/IM.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Levetiracetam 20 mg/kg IV/IM.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Start midazolam or propofol infusion with PICU consultation.

Age >2 months

Levetiracetam 60 mg/kg IV/IM.
Max dose 4500 mg.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Fosphenytoin 20 mg PE/kg IV.
Max dose 1000 mg.
Give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Fosphenytoin 10 mg PE/kg IV.
Max dose 1000 mg.
Give over 5-10 minutes.

Seizure continues 5 minutes after infusion complete.

Phenobarbital 20 mg/kg IV or IM.
Max dose 1000 mg.
If IV, give over 15 minutes.

Seizure continues 5 minutes after infusion complete.

Phenobarbital 10 mg/kg IV or IM.
Max dose 1000 mg.
If IV, give over 15 minutes.

Seizure continues 5 minutes after infusion complete.

Start midazolam or propofol infusion with PICU consultation.

Peds Seizure Kit

- In the ED and Peds NW Pyxis.
- Type "seizure" and override.
- Includes:
  - Midazolam 10 mg/2 mL
  - Levetiracetam
  - Phenobarbital 130 mg/mL
  - Dosing cards from the pediatric critical care guide

Village Management

See Emergency RMT Seizure Scenario on the wiki.
- ABCs.
- **Bedside glucose STAT.**
- If unable to get a glucose measurement, give glucose buccally.
- Get BVM with appropriate sized mask to bedside.
- Follow flow to the left, using these drugs with dosing found on Pediatric Critical Care Guide:
  - Diastat home dose PR if available or midazolam 0.2 mg/kg intranasal (max dose 10 mg) or diazepam 0.5 mg/kg (max 10 mg) IV solution given RECTALLY.
  - Phenobarbital or fosphenytoin (kept refrigerated) IM. If giving either second-line drug, consult pediatrics and strongly consider activating a medevac.
- Consider placing IV and giving NS bolus 20 mL/kg.
- Low threshold to activate medevac for atypical or prolonged seizure.

In all ages, if hemodynamic instability or myocardial dysfunction, avoid phenobarbital and use alternate agents.

In all ages, in consultation with the PICU, consider preparing for intubation and continuous infusion after second-line drug has been given. Continue giving medications as detailed in the flow while infusion is being prepared.

If giving midazolam, make drip of 1 mg/mL and start at rate 0.1 mg/kg/hour.

Indications for Admission or Transfer:
-Status epilepticus
-Cluster of seizures
-Increased intracranial pressure
-CNS infection
-Structural lesion
-Patient does not return to baseline mental status

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If comments about this guideline, please contact Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Trauma Outside Bethel

Trauma patient outside Bethel

- Identify mechanism.
- Transfer to clinic with Spinal Motion Restriction (SMR) if indicated.
- See Box 1.

Trauma Primary Survey: **ABCDE**

- **Airway:** Loss of airway, stridor, expanding neck/submental swelling, impending airway compromise
- **Breathing:** Hypoxia, marked tachypnea, flail chest, absent breath sounds
- **Circulation:** Absent pulses, pulsatile bleeding
- **Deficit:** *Objective* neurologic deficit
- **Exposure:** Unclothe patient, eval for occult injuries

Emergent findings in Primary Survey AND/OR Any condition in Box 2?

Yes →
- Contact Emergency RMT/Wards Doctor STAT.
- Stabilize and evaluate. See Box 4.
- Proceed to **secondary survey** after patient is stabilized.

No ↓

Proceed to focused HPI (Box 3) and and **secondary survey**.

Findings on secondary survey warrant transfer to higher level of care.

No →
- Discharge with thorough return precautions.
- Feel free to contact RMT provider if questions.

Yes ↓

Patient is cognitively intact, hemodynamically stable, and ambulatory.

No →
- Likely to require medevac.
- Contact Emergency RMT/Wards Doctor.

Yes ↓
- Likely candidate for commercial transfer.
- Contact RMT provider to notify.

Box 1: If responding to scene

- *Do not risk safety of medical staff under any circumstance.*
- If scene is compromised by combative patient or unsafe bystanders, leave scene immediately and do not return until scene secured by law enforcement.
- If CPR in progress, stay on-scene; CPR is often interrupted or lowered in quality by transport.
- Otherwise, prioritize transport to clinic. Aggressive medical interventions in field delay definitive care.

Box 2: Common conditions which warrant emergent transport

- Physiologic instability: MAP <70, RR >30, GCS <10 if not intoxicated.
- Anatomic injuries: *penetrating* wounds to head, neck, torso, eye.
- Crushed/degloved/mangled extremity.
- Non-digital amputation.
- Pelvic fracture.
- Open/depressed skull fracture.
- Paralysis.

Box 3: Contents of Focused HPI

Age, sex, mechanism of injury (MOI)

Details by MOI:

1. Penetrating trauma:
- Knife: Type, length, depth.
- GSW: Caliber, distance from victim, entrance/exit.

2. Blunt trauma:
- MVC: Vehicle type, speed, ±LOC, ±ambulatory afterwards, ±restraint, ±helmet.
- Fall: Distance, ±LOC, ±ambulatory afterwards.

3. Environmental
- Cold Exposure: Temperature, time of exposure.
- Heat Exposure: Structure/materials involved.

Additional important information:
- Anticoagulants
- Pregnancy
- Presence of burns
- Ability to void since injury

**Contact

- To reach Wards Doctor, send message via Tiger Connect to "Yukon Wards Doctor (Emergency RMT)" or "Kusko Wards Doctor (Emergency RMT)."
- If this is not practical, call the ED at (907) 543-6395 and ask for the wards doctor to be paged.

Please use this guideline as well as ATLS principles in all trauma cases, including for delayed presentation to care. Although delayed presentations are often less emergent, these principles still apply, and this process should be followed.

If health aide present, consider asking them to look up and follow CHAM section on Major Trauma.

Box 4: Interventions

1. Stabilization
- Two 18g (or largest bore available) PIV
- Spinal motion restrictions (SMR) if indicated
- Pressure dressing to briskly bleeding wounds
- Pelvic wrap/binder if indicated
- Splinting of fractures
- Do not apply a tourniquet without input from RMT or ED provider.

2. Diagnostics
- CXR, AP Pelvis
- Glucose POC, CBC, CMP

Abbreviations

MAP: mean arterial pressure
GCS: Glasgow coma scale
SMR: spinal motion restrictions
LOC: loss of consciousness
MOI: mechanism of injury

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Clinical_Guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Trauma Outside Bethel

	Secondary Survey Checklist *Document in your note using autotext "..traumasurvey"*
	Mental Status: **GCS**
	Scalp: • Lacerations / swelling • Evidence of skull fracture
	Eyes: • Visual Acuity • Pupil size/reactivity • Globe integrity • Extraocular muscle movement
	Ears: • Hemotympanum • TM rupture
	Face: • Nose: Epistaxis, septal hematoma, fracture • Mouth: Midline, symmetric jaw, able to open and close.
	Neck: • Swelling / soft tissue injury • TTP over cervical spine
	Chest: • Ecchymoses, swelling, flail chest • TTP, crepitus, displaced ribs • Bilateral lung sounds
	Abdomen: • TTP, distension, absent bowel sounds
	Pelvis/GU: • Stability to pressure at the anterior superior iliac spine • TTP of femoral head • Testicular swelling • Blood at urethral meatus
	Back: • TTP along T/L spine
	Long bones: • Deformity/TTP • Lacerations over fractures (should be treated as open fractures) • Limitations in active ROM
	Integument (all sites): • Cold, pale, cap refill >3 seconds • Lacerations: *If not over vascular area, explore with sterile glove* • Hematomas (watch for expansion) • Burns

Yukon-Kuskokwim HEALTH CORPORATION

Villages without Health Aides: Management of Emergency Patients

The top priority is to ensure the safety of all involved.

- This includes staff, bystanders, and former health aides.
- CHAP on call is often privy to information about safety and may overrule a plan in the interest of keeping everyone safe.
- Bringing personnel from another village may be an option, but safety must be carefully considered, as trails are often unsafe, especially in bad weather.
- In these situations, emotions often run high. Please be careful not to coerce or strongly urge personnel to do something if they feel unsafe.

Medical emergency in village with no health aide.

↓

Activate medevac if appropriate.
Ensure LifeMed Dispatch has contact information for patient/family.

↓

If emergent treatment is indicated:

- Ask patient/family what personnel may be available: office assistant (OA), former health aide, EMT, etc.
- Send message via Tiger Connect to CHAP on call.

↓

CHAP on call must give approval for non-health aide personnel to provide care. This is to ensure safety.

→ CHAP on call notifies CD on call of situation. Provider may call CD on call if assistance needed.

↓

Clinic may be entered if key available (a tribal representative will have a key if no OA available).

↓

Provide appropriate care per Capabilities of Personnel Box.

↓

Document the situation in detail, including what resources were available. See "..rmtNoHealthAide" autotext.

Note: If unable to reach CHAP on call, consult the VHAC Excel spreadsheet and call the numbers at the top. The ER techs all have access to the VHAC.

Capabilities of Personnel

Personnel may need instructions but are permitted to do the following with phone support from provider.

- Office Assistant:
  - CAN check VS
  - CAN give supplemental oxygen
  - CAN give OTC meds or patient's own meds
  - CAN help set up a nebulizer if patient supplies meds
  - CAN set up Zoom
  - CANNOT give prescription medications
- Lay Rescuers:
  - CAN do all of the above except access Zoom
- Former Health Aide:
  - CAN perform all tasks that were part of previous level of training as a health aide
  - CAN access med room if key is available
  - CANNOT access controlled substances
  - CANNOT access computer system, including Zoom

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/13/23.
If comments about this guideline, please contact Ellen_Hodges@ykhc.org.

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Yukon-Kuskokwim HEALTH CORPORATION

Abuse/Assault Guidelines

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sexual Assault Guideline (Adults ≥ 18 years)

**Note: When an adult patient discloses a sexual assault, it is his or her choice to report to law enforcement. Reporting without a patient's consent may breech his or her confidentiality.
A SART exam/kit can only be conducted by a trained SAFE/SANE. Law enforcement must be involved, unless the patient wishes to have an anonymous kit collection. (See box.)

Adult victim reports sexual assault to ED or clinic staff.

Does patient want to report to law enforcement? (See **Note.)

No → Does patient want to complete an anonymous sexual assault kit? (See box.)

Yes → Contact SAFE/SANE who will determine if in range for evidence collection and if so, arrange for exam.

No → • The SART team will not respond.
• It may be appropriate to request a TWC advocate at 543-3444.
• Patient is offered a medical exam with ED or clinic provider for testing and treatment of STIs and emergency contraception.
• Document that patient declined anonymous evidence collection.
• For any questions, contact the SART Adult on-call phone at 545-4273.

Yes → Provide patient with a private space to call law enforcement with jurisdiction. Provide support as needed.
• If assault occurred in a village, call Alaska State Troopers.
• If assault occurred in Bethel, call the Bethel Police Department.

Adult victim reports sexual assault to law enforcement.

Law enforcement performs preliminary interview.

Is the patient willing to cooperate with an investigation?

No → • The SART team will not respond.
• It may be appropriate to request a TWC advocate at 543-3444.
• Patient is offered a medical exam with ED or clinic provider for testing and treatment of STIs and emergency contraception.
• Document that patient declined anonymous evidence collection.
• For any questions, contact the SART Adult on-call phone at 545-4273.

Yes → Law enforcement activates SART team response if further investigation is indicated.

SART team performs interview.

Does the patient want a SART exam?

No → • The SART team will not respond.
• It may be appropriate to request a TWC advocate at 543-3444.
• Patient is offered a medical exam with ED or clinic provider for testing and treatment of STIs and emergency contraception.
• Document that patient declined anonymous evidence collection.
• For any questions, contact the SART Adult on-call phone at 545-4273.

Yes → • SART team performs a forensic medical exam with evidence collection.
• Team offers emergency contraception and testing and treatment of STIs.

Anonymous Kit Collection

• SANE/SAFE will collect evidence anonymously.
• Kit will be stored indefinitely, and will **not** be analyzed by the crime lab until the assault is reported to the police.

If patient is <18 years, please see **Pediatric Sexual Abuse Procedure**.

SART Team Members

• Law enforcement
• SANE/SAFE (Sexual Assault Nurse Examiner/Sexual Assault Forensic Examiner)
• TWC advocate

Contact Information

• Tundra Women's Coalition:
  Business Line: (907) 543-3444
  Crisis Line: (907) 543-3456
  Toll Free: (800) 478-7799
• Law Enforcement:
  Bethel Police Department: (907) 543-3781
  Bethel Post of Alaska State Troopers: (907) 543-2294
  Aniak Post of Alaska State Troopers: (907) 675-4459
  Emmonak Post of Alaska State Troopers: (866) 949-1303
  St. Mary's Post of Alaska State Troopers: (907) 438-2019
• National Sexual Assault Helpline:
  (800) 656-4673
  Available 24 hours a day, 7 days a week.
• YKHC SAFE/SANE:
  Tiger Connect: SART Adult On Call
  (907) 545-4273

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Approved by Clinical Guideline Committee 3/13/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Strangulation

Goals

1. Evaluate carotid and vertebral arteries for injuries.
2. Evaluate bony/cartilaginous and neck soft tissue structures.
3. Evaluate brain for anoxic injury.

Note: Life-threatening injuries can be present up to one year after strangulation event.

Helpful Links

- S/Sx strangulation in **adults** and **children**
- Physiological consequences **timeline**

Patient presents with concern for strangulation

Are ANY of the following present?

- Airway: subcutaneous emphysema (can be a sign of tracheal or laryngeal rupture)
- Neurological: loss of consciousness, seizures, mental status changes, amnesia, cortical blindness, movement disorders, stroke-like symptoms
- HEENT:
  - Visual changes: spots, flashing lights, tunnel vision, etc.
  - Facial, intra-oral, or conjunctival petechial hemorrhage
  - Odynophagia
- Neck:
  - Ligature mark, neck contusion, soft tissue injury, swelling, carotid tenderness, etc.
  - Dysphonia/aphonia, hematoma, laryngeal fracture, recurrent laryngeal nerve injury
- Bladder or bowel incontinence
- Pulmonary: dyspnea, phrenic nerve injury

Yes to ANY

Rule Out Life-Threatening Injuries

- If GFR ≥30: CT angio of carotid/vertebral arteries. This is the gold standard for evaluation of vessels and bony/ cartilaginous structures but is not very sensitive for soft tissue trauma.
- If GFR <30: non-contrast CT of neck. This study is less sensitive than CT angio for vessel injury but gives good visualization of bony and cartilaginous structures.

Injury identified

- Consult trauma surgery and plan to transfer.
- Consider ENT consult for laryngeal trauma with dysphonia.

No injury identified

How recent was event?

<48 hours ago

Observe in ED or admit to inpatient until 48 hours post-event based on severity of symptoms.

≥ 48 hours ago

No to ALL

Is there reliable home monitoring AND a safe place to go to?

Yes

- Discharge home with detailed instructions to return to ED if any neurological signs/symptoms, dyspnea, dysphonia, odynophagia dysphagia, or voice changes occur or worsen.
- Give custom Strangulation Patient Education handout.

No

- Consider discharge to TWC.
- May call TWC Crisis Line (543-3456) for assistance with safe shelter.
- Also may call SART on call at 545-4238 for further assistance.

Tundra Women's Coalition (TWC)

- Crisis Line: 543-3456
- Main office: 543-3444
- On-call advocate: 545-4328

Services Provided by TWC

- Emergency shelter
- Hospital accompaniment
- Information about community resources
- Legal advocacy
- Violent crime compensation
- Funds for emergency air or cab transportation

If patient would like to report incident:

- If occurred in a village: Alaska State Troopers 543-2294
- If occurred in Bethel: Bethel Police Department 543-3781

Use the following autotexts in your documentation:
- ..hpiStrangulation
- ..physStrangulation

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 11/2/21. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Suspected Physical Abuse Procedure (Pediatric)

Indicators of Abuse: History

- No/vague explanation of significant injury
- Important details of explanation change dramatically
- Explanation of injury is inconsistent with the child's physical and/or developmental capabilities
- Injury occurred as a result of inadequate supervision
- Delay in seeking medical care without reasonable explanation
- Children with injuries resulting from family/ domestic violence incident
- Previous history of inflicted injury
- Inappropriate caretaker behavior that places child at risk

Indicators of Abuse: Physical Exam

Bruising
- Bruising in infants < 6months of age or non-ambulatory infants
- Bruising in unusual locations in any age child: ear pinna, neck, under chin, torso, buttock
- Pattern Bruises: loop marks, hand print, subgaleal hematoma due to hair pulling

Bite Marks
- Semi-circular/oval pattern
- May have associated bruising

Burns
- Pattern contact burns
- Cigarette burns
- Stocking/glove pattern
- Mirror image burns on extremities
- Symmetrical burns on buttock
- Immersion burns

Facial Injury
- Unexplained torn frenulum in non-ambulatory child
- Unexplained oral injury
- Ear injury

Injuries Suggestive of Abuse

Skeletal
- Rib fractures
- Multiple fractures
- Long bone fractures in < 6 months
- Any fracture (including femur) in non-ambulatory child
- Scapular fracture
- Sternum fracture
- Fractures of hands and feet

Head
- Subdural hematoma with or without skull fracture
- Unexplained intracranial injury (Note: Infants with intracranial injuries frequently have no or non-specific symptoms)

Poisoning
- Any illegal drug exposure, prescribed controlled substance, ethanol, or marijuana

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Approved by Clinical Guideline Committee 7/14/23.
Click here to see the supplemental resources for this guideline. **If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.**

Suspicion, allegation, disclosure, or confession of child physical abuse.
Please see Indicators of Abuse AND Injuries Suggestive of Abuse.

↓

Treat acute issues as appropriate. If patient is in village and stable please arrange to have patient sent to ED via next commercial flight. If unstable then activate medevac.

↓

Mandatory reporters must report via phone to: **OCS** AND law enforcement (**AST** if incident occurred in village or **BPD** if incident occurred in Bethel).

↓

- Complete appropriate work-up (see table). Use Child Abuse Power Plan.
- Take photos of any injury visible on exam, especially bruising. Take photos at a distance AND close-up to establish relative size and landmarks. Include ruler to establish scale.

↓

Send RAVEN communication to Child Abuse Pool detailing reports made to Law Enforcement and **OCS**.
May contact **Child Abuse On-Call** via Tiger Connect if any questions or concerns.

↓

If unable to reach a discharge plan with OCS that YOU think is safe, then consider admission for safety and send message to **Child Abuse On-Call** to help reach a safe discharge plan.

Contacts

- Child Abuse On-Call via Tiger Connect. May email ChildAbuse@ykhc.org with nonurgent questions.
- Office of Children's Services (**OCS**): (800) 478-4444 or reportchildabuse@alaska.gov (CC Child Abuse team).
- Alaska State Troopers (**AST**): (907) 543-2294
- Bethel Police Department (**BPD**): (907) 543-3781
- Alaska CARES: (907) 561-8301

- **Mandatory Reporters** include: Medical providers, nurses, health aides, teachers, social workers, law enforcement officers, and mental health professionals.
- Report should be made by every mandated reporter who has a concern, even if you think a report has already been made. This helps keep reports up to date with new information.
- Always document date and time of call, name of OCS representative, and what was reported.
- To complete the State of Alaska training for mandatory reporters, click here.

Note: Minor injuries (single bruise on forehead, occasional bruises on shins, minor oral trauma, etc.) in a child able to cruise or sit independently can be part of normal development.
Always ask caregivers for story behind injuries.
If history does not match injury or child's observed developmental level, strongly consider child abuse injury surveillance.

Child Abuse Injury Surveillance Table (Use Child Abuse Power Plan.)

	<6 months	6-24 months	2-5 years	>5 years
Full exam	Yes	Yes	Yes	Yes
Skeletal survey Including oblique rib films	Yes	Yes	If highly suspicious of severe abuse	If highly suspicious of severe abuse
Head CT Request 3D reconstruction and 3 mm slices	Yes	If neurological exam abnormal	If neurological exam abnormal	If neurological exam abnormal
Abdominal labs AST, ALT, lipase, bag or CC U/A	Yes	Yes	Yes	If abdominal trauma
Bone labs Calcium, magnesium, phosphorus, alkaline phosphatase, intact PTH, 25-OH	If fracture	If fracture	If fracture	If fracture
Coagulation studies PT/INR, PTT, factor VIII & IX activity levels, VWF activity & antigen, CBC with diff. Consider CK if significant bruising. If head trauma PT/INR, PTT, thrombin time, fibrinogen, D-dimer	If bruising	If concerning bruising	If concerning bruising	If concerning bruising
Head circumference	Yes	Yes	N/A	N/A
Urine drug screen ± expanded state screen (contact Child Abuse On Call if considering expanded screen)	Consider	Consider	Consider	No
Optometry consult (within 24 hours)	If head injury	If head injury	If head injury	N/A

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Suspected Sexual Abuse Procedure (Pediatric)

Suspicion, allegation, disclosure, or confession of child sexual abuse.

Medical emergencies including active bleeding or significant pain?

Yes → For emergency medical concerns, arrangements should be made to bring patient to ER for emergent evaluation and treatment. **This may include medevac if medically appropriate.**

No

- Do not question child further unless medical necessary.
- Find a safe location to discuss concerns with caregiver. Do not discuss further in front of child.
- Gather clear details for your report: Who, What, Where, When.
- Mandatory reporters must report to:
  - OCS
  - **AND**
  - law enforcement (AST if incident occurred in village or BPD if incident occurred in Bethel)

If female with history of menarche, get a pregnancy test and offer Plan B/Ella if appropriate.

Send RAVEN communication to Child Abuse Pool detailing reports made to Law Enforcement and OCS. May contact Child Abuse On-Call via TigerText if any immediate questions or concerns.

Law enforcement will contact CAC to arrange interview if indicated, coordinate travel arrangements to Bethel, and contact On-Call Peds SART (Sexual Assault Response Team).

Interview will be conducted by forensic interviewer.

Medical Exam to be conducted at CAC Exam Room or ER SART Room at the discretion of Peds SART

Appropriate follow-up to be determined and completed by the Peds SART.

Mandatory Reporters include: Medical providers, nurses, health aides, teachers, social workers, law enforcement officers, and mental health professionals.

Report should be made by every mandated reporter who has a concern, even if you think a report has already been made. This helps keep reports up to date with new information.

To complete the State of Alaska training for mandatory reporters, click **here**.

Contacts

- On-Call Peds SART: (907) 444- 8643 or TigerText On-Call Peds SART.
- Child Abuse On-Call via TigerText. May email ChildAbuse@ykhc.org with nonurgent questions.
- Office of Children's Services (OCS): (800) 478-4444 or reportchildabuse@alaska.gov.
- Alaska State Troopers (AST): (907) 543-2294
- Bethel Police Department (BPD): (907) 543-3781
- Child Advocacy Center (CAC): (907) 543-3144 or (907) 545-1178

Alaska Age of Consent

- The age of consent is 16, provided the older partner is not in a position of authority (example: teacher, coach, minister).
- Any two people who are over the age of 16 can consent to sex in Alaska, but if one of the partners is under 16, and there is at least a 3 year age difference between the partners, it is illegal for them to have sex and must be reported.

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If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.

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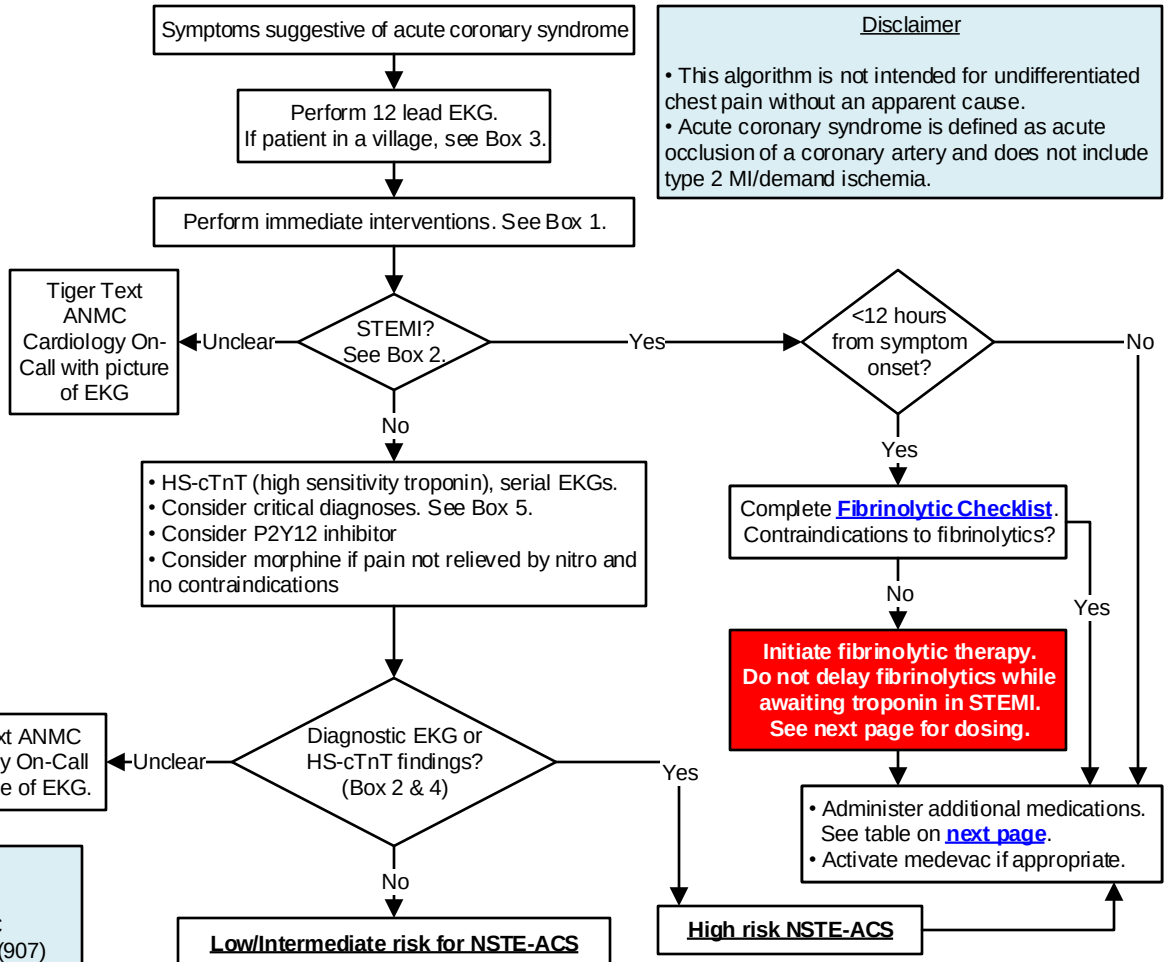
Yukon-Kuskokwim HEALTH CORPORATION

Cardiovascular Guidelines

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management



Box 1: Immediate Interventions

• Supplemental oxygen *prn* to maintain SpO_2 90-96%.
• Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin).
• Nitroglycerin 0.4 mg sublingual *prn* pain (up to three times as BP permits) unless contraindicated. Contraindications: recent phosphodiesterase use, sBP <90, right ventricular infarct (consider when evidence of inferior wall ischemia).

NOTE: pain relief with nitroglycerin (or lack thereof) is not diagnostic of cardiac ischemia.

Disclaimer

• This algorithm is not intended for undifferentiated chest pain without an apparent cause.
• Acute coronary syndrome is defined as acute occlusion of a coronary artery and does not include type 2 MI/demand ischemia.

Consulting Cardiology

• For all STEMI patients, consult PAMC Cardiology by calling the PAMC ED at (907) 212-3433 and asking for the cardiologist on call. For beneficiary patients, ANMC Cardiology should be made aware of the transfer on a non-urgent basis.
• For NSTE-ACS patients, consult ANMC Cardiology for beneficiary patients and PAMC Cardiology for non-beneficiary patients.

Box 2: EKG Criteria

STEMI:
• ST elevation in 2 contiguous leads of >0.2mV in V2-V3 OR >0.1mV in all other leads
• New or presumably new LBBB
• Positive Sgarbossa criteria for pre-existing LBBB

High risk Non-ST elevation ACS (NSTE-ACS):
• Dynamic T wave inversions
• Transient ST elevation

Box 3: Village Management

• If EKG meets high risk criteria in Box 2, review with ED Physician and activate medevac. Perform interventions in Box 1.
• ED physician coordinates with ANMC/PAMC regarding whether to have LifeMed give lytics and whether to stop in Bethel or ramp transfer to Anchorage.

• If EKG or health aide not available, use clinical history and validated tool such as EDACS to stratify risk for ACS. Consult with ED Physician and/or CD on call regarding appropriateness of medevac for risk factors alone.

Box 4: HS-cTnT Evaluation for Acute Cardiac Injury

The lowest reported value is "<6 ng/L," which equates to "undetectable."
FDA-approved normal values (99th percentiles in healthy subjects) are:
• Men: <22
• Women: <14
• Change in one hour (Δ1h) : <3
Cutoffs are arbitrary and do not correspond to any evidence-based positive-predictive value for ACS.
For patients with elevated troponins and clinical history consistent with ACS, consult cardiology.
This information is from data available February 2020. Please see wiki page for further information.

Box 5: Critical Differential Diagnosis

• Aortic dissection
• Tension pneumothorax
• Pulmonary embolism
• Perforated peptic ulcer

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Approved by Clinical Guideline Committee 3/24/23.
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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

Nitroglycerin (NTG)
• Contraindications: PDE-inhibitor use, cardiogenic shock, RV infarct, sBP<90, marked tachycardia or bradycardia.
• Sublingual dosing: 0.4 mg SL Q5 minutes up to three doses
• IV dosing: start at 10-20 mcg/min, titrate Q3-4 minutes to typical range 60-100 mcg/min

Beta-Blockers
• No evidence of benefit from routine immediate beta-blocker.
• Indicated for HTN and/or ongoing ischemia refractory to NTG.
• Contraindications: cardiogenic shock, RV infarct, symptomatic asthma.
• Cautions: risk for cardiogenic shock (bradycardia, HR>110, sBP<120, age>70, increased time since STEMI onset), inferior MI, controlled asthma.

Emergency Department Medication Summary

	STEMI <12 hours	STEMI >12 hours	NSTE-ACS
Oxygen	Maintain SpO_2 90-96%	Maintain SpO_2 90-96%	Maintain SpO_2 90-96%
Nitrates (*prn* pain, HTN)	Sublingual or drip	Sublingual or drip	Sublingual or drip
Fibrinolytic	Tenecteplase See below.	Not indicated	Not indicated
Antiplatelet agents: Aspirin	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)	Aspirin 324 mg PO chewed (four 81 mg "baby" aspirin)
Antiplatelet agents: $P2Y_{12}$ receptor blocker	Clopidogrel Age ≤75: 300 mg PO Age >75: 75 mg PO	Clopidogrel 600 mg PO	Consult cardiology.
Anticoagulation	Enoxaparin (see table for dose)	Enoxaparin (see table for dose)	Enoxaparin (see table for dose)
Beta-blocker	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)	Metoprolol 5 mg IV *prn* Q5 minutes (max 15 mg)
Morphine	No longer routinely given; associated with increased mortality. Reserve for significant pain refractory to NTG and beta-blocker.		

At time of Dx unless contraindicated

Fibrinolytic Therapy (Tenecteplase)

Goal: administer ≤ 30 minutes from arrival.
Rapidly complete the fibrinolytic checklist and consent.

Dosing:
• <60 kg: tenecteplase 30 mg IV bolus
• ≥60 kg to <70 kg: tenecteplase 35 mg IV bolus
• ≥70 kg to <80 kg: tenecteplase 40 mg IV bolus
• ≥80 kg to <90 kg: tenecteplase 45 mg IV bolus
• ≥90 kg: tenecteplase 50 mg IV bolus

Administer concurrent aspirin, clopidogrel, and anticoagulant therapy, per table above.

Enoxaparin Dosing

	Age <75 years and STEMI	Age ≥75 years and STEMI	Any age and NSTE-ACS
Creatinine clearance ≥30 mL/min	30 mg IV + (1 mg/kg SC now then Q12h) Max dose 100 mg	0.75 mg/kg SC Q12h Max dose 75 mg	1 mg/kg SC now then Q12h
Creatinine clearance <30 mL/min	30 mg IV + (1 mg/kg SC now then Q24h) Max dose 100 mg	1 mg/kg SC Q24h Max dose 100 mg	1 mg/kg SC now then Q24h

NOTE: Enoxaparin and unfractionated heparin are NOT dialyzable; ESRD/dialysis patients should receive fondaparinux, which is not on the YKHC formulary. Discuss with cardiologist if appropriate.

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Approved by Clinical Guideline Committee 3/24/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Megan_Young@ykhc.org and Andrew_Swartz@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

Fibrinolytic Checklist

INDICATIONS *(initial yes or no)*

YES	NO	
		Presentation consistent with acute coronary syndrome (coronary artery occlusion)
		AND at least one of the following: • 1 mm J-point elevation in two contiguous leads (other than V_2-V_3) • In leads V2-V3 Men ≥ 40 years: ≥ 2 mm J-point elevation Men <40: ≥ 2.5 mm J-point elevation Women: ≥ 1.5 mm J-point elevation

ABSOLUTE CONTRAINDICATIONS *(initial yes or no)*

YES	NO	
		History of any intracranial hemorrhage
		History of prior ischemic stroke, significant closed head injury or facial trauma, or intracranial or spinal surgery in the previous three months
		Presence of a cerebral vascular malformation
		Presence of a primary or metastatic intracranial malignancy
		Symptoms or signs suggestive of an aortic dissection
		Any bleeding diathesis
		Any active bleeding that is severe or has high potential for life-threatening blood loss; this does not include menstrual bleeding
		sBP > 180 and/or dBP >110 at presentation in patient at low risk of cardiac death (age < 55, no prior MI, and Killip class I).
		Terminal illness, defined as end of life care or documented/expressed patient wish to abstain from high risk or invasive procedures

RELATIVE CONTRAINDICATIONS *(initial yes or no) – If any of below are present, used shared decision making with patient.*

YES	NO	
		Age 65-74 (ICH relative risk 3.12 [2.54-3.83]); Age ≥ 75 years (ICH relative risk 5.40 [4.40-6.63])
		History of chronic severe poorly controlled HTN
		sBP > 180 and/or dBP >110 at presentation in patient at high risk of cardiac death (age ≥ 55, Hx prior MI, or Killip class ≥ II).
		History of ischemic stroke more than three months ago
		Dementia OR any known intracranial disease that is not an absolute contraindication
		Traumatic or prolonged (>10 minutes) cardiopulmonary resuscitation
		Major surgery in the previous three weeks
		Internal bleeding in the previous 2-4 weeks
		Active peptic ulcer
		Non-compressible vascular punctures
		Pregnancy
		Current warfarin therapy (the risk of bleeding increases as the INR increases)

This checklist is advisory for clinical decision-making and may not be all-inclusive. Risks and benefits will need to be assessed individually.

Physician signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acute Coronary Syndrome (ACS) Management

PROCEDURE CONSENT

I hereby authorize _____ and such assistants as he/she may designate, to perform the following operation or procedure:

TECHNICAL DESCRIPTION	Intravenous thrombolytic therapy for acute STEMI (ST-elevation myocardial infarction).
LAY DESCRIPTION	Give clot-dissolving medication through an IV to dissolve the clot which is causing a heart attack.

_____ has discussed with me the information briefly summarized below:

BENEFITS	• When PCI is not available within two hours, thrombolytic medication is the "standard of care" for achieving coronary reperfusion within 12 hours of acute STEMI onset. • When administered within 6 hours of pain onset, about 1 in 40 persons will have their life saved. • When administered between 6-12 hours after pain onset, about 1 in 60 persons will have their life saved. • Decreased risk of developing heart failure. • A STEMI patient who receives thrombolytic medication is about 3-5 times more likely to have their life saved than to have brain bleeding (see below).
RISKS *(some, but not all)*	• About 1 in 100 persons will experience non-life-threatening bleeding. • About 1 in 100-250 persons will experience bleeding into the brain which usually results in either death or significant disability.
RISKS OF NOT HAVING THE PROCEDURE	• Higher risk of death. • Higher risk of developing heart failure.
ALTERNATIVE TREATMENTS	None are available at this facility.

Patient signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Physician signature: _____

Printed name: _____ Date and time: _____

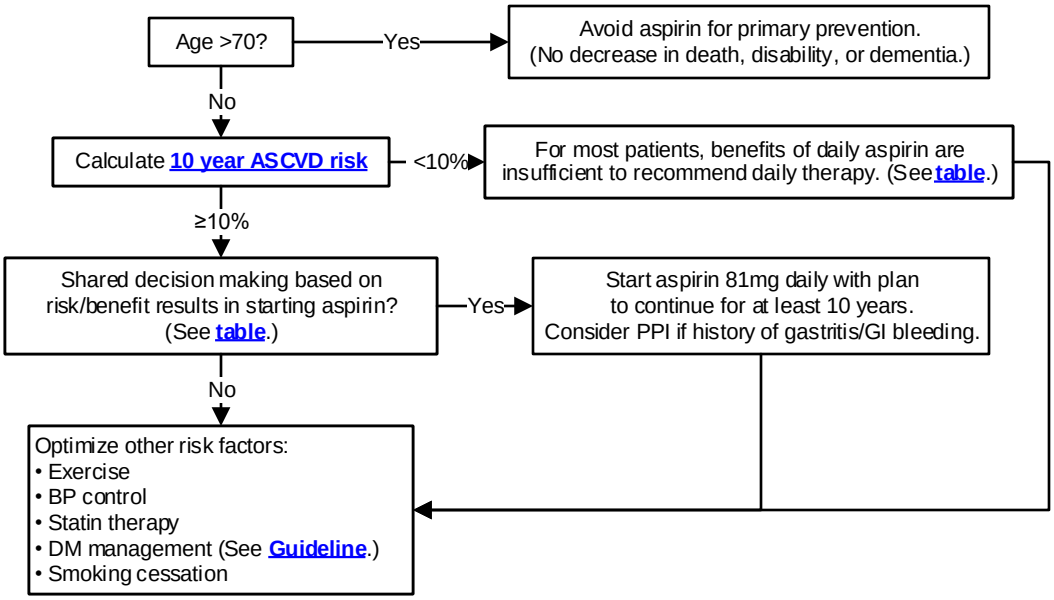
Witness signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Aspirin for Adults >40 Without Known Cardiovascular Disease



Notes

Aspirin produces significant reductions in mortality amongst survivors of cardiovascular disease, but its role in the primary prevention of cardiovascular disease amongst healthy adults is less clear.

See **table under "Possible Benefits"** for summary of RCT data for low dose aspirin in the primary prevention of cardiovascular disease.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypertension, Adults

BP Technique

- Use the appropriate sized cuff after 5 minutes of rest.
- Patient should be sitting or semi-reclining (not fully reclining).
- Confirm elevated levels at subsequent visits.

Patient >18 years, not pregnant

- Review meds for causes of increased BP.
- Implement lifestyle modifications.
- Set BP goal.

Definitions

- Normal: sBP <120 and dBP <80 mmHg
- Elevated: sBP 120-129 and dBP <80 mmHg
- HTN stage 1: sBP 130-139 or dBP 80-89 mmHg
- HTN stage 2: sBP ≥ 140 or dBP ≥90 mmHg
- Clinical CVD defined as: CHD, CHF, and stroke

Normal BP

Promote healthy lifestyle. Reassess yearly.

Elevated BP

Non-pharmacological interventions (see box). Reassess in 3-6 months.

HTN Stage 1

DM, CKD, known CVD, or **10-year ASCVD event risk** ≥ 10%?

Yes

For all ages, BP goal is <130/80 mmHg.
- Consider home BP monitoring.
- Non-pharmacological interventions (see box).
- Start anti-hypertensive.
- Reassess monthly until control is achieved.

At goal?

- **Yes** → Reassess Q3-6 months.
- **No** → Optimize/assess adherence. Consider intensification of therapy.

No

- Consider home BP monitoring.
- Non-pharmacological interventions (see box).
- For age ≥65, noninstitutionalized, ambulatory patients: sBP goal <130 mmHg. Use caution if starting two agents.
- For other populations, medication threshold is ≥140/90 mmHg.

Consider a more flexible BP goal if...

- Labile or postural hypotension
- History of side effects to multiple antihypertensives
- Older than 75, with a high burden of comorbidities or diastolic BP less than 55mmHg

HTN Stage 2

For all ages, BP goal <130/80mmHg.
- Consider home BP monitoring.
- Non-pharmacological interventions (see box).
- Start anti-hypertensive.
- Reassess monthly until control is achieved.

At goal?

- **Yes** → Reassess Q3-6 months.
- **No** → Optimize/assess adherence. Consider intensification of therapy.

For Difficult-to-Control BP

- Consider referral to cardiologist or nephrologist.
- If requiring three or more medications, screen for secondary causes of HTN.

Initial Monitoring

- FBS/A1c
- Complete blood count
- Lipid profile
- Serum creatinine with eGFR
- Na, K
- TSH
- Urinalysis
- EKG

Initial Drugs of Choice

- Thiazide diuretic (chlorthalidone is recommended first-line)
- CCB
- ACE-I
- ARB

Beta-blocker NOT first line except in pregnancy or women who may become pregnant.

With ACE-I, ARB, and thiazides, check BMP 2-4 weeks after initiating treatment, 2-4 weeks after dose increases, and at least yearly if stable.

Compelling Indications for Certain Drug Classes

- DM: thiazide diuretic, CCB, ACE-I, or ARB
- DM with albuminuria: ACE-I or ARB
- CKD with albuminuria: ACE-I or ARB
- Heart failure with reduced ejection fraction: GDMT βB (carvediolol or metoprolol succinate) and ACE-I or ARB, then spironolactone
- Heart failure with preserved ejection fraction: βB and ACE-I or ARB
- Stable ischemic heart disease: GDMT βB (carvedilol, metoprolol succinate, nadolol, or propranolol; avoid βB with intrinsic sympathomimetic activity; do not use atenolol), ACE-I or ARB (CCB if angina)
- Secondary stroke prevention: thiazide diuretic, ACE-I or ARB
- Pregnancy: methyldopa, nifedipine, and/or labetalol
- Race and ethnicity: black patients without HF or CKD (with or without DM): Thiazide diuretic or CCB. Of note, two or more BP lower medications are recommended in most black adults with hypertension to reach a goal of <130/80 mmHg.

GDMT: guideline-direct management and therapy

Non-Pharmacological Interventions

- Smoking cessation
- Control blood glucose and lipids
- Diet
  - Weight loss in adults who are overweight or obese
  - Healthy diet (e.g., DASH) that facilitates achieving desirable weight
  - Reduce sodium intake <1500 mg/day or aim for at least a 1000 mg/day reduction in most adults
  - Potassium supplementation (3500-5000 mg/day) preferably in diet, unless contraindicated
  - Limit alcohol to two drinks/day for men and one drink/day for women
- Physical activity: increase physical activity with a structured exercise program 90-150 minutes/week

References

1. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Hypertension. 2018 Jun;71(6):e13-e115.
2. James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA. 2014 Feb 5;311(5):507-20.
3. Wald DS, Law M, Morris JK, Bestwick JP, Wald NJ. Combination therapy versus monotherapy in reducing blood pressure: meta-analysis on 11,000 participants from 42 trials. Am J Med. 2009 Mar;122(3):290-300.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 7/6/21. Click **here** to see the supplemental resources for this guideline.

If comments about this guideline, please contact Jason_Barrett@ykhc.org or Marsha_Dunkley@ykhc.org.

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Yukon-Kuskokwim HEALTH CORPORATION

Gastrointestinal, Hematologic, & Endocrine Guidelines

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Diabetes Mellitus, Type 2

Source: ADA guidelines for treatment **here** and the abbreviated version **here**.

Screen all overweight or obese adults with one or more other **risk factors** and all adults >35 years for type 2 diabetes mellitus.

See diagnostic criteria.

Confirm diagnosis and add to problem list in RAVEN.

- Refer all new diagnoses of diabetes to the Diabetes Department.
- In RAVEN, type "Refer to Diabetes Internal" and select "DSMES (Diabetes Self Management Education and Support)," "MNT (Medical Nutrition Therapy)," and provider.
- Refer to Wellness Center for exercise education.

Schedule follow up appointment for 1-2 weeks and coordinate with diabetes department if possible.

At initial and annual diabetes visits:

- Review and complete health maintenance:
  - Foot exam
  - Labs
  - Immunizations
  - Mental health screening
- Encourage lifestyle changes (see box).
- Set **A1c target** based on age and risk factors or complication risk.
- Encourage purposeful blood glucose monitoring.
- Discuss family planning/sexual health.
- Refer to optometry, dental, audiology if needed, physical therapy if needed.

Diagnostic Criteria

Unequivocal symptoms of hyperglycemia (thirst, polyuria, weight loss, and blurry vision) and either any one of the following OR any two of the following. (Take confirmatory test as close as possible to initial lab value to avoid treatment delays.)

- FPG* ≥ 126mg/dl
- 2 hour PG ≥ 200mg/dl during OGTT
- Hgb A1c ≥ 6.5
- RPG ≥ 200mg/dl and symptoms of hyperglycemia or hyperglycemic crisis

Order CBC and iron profile if needed, as anemia can affect the accuracy of Hgb A1c.

Note: Fasting is defined as no caloric intake for at least 8 hours.

Comorbidities and ASCVD Risk

Comorbidities must be evaluated at every visit. Document in chart and address Assessment and Plan where appropriate.

- ASCVD/CHF
- Hypertension
- Hyperlipidemia
- CKD
- Obesity
- Sleep apnea
- Tobacco and alcohol use
- NAFLD
- Hemoglobinopathies (including anemia)
- Major depressive disorder/general anxiety disorder
- Diabetes distress

Remember: language matters. See this **ADA resource**.

For Optometry Referrals

- Either provider or patient must call Optometry at x6336 to schedule appointment.
- Provider must state in note that patient is to be referred to Optometry for a diabetic eye exam. This is necessary for travel to be arranged.

Lifestyle Changes

- Advise 7-10% weight loss.
- Advise minimum 150 minutes of exercise per week.
- Advise traditional native diet with minimal carbs.
- Encourage **PLATE** method.
- Advise ≥7-8 hours of sleep per night.
- Encourage DSMES participation.
- Limit alcohol consumption: one drink per day for females and two drinks per day for males.

Abbreviations/Acronyms

ADA = American Diabetes Association
ASCVD = Arteriosclerotic cardiovascular disease
BH = Behavioral Health
CGM = Continuous glucose monitoring
CKD = Chronic kidney disease
CMP = Complete Metabolic Profile
DM = Diabetes mellitus
DSMES = Diabetes self management, education, and support
FPG = Fasting Plasma Glucose
Hgb A1c or A1c for short = Hemoglobin A1c or glycosylated hemoglobin
HTN = Hypertension
MNT = Medical nutrition therapy
OGTT = Oral Glucose Tolerance Test
OSA = Obstructive sleep apnea
PG = Plasma Glucose
RPG = Random Plasma Glucose
SMART = Specific, Measurable, Achievable, Realistic, Time-limited

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23.
If comments about this guideline, please contact Elizabeth_Tressler@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Type 2 Diabetes Mellitus Management

Primary Treatment Goal of DM 2 is ASCVD risk reduction.

ABC's of DM 2 Care

- A1c: individualized goal
- BP ≤130/80 (see antihypertensive box)
- Cholesterol (see lipids box)

Antihypertensives
(in order of preference)

1. ACE/ARB
2. CCB/diuretic
3. Mineralocorticoid

Avoid beta-blockers unless necessary.

Lipids

- Any age with diabetes and h/o ASCVD: high-intensity statin recommended.
- Age 40-75 with ASCVD: moderate intensity statin recommended.
- Age 20-39 with ASCVD/risk factors: consider statin.
- Age 40-75 with ASCVD/risk factors: recommend high intensity statin.
- Age ≥75 discuss risk/benefit.

If not at goal with statin therapy, consider adding ezetimibe or PCSK-9 inhibitor.

Medication selection is based on comorbidities and patient centered goals.

Always begin with lifestyle interventions. These are essential as medication response is often dependent on lifestyle measures.

Metformin: generally first-line unless true allergy, CKD, CHF, or ASCVD. Remember to use extended release and titrate.

Indicators of high-risk for ASCVD or established ASCVD, CKD, or HF?

Yes

Consider using a SGLT2i or GLP-1 RA independent of baseline A1c or A1c target. SGLT2i for CKD or HF and GLP-1 RA if ASCVD predominates.

No

Using shared decision making with patient, choose from any of the four classes: GLP-1 RA, SGLT2i, DPP-4i, TZD
Use GLP-1 RA or SGLT2i if weight loss/maintenance a goal.

Follow-up in 1-3 months.

If not achieving targets, continue to add classes of medications with the following suggestions:

> Minimize hypoglycemia <
DPP-4i, GLP-1 RA, SGLT2i
For SU or basal insulin, consider agents with lower risk of hypoglycemia

> Minimize weight gain/promote weight loss <
GLP-1 RA OR SGLT2i

> Consider cost and access <
Certain insulins available at lower generic cost, SU

Follow up visits 1 month after adding new meds, OR every 3 months if stable, until lifestyle and A1c goals achieved.

If not achieving A1c goals, consider using CGM, revise SMART goals, utilize DSMES, DM support group, screen for Diabetes Distress or other psychosocial issues.

- If not achieving A1c goals and on four classes of medication including basal insulin, consider referral to ANMC Diabetes program and/or multidisciplinary discussion with diabetes team.
- Add prandial insulin as needed and ensure insulin teaching, self-management goals, and that patient is performing appropriate monitoring
- Continue to utilize a patient centered approach with shared decision making. Revisit lifestyle behaviors, patient specific motivators, psychosocial factors, and address medical comorbidities.
- To avoid therapeutic inertia, reassess and modify treatment regularly (3-6 months)

Shared decision making includes an educated and informed patient and their family/caregiver, patient preference, motivational interviewing, goal setting, ensuring access to DSMES, and empowering the patient.

Indications/Qualifications for CGM

- A1c ≥ 9 and/or prescribed insulin
- All CGM Rx for GDM patients must be prescribed by Compton
- All CGM Rx for non-pregnant patients must be prescribed by Nelson FNP

Diabetes Distress refers to negative psychological reactions to the emotional burden and patient worries specific to their experience of managing a complicated and demanding chronic disease. See ADA position statement.

Abbreviations

- DPP-4i = dipeptidyl peptidase 4 inhibitor or gliptins. YKHC formulary saxagliptin (Onglyza).
- GLP-1 RA = glucagon-like peptide-1 receptor agonist. YKHC formulary liraglutide (Victoza).
- SGLT2i = sodium-glucose co-transporter-2 inhibitor. YKHC formulary empagliflozin (Jardiance).
- SU = sulfonylureas. YKHC formulary glipizide.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23.
If comments about this guideline, please contact Elizabeth_Tressler@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

H pylori/Dyspepsia (Adult and Pediatric)

Background Information

- 75% of the AN/AI population is colonized with H. Pylori (range 61-84%).
- Screening or testing for H. Pylori for routine evaluation of dyspepsia or other GI symptoms is not clinically useful or supported by evidence for high prevalence populations.
- For routine clinical practice, there **is insufficient evidence-based data** to support community-wide eradication as a mechanism for gastric cancer prevention.
- Current literature **DO NOT** support a test and treat method with noninvasive tests.

Pediatrics

- Goal is to determine underlying cause of symptoms, not solely the presence of *H pylori* infection.
- Diagnostic testing is NOT recommended with functional abdominal pain.
- Consult pediatrics if considering this diagnosis.
- Urgent referral for endoscopy for: occult blood in stool, weight loss, vomiting/hematemesis, melena, or clinical suspicion for gastric or duodenal peptic ulcer disease.
- Consider referral for: iron deficiency that is unexplained and refractory to treatment, malnutrition without other cause, chronic immune thrombocytopenia.

Pregnancy and Lactation

- Delay treatment until after pregnancy.
- DO NOT use in Pregnancy: bismuth and tetracycline.
- DO NOT use in lactation: bismuth, metronidazole, levofloxacin.

Testing/Treatment strategy → Dyspepsia

Dyspepsia → Weight loss/ fecal blood?

Weight loss/ fecal blood?
- Yes → If adult: Refer for upper endoscopy. If child: Consult pediatrics.
- No → Empiric Treatment with H2 Blocker or PPI

Empiric Treatment with H2 Blocker or PPI → Improvement?

Improvement?
- No → If adult: Refer for upper endoscopy. If child: Consult pediatrics.
- Yes → Follow up for recurrence of clinical symptoms.

Endoscopy Referrals

- Adults: Criteria for YKHC found **here**. Use orders "Refer to Adult Surgery Internal – YK EGD" or "Refer to Adult Surgery External (only EGD/CS)."
- Pediatrics: "Refer to Peds Gastroenterology External" or "Refer to Peds Surgery External."

H. Pylori identified by histology and/or CLO test from EGD
AND
Endoscopy reveals the following:
- Duodenal ulcers
- Gastric ulcer
- MALT lymphoma
- Gastric intestinal metaplasia

→ Treat for H. Pylori with antibiotics

Other causes of dyspepsia that antibiotics will NOT help, EVEN IF H. Pylori is detected:
- GERD
- Irritable Bowel Syndrome
- Mild/moderate gastritis
- Excessive/chronic NSAID use
- Heavy alcohol use
- Poor gastric mobility

→ Symptomatic Relief Medications

Adult Dosing
(14 day course)

Preferred Treatment:
Metronidazole 500 mg PO QID
Amoxicillin 1000 mg PO BID
Omeprazole 20 mg PO BID
Bismuth subsalicylate 524 mg PO QID

PCN allergic (anaphylactic):
Metronidazole 500 mg PO QID
Doxycycline 100 mg PO BID
Omeprazole 20 mg PO BID
Bismuth subsalicylate 524 mg PO QID

Recurrence/Failure:
Metronidazole 500 mg PO QID
Doxycycline 100 mg PO BID
Omeprazole 20 mg PO BID
Bismuth subsalicylate 524 mg PO QID
OR
Amoxicillin 1000 mg PO BID
Levofloxacin 500 mg PO daily (FDA Black Box)
Omeprazole 20 mg PO BID

Pediatric Dosing
(14 day course)

Metronidazole 10 mg/kg PO BID
Amoxicillin 25 mg/kg PO BID
Omeprazole 1 mg/kg PO BID
Bismuth subsalicylate
<10 years: 262 mg PO QID
>10 years: 524 mg PO QID

See **ANMC *Helicobacter pylori* Pediatric Treatment Guideline**.

Symptomatic Relief Medications

Adults:
Famotidine 10 mg PO BID
Omeprazole 20 mg PO BID

Children:
Famotidine 0.5 mg/kg PO BID

After Treatment

- Goal is eradication. Test of cure with Urea Breath Test (UBT) must be performed ≥8 weeks after end of treatment course. Must be off PPI ≥2 weeks prior to UBT.UBT can be performed on children as young as 3 years.
- For children, if UBT positive after treatment, consult Infectious Disease.
- For adults, if UBT positive, use one of the "Recurrence/Failure" regimens. If unsuccessful, consult Infectious Disease.
- The stool antigen test available at YKHC is not recommended for test of cure.
- 10-35% of individuals will fail treatment.
- Serologic testing is not recommended due to prolonged antibody persistence beyond date of cure and false positive results.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 4/28/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Clinical_Guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Iron Infusion for Chronic Iron-Deficiency Anemia (Adult & Pediatrics)

Iron-Deficiency Anemia Work-Up

- Evaluate for blood loss.
- Evaluate for dietary deficiencies.
- Labwork classically shows:
  - ↓ Hgb
  - MCV < 80
  - Ferritin < 30
  - ↑ TIBC
- Consider checking a lead level in children <6 years. See **lead screening guideline**.

Causes of Iron-Deficiency Anemia

- Decreased dietary intake.
- Severe/ongoing blood loss (especially GI or uterine).
- In toddlers: excess milk intake. (Recommended daily milk intake is <16 ounces.)
- History of gastric bypass.
- Malabsorption syndromes.
- Coexisting inflammatory state that interferes with iron homeostasis (example: rheumatoid arthritis or lupus).

Diagnosis of iron-deficiency has been established.

↓

Patient meets criteria for iron infusion, and patient or parent has agreed to infusion.

↓

Provider places order "Refer to Infusion – Internal." Include patient's phone number.

↓

Provider places future orders using "AMB IV Iron" or "PED Pediatric Iron Infusion" Power Plans.

↓

- Provider updates Problem List with Iron-Deficiency Anemia.
- In the comments, provider states the plan (iron infusion with date ordered) and includes goal hemoglobin after infusions.

↓

Infusion clinic nurse schedules patient for infusion. Case Managers write Letter of Medical Necessity. Village clinic arranges travel.

↓

- Infusion(s) given per orders.
- All patients should have a follow-up hemoglobin level checked one month after infusion.
- If not at goal hemoglobin, patient should return to Bethel outpatient clinic for further evaluation.

See **Anemia in Pregnancy** guideline for indications in pregnancy.

Indications for Iron Infusion

If patient is hemodynamically unstable due to anemia, consider transfusion regardless of hemoglobin level. Ensure iron studies have been sent prior to transfusion.

- Hemoglobin between 5 and 7 in a hemodynamically stable, asymptomatic patient:
  - -Patients <18 years: iron infusion likely indicated. Consult pediatric hematologist.
  - -Patients ≥18 years: consider iron infusion alone vs transfusion followed by iron infusion based on clinical judgment.
- Hemoglobin between 7 and 8 with failure of oral iron therapy. Failure is defined as:
  - - Minimal improvement in hemoglobin level despite at least two months of compliance with oral iron (in children 6 mg/kg/day; in adults ferrous sulfate 325 mg PO daily with ascorbic acid 500 mg PO daily)
  - - Intractable GI side effects
  - - Non-compliance after at least three attempts at oral iron therapy.
- Other patients may receive iron infusion if recommended by a hematologist.

Note: Patients <2 should have a hematology consult prior to beginning an infusion. The Infusion Center does not generally treat children <2, so they are generally admitted to Inpatient Pediatrics for iron infusions.

Iron Replacement Dose Calculation

$$Total\ Iron\ Replacement\ Dose\ (in\ mg) = 0.6\ x\ weight\ x\ \left[100 - \left(\frac{actual\ hemoglobin}{desired\ hemoglobin}\right) x\ 100\right]$$

For pediatric patients:
- Using iron sucrose, this dose should be given in aliquots of 5-7 mg/kg until the full replacement dose has been given. Max dose is 100 mg for initial dose and 300 mg for repeat doses.
- Per Pediatric Hematology, may give children two iron sucrose doses 24 hours apart and then repeat in 1-2 weeks. Giving more frequent dosing or more than two daily doses in a row results in decreased absorption and increased side effects in children.

For adult patients:
- Dose is typically iron sucrose 300 mg IV daily x3 doses.

Side Effects/Reactions

Efficacy and safety have been evaluated in adults and children older than two years. Consult pediatric hematologist for children younger than two years.

Specific reactions (rare):
- Hypersensitivity, including anaphylaxis and angioedema. Stop infusion immediately and treat as anaphylaxis.
- Hypotension (related to high total doses or rapid infusions). Stop infusion and treat with IVF, as appropriate.
- Infection: avoid administering if active systemic infection.
- For IV infiltrates, place cold pack.

Resources

- Consult Peds Wards On Duty by Tiger Connect.
- A pediatric hematologist can be reached for further questions at Alaska Pediatric Oncology at (907) 929-3773.
- ANMC Adult Hematology Oncology can be reached at (907) 729-1180.

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Approved by Clinical Guideline Committee 8/23/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org

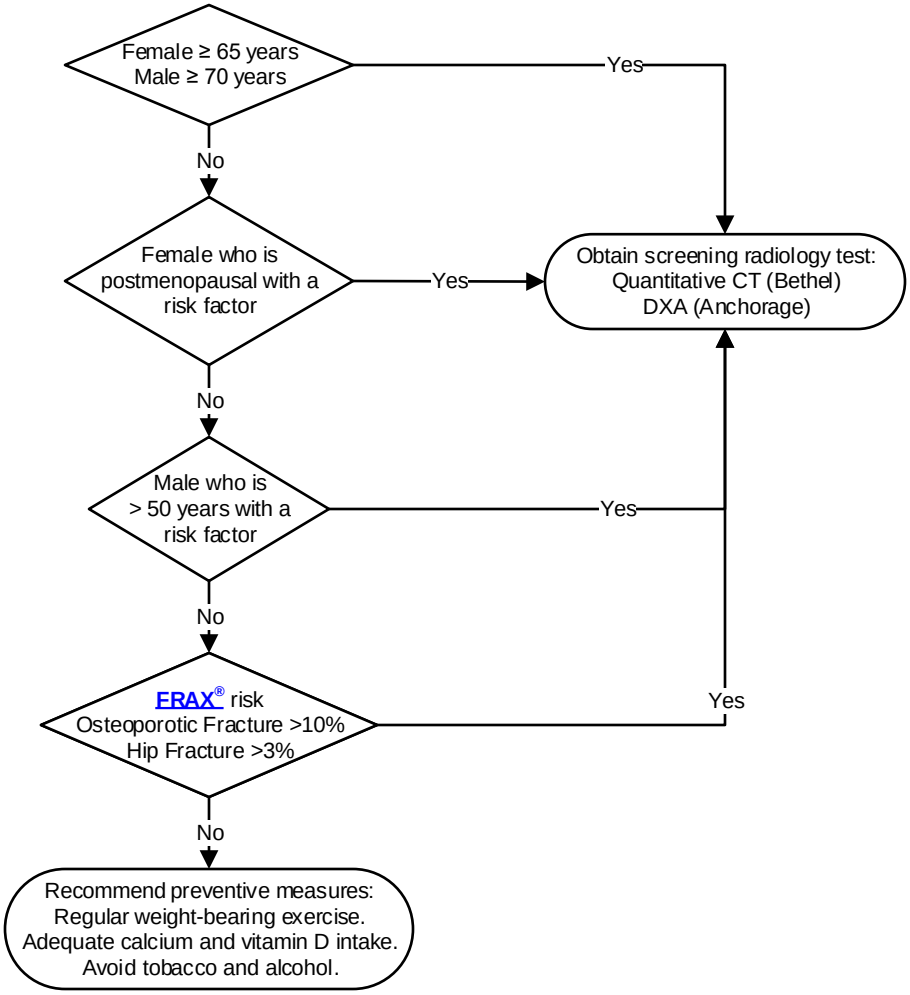
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Osteoporosis Screening

Risk Factors
- Osteopenia on X-ray.
- History of fracture without trauma.
- Tobacco use.
- Excessive alcohol use.
- Height loss more than ½ inch in one year.
- Height loss more than 1.5 inches total.
- At risk medication use (see box below).
- BMI < 20.
- Premature menopause.

At Risk Medications
- Systemic steroids >3 months
- Methotrexate
- Aromatase inhibitor
- Selective estrogen receptor modulator
- Proton pump inhibitor
- Heparin
- SSRI



Recommended Calcium Intake

Age	Sex	RDA mg/day
9-18	M+F	1300
19-50	M+F	1000
51-70	M	1000
51-70	F	1200
>71	M+F	1200

Recommended Vitamin D Intake

Age	Sex	RDA IU/day
14-70	M+F	600
>71	M+F	600

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 9/2/20. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Osteoporosis Treatment

Abbreviations
BMD – Bone mineral density
BTM – Bone turnover markers
FRAX® – Risk scoring algorithm

FRAX® High Risk for Fracture
10 year risk of major osteoporotic fracture ≥ 20% or hip fracture risk ≥ 3%.

If patient has one or more of the following:
- Lumbar spine or femoral neck or total hip T score ≤ -2.5
- CT bone density < 80 mg/cm^3
- History of a fragility fracture
- High FRAX® fracture probability

Evaluate for secondary causes of osteoporosis.

Some Secondary Causes of Osteoporosis
- Drugs
- GI-related illness
- Bone marrow disease
- Endocrine disorder
- Organ transplant

Correct calcium/vitamin D deficiency and address secondary causes of osteoporosis.

Educate patient on lifestype measures, fall prevention, and benefits and risks of medications.

Obtain dental evaluation of and treatment for risk of osteonecrosis of jaw.

Consider endocrinology consultation.

Prior fragility fracture

No → Start alendronate.

Reassess at least yearly.

Worsening?

Yes → Assess compliance. Reevaluate for secondary causes of osteoporosis.

Switch to zoledronic acid or denosumab.

No → Consider drug holiday after five years.

Resume therapy when fracture occurs, BMD declines, or BTM rises.

Yes → Start zoledronic acid or denosumab.

Place note in RAVEN that includes autotext "..OsteoporosisPreTreat" at least two weeks prior to visit for medication.

Reassess at least yearly.

Worsening?

Yes → Consult adult endocrinologist.

No → Consider drug holiday after six years with zoledronic acid.

Adapted from AACE/ACE 2016 Postmenopausal Osteoporosis Treatment Algorithm.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 9/2/20. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Infectious Disease Guidelines

Infectious Disease

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Amoxicillin Allergy Trials (Pediatric)

Background

• Only 4-9% of those...labeled [penicillin-allergic] are currently allergic. It is important to identify those who are not allergic, because children mislabeled as penicillin-allergic have more medical visits, receive more antibiotic prescriptions, and have longer hospitalizations with more antibiotic-related complications.[1]
• Up to 10% of children develop rashes while receiving antibiotics. Most are diagnosed...as allergic to the implicated antibiotic, and most continue to avoid the suspect antibiotic in favor of alternatives, which may be less effective, more toxic, and more expensive.[2]
• Do not label a patient as allergic to penicillin/amoxicillin unless he or she has true hives, anaphylaxis, or a life-threatening reaction. Please include photos of rashes in RAVEN.
• Children labelled as allergic to penicillin/amoxicillin often carry that label for the rest of their lives.
• Please consult a pediatrician with any questions.

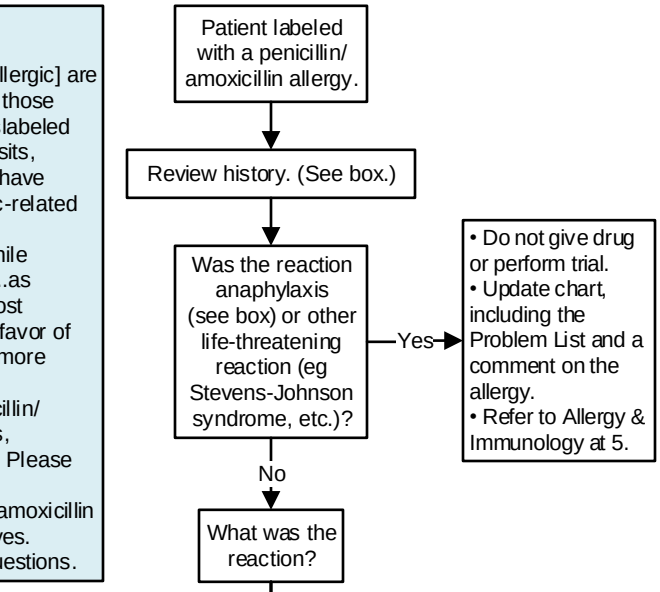
Anaphylaxis

• Acute onset – several minutes to hours from exposure.
• Generalized hives, pruritis or flushing, swelling of lips/tongue/uvula, and at least one of the following:
  Dyspnea, bronchospasm, stridor
  Hypotension
  Evidence of hypoperfusion of end-organs
  Persistent crampy abdominal pain, and/or vomiting or diarrhea

Hives vs Viral Rash

• True hives are raised, itchy, larger than dime-sized, come and go, move around the body, and change shape and size. True hives are uncomfortable. Ask if the rash bothered the child.
• Keep in mind that many parents refer to any rash as "hives." Get a description every time.
• A viral exanthem is typically diffuse, fine, pinpoint red dots and can be dense, coalesced, larger raised lesions. The rash typically covers the face and chest but can cover the whole body. The rash typically worsens and takes days to clear.

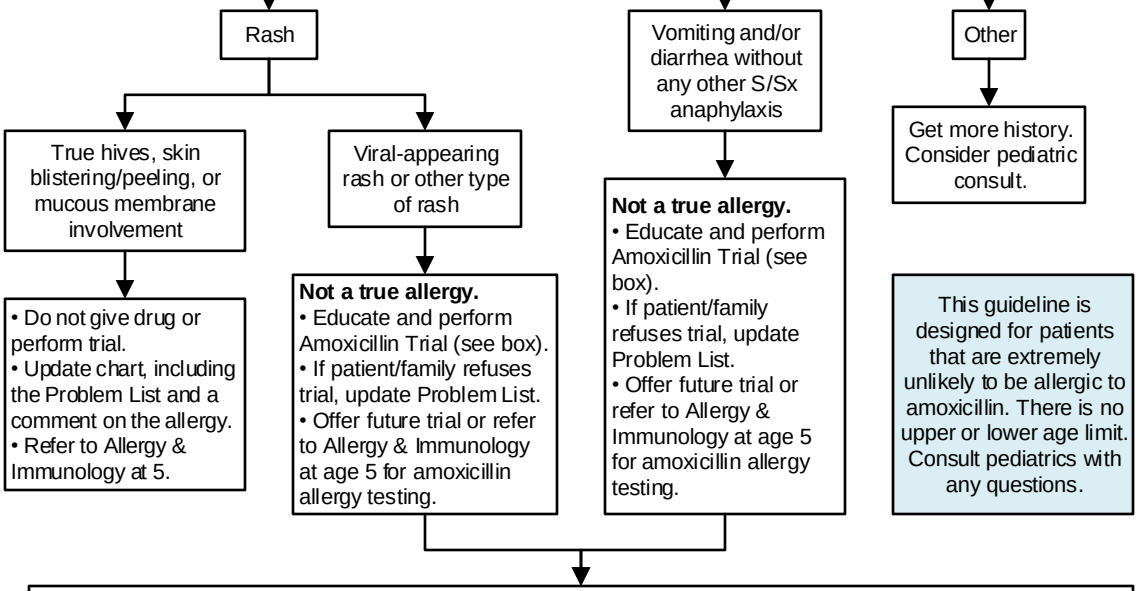
NOTE: If amoxicillin is needed to treat a life threatening infection, consult Allergy & Immunology to discuss possible desensitization. Alaska Asthma, Allergy, & Immunology can be reached at (907) 562-6228.



History

Chart review:
• Review notes in allergy alert. Find date allergy was added, and then review notes from that day. Was ED visit or hospital admission required?
• Review Multimedia Manager photos.
• Were steroids or other treatment given?
• Has patient received a drug of the same class since the allergy was reported? Was it tolerated? Were there symptoms?

History from patient/family:
What was the reaction?
- Vomiting and/or diarrhea?
- Rash?
  Age? Time from first dose?
  Hives? (See box.) Was it itchy?
  Blistering or peeling?
  Photos from family?
- Trouble breathing?
- Swelling of tongue/lips?
- Joint swelling or fever?
- Mucous membrane involvement?



This guideline is designed for patients that are extremely unlikely to be allergic to amoxicillin. There is no upper or lower age limit. Consult pediatrics with any questions.

Amoxicillin Trial Procedure[2]

Use AMB Amoxicillin Trial Power Plan.

1. Obtain VS. Perform physical exam, including lung exam. Have appropriate dose of EpiPen or epinephrine.
Epinephrine (1 mg/mL): 0.01 mg/kg (or 0.01 mL/kg) IM Q5-15 minutes.
Per AAP recommendations:
  • 7.5-25 kg: use EpiPen Jr (0.15 mg)
  • ≥ 25 kg: use EpiPen (0.3 mg)
2. Calculate weight-based dose of amoxicillin. Give patient 10% of that dose.
3. Place patient in nearby room and instruct caregiver to notify staff of any changes in status.
4. If no reaction by 20 minutes, give patient remaining 90% of weight-based dose of amoxicillin.
5. Observe another 60 minutes. If no reaction, check VS and physical exam. If all stable, discharge home with regular course of drug.
6. Give patient and family amoxicillin trial education sheet.
7. Update allergy alert in RAVEN. Click the allergy in the banner. Right click over the drug name and choose "cancel." On the "reason" drop-down menu, choose "OK on Retrial."

Notes:
• If patient is on a beta-blocker, stop this for 24 hours prior to procedure, if possible. Beta-blockers can interfere with treatment for anaphylaxis, if it occurs.
• Ensure that patients with asthma have optimal control prior to this procedure.

References
1. Kelso JM. "Provocation challenges to evaluate amoxicillin allergy in children." JAMA Pediatrics 2016;170(6):e160282.
2. Mill C, et al. "Assessing the diagnostic properties of a graded oral provocation challenge for the diagnosis of immediate and nonimmediate reactions to amoxicillin in children." JAMA Pediatrics. 2016;170(6):e160033.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Suspected Botulism

Potential exposure to botulism:
• Ingestion of fish/food fermented in an anaerobic environment or seal oil.
• Development of concerning symptoms thereafter (12-36 hours typical, but can be 6 hours to 10 days).

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Clinical paradigm suggesting botulism?
• GI symptoms with autonomic or neurologic abnormality
• Cranial nerve deficit with no apparent cause
• Descending symmetrical paralysis or weakness with no apparent cause

AND

At least three of the five following symptoms present (botulism "diagnostic pentad")?
• Dilated or fixed pupils
• Diplopia
• Dry throat
• Dysphagia
• Nausea or vomiting

Other Symptoms

• Sore throat
• Dysarthria
• Hyporeflexia
• Urinary retention
• Ileus

No → Suspected Botulism

• Obtain appropriate labs (below).
• Admit for close clinical monitoring.

Yes → High Risk for Botulism

• Obtain blood for botulism testing before starting BAT.
• Order BAT using "ED Botulism" orderset. Watch for signs of anaphylaxis.
• Complete **BAT packet** found on State Epi website.
• Supportive care based on clinical picture.
• If not requiring higher level of care, admit for close clinical monitoring.

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All cases:
• Contact AK State Office of Epidemiology.
• Review resources on Botulism: **wiki**, **State of Alaska**.
• Collect lab specimens for testing at state lab:
  -Use "ED Botulism" order set to find correct orders for testing.
  -Collect 5-10 mL of serum (or 20 mL whole blood) for botulism testing (before BAT).
  -Collect any stool (10-50 mL) and emesis (20 mL) for botulism testing.
  -When possible, also collect suspect food (50 g, keep cold).
• Monitor clinically (24h likely adequate):
  -Watch for "diagnostic pentad" symptoms above. Start BAT as appropriate.
  -Monitor respiratory status. Obtain FVC at baseline and consider repeating q2h. May request RT perform bedside spirometry. Consider serial ABGs. Intubate if FVC declines 30%.
• Standard precautions are appropriate (not transmitted person-to-person).

Botulism Anti-Toxin (BAT)

• BAT does not reverse current anticholinergic symptoms but prevents progression by binding the toxin in the blood.
• No adverse effects of BAT have been reported thus far.
• Contact pharmacy early on if use anticipated; it needs to be thawed. Pharmacy can assist with BAT packet completion.

Note: Botulism toxin only causes flaccid paralysis. Patients are awake, alert, and aware. Procedures should be explained and appropriate pain control and sedation for intubated patients should be provided.

Infant Botulism:

This is rare, with only 5 reported cases in AK in the past 65 years. If suspected, see Epi Procedure Manual, Botulism at State website.

Resources

• AK State Office of Epidemiology **Website**:
  -907-269-8000 (M-F, 8-5) and 800-478-0084 (after hours)
• State Lab **Website**:
  -1-855-222-9918
• Division of Public Health Healthcare Provider **Checklist**

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guidelines Committee 3/13/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Bronchiectasis/Chronic Cough (<18 years)

Definitions

• Bronchiectasis is a lung condition with chronic wet cough and lung infections and is diagnosed by CT with contrast.
Use ICD10 code J47 – "Bronchiectasis."
• Bronchiectasis risk is defined as ≥3 episodes of wet cough >4 weeks in the past 2 years, often in a setting of persistent infiltrates and recurrent pneumonia.
Use ICD10 code J41.1 – "Chronic purulent bronchitis."
• All patients with either diagnosis should be made CPP and referred to pediatric pulmonology.

Stable Chronic Management

Comorbidities
• Aspiration: Trial thickener if <3 years, feed with swaddling in side-lying position at 45 degrees with slow-flow nipple, consider speech therapy.
• TB: Place PPD, send sputum/gastric aspirates if indicated (see **Pediatric TB Evaluation & Treatment guideline**).
• Asthma: Bronchodilators, inhaled steroids.
• Immunodeficiencies: Consider referral to Alaska Asthma, Allergy, & Immunology for work-up.
• CF: Confirm screen negative on newborn screen.

Maintenance Management
• Follow-up with pulmonology clinic Q3-6mo and pediatrician or health aide Q2-3mo to check symptoms and medications. At every visit:
  - Patient and caregiver should verbalize diagnosis.
  - Review plan for exacerbations.
  - Check that Problem List is up-to-date with plan.
• Annual PFTs if >5 years.
• Annual sputum culture if chronic productive cough.
• Annual flu and COVID vaccines.
• Pneumococcal vaccines: PCV-13 series followed by one dose of PPSV-23 (Pneumovax) at ≥ 2 years.
• Treat dental caries.
• Optimize environmental health with woodstove safety, vents, irritant reduction, smoking cessation, etc.
• Airway clearance: P&PD/chest PT, consider acapella.
• Consider allergy testing.

Transition of Care

• Review diagnosis and management with patient and caregiver at each visit. Patient and caregiver should verbalize diagnosis, treatment, and exacerbation plan.
• At age 17, a pediatrician should review chart and refer patient to pediatric pulmonology for chest CT, treatment plan, and handoff visit.
• By age 18, a pediatrician should schedule a transition of care appointment with family medicine, write an Alert Note that includes a summary of medical history and current treatment plan, and refer to adult pulmonologist.

Exacerbation Management

Consider if:
• Persistent infiltrate >6 weeks
or
• Chronic wet cough ≥4 weeks
or
• Fever, increased wet cough, dyspnea, etc.

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• Treat with Augmentin 45 mg/kg/dose BID or cefdinir 14 mg/kg/dose daily for at least 2 weeks.
• Consider probiotics.
• If able, do sputum culture (via RT in Bethel). If patient cannot produce sputum, use method described in **Induced Sputum Collection Checklist**.
• Ask screening questions for dysphagia and have low threshold to thicken feeds.
• Chest physiotherapy TID.
• Recheck after two weeks.
• Consider systemic steroids if significant bronchospasm.

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Improved

• Stop antibiotics.
• Follow-up in 2-3 months.
• Restart antibiotics for additional 2 week course if cough recurs.

Not improved

Continue antibiotics and recheck after two more weeks.

↓

Improved

• Stop antibiotics.
• Follow-up in 2 months.
• Restart antibiotics if cough recurs. Give prolonged course (plan for 4-6 weeks).

Not improved

• Consult pulmonologist.
• Adjust antibiotics per sensitivities on sputum culture.
• Consider repeat CXR.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 5/15/23.Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Bronchiolitis/Wheezing (3–24 months)

NOTE:
• If <3 months or history of prematurity, keep patient in Bethel and have low threshold for admission.
• If patient is <90 days and febrile, please see **fever guideline**.

Risk Factors for Apnea

• RSV
• Post-conceptual age <48 weeks
• Low birth weight
• Tachypnea or bradypnea
• Decreased oxygen saturation on room air

Risk Factors for Severe Disease

• Age <3 months
• History of prematurity
• History of cardiopulmonary disease
• Exposure to tobacco smoke

Hypoxemia

<90% while awake
<88% while asleep
Sustained for >10 minutes

Pulse-Oximetry Monitoring

• Pulse-ox may be ordered Q4h (not continuously) if patient >6 months and stable.
• Being on oxygen does not mandate continuous pulse-oximetry if patient is stable.

When Admitting, Use Power Plan to Order

• IVF
• Nasal suction
• Nebs prn
• Consider scheduled nebs
• No deep (nasopharyngeal) suctioning
• Respiratory assessments
• Consider hypertonic (3%) saline – may need to use with albuterol

Prevention

• Hand washing
• Encourage breastfeeding
• Tobacco cessation
• Palivizumab for high-risk infants

Wheezing in a 3-24 mo patient

Institute SUPPORTIVE MEASURES. Then reassess respiratory distress.

Moderate to severe respiratory distress
Sustained tachypnea, increased work of breathing, lethargy, and/or hypoxia.

Mild respiratory distress
Intermittent tachypnea, increased work of breathing, and/or hypoxia but tolerating PO intake well.

Obtain CXR

Evidence of pneumonia?

Yes → See **Pediatric Community-Acquired Pneumonia Clinical Guideline**

No → Continue SUPPORTIVE MEASURES with close follow-up as needed

• Requires >2 L supplemental oxygen to prevent hypoxia or improve WOB?
• Requires neb treatments more frequently than Q3-4h for >8 hours?
• Has sustained tachycardia, tachypnea, or respiratory distress despite treatment?

Yes to any → Make patient NPO. Start IVF. Transfer to Anchorage. Consider high flow nasal cannula.

No to all → Admit to YKHC Pediatric Inpatient Unit with IV fluids.

After 48-72 hours

• Patient improving with increased appetite and activity, less WOB, and decreasing fever curve?
• No hypoxia on room air?
• Tolerating home therapy with competent caregivers?

Improvement?

No → Consider:
• Nasal steroids (Pred-Forte 1 spray each nostril BID x5 days) and/or Neo-Synephrine (1 spray each nostril BID x3 days).
• More frequent albuterol/hypertonic saline nebs. (May give Q2h nebs x3 on the floor, but if patient needs sustained Q2h treatment, initiate transfer to higher level of care.)
• Racemic epinephrine neb.
• Use with caution if HR > 200.

Yes → Discharge home with close follow-up within a week.
Update vaccines prior to discharge.

SUPPORTIVE MEASURES

• Control fever, as it can be an independent cause of respiratory distress and tachycardia.
• Nasal suction with nasal bulb syringe and olive tip plus saline.
• Hydration by IV or enteral (including NG and G-tube).
• Gentle P&PD/CPT if helpful.
• Saline neb (either 0.9% or hypertonic 3%).
• Consider albuterol trial even if no wheezing heard, especially in Alaska Native patients as they have high rates of RAD.

Village Management

• Institute SUPPORTIVE MEASURES, especially fever control, nasal suction, IV or PO hydration, and several albuterol and/or saline (0.9%) nebs.
• Have low threshold to refer to Bethel for further evaluation if no improvement with supportive measures or any concerns.
• If no improvement after 2-3 days of village management, refer to Bethel for further care.
• If Hx recurrent wheezing with viral illnesses, start budesonide 1 mg by nebulizer twice daily for 7 days.
• If unable to bring to Bethel and worsening, consult a pediatrician and consider systemic steroids.

Respiratory Viral Panel

• Send nasal swab for RSV, flu, and COVID.
• If flu positive, consider treatment with oseltamivir per **influenza guideline**, if appropriate.

Steroids

• Recent national guidelines recommend that children <4 with recurrent wheezing with viral illnesses should be given a 7-10 day course of inhaled steroids like budesonide or fluticasone.
• National guidelines recommend against systemic steroids as the potential harm is generally greater than the potential benefit.
If considering starting systemic steroids, please consult a pediatrician.

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Approved by MSEC 11/2/21. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org or Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Croup/Stridor (6 months – 3 years)

Signs of Impending Airway Compromise

- Drooling
- Lethargy
- Tripod position
- Marked retractions
- Tachycardia
- Cyanosis or pallor
- Rapid progression of symptoms

NOTE: Use extra caution in children with airway anomalies or ANY history of prior intubation.

Child with stridor

Are there signs of impending airway compromise?

Yes

Be prepared for possible intubation:
- Activate medevac if in village.
- Page CRNA and pediatrician on-call.
- Obtain IV access x2.
- Prepare ET tubes 0.5 and 1.0 sizes smaller than what the Critical Care Guide recommends.

No

Do not routinely obtain CXR or airway imaging.

Important Supportive Measures

1. Keep child upright or in position of comfort.
2. Turn lights down and minimize unpleasant interventions.
3. May take child outside for cool air.
4. Minimize invasive measures – keep child CALM!
5. **DO NOT** give albuterol; this can worsen croup.

Dexamethasone 0.6 mg/kg by least invasive method possible (PO/IM/IV). (Max dose 16 mg.)

May use IV/IM form (10 mg/mL) orally (with flavoring or sugar) to minimize volume.

Is there stridor at REST?

Yes

No

The **Croup Severity Score** may be helpful in clinical decision making.

In Village

If no racemic epinephrine available, mix 0.5 mL/kg of 1 mg/mL (1:1000) epinephrine (max dose 5 mL) with 1 bullet of NS and give via nebulizer.

Give nebulized racemic epinephrine:
<10 kg: 0.25 mL mixed with 3 mL NS
≥10 kg: 0.5 mL mixed with 3 mL NS
Monitor pulse during and after administration.

Is there rapid improvement?

No

Yes

Monitor in clinic or ED for 4 hours.

Does patient meet Low-Risk Criteria?

Low-Risk Criteria

- No stridor at rest
- Normal pulse-oximetry
- No increased WOB
- Good air exchange
- Normal color
- Normal mental status
- Tolerating PO
- Caregivers understand to return to clinic for recurrent stridor and/or increased WOB.

No

- If in village, bring to Bethel by fastest means possible.
- Consider repeating racemic epinephrine with CRM, budesonide neb, transfer, etc.
- Consult PICU if considering intubation.
- Consider alternate diagnoses (see DDx box).

Yes

- Discharge home with follow-up within 24 hours.
- May need to re-dose dexamethasone in 24 hours.
- Counsel parents to return for recurrent stridor and/or increased WOB.
- Give PEDS Custom Croup Education Handout.

DDx Stridor

- Croup (most common in ages 6 months to 3 years)
- Foreign body
- Tracheomalacia
- Angioedema
- Tracheitis
- Epiglottitis
- Abscess

Note: if prolonged symptoms (>3-5 days without any improvement), consider diagnosis other than croup.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 8/3/21. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Fever ≥ 100.4°F in Infants 0-90 Days

Infant 0-90 days with recorded or reported rectal temperature ≥100.4°F.

Village Management

- If well-appearing and meets criteria for evaluation in Bethel, send on next commercial flight. If travel to Bethel will be delayed, infant must have recheck with health aide within 12 hours and be followed at least daily until seen in Bethel.
- If infant is not well-appearing, consult peds to discuss treatment options.
- If giving ceftriaxone IM in the village, DO NOT say "ceftriaxone per CHAM." Give the health aide the exact dose per box below.

Sick-appearing

- Evaluate patient in Bethel ED.
- Perform immediate work-up:
  - CBC with manual differential
  - Procalcitonin, CRP
  - Blood culture
  - U/A, urine culture
  - CXR
  - LP if stable
  - RSV/flu/COVID swabs

Admit or medevac, as appropriate. Give antibiotics. (See box.)

Well-appearing

0-28 days

- Evaluate patient in Bethel ED.
- Perform immediate work-up:
  - CBC with manual differential
  - Procalcitonin, CRP
  - Blood culture
  - U/A, urine culture
  - CXR
  - LP if stable
  - RSV/flu/COVID swabs

Admit or medevac, as appropriate. Give antibiotics. (See box.)

29-60 days

- Evaluate patient in Bethel ED.
- Perform work-up:
  - CBC with manual differential
  - Procalcitonin, CRP
  - Blood culture
  - U/A, urine culture
  - Consider CXR, RSV/flu/COVID swabs

Meets all Low Risk Criteria (see box)?

- **No**
  - Perform LP.
  - Give antibiotics. (See box.)
  - Consider admission.
- **Yes**

Evidence of UTI, AOM, or PNA?

- **Yes**
  - Consider LP based on clinical status, age, etc. LP not mandatory in well-appearing infants.
  - Admission or daily follow-up until blood culture negative at least 36 hours.
  - If UTI, treat empirically with cephalexin or ceftriaxone, pending speciation of culture.
  - If AOM or PNA, use clinical judgment to decide on antibiotic treatment (oral or parenteral).
- **No**
  - LP and antibiotics unnecessary unless clinical status changes.
  - Daily follow-up until blood culture negative at least 36 hours.

61-90 days

No temp >101.3
AND
Fevers resolve by 48 hours
AND
Meets all Low Risk History & Exam Criteria?

- **No**
  - Evaluate patient in Bethel.
  - Perform work-up:
    - U/A, urine culture
    - Consider bloodwork and LP based on history, exam, and risk factors.
- **Yes**
  - Daily rechecks in village, outpatient clinic, or ED until improving.
  - Low threshold to bring to Bethel ED if any concerns.

Low Risk Criteria

History & Exam
- Well-appearing (soothable, feeding well, etc.)
- No significant prior hospitalization.
- Gestational age >37 weeks.
- Neonatal course not complicated by: chromosomal anomaly, surgery (including G-tube), or infection.
- No evidence of invasive bacterial infection like cellulitis or osteomyelitis.

Lab
- Procalcitonin <0.5
- CRP <2
- Absolute neutrophil count (ANC) 1000-4000

CSF

- Do Multiplex PCR if any suspicion for meningitis.
- See Harriet Lane (not the results in RAVEN) for normal results by day of life.
- Do not use correction formulas for traumatic LPs.

If concerned for bacterial meningitis:

- Consult pediatrics and strongly consider medevac.
- If transferring, send any extra CSF on ice.

Acetaminophen

- Acetaminophen should NOT be given prior to vaccines, as there is some evidence it blunts the immune response.
- Acetaminophen should NOT be given around-the-clock in this age group.
- Acetaminophen MAY be given after a fever has been documented and the infant evaluated by a health aide or provider **EXCEPT in babies 61-90 days old who are being managed in the village as this may blunt the fever curve. If a child in the village is already scheduled to come to Bethel for further evaluation, acetaminophen may be given.**

Special Circumstances

1. If fever within 48 hours of immunizations, well-appearing, and meets all history & exam low-risk criteria: no work-up necessary but must follow-up in village or Bethel within 12-24 hours. If fevers are rising or infant is not well-appearing, perform evaluation as above.

2. Pre-treatment with antibiotics but otherwise meeting low-risk criteria: infant must be observed a full 48 hours off antibiotics.

3. Unsuccessful LP: treat if appropriate and consider a repeat LP in 12-24 hours and determine treatment course based on cell counts. If repeat LP not performed or unsuccessful, either treat for 10-14 days with meningitic dosing of IV antibiotics or stop antibiotics at 48 hours and observe infant for an additional 48 hours off antibiotics. Consider admission.

HSV Work-up

- CSF HSV PCR
- CSF Multiplex PCR
- Blood HSV PCR
- CMP
- Nasopharyngeal, conjunctival, and anal swabs and vesicle fluid for HSV PCR.

NOTE: If 22-28 days old and well-appearing with low-risk lab criteria, recent studies allow deferral of LP if admitted ± antibiotics. Discuss with pediatrician and family if considering this option.

Antibiotic Treatment

- 0-7 days: please consult a pediatrician, pharmacist, or Neofax.
- 8-28 days:
  - -If well-appearing and low suspicion for meningitis: ampicillin 50 mg/kg IV Q8h AND gentamicin 5 mg/kg IV Q24h.
  - -If well-appearing and any suspicion for meningitis: ampicillin 75 mg/kg IV Q6h AND cefepime 50 mg/kg IV Q12h.
  - -If ill-appearing and/or positive CSF Gram stain: please consult a pediatrician and/or a pharmacist.
- 29-90 days:
  - -If low suspicion for meningitis: ceftriaxone 50 mg/kg IV/IM Q24h
  - -If concern for meningitis: ceftriaxone 100 mg/kg IV once then 50 mg/kg IV Q12h AND vancomycin 20 mg/kg IV Q8h.
- Continue IV/IM antibiotics until cultures are negative at least 36 hours and patient is clinically stable or until specific organism and sensitivities are available to direct therapy.
- Dose #2 of ceftriaxone may be given 12-24 hours after dose #1.
- If known HSV exposure, seizures, or severe illness: acyclovir 20 mg/kg IV Q8h with IVF, perform HSV work-up (see box), and consult pediatrics.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 9/7/21. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Testing

For thorough information about testing for influenza, please see **this page from the CDC**.

Treatment

- For guidance on influenza treatment, please see **this page from the CDC**.
- This includes a list of high-risk conditions that warrant treatment.
- Please note: Oseltamivir is a limited resource. Thus, the YKHC Antimicrobial Stewardship Program recommends that usage be limited to patients with additional risk factors for complications beyond Alaska Native or American Indigenous ethnicity.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Lymphadenitis, Acute Cervical (Pediatric)

Pediatric patient presents with tender cervical lymph node with fever, redness, and/or warmth of the neck ≤2 weeks' duration

Look for infectious source to explain reactive lymphadenopathy, including pharyngitis, otitis, mastoiditis, etc. Treat as appropriate. Consider TB testing.

Size < 2 cm and no fluctuance

Recheck in 10-14 days. If no improvement, consider further work-up. (See box.)

Size 2-6 cm and no fluctuance

Unilateral

Consider CBC with diff, CRP, blood culture. Avoid ultrasound if symptoms ≤3 days.

Treat empirically with 7-10 day course of one of the following:
- Cephalexin 33 mg/kg (max 500 mg) PO TID
- Augmentin 45 mg/kg/dose BID if concern for poor dentition
- Clindamycin 10 mg/kg/dose TID.

Follow-up in 48-72 hours or sooner if worse.

- **Improvement**
  - Complete full course of antibiotics.
  - Follow-up if not resolved in 4-6 weeks.
- **No improvement**
  - Consult ENT.
  - Consider repeat bloodwork/further testing (see Box 1), broadening antibiotic coverage, imaging, etc.

Bilateral and symmetric

- Test for Group A Strep. Treat if positive.
- Consider Monospot testing if age > 13 years.
- Consider CBC with diff, CRP, LFTs, blood culture.

Supportive care

- Follow-up if no better in 2-4 weeks.
- Consider further work-up at this time. See Box 1.

Size > 6 cm or any size with fluctuance

- Consult ENT.
- Ultrasound if available.
- Consider CT neck.

Village Management

- Work-up per flow.
- Send to Bethel for evaluation if bloodwork, imaging, or consultation are indicated.

Most Common Causes

- Reactive lymphadenopathy due to local infection (may take 4-6 weeks to resolve).
- Unilateral: *Staph aureus*, Group A Strep, Group B Strep, anaerobes, TB/MAC
- Bilateral: respiratory viruses (enterovirus, adenovirus, influenza, etc.), Group A Strep, HSV (primary), EBV, CMV, *Mycoplasma*, *Arcanobacterium*, TB, *Bartonella*

Less Common Causes to Consider
- Kawasaki disease; periodic fever with aphthous stomatitis, pharyngitis, and adenitis (PFAPA); leukemia; lymphoma; HIV; tularemia

Further Work-up

Perform careful exam for lymphadenopathy of other locations. For any child with nontender lymphadenopathy or lack of improvement after specified period, consider, as appropriate:
- PPD/TB work-up
- CBC
- CRP
- LFTs
- Blood culture
- HIV testing
- RPR
- Toxoplasmosis testing
- Bartonella testing
- EBV, CMV titers
- LDH, uric acid
- CXR
- Hematology/oncology consult
- Infectious disease consult

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Mpox: Emergency Use of Tecovirimat

Tecovirimat (also called TPOXX)

• Tecovirimat is a is an inhibitor of the orthopoxvirus VP37 envelope wrapping protein, which prevents the formation of egress-competent enveloped virions necessary for cell-to-cell and long-range dissemination of virus.
• Tecovirimat is approved by the FDA to treat smallpox under the **Animal Rule Regulations**. It has not been studied in humans, as smallpox has been eradicated globally, and exposing people to smallpox virus for the purpose of a clinical trial is not ethical.
• Tecovirimat has also not been studied in the treatment of mpox. However, the FDA and CDC have an expanded access Investigational New Drug (IND) protocol (also known as "compassionate use") that allows tecovirimat to be used to treat mpox under strict requirements. The drug is only available from the Strategic National Stockpile.
• YKHC's Institutional Review Board has approved the use of tecovirimat as long as the **CDC/FDA protocols** are followed.

CDC Expanded Access IND Protocol

Patient with lesions suspicious for mpox with an indication to consider tecovirimat (see box).

↓

Swab lesions and send for **testing**.
Note: decision to treat is clinical, as results take a long time to return.

↓

Counsel patient/family on tecovirimat, including experimental nature and possible risks.
May use this **informed consent** form to guide counselling.

↓

If patient/family agrees to tecovirimat, contact COVID-19 Response Team by Tiger Connect.
Note: only providers on the IND registry may prescribe tecovirimat; thus, the COVID team has agreed to manage this drug.

↓

• COVID team will discuss further with patient, prescribe drug, complete all required IND forms, complete consent form, and document in RAVEN.
• Standard course of therapy is 14 days. See **protocol** for dosing and mixing instructions.
• COVID team will do periodic telehealth visits with patient to monitor progress and document in RAVEN.

Please see **these resources** for pain management and other supportive measures.

Indications to Consider Tecovirimat

• Severe disease: hemorrhagic disease; large number of confluent lesions; sepsis; encephalitis; ocular or periorbital infections; or other conditions requiring hospitalization.
• Involvement of anatomic areas which might result in scarring or strictures: lesions directly involving the pharynx causing dysphagia, inability to control secretions, or need for parenteral feeding; penile foreskin, vulva, vagina, urethra, or rectum with the potential for causing strictures or requiring catheterization; anal lesions interfering with bowel movements (for example, severe pain); and severe infections (including secondary bacterial skin infections), especially those that require surgical intervention such as debridement.
• Severe immunocompromise: advanced or poorly controlled human immunodeficiency virus (HIV), leukemia, lymphoma, generalized malignancy, solid organ transplantation, therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, or high-dose corticosteroids, being a recipient of a hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graft-versus-host disease or disease relapse, or having autoimmune disease with immunodeficiency as a clinical component.
• Pediatric populations: particularly patients younger than 8 years of age.
• Pregnant or breastfeeding people
• Concurrent conditions affecting skin integrity: atopic dermatitis, eczema, burns, impetigo, varicella zoster virus infection, herpes simplex virus infection, severe acne, severe diaper dermatitis with extensive areas of denuded skin, psoriasis, or Darier disease (keratosis follicularis).

Contraindications & Risks

• Patient or legally authorized representative unwilling to sign an informed consent and refuse tecovirimat treatment
• Known allergy to tecovirimat and/or inactive ingredients in tecovirimat
• For IV tecovirimat only: patients with severe renal impairment (CrCl <30 mL/min)*. Oral tecovirimat is an option for patients with severe renal impairment.
• Co-administration with repaglinide may cause hypoglycemia. Monitor blood glucose and monitor for hypoglycemic symptoms during co-administration.

Adverse Reactions

In a Phase 3 clinical trial, the most common reported events were headache; nausea: vomiting; abdominal pain; and infusion site pain, swelling, erythema, and extravasation. Other events were reported in <2% of patients.

Reporting of Adverse Events

The prescribing health care provider is responsible for mandatory reporting of all medication errors and adverse events potentially related to tecovirimat. Reports must be made within seven days of the event.
Serious adverse events include: death; life-threatening adverse event; inpatient hospitalization or prolongation of existing hospitalization; persistent or significant incapacity or substantial disruption of the ability to conduct normal life function; congenital anomaly/birth defect; or medical or surgical intervention to prevent death, a life-threatening event, hospitalization, disability, or congenital anomaly.

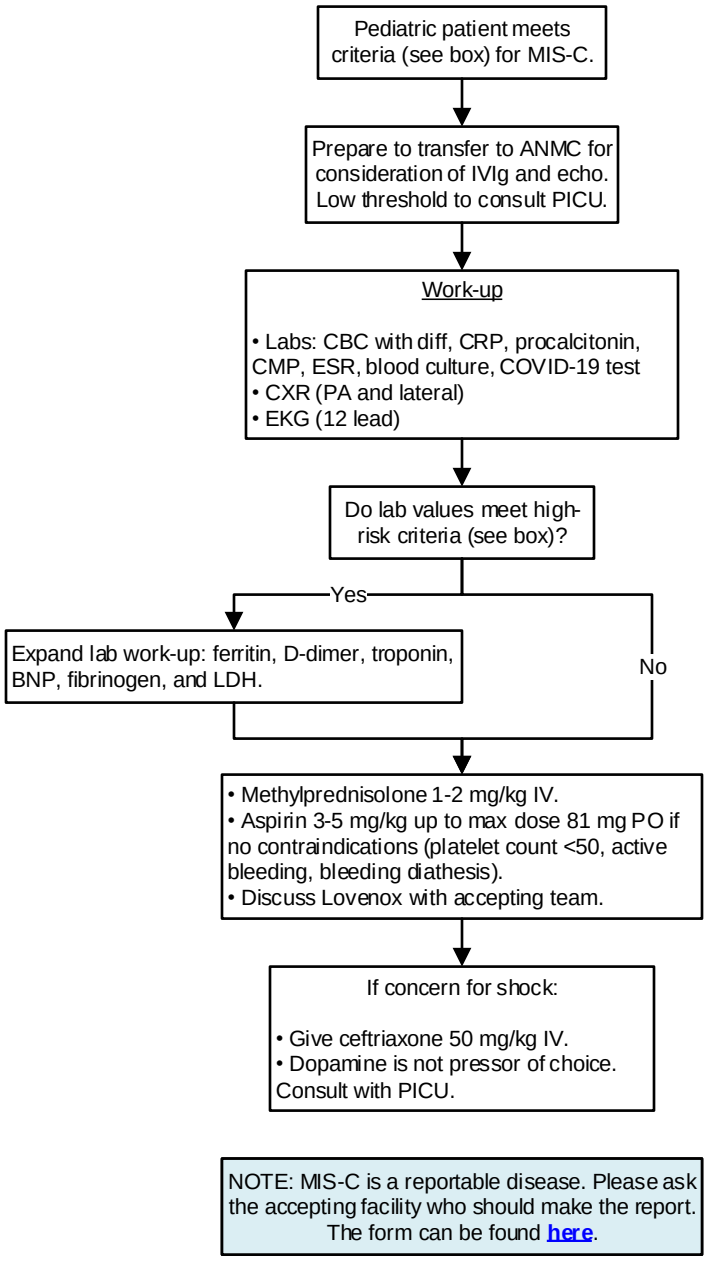
Submit report to FDA MedWatch by completing the online form **here**.
The report should include "use of tecovirimat under Emergency Use Authorization (EUA)" in the "Describe Event" section.

See the **FDA MedWatch program** for more information.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/13/23.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Care of a Pediatric Patient with Suspected Multisystem Inflammatory Syndrome (MIS-C)



NOTE: MIS-C is a reportable disease. Please ask the accepting facility who should make the report. The form can be found **here**.

Case Definition for Multisystem Inflammatory Syndrome in Children (MIS-C) According to the CDC

An individual <21 years presenting with:

1. Measured or subjective fever ≥ 100.4°F for ≥ 24 hours.

2. Laboratory evidence of inflammation with one or more of the following: elevated CRP, procalcitonin, ESR, fibrinogen, D-dimer, ferritin, LDH, IL-6, or neutrophils; low lymphocytes or albumin level.

3. Evidence of clinically severe illness requiring hospitalization with at least two organ systems involved:
   - Rash: polymorphic, maculopapular, petechial, NOT vesicular
   - GI symptoms: diarrhea, abdominal pain, vomiting
   - Extremity Changes: erythema and edema of hands and feet
   - Oral Mucosal Changes: erythema and cracking of lips, strawberry tongue, erythema of oral and pharyngeal mucosa
   - Conjunctivitis: bilateral bulbar conjunctival injection without exudate
   - Lymphadenopathy: cervical > 1.5 cm unilateral
   - Neurologic: headache, irritability, lethargy, AMS

4. No alternative plausible diagnoses.

5. Evidence of current or recent (within the last four weeks) COVID-19 infection.

May consider diagnosis even with negative COVID-19 testing if clinical suspicion is high.

High-Risk Lab Criteria

- CRP ≥ 3 and/or ESR ≥ 40

AND

- Lymphopenia < 1000, thrombocytopenia < 150,000, or sodium < 135

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Otitis Media, Acute (3 months – 12 years)

Box 1: AOM Decision-Making Principles

- If observation is warranted, do not prescribe antibiotics.
- Always treat pain.
- If patient has not received amoxicillin within 30 days, start with amoxicillin to treat new infection.
- Do not treat fluid that develops after AOM if child is asymptomatic – observe up to 3 months.
- Do not use antibiotic prophylaxis.
- Do not send ear drainage for culture.

Box 2: Eligibility for Observation for 48-72 hours

- 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.
- No otorrhea (unless tympanostomy tubes present).

Box 3: AOM Treatment

Antibiotic duration, by age:
- < 2 years: 10 day course of oral antibiotic
- 2-5 years: 7 day course of oral antibiotic
- ≥ 5 years: 5 day course of oral antibiotic
- Note: in patients with TM perforation or history of recurrent/complicated/chronic infections, treat for 10 days.

Antibiotic choice:
1st line: amoxicillin 45 mg/kg/dose PO BID
2nd line: Augmentin 45 mg/kg/dose PO BID
3rd line: cefdinir 14 mg/kg/dose PO QD
OR ceftriaxone 50 mg/kg IV/IM QD for 1-3 days

Otitis-conjunctivitis syndrome
Augmentin 45 mg/kg/dose PO BID

Try to avoid using cephalosporins. They are less effective at treating the most common organisms that cause OM.

Do not use azithromycin, erythromycin, cephalexin (Keflex), or Septra for AOM.

For PCN allergy: Please refer the patient for an allergy trial if not already done.
cefdinir 14 mg/kg/dose PO QD
OR
ceftriaxone 50 mg/kg IV/IM QD for 1-3 days

AOM ≥3 months

Acute onset of:
- Fever and ear pain
- Bulging TM and decreased mobility

See Box 1.

Always address pain:
- If >3 months old, use acetaminophen.
- If >6 months old, use acetaminophen and/or ibuprofen.

Is observation appropriate? (See Box 2.)

Yes → Child is observed for 48-72 hours with follow-up

No → Start antibiotics per Box 3.

Did patient improve within 48-72 hours?

Yes → Follow-up as appropriate.

No → Reassess to confirm diagnosis of AOM.

Is diagnosis of AOM confirmed?

Yes → Initiate or change antibiotics per Box 3.

No → Assess for other causes of illness and manage appropriately.

Consider **Otitis Media with Effusion (OME)** if no acute symptoms but decreased TM mobility. Non-infected fluid may persist for 3 months after AOM.

AOM <3 Months Old

If otorrhea, bulging TM, or other suspicion of AOM <3 months old, patient must be seen by provider within 24 hours.
- ≤28 days old: patient must be seen in the ER for full lab work-up including LP and treatment with IV antibiotics.
- 29-60 days old with or without fever, patient must be seen in the ER for evaluation. Even if no fever, follow recommendations on **fever <90 days clinical guideline**.
- 61-90 days old:
  - -If febrile, follow **fever <90 days clinical guideline**.
  - -If afebrile and sick-appearing, perform work-up as clinically appropriate. May consult peds as needed.
  - -If afebrile and well-appearing, lab work-up not necessary. May treat with antibiotics as appropriate.

AOM via RMT

If considering antibiotics for AOM, always request that health aide sends photos of the tympanic membrane.

AOM with Otorrhea

- If patient has ruptured TM and no tubes, treat with oral antibiotics for ten day course with dosing as above and otic antibiotics. Oral antibiotics may improve TM healing.
- If patient has tympanostomy tubes that are confirmed to be still in place, may treat with otic antibiotics only.

Otic Antibiotics

Wick ears prior to giving drops. After instilling drops, child should lie with affected side up for several minutes.
- Ciprofloxacin 4 drops BID for 7 days
- Ciprofloxacin + dexamethasone 4 drops BID for 7 days

Tympanostomy Tubes

- Indications: OME for at least three months or recurrent episodes of AOM with at least three episodes in the past six months or at least four episodes in the past year (with at least one in the past six months).
- Process: Place order for "Refer to Audiology Internal." Audiology at YKHC will evaluate the child and refer to ENT if indicated.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/13/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Peritonsillar Abscess & Cellulitis

Symptoms of Peritonsillar Abscess/Cellulitis

- Progressively increasing throat pain and swelling
- Muffled speech / change in voice
- Neck pain, typically unilateral
- Fevers, chills, myalgias
- Dysphagia, odynophagia

Labs

- CBC, BMP, CRP
- If needle aspiration, culture aspirate
- If SIRS or qSOFA >/= 2, add lactate, procalcitonin, blood cultures

Impending airway compromise?

Yes →
- Prepare for intubation. Anticipate difficult airway. Consider calling CRNA.
- Place IV; get labs. (See box.)
- Give antibiotics. (See box.)
- Transfer to higher level care.

Signs/Symptoms of Impending Airway Compromise

- Drooling
- Patient in "sniffing position" (leaning forward)
- Anxious appearance with suprasternal retractions with or without stridor

Indications for CT Soft Tissue Neck with IV Contrast as Part of Initial Workup

- Toxic appearance
- Submental tenderness to palpation
- Neck stiffness, swelling, or pain with extension

No → Consider CT. (See box.)

Village Management

- Amoxicillin/clavulanic acid (preferred)
- If unable to swallow, IM penicillin OR ceftriaxone + clindamycin
- Ketorolac/acetaminophen
- Consider dexamethasone 10 mg.

Commercial flight to Bethel ER; discuss with ED MD if concern for airway compromise.

Examination with ANY?

- Trismus
- Uvular deviation
- Peritonsillar swelling

Yes → Attempt needle aspiration

- Pus → Peritonsillar abscess
- No pus → Peritonsillar cellulitis

No → Examination with peritonsillar erythema?

- No → Acute pharyngitis
- Yes → Peritonsillar cellulitis

Peritonsillar cellulitis / Peritonsillar abscess →
- Place IV; get labs. (See box.)
- Give antibiotics. (See box.)
- IV fluids.
- Consider dexamethasone 10 mg.
- Analgesia (non-opioid first).
- Monitor in ED minimum 3 hours.

Improving → Discharge on PO antibiotics with recheck in 24 hours.

Not improving → Obtain CT neck with contrast.

- Deep tissue abscess → Consult ENT.
- No deep tissue abscess → Admit to inpatient on IV antibiotics.

Microbiology & Antibiotics

Continuum from pharyngitis > cellulitis/phlegmon > abscess. Often polymicrobial, typically GAS, *Strep viridans*, *Staph aureus*, fusobacterium, bacteriodes. MRSA coverage not indicated unless patient does not respond to initial antibiotic selection.

IV
Ampicillin/sulbactam 3 grams Q6h (preferred)
OR
Piperacillin/tazobactam 3.375 grams Q6h
OR
Ceftriaxone 1 gram Q12h + metronidazole 500 mg Q6h
OR
Clindamycin 600 mg Q6-8h (if penicillin allergy)

PO
Amoxicillin/clavulanate 875 mg BID (preferred)
OR
Cefpodoxime 300 mg Q12h + metronidazole 500 mg Q6h
OR
Clindamycin 300 mg Q6h (if penicillin allergy)

Treatment duration 14 days.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Pharyngitis (Adult and Pediatric)

For thorough information about the diagnosis and treatment of Streptococcal pharyngitis, please see **this page** from the CDC.

Other Considerations:

- Consider testing for oral GC/CT in at-risk populations.
- Testing for Group A streptococcal (GAS) pharyngitis is NOT recommended for acute pharyngitis with clinical features that strongly suggest viral etiology (e.g. cough, rhinorrhea, etc).
- Routine use of back-up cultures for those with a negative rapid test is not needed for adults; there is a low incidence of GAS in adults and risk of subsequent acute rheumatic fever is exceptionally low.
- It is NOT recommended to test for GAS in patients under the age of 3; the risk of rheumatic fever in this age group is exceptionally low.
- Patients are contagious for up to 24 hours after starting antibiotic treatment.
- Treatment for asymptomatic GAS carriers is not recommended, nor is testing or empiric treatment of household contacts.
- Refer to **Peritonsillar Abscess guideline** if appropriate

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Pneumonia (Adult)

Patient presents with symptoms suggesting community acquired pneumonia (CAP): Cough, dyspnea, fever, pleuritic chest pain

High Risk Patients
- Age > 65
- History of chronic heart/lung disease, liver disease, substance use disorder, HIV, cancer
- Hospitalized or received IV antibiotics within last 3 months

Appears ill, SpO2 < 92%, RR > 30, meets sepsis criteria?

No → CXR available?

No → Consider empirically treating village patients for pneumonia without CXR if:
- Convincing history and exam.
- No hypoxia, severe respiratory distress, or evidence of sepsis.
- No high risk comorbidities.
- OR if above conditions not met but patient declines travel.

→ • See Outpatient Antibiotics box. • Ensure close follow up in clinic.

Yes → • Initiate supportive care (O2, antipyretic). • Transfer to ER or contact emergency RMT.

Yes → Infiltrate on CXR?

No → Consider alternative diagnosis: asthma/COPD exacerbation, TB, bronchitis, CHF, PE, early in course of bacterial CAP.

Admission Criteria
- New supplemental oxygen requirement
- **Pneumonia Severity Index** Class III or higher
- Practical limitation to outpatient therapy (inability to tolerate oral meds, mental illness, homelessness, cognitive impairment)

Yes → Ill-appearing OR high risk patient (see box)?

No → • Start antibiotics. • Arrange follow-up.

Consider TB in all patients with pneumonia, especially if there is an upper lobe infiltrate, recurrent infiltrates, history of chronic cough, or hemoptysis. See the **Active TB** and **Latent TB** guidelines for more details.

Intensify Management
- IV, supplemental oxygen, monitors.
- CBC with diff, BMP/CMP.

Consider:
- COVID/flu/RSV swab
- TB testing, HIV (Note: ordering MTB-PCR does not mandate negative pressure room while awaiting result.)
- Sputum culture (if Hx bronchiectasis or covering MRSA/pseudomonas).
- Blood cultures and lactate if septic
- ABG if significant respiratory distress.
- D-dimer (if **Wells score** 1-2), BNP, troponin, ECG
- Procalcitonin & CRP (useful to trend after admission but should not be used to decide to start antibiotics)
- CT chest

Outpatient Antibiotics (Choose one regimen.)

For non-high risk patients:
- Amoxicillin 1 gram PO TID x5 days ± azithromycin 500 mg PO x3 days
- Doxycycline 100 mg PO twice daily x5 days

For high risk patients:
If uncertain, please consult on-call wards physician or ER physician.
1. Amoxicillin-clavulanate 875-125 mg PO twice daily x5 days OR Cefpodoxime 200 mg PO twice daily x5 days PLUS Azithromycin 500 mg PO daily x3 days OR Doxycycline 100 mg PO twice daily x5 days
2. Levofloxacin 750 mg PO daily x5 days

Suitable for outpatient treatment (see Admission Criteria)?

Yes → (Outpatient Antibiotics)

No → • Request admission. • Start antibiotics.

→ Risk for MRSA or *Pseudomonas* (see box)?

Inpatient IV Antibiotics (Choose one regimen.)

No →
- Ceftriaxone 1-2 grams IV daily PLUS azithromycin 500 mg IV daily
- Ampicillin-sulbactam 1.5-3 grams IV Q6h PLUS azithromycin 500 mg IV daily
- Levofloxacin 750 mg IV daily

Note: This is also the suggested empiric regimen for aspiration pneumonia.

Yes → *If uncertain, please consult YK hospitalist and/or pharmacy before starting.*

If MRSA only: Vancomycin 15-20 mg/kg Q8-12h

If pseudomonas only: Cefepime 2 grams Q8h or piperacillin-tazobactam 4.5 grams Q6h

If both MRSA & *Pseudomonas*: Vancomycin + cefepime + levofloxacin with doses as above.

Improving in 24-48 hours?

Yes → • Transition to oral antibiotics (see outpatient box above) to complete 5 day minimum course. • No routine follow-up chest imaging necessary (unless recommended by radiologist).

No → Consider:
- Trend WBC/CRP/procalcitonin
- Obtain chest CT
- Alternate diagnoses (CHF, PE, TB, empyema, ILD, etc.)
- Consult ANMC pulmonology or ID

Risk for MRSA: Prior MRSA infection, Gram positive cocci on sputum gram stain

Risk for *Pseudomonas*: Prior *Pseudomonas* infection, Gram negative bacilli on sputum gram stain, hospitalization with IV antibiotics in the last 90 days

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 10/21/22.Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Kaia_Pearson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Pneumonia (3 months – 18 years)

REMEMBER:
• If patient is <90 days and febrile, please see **fever guidelines**.
• Pneumonia is a clinical diagnosis and does not require X-ray findings.

Hypoxia

<90% while awake
<88% while asleep
Sustained for >10 minutes

Pulse-Oximetry Monitoring

• Pulse-ox may be ordered Q4h (not continuously) if age >6 months and patient is stable.
• Being on oxygen does not mandate continuous pulse-oximetry if patient is stable.

Cough + fever

Institute SUPPORTIVE MEASURES
Then reassess respiratory distress

Moderate to severe respiratory distress
Sustained tachypnea, increased work of breathing, and/or hypoxia

Mild or no respiratory distress
Intermittent tachypnea, increased work of breathing, and/or hypoxia

• CXR (PA & lateral)
• CBC, CRP, and blood culture
• COVID/flu/RSV panel
• Place PPD

Consider CXR if <5 years old given high rates of pneumonia in Alaska Native population.

Bacterial pneumonia suspected

Bacterial pneumonia NOT suspected

Bacterial pneumonia NOT suspected

Bacterial pneumonia suspected

Begin antibiotics per Treatment box.

Consider other diagnoses: viral pneumonia, RAD, bronchiolitis, TB, acidosis, toxins, etc.

Prescribe antibiotics for 7 days per Treatment box.

• If <1 year old: requires >2 L supplemental oxygen to prevent hypoxia or improve WOB?
• If ≥1 year old: requires >3 L supplemental oxygen to prevent hypoxia or improve WOB?
• Requires neb treatments more frequently than Q2-3h for >8 hours?
• Sustained tachycardia, tachypnea, or respiratory distress despite treatment?
• Significant pleural effusion?

• Place PPD if older than 6 months and no PPD in past 6 months.
• Discharge home with follow-up within 48-72 hours.
• No routine follow-up CXR unless recurrent infiltrate in same lobe; in that case, repeat CXR in 4-6 weeks.

If concern for parapneumonic effusion or empyema, see **ANMC guideline**.

Yes

No

Transfer to Anchorage

• Admit to YKHC Peds Inpatient Unit, using PED Admission/ Respiratory Infection PowerPlan.
• Place PPD if older than 6 months and no PPD in past 6 months.

After 48-72 hours

No

Improvement?

Yes

• Patient improving with increased appetite and activity, less WOB, and decreasing fever curve?
• No hypoxia on room air?
• Tolerating home therapy with competent caregivers?
• Immunizations UTD?
• Negative PPD?

No

Yes

• Consult pediatrics.
• Consider repeating CXR and labs.
• Consider IVF.

• Change to oral antibiotics for total of 7 days of treatment.
• Discharge home with follow-up within 48-72 hours.
• No routine follow-up CXR unless recurrent infiltrate in same lobe; in that case, repeat CXR in 4-6 weeks.

SUPPORTIVE MEASURES

• Control fever, as it can be an independent cause of respiratory distress and tachycardia.
• Nasal suction with nasal bulb syringe and olive tip plus saline.
• Hydration by IV or enteral (including NG and G-tube).
• Gentle P&PD/CPT if helpful.
• Saline neb (either 0.9% or hypertonic 3%).
• Consider albuterol trial, especially in Alaska Native patients as they have high rates of RAD.

Village Management

Any child <5 years with suspected pneumonia should be evaluated in Bethel or an SRC.

Treatment

NOTE: If known viral infection, viral pneumonia is likely; antibiotics not indicated. If influenza positive, see ***Influenza guideline*** *for oseltamivir criteria.*

Outpatient
1st line: amoxicillin 45 mg/kg/dose PO BID x7 days
2nd line: Augmentin 45 mg/kg/dose PO BID x7 days
3rd line: cefdinir 7 mg/kg/dose PO BID x7 days

Inpatient
1st line: ampicillin 50 mg/kg/dose IV Q6h
2nd line: Unasyn 50 mg/kg/dose IV Q6h
3rd line: ceftriaxone 75 mg/kg/dose IV Q24h

If not fully immunized, suspicion for *H influenzae*, or complicated pneumonia (pleural effusion, multilobar involvement, concern for bacteremia, etc.): Start with ceftriaxone. When improving, complete 10 day course with narrower spectrum oral antibiotic, as appropriate.
For H influenzae type A: At least one dose of ceftriaxone or four days of rifampin is necessary for decolonization. Remainder of course may be completed with a penicillin, if sensitive.
For PCN allergy: If reaction was non-anaphylactic, may trial amoxicillin with monitoring. If reaction was anaphylaxis, treat with a cephalosporin. If any questions, please obtain a pediatrics consult.
Azithromycin: Do not prescribe azithromycin unless there is evidence of an atypical pathogen and child is >5 years. Must be prescribed in addition to primary treatment above.
RUL infiltrate: consider starting with Augmentin/Unasyn to cover for oral anaerobes. Consider thickener.
For Chronic Cough: See **Bronchiectasis/Chronic Cough guideline**.

NOTE: There is limited evidence to support the use of procalcitonin to guide antimicrobial treatment in pediatric pneumonia, so it should not be used to guide management decisions at this time.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 12/7/21.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Procalcitonin in Lower Respiratory Tract Infections (Adult)

For ANMC's Procalcitonin Pathway, click **here**.

For the supplemental resources associated with ANMC's Procalcitonin Pathway, click **here**.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Rabies Prevention

Patient reports animal bite (or exposure to brain tissue) from animal who is a possible reservoir for rabies. (See box.)

Does the patient require rabies post-exposure prophylaxis? (See box.)

No → Provide usual wound treatment including amoxicillin-clavulanate prophylaxis for open wounds.

Yes or maybe

Patient in village?

Yes →

1. Health Aide completes visit in RAVEN including Rabies Investigation Report and reports patient to provider.
2. Provider uses "..rmtrabies" to document and forwards the final note to the OEH Department pool.
3. Provider refers patient to Bethel ED or outpatient clinic for day 0 treatment and immunoglobulin.

1. Patient presents to ED or outpatient clinic.
2. Patient is given Day 0 vaccine, and the wound is infiltrated with immunoglobulin. See box for details.
3. Provider documents using autotext "..edrabies."
4. Provider orders rabies vaccine as a prescription for three more doses.
5. Provider instructs patient to go to the pharmacy to pick up vaccine and to call village clinic to make appointments on days 3, 7, and 14.
6. Patient Custom Education, "Rabies Prevention with Process for Vaccine Doses (Custom)," is completed with the dates of days 3, 7, and 14 and given to the patient.
7. Provider forwards final note to the OEH Department pool.

• Days 3, 7 , and 14 vaccine given in village clinic.
• If no health aide in village, patient must come to Bethel for all doses.

No →

1. Patient presents to ED or outpatient clinic.
2. Patient is given Day 0 vaccine, and the wound is infiltrated with immunoglobulin. See box for details.
3. Provider documents using autotext "..edrabies."
4. Provider forwards final note to the OEH Department pool.

Appointment is made for the outpatient clinic for Days 3, 7, and 14. If any of these fall on a weekend, patient to be seen in the ED.

Indications for Rabies Prophylaxis

1. The bite was from a potential vector of transmission, and this animal is not available to test.
2. The bite was from a dog who was behaving abnormally.
3. If the dog is available for quarantine, do not start post-exposure prophylaxis regardless of vaccination status. OEH (Office of Environmental Health) will initiate a 10-day quarantine. Please check under "all documents" for Alert Note or for the rabies investigation report from OEH.
4. If consultation is needed, call OEH at 543-6420 or State Section of Epidemiology 907-269-8000 or 800-478-0084 after hours.

If There are Problems with Travel

• If travel from a village to Bethel cannot be arranged within 3-5 days, provider orders the vaccine for HAND CARRY to village clinic. Provider should include explanation of situation under "eRx Note to Pharmacy." There MUST be a health aide in the village.
• Immunoglobulin must be given within seven days of first dose of vaccine. This must be given in Bethel.
• Continue to try to arrange travel so that patient will be in Bethel within seven days of first dose.

Animals in Alaska that have Tested Positive for Rabies

1. Arctic fox
2. Caribou
3. Cat
4. Coyote
5. Dog
6. Keen's myotis bat
7. Little brown bat
8. Red fox
9. Reindeer
10. River otter
11. Wolf
12. Wolverine

Medications

Use Power Plans "ED Rabies Prophylaxis" or "AMB Rabies Prophylaxis."

• Rabies vaccine 1 mL IM, given on days 0, 3, 7, 14. Same dose for adults and children. Day 0 is the first day the vaccine is given, not the day of exposure.
• Immunocompromised patients require an additional dose on day 28.
• Rabies vaccine must be refrigerated. It may be out of the refrigerator for less than 48 hours as long as it is not stored above 86°F. If vaccine is not stored properly, patient should call pharmacy refill line at 543-6988 to report this and arrange for more to be sent to village.
• Rabies immune globulin 20 units/kg given once. Give as much of dose as possible around and into the wound(s). Administer remainder of dose IM at a site distant from the vaccine administration site. Must give within seven days of first vaccine dose.

Other Resources

• See the **supplement** to this guideline on the wiki.
• **State of Alaska DHSS Rabies** page.
• Use the Power Plans "AMB/ED Rabies Prophylaxis" to find all necessary orders.
• See Division of Public Health **Rabies Post-Exposure Prophylaxis Treatment Sheet**.

Office of Environmental Health (OEH)

• All patients with animal bites are tracked by the OEH. The Rabies Investigation Report can be found under Documentation → All and includes recommendations from the OEH.
• If you need advice urgently, send message with MRN via Tiger Connect to OEHE On Call.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 6/1/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Sepsis (Adult)

Sepsis:
Suspected infection plus systemic inflammatory response.
Can use SIRS or qSOFA.
General signs:
- Temp > 100.4° or < 96.8° F
- HR > 100
- RR > 22
- Systolic BP < 100
- WBC > 12,000 or < 4,000

Severe Sepsis:
Sepsis plus evidence of end-organ damage. Can include:
- Hypotension (SBP < 90, MAP < 65, baseline drop in SBP > 40)
- Cool extremities, delayed cap refill
- Altered mental status (GCS < 15)
- Poor urine output
- New need for respiratory support (high flow oxygen, NIPPV)
- Lab indicators can include:
  - Lactate > 2
  - INR > 1.5, platelets < 100,000
  - Creat > 0.5 over baseline value
  - Bilirubin > 4

Septic Shock:
Severe sepsis persisting/worsening despite initial resuscitative measures.

COULD THIS PATIENT BE SEPTIC?

Initial Supportive Measures

- IV, O_2 if needed, monitors.
- Keep patient warm, supine if possible.
- Consult ER/Emergency RMT physician early.
- Treat fever with acetaminophen.

Concurrent Resuscitation

- IV fluids. Unless clinically fluid overloaded, at least 500 mL IVF.
- Empiric antibiotics. See medications.
- Source control.

and Evaluation

- Complete but expeditious H&P.
- Labs including CBC/diff, CMP, CRP, lactate, procalcitonin, PT/INR, blood cultures, VBG/ABG, UA.
- Imaging as indicated.

Ongoing Reassessment

Monitor multiple parameters to assess response to treatment and/or need for escalation of care:
- Vital signs, shock index (HR/SBP > 0.7 is concerning).
- Urine output (< 0.5 mL/kg/hour over 2 hours is inadequate).
- Clinical exam (mental status, cap refill).
- Lab parameters (lactate, blood gas, electrolytes).
- Bedside US for IVC.

Persistent evidence of end-organ damage despite initial interventions?

Yes

In Bethel:
- Start pressors (see medications).
- Move toward central line placement, but ok to start first pressor peripherally.
- Consult ICU and move toward transfer.

In Village/SRC:
- Activate medevac if not done already.
- Consult ED physician for further management, including ongoing fluids, antibiotics, and pressors if available in SRC.

No

Continue close monitoring.

In Bethel:
- Move toward definitive care (YK admission or transfer).

In Village/SRC:
- Discuss route of transfer with Emergency RMT Physician (commercial/charter vs medevac).

IV Fluids in Sepsis

Historical consensus was every septic patient needed 30 mL/kg IVF as quickly as possible. There is not good evidence that this improves mortality. Likewise, fluid resuscitation guided by lactate alone is not associated with improved mortality. There is evidence of harm in over-fluid resuscitating patients, and in delay to initiating pressors if appropriate.

General Fluid Management Recommendations

- If hypovolemic, give fluids.
- If euvolemic, don't give excessive fluids.
- If progressive respiratory distress and pulmonary edema, stop fluids.
- Give smaller boluses 500-1000 mL and assess response.
- If CHF/renal failure/volume overload, fluids are not wrong but low threshold to consult ICU for assistance.

Intubation in Sepsis

- Higher risk for periintubation arrest due to hypotension, acidosis, etc.
- Strive for fluid resuscitation and/or pressors before intubation.
- Consider lower dose of induction agent (consult pharmacy or ICU).
- Vent settings: TV 6 mL/kg IBW, plateau pressures < 30.

Medications Outside Bethel

Village formulary:
- Ceftriaxone 1-2 grams IM (for most cases)
- Metronidazole 500 mg PO (abdominal source, necrotizing SSTI, other need for anaerobic coverage)
- Azithromycin 500 mg PO (CAP)
- Clindamycin 900 mg PO (for anaerobic coverage, toxins in necrotizing infections)

SRC formulary:
- Ceftriaxone 1-2g IV/IM (for most cases)
- Levofloxacin 750mg IV (for pseudomonas coverage)
- Clindamycin 900 mg IV (for anaerobic coverage, toxins in necrotizing infections)
- Vancomycin 25 mg/kg or 2.5 g max IV (for MRSA)
- Pressors: epinephrine – consult pharmacist if considering.

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Approved by Clinical Guideline Committee 3/13/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Sepsis Antibiotics (Adult)

Empiric Antibiotic Recommendations by Source of Infection

If possible, first dose of antibiotics should be administered as a 30 minute infusion to reduce time to therapeutic concentration.

Unknown Source

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

AND

Cefepime 2 grams IV Q8h.

Community-Acquired Pneumonia

Ceftriaxone 1-2 grams IV Q24h.
OR
Ampicillin-sulbactam 3 grams IV Q6h.

AND

Azithromycin 500 mg IV Q24h.
OR
Doxycycline 100 mg IV Q12h.

If at risk for aspiration, consider adding:

Metronidazole 500 mg IV Q8h if not on Unasyn.

Hospital-Acquired Pneumonia or High Risk for Multi-Drug Resistant (MDR) Organisms

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

AND

Cefepime 2 grams IV Q8h.

Meningitis

Dexamethasone 10 mg IV prior to antibiotics.

AND

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500mg.

AND

Ceftriaxone 2 grams IV Q12h.

If >50 years, ADD

Ampicillin 2 grams IV Q6h.

Urinary Tract Infection

Ceftriaxone
1-2 grams IV Q24h.

If urological interventions or MDR risk factors, consider adding:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Cefepime 2 gram IV Q8h.

If at risk of ESBL, ADD:
Meropenem[3]
500 g IV Q8h.

Intra-abdominal or Pelvic Infection

Piperacillin-tazobactam
4.5 grams IV Q6h.

OR

Cefepime 2 grams IV Q8h.
AND
Metronidazole 500 mg IV Q6h.

OR

Ciprofloxacin 400 mg IV Q12h.
AND
Metronidazole 500 mg IV Q8h.

Skin and Soft Tissue or Necrotizing Infections

IF PURULENT:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

IF NON-PURULENT:
Cefazolin 2 grams IV Q8h.
OR
Ceftriaxone 1-2 grams IV Q24h.
OR
Ampicillin-sulbactam 3 grams IV Q6h.

IF NECROTIZING:
Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500mg.
AND
Piperacillin-tazobactam 4.5 grams IV Q6h.
AND
Clindamycin 900 mg IV Q8h.

Neutropenic Cancer Patients (ANC <500)

Cefepime 2 grams IV Q8h.
OR
Piperacillin-tazobactam
4.5 grams IV Q6-8h.

AND

Vancomycin[1] Load 25 mg/kg using IBW. Max dose 2500 mg.
OR
Linezolid[2] 600 mg IV Q12h.

If concerned for HSV or VZV, consider adding:

Acyclovir
10 mg/kg Q8h.
Consult pharmacy for max dosing.

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Approved by Clinical Guideline Committee 3/13/23.
If comments about this guideline, please contact clinical_guidelines@ykhc.org

[1] Consult pharmacy for subsequent dose/schedule.
[2] Linezolid may be substituted for vancomycin in patients with relative contraindication to vancomycin for high risk for acute kidney injury. Pharmacy consult required.
[3] Pharmacy consult required.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sepsis Vasoactive Medications (Adult)

Vasopressors

Central venous access is preferred for administration of vasopressors, but these may be administered through peripheral IV if unable to obtain central access. If in an SRC, pressors may be available. Consult ED physician.

• Norepinephrine 2-80 mcg/min IV initial infusion rate.	First-line vasopressor of choice in sepsis.
• Vasopressin 0.03-0.04 units/min.	May be added to norepinephrine to increase MAP or decrease norepinephrine dose. DO NOT use as a single agent.
• Epinephrine 1-40 mcg/min initially, titrated to effect.	May be added or used in place of norepinephrine to maintain adequate BP.
• Dopamine 2-20 mcg/kg/min.	Second-line option in highly select patients as it causes more tachycardia.
• Phenylephrine 40-160 mcg/min IV initial infusion until stabilized. Titrate to usual range of 20-400 mcg/min.	Can be used as salvage therapy for refractive hypotension associated with tachycardia.
• Dobutamine 2-20 mcg/kg/min IV infusion.	May be used for inoptropic support in the presence of severe myocardial dysfunction or hypoperfusion with depressed cardiac output.

Corticosteroids

Corticosteroids should NOT be administered for the treatment of sepsis in the absence of shock.
If considering use of corticosteroids for septic shock refractory to pressors after euvolemia and appropriate antibiotic therapy achieved, consult ICU.
The exception is giving dexamethasone prior to first dose of antibiotics for meningitis.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sepsis/Shock (Pediatric)

Severe Sepsis/Shock Criteria

2 or more of the following:

- Temp <96.8 or >100.4
- Abnormal WBC count (<5 or >15)
- Abnormal HR
- Abnormal RR

AND

Signs of End-Organ Involvement:

Altered mental status
Delayed cap refill
Cold/mottled extremities
Weak pulses
Difference between central and peripheral pulses
Significantly decreased UOP
Hypotension
Bounding/brisk pulses with rapid cap refill

Patient meets criteria for severe sepsis/shock → Contact pediatric hospitalist. Page RT. → Consult PICU by direct line: (907) 297-8809. Request medevac.

Place on CR monitor. Bedside glucose.
Start supplemental oxygen. Prepare BVM.
Get access: IV/IO x2.
Bolus: NS 20 mL/kg x2 over ≤ 10 minutes.
Reassess volume status after each bolus.

Use the Pediatric Critical Care Guide and ED Peds Critical Care PowerPlan for all medication dosing.

Order empiric antibiotics STAT.

Labs: blood culture, electrolytes, CBC, lactate, ionized calcium, procalcitonin.

Is patient maintaining airway without support?

- No → Intubate per Intubation Guideline.
- Yes

If not improving, give third bolus of NS 20 mL/kg.
Correct hypoglycemia.
Correct significant hypocalcemia.

Is there continuing hypotension, poor pulses, change in mental status, or delayed cap refill?

- Yes → Start vasopressor and consider methylprednisolone for fluid-refractory shock in consultation with the PICU.
  - Continue to reassess and give boluses of NS 20 mL/kg unless patient develops rales, respiratory distress, hepatomegaly, or a gallop.
    - If shock persists, consider a second pressor, calcium chloride, etc. in consultation with PICU.
- No → Monitor closely per Continuing Management Box while awaiting medevac.

Village Management

- Consult pediatric hospitalist.
- Aggressive hydration: IV or PO.
- Supplemental oxygen via nasal cannula.
- Monitor glucose.
- Treat hypoglycemia with Insta-Glucose tubes buccally – NOT rectally.
- Ceftriaxone 100 mg/kg IM.
- Activate medevac.
- Consider VTC.

Continuing Management

- VS (including BP) at least Q15min.
- Blood glucose Q30 min.
- Maintenance IVF with D5 + NS.
- Consider Foley.

Goals

- Cap refill <2 sec
- Normal BP for age
- Normal pulses
- Warm extremities
- UOP > 1 mL/kg/hour
- Normal mental status

See Wiki RMT Section for more detailed recommendations.

See **this resource** for a helpful table comparing the presentation and findings in sepsis, acute COVID, and MIS-C.

Empiric Antibiotic Choice

≤28 days
Ampicillin 75 mg/kg AND gentamicin 5 mg/kg. If concern for meningitis, give cefepime 50 mg/kg IV.
If concerned about HSV or neurologic impairment, add acyclovir 20 mg/kg.

>28 days
Ceftriaxone 100 mg/kg (max 2000 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If CVL in place, immunocompromised, or significant Hx antibiotics in past 30 days
Cefepime 50 mg/kg (max 2000 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If allergic to PCN
Meropenem 15 mg/kg (max 500 mg)
AND vancomycin 20 mg/kg (max 2000 mg)

If suspecting Staph or Strep
Consider adding clindamycin 13 mg/kg IV for anti-toxin effect.

Vital Signs for Age
(Source: Harriet Lane Handbook)

Age	Heart Rate (beats/min)	Respiratory Rate (breaths/min)	Blood Pressure (mm Hg)	Mean Arterial BP (mm Hg)
0-3 months	110-160	30-60	65-85 / 45-55	50th percentile: 55 + (age x 1.5)
3-6 months	100-150	30-45	70-90 / 50-65	
6-12 months	90-130	25-40	80-100 / 55-65	
1-3 years	80-125	20-30	90-105 / 55-70	5th percentile: 40 + (age x 1.5)
3-6 years	70-115	20-25	95-110 / 60-75	
6-12 years	60-100	14-22	100-120 / 60-75	
>12 years	60-100	12-18	100-120 / 70-80	

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Approved by MSEC 2/1/22.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sexually Transmitted Infections, Screening

Universal Screening Recommendations

- All sexually active patients starting at age 14: annual screening for GC/CT, HIV, and syphilis.
- Any time GC and CT are tested for, HIV and syphilis screening should also be performed if not done in the last 12 months.
- Regardless of sexual activity, all teenagers should be screened for HIV by the age of 18. Additionally, all teenagers should undergo yearly GC/CT screening with, at minimum, a dirty urine.

Symptoms of Genital Infection

- Sores (genital, oral, or anal)
- Discharge or burning
- Dysuria
- Groin pain
- Pelvic pain
- Sore throat
- Rectal itching
- Discomfort or pain with bowel movement
- Vaginal itching or odor
- Testicular pain, swelling, or twisted feeling
- Pain with ejaculation or sex

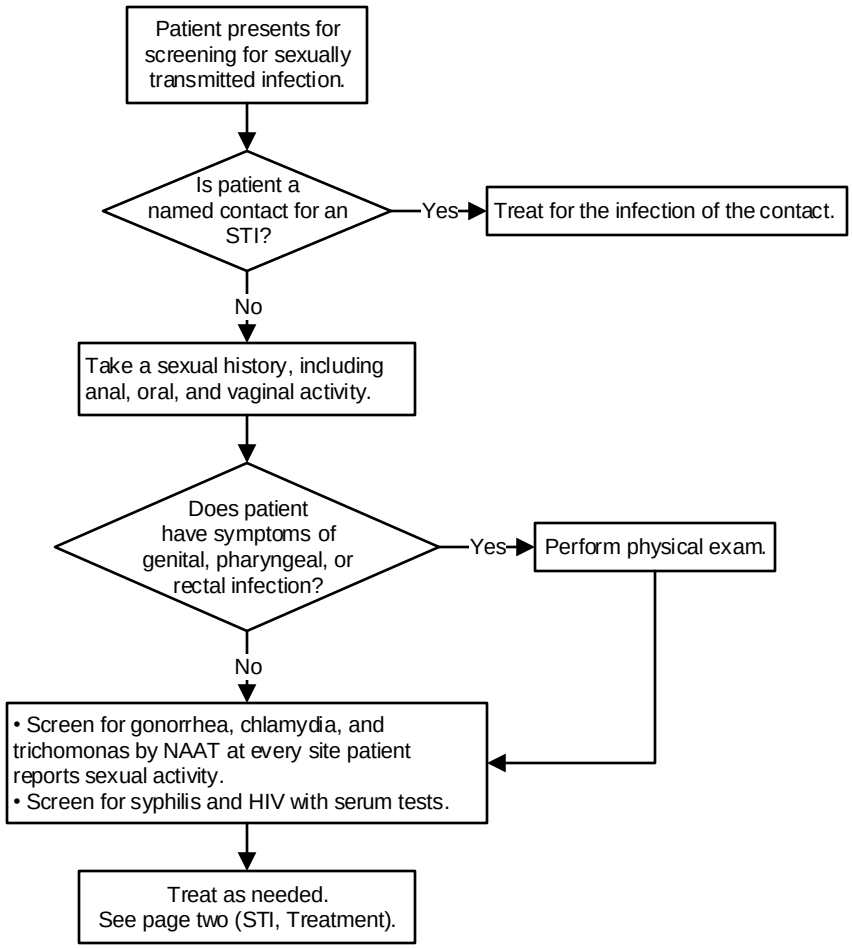
Age of Consent in the State of Alaska

Two people who are both 16 or older can legally agree to have sex with each other. When a person involved in sex is under the age of 16, Alaska law looks at the difference in ages to decide whether consent can be legally given.

- No person over 16 can legally have sex with someone who is 13 or younger.
- No person under 16 can legally have sex with someone who is 4 or more years older.
- No person under 16 can legally have sex with a person in a position of authority over them (including a teacher, coach, or minister).

A positive STI test in a patient who fits the above scenarios should be reported to OCS, law enforcement (BPD if in Bethel or AST if in a village), and the Child Abuse Pool in RAVEN.

Please note: There is no lower age limit for STI testing. Any patient may be tested, regardless of age, without special consent.



Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sexually Transmitted Infections, Treatment

Patient has a positive test for **Gonorrhea** (GC) from pharynx, rectum, or genitalia.

Is the infection pharyngeal?

Yes → • Treat with ceftriaxone:
- Patient ≥ 100 kg: 1000 mg
- Patient < 100 kg: 500 mg

• If patient has history of severe beta-lactam allergy, call HROB or STI case manager to discuss treatment.

→ Perform test of cure in two weeks.

No

Is the patient severely allergic to cephalosporins?

Yes → Treat with gentamicin 240 mg IM and azithromycin 2000 mg PO.

No

• Treat with ceftriaxone:
- Patient ≥ 100 kg: 1000 mg
- Patient < 100 kg: 500 mg

• If ceftriaxone not available, treat with cefixime 800 mg PO for all weights.

Test for reinfection in three months.

Expedited Partner Therapy (EPT)

EPT is a method of treating partners by asking the patient to take the doses to the partner. This is the standard of care for chlamydia at YKHC.

Process:
1. Treat the patient with azithromycin 1000 mg PO.
2. Give the patient pre-packaged doses for each sexual contact in the last three months. Give a handout explaining the process. This can be found under Patient Education→All→ "EPT Partner Chlamydia (Custom)."

Patient has a positive test for **Chlamydia trachomatis** (CT).

Is the infection rectal?

Yes → Treat with doxycycline 100 mg PO BID x7 days.

No

Treat with azithromycin 1000 mg PO x1.

Provide EPT for partner treatment.

Provide patient education handouts for the patient and all partners.

• If infection was pharyngeal or rectal, perform test of cure in one month.
• For other sites, test for reinfection in three months.

Patient has a positive test for **Trichomonas**.

Treat with metronidazole 2000 mg PO x1.

Provide must do contact investigation and provide prescriptions for all contacts from the last three months.

Test for reinfection in three months.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 8/3/21. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Sinusitis, Bacterial (>4 years)

Differential Diagnosis
- foreign body
- seasonal/environmental allergies
- recurrent/back-to-back viral rhinitis or nasopharyngitis
- GERD

If considering the diagnosis of bacterial sinusitis in a child younger than 4, please consult a pediatrician.

Fever and rhinorrhea in **>4 years old**

Consider bacterial sinusitis

Persistent Illness
Nasal discharge and daytime cough for >10 days **with no improvement**

Observe for 3 days. Follow-up by phone or by appointment.

If no improvement

Worsening Course
One week of worsening nasal discharge, daytime cough, and fever after initial improvement

Severe Onset
Fever >102°F and purulent nasal discharge for >3 consecutive days

Treatment

1st line High-dose Augmentin 45 mg/kg/dose PO BID for 10-14 days
2nd line Cefdinir 14 mg/kg/dose PO daily for 10-14 days

Try to avoid using cephalosporins. They are less effective at treating the most common organisms that cause sinusitis.

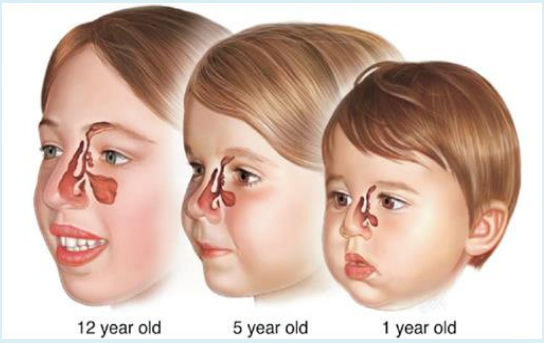
For PCN allergy: Please obtain a pediatrics consult. Do not prescribe azithromycin or Septra. The most common pathogens in pediatric sinusitis have high resistance rates to these antibiotics. Try to avoid fluoroquinolones.

Follow-up by phone or by appointment at 3 days. If no improvement, consider broadening to next line of treatment.

Follow-up 10-14 days after starting treatment. If still symptomatic, consider ENT consult.

NOTE: 90-98% of pediatric sinus infections are caused by viruses. When caused by bacteria, the most common pathogens are non-typeable *Haemophilus influenzae*, *Streptococcal pneumoniae*, and *Moraxella catarrhalis*.

Sinus Development in Children



- Maxillary: present at birth, fully developed at 12 years
- Ethmoid: present at birth, fully developed at 12 years
- Frontal: present at 3 years, fully developed at 18-20 years
- Sphenoid: present at 8 years, fully developed at 12-15 years

Source: https://www.google.com/search?biw=1536&bih=740&tbm=isch&sa=1&ei=rTiHWt3rCIHRjAP4hKaICA&q=sinus+development&oq=sinus+development&gs_l=psy-ab.3..0i67k1j0l5j0i5i30kl3j0i8i30k1.34240.34657.0.35299.2.2.0.0.0.0.200.398.0j1j1.2.0...0..1c.1.64.psy-ab..0.2.395...0i30k1.0.rSFh1aHlq74#imgrc=IDSBxCfrF0AkWM:&spf=1518811500752

Imaging

Do not routinely obtain imaging studies in suspected sinusitis unless there is concern for a complication like orbital or CNS involvement.
Do not treat sinusitis, in the absence of symptoms, if it is an incidental finding on an imaging study.

Adjuvant Therapies

- Saline nasal spray
- Steam
- Oral hydration
- Tylenol and ibuprofen
- Do not routinely give decongestants and antihistamines (especially Benadryl). They have been proven ineffective in children and are unsafe under 6 years old.

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Approved by MSEC 11/2/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Skin and Soft Tissue Infection, Page 1

Suspected Skin & Soft Tissue Infection → Identify and manage sepsis if present.

Abscess or purulent drainage present?

- Yes → • If abscess: Perform incision and drainage. Obtain wound culture. Place drain if possible (Derma-stent or Penrose). Hot pack 4x daily.
  • Schedule NSAIDs. Update Tdap. Elevate if extremity.
- No → Non-purulent cellulitis → See page 2.

History of fever, lymphangitis, or extensive cellulitis?

- No → • Antibiotics not indicated.
  • Daily follow up.
  • Start antibiotics if worsening.
- Yes

Does patient meet all criteria for outpatient management? (See box.)

- Yes → • Start oral antibiotics.
  • Daily rechecks until demonstrated improvement.
  → • If not improving, consider covering for *Strep*.
  • See empiric antibiotics on page 2.
- No

• Arrange evaluation in YK ER if in village.
• Obtain BMP, CBC with diff, CRP.
• Outline affected area.
• Start empiric IV antibiotics (see box).

Could this abscess require surgical management?

- Yes → Consult appropriate service regarding imaging, antibiotics, transfer.
- No

Admit to YK. Narrow antibiotics based on culture. Elevate. Wound care. Pain control.

Patient improving?

- No → • Consider repeat imaging (US, CT).
  • Optimize glycemic control and wound care.
  • Consider vascular evaluation (DVT study, ABI).
- Yes

• Transition to oral antibiotics.
• From time of source control, 5-14 day course in adults, 7-14 day course in children.
• Discharge when meeting outpatient criteria.

Criteria for Outpatient Management

• Nontoxic, SIRS/fever resolved.
• Ambulatory.
• Tolerating PO fluids.
• Acceptable plan for wound/infection care at home.
• Pain controlled with oral pain meds.
• Visible improvement may take 48 hours from initiation of antibiotics.

Could this be a necrotizing SSTI?

• Rapidly progressive infection, crepitus on exam, toxic-appearing patient.
• Broaden workup: lactate, blood cultures, XR. LRINEC score.
• Early antibiotics: vancomycin 20 mg/kg IV PLUS cefepime 2 g IV PLUS clindamycin 900 mg IV.
• Consult surgery; transfer.

Empiric IV Antibiotics

Adults:
• Vancomycin 1 g IV Q12h. Pharmacy to adjust dosing.
• Linezolid 600 mg IV BID only if clear contraindication to vancomycin.

Children:
• Vancomycin 15 mg/kg IV Q6h.
OR clindamycin 10-13 mg/kg IV Q8h.

Outside Bethel:
• Village clinic: TMP-SMX PO or doxycycline or clindamycin PLUS ceftriaxone IM.
• SRCs should have vancomycin IV. If unavailable, consider clindamycin 600 mg IV Q8h PLUS cefazolin 1 g IV Q8h or ceftriaxone 1g IV Q24h.

Empiric Oral Antibiotics

Adults (Nonpregnant)
• TMP-SMX (Septra) DS 1 tab PO BID or
• Doxycycline 100 mg PO BID or
• Clindamycin 450 mg PO TID
Antibiotic duration 5-7 days.

Children
• Preferred: TMP-SMX (Septra) 4-6 mg/kg PO BID (dose based on TMP component) or
• ≥ 8 years: Doxycycline 2 mg/kg PO BID (max 100 mg/dose).
• < 8 years: Clindamycin 10-13 mg/kg PO TID
Antibiotic duration 7-14 days.

Pregnant or breastfeeding
• Clindamycin 450 mg PO TID 5-7 days

Recurrent abscesses?

Consider:
• Treat with antibiotics if not already done.
• Question and counsel about hygiene, steaming, cleaning practices, care of draining wounds.
• Pilonidal cyst? Hidradenitis suppurativa?
• Retained foreign body?
• Decolonization if all the above addressed and recurrence persists.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Skin and Soft Tissue Infection, Page 2

Non-purulent cellulitis present → Identify and manage sepsis if present.

History of fever, lymphangitis, or extensive cellulitis?
- No → • Antibiotics not indicated. • Daily follow up. • Start antibiotics if worsening.
- Yes ↓

Does patient meet all criteria for outpatient management?
- Yes → • Start oral antibiotics. • Daily rechecks until demonstrated improvement. → • If not improving, consider covering for *Staph*. • See empiric antibiotics on page 1.

• Arrange evaluation in YK ER if in village.
• Obtain BMP, CBC with diff, CRP.
• Outline affected area.
• Start empiric IV antibiotics (see box).

Sepsis resolved, no rapidly spreading infection?
- No → • Continue sepsis management. • Obtain lactate and blood cultures if not done. • Consider imaging, expanding antibiotic coverage, alternative diagnoses, consult ANMC.
- Yes ↓

• Admit to YK.
• IV antibiotics per box.
• Elevate.
• Pain control.

Patient improving?
- No → • Consider imaging (US, CT). • Optimize glycemic control and wound care. • Consider vascular evaluation (DVT study, ABI). • Consider alternate diagnoses (see box).
- Yes ↓

• Transition to oral antibiotics.
• Total duration 5-14 days for adults, 7-14 days for children.
• Discharge when meeting outpatient criteria.

Impetigo

• If limited, use topical mupirocin TID for 5 days.
• If extensive, first line is cephalexin 17 mg/kg PO TID (max 4 g/day). If not improving, cover instead for MRSA (see empiric antibiotics on page 1).

Criteria for Outpatient Management

• Nontoxic, SIRS/fever resolved.
• Ambulatory.
• Tolerating PO fluids.
• Acceptable plan for wound/infection care at home.
• Pain controlled with oral pain meds.
• Visible improvement may take 48 hours from initiation of antibiotics.

Empiric IV Antibiotics

Adults
• Cefazolin 1-2 g IV Q8h
• If severe allergy, clindamycin 600 mg IV Q8h

Children
• Cefazolin 17 mg/kg IV Q8h
• If severe allergy, clindamycin 10-13 mg/kg IV Q8h

Outside Bethel
• Village clinic: ceftriaxone IM
• Subregional clinic: cefazolin IV as above. If unavailable, ceftriaxone.

Empiric Oral Antibiotics

Adults
• Cephalexin 1000 mg PO TID
• If severe allergy, clindamycin 300 mg PO TID
Duration 5 days.

Children
• Cephalexin 17 mg/kg PO TID (max 4 g/day) OR
• If severe allergy, clindamycin 10-13 mg/kg PO TID (max 450 mg/dose)
Duration 7-14 days.

Antibiotic Considerations

• Was there a human or animal bite? Use ampicillin/sulbactam IV or Augmentin PO, 7-14 days.
• Was there a fish hook/marine injury? Use Augmentin PLUS doxycycline, 7-10 days.
• Is this actually mastitis or periorbital cellulitis? Don't follow this guideline; refer to online references or consult.

Important Clinical Considerations

• Overlying surgical site? Contact surgeon.
• Overlying joint? Consider septic or inflammatory arthritis. Consider XR or other workup as indicated.
• History of IV drug use? Add blood cultures.
• Chronic dermatologic condition (e.g. eczema, psoriasis)? Ensure outpatient follow up for appropriate disease management, biopsy if indicated.
• Evidence of vascular disease (e.g. absent pulses, venous stasis dermatitis)? Ensure outpatient follow up for appropriate disease management.
• Other diagnoses to consider: DVT, compartment syndrome, toxic shock syndrome, herpes zoster, contact dermatitis, drug reaction, vasculitis, erythema nodosum.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

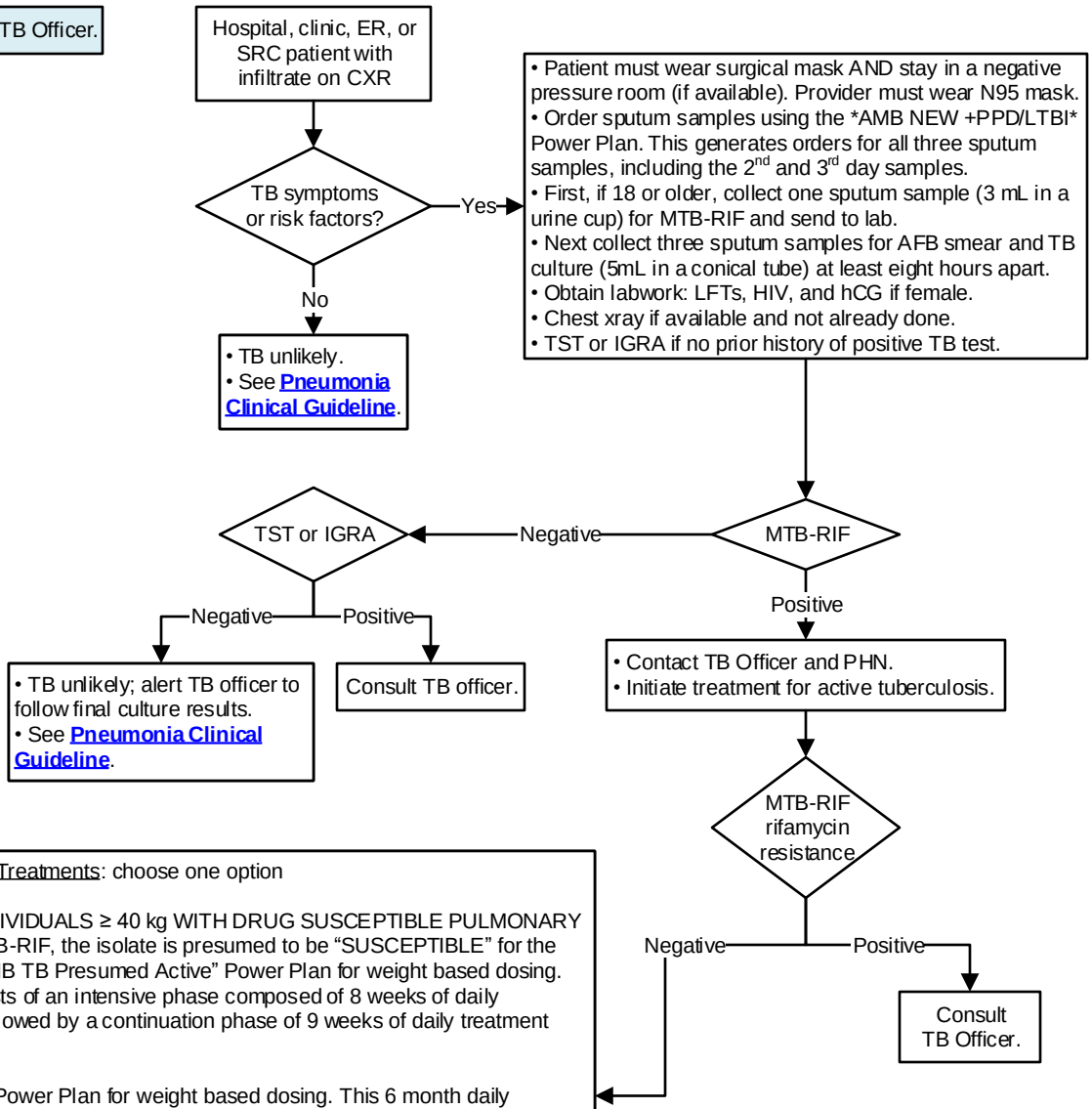
Tuberculosis, Active Pulmonary(≥14 Years)

If you diagnose active TB, please contact a TB Officer.

DO NOT PUT A PATIENT WHO MAY HAVE ACTIVE TB ON A PLANE UNLESS ACUTELY ILL: This could expose the other passengers. Perform evaluation in village as able. Consult TB Officer.

<u>TB Symptoms and Risk Factors</u>
(clinical judgment required)

- Hemoptysis
- Cough > 3 weeks
- Fever
- Night sweats
- Weight loss
- Persistent pneumonia
- Atypical CXR
- Household contact of active TB
- Prior active or latent TB infection
- Foreign born from endemic area
- Immunosuppression (HIV, diabetes mellitus, prednisone >15 mg/day for > 1 month, or TNF-alpha blocker)
- Born before 1960 and long-term resident of western Alaska or other endemic area



<u>Active TB Treatments</u>: choose one option

1. "RPT-MOX" (FOR NON-PREGNANT INDIVIDUALS ≥ 40 kg WITH DRUG SUSCEPTIBLE PULMONARY TB ONLY): If no rifamycin resistance on MTB-RIF, the isolate is presumed to be "SUSCEPTIBLE" for the purpose of initiating this option. See the "AMB TB Presumed Active" Power Plan for weight based dosing. This 4 month daily treatment regimen consists of an intensive phase composed of 8 weeks of daily treatment with RPT, MOX, INH, and PZA followed by a continuation phase of 9 weeks of daily treatment with RPT, MOX, and INH.

2. "RIPE": See "AMB TB Presumed Active" Power Plan for weight based dosing. This 6 month daily treatment regimen consists of an intensive phase composed of 8 weeks of daily treatment with RIF, INH, PZA, and EMB followed by a 4 month continuation phase of RIF and INH.

- For both options, at least 5 of the 7 weekly doses should be administered by DOT.
- When on INH, give pyridoxine (vitamin B6) 50 mg by mouth daily to prevent neuropathy.
- If patient is pregnant or HIV infected, please consult a TB officer.
- Dosing is per **CDC guidelines**.
- Start treatment immediately, either inpatient or with 2 week prescription through YK pharmacy. Consult TB Officers and PHN regarding ongoing prescriptions.

<u>Abbreviations</u>

AFB: acid-fast bacilli
DOT: directly observed therapy
EMB: ethambutol
IGRA: interferon gamma release assay, e.g. QuantiFERON Gold
INH: isoniazid
LTBI: latent TB infection
MOX: moxifloxacin
MTB-RIF: mycobacterium tuberculosis nucleic acid amplification test that also tests for rifamycin resistance
PZA: pyrazinamide
RIF: rifampin(a rifamycin)
RPT: rifapentine (another rifamycin)
TST: tuberculosis skin test

<u>How to Consult a TB Officer</u>: Send a message via Tiger Connect to "TB Officers" Team.

<u>Contact Information</u>

- Public Health Nursing (PHN):
  Phone: 907-543-2110
  Fax: 907-543-0435
  All directly-observed therapy (DOT) will be arranged by PHN.
- Curry Center TB Warm Line: (877) 390-6682
- Dr. Jacob Gray, ANMC Infectious Disease (Tiger Text)
- State Epidemiology: (907) 269-8000

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved 5/5/22. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Robert_Tyree@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Tuberculosis, Latent (≥14 years)

Symptoms

- Cough for more than three weeks
- Weight loss
- Fever
- Night sweats
- Hemoptysis

Do not perform TB skin test or QuantiFERON Gold on anyone with a prior positive.
QuantiFERON Golds can be ordered Monday through Thursday only, and they cannot be done in villages.

What is a positive TB skin test?

- At least 10 mm of induration OR >5 mm of induration for patients who are high risk for TB. (See box.)
- Must be read 48-72 hours after placement to be a true negative.
- If positive, the induration can remain up to seven days and can be read until then.

High Risk for Tuberculosis

1. Immunosuppressed, HIV positive, prednisone >15 mg/day for >1 month, TNF-α blocker.
2. Suspicious chest X-ray.
3. Household contact with active TB.

Patient ≥14 years with:
New positive TB skin test
OR
New positive Quantiferon-Gold.

If patient has symptoms concerning for TB, see **Active TB Guideline**. Do not send patient to Bethel unless patient is medically unstable.

At least one symptom → Yes → Patient in village? → Yes → DO NOT PUT A PATIENT WHO MAY HAVE ACTIVE TB ON A PLANE UNLESS ACUTELY ILL; this could expose the other passengers. Perform evaluation in village, as able.

Patient in village? → No → **ACTIVE TB IS SUSPECTED**

- Patient must wear surgical mask AND stay in a negative pressure room, if available, until MTB-RIF result is negative.
- Collect sputum samples using the "AMB NEW +PPD/ LTBI" Power Plan. This generates orders for all three sputum samples, including the 2nd and 3rd day samples.
- First, if 18 or older, collect one sputum sample (3 mL in a urine cup) for MTB-RIF and send to lab.
- Next collect three sputum samples for AFB smear and TB culture (5 mL in a conical tube) at least eight hours apart.
- Obtain labwork: LFTs, HIV, and hCG if female.
- Chest X-ray if available.

At least one symptom → No → Thirty minute appointment in Bethel for:
- Physical exam
- Chest X-ray
- Labs: LFTs, HIV, and hCG if female

Abnormal chest X-ray? → Yes → **ACTIVE TB IS SUSPECTED**

Abnormal chest X-ray? → No → **LTBI**

- Call PHN with plan of care.
- Begin treatment per box, using LTBI Power Plan.
- Send LTBI prescriptions to the YKHC pharmacy and securely email notification to **LTBI_Case_Managers@ykhc.org**.

MTB-RIF positive? → No →
- Consult TB officer regarding whether to treat for active TB
- Consider treating for **CAP**.

MTB-RIF positive? → Yes → Active TB. Contact TB officer and see **Active TB Guideline**.

Sputum positive? No response to CAP tx? → Yes → Active TB. Contact TB officer and see **Active TB Guideline**.

Sputum positive? No response to CAP tx? → No → LTBI. Continue full course of treatment per LTBI case managers.

LTBI Treatments: Choose one option.
DOT is optional for all three treatment options.

1. 3HP: INH 15 mg/kg PO weekly, rounding to nearest 50 mg (max dose 900 mg) x 12 weeks
AND
Rifapentine PO weekly x12 weeks.
Rifapentine Dosing:
  - 32.1-49.9 kg: 750 mg
  - >50 kg: 900 mg (max dose)

2. Rifampin 10 mg/kg PO daily (max dose 600 mg) x4 months.

3. INH 5 mg/kg PO daily (max dose 300 mg) x9 months.
  - If on INH, give pyridoxine (vitamin B6) 50 mg PO daily to prevent neuropathy.
  - If patient is pregnant or HIV infected, the preferred treatment is INH for 9 months. In HIV infection, avoid rifampin and rifapentine.

How to Consult a TB Officer: Send a message via Tiger Connect to "TB Officers" Team.

Contact Information

- Public Health Nursing (PHN):
  Phone: 907-543-2110
  Fax: 907-543-0435
  All directly-observed therapy (DOT) will be arranged by LTBI Case Managers.
- Curry Center TB Warm Line: (877) 390-6682
- Dr. Jacob Gray, ANMC Infectious Disease (Tiger Text)
- State Epidemiology: (907) 269-8000

Abbreviations

3HP: three month regimen of INH and rifapentine
AFB: acid-fast bacilli
DOT: directly-observed therapy
INH: isoniazid
LTBI: latent tuberculosis infection
MTB-RIF: mycobacterium tuberculosis nucleic acid amplification test that also tests for rifampin resistance
PHN: Public Health Nursing
TNF-α: tumor necrosis factor alpha

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved 5/5/22. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Robert_Tyree@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Tuberculosis Evaluation & Treatment (<14 years)

**High Risk

- Age <6 months
- Close contact with active TB
- Suspected active TB
- Immunocompromised
- HIV positive

- Annual screening starting at 12 months old
- TB exposure
- Clinical concern for TB

History of positive PPD, positive Quantiferon, or active TB?

Yes → Symptoms concerning for active TB?

No → If <2 years old, place PPD. Otherwise, place PPD or check Quantiferon.

Symptoms concerning for active TB? → No → New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon?

Symptoms concerning for active TB? → Yes → Patient ≥10 years old and located in a non-SRC village?

Symptoms concerning for active TB? → No → Close contact with active TB?

Close contact with active TB? → No → No further evaluation at this time.

Close contact with active TB? → Yes → Consult pediatric TB officer, State Epi, and/or TB Warm Line.

Patient ≥10 years old and located in a non-SRC village? → Yes → Consult TB officer.

Patient ≥10 years old and located in a non-SRC village? → No → Obtain CXR.

New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon? → Yes → Obtain CXR.

New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon? → No → TB exposure?

Obtain CXR. → Positive → 1. Obtain sputum or gastric aspirate samples x3 for AFB testing.*
2. Consider empiric treatment for community-acquired pneumonia.
3. Isolate per guidelines.
4. Perform LP in any child <12 months old strongly suspected of having active TB. Order "AFB" and change specimen type to "CSF."

Obtain CXR. → Negative → Treat for LTBI. Check HIV and LFTs.

TB exposure? → No → No further evaluation at this time.

TB exposure? → Yes → Patient <5 years old or immunocompromised?

Patient <5 years old or immunocompromised? → No → Follow clinically. If no prior TB history, repeat PPD/Quantiferon 10 weeks after last exposure.

Patient <5 years old or immunocompromised? → Yes → 1. Obtain CXR and consult TB officer if abnormal.
2. Consider obtaining sputum or gastric aspirate samples x3 for AFB testing,* especially if <12 months old.
3. Check HIV and LFTs.
4. Give window prophylaxis until 1) patient is ≥6 months old or 2) 10 weeks after last exposure, whichever is later. Then repeat PPD/ Quantiferon.

1. Obtain sputum or gastric aspirate samples x3 for AFB testing.*
2. Consider empiric treatment for community-acquired pneumonia.
3. Isolate per guidelines.
4. Perform LP in any child <12 months old strongly suspected of having active TB. Order "AFB" and change specimen type to "CSF."

→ AFB positive or no improvement after pneumonia treatment?

AFB positive or no improvement after pneumonia treatment? → No → Continued concern for active TB?

Continued concern for active TB? → No → New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon?

New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon? → Yes → Treat for LTBI. Check HIV and LFTs.

New positive PPD (10 mm induration or 5 mm induration if high risk**) or positive Quantiferon? → No → Follow clinically. If no prior TB history, repeat PPD/Quantiferon 10 weeks after last exposure.

Continued concern for active TB? → Yes → Treat for active TB. Check HIV and LFTs.

AFB positive or no improvement after pneumonia treatment? → Yes → Treat for active TB. Check HIV and LFTs.

CXR Findings in Pediatric TB May Include:

- Lobar infiltrates
- Atelectasis
- Hilar adenopathy
- Miliary pattern
- Cavitary lesions (uncommon)

Symptoms Concerning for Active TB

- Fever > 2 weeks
- Persistent cough > 2 weeks
- Failure to thrive/weight loss
- Erythema nodosum
- Hemoptysis (uncommon in kids)

*Samples

Induced sputum samples are preferred over gastric aspirations. Induced sputum samples should be collected at least eight hours apart. Three samples should be sent for AFB Smear and Culture and two should be sent for Xpert MTB-RIF (run by state lab). See the **Pediatric Induced Sputum Collection Protocol**.

Consult TB Officer If:

- Patient is immunocompromised.
- Repeat PPD/Quantiferon is positive.
- Patient has past history of positive TB test or disease AND recent close contact with active TB.

Contact Information

To Contact a TB Officer: Send a message via Tiger Connect to "TB Officers" Team. Please notify this team about any child with any suspicion for TB.

Public Health Nursing: Phone: 907-543-2110, Fax: 907-543-0435
Alaska State Epidemiology: (907) 269-8000
TB Warm Line/Curry Center: (415) 502-4700 or (877) 390-6682

- Medications are typically prescribed by a TB officer in partnership with Public Health.
- Please see the **Alaska Pediatric TB Manual** or the **Curry Center TB Reference** for more information.

Abbreviations: TB- tuberculosis; CXR- chest X-ray; PPD- purified protein derivative; AFB- acid-fast bacilli; HIV- human immunodeficiency virus; LFTs- liver function tests; Xpert MTB-RIF- rapid test for Mycobacterium tuberculosis and rifampin resistance.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved 6/6/22.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Mien_Chyi@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

UTI (Adult)

Patient presents with symptoms of cystitis: Dysuria, urinary urgency/ frequency, suprapubic abdominal pain

- Obtain UA.
- Obtain GC/CT and trichomonas if genital pruritus/discharge.

Notes

- Incidental positive urine cultures in asymptomatic patients are generally not treated (UNLESS pregnant).
- Patients with indwelling urinary catheters will have chronic colonization and abnormal UA. Treatment should be reserved for febrile illness or other clear indication of new acute infection.

UA consistent with UTI?

< 5 squamous epithelial cells/HPF
> 5 WBC/HPF
AND one of the following:
(+) leukocyte esterase
(+) nitrite (indicates significant bacteriuria; sensitive but not specific)
(+) bacteria

No →
- Pursue alternate diagnosis.
- Consider urine culture.

Yes ↓

Fever, chills, flank pain, CVA tenderness, ill appearance, hemodynamic instability, WBC casts in UA?

Yes →

Pyelonephritis

- Labs, fluids, antiemetics, analgesics as appropriate.
- Consider imaging if critically ill or concern for obstruction.

Able to be treated outpatient? (taking PO, not septic, not pregnant)

Yes →

In ED:
Ceftriaxone 1 gram IV (preferred)
OR
Levofloxacin 750 mg IV

Discharge medication:
Cephalexin 1 gram PO twice daily x10-14 days
OR
Levofloxacin 750 mg PO daily x5 days

No ↓

- Admit to inpatient.

- Empiric treatment
Ceftriaxone 1 gram IV Q24h (preferred)
OR
Levofloxacin 750 mg IV Q24h
OR
Ciprofloxacin 400 mg IV Q12h

- If MDRO risk without Hx ESBL
Piperacillin/Tazobactam 3.375 grams IV Q6h
OR
Cefepime 1 gram IV Q6h

- If Hx ESBL
Meropenem 1 gram IV Q8h

Risk Factors for Multi-Drug Resistant Organism (MDRO)

- Prior MDRO
- UTI developed during inpatient hospitalization
- Use of TMP-SMX, fluoroquinolone, or 3rd or 4th generation cephalosporin in past 3 months

Improving?

Yes →
- Narrow based on sensitivities.
- Discharge on PO antibiotics.

No →
- Obtain imaging to rule-out obstruction.
- Broaden to meropenem to cover ESBL.

No ↓

Functional urinary tract abnormalities, BPH, calculi, obstruction, chronic catheterization?

No →

Simple UTI/Cystitis

Nitrofurantoin 100 mg PO twice daily x5 days (first line if <65 years and no known Hx ESBL)
OR
Cephalexin 500 mg PO twice daily x5-7 days (first line if > 65 years)

If allergic to both:
Ciprofloxacin 250 mg PO twice daily x3 days

Yes ↓

Complicated UTI

Able to be treated outpatient? (taking PO, not septic, not pregnant)

Yes →
- Empiric antibiotics based on prior urine cultures.
- Definitive treatment based on culture.
- If no prior urine culture, treat as pyelonephritis.
- Antibiotic duration 3-5 days after clinical improvement.

No ↓
- Admit to inpatient.
- Manage as pyelonephritis.

→ Admit to inpatient.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 10/21/22.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Kaia_Pearson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

UTI (3 months – 5 years)

Risk Factors for UTI

- Constipation
- Bubble baths
- Poor hygiene
- Uncircumcised boy

High Concern for UTI

- Fever >102
- No source
- Fever >48 hours
- History of UTI

May use **UTI Risk Calculator** to help risk-stratify.

Signs and Symptoms of UTI

- Fever
- Dysuria
- Hematuria
- Vomiting
- Abdominal pain
- New daytime or nighttime wetting
- Increased frequency of voiding
- Malodorous urine

Differential Dx for Dysuria

- Vulvovaginitis
- Candida infection
- Bowel-bladder dysfunction
- Poor hygiene
- Sexual abuse (consider collecting dirty urine for GC/CT; see **Suspected Pediatric Sexual Abuse Procedure Guideline** for more information)
- Age-appropriate self-exploration
- UTI

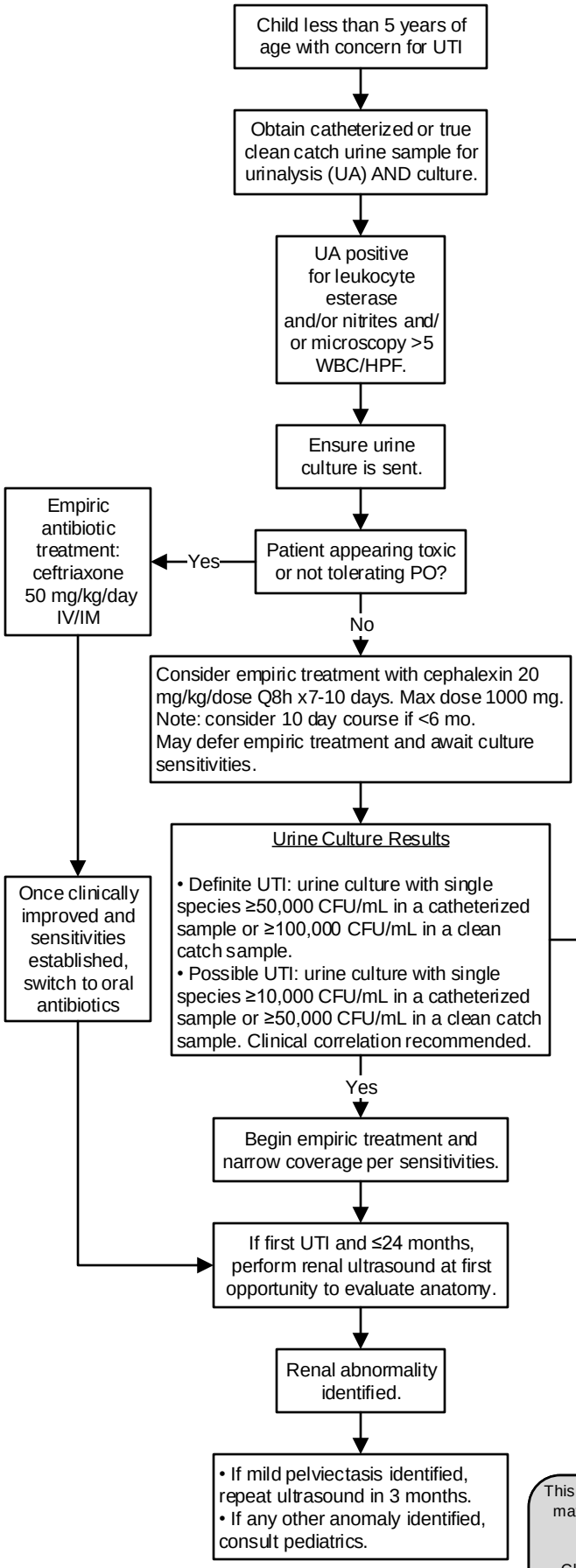
Resistance

- Empiric drug choice is based on local resistance patterns (see **YKHC Antibiogram**) and consultation with ID specialist.
- If urine culture grows an Extended-Spectrum Beta-Lactamase (ESBL) producing organism, please obtain a pediatrics consult and add ESBL to Problem List.

Indications for VCUG

- Recurrent UTI.
- Major anomaly on ultrasound. Consult pediatric urologist and consider obtaining VCUG in Anchorage.

Note: study available in Bethel 1-2 times per year when radiologist in-house.



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.

Village Management

- DO NOT treat any child empirically in the village without sending clean catch urine sample for culture.
- Consider symptomatic care (see box) for possible vulvovaginitis.
- If patient has dysuria, increased frequency, new-onset enuresis, and/or abnormal clean catch urinalysis, consider further evaluation in Bethel.

DO NOT…

- Treat any child for UTI empirically without culture pending.
- Routinely collect urine via bag.
- Routinely perform a test of cure.
- Routinely start UTI prophylaxis.
- Perform suprapubic taps.
- Routinely obtain bloodwork for uncomplicated UTI.
- Add UTI to Problem List until confirmed by culture.

NOTE: For infants <90 days with fever, see the Fever in Infants 0-90 Days Guideline.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 12/7/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Varicella, Suspected

True Varicella infection is RARE in our region:

1. **DO NOT diagnose Varicella** without confirmatory lab testing.
2. Per the CDC:
• Two doses of VZV vaccine are 88-98% effective at preventing all VZV infections.
• One dose of VZV vaccine is 80-85% effective at preventing all VZV infections.
3. All confirmed Varicella must be confirmed to State Epidemiology with this form: http://dhss.alaska.gov/dph/Epi/Documents/pubs/conditions/frmInfect.pdf

Differential Diagnosis

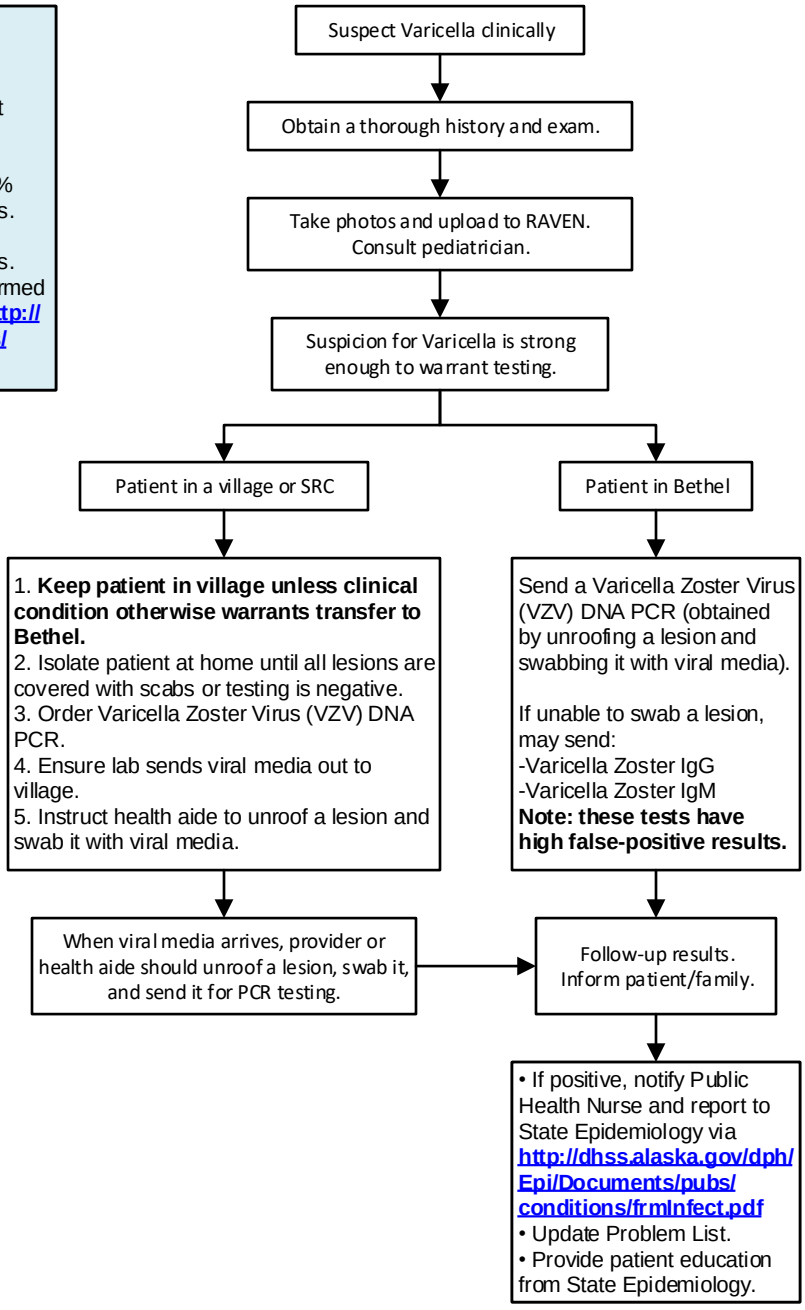
- Hand-foot-mouth disease
- Scabies
- Stomatitis
- Eczema herpeticum
- Diffuse impetigo

Provider Documentation for Suspected Varicella Infection

- Date of symptom onset
- Date of suspected diagnosis
- Date of rash onset
- Location of rash, including where first noted
- Number of lesions
- Photos of lesions
- Evolution of rash (including appearance of new groups of lesions)
- Appearance of lesions (are there lesions in all stages of development at once?)

High Risk Exposures

- Inquire if any pregnant women or immunocompromised people have been exposed.
- For pregnant women: find out if she has a history of varicella or has received the vaccine. If not, then consult HROB to consider further treatment.
- For immunocompromised patients: refer to a provider for evaluation.



Typical Presentation for Chickenpox/Varicella

- Exposure occurs.
- 10-21 days after exposure, fever appears, followed by rash that often starts on the head and then moves down.
- Rash appears in successive crops over several days.
- Rash begins as macular and then progresses to vesicular, then pustular, then crusted.
- There are lesions in different stages of development on different parts of the body.
- New vesicles stop forming within four days.

Yukon-Kuskokwim HEALTH CORPORATION

Neonatal/Pediatric Growth & Development Guidelines

Neonatal/Pediatric Growth & Development

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Failure to Thrive in Children <24 Months

Criteria

- Weight for age <5th percentile on WHO Growth Chart (0-24 months). (Note: The growth chart in RAVEN defaults to the CDC. Select the WHO growth chart by clicking on "CDCWHO.")
- Weight for length <5th percentile on WHO Growth Chart (0-24 months).
- Decrease across two major percentile lines over a 3-6 month period.

High-Risk Criteria
(Consider admission.)

- <1 month: not regaining birth weight by 21 days of life, continued weight loss after 7 days of life.
- 1 month-12 months: no weight gain, weight loss, weight for length z-score of -2 or lower. (Note: to see z-score in RAVEN, select the weight for length growth chart and click "table.")
- Medical instability
- Moderate to severe malnutrition with concern for refeeding syndrome
- Moderate to severe dehydration
- Failed outpatient managements including multiple missed appointments
- Suspected abuse/neglect

Frequency of Weight Checks

- <1 month: Q1-3 days
- 1-6 months: Q1-2 weeks
- 6-12 months: Q2-4 weeks
- 12-24 months: Q2-4 weeks

Patient at risk for malnutrition or failure to thrive (FTT)

Please have a low threshold to consult a pediatrician for any child you are concerned about.

Initial Evaluation

- Full history (see box on **next page**). Use autotext "..hpiFTT."
- Full physical exam (see box on **next page**). Use autotext "..physFTT."

Does patient have any High-Risk Criteria? (See box.)

Yes

- Consider differential diagnosis.
- Perform lab work-up (see box).
- Consider admission.

- Daily naked weights.
- Strict I/O, calorie counts.
- If breastfeeding, do weights pre- and post-feeds. (Naked except for diaper that should not be changed until after weight.)
- Implement initial feeding recommendations per box on **next page**.

Is patient gaining adequate weight after 2-3 days?

No

- Implement secondary feeding recommendations on **next page**.
- Consider transfer to higher level of care if patient does not gain weight after these measures.

Yes

Discharge with:
- Detailed feeding plan that includes timing, volume, calorie density, supplements, etc.
- Scheduled follow-up per box. If returning to village, consider a weight check in 24-48 hours in outpatient clinic before returning to village.

No

- Give feeding recommendations per box on **next page**.
- Schedule weight checks at frequency in box.
- Consider fortification of feeds.

At weight check, is patient gaining adequate weight?

Yes

Continue scheduled weight checks until adequate weight gain at three consecutive visits.

Differential Diagnosis: General Categories and Symptoms

Inadequate Intake
- Long intervals between feeds (Sleep >3 hours if <2 months old)
- Falling asleep during feeds
- Limited number and volume of feeding per day
- Improper mixing of formula
- Lactation problems: poor supply, difficulty with latching
- Limited urine diapers (<1 wet diaper per 8 hours)
- Food insecurity/inability
- Excessive vomiting/spitting up/reflux
- Increased hunger cues/caregiver isn't recognizing cues
- Symptoms of maternal depression
- Birth weight not regained in 2 weeks
- Oral Motor Dysfunction

Malabsorption
- High volume, extremely loose stools
- Clay-colored stools
- Greasy or significantly foul-smelling stools
- Chronic diarrhea
- Abdominal distention, gassiness with diarrhea
- Blood in stools

Increased Metabolic Demand
- Cardiac: heart murmur, tachypnea, sweating or cyanosis with feeds, feeding fatigue
- Respiratory: noisy breathing, tachypnea, difficulty breathing with feeds, nasal obstruction
- Neurologic: increased or decreased tone, abnormal movements
- Metabolic/genetic: abnormal newborn screen, dysmorphic features
- Renal: urologic abnormalities, renal tubular acidosis
- Endocrinology: tachycardia, diaphoresis

Lab Workup, By Age

Use Power Plans "PED Pediatric Failure to Thrive" and "AMB Peds Failure to Thrive" to place orders in RAVEN.

- <1 month:
  - Verify Newborn Screen, CMP, CBC, urinalysis.
  - Consider metabolic evaluation.
- 1-24 months:
  - CBC, CMP, urinalysis, TSH, HIV, PPD (if <6 months but only actionable if positive) or Quantiferon (if >6 months), celiac screen if > 6 months and gluten exposure (total IgA tissue transglutaminase, IgG deaminated gliadin peptide).
  - Consider sending stool for occult blood, metabolic evaluation.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 3/1/22.
Click **here** for supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Failure to Thrive in Children <24 Months

History

Use autotext "..hpiFTT" to document in RAVEN.

General
- Recurrent fevers or infections
- Detailed birth history

Cardiovascular
- Sweating and/or fatigue with feeds

GI
- Constipation
- Vomiting

Neurologic
- Depressed mental status, inconsolability, sleepiness
- Developmental delay
- Abnormal movements

Feeding
- Breastfeeding
  - Frequency, length, number per day, longest interval between feedings, night vs day?
  - One or both breasts, softer after feeding, ± nipple shield, any pain or difficulty with latch?
  - If pumping, how much is produced?
  - Can you see or hear the baby swallow?
  - Any supplementation (expressed breast milk or formula)?
  - Does baby fall asleep at breast?
- Formula
  - Frequency, length, amount per feed and per day, longest interval between feeds, night vs day?
  - Type of formula and recipe
  - Type and size of bottle and nipple
  - Any supplementation (either addition to the bottle or solids)?
- Swallow problems
  - Coughing during feeding
  - Wet or gurgly sounds during or immediately after feeding
  - Frequent upper respiratory tract infections, fevers, or pneumonia
- Reflux
  - Coughing, choking, gagging, or any respiratory symptoms with feeds
  - Spitting up/vomiting
  - Arching, fussiness, or discomfort with feeds

Social
- Who feeds the baby? Who lives at home? Is there a feeding schedule?
- If bottle fed, are there concerns about obtaining enough formula?

Elimination
- Number of wet and stool diapers per 24 hours
- Stool appearance (consistency, color, any orange/red crystal/powder, any blood or mucus)

Please see **ANMC's Preterm Nutrition Resource** for more information, including recipes for mixing high caloric density formula.

Initial Feeding Recommendations

Breastmilk/Formula
- Minimum Intake Recommendations:
  - Term Infant: 108 kcal/kg/day = 162 mL/kg/day of 20 kcal/oz formula/breast milk
  - Preterm Infant: 110-130 kcal/kg/day = 177 mL/kg/day of 22 kcal/oz preterm formula
- Feeding Frequency:
  - <3 months: Q3h or ≥8 feeds/day. No more than 3 hours between feeds.
  - ≥3 months: Q3h during day with ≥6 feeds/day
- Wake the baby to feed if necessary.

For Solids
- Infant must be taking at least 24 oz/day of formula or breastmilk.
- Limit any other fluids like water or juice.
- By 12 months, goal 4-6 servings of >4 tablespoons per day.

Secondary Feeding Recommendations

- If patient is able to tolerate goal feed volume, increase volume by 10% to max 180 mL/kg/day OR increase caloric density by 2 kcal/ounce to max 24 kcal/ounce.
- Allow at least 24 hours to assess tolerance to any changes.
- If patient is taking solids and >9 months, consider increasing calories in solids.
- If patient is not able to consistently and safely take enough by mouth to gain weight, consider NG feeds.

Physical

Use autotext "..physFTT" to document in RAVEN.

General
- Cachexia, decreased subcutaneous stores, decreased muscle bulk
- Relative macrocephaly
- Lack of caregiver bonding or responsiveness to patient
- Dysmorphic features or syndromic appearance

HEENT
- Scleral icterus
- Nasal congestion or obstruction
- Cleft lip or palate
- Macroglossia or ankyloglossia
- Micrognathia

Respiratory
- Stridor
- Difficulty breathing, tachypnea
- Abnormal breath sounds including wheezing, crackles, etc.

Cardiovascular
- Murmurs
- Diminished or absent peripheral pulses

GI
- Hepatosplenomegaly
- Abdominal distension
- Palpable stools

Skin
- Jaundice
- Rashes or skin breakdown (including in diaper area)
- Severe atopic dermatitis)

Neurologic
- Depressed mental status, inconsolability, sleepiness
- Developmental delay
- Abnormal movements

Caloric Needs by Age

If preterm, use corrected age.

- <37 weeks: 110 -130 kcal/kg/day
- 37 weeks-6 months: 108 kcal/kg/day
- 7-12 months: 98 kcal/kg/day
- 12-24 months: 75-95 kcal/kg/day

Average Daily Weight Gain by Age

Age (corrected)	Median (grams/day)	
	Girls	Boys
2-4 weeks	29	34
4 weeks-2 months	34	40
2-3 months	24	27
3-4 months	20	21
4-5 months	16	17
5-6 months	13	14
6-8 months	11	11
8-10 months	9	9
10-12 months	8	8
12-15 months	4-9.5	4.5-10
15-18 months	4-9.5	4-9
18-21 months	4-9.5	4-9
21-24 months	3.5-9	3.5-9

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Approved by MSEC 3/1/22.
Click **here** for supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Prince3@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Care of Late Preterm & Low Birth Weight Newborns

Preterm infant born at YKHC

Unstable or GA <35 weeks

35 – 36.6 weeks AND stable

BW <2200 grams?**

Yes

Transfer to NICU. See **Pediatric Medevac: Bethel to Anchorage** Guideline.

No

- Encourage mother to express breastmilk.
- If infant is stable, encourage bonding and breastfeeding while awaiting medevac.

NOTE: If infant of any GA is unstable at any time, please contact the pediatric hospitalist (Tiger Connect Peds Wards on Duty) and prepare for transfer.

- Admit patient to OB using the Late Preterm Power Plan.
- Infant is observed in the mother's room or in the Newborn Treatment Room for at least four hours to ensure stability.
- VS Q4h, including temperature, throughout entire stay.
- Weigh baby Qshift.
- Blood glucose screening per **protocol** for full first 24 hours of life.
- Establish feeding plan with parents (see box).
- Ensure parents are educated (see box).
- Follow Late Preterm Goals of Care worksheet (to be placed on baby's hard chart).
- On day of birth, schedule outpatient appointment for DOL 4-5 to ensure appointment availability.

Parent Education

- Educate parents regarding vulnerability of late preterm neonate and late preterm protocol.
- Attach completed Late Preterm Crib Card to crib.
- Ensure parents have received the Late Preterm Handout and use as a resource.
- Emphasize need for follow-up with outpatient appointment prior to return to village.
- Ensure and encourage proper pediatric follow-up.
- Education regarding feeding plan and follow-up resources.

Huddle at 24 hours of Life

(to include bedside nurse, charge nurse, family medicine hospitalist, and pediatric hospitalist if needed)

- Points to discuss: how the baby is feeding, %weight loss, can we safely manage the baby's needs, unit acuity/staffing ratios, does the baby need to be transferred at this time, time for next huddle (if needed).
- If infant receives three "strikes" on the Late Preterm Goals of Care worksheet, there must be a huddle to discuss if the infant should be transferred. (See Strike box.)

Infant Stability

- Temperature ≥97.7 (axillary) for 6 hours in open crib.
- Cardiovascular and respiratory stability as determined by the medical team.
- Able to tolerate oral feeds without color change or increased WOB: breastfeeding or tolerating 5-10 ml EBM or formula at a minimum of every 3 hours.

Strikes

- Any temperature <97.7
- Any weight <2200 grams
- Any blood glucose level below target for age

**NOTE: Term babies with BW <2200 grams do not need to be automatically transferred if stable. For these infants, this guideline should be applied, with the BW counting as one strike. There should be a huddle at 24 hours of life or sooner if infant receives two more strikes.

Goals for Discharge

- All late preterm babies are admitted for at least 72 hours.
- Weight loss <8% below BW.
- Temperature ≥97.7°F x24 hours in an open crib.
- Well-established feeding plan.
- Follow-up appointment scheduled in outpatient clinic in Bethel in 24-48 hours. If weekend, may have this follow-up on OB by pediatric hospitalist.
- Must have warm handoff with message sent to provider seeing patient for follow-up that includes minimal requirements to be met for discharge back to village.
- Follow-up weekly in village or outpatient clinic until corrected GA of 40 weeks.
- Prescribe Poly-Vi-Sol WITH Iron at discharge.

Definitions

- GA: gestational age at birth
- Late preterm: GA 34 weeks 0 days to 36 weeks 6 days
- Early term: GA 37 weeks 0 days to 38 weeks 6 days
- Term: GA 39 weeks 0 days to 40 weeks 6 days
- Low birth weight is any baby born <2500 grams

Characteristics of Late Preterm Infants

- Low birth weight
- Low body fat
- Poor thermoregulation
- Low glycogen stores
- Low tone
- Poor state regulation
- Immature immune system
- Immature suck and swallow
- Delay in bilirubin metabolism

Late Preterm Infants Are at Risk For:

- Hypothermia
- Hypoglycemia
- Sepsis
- Poor feeding and infrequent feeds can lead to inadequate maternal milk supply/breast feeding failure
- Poor suck and swallow may lead to inadequate milk intake
- Excessive weight loss, failure to thrive
- Hyperbilirubinemia with late rise (expect peak on DOL 5)
- Increased readmission rate (5-13 times that of term infants)
- Respiratory instability in upright car safety seats or other upright infant devices
- Hospital readmission

Feeding Plan

Infants meeting any of the following criteria should be assessed for the need for supplementation:
- Birth weight <2500 grams
- Poor reserve (evidenced by temperature instability or hypoglycemia)
- Poor feeding (LATCH <7 or <10 minutes at breast)
- Weight loss >3% per day or >8% total
- Minimum volumes for both bottlefed and breastfed babies:
  - 0-24 hours: 5-10 mL
  - 25-48 hours: 10-20 mL
  - 49-96 hours: 20-30 mL
- If bottlefeeding, advance feeds as tolerated.

If Breastfeeding

- Lactation evaluation within 24 hours of birth.
- **LATCH score** documented at least Qshift.
- Infant should be put to breast at least Q3h.
- Use Supplemental Nursing System (SNS) **to ensure measurable amounts each feed with the above minimum volumes.**

Supplementation

- Supplementation should be given by SNS (preferred), cup, or finger feeds rather than nipple and bottle. May receive formula if milk volume not meeting fluid needs.
- Mother to pump every 3 hours after nursing unless infant nursing vigorously.
- Bedside nurse and medical team should re-evaluate feeding plan daily.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 7/14/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Newborn Early Onset Sepsis/GBS

Is infant ≥ 35 weeks?

No → This guideline does not apply to infants <35 weeks. Consult pediatrics. See this link for resources.

Yes

Is one or more of the following present?

- Any maternal fever during antepartum period
- Prolonged rupture of membranes
- GBS positive or unknown

No →
- Routine care.
- Infants born to mothers with GBS positive status should be observed in the hospital for 48 hours.
- Consult pediatric hospitalist with any questions or concerns.

Yes

- Go to the Kaiser Neonatal Early-Onset Sepsis Calculator.
- Enter infant and maternal information.
- The first question will ask your local incidence of newborn sepsis. In the drop-down box, choose the CDC national incidence.

- Follow recommendations for blood culture, antibiotics, and vital sign frequency based on early-onset sepsis risk for infant's clinical status.
- "Well-appearing," "equivocal," and "clinical illness" are defined here.
- Note: If the calculator recommends observation, this should be for at least 48 hours with vital signs Q4h.

→ If any clinical concerns about infant, consult pediatric hospitalist.

If giving antibiotics:
- Send blood culture, CBC with differential, and CRP.
- Order ampicillin and gentamicin, using Neofax or the Neonatal Resuscitation Summary for dosing.
- Consult pediatric hospitalist and prepare to transfer infant to NICU.

Note: CBC and CRP are not routinely recommended anymore. However, they can be useful to trend if starting antibiotics. Thus, we recommend they be obtained if starting antibiotics.

Signs of Neonatal Sepsis

- Temp ≥ 100.4 or ≤ 97.5
- Irritability
- Poor Feeding
- Hypoglycemia
- Hypothermia
- Tachypnea
- Tachycardia
- "Not acting right"

If any of these signs are present, consider obtaining a pediatrics consult.

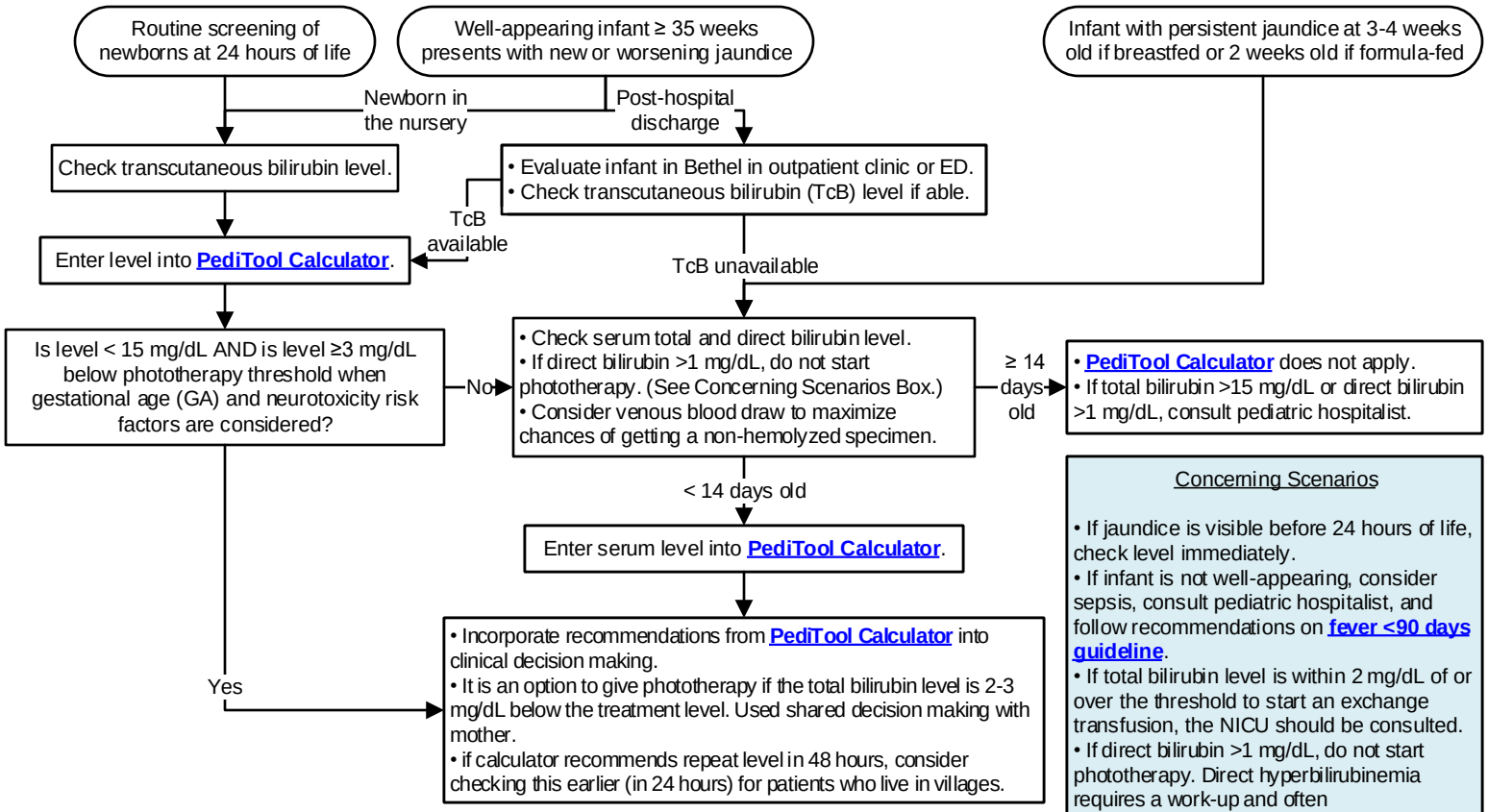
References

- *Pediatrics* 2019: Management of Infants at Risk for Group B Streptococcal Disease
- *Pediatrics* 2018: Management of Neonates Born at ≥ 35 0/7 Weeks' Gestation with Suspected or Proven Early-Onset Bacterial Sepsis

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Jaundice in a Baby <4 Weeks



Concerning Scenarios

- If jaundice is visible before 24 hours of life, check level immediately.
- If infant is not well-appearing, consider sepsis, consult pediatric hospitalist, and follow recommendations on **fever <90 days guideline**.
- If total bilirubin level is within 2 mg/dL of or over the threshold to start an exchange transfusion, the NICU should be consulted.
- If direct bilirubin >1 mg/dL, do not start phototherapy. Direct hyperbilirubinemia requires a work-up and often gastroenterology consultation. Phototherapy is contraindicated. Obtain pediatrics consult.

How to Use PediTool Calculator

(Note: Website may not work in Firefox.)

1. Enter infant's gestational age, age in hours, and total bilirubin level.
2. Note if infant has any neurotoxicity risk factors. (See box.)
3. Click "submit."
4. The next page will plot the level on a graph. You will see if the infant meets criteria for phototherapy and/or exchange transfusion.
5. If not starting phototherapy, scroll down to the table labelled, "Post-birth hospitalization discharge follow-up for infants who have NOT received phototherapy." Follow these recommendations for repeat levels.

Neurotoxicity Risk Factors

Use this list to answer question on PediTool calculator.

- Isoimmune hemolytic disease (positive DAT, etc.), G6PD deficiency, or other hemolytic condition
- Sepsis
- Clinical instability in past 24 hours

Phototherapy

1. Order using one of the following:
   - PED Pediatric Admission Power Plan→PED Phototherapy sub-phase
   - OB/Newborn orders folder→OB Newborn Phototherapy Power Plan

2. Check hemoglobin and hematocrit on all patients receiving phototherapy. May obtain via heel stick when checking bilirubin.

3. Check serum total bilirubin level Q12h (or more frequently if neurotoxicity risk factors or concern for ongoing hemolysis). If level is trending up, consult pediatrician and consider broadening differential and work-up. Note: Transcutaneous bilirubin is not reliable until 24 hours after phototherapy has been stopped.
4. Encourage frequent feeding, but try to limit time out of phototherapy to no more than 20 minutes Q3h.
5. IV fluids are unnecessary unless infant has signs of dehydration.
6. Keep infant supine with eye protection while under phototherapy.
7. Stop phototherapy when serum total bilirubin level is ≥ 2 mg/dL below the phototherapy initiation level, using the hour of life at which phototherapy was initiated.
8. Obtain rebound bilirubin level 6-12 hours after stopping phototherapy if patient required phototherapy in first 48 hours of life, if concern for hemolysis, or if DAT positive.

Direct Antibody Test (DAT)

- Order a DAT if:
  - Mother has positive or unknown antibody screen.
  - Mother is type O or Rh negative and did not receive RhIg during pregnancy.
  - The infant's total bilirubin level has a high rate of rise (0.3 mg/dL/hour in first 24 hours or 0.2 mg/dL/hour after first 24 hours).
- If infant has a positive DAT, check transcutaneous bilirubin immediately and then retest Q4h x2 then Q12h x3.

Labs for Expanded Work-up

Consider in infants with jaundice at <24 hours of life, rising levels despite phototherapy, or recurrent jaundice.

- Blood type, DAT (Direct Antibody Test, or Coombs)
- CBC with manual differential and reticulocyte count
- CMP
- Thyroid studies (if prolonged or recurrent)
- GGT
- G6PD

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 10/21/22.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Justin_Willis@ykhc.org or Mien_Chyi@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Neonatal Glucose Screening

Target Glucose Levels for Age

Birth to 4 hours of life	≥ 35 mg/dL
>4 – 24 hours of life	≥ 45 mg/dL
>24 – 48 hours of life	≥ 50 mg/dL
>48 hours of life	≥ 60 mg/dL

Symptoms of Hypoglycemia

- Irritability
- Tremors/jitteriness
- Exaggerated Moro reflex
- High-pitched cry
- Seizures
- Lethargy
- Floppiness
- Cyanosis
- Apnea
- Poor Feeding

Indications for Screening of Asymptomatic Newborns

- SGA (<10%ile BW) or IUGR
- LGA (>90%ile BW)
- Infant of Diabetic Mother
- Late preterm (34 0/7 – 36 6/7) or post-term (>42 weeks)
- Perinatal stress (C-section for fetal distress, maternal preeclampsia or severe HTN, etc.)
- Physician discretion

0-4 HOURS OF AGE

At Risk Infants (See Indications Box)

Begin feeding within one hour of birth. First glucose should be obtained 30 minutes after completion of first feed.

- < 35 → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed).
  - <25 → 1. Administer Glucose Gel immediately per dosing chart. 2. Notify provider immediately. 3. Obtain IV, start D10 infusion, and transfer to a higher level of care.
  - 25-34 → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed). **4. Move to algorithm below once > 4 hours of life.**
  - ≥ 35 → 1. Continue feeds q 2-3 hours as long as BG >35. 2. Assess for hypoglycemia by obtaining and documenting pre-feed BG. **3. Move to algorithm below once > 4 hours of life.**
- ≥ 35 → 1. Continue feeds q 2-3 hours as long as BG >35. 2. Assess for hypoglycemia by obtaining and documenting pre-feed BG. **3. Move to algorithm below once > 4 hours of life.**

GLUCOSE 40% GEL DOSING

Birth Weight	Dose
≤ 2 kg	1 mL
>2-2.5 kg	1.25 mL
>2.5-3 kg	1.5 mL
>3-3.5 kg	1.75 mL
>3.5-4 kg	2 mL
>4-4.5 kg	2.25 mL
>4.5-5 kg	2.5 mL

> 4 - 48 HOURS OF AGE

1. Continue feeds q 2-3 hours.
2. Assess for hypoglycemia by obtaining and documenting pre-feed BG.

→ At or Above Target BG?

- Yes → 1. Continue feeds q 2-3 hours. 2. Assess for hypoglycemia by obtaining and documenting pre-feed BG.
  - → At or Above Target BG?
    - Yes → **STOP WHEN**:
      - Late preterm or SGA/IUGR: infant is 24 hours old AND last four consecutive BGs in target range for age
      - Other infants: when last four consecutive BGs in target range for age
    - No → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed).
      - → At or Above Target BG?
        - Yes → **STOP WHEN**:
          - Late preterm or SGA/IUGR: infant is 24 hours old AND last four consecutive BGs in target range for age
          - Other infants: when last four consecutive BGs in target range for age
        - No → Is this 3rd dose of Glucose Gel?
          - No → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed).
          - Yes → 1. Administer Glucose Gel immediately per dosing chart. 2. Notify provider immediately. 3. Obtain IV, start D10 infusion, and transfer to a higher level of care.
- No → ≤ 35?
  - Yes → 1. Administer Glucose Gel immediately per dosing chart. 2. Notify provider immediately. 3. Obtain IV, start D10 infusion, and transfer to a higher level of care.
  - No → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed).
    - → At or Above Target BG?
      - Yes → **STOP WHEN**:
        - Late preterm or SGA/IUGR: infant is 24 hours old AND last four consecutive BGs in target range for age
        - Other infants: when last four consecutive BGs in target range for age
      - No → Is this 3rd dose of Glucose Gel?
        - No → 1. Administer Glucose Gel immediately per dosing chart. 2. Place skin to skin and feed again. 3. Repeat BG at 1 hour after Glucose Gel (NOT one hour after feed).
        - Yes → 1. Administer Glucose Gel immediately per dosing chart. 2. Notify provider immediately. 3. Obtain IV, start D10 infusion, and transfer to a higher level of care.

If infant has severe symptoms or BG is <25 after first Dextrose Gel dose
THE ABOVE PROTOCOL NO LONGER APPLIES.

- Give Glucose Gel dose.
- Start IV.
- Give D10 2 mL/kg bolus at 1 mL/minute.
- Start D10 infusion at 80 mL/kg/day.
- Goal is to keep baby's serum glucose at 60.
- Check glucose 30 minutes after each bolus or rate change and Q1-2h until stable.
- If glucose remains low, give another D10 2 mL/kg bolus and increase hourly rate by 1 mL/hour.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 12/7/21.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Amy_Carson-Strnad@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Neonatal Resuscitation Summary

PAMC Transfer center - 907-212-7363
NICU (907) 212-3614 – Ask for attending neonatologist on call.
Neonatologist direct line (for emergencies) (907) 212-2068.

GESTATIONAL AGE (weeks)	24	26	28	30	32	34	36	38	40
ESTIMATED WEIGHT (grams)	**700**	**900**	**1100**	**1350**	**1650**	**2100**	**2600**	**3000**	**3500**
EQUIPMENT/SUPPLIES: NG/OG Tube - 5 French ♦ UVC <32 weeks - 3.5 French ♦ UVC ≥32 weeks - 5 French									
Laryngoscope Blade	00	00	00	0	0	0	0	0-1	0-1
ETT Size	2.5	2.5	2.5-3.0	3.0	3.0	3.0-3.5	3.5	3.5-4.0	3.5-4.0
ETT Depth lip to tip. *Place at T2 above the carina.*	6.5-7 cm	6.5-7 cm	7 cm	7-7.5 cm	7.5 cm	8 cm	8.5 cm	9 cm	9.5 cm
Laryngeal mask airway (LMA)	none	none	none	none	Consult NICU.	1	1	1	1
Needle decompression. *See kit and protocol in neonatal code cart.*	18 gauge	18 gauge	18 gauge	18 gauge	18 gauge	16 gauge	16 gauge	16 gauge	16 gauge
UVC insertion. *Place just above diaphragm. Add umbilical stump length.* **May insert UVC 2-4 cm for emergency access.**	6.5 cm	6.9 cm	7.2 cm	7.5 cm	8 cm	8.7 cm	9.4 cm	10 cm	10.8 cm
VITAL SIGNS: Heart Rate 120-160 ♦ Respiratory Rate 30-60 ♦ Mean Blood Pressure = Gestational age in weeks									
INITIAL VENTILATOR SETTINGS									
Positive Inspiratory Pressure (PIP) cm H_2O	16-22	16-22	16-22	16-22	18-24	18-24	18-24	20-28	20-28
Positive End Expiratory Pressure (PEEP) cm H_2O	4-6	4-6	4-6	4-6	4-6	5-6	5-6	5-6	5-6
Inspiratory Time (seconds)	0.3-0.35	0.3-0.35	0.3-0.35	0.3-0.35	0.3-0.35	0.3-0.35	0.35-0.4	0.35-0.4	0.35-0.4
Respiratory Rate (breaths per minute)	30-45	30-45	30-45	30-45	20-40	20-40	20-40	20-40	20-40
Saturation Goal after 10 Minutes	88-95%	88-95%	88-95%	88-95%	88-95%	88-95%	88-95%	95-98%	95-98%
MEDICATIONS									
Epinephrine **IV/IO 0.1 mg/mL** 0.2 mL/kg. *May repeat every 3 minutes for asystole.*	0.14 mL	0.18 mL	0.22 mL	0.27 mL	0.33 mL	0.4 mL	0.5 mL	0.6 mL	0.7 mL
Epinephrine **ET ONLY 0.1 mg/mL** 1 mL/kg. *May repeat every 3 minutes for asystole.*	0.7 mL	0.9 mL	1.1 mL	1.3 mL	1.6 mL	2.1 mL	2.6 mL	3 mL	3.5 mL
Curosurf (poractant alfa 80 mg/mL) 2.5 mL/kg as a single dose. Give Curosurf <26 weeks OR 26-29 weeks requiring ≥40% FiO_2 OR >29 weeks with CXR-proven RDS. See guideline for more details.	1.8 mL	2.2 mL	2.8 mL	3.4 mL	4 mL	5.2 mL	6.6 mL	7.6 mL	8.8 mL
FOR HYPOGLYCEMIA: Give D10 bolus 2 mL/kg IV/IO at 1 mL/min. Increase D10 maintenance fluid rate by 1 mL/hour for <2 kg or 2 mL/hour for ≥2 kg.	1.4 mL	1.8 mL	2.2 mL	2.7 mL	3.3 mL	4.2 mL	5.2 mL	6 mL	7 mL
Ampicillin **(Dilute to 100 mg/mL)** 50 mg/kg IV/IM	35 mg (0.35 mL)	45 mg (0.45 mL)	55 mg (0.55 mL)	68 mg (0.68 mL)	83 mg (0.83 mL)	105 mg (1.05 mL)	130 mg (1.3 mL)	150 mg (1.5 mL)	175 mg (1.75 mL)
Gentamicin (2 mg/mL) 5 mg/kg IV as one-time dose. May give IM. **DO NOT USE IN VILLAGE.**	3.5 mg (1.75 mL)	4.5 mg (2.25 mL)	5.5 mg (2.75 mL)	6.8 mg (3.4 mL)	8.2 mg (4.1 mL)	10.4 mg (5.2 mL)	13 mg (6.5 mL)	15 mg (7.5 mL)	17.6 mg (8.8 mL)
Volume Expanders: NS or albumin 10 mL/kg IV/IO. Give over 15-30 minutes; give faster if unstable; give slower for extreme premies.	7 mL	9 mL	11 mL	13.5 mL	16.5 mL	21 mL	26 mL	30 mL	35 mL
D10 Maintenance Fluids: <750 grams give 90-100 mL/kg/24 hours ♦ ≥750 grams give 80 mL/kg/24 hours. Goal blood glucose is 50-110 mg/dL.	3 mL/hour	3 mL/hour	3.7 mL/hour	4.5 mL/hour	5.5 mL/hour	7 mL/hour	8.7 mL/hour	10 mL/hour	12 mL/hour
Phenobarbital (130 mg/mL) 10 mg/kg IV/IO/IM/PR. May give additional 10 mg/kg dose.	7 mg (0.05 mL)	9 mg (0.07 mL)	11 mg (0.08 mL)	13.5 mg (0.1 mL)	16.5 mg (0.13 mL)	21 mg (0.16 mL)	26 mg (0.2 mL)	30 mg (0.23 mL)	35 mg (0.27 mL)

Reviewed and updated by YKHC Pediatrics, OB Nursing, and Pharmacy in conjunction with Providence Alaska Medical Center NICU Staff. Approved by Clinical Guideline Committee 8/23/23.

Yukon-Kuskokwim HEALTH CORPORATION

Neonatal Drug Preparation & Rapid Sequence Intubation Drugs

PAMC Transfer center - 907-212-7363
NICU (907) 212-3614 – Ask for attending neonatologist on call.
Neonatologist direct line (for emergencies) (907) 212-2068.

Epinephrine 0.1 mg/mL

- This is the pre-filled syringe concentration.
- Draw up doses by inserting needle through the thick rubber stopper.
- Flush with 3 mL of NS regardless of weight or gestational age.

Ampicillin 100 mg/mL

Products needed:

- Ampicillin 500 mg vial
- Sterile water for injection, 10 mL vial

How to mix:

1. Reconstitute 500 mg vial with 4.8 mL sterile water for injection. This will result in a 100 mg/mL final concentration.
2. The Neonatal Resuscitation Summary (page 1) lists the total dose and volume – draw up dose from vial.
3. Dose must be used within 1 hour of reconstitution.

Administration:

- Doses less than 500 mg can be injected via slow IV push over 3 to 5 minutes.
- Not compatible with D10W.
- Administer before gentamicin – do not administer at the same time.

Gentamicin 2 mg/mL

Product needed:

- Gentamicin 100 mg/50 mL pre-mixed bag.

DO NOT ADMINISTER THE BAG – the dose will be administered via syringe pump.

The Neonatal Resuscitation Summary (page 1) lists the total dose and volume – draw up this volume from the bag and **immediately dispose of the bag.**

Administration:

- Administer after ampicillin – do not administer at the same time.
- Administer via **syringe pump** over 30 minutes.
- Compatible with D10W.

Rapid Sequence Intubation Medications: **Consult NICU prior to use.** Do not use in routine resuscitation. Consider for surfactant administration and in difficult airway.									
GESTATIONAL AGE (weeks)	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**
ESTIMATED WEIGHT (grams)	**700**	**900**	**1100**	**1350**	**1650**	**2100**	**2600**	**3000**	**3500**
Atropine (0.1 mg/mL) – 0.02 mg/kg	0.01 mg (0.1 mL)	0.02 mg (0.2 mL)	0.02 mg (0.2 mL)	0.03 mg (0.3 mL)	0.03 mg (0.3 mL)	0.04 mg (0.4 mL)	0.05 mg (0.5 mL)	0.06 mg (0.6 mL)	0.07 mg (0.7 mL)
Fentanyl (**10 mcg/mL**) – 1 mcg/kg (May repeat dose once.) **Push slowly over 3-5 minutes.** Have dose of rocuronium drawn up in case of chest wall rigidity.	0.7 mcg (0.07 mL)	0.9 mcg (0.09 mL)	1.1 mcg (0.11 mL)	1.4 mcg (0.14 mL)	1.7 mcg (0.17 mL)	2.1 mcg (0.21 mL)	2.6 mcg (0.26 mL)	3 mcg (0.3 mL)	3.5 mcg (0.35 mL)
Rocuronium (10 mg/mL) – 0.6 mg/kg **Do not routinely use. Reserve for difficult airways.**	0.4 mg (0.04 mL)	0.5 mg (0.05 mL)	0.7 mg (0.07 mL)	0.8 mg (0.08 mL)	1 mg (0.1 mL)	1.3 mg (0.13 mL)	1.6 mg (0.16 mL)	1.8 mg (0.18 mL)	2.1 mg (0.21 mL)
Naloxone (0.4 mg/mL) – 0.1 mg/kg	0.07 mg (0.18 mL)	0.09 mg (0.23 mL)	0.11 mg (0.28 mL)	0.14 mg (0.35 mL)	0.16 mg (0.4 mL)	0.2 mg (0.5 mL)	0.26 mg (0.65 mL)	0.3 mg (0.75 mL)	0.35 mg (0.9 mL)

Fentanyl 10 mcg/mL

Products needed:

- Fentanyl 50 mcg/mL, 2 mL vial
- Preservative-free normal saline

How to mix:

1. Draw up 1 mL of fentanyl 50 mcg/mL.
2. Add to 4 mL of normal saline.

Administration:

- Inject via slow IV push over 3 to 5 minutes.
- If chest wall rigidity develops, give dose of rocuronium or naloxone.

RSI Drug Notes

- Drug Locations:
  - Atropine and naloxone located in neonatal code cart.
  - Fentanyl 50 mcg/mL and rocuronium located in OB Pyxis.
- May flush with 0.5-1 mL of NS if needed.

Reviewed and updated by YKHC Pediatrics, OB Nursing, and Pharmacy in conjunction with Providence Alaska Medical Center NICU Staff. Approved by Clinical Guideline Committee 8/23/23.

Return to Table of Contents.

Neurology

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

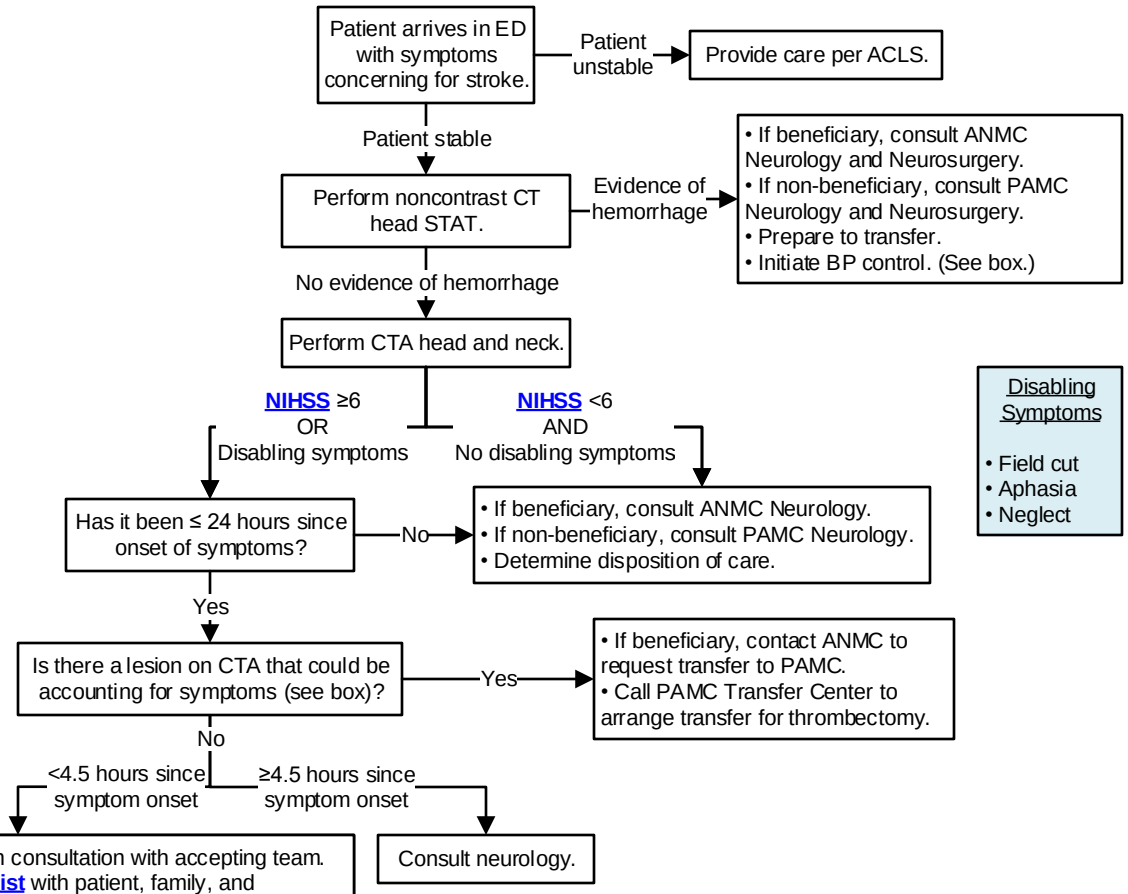
Cerebrovascular Accident

Immediate Management (in village, en route, or upon arrival)

- Consider ASA 81 mg (PO or PR) if no headache or vomiting.
- Blood glucose.
- EKG, if possible.
- Place two large-bore IVs.
- Notify radiology tech and radiologist.
- Have appropriate staff on standby.
- Have tenecteplase ready.
- Transport directly to CT, if stable.
- COVID screen/BINAX.
- Calculate **NIHSS**.

General Care for Strokes

- Supportive care for airway, breathing, circulation
- VS including weight
- Telemetry
- Appropriate neurologic status documentation and repeat checks
- Glucose goal 140-180; repeat glucose checks if NPO.
- Maintain normothermia (eg acetaminophen PR as needed)
- NPO until swallow study
- BP control (see box)



Disabling Symptoms

- Field cut
- Aphasia
- Neglect

BP Control

BP Goals

- Acute ischemic stroke or TIA: <220/120 mm Hg
- Acute ischemic stroke s/p thrombolytics: <185/110 mm Hg
- Intracerebral hemorrhage: <180/90 mm Hg
- Subarachnoid hemorrhage: <140-160/90 mm Hg

Patient eligible for reperfusion therapy except if BP>185/110; lower BP by below regimen, then proceed:

- Nicardipine 5 mg/hour IV, titrate up by 2.5 mg/hour every 5 to 15 minutes, max 15 mg/hour; adjust to maintain proper BP (nicardipine is preferred)

OR

- Labetalol 10 to 20 mg IV over 1 to 2 minutes, may repeat x1

OR

- Hydralazine or enalaprilat may also be considered.

If blood pressure is not maintained at or below 185/110 mmHg, do **not** administer tenecteplase.

During and after reperfusion therapy to maintain BP <180/105:

- Labetalol 10 mg IV then continuous infusion 2 to 8 mg/min
- Nicardipine 5 mg/hour IV, titrate to desired effect by 2.5 mg/hour every 5 to 15 minutes, max 15 mg/hour

Phone Numbers

- Providence Transfer Center: (907) 212-7363, press 1 for STEMI/stroke
- ANMC Transfer Center: (907) 729-BEDS or Tiger Connect the Transfer Center
- ANMC Neurology: Tiger Connect

Thrombolytics at YKHC

- Tenecteplase is the only thrombolytic stocked in the ED at YKHC. Dose for CVA is 0.25 mg/kg IV once (max 25 mg).
- Alteplase must come from the pharmacy, if desired.

If giving thrombolytics

- Goal time from door to drug: <60 minutes.
- Attempt to place all lines and tubes (ETT, Foley, NG) prior to administering drug.
- Monitor until transfer: frequent VS and neuro checks.
- BP control per box.
- If any neurologic worsening, repeat head CT.

Criteria for Possible Thrombectomy

- <24h since last well
- NIHSS ≥ 6 or disabling symptoms such as aphasia, neglect, field cut
- Good previous function
- **ASPECTS** >6
- Lesion in carotid, M1, M2, basilar, P1, or A1 arteries

Note about Disposition

- Most patients with stroke should be transferred, either for intervention at PAMC or for work-up and therapy.
- Consider NOT transferring:
  - Patients who decline transfer.
  - Patients with resolved symptoms. (Calculate **Canadian TIA** or **ABCD²** score).
- **You may need to advocate for your patients to receive the standard of care.**

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 2/1/22. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact EPeek_Ehlinger@ykhc.org or Jeremy_Wood@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Cerebrovascular Accident

Thrombolytic Checklist

INDICATIONS *(initial yes or no)*		
YES	**NO**	
		Less than 4.5 hours since onset of symptoms or last known normal.
		NIHSS greater than 5 (or less than 5 with disabling symptoms).
		Symptoms are NOT rapidly improving.
		Symptoms are NOT due to untreated hypoglycemia (BG<50).

ABSOLUTE CONTRAINDICATIONS *(initial yes or no)*		
YES	**NO**	
		CT evidence of hemorrhage OR extensive area of hypodensity (irreversible injury).
		GI/GU bleed in the last 21 days.
		Severe, uncontrolled, hypertension >185/110.
		Current intracranial neoplasm.
		Active internal bleeding or known aortic dissection.
		Any bleeding diathesis.
		Presentation suggestive of SAH or endocarditis (not septic emboli).
		History of intracranial hemorrhage.
		Anticoagulation (warfarin or DOAC in the last 48 hours or therapeutic-dosed heparinoids).
		Any of the following in the last three months: ischemic stroke, intracranial surgery, intraspinal surgery, or serious head trauma.

RELATIVE CONTRAINDICATIONS *(initial yes or no) – If any of the following relative contraindications are present, consider expert consultation prior to giving thrombinolytic and/or consider these with consent and shared decision-making.*		
YES	**NO**	
		History of GI or GU hemorrhage.
		Arterial puncture in a non-compressible site in the last seven days.
		Seizure at onset with postictal neurologic impairment.
		Major surgery in the last 14 days.
		Pregnancy.
		Onset 3-4.5 hours with NIHSS >25 (higher bleeding risk) or age >80 (higher bleeding risk).
		Untreated AVM or aneurysm.
		Systemic malignancy.
		History of arterial dissections.
		Blood glucose greater than 400 (associated with worse outcomes).

This checklist is advisory for clinical decision-making and may not be all-inclusive. Risks and benefits will need to be assessed individually.

Physician signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Cerebrovascular Accident

PROCEDURE CONSENT

I hereby authorize _____ and such assistants as he/she may designate, to perform the following operation or procedure:

TECHNICAL DESCRIPTION	Intravenous thrombolytic therapy for acute ischemic stroke.
LAY DESCRIPTION	Give clot-dissolving medication through an IV to dissolve the clot which is causing a stroke.

_____ has discussed with me the information briefly summarized below:

BENEFITS	• Thrombolytic medication is a treatment that may restore blood flow to the brain. • In studies, if these drugs were given less than three hours after the stroke started, 33% of patients given thrombolytic drugs had a good outcome. In patients who did not get thrombolytic drugs, 23% got better. Ten people would have to get the drug to help one person have a better outcome. • If these drugs were given between three and four and a half hours after the stroke started, 35% of patients given thrombolytic drugs had a good outcome, and 30% of patients who didn't get the drug also got better. Twenty people would have to get the drug to help one person have a better outcome. • Patients who receive this drug within three hours of the stroke starting have a 10% increase in chance of disability-free survival. • Patients who receive this drug between three and four and a half hours from the stroke starting have a 5% increase in chance of disability-free survival.
RISKS *(some, but not all)*	• In a large study of stroke patients, 6.8% of them had bleeding in their brain after receiving thrombolytic drugs for stroke, compared to 1.3% of those stroke patients who did not receive the drug. If we give this drug 18 times, it will probably make one person have bleeding in their brain. • Among all people given this drug, 2% die from a hemorrhage.
RISKS OF NOT HAVING THE PROCEDURE	• Higher risk of developing permanent, disabling stroke symptoms.
ALTERNATIVE TREATMENTS	No other treatments available at this facility. Only monitoring symptoms and rehabilitation.

Patient signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Physician signature: _____

Printed name: _____ Date and time: _____

Witness signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Head Injury in Patients < 18 Years Old

Head injury in a child <18 years.

If GCS ≤ 8, intubate and refer to PALS stabilization algorithms.

Low Risk

GCS=15
AND
No risk factors (see Intermediate and High Risk boxes)

Discharge with return precautions and competent caregiver.

Intermediate Risk

GCS=15
AND one or more of the following:
- Occipital, parietal, or temporal scalp hematoma
- Loss of consciousness > 5 seconds
- Not acting normal per parent
- **Severe mechanism of injury****
- If older than 2: vomiting or severe headache
- Amnesia

High Risk

One or more of the following:
- GCS≤14
- **Altered mental status***
- Signs of skull fracture
- Focal neurological deficits
- Seizure
- Loss of consciousness > 1 minute
- Suspected non-accidental trauma

***Altered Mental Status**

- Agitation/irritability
- Inconsolability
- Somnolence/lethargy
- Slow response
- Repetitive questions

****Severe Mechanism of Injury**

- Fall: >3 feet if younger than 2 years, >5 feet if older than 2 years
- Motor vehicle accident with ejection, rollover, or fatality
- Unhelmeted bike/pedestrian vs vehicle
- Head struck by high-impact object

Factors to consider when deciding to observe vs perform head CT:

- Provider experience
- Multiple vs isolated findings
- Worsening signs/symptoms
- Age <3 months
- Parental preference

In all pediatric trauma:

- Remember to complete full trauma survey to identify other injuries.
- Consider further evaluation for non-accidental trauma (skeletal survey, dilated eye exam, etc.). See **Suspected Physical Abuse Procedure**.

Observation
- Observe in the ER 4-6 hours post-injury.
or
- If presenting >4 hours post-injury AND not improving per caregiver, observe 4 hours.

Not improved → CT Scan: Perform noncontrast head CT with spinal motion restriction

Improved → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

CT Scan → Normal / Abnormal

Normal → Is patient improving? Yes → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

Is patient improving? No → Consult PICU and trauma service.

Village Management

- If Low Risk: Discharge with competent caregiver with clear return precautions. Do not send to Bethel unless otherwise indicated.
- If Intermediate Risk: Consider medevac vs observation with Q1h VS and neuro checks. If any worsening or no improvement over 4 hours, activate medevac.
- If High Risk: Activate medevac.

Plain films of the skull are not recommended.

C-spine Injury

Please see the **YKHC Spinal Cord Injury Management guideline** for pediatric C-spine resources.

Concussion Management

- Complete **Acute Concussion Evaluation** at every visit.
- Follow-up in outpatient clinic in 1-2 weeks.
- Consider **Sport Concussion Assessment Tool (SCAT)** at follow-up.
- Consider balance testing.
- Avoid medications that can worsen somnolence.
- If symptoms persist >3-4 weeks, consider referral to neurologist, psychologist, physical therapy, etc.
- Return to school per **CDC Heads Up Protocol**.
- Return to play per **ASAA Guidelines**.

Pediatric Glasgow Coma Scale (GCS)

	Infant	Child	
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain	To pain	2
	No response	No response	1
Best verbal response	Coos, babbles	Orientated, appropriate	5
	Irritable cry	Confused	4
	Cries to pain	Inappropriate words	3
	Moans to pain	Incomprehensible sounds	2
	No response	No response	1
Best motor response	Moves spontaneously	Obeys commands	6
	Withdraws to touch	Localizes painful stimulus	5
	Withdraws to pain	Withdraws to pain	4
	Flexion to pain	Flexion to pain	3
	Extension to pain	Extension to pain	2
	No response	No response	1

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Seizure Evaluation (<18 years)

Pediatric patient presents with resolved seizure-like activity.

If patient is actively having a seizure, go to Status Epilepticus Treatment guideline.

Bedside glucose STAT if seizure occurred <4 hours ago or mental status not at baseline

Obtain detailed history. (See Box 1.)
Perform neurologic exam.

Strong suspicion that event was a seizure?

No → Provide reassurance and education.
Ask parents to video-record future events.
Instruct parents to return if events change or become more concerning.

Yes

Does patient have history of seizures?

Yes → Assess for triggers: infection/fever, missed doses, sleep deprivation, significant weight gain, etc.
If this seizure is similar to child's regular seizures, child is back to neuro baseline, and reliable caregiver, may discharge home.
Review antiepileptic drug regimen and compliance.
Confirm that parents have unexpired Diastat in the home. Review seizure precautions.
Consult pediatrics with any questions.

No

History of fever?

Yes

Patient meets ALL low-risk criteria (see Box 2)?

Yes

Look for source of fever.
Do not routinely perform head CT.

Age ≥18 months → Diagnose simple febrile seizure.

Age <18 months → Consider performing LP, given that signs and symptoms of meningitis may be absent or subtle in this age group.

No

Labs: CBC, CRP, BMP, magnesium, phosphate, blood culture, U/A, urine culture.
Consider LP.

LP results, if applicable

Normal → Discharge patient if reassuring neurologic status.
Educate parents concerning febrile seizure and give febrile seizure education handout.
Treat infection and fever if appropriate.
EEG unnecessary.
Update Problem List.
Prescribe Diastat for all seizure patients ≥6 months.
Consult pediatrics with any questions.

Abnormal → Suspect meningitis:
Consult pediatrics.
Start meningitic dose of ceftriaxone and consider vancomycin, acyclovir, and dexamethasone per Pediatric Critical Care Guide.
Strongly consider medevac to Anchorage.

No

Perform work-up as appropriate.
(See Box 3.)

Follow-up with pediatrics to consider EEG, MRI, and/or neurology consult.

At discharge, prescribe Diastat for all seizure patients ≥6 months old.

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 for evaluation.
- 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.

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 Hx: Seizures, febrile seizures, breathholding, etc.

Box 2: Low risk febrile seizure criteria

1. 6 months to 5 years of age.
2. Fever present.
3. Seizure generalized (nonfocal).
4. Seizure duration <15 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.

Box 3: Work-up

- Bedside glucose
- EKG for first event
- CBC, BMP, magnesium, phosphate
- Urine drug screen
- Perform LP if persistent altered mental status, meningitis suspected, or <18 months of age and delayed return to baseline.

Radiological studies:
Obtain head CT without contrast prior to LP if concerning neurologic status, persistently altered mental status, history of trauma, focal neurological findings, or focal seizure.

Consider using the Bacterial Meningitis Score for Children to help rule-out meningitis.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 8/3/21. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Spinal Cord Injury (SCI) Management

Trauma patient presents for care.

• ABCs.
• Apply SMR to entire spine on patients at risk for SCI (see box).

• If intubation required, see Intubation Guideline.
• Maintain SMR.

Trauma primary survey indicates spinal injury OR high risk mechanism in obtunded/unevaluatable patient.

Yes → Obtain non-contrast CT of C/T/L spine.

No SCI → **Discontinue SMR.

Evidence of SCI → Maintain appropriate SMR.

No

Is patient an awake, asymptomatic adult with normal neurologic exam, no high-risk mechanism, no neck TTP and free range of motion of neck?

Yes → • Discontinue CMR. • Perform secondary survey.

No → Obtain non-contrast CT C-spine.

No SCI → • Discontinue CMR. • Perform secondary survey.

Evidence of SCI → Maintain appropriate SMR.

Evidence of T/L spine injury during secondary survey, distracting injuries, or depressed level of consciousness?

Yes → Obtain contrast CT abdomen/pelvis with reconstruction of T/L spine.

No SCI → **Discontinue SMR.

No

• Ensure two large bore IVs.
• Place central line and start pressors if signs of neurogenic shock (bradycardia, hypotension, warm extremities).

• CT entire spine if not already obtained.
• CT angiography neck if C-spine fracture to exclude BCVI.

Consider methylprednisolone only if advised by neurosurgeon and if within 8 hours of injury.

• If polytrauma, discuss case with ANMC trauma surgery.
• If isolated SCI, discuss case with ANMC Neurosurgery.
• Transfer by medevac to level I/II trauma center.
• Continue frequent reassessments until transferred.
• ISNCSCI documentation if time permits (see next page).
• If prolonged delay in transfer consider starting LWMH.

Risk Factors for SCI

Mechanism	Clinical Condition
• MVC	• Depressed GCS
• Fall	• Midline neck or back pain
• GSW	• Spinal deformity
Patient Factors	• Distracting circumstances or injury (includes alcohol intoxication)
• Advanced age	
• Osteoporosis	

If uncertain, apply Canadian C-spine Rules:

• Age < 65, no paresthesia, no dangerous mechanism (fall >/= 3 ft, axial load injury, high speed MVC / rollover / ejection, pedestrian or cyclist vs MVC, ATV / snowmobile accident).
• Low risk factors present: sitting position in ED, ambulatory at any time, rearend MVC, no midline spinal TTP, neck pain delayed (not immediate).
• Patient can rotate neck 45° left and right without pain.

Village Management

• Consult with ED physician early in management.
• If evidence of SCI, instruct health aides to begin SMR. Activate medevac.
• Consider XR if available. If XR shows fracture, consult ED physician if direct transfer to Anchorage is indicated. If XR does not show fracture, DO NOT discontinue SMR.

Methylprednisolone

• Methylprednisolone IV bolus 30 mg/kg over 15 minutes.
• Continue IVF x45 minutes.
• Methylprednisolone IV maintenance 5.4 mg/kg/hour for 23 hours.

**Special Circumstances

If objective examination evidence of significant neurologic deficits with negative CT, discuss utility of MRI with ANMC Neurosurgery. A negative CT in an obtunded or unevaluable adult patient is considered sufficient to rule out SCI; however, if a patient is intubated in the setting of massive trauma it is reasonable to maintain SMR pending transfer to higher level of care regardless of imaging results.

Abbreviations

SCI: spinal cord injury
SMR: spinal motion restriction
TTP: tenderness to palpation
CMR: cervical motion restriction
MVC: motor vehicle collision
GSW: gunshot wound
GCS: Glasgow coma scale
CCR: Canadian C-spine Rules
BCVI: blunt cerebrovascular injury
ISNCSCI: International Standards for Neurologic Classification of Spine Cord Injury

Pediatric Considerations

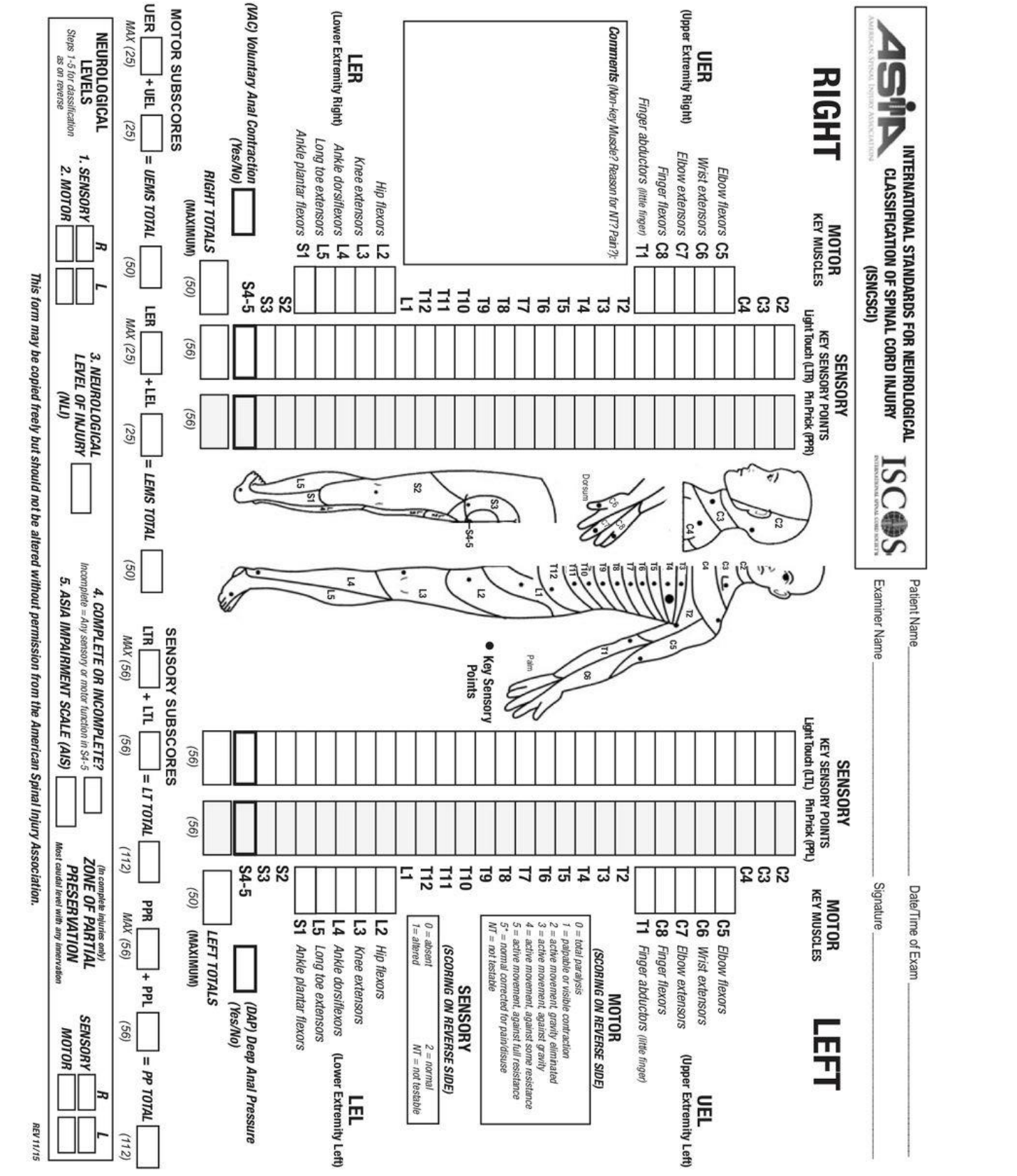
• The above algorithm was designed for adults and patients ≥14 years old.
• The Clinical Guideline Committee recommends the following resources in evaluating for a pediatric spine injury:
- The Royal Children's Hospital Melbourne Clinical Practice Guideline for Cervical Spine Assessment
Note: In the US, rigid collars are recommended, not soft collars shown here.
- American Academy of Pediatrics Pediatric Cervical Spine Clearance Working Group Algorithm

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact clinical_guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Spinal Cord Injury (SCI) Management



If time allows, please print this, complete it, scan it into the patient's MultiMedia Manager, and send with patient at time of transfer.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Status Epilepticus Treatment (Adult)

Definitions

- **This guideline is indicated for the emergent treatment of convulsive status epilepticus.**
- For atypical seizure-like presentations without evidence of impending hemodynamic instability, consult Neurology on call at ANMC or PAMC.
- Convulsive status epilepticus:
  - Seizure that lasts >5 minutes or occurs multiple times without regaining consciousness.
  - Diffuse, often tonic-clonic motor activity AND loss of consciousness.

Adult patient with seizure.

- ABCs and neurologic exam.
- **Bedside glucose STAT.**
- Obtain PIV x 2, continuous SpO_2, & cardiac monitor.
- Ensure BVM and suction at bedside.
- If possible, obtain labs (see box).
- Get AMPLE history.

After five minutes of seizure activity, patient meets criteria for treatment of convulsive status epilepticus (see Definitions box).

Village Management

See Emergency RMT Seizure Scenario on the wiki.

- ABCs. Prepare BVM and suction.
- Place patient on floor with space around.
- **Bedside glucose STAT.** If unable to get a glucose measurement, give glucose buccally.
- Follow flow for no IV in place.
- Discuss with E1/E2 and activate medevac.
- If seizure resolves, place patient in recovery position.

If IV access unsuccessful, begin treatment with "No IV" pathway while continuing to attempt access and/or placing IO.

Labwork

Labs: BMP, Mg, Phos, CBC, lactate, EtOH, UDS, U/A, hCG. If concern for infection, send blood cultures and pro-calcitonin. Consider CK to trend over time.

IV in place

- Lorazepam 0.1 mg/kg IV @ 2 mg/min AND
- Levetiracetam 60 mg/kg IV (max 4500 mg). Give over 15 minutes.

Seizure continues 5 more minutes after lorazepam given.

- Lorazepam 0.1 mg/kg IV @ 2 mg/min.
- Prepare for intubation.

Seizure continues 5 more minutes.

Fosphenytoin 20 mg PE/kg IV (max 1500 mg). Give over 10 minutes. If seizure continues, give additional 10 mg PE/kg IV over 5-10 minutes.

- Contact ICU and activate medevac.
- **Intubate** patient.
  - Induction (choose ONE): Propofol 2 mg/kg OR midazolam 0.2 mg/kg.
  - Paralysis: Rocuronium 0.6 mg/kg (preferred over succinylcholine due to risk of rhabdomyolysis and hyperkalemia, but recommend this lower dose)
  - Consider sugammadex following intubation to avoid masking seizure activity. Discuss with intensivist.
- Be prepared to give vasopressors or push-dose epinephrine if needed.

Choose ONE:

- Propofol drip 20 mcg/kg/min, titrate to effect with goal 50-80 mcg/kg/min. Watch BP closely.
- Midazolam drip 0.1 mg/kg/hr gtt, titrate to effect

- Discuss further management with ICU.
- Prepare for medevac.
- Continue active management until patient leaves, including continuous VS, frequent labs, and monitoring of UOP.

No IV in place

Benzodiazepine (choose ONE):

- Midazolam 0.2 mg/kg IM (max dose 10 mg) x1.
- Diazepam 0.2 mg/kg (max 20 mg) PR x1.
- Diastat home dose x1.

AND

- Levetiracetam 60 mg/kg (max 4500 mg) PO (if able) or PR. To give PR, give tablets as well as one packet of water-soluble lubricant.

Seizure continues 20 more minutes.

- Activate medevac if in village.
- Fosphenytoin 20 mg PE/kg IM (max 1500 mg).

Seizure continues 20 more minutes.

Repeat benzodiazepine dose.

Seizure continues 20 more minutes.

Phenobarbital 20 mg/kg IM (max 1000 mg).

Treatments for Provoked Seizures

- Hypoglycemia: Dextrose 50% IV. Give 25 grams IV push.
- Hyponatremia: Sodium chloride 3% 100 mL infusion over 10 minutes.
- Hypocalcemia: Calcium gluconate 1-2 gram IV push.
- Eclampsia: Magnesium sulfate 4-6 grams IV over 20 minutes followed by 1-2 gram/hour.
- Alcohol withdrawal: Phenobarbital 260 mg IV push followed by 130 mg Q30-60 minutes.

Post Seizure Care

- Seizure recurrence typically occurs within 2-6 hours.
- If history of seizures, may discharge with responsible adult if patient is improving. If first-time seizure, monitor in ED or clinic until mentation is at baseline. No air travel until >6 hours from event.
- Consider admission for prolonged post-ictal state or if concern for persistent metabolic abnormalities.
- Place urgent referral to Neurology if first-time seizure without known cause. Consult Neurology if considering urgent neurologic evaluation or medication initiation or adjustment.

Notes

- If seizure occurs in outpatient clinic, place patient on floor with space around and call a Rapid Response.
- Avoid using lorazepam IM due to erratic absorption.
- Avoid mixing different benzodiazepines.
- Monitor CK and renal function. Patient may require aggressive IV fluid administration if risk for rhabdomyolysis.
- Obtain neuroimaging if any focal abnormalities on neuro exam.
- Perform LP if unable to exclude intracranial infection. (Perform CT prior to LP.)

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If comments about this guideline, please contact Megan_Young@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Status Epilepticus Treatment (Pediatric)

Use the Pediatric Critical Care Guide and ED Peds Critical Care PowerPlan to check all medication dosing.

- ABCs. Ensure BVM at bedside and pediatric code cart within reach.
- **Bedside glucose STAT.**
- Obtain IV.
- Consult pediatrics.
- Obtain brief history.
- Prepare first-line medication. If in the ED or NW, get the Peds Seizure Kit (see box).

Seizure lasting ≥3 minutes
OR
More than one seizure in 24 hours without return to baseline.

No → Go to Pediatric Post-Seizure Evaluation guideline.

Yes

Peds Seizure Kit

- In the ED and Peds NW Pyxis.
- Type "seizure" and override.
- Includes:
  - Midazolam 10 mg/2 mL
  - Levetiracetam
  - Phenobarbital 130 mg/mL
  - Dosing cards from the pediatric critical care guide

Benzodiazepine (choose ONE)
- Midazolam 0.2 mg/kg IN/IM (max dose 10 mg) – single dose only.
- Lorazepam 0.1 mg/kg IV/IO (max dose 4 mg) – up to two doses Q5 minutes.
- Diastat home dose – up to two doses Q5 minutes.

Seizure continues 5 more minutes.

Village Management

See Emergency RMT Seizure Scenario on the wiki.
- ABCs.
- **Bedside glucose STAT.**
- If unable to get a glucose measurement, give glucose buccally.
- Get BVM with appropriate sized mask to bedside.
- Follow flow to the left, using these drugs with dosing found on Pediatric Critical Care Guide:
  - Diastat home dose PR if available or midazolam 0.2 mg/kg intranasal (max dose 10 mg) or diazepam 0.5 mg/kg (max 10 mg) IV solution given RECTALLY.
  - Phenobarbital or fosphenytoin (kept refrigerated) IM. If giving either second-line drug, consult pediatrics and strongly consider activating a medevac.
- Consider placing IV and giving NS bolus 20 mL/kg.
- Low threshold to activate medevac for atypical or prolonged seizure.

Consult ANMC PICU at (907) 297-8809.

Age ≤ 2 months

Phenobarbital 20 mg/kg IV/IM.
If IV, give over 15 minutes or
1 mg/kg/minute (max 60 mg/min).

Seizure continues 5 minutes after infusion complete.

Phenobarbital 10 mg/kg IV/IM.
If IV, give over 15 minutes or
1 mg/kg/minute (max 60 mg/min).

Seizure continues 5 minutes after infusion complete.

Levetiracetam 40 mg/kg IV/IM.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Levetiracetam 20 mg/kg IV/IM.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Start midazolam or propofol infusion with PICU consultation.

Age >2 months

Levetiracetam 60 mg/kg IV/IM.
Max dose 4500 mg.
If IV, give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Fosphenytoin 20 mg PE/kg IV.
Max dose 1000 mg.
Give over 10 minutes.

Seizure continues 5 minutes after infusion complete.

Fosphenytoin 10 mg PE/kg IV.
Max dose 1000 mg.
Give over 5-10 minutes.

Seizure continues 5 minutes after infusion complete.

Phenobarbital 20 mg/kg IV or IM.
Max dose 1000 mg.
If IV, give over 15 minutes.

Seizure continues 5 minutes after infusion complete.

Phenobarbital 10 mg/kg IV or IM.
Max dose 1000 mg.
If IV, give over 15 minutes.

Seizure continues 5 minutes after infusion complete.

Start midazolam or propofol infusion with PICU consultation.

In all ages, if hemodynamic instability or myocardial dysfunction, avoid phenobarbital and use alternate agents.

In all ages, in consultation with the PICU, consider preparing for intubation and continuous infusion after second-line drug has been given. Continue giving medications as detailed in the flow while infusion is being prepared.

If giving midazolam, make drip of 1 mg/mL and start at rate 0.1 mg/kg/hour.

Indications for Admission or Transfer:
-Status epilepticus
-Cluster of seizures
-Increased intracranial pressure
-CNS infection
-Structural lesion
-Patient does not return to baseline mental status

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 8/3/21. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Jennifer_Hampton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

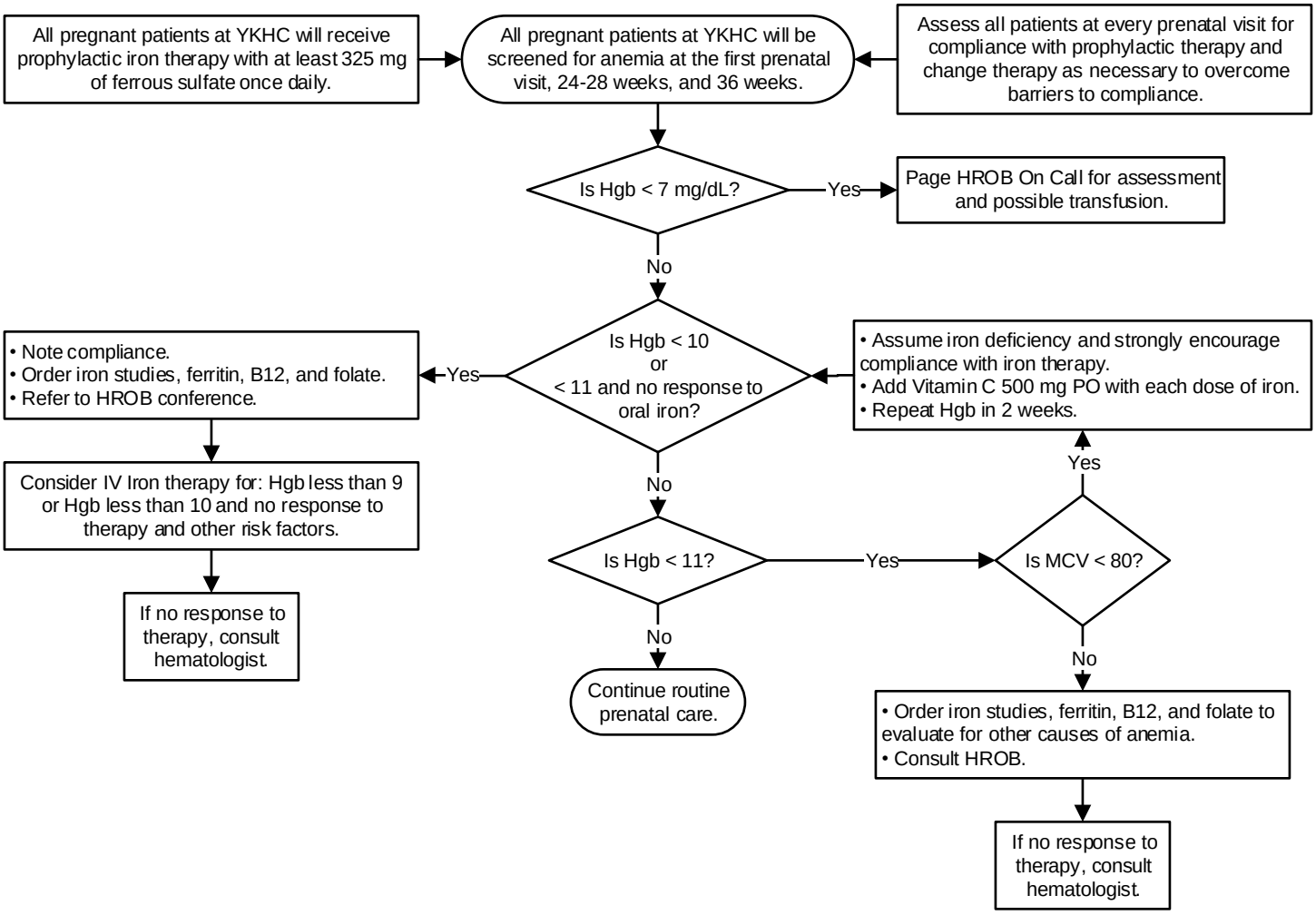
Obstetrics Guidelines

Obstetrics

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Anemia in Pregnancy



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If comments about this guideline, please contact Ellen_Hodges@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Aneuploidy Screening with Soft Ultrasound Markers

Soft Marker	Aneuploidy Evaluation	Antenatal Management	Follow-up Imaging
Echogenic intracardiac focus	• cfDNA or quad screen negative: none • No previous screening: counseling for noninvasive testing for aneuploidy	Routine care	N/A
Echogenic bowel	• cfDNA or quad screen negative: none • No previous screening: counseling for noninvasive testing for aneuploidy	Evaluation for cystic fibrosis, congenital viral infection, intra-amniotic bleeding	Third-trimester ultrasound examination for reassessment and evaluation of growth
Choroid plexus cyst	• cfDNA or quad screen negative: none • No previous screening: counseling for noninvasive testing for aneuploidy	Routine care	N/A
Single umbilical artery	cfDNA or quad screen negative or no previous screening: none	Consideration for weekly antenatal surveillance beginning at 36 0/7 week of gestation	Third-trimester ultrasound examination for evaluation of growth
Urinary tract dilation	• cfDNA or quad screen negative: none • No previous screening: counseling for noninvasive testing for aneuploidy	Evaluation for persistence, with frequency of evaluation dependent on initial findings	Third-trimester ultrasound examination to determine whether postnatal pediatric urology or nephrology follow-up is needed
Shortened humerus, femur, or both	• cfDNA or quad screen negative: none • No previous screening: counseling for noninvasive testing for aneuploidy	Evaluation for skeletal dysplasias	Third-trimester ultrasound examination for reassessment and evaluation of growth
Thickened nuchal fold	• cfDNA negative: none • Quad screen negative: counseling for no further testing vs noninvasive vs invasive testing for aneuploidy • No previous screening: counseling for noninvasive vs invasive testing for aneuploidy	Routine care	N/A
Absent or hypoplastic nasal bone	• cfDNA negative: none • Quad screen negative: counseling for no further testing vs noninvasive vs invasive testing for aneuploidy • No previous screening: counseling for noninvasive vs invasive testing for aneuploidy	Routine care	N/A

Abbreviations

- cfDNA: cell-free DNA – order in RAVEN as MaterniT21
- CF: cystic fibrosis
- Quad screen: order in RAVEN as AFP Maternal (Quad Screen)

Contact

MFM: Send referral through RAVEN via “Refer to Obstetrics External – Perinatology.”
For non-beneficiaries, place this order AND send a message to Women’s Health Case Manager to ensure it is sent to the correct place.

Source

Society for Maternal-Fetal Medicine. SMFM Consult Series #57: Evaluation and management of isolated soft ultrasound markers for aneuploidy in the second trimester. Am J Obstet Gynecol 2021.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Diabetes, Gestational

Abbreviations and Definitions

- Glucose Screening Test (GST): fasting or fed plasma glucose value one hour after 50 gram glucose load.
- Gestational Glucose Tolerance Test (GGTT): fasting plasma glucose value one hour and two hours after 75 gram glucose load.
- BGM: Blood Glucose Monitoring
- Pre-gestational Diabetes: patient with diagnosis of diabetes prior to pregnancy.
- DSMES: Diabetes Self-Management Education and Support

Block Testing

Monitoring at different times of the day to identify patterns.
For example, on some days the patient will check fasting levels, on other days check pre-meal levels, and on other days check levels 1-2 hours post-meal.

At first prenatal visit, check HgA1C in all patients.

- <5.7%: If the first prenatal screen is before 24-28 weeks and is negative, at 24-28 weeks, perform GST.
- ≥5.7% and <6.5%: • Add diagnosis "prediabetes" to Problem List. • BGM: weekly block testing.
- ≥6.5%: Confirm with fasting blood glucose ≥126 OR repeat HgA1C ≥6.5%.

GST:
- ≥180 mg/dL: Begin BGM. If patient is reluctant, may offer GGTT.
- 140 - 179 mg/dL: Perform GGTT ASAP.

Patient meets criteria for GDM. (See box.)

• Add diagnosis "GDM" to Problem List.
• Give patient GDM booklet and play video on iPad.
• BGM: fasting and 2 hours after start of meal 3x/day.

Confirm with fasting blood glucose ≥126 OR repeat HgA1C ≥6.5%.
• Add diagnosis "pre-gestational diabetes" to Problem List and refer to OB-GYN for management.
• BGM: fasting and 2 hours after start of meal 3x/day.

• Order glucose meter and supplies.
• Order "Refer to Diabetes Internal DSMES" in RAVEN.

75% of BGM levels within target range after 1-2 weeks?

- Yes: • Weekly phone follow up with DM department. • Weekly review at high risk OB (HROB) rounds. • HROB team will change testing and treatment plans as needed.
- No: • Initiate Medical Therapy. • Consult OB/GYN for assistance. • Refer to Anchorage for delivery.

• BGM: fasting and 2 hours after start of meal 3x/day.
• Weekly follow-up with DM educators and weekly review at HROB rounds.

BGM targets reached after one week?

- Yes
- No: • Reassess medication dose and choice. • Consult DM education Team and OB/GYN.

Diagnostic Criteria for GDM Utilizing Two Hour 75 g GGTT

Pregnant patient with any of the following:
Fasting glucose ≥92 mg/dL
1 hour after oral load, glucose ≥180 mg/dL
2 hours after oral load, glucose ≥153 mg/dL

BGM Targets

- Fasting glucose <95 mg/dL
- 2 hour post-prandial glucose <120 mg/dL
- 1 hour post-prandial glucose <140 mg/dl

Patients with Suboptimal Participation in Care

- Send letter after two weeks of not sending in sugar logs or two weeks of <25% of expected readings.
- Consider admission to monitor blood sugars.
- Consider transfer to ANMC at 32 weeks.

Postpartum Management of All Patients with GDM

- Add diagnosis "History of gestational diabetes" to Problem List.
- At the 6 week postpartum visit, perform two hour 75 gram Oral Glucose Tolerance Test with fasting and two hour blood draws only. NOTE: the criteria are different than in pregnancy.
- As an alternative, at >12 weeks postpartum, check HgA1C.
- Diabetes screening every three years.

Fetal Monitoring

- Diet, well-controlled
  - 28 weeks: kick counts.
  - Normal labor management.
- Diet, poorly controlled:
  - 28 weeks: kick counts.
  - 32 weeks: BPP weekly.
  - 38 weeks: Consult OB and consider induction.
- Insulin-controlled:
  - 28 weeks: kick counts.
  - 32 weeks: weekly BPP.
  - 32-35 weeks: transfer to Anchorage.

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Approved by Clinical Guideline Committee 3/13/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Ectopic Pregnancy Treatment

D&C Prior to Methotrexate?

D&C is NOT necessary prior to treatment with Methotrexate (MTX) for a plateau or abnormally rising HCG level. MTX will treat an abnormal pregnancy in the uterus or any other location.

Typical side effects of MTX

- Less than 30% of patients will experience minor, self-limited side effects from the medication, including nausea, mouth ulcers, and GI cramps.
- Most patients have some lower abdominal pain on the 3-6th day after treatment. This is not a problem if ibuprofen or acetaminophen relieves the pain.

Contraindication to MTX

Absolute contraindications
- Breast Feeding
- Overt or laboratory evidence of immunodeficiency
- Alcoholism, alcoholic liver disease, or other chronic liver disease
- Preexisting blood dyscrasias, such as bone marrow hypoplasia, leukopenia, thrombocytopenia, or significant anemia
- Known sensitivity to MTX
- Active pulmonary disease
- Peptic ulcer disease
- Hepatic, renal, or hematologic dysfunction

Relative contraindications
- Gestational sac larger that 3.5cm
- Embryonic cardiac motion

Ectopic Pregnancy diagnosed after consultation with HROB or OB/GYN.

Work-up

- Quantitative hCG
- Type and Screen
- CBC
- Comprehensive Metabolic Panel
- Transvaginal Pelvic Ultrasound (US)

Hemodynamically stable?
- No → Consult HROB for immediate surgery or transfer.
- Yes ↓

Adnexal Mass ≥ 4 cm
Cardiac activity
Pregnancy in location other than a tube
- Yes → Consult HROB for immediate surgery or transfer.
- No ↓

Platelets, kidney, and liver function normal?
- No → Consult HROB for immediate surgery or transfer.
- Yes ↓

Is the hCG >5000 or is there a large mass?
- No → Single Dose Regimen
- Yes → Two Dose Regimen

Single Dose Regimen

- Single dose MTX 50 mg/m^2 IM on day 1.
- Measure hCG level on post-treatment days 4 and 7.
- Check for 15% hCG decrease between days 4 and 7.
- Then measure hCG level weekly until reaching the nonpregnant level
- If results are less than the expected 15% decrease, readminister MTX 50 mg/m^2 and repeat hCG measurement on days 4 and 7 after second dose.

Two Dose Regimen

- Administer 50 mg/m^2 on day 1.
- Repeat 50 mg/m^2 on day 4.
- Measure hCG levels on days 4 and 7, and expect a 15% decrease between days 4 and 7.
- If the decrease is greater than 15%, measure hCG levels weekly until reaching non-pregnant level.
- If less than a 15% decrease in hCG levels, readminister MTX 50 mg/m^2 on days 7 and 11, measuring hCG levels.
- If hCG levels decrease 15% between days 7 and 11, continue to monitor weekly until non pregnant hCG levels are reached.

If at any time the hCG level rises during the monitoring of weekly hCG levels, consult a GYN Oncologist for further treatment.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

First Trimester Bleeding: Evaluation

Nomenclature

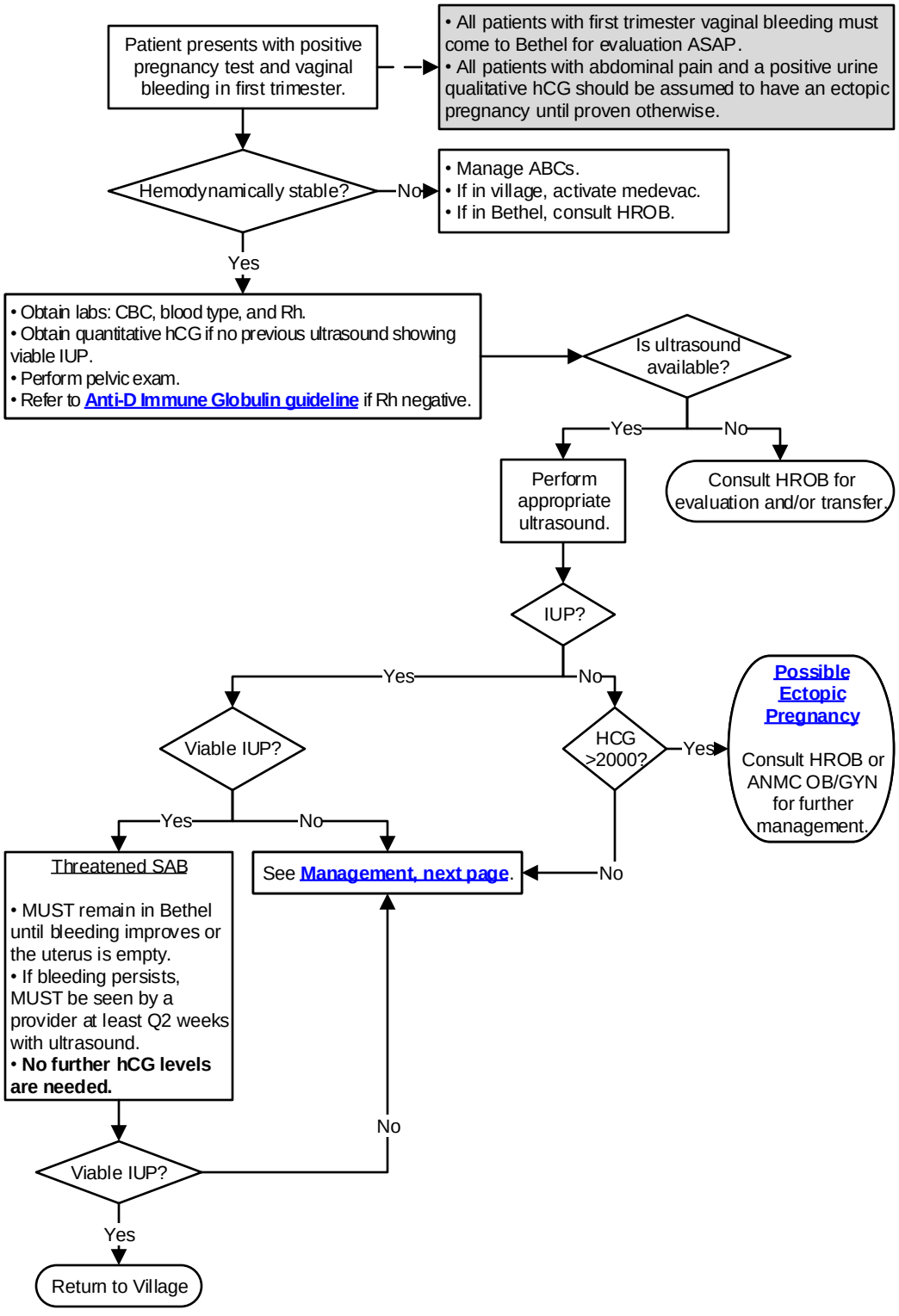
• Viable: A pregnancy is viable if it can potentially result in a liveborn baby.
• Nonviable: A pregnancy is nonviable if it cannot possibly result in a liveborn baby. Ectopic pregnancies and failed intrauterine pregnancies are nonviable.
• Intrauterine pregnancy of uncertain viability: A patient is considered to have this if a transvaginal ultrasound shows an intrauterine gestational sac with no embryonic heartbeat and no findings of definite pregnancy failure.
• Pregnancy of unknown location: A patient is considered to have this if there is a positive urine or serum pregnancy test and no intrauterine or ectopic pregnancy on transvaginal ultrasound.

Findings Diagnostic of Pregnancy Failure

• Crown-rump length of ≥7mm and no heartbeat.
• Mean sac diameter of ≥25mm and no embryo.
• Absence of embryo with heartbeat ≥14 days after an US that showed a gestational sac without a yolk sac.
• Absence of embryo with a heartbeat ≥11 days after an US that showed a gestational sac with a yolk sac.

Comments

• In a patient with a positive urine or serum pregnancy test, an intrauterine fluid collection with rounded edges containing no yolk sac is most likely a gestational sac; it is certain to be a gestational sac if it contains a yolk sac or embryo.
• Transabdominal imaging without transvaginal scanning may be sufficient for diagnosing early pregnancy failure when an embryo whose crown-rump length is 15 mm or more has no visible cardiac activity.
• Point of care ultrasound performed in the ED or clinic is an ultrasound for the purposes of this guideline. The ultrasound does not need to be performed in Diagnostic Imaging.



Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

First Trimester Bleeding: Management

Nomenclature

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• Nonviable: A pregnancy is nonviable if it cannot possibly result in a liveborn baby. Ectopic pregnancies and failed intrauterine pregnancies are nonviable.
• Intrauterine pregnancy of uncertain viability: A patient is considered to have this if a transvaginal ultrasound shows an intrauterine gestational sac with no embryonic heartbeat and no findings of definite pregnancy failure.
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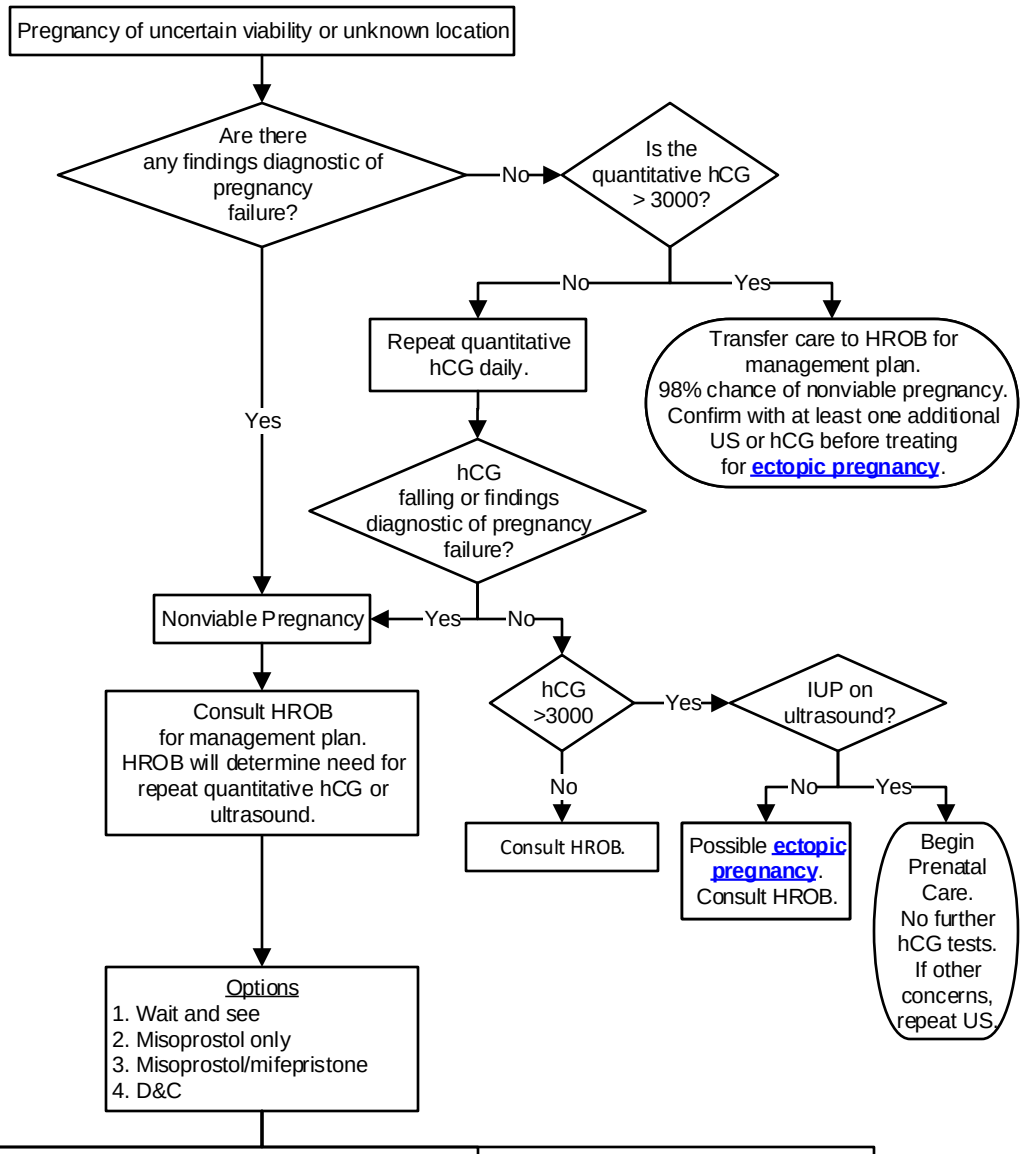
Findings Diagnostic of Pregnancy Failure

• Crown-rump length of ≥7mm and no heartbeat.
• Mean sac diameter of ≥25mm and no embryo.
• Absence of embryo with heartbeat ≥14 days after an US that showed a gestational sac without a yolk sac.
• Absence of embryo with a heartbeat ≥11 days after an US that showed a gestational sac with a yolk sac.
• Falling hCG level.

Comments

• In a patient with a positive urine or serum pregnancy test, an intrauterine fluid collection with rounded edges containing no yolk sac is most likely a gestational sac; it is certain to be a gestational sac if it contains a yolk sac or embryo.
• Transabdominal imaging without transvaginal scanning may be sufficient for diagnosing early pregnancy failure when an embryo whose crown-rump length is 15 mm or more has no visible cardiac activity.



If patient elects wait and see option

• Must be reliable patient who will stay in Bethel.
• Must be followed up every 48 hours for repeat hCG.

If patient elects misoprostol only

• Consult HROB.
• Must be reliable patient who will stay in Bethel.
• Regimen is misoprostol 800 mcg vaginally.
• Follow-up daily.
• Offer ibuprofen for cramping.

If patient elects misoprostol/mifepristone option

• Consult HROB.
• Must be reliable patient who will stay in Bethel.
• Regimen is mifepristone 200 mg oral followed 24-48 hours later with misoprostol 800 mcg placed in posterior fornix of vagina.
• Follow-up 24-48 hours after vaginal misoprostol.
• Offer ibuprofen for cramping.
• Dose can be repeated in 24 hours if uterus is not empty.

If patient elects D&C option

• Consult HROB.
• Consider office-based D&C.
• To schedule procedure, send message via Tiger Connect to OR Charge Nurse on call and OR CRNA on call.
• If on weekend, have patient remain NPO after midnight on Sunday for Monday 0800 procedure.

Following hCG to negative

• Contact GYN CM at 543-6557 or send communication in RAVEN to Women's Health Case Manager Pool.
• CM will follow hCG levels in consultation with HROB.

Maternal GBS Prophylaxis

Use the

GBS App

to determine need for prophylaxis and antibiotic of choice for GBS prevention

Web version: **https://www2a.cdc.gov/vaccines/m/gbs3/gbs.html**

or

Download for your smartphone.

Please note: YKHC does not use the neonatal option available here. Please see the **Newborn Early-Onset Sepsis/GBS guideline** for more details.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

HIV Prenatal Screening and Care

OPT OUT

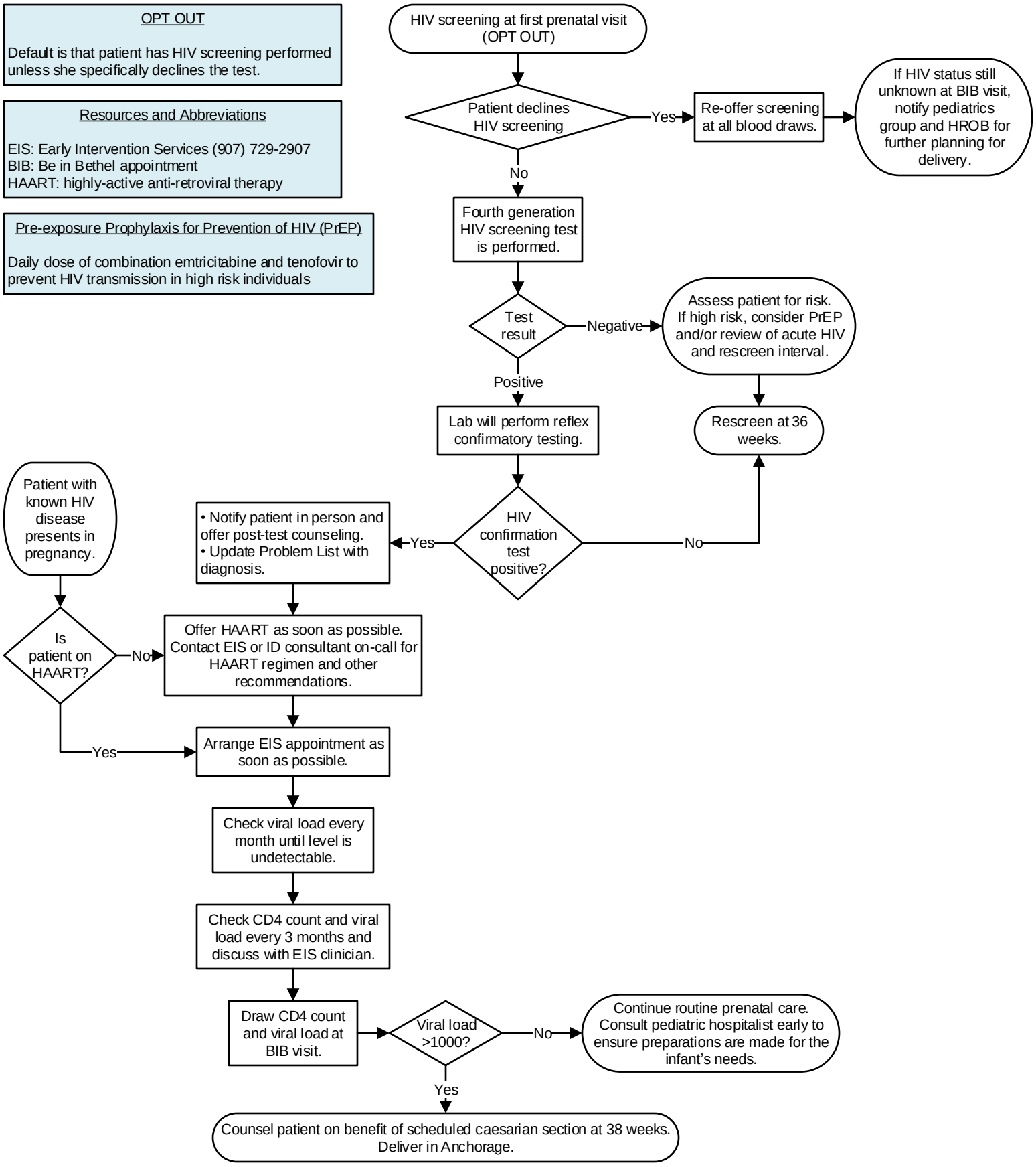
Default is that patient has HIV screening performed unless she specifically declines the test.

Resources and Abbreviations

EIS: Early Intervention Services (907) 729-2907
BIB: Be in Bethel appointment
HAART: highly-active anti-retroviral therapy

Pre-exposure Prophylaxis for Prevention of HIV (PrEP)

Daily dose of combination emtricitabine and tenofovir to prevent HIV transmission in high risk individuals



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Approved by Clinical Guideline Committee 10/21/22. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypertension in Pregnancy, Chronic

Diagnostic Criteria

History of hypertension (BP ≥ 140/90) prior to pregnancy
or
Persistent hypertension (BP > 140/90) prior to 20 weeks gestation
or
Hypertension (BP > 140/90) persisting beyond 12 weeks post-partum

Gestational Hypertension (GH) Diagnostic Criteria

BP ≥140/90 measured on two occasions at least four hours apart.

First Prenatal Visit with History of Chronic Hypertension

- Obtain preeclampsia labs.
- Refer to HROB meeting for discussion.

Preeclampsia Labs

- CBC
- CMP
- Random urine protein to creatinine ratio

Severe HTN, renal, cardiac, or connective tissue disorders?

Yes → Refer to ANMC OB Service.

No

First Trimester

- Monitor BP every 2-4 weeks.
- Fetal ultrasound to confirm EDC prior to 14 weeks gestation.

Severe Features of Preeclampsia

- sBP ≥ 160 OR dBP ≥ 110
- Renal insufficiency
- Pulmonary edema
- Thrombocytopenia (platelets <100K)
- Impaired liver function
- IUGR
- Cerebral or visual symptoms
- Severe, unremitting headache

Second Trimester

- Monitor BP every 2-4 weeks.
- If patient with symptoms of severe features of preeclampsia, obtain preeclampsia labs and see **Hypertension, Severe** guideline for further management.
- Aspirin 162 mg daily starting at 12 weeks gestation and continuing until delivery to prevent complications.
- After 20 weeks, serial fetal U/S every 4 weeks to evaluate growth.

Superimposed preeclampsia present?

Yes → Refer to **Gestational Hypertension/ Preeclampsia** guideline.

Signs/Symptoms of Superimposed Preeclampsia

- Any signs/symptoms of severe features
- Worsening proteinuria
- Worsening hypertension

No

Third Trimester

- Monitor BP every 2 weeks.
- If patient with symptoms of severe features of preeclampsia, obtain preeclampsia labs and see **Hypertension, Severe** guideline for further management.
- BPP weekly after 34 weeks gestation.
- NST/AFI anytime patient is in Bethel between 28-36 weeks.

No

Consult OB/GYN at 37 weeks for timing of delivery.
MUST be delivered by the EDC or transferred to Anchorage.

Any patient with hypertension in pregnancy should have blood pressure monitored for at least two weeks postpartum.

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Approved by Clinical Guideline Committee 10/21/22.
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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypertension, Gestational/Preeclampsia

How to Take a BP

- Patient should be seated for 15 minutes and calm.
- Patient should not chew or smoke.
- The appropriate sized BP cuff should be used.

Severe Features of Preeclampsia

- sBP ≥ 160 OR dBP ≥ 110
- Renal insufficiency
- Pulmonary edema
- Thrombocytopenia (platelets <100K)
- Impaired liver function
- IUGR
- Cerebral or visual symptoms
- Severe, unremitting headache

Gestational Hypertension (GH) Diagnostic Criteria

- BP ≥140/90 measured on two occasions at least four hours apart.
- Only one elevated BP is needed to proceed with this guideline.

If patient < 20 weeks, refer to **Chronic Hypertension in Pregnancy guideline**.

Full Maternal/Fetal Evaluation

- Preeclampsia labs (see box)
- Tests for fetal wellbeing (NST, BPP)
- Ultrasound for growth

Preeclampsia Labs

- CBC
- CMP
- Random urine protein to creatinine ratio

Any signs or symptoms of severe features?

Yes → Preeclampsia/Gestational Hypertension with Severe Features

No → Random protein to creatinine ratio >0.3*?

No → Gestational Hypertension

Yes → Preeclampsia

*If random protein to creatinine ratio is between 0.15 and 0.3, obtain 24 hour urine protein.
- If ≥300, diagnosis is preeclampsia.
- If <300, diagnosis is gestational hypertension.

Consult HROB on call.

Is patient able to participate in care plan?

No → Consider inpatient monitoring versus transfer to Anchorage.

Yes → **Outpatient Monitoring in Bethel**

- Daily kick counts.
- Office visit 2 times per week.
- NST twice weekly.
- AFI and preeclampsia labs once a week.
- Ultrasound for growth every 3 weeks.
- Transfer care to Inpatient OB at 38 weeks for delivery or transfer to Anchorage.

Any signs or symptoms of severe features?

No → (back to Outpatient Monitoring in Bethel)

Yes → (back to Preeclampsia/Gestational Hypertension with Severe Features)

Preeclampsia/Gestational Hypertension with Severe Features

Treat blood pressure per **Hypertension, Severe** guideline.

Admit and consult OB/GYN.

- Magnesium sulfate: 4 grams IV bolus over 20 minutes, then 2 grams/hour IV.
- Check preeclampsia labs.
- Monitor fetal wellbeing.
- Obtain OB ultrasound to evaluate for IUGR or oligohydramnios.
- Monitor for signs and symptoms of magnesium toxicity.

If possible, transfer to Anchorage.
If transfer not possible, consult HROB.

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Approved by Clinical Guidelines Committee 10/21/22.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

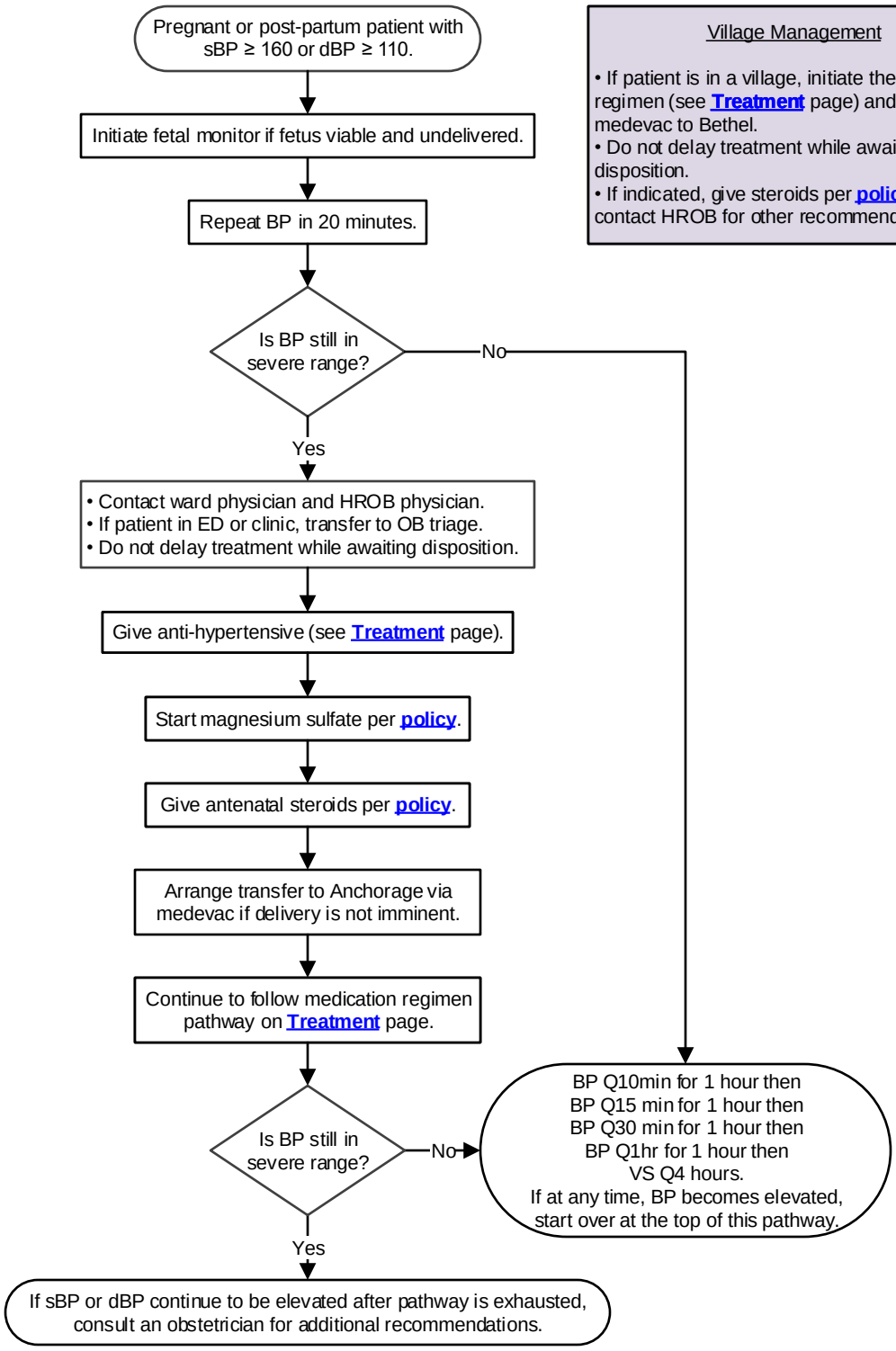
Clinical Guideline

Hypertension in Pregnant and Post-partum Patients, Severe

BP Technique

- Use the appropriate sized cuff after 5 minutes of rest.
- Patient should be sitting or semi-reclining (not fully reclining).
- Repeat with manual cuff after a minimum of 20 minutes if sBP ≥ 160 or dBP ≥ 110.

Severe range BP is defined as sBP ≥ 160 or dBP ≥ 110.



Village Management

- If patient is in a village, initiate the nifedipine regimen (see **Treatment** page) and activate medevac to Bethel.
- Do not delay treatment while awaiting disposition.
- If indicated, give steroids per **policy** and contact HROB for other recommendations.

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypertension in Pregnant and Post-partum Patients, Severe

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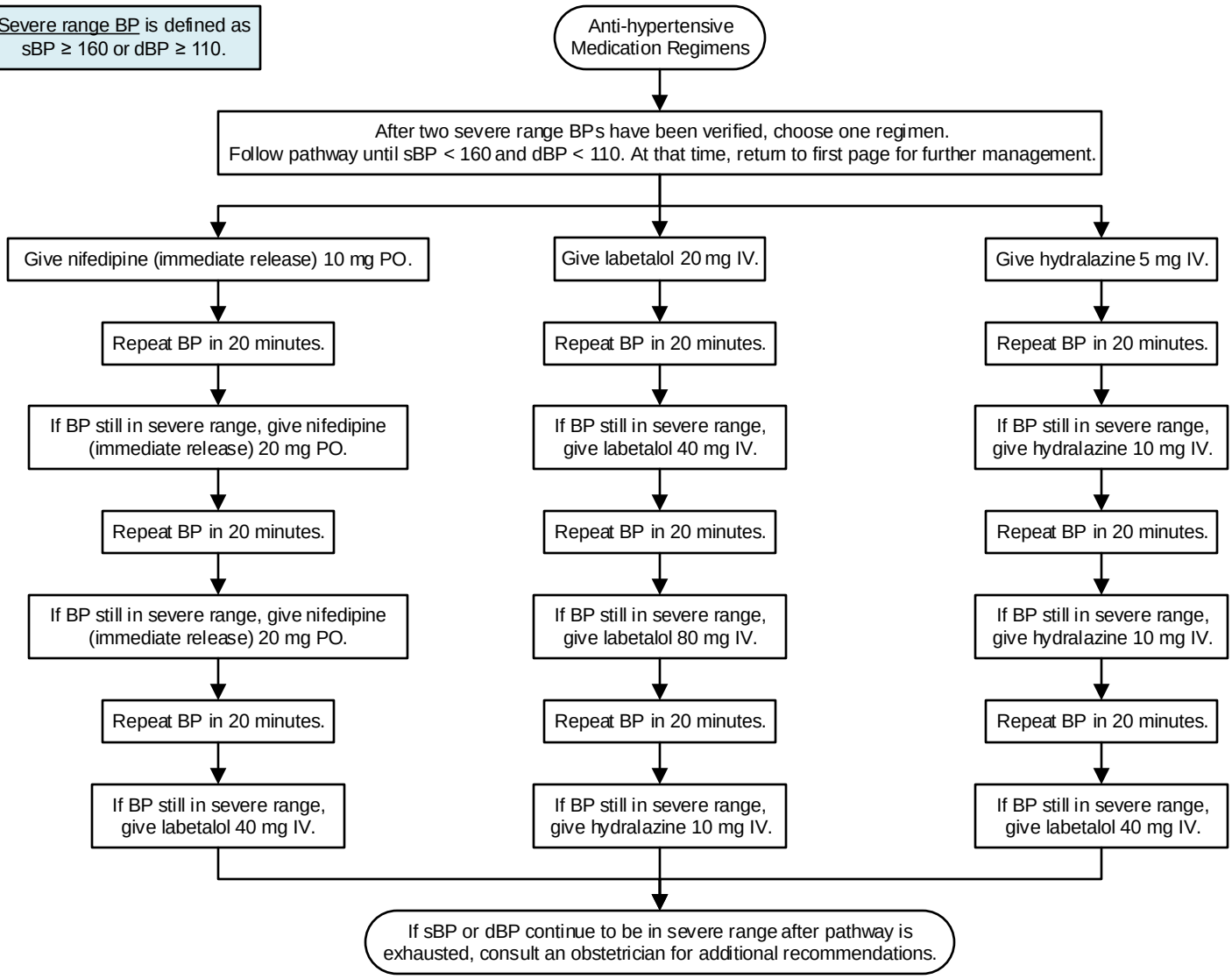

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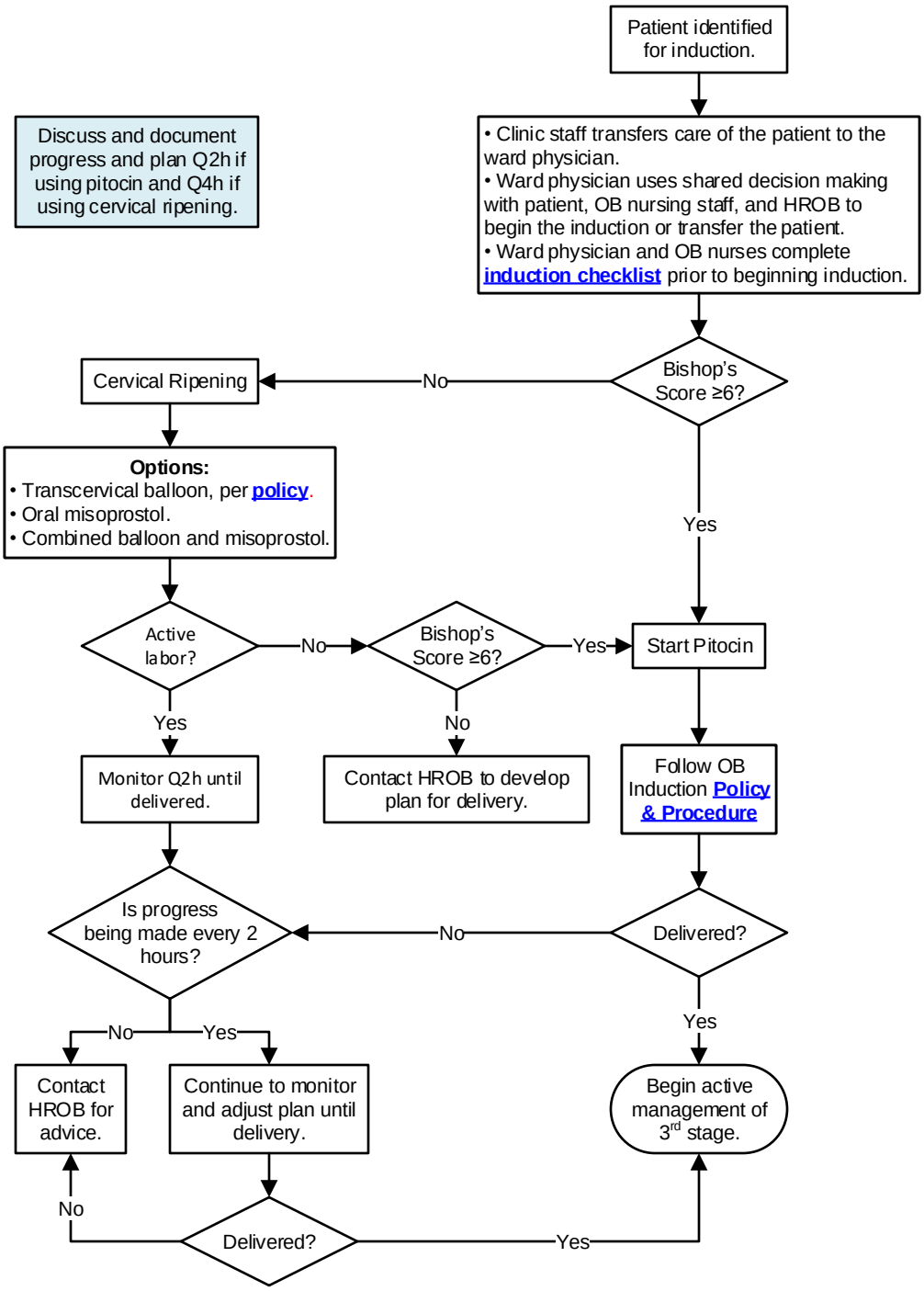
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Induction of Labor



Induction Time Frames for Specific Diagnoses
*(See **Policy and Procedure**.)*

- Preeclampsia or **Gestational Hypertension**: 38 weeks, must be delivered or transferred by 39 weeks.
- Preeclampsia or **Gestational Hypertension** with severe features: Medevac to Anchorage.
- **Chronic Hypertension**: 38 weeks, must be delivered or transferred by 39 weeks.
- **Intrahepatic Cholestasis of Pregnancy (IHCP)**, mild: 39 weeks.
- **IHCP**, severe: must be transferred prior to 37 weeks or induced or transferred immediately if diagnosed after 37 weeks.
- **Post-dates**: 41 weeks. Consult HROB if patient declines induction.
- History of stillbirth: 38 weeks (optional).
- This list is not all-inclusive. Consult HROB for other diagnoses.

Bishops Score

Score	Dilatation	Effacement	Station	Position	Consistency
0	closed	0 - 30%	-3	posterior	firm
1	1-2 cm	40 - 50%	-2	mid-position	medium
2	3-4 cm	60 - 70%	-1,0	anterior	soft
3	5+ cm	80+%	+1,+2		

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Approved 6/6/22. Click here to see the supplemental resources for this guideline.
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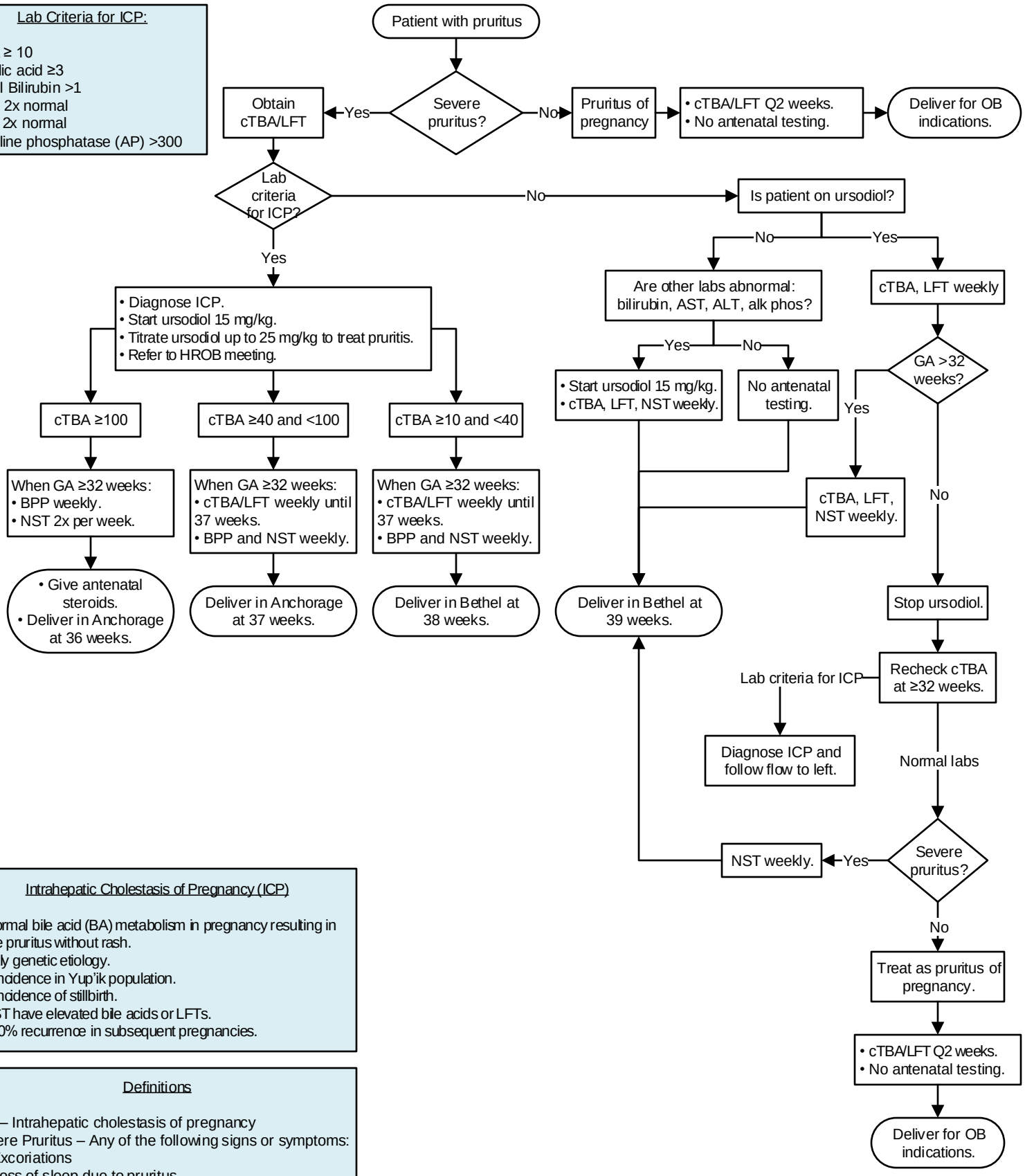
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Intrahepatic Cholestasis of Pregnancy

Lab Criteria for ICP:

- TBA ≥ 10
- Cholic acid ≥3
- Total Bilirubin >1
- AST 2x normal
- ALT 2x normal
- Alkaline phosphatase (AP) >300



Intrahepatic Cholestasis of Pregnancy (ICP)

- Abnormal bile acid (BA) metabolism in pregnancy resulting in severe pruritus without rash.
- Mostly genetic etiology.
- 5% incidence in Yup'ik population.
- 5% incidence of stillbirth.
- MUST have elevated bile acids or LFTs.
- 40-70% recurrence in subsequent pregnancies.

Definitions

- ICP – Intrahepatic cholestasis of pregnancy
- Severe Pruritus – Any of the following signs or symptoms:
  - Excoriations
  - Loss of sleep due to pruritus
  - Scratching during appointment
- Pruritus of pregnancy – non-severe pruritus without elevated TBA
- TBA – Total Bile Acids
- Corrected TBA (cTBA) = TBA – ursodeoxycholic acid
- LFT – Liver Function Test

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If comments about this guideline, please contact David_Compton@ykhc.org.

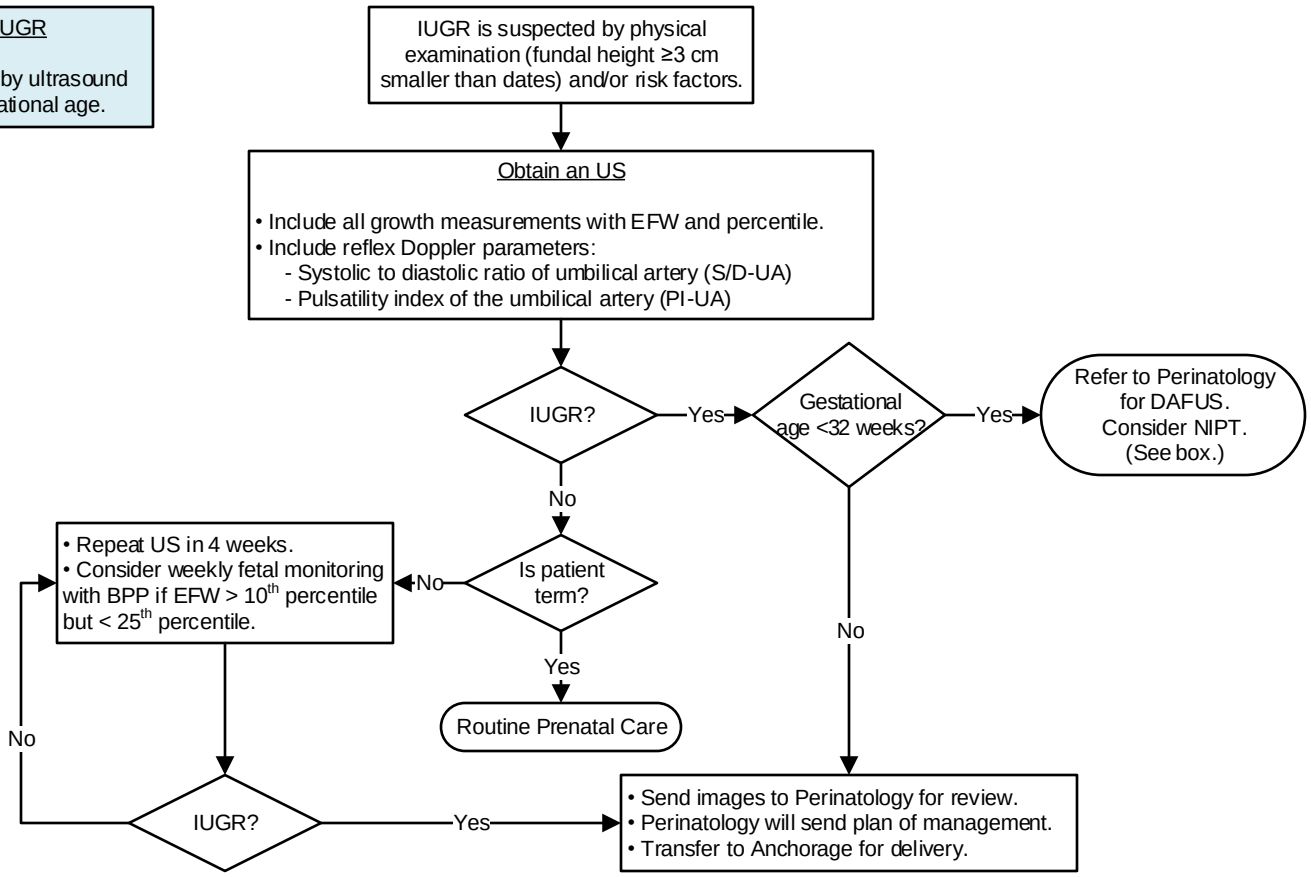
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Intrauterine Growth Restriction (IUGR)

Definition of IUGR

Estimated Fetal Weight by ultrasound <10th percentile by gestational age.



Non-invasive Prenatal Testing (NIPT)

Non-invasive prenatal testing is a way to detect fetal chromosome abnormalities from a maternal blood draw. Our current test is InformaSeq from LabCorp.

Risk Factors for Intrauterine Growth Restriction

Maternal Medical Conditions
- Hypertension
- Renal disease
- Restrictive lung disease
- Diabetes (with microvascular disease)
- Cyanotic heart disease
- Antiphospholipid syndrome
- Auto-immune disease

Other Factors
- Smoking and substance use and abuse
- Severe malnutrition
- Primary placental disease
- Multiple gestation
- Infections (viral, protozoal)
- Genetic disorders
- Exposure to teratogens

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Labor Patient in Village

Pregnant patient with symptoms suggestive of labor.

23w0d to 33w6d

34w0d to 36w6d

≥ 37 weeks

Preterm labor suspected?

Past Be-In-Bethel date?

Problems threatening maternal or fetal life?

Consult HROB with any questions or concerns at any point.

No

Yes

• Bolus 1 L LR or NS by IV
• Initiate tocolysis
• Consider steroid and antibiotic
• Reassess after bolus and Q30min

Did contractions decrease?

• Continue tocolysis
• Consider NSAID if not yet given
• Administer steroid and antibiotic if not yet given

Did contractions decrease?

Complete evaluation per CHAM and RMT guidance. Observe in clinic at least 1 hour.

Send the patient on the next commercial flight to Bethel for evaluation in L&D Triage.

Activate medevac.
Send pediatric and family doctor if in labor.

No medevac. Advise over phone or video. Consider involving pediatrician and OB RN.

Life-threatening problems from childbirth?

Routine postpartum and newborn care. See box.

Postpartum hemorrhage?

Send the patient and newborn on the next commercial flight to Bethel.

PPH resolved?

• Activate medevac.
• Additional uterotonics.
• Bolus and elevate legs if BP low.
• Consider bimanual compression based on CHA/provider comfort.
• Recommend PRBC and TXA to LM.

• Position supine and keep warm.
• Monitor SpO2 and BP closely.
• Establish two large bore IV if able and consider fluid bolus.
• Transabdominal fundal massage.
• Administer uterotonics if available.
• Consider bimanual compression based on CHA/provider comfort.
• Consider vaginal packing for lacerations/obstetric trauma.
• Encourage breastfeeding or nipple stimulation for endogenous oxytocin.

Things to Consider

• Parity
• Past or current pregnancy complications
• Placental location

If late-to-care/no BIB agreement, consider medevac even at term.

Tocolysis does not stop preterm labor; it can delay enough for commercial flight or to get medevac crew to the scene.

Do not place a patient on a commercial flight if she could deliver en route regardless of gestational age.

Blood loss is difficult to quantify. Request photos of pads/clots.

If activating a medevac for village labor

• Do not send a resident.
• Ensure that all Tiger Connect roles are covered by back-up physician.
• Notify ED Doctor On Duty since they are medical control.
• Gather **Village Delivery Backpack** from OB and Butterfly/iPad for US.
• Discuss with pediatrician the need to bring surfactant.
• Bring warm clothing (extra gear in peds call room under the bed), snacks, drinks, money, motion sickness medication, etc.
• Coordinate with pediatrician and plan to meet at LifeMed hangar at 3600 Tower Road. Tell LifeMed (LM) Dispatch if delayed more than 20 minutes.

Postpartum and Newborn Care

Mother: Check vital signs and fundal checks q15 min x 1 hour, then q30 min x 2 hours, then q1h x 3 hours. If all is well, may leave clinic to await travel with instructions to return immediately for return of bleeding or passing clots.

Baby: Check vital signs with axillary temperatures q30 minutes x 2 hours, then q1h x 4 hours. Low threshold to check blood glucose after first feed. Ensure vitamin K, erythromycin, and hepatitis B vaccine are given when able. If all is well, may leave clinic with instructions to return immediately for any concerns, especially trouble breathing, fast breathing, pauses in breathing, etc.

Tocolytics

1. Nifedipine (as BP permits)
   0 min: 30 mg PO
   90 min: 20 mg PO
   180 min: 10 mg PO
2. Terbutaline 0.25 mg SC q5 min x 4 PRN
3. Ketorolac 60 mg IM or ibuprofen 800 mg PO

Steroids

• Betamethasone 12 mg IM q24h x 2 (preferred); OR
• Dexamethasone 6 mg IM q12h x 4

Antibiotic (if no allergy)

• Ceftriaxone 1 g IM

Uterotonics

1. Oxytocin 10 units IM, 10-40 units IV bolus (SRC only)
2. Misoprostol 800 mcg PO/PR/SL
3. Methergine 0.2 mg IM q2h

In the village

• Help the crew, follow their instructions, and expect to carry equipment.
• Assess fundal height and Leopold maneuvers; consider dating accuracy versus polyhydramnios if size greater than dates.
• If EGA<34 weeks, perform a sterile speculum exam, obtain FFN, swab for GBS and GC/CT, and obtain urine sample for culture.
• If low risk for placenta previa (e.g., not noted on prior formal or Butterfly POCUS), check cervix after obtaining cultures.
• Make decision about disposition based on cervical exam, possible complications, and risk/benefit of travel.
• Discuss with HROB if any uncertainty about plan.
• Notify OB charge RN of plan as soon as possible from village clinic or Subregional Center (SRC) so they can prepare.
• If village delivery is anticipated, see **Village Deliveries (Pediatrics) Resource** for newborn care and preparation.

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Approved by Guideline Committee 8/23/23.
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If comments about this guideline, please contact William_Guerin@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Molar Pregnancy

- Quantitative hCG >100,000
- Vaginal bleeding
- Hyperemesis
- Cystic enlargement of ovaries

Suspect Molar Pregnancy: no intrauterine embryo or ultrasound suspicious for Molar Pregnancy.

Administer Rhogam if Rh negative

Testing
- CBC, CMP, PT/PTT, Blood type, and Rh factor, Quantitative hCG, pelvic ultrasound, chest X-ray.
- Consider TSH, free T4 if signs/symptoms of hyperthyroidism.

Signs or symptoms of medical complications, hyperthyroid, severe anemia, coagulopathy, gestational HTN?

Yes → Stabilize, consult with ANMC OB/GYN service, and transfer to ANMC via medevac.

No

- Suction D&C.
- Consider transfer if uterus is >16 week size due to increased risk of complications.

Confirm pathology: molar pregnancy, complete, or partial

Yes

Quantitative hCG 48 hours after D&C and weekly.

Plateau ± 10% over three weeks rise ≥ 10% over two weeks. Quantitative hCG + at six months.

Yes → Post molar GTN
- CT chest, CBC, PT/PTT, CMP.
- Consult GYN ONC in Anchorage.

No

Weekly Quantitative hCG until negative x3 (<5).

Monthly Quantitative hCG for 6 months

Contraception
Encourage Depo Provera, Nexplanon, IUD.

Definitions

GTN – gestational trophoblastic neoplasm.
Complete Mole – a form of aberrant fertilization with proliferation of trophoblastic tissue with a normal karotype, no fetus, diffuse villous edema, and diffuse proliferation.
Partial Mole – a form of aberrant fertilization with proliferation of trophoblastic tissue with triploid karotype, possibly a fetus, focal villous edema, and focal proliferation.
Choriocarcinoma – a malignant neoplasm arising from cytotrophoblast.
Placental site trophoblastic tumor – a malignant neoplasm arising from intermediate trophoblast.
Post Molar GTN – persistent hCG detection after the treatment of a complete or partial molar pregnancy.
Invasive Mole – detection of tumors within the uterus on imaging.
Malignant GTN – post molar gestational trophoblastic neoplasm.
Metastatic GTN – post molar GTN with imaging evidence of distant metastasis. The most common sites are vagina, lung, and brain.

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Oligohydramnios

Differential Diagnosis by Trimester

First
- Aneuploidy
- Fetal Anomaly

Second
- Aneuploidy
- Fetal Anomaly
- Preterm premature rupture of membranes (PPROM)
- Placental abruption
- Fetal growth restriction
- Amniocentesis
- Elevated maternal serum alpha fetoprotein

Third
- Preterm premature rupture of membranes
- Placental abruption
- Fetal growth restriction
- Utero-placental insufficiency
- Preeclampsia
- Maternal vascular diseases
- Fetal anomaly
- Post-term
- Suboptimal maternal hydration

Patient is identified with oligohydramnios.

Definition of Oligohydramnios

Amniotic Fluid Volume (AFI) < 5 cm at term
or
Maximum Vertical Pocket < 2 cm.

Perform a complete evaluation

- Assess for PROM with history and speculum examination.
- Review dating.
- Obtain OB ultrasound (US) for growth, anatomy (if indicated), and BPP.
- Assess fetal anatomy or review previous US.
- Assess for gestational hypertension.
- Perform NST.
- Perform cervical exam and calculate a Bishop's score.

Is the reason for oligohydramnios known or suspected?
- Yes → Consult HROB or Anchorage OB to discuss treatment or diagnostic testing.
- No ↓

Is patient term?
- No → Consult HROB or Anchorage OB to discuss further testing, induction, or monitoring.
- Yes ↓

Consider oral hydration overnight with 2 liters of water and repeat fetal testing.

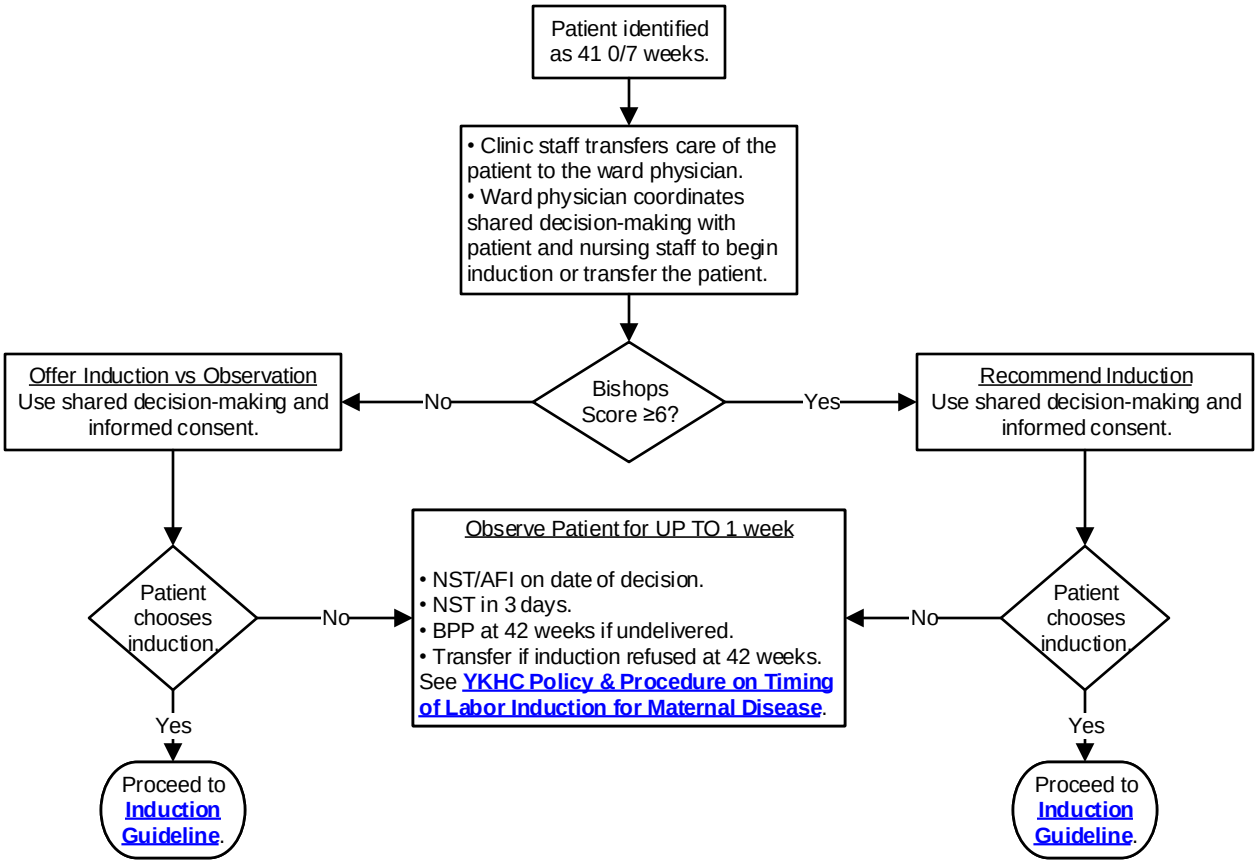
Oligohydramnios?
- Yes → Consult HROB or Anchorage OB to discuss induction vs. transfer.
- No ↓

Counsel to improve fluid intake and routine care.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Post-Dates Pregnancy



Bishop Score

Score	Dilatation	Effacement	Station	Position	Consistency
0	closed	0 – 30%	-3	posterior	firm
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3	>5 cm	>80%	+1, +2		

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Prenatal Care

BASICS

- Review the chart EVERY visit for incomplete lab or other required testing.
- Review the Problem List EVERY visit for needed testing or intervention items.
- Patient should see a Bethel provider or CHA/P monthly from first visit to 32 weeks.
- Patient should see a Bethel provider or CHA/P every two weeks after 32 weeks and then weekly at 36 weeks.
- If there is any question of EDC, see guideline or refer to HROB meeting for decision.

First Prenatal

NURSING/CASE MANAGER

- Order First Trimester Transvaginal OB Ultrasound (>6 weeks) for dating.
- Patient to initiate paperwork:
  - Residential Information Sheet.
  - Pregnancy Verification Sheet – use LMP if no EDC from ultrasound.
  - Quad screen consent form.
  - FAS & Drug Assessment Screening questionnaire.
  - 36 Week BIB/Medevac Policy.
- Review TB screening status – patient MUST HAVE a negative Quantiferon or PPD prior to 36 weeks to stay at Prematernal Home. Place PPD if needed.
- Labs: urinalysis, urine culture, blood type and screen, HBsAg, Hepatitis C antibody, CBC, Rubella titer, HIV testing, treponemal testing, HgA1c, 25-OH vitamin D.
- Set up room for pelvic to do PAP (only do a PAP if it is due), GC/CT and trichomonas (with verbal consent).
- Routine patient handouts: WIC handout.

PROVIDER

- Prenatal H&P and Prenatal Education.
- Chart review.
- Offer flu vaccine October through the end of the flu season.
- Discuss and sign BIB/Medevac Policy contract.
- Update the Problem List and include EDC and gravida/para in one problem.
- Refer to HROB meeting if needed.
- Ask about S/Sx of IHCP; if present, add bile acids and LFTs to lab draw.

PATIENT

- Go to the Medicaid office to file for Medicaid.
- Go to the WIC office to file for WIC.

15-21 Weeks

- If desired, quad screen must be drawn between 15 and 21 weeks gestation.
- Review TB status.

20 Weeks

- Ultrasound to screen for anomalies: US OB anatomy and cervical length.
  - Only one is needed no matter where it is done.
  - Aim for 20 weeks.
  - If anatomy is incomplete, order US OB follow-up for the next visit to complete the anatomy exam.

24-28 Weeks

NURSING

- Labs: GST, CBC.
- Tdap after 24 weeks.
- GST – 50 g:
  - If result >140 mg/dL, schedule 2 hour GTT ASAP.
  - If the result >179, no GTT; refer directly to diabetes education.
- Attempt to keep the patient until the results of the GST are back.
- Review TB status. Draw Quantiferon if failed to have PPD read.

PROVIDER

- After 28 weeks, ask about preeclampsia symptoms.
- After 24 weeks, ask about preterm labor symptoms and IHCP symptoms.
  - Back pain.
  - Sudden increase in vaginal discharge.
  - Pelvic pressure.
  - Cramps/contractions.
- Educate patient on fetal movement count.

36 Weeks/BIB Date

- Labs: CBC, treponemal testing, HIV testing, GBS culture, GC/CT and trichomonas.
- Review TB status. Draw Quantiferon if status unknown.
- Schedule appointments to be seen each week by Bethel provider through 41 weeks.
- Complete Prematernal Home/Medical Clearance paperwork.
- Ask about any symptoms of:
  - Rupture of membranes.
  - Preeclampsia.
  - Labor.
  - Itching.

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Approved by MSEC 7/6/21.
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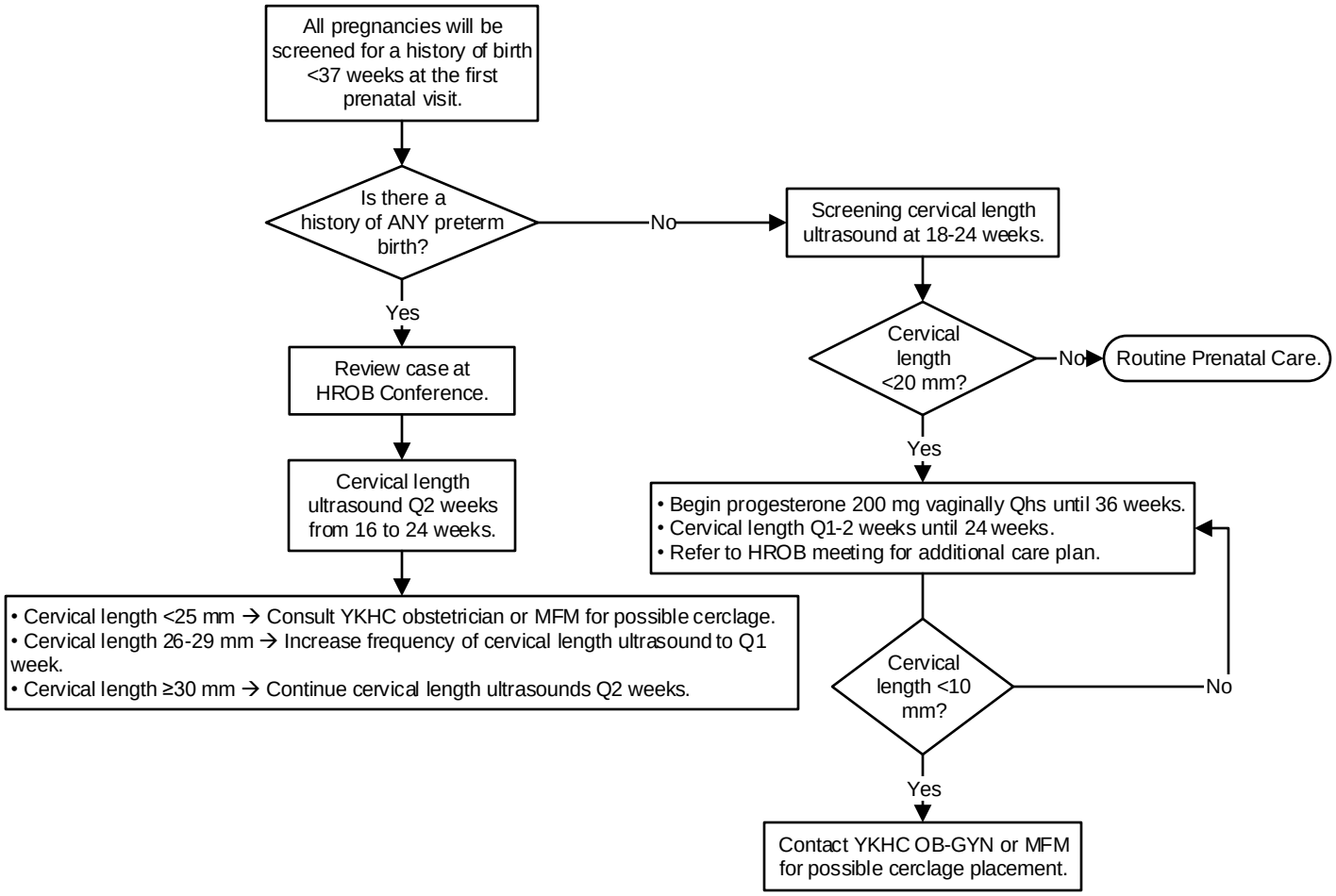
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Preterm Labor: Screening and Prevention



Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

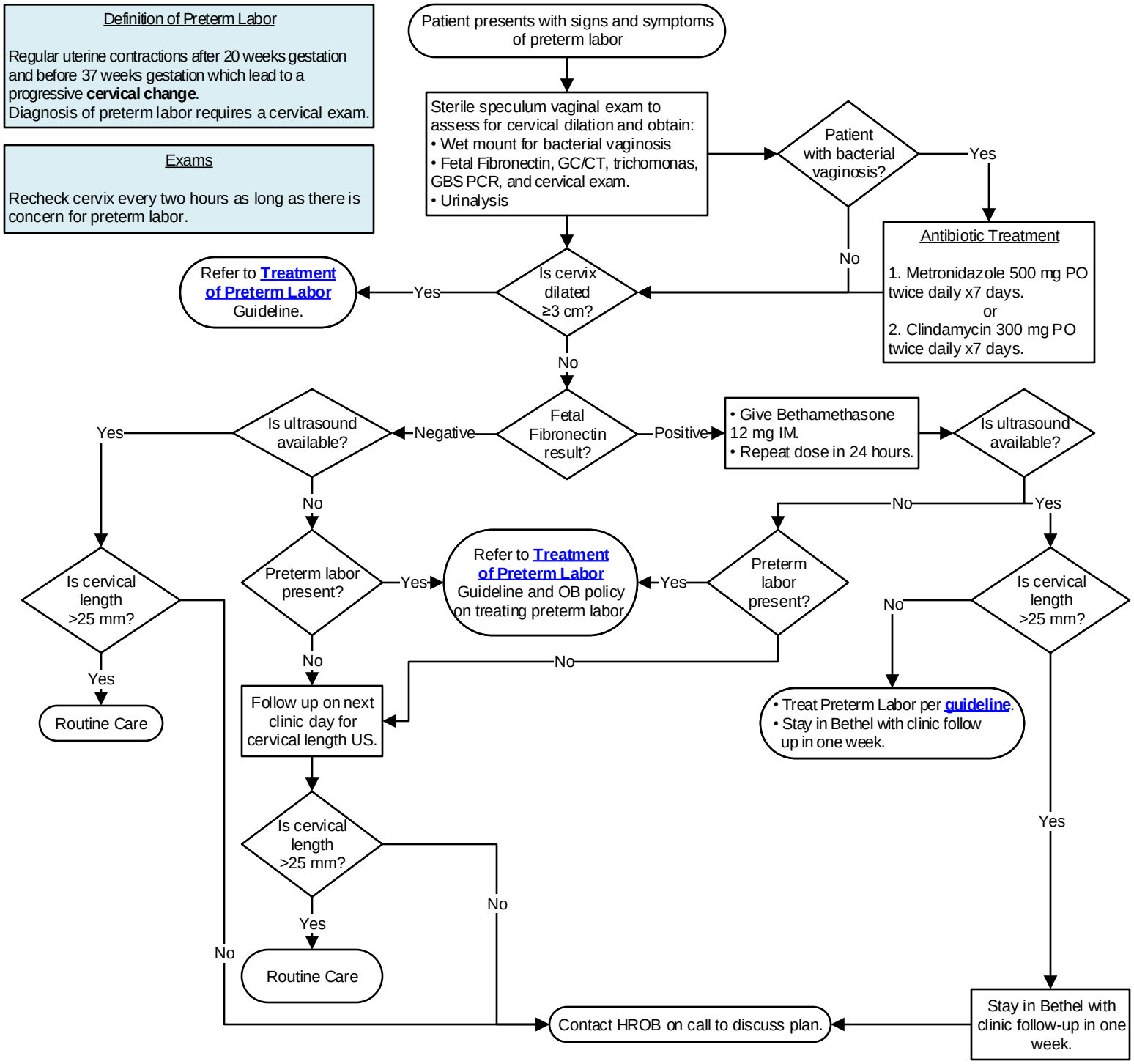
Preterm Labor: Evaluation

Definition of Preterm Labor

Regular uterine contractions after 20 weeks gestation and before 37 weeks gestation which lead to a progressive **cervical change**.
Diagnosis of preterm labor requires a cervical exam.

Exams

Recheck cervix every two hours as long as there is concern for preterm labor.



Preterm Labor Symptoms

- Increased vaginal discharge
- Blood tinged mucus
- Low backache
- Pelvic pressure
- Menstrual-like cramps
- Intestinal cramping with or without diarrhea
- "Not feeling right"
- Loss of cervical mucous/"plug"

There is no need to treat contractions with tocolytics in the absence of cervical change.

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Preterm Labor: Treatment

Definition of Preterm Labor

Regular uterine contractions after 20 weeks gestation and before 37 weeks gestation which lead to a progressive **cervical change**. Diagnosis of preterm labor requires a cervical exam.

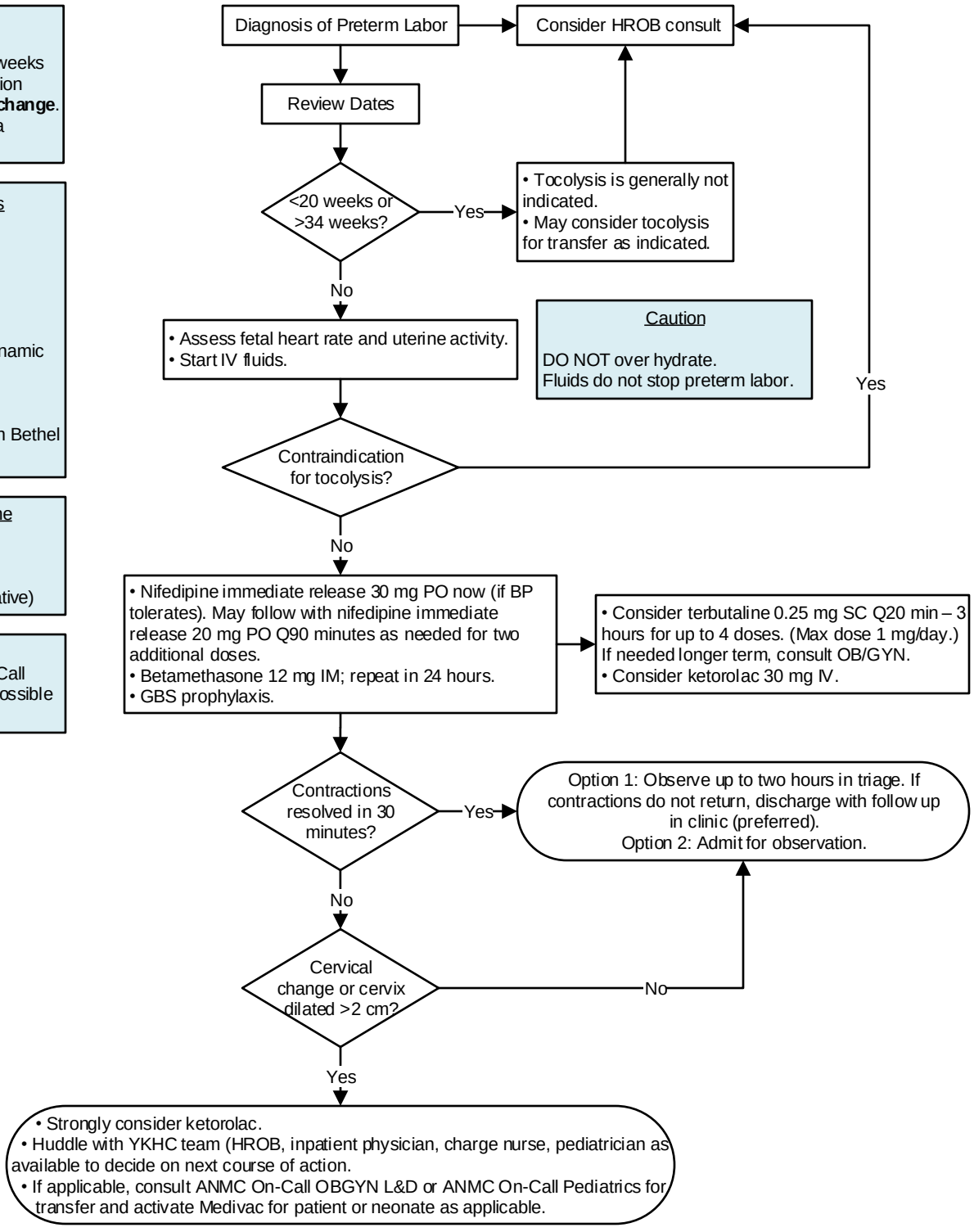
Contraindications to Tocolysis

- IUFD
- Lethal fetal anomaly
- Non-reassuring fetal assessment
- Severe IUGR
- Chorioamnionitis, relative
- Maternal hemorrhage with hemodynamic instability
- Severe preeclampsia or eclampsia
- PPROM
- Relative contraindication: delivery in Bethel seems inevitable.

Contraindications to Terbutaline

- Diabetes
- HTN
- Suspected placental abruption (relative)

If cervix is greater than 2cm dilated, consider early consult to ANMC On-Call OBGYN L&D for management and possible transfer discussion.



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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Preterm Premature Rupture of Membranes

Signs & Symptoms of ROM

- Pool of fluid in vagina on exam
- Leak of fluid with valsalva
- Positive Ferning test
- Positive Amnisure test
- Oligohydramnios

Village Care

- Health Aide should not do a vaginal exam but should contact Emergency RMT.
- Providers in SRCs and villages should do a speculum exam to look for signs of ROM and then call emergency RMT for consultation.

Patient presents to care with complaint of leaking fluid from vagina while pregnant.

- Sterile speculum exam, GC/CT/TV, GBS PCR, GBS Screen, wet prep.
- Ferning Test or Amnisure.
- US OB Growth & AFI.

ROM? See box.

- Maybe → • Consult HROB. • Consider observation and repeat exam vs. Indigo Carmine test.
- No → Routine Prenatal Care.
- Yes →

Gestational Age <22 weeks?

- Yes → **Pre-viable**: Consult HROB for discussion and plan of management. Expectant Management or immediate delivery.
- No →

Gestational Age >37 weeks?

- Yes → Recommend Delivery. Use shared decision-making to determine best location (Bethel or Anchorage).
- No →

- Admit to OB and prepare for transfer to Anchorage.
- Betamethasone 12 mg IM.
- GBS prophylaxis per **guideline**.
- Notify pediatrician if delivery in Bethel likely.
- No tocolysis except to facilitate transport.
- HSV prophylaxis as needed.
- Magnesium sulfate for neuroprotection per **policy**.

Gestational Age <34 weeks?

- Yes →

Ampicillin 2 grams IV Q6h x48h followed by 250 mg 3xD x3 days.
AND
Azithromycin 500 mg IV daily x2 days, then 500 mg PO daily x3 days.
If allergic to penicillin, give only azithromycin.

ROM? See box.

- Yes → Gestational Age <22 weeks?
- No →

AFI normal? See box.

- No → • Consult HROB. • Consider observation and repeat exam vs. Indigo Carmine test.
- Yes → Routine prenatal care.

Amniotic Fluid Assessment

- Amniotic Fluid Index (AFI) >5 cm.
- Maximum Vertical Pocket (MVP) >2 cm.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/13/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact David_Compton@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Rhogam®

For more information, see **Rh Immune Globulin Work-up** Policy & Procedure.

At first prenatal visit, check blood type and antibody screen in all patients.

Rh negative?

No → • Blood Type on newborn after birth only as indicated.
• No further testing of the patient for blood type.

Yes

• Note diagnosis on Problem List.
• Educate the patient.

At 28 weeks

• Obtain labs on RHIG Workup (Antenatal) Power Plan.
• Give RHIG (Rhogam®) 300 mcg IM after antibody screen.

When Patient is in Labor

Obtain blood type and antibody screen on admission.

After Delivery

• Obtain ABO and Rh on newborn.
• Obtain fetal screen on mother.

Newborn Rh positive?

No → No further workup or treatment.

Yes

Fetal screen positive?

Yes → • Give the mother RHIG (Rhogam®) 300 mcg x2 doses (for total 600 mcg) Immune Globulin.
• Send Kleinhauer-Betke (KB) test.
• Consult OB/GYN.
• Give additional doses based on KB results.

No

Give the mother RHIG (Rhogam®) 300 mcg IM.

Other Situations Which Require anti-D Immune Globulin

- Miscarriage/Abortion
- Stillbirth
- Ectopic Pregnancy
- Maternal Trauma: consult OB/GYN.
- Threatened abortion
- Maternal hemorrhage in 2nd or 3rd trimester
- External cephalic version
- Amniocentesis

The dose is always 300 mcg at YKDRH due to blood bank stocking.

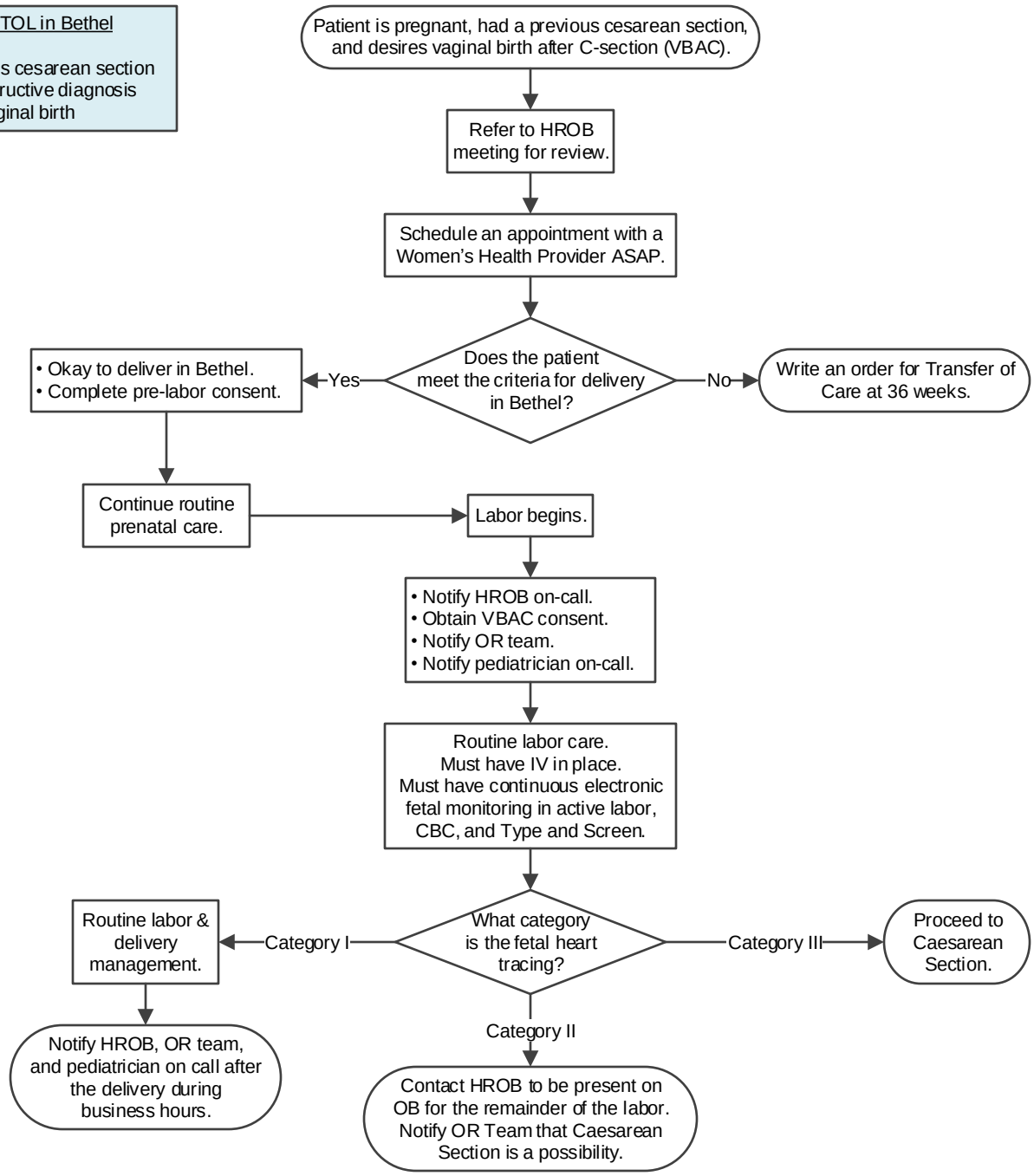
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Vaginal Birth after Caesarean Section

Criteria for TOL in Bethel

- Only one previous cesarean section
- No previous obstructive diagnosis
- One previous vaginal birth



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Approved by MSEC 3/1/22.
If comments about this guideline, please contact Ellen_Hodges@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Preventative Health Care Guidelines

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Amoxicillin Allergy Trials (Pediatric)

Background

• Only 4-9% of those...labeled [penicillin-allergic] are currently allergic. It is important to identify those who are not allergic, because children mislabeled as penicillin-allergic have more medical visits, receive more antibiotic prescriptions, and have longer hospitalizations with more antibiotic-related complications.[1]
• Up to 10% of children develop rashes while receiving antibiotics. Most are diagnosed...as allergic to the implicated antibiotic, and most continue to avoid the suspect antibiotic in favor of alternatives, which may be less effective, more toxic, and more expensive.[2]
• Do not label a patient as allergic to penicillin/amoxicillin unless he or she has true hives, anaphylaxis, or a life-threatening reaction. Please include photos of rashes in RAVEN.
• Children labelled as allergic to penicillin/amoxicillin often carry that label for the rest of their lives.
• Please consult a pediatrician with any questions.

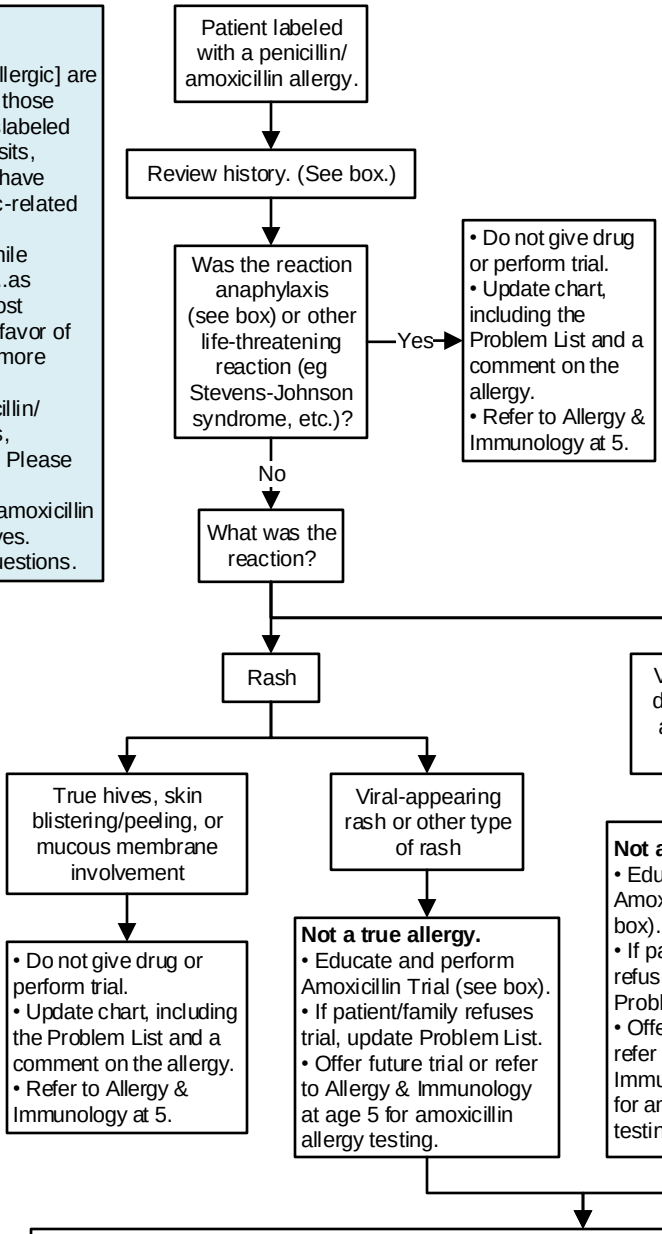
Anaphylaxis

• Acute onset – several minutes to hours from exposure.
• Generalized hives, pruritis or flushing, swelling of lips/tongue/uvula, and at least one of the following:
  Dyspnea, bronchospasm, stridor
  Hypotension
  Evidence of hypoperfusion of end-organs
  Persistent crampy abdominal pain, and/or vomiting or diarrhea

Hives vs Viral Rash

• True hives are raised, itchy, larger than dime-sized, come and go, move around the body, and change shape and size. True hives are uncomfortable. Ask if the rash bothered the child.
• Keep in mind that many parents refer to any rash as "hives." Get a description every time.
• A viral exanthem is typically diffuse, fine, pinpoint red dots and can be dense, coalesced, larger raised lesions. The rash typically covers the face and chest but can cover the whole body. The rash typically worsens and takes days to clear.

NOTE: If amoxicillin is needed to treat a life threatening infection, consult Allergy & Immunology to discuss possible desensitization. Alaska Asthma, Allergy, & Immunology can be reached at (907) 562-6228.



History

Chart review:
• Review notes in allergy alert. Find date allergy was added, and then review notes from that day. Was ED visit or hospital admission required?
• Review Multimedia Manager photos.
• Were steroids or other treatment given?
• Has patient received a drug of the same class since the allergy was reported? Was it tolerated? Were there symptoms?

History from patient/family:
What was the reaction?
- Vomiting and/or diarrhea?
- Rash?
  Age? Time from first dose?
  Hives? (See box.) Was it itchy?
  Blistering or peeling?
  Photos from family?
- Trouble breathing?
- Swelling of tongue/lips?
- Joint swelling or fever?
- Mucous membrane involvement?

This guideline is designed for patients that are extremely unlikely to be allergic to amoxicillin. There is no upper or lower age limit. Consult pediatrics with any questions.

Amoxicillin Trial Procedure[2]

Use AMB Amoxicillin Trial Power Plan.

1. Obtain VS. Perform physical exam, including lung exam. Have appropriate dose of EpiPen or epinephrine.
Epinephrine (1 mg/mL): 0.01 mg/kg (or 0.01 mL/kg) IM Q5-15 minutes.
Per AAP recommendations:
  • 7.5-25 kg: use EpiPen Jr (0.15 mg)
  • ≥ 25 kg: use EpiPen (0.3 mg)
2. Calculate weight-based dose of amoxicillin. Give patient 10% of that dose.
3. Place patient in nearby room and instruct caregiver to notify staff of any changes in status.
4. If no reaction by 20 minutes, give patient remaining 90% of weight-based dose of amoxicillin.
5. Observe another 60 minutes. If no reaction, check VS and physical exam. If all stable, discharge home with regular course of drug.
6. Give patient and family amoxicillin trial education sheet.
7. Update allergy alert in RAVEN. Click the allergy in the banner. Right click over the drug name and choose "cancel." On the "reason" drop-down menu, choose "OK on Retrial."

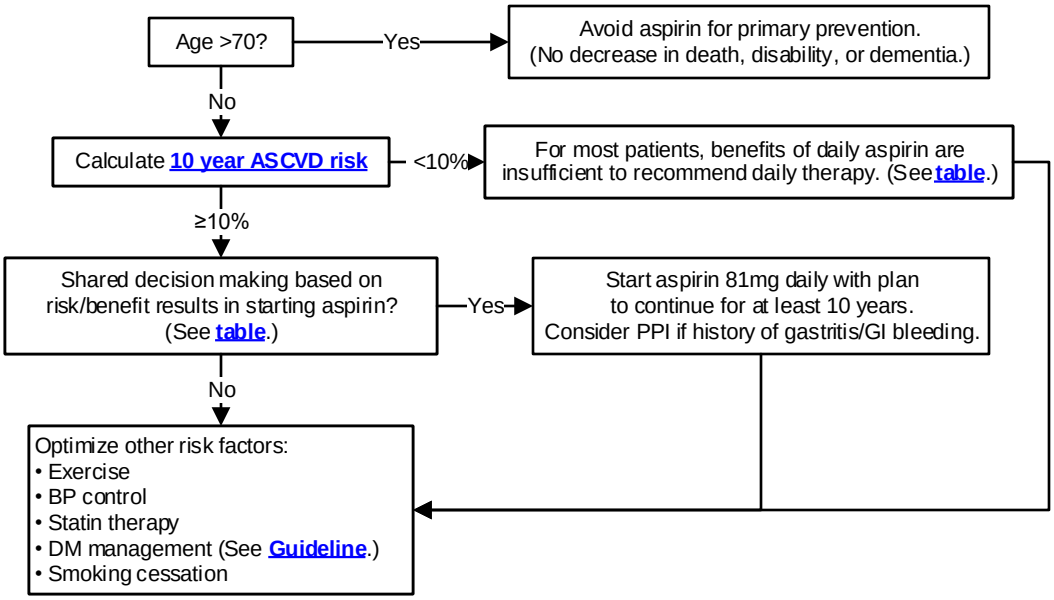
Notes:
• If patient is on a beta-blocker, stop this for 24 hours prior to procedure, if possible. Beta-blockers can interfere with treatment for anaphylaxis, if it occurs.
• Ensure that patients with asthma have optimal control prior to this procedure.

References
1. Kelso JM. "Provocation challenges to evaluate amoxicillin allergy in children." JAMA Pediatrics 2016;170(6):e160282.
2. Mill C, et al. "Assessing the diagnostic properties of a graded oral provocation challenge for the diagnosis of immediate and nonimmediate reactions to amoxicillin in children." JAMA Pediatrics. 2016;170(6):e160033.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 8/23/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Aspirin for Adults >40 Without Known Cardiovascular Disease



Notes

Aspirin produces significant reductions in mortality amongst survivors of cardiovascular disease, but its role in the primary prevention of cardiovascular disease amongst healthy adults is less clear.

See **table under "Possible Benefits"** for summary of RCT data for low dose aspirin in the primary prevention of cardiovascular disease.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

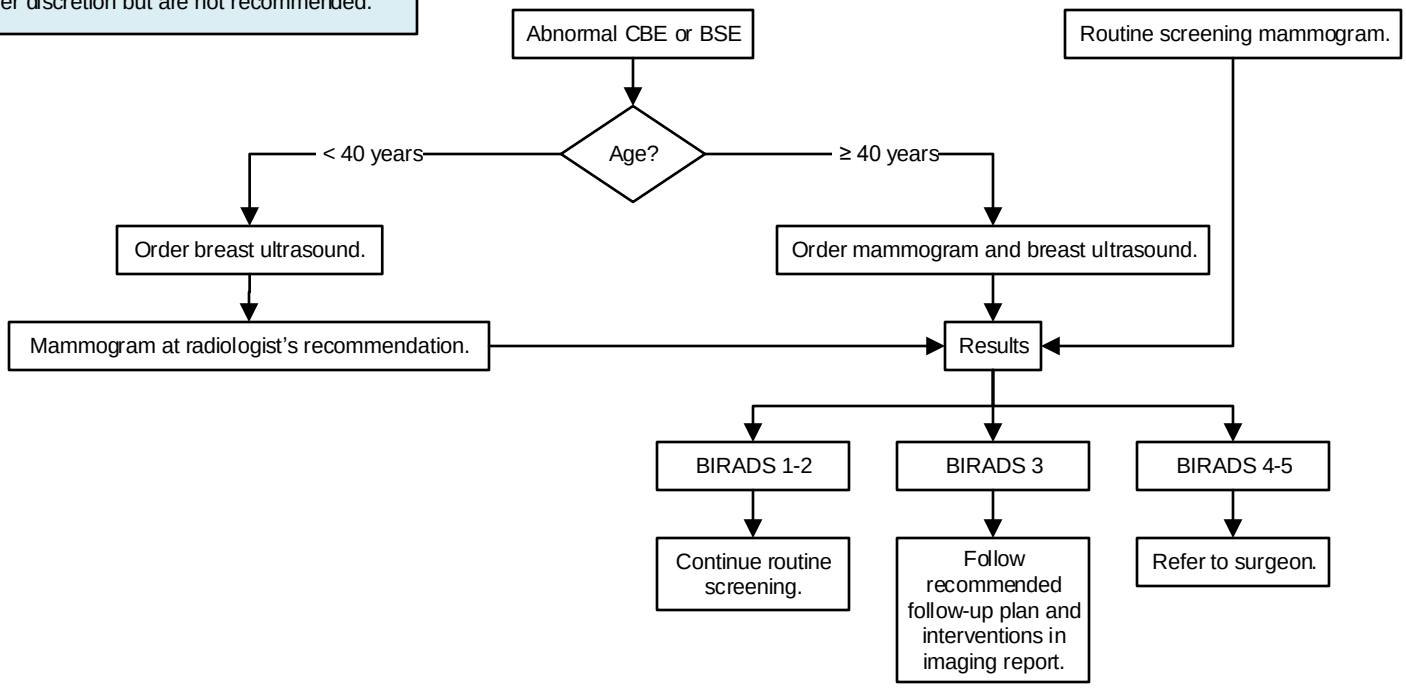
Breast Cancer Screening

Definitions

- CBE: Clinical Breast Exam
- BSE: Breast Self Exam
- BIRADS: Breast Imaging Reporting and Data System, a system that scores findings on breast imaging

Recommendations for Screening at YKHC

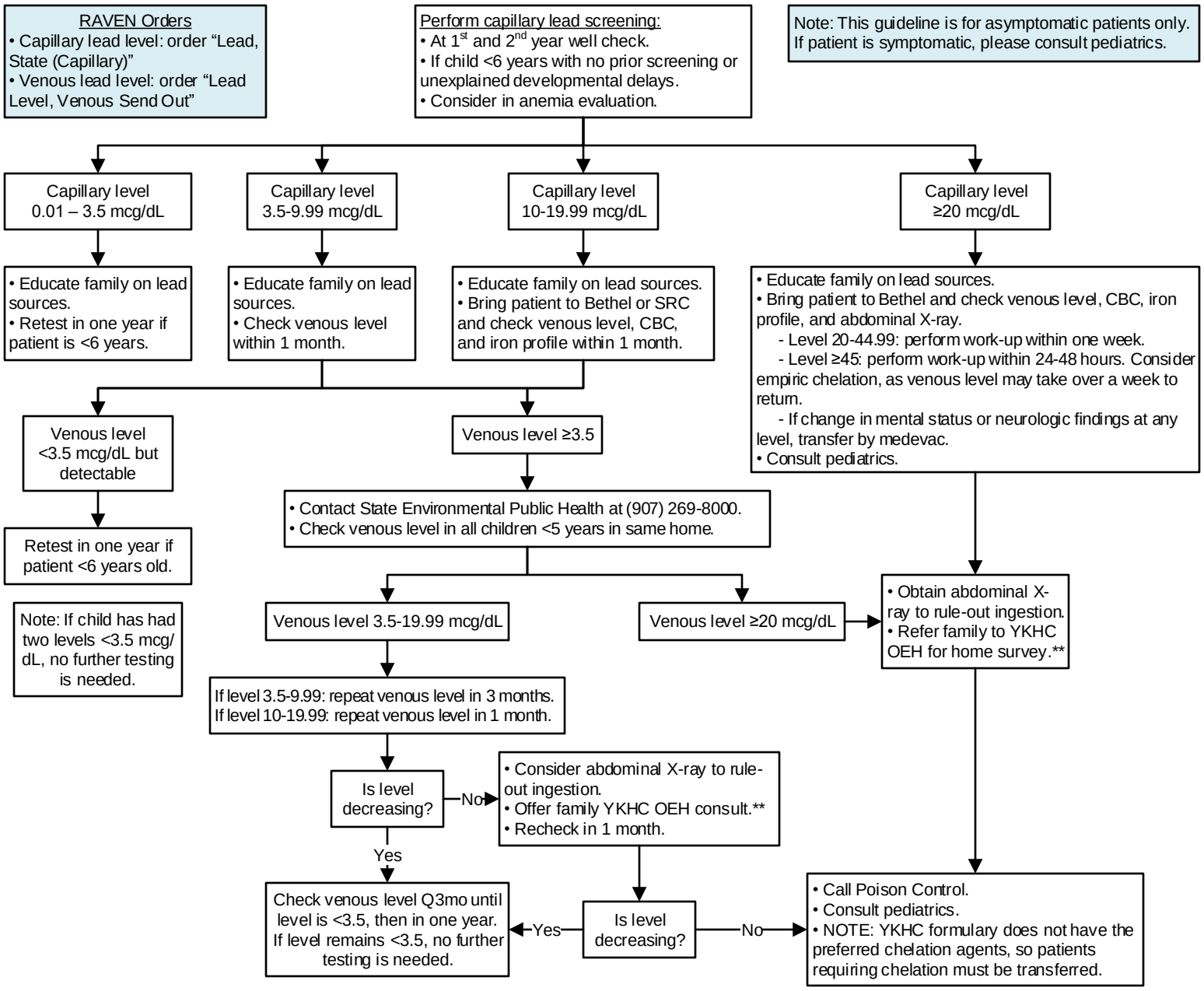
- Mammogram: start at age 40 and rescreen Q2 years until age 74 depending on patient's health.
- Routine CBE or BSE can be done at patient/ provider discretion but are not recommended.



Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Lead Evaluation (Pediatric)



Common Sources of Lead in Alaska

- Mining lead, zinc, silver, or gold ore
- Lead paint in homes or buildings built before 1978
- Firearms and ammunition
- Shooting ranges
- Game meat shot with lead ammunition
- Fishing weights
- Leaded aviation gas
- Marine paint
- Soldering, welding, or craft-making
- Pica or "mouthing" (eating dirt)
- Imported household objects
- Lead or brass pipes/faucets
- Batteries and automobile repair sites

**To consult YK Office of Environmental Health (OEH), call 543-6420 with patient's name and DOB, lead levels, and parent's contact information.
OEH can review environmental risk factors with family and offer a home visit if appropriate.

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If comments about this guideline, please contact Justin_Willis@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Primary Care for Ex-Premies - Checklist

Initial Visit

☐ Review NICU/Nursery course and summarize highlights in note. Update Problem List. Make patient CPP.

☐ Enter birth weight and gestational age so that RAVEN Growth Chart will correct for gestational age. (Go to Growth Chart → Enter New → Measurement → Preterm Growth Chart: Change date to DOB, enter gestational age at birth, and enter birth weight.)

☐ Check height and weight. Do not discharge to village if not having appropriate weight gain (at least 25 grams per day for 4-5 consecutive days), temperature <97.7, or rising bilirubin level.

☐ Check bilirubin level if appearing jaundiced.

☐ Ensure infant is receiving fortified formula (ie Neosure) if discharged from the NICU on it. Infant should remain on this formula until 6 months corrected gestational age.

☐ Place order: "Refer to Family, Infant, Toddler Program."

☐ Place order: "Refer to Audiology Internal." In comments, type, "Premature infant: needs evaluation by 9 months corrected gestational age."

☐ If born <34 weeks, place order: "Refer to Child Family Developmental Services External", CFDS Sub-Specialty drop down "NICU Graduate Clinic."

☐ Place referrals for any subspecialists per NICU/nursery discharge summary.

☐ If Hgb level <9.5 g/dL at discharge, repeat hemoglobin level 2 weeks after discharge. If still <9.5 g/dL, repeat 2 months post-discharge.

☐ Write Vitamin D prescription with 11 refills and ensure receiving 800 IU Vitamin D supplementation. (Poly-vi-sol with iron has 400 IU of Vitamin D per drop.)

☐ Write iron prescription with 11 refills and ensure receiving iron supplementation (Poly-vi-sol or iron polysaccharide). Needs 2 mg/kg iron supplementation for first year of life. (Note: Poly-vi-sol with iron contains 11 mg/mL of iron.)

All Subsequent Visits until Child is 24 Months Old

☐ Review and update Problem List.

☐ Assess growth based on corrected gestational age. Consult pediatrics if: there is a need to increase/decrease feeding calories, head circumference growth >1.25 cm/week, or infant is crossing major percentile lines.

☐ Review feeding, sleep, and development in detail.

☐ Check on FIT involvement. If family has not been contacted by FIT, reach out to Peds Wards on Duty, who will contact the FIT liaison.

☐ Give all vaccines per routine schedule based on chronologic age.

☐ Administer ASQ at **9 months**, **18 months**, and **24 months** chronologic age.

☐ Administer **MCHAT-R** at 18 months and 24 months chronologic age.

☐ Ensure specialty appointments/referrals have been made.

☐ If on caffeine, alter dose based on **Caffeine Protocol, Post-NICU Discharge Resource**.

☐ If diagnosis of Bronchopulmonary Dysplasia or Chronic Lung Disease of Prematurity, check blood pressure at each visit. For normal neonatal and infant BPs, see **this page**, table 1 and figures 1A and 1B.

☐ If infant qualified for Synagis, ensure monthly doses are given during RSV season until course is complete. Ensure patient is scheduled for these visits. Check Problem List for when next dose is due and how many doses will complete infant's course. If concerns or questions, email YKHCSynagis@ykhc.org.

☐ Ensure receiving Vitamin D 800 IU supplementation (Poly-vi-sol with iron has 400 IU of Vitamin D per drop).

☐ Ensure receiving iron supplementation (Poly-vi-sol or iron polysaccharide). Needs 2 mg/kg iron supplementation for first year of life. (Note: Poly-vi-sol with iron contains 11 mg/mL of iron.)

Documentation: Use the autotext "..pednicugrad" for a summary of this checklist for charting purposes.

To consult the pediatrician on call, send a message through Tiger Connect to Peds Wards on Duty.

General Information

- Soy milk formulas should not be given to preterm infants.
- Physiologic reflux is more common in preterm infants. There is no evidence to support the use of gastric acidity inhibitors. H_2 blockers and PPIs are associated with gastroenteritis, pneumonia, and bone fractures.
- Catch up growth of premature infants occurs for head first (3-8 months), then weight, then length.
- Recommend every member of the household is up to date on Tdap, COVID, and seasonal influenza vaccines to protect these high-risk infants.

Criteria for Referral to Child Family Developmental Services (CFDS) Birth to Three High Risk Clinic

This is a specialty clinic in Anchorage that follows high-risk infants.

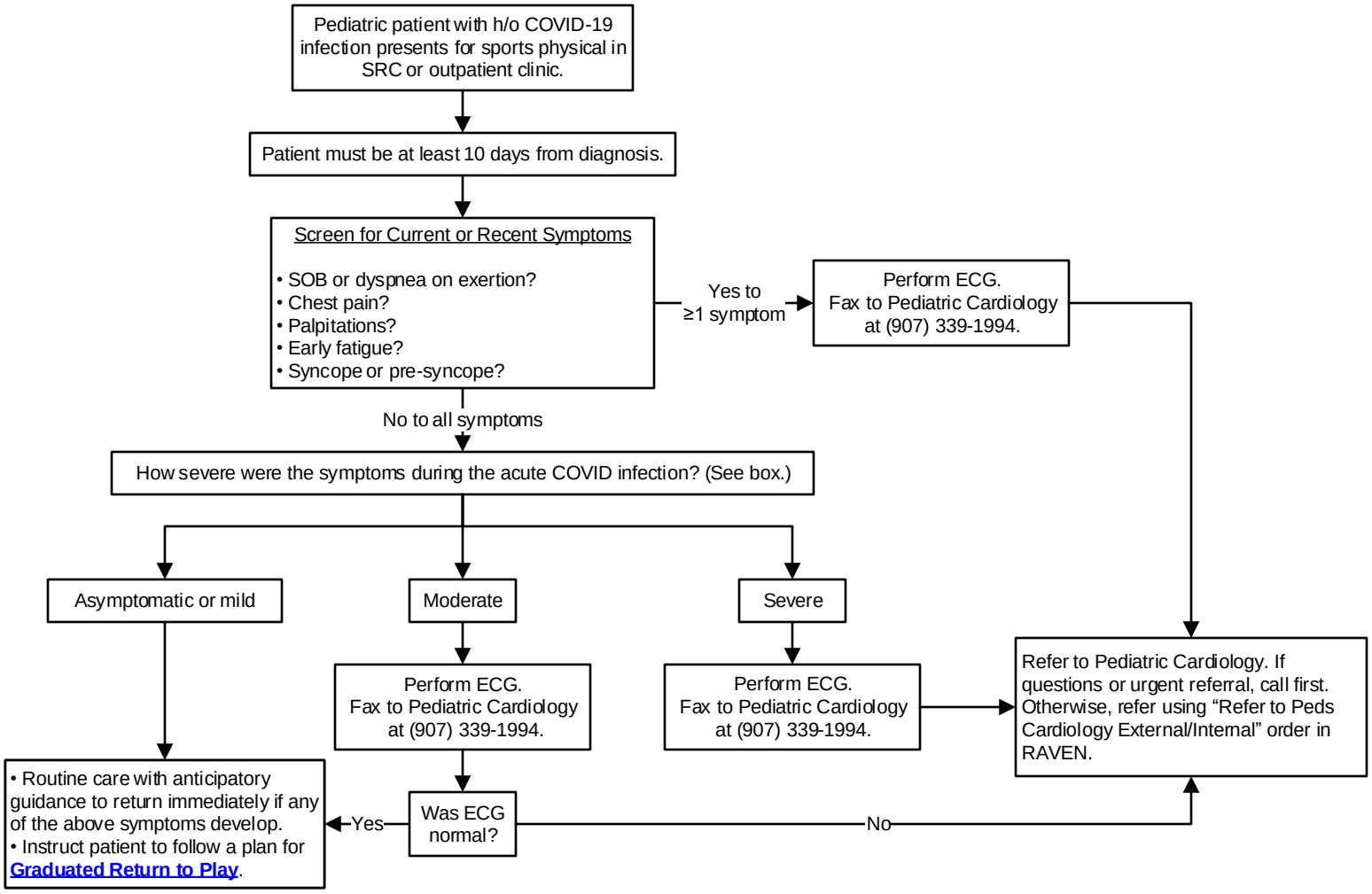
- Birth weight (BW) <1500 grams.
- Gestational age <34 weeks.
- Cardiorespiratory depression at birth
- Apgar score <5 at 5 minutes
- Prolonged hypoxia, acidemia, hypoglycemia, or hypotension requiring pressors.
- Persistent apnea requiring medication.
- Oxygen support for >28 days and X-ray findings consistent with chronic lung disease.
- Extracorporeal membrane oxygenation (ECMO)
- Persistent pulmonary hypertension of the newborn (PPHN)
- Seizure activity
- Intracranial pathology, including intracranial hemorrhage, periventricular leukomalacia, cerebral thrombosis, cerebral infarction, or any developmental/central nervous system (CNS) abnormality
- Other neurological insult, including hypoxic ischemic encephalopathy (HIE), kernicterus, sepsis, CNS infection
- Confirmed prenatal exposures to alcohol, methamphetamines, opiates, or Suboxone.

Please see the **Care of Late Preterm Newborns** guideline for information about late preterm babies who were cared for at YKDRH and were not admitted to a NICU.

Yukon-Kuskokwim HEALTH CORPORATION

COVID-19 Clinical Guideline

Sports Clearance for Pediatric Patients with History of COVID-19



Symptom Severity Classification for this Guideline

- Mild: no fever, <3 days of symptoms
- Moderate: prolonged fevers and bedrest, hospitalization not required, no abnormal cardiac testing throughout course
- Severe: hospitalized, abnormal cardiac testing, or MIS-C

Note: Providers may use their clinical judgment and perform an ECG if cardiac concerns not addressed by this guideline.

Phone Numbers

Seattle Children's Pediatric Cardiology of Alaska (located in Anchorage):
- Phone: (907) 339-1945
- Fax: (907) 339-1994

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC ad hoc committee for COVID-related guidelines 8/24/21. Click here to see the supplemental resources for this guideline.

If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

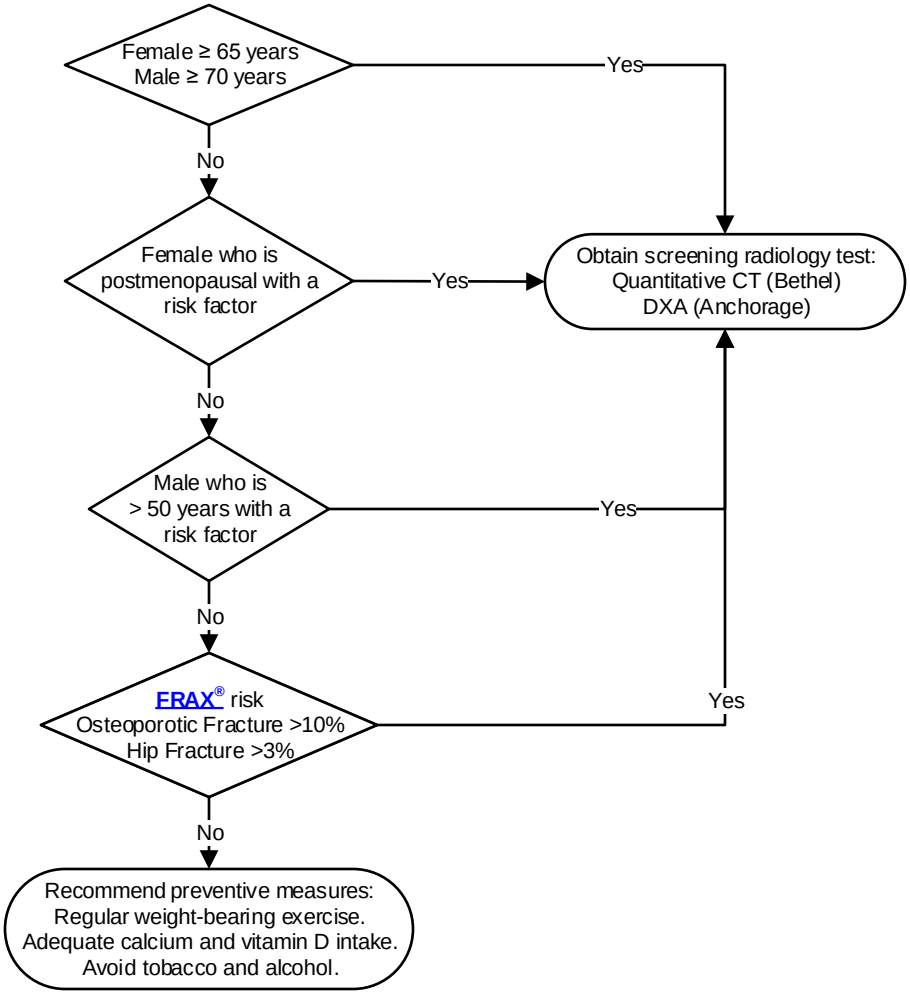
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Osteoporosis Screening

Risk Factors
- Osteopenia on X-ray.
- History of fracture without trauma.
- Tobacco use.
- Excessive alcohol use.
- Height loss more than ½ inch in one year.
- Height loss more than 1.5 inches total.
- At risk medication use (see box below).
- BMI < 20.
- Premature menopause.

At Risk Medications
- Systemic steroids >3 months
- Methotrexate
- Aromatase inhibitor
- Selective estrogen receptor modulator
- Proton pump inhibitor
- Heparin
- SSRI



Recommended Calcium Intake

Age	Sex	RDA mg/day
9-18	M+F	1300
19-50	M+F	1000
51-70	M	1000
51-70	F	1200
>71	M+F	1200

Recommended Vitamin D Intake

Age	Sex	RDA IU/day
14-70	M+F	600
>71	M+F	600

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Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Osteoporosis Treatment

Abbreviations
BMD – Bone mineral density
BTM – Bone turnover markers
FRAX® – Risk scoring algorithm

FRAX® High Risk for Fracture
10 year risk of major osteoporotic fracture ≥ 20% or hip fracture risk ≥ 3%.

If patient has one or more of the following:
- Lumbar spine or femoral neck or total hip T score ≤ -2.5
- CT bone density < 80 mg/cm^3
- History of a fragility fracture
- High FRAX® fracture probability

Some Secondary Causes of Osteoporosis
- Drugs
- GI-related illness
- Bone marrow disease
- Endocrine disorder
- Organ transplant

Evaluate for secondary causes of osteoporosis.

Correct calcium/vitamin D deficiency and address secondary causes of osteoporosis.

Educate patient on lifestype measures, fall prevention, and benefits and risks of medications.

Obtain dental evaluation of and treatment for risk of osteonecrosis of jaw.

Consider endocrinology consultation.

Prior fragility fracture

No → Start alendronate.

Start alendronate. → Reassess at least yearly.

Reassess at least yearly. → Worsening?

Worsening? Yes → Assess compliance. Reevaluate for secondary causes of osteoporosis.

Assess compliance. Reevaluate for secondary causes of osteoporosis. → Switch to zoledronic acid or denosumab.

Switch to zoledronic acid or denosumab. → Place note in RAVEN that includes autotext "..OsteoporosisPreTreat" at least two weeks prior to visit for medication.

Worsening? No → Consider drug holiday after five years.

Consider drug holiday after five years. → Resume therapy when fracture occurs, BMD declines, or BTM rises.

Resume therapy when fracture occurs, BMD declines, or BTM rises. → Reassess at least yearly.

Yes → Start zoledronic acid or denosumab.

Start zoledronic acid or denosumab. → Place note in RAVEN that includes autotext "..OsteoporosisPreTreat" at least two weeks prior to visit for medication.

Place note in RAVEN that includes autotext "..OsteoporosisPreTreat" at least two weeks prior to visit for medication. → Reassess at least yearly.

Reassess at least yearly. → Worsening?

Worsening? Yes → Consult adult endocrinologist.

Worsening? No → Consider drug holiday after six years with zoledronic acid.

Consider drug holiday after six years with zoledronic acid. → Reassess at least yearly.

Adapted from AACE/ACE 2016 Postmenopausal Osteoporosis Treatment Algorithm.

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Yukon-Kuskokwim HEALTH CORPORATION

Psychiatry Guidelines

Psychiatry

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Alcohol Hangover/Withdrawal

Table 1: Alcohol Hangover (F10.120)
- Poorly defined but universally understood; occurs the morning after a night of heavy drinking.
- In general, starts <12 hours after a binge of <24 hours.
- Sx: fatigue, thirst, headache, nausea, concentration problems, apathy, loss of appetite, dizziness, vomiting, heart pounding/racing.
- Requirements: HR<130, BP<160/100, RR<24, T<100.4, ambulatory, GCS=15, appropriate history, no tremor, no anxiety, no significant comorbidities.

Table 2: Inpatient Criteria
- CIWA>12, despite treatment with PB/BZD.
- Requiring high-dose sedatives or IV infusion to maintain CIWA<12.
- GCS<8 or hemodynamic instability.
- Persistent hyperthermia (T>100.4 F).
- Respiratory insufficiency (hypoxia, hypercapnia, etc.).
- Marked acid-base disturbance.
- Cardiac disease (heart failure, arrhythmia, evidence of ischemia, etc.).
- Severe electrolyte abnormality.
- Severe renal insufficiency or requiring high volume fluids.
- Evidence of rhabdomyolysis.
- Potentially serious infection (PNA, wounds, etc.).
- Severe GI pathology (GI bleed, pancreatitis, etc.).
- Severe psychomotor agitation (high risk to self or others, gravely disabled, etc.).
- Evidence concerning for Wernicke-Korsakoff Syndrome (oculomotor dysfunction, ataxia, severe malnutrition).
- Withdrawal despite very elevated serum ethanol.

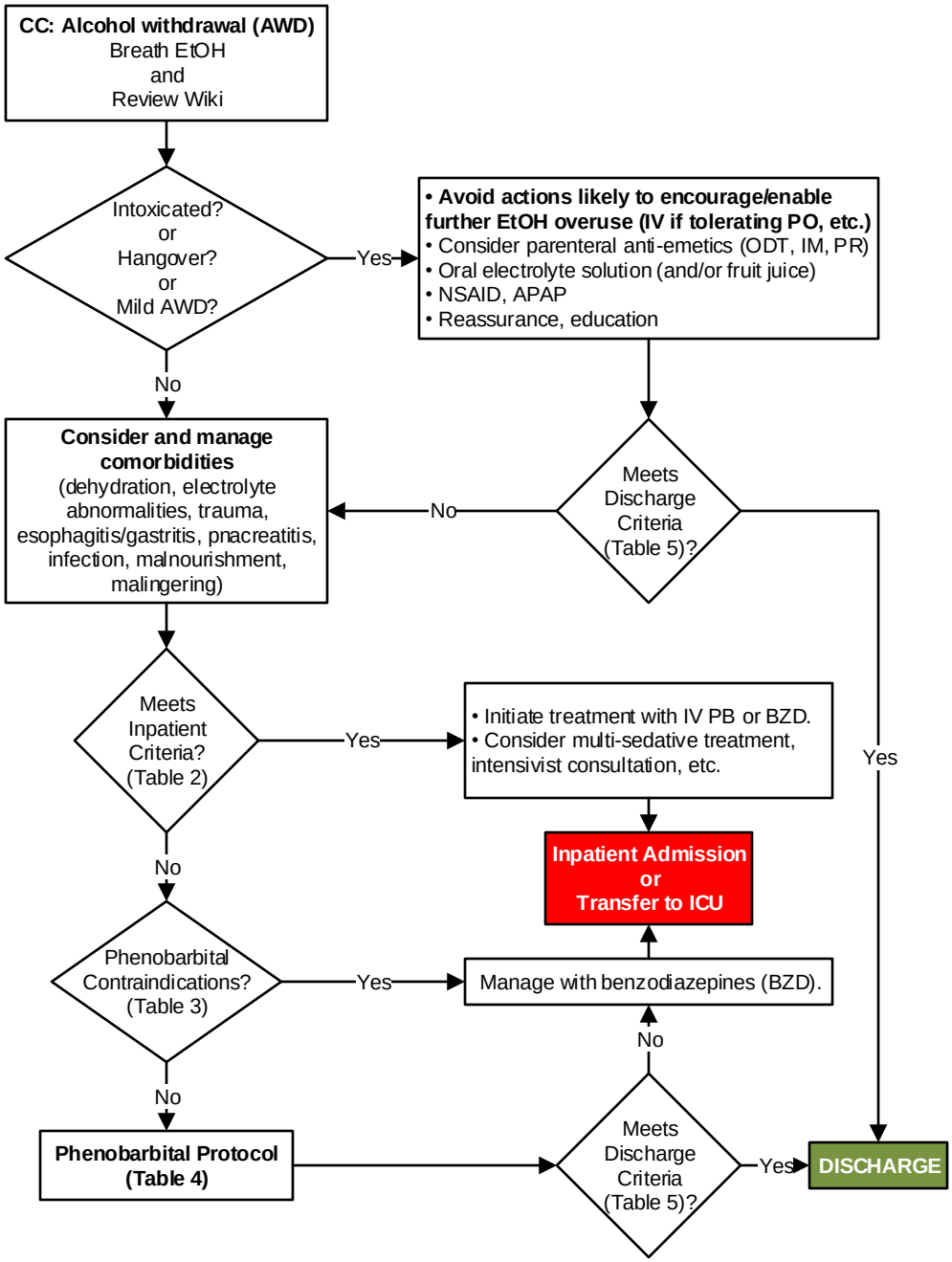
Table 3: Phenobarbital Contraindications
Absolute: Hx allergy, adverse reactions, or porphyria
Relative: current significant sedative level (including EtOH, BZD, or anti-psychotics)

Table 4: Phenobarbital (PB) Protocol
- Phenobarbital 260 mg IV
then phenobarbital 130 mg IV every 30-40 minutes until CIWA score ≤ 12. No discharge meds.
OR (for very large/small patients)
- Phenobarbital 4 mg/kg IV (rounded to nearest 130 mg)
then phenobarbital 2 mg/kg IV every 30 minutes until CIWA score ≤ 12. No discharge meds.
OR
- Either of the above via IM injection, with subsequent doses very 60-90 minutes.

Adverse Effects:
- Transient asymptomatic hypotension
- Transient ataxia
- Transient lethargy

Table 5: Discharge Criteria
- No inpatient criteria present (Table 2).
- CIWA score <12.
- Awakens to voice or light touch.
- Oriented with no delirium.
- Ambulatory without assistance.
- Taking liquids without vomiting.
- No co-administered sedatives/anti-psychotics.
- No seizures after treatment.
- Likely compliant with important outpatient medications (including antibiotics, etc.).

Please see the Wiki for more information:
Alcohol Withdrawal in the YK Delta
Phenobarbital for Alcohol Withdrawal



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Approved by Clinical Guideline Committee 10/21/22.
If comments about this guideline, please contact Clinical_Guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Attention Deficit Hyperactivity Disorder (6-17 Years)

Concern raised by caregiver or teacher for Attention Deficit Hyperactivity Disorder (ADHD) in child aged 6-17 years

For children <6 years, consider referral to CFDS and/or psychiatry group.

↓

Distribute initial Vanderbilt evaluation forms for caregiver and teacher to complete. Click here for forms.

↓

Schedule appointment with provider trained in ADHD evaluation and management.

↓

Initial Vanderbilt evaluation forms completed by caregiver and teacher.
Forms reviewed by provider before, at, or after appointment.[1]
Provider conducts medical evaluation at appointment.

↓

Vanderbilt positive for ADHD with comorbid psychiatric conditions

↓

- Address any medical issues (sleep, etc.).
- Refer to psychiatry group for further evaluation and management.

Vanderbilt positive only for ADHD and physical/situational/organic conditions excluded. No cardiac contraindications (see box).

↓

Start trial of low-dose stimulants for one month and refer to Behavioral Health for concurrent counseling to achieve optimal results.

↓

Distribute follow-up Vanderbilt evaluation forms to be completed by caregiver and teacher after two weeks of new medication or dose.

↓

Schedule follow-up appointment within 30 days of starting medication or changing dose.
Review follow-up Vanderbilt forms: do they indicate acceptable control of ADHD symptoms with reasonable side effect profile?

No → Review results with caregiver (may be by phone). Titrate dose as indicated. May consult psychiatrist via Tiger Connect. → (return to Distribute follow-up Vanderbilt evaluation forms)

Yes

↓

Monthly weight checks in village clinic or Bethel for three months after any dose adjustment.

↓

May refill stimulant prescription for up to three months at a time once on a stable dose without significant adverse effects.[3]

↓

- Follow-up ADHD appointment for medication review (with completed Vanderbilt evaluation forms) every 3 months.
- May alternate face-to-face visits with VTC appointments. Must check height, weight, and VS every 6 months.
- May refill one additional month while awaiting an appointment if necessary.

Vanderbilt negative for ADHD

- Perform full WCC.
- Address any medical issues (sleep, etc.).
- Consider checking lead and vitamin D levels and/or referring to Audiology and Optometry.
- Consider referral to Behavioral Health for counseling or to Child and Family Developmental Services (CFDS) clinic in Anchorage for further neurodevelopmental testing.[2]

Complicated Patients

Refer complicated patients to psychiatry group. Patients on more than one psychiatric medication may require more frequent visits.

Contact

- If questions about pediatric management, use Tiger Connect Team "Pediatric Outpatient."
- If a patient has run out of medications, send a Tiger Text to role "Psych Med Refills Only (Not for Patients)."
- To consult a psychiatrist, send a message to Tiger Connect role "Psychiatry Attending Physician (Not for patients)."

If any of the following are present, refer to cardiologist prior to starting stimulants:

- Hx congenital heart disease or previous heart surgery
- FHx sudden death suggesting cardiac disease under 40 in a first-degree relative
- SOB on exertion compared to peers
- Syncope on exertion or in response to fright or noise
- Palpitations that are rapid, regular, and start and stop suddenly; fleeting occasional "bumps" do not need investigation
- Chest pain suggestive of cardiac etiology
- S/Sx heart failure
- Heart murmur not c/w benign process
- If BP consistently above the 95th percentile for age and height

Footnotes

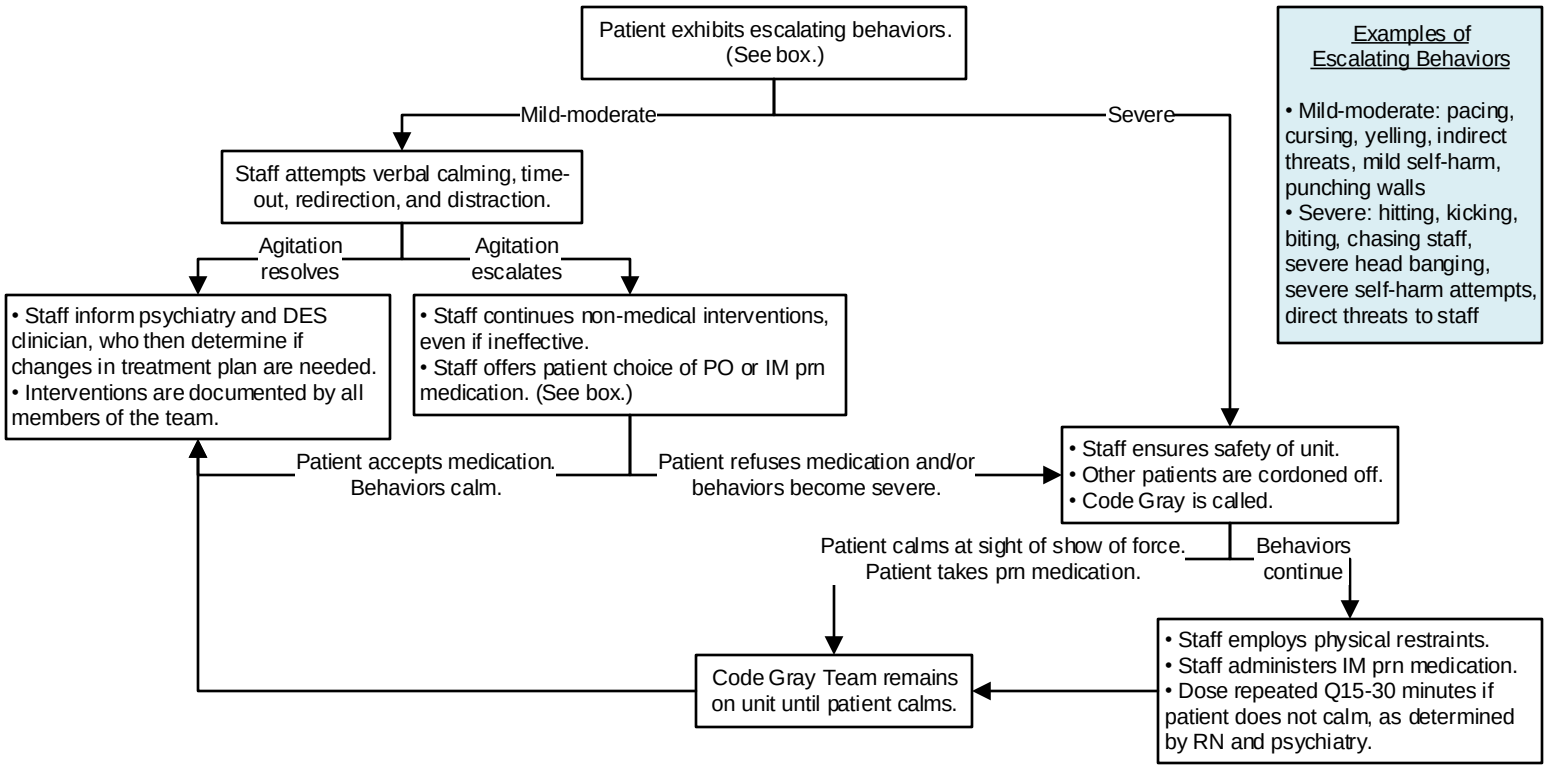
1. Scan completed Vanderbilt forms into MultiMedia Manager under "Continuity of Care."
2. To refer to CFDS or other private psychologist: use "Refer to Other External" order and send a message to the case manager to process the referral.
3. E-prescribe three separate 30 day prescriptions after checking Alaska PDMP. Include the month the medicine is to be filled in the comments or special instructions section.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 7/14/23.
Click here for the supplemental resources for this guideline.
If comments about this guideline, please contact Clinical_Guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Protocol

Care of an Agitated or Aggressive Patient on Inpatient or DES



Code Gray

• Code Gray team is activated by pressing button on panel located at the nursing station. This will activate an overhead page on the hospital PA system.
• Code Gray team will include all available security personnel, behavioral health clinician, charge nurse (or designee), and if possible another nurse. Medical provider will attend if able. Goal is a minimum of six team members at all Code Gray events.
• Charge nurse will determine when patient is calm enough for Code Gray staff to leave unit.
• BH clinician and bedside nurse will document incident in detail, including all interventions attempted, if meds were given, patient response and behaviors, actions if restraint and/or seclusion were applied, and timing of events.

Medications to Treat a Combative Patient

(Use "MED Behavioral Health IP Admission" Power Plan.)

• Olanzapine 5-10 mg IM/PO Q10-30 minutes *prn* up to max 24 hour dose 60 mg.
• Haloperidol 2.5-10 mg IM/PO Q10-30 minutes *prn* up to max 24 hour dose 100 mg.
• If multiple classes and/or high doses of medications are used, consider monitoring of vital signs and/or end tidal CO_2 per provider discretion.

• In 24 hours, if a patient receives >30 mg of haloperidol OR >30 mg of olanzapine OR if doses of both add up to >30 mg, notify hospitalist and perform EKG when patient is stable enough to tolerate it.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 7/14/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Thomas_Peterson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Intoxicated Patient in the ED

Special Circumstances

- **Involuntary Psychiatric Hold**
  - Suicidal or homicidal ideation, gravely disabled.
  - Must be sober prior to BH evaluation.
- Minor
  - OCS report via reportchildabuse@alaska.gov.
  - Discharge to sober adult (guardian or someone designated by guardian).
- Violent
  - Deescalate if able.
  - Restraint or medication sedation to maintain safety.

Mode of Arrival

1. BPD, CSP, AST
2. Walk in
3. EMS
4. LifeMed

Note: Non-emergent procedures can be delayed/ declined if intoxication impairs patient's ability to consent or maintain safety.

Note: Alcohol can mask other causes of altered mental status. Use clinical judgment to determine need for head imaging.

- Vitals
- POC Glucose
- GCS
- History
- Medical Screening

- Hemodynamically unstable
- GCS <8
- Severe Trauma
- Emergent Illness

- Care per ACLS/ATLS
- Consider Narcan
- Consider occult illness/trauma

Transfer to higher level of care when appropriate.

- Vitals not reassuring
- Glucose abnormal
- Non-ambulatory
- GCS 8-13
- +Trauma/Illness
- Concern for safety/SI

- Maintain in ED
- Continuous pulse-oximetry
- Full evaluation/exam
- ± Labs, imaging as appropriate
- Treatment

- Vitals reassuring
- Glucose normal
- GCS 13-15
- Ambulatory
- Medically stable

Discharge Statuses

- Remand
- PC
- Care of sober adult
- Self care if sober

No medical indication for admission

Stable or improving

Medical indication for admission

Admit to Inpatient once sober.

Common Complications of Acute Alcohol Intoxication

- Hypoglycemia
- Electrolyte abnormality
- Hypothermia
- Occult trauma
- Co-ingestion/intoxication
- Gastritis
- Pancreatitis
- Hepatitis
- Occult infection
- Aspiration
- Exacerbation of chronic illness
- Victim of physical/sexual assault

Alcohol Metabolism

- (Serum Alcohol - 80) / (20 to 30) = Time to sobriety
- BRAC x 1000 = Serum Alcohol
- Serum alcohol <80 is considered sober.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 3/1/22.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Megan_Young@ykhc.org.

Deescalation Strategies for Adolescents

- If not immediately dangerous, attempt simple, nonrestrictive strategies:
  - Verbal de-escalation.
  - Reduction of environmental stimuli (a quiet room is much better than a loud hallway).
  - Offer basic needs (ex, food, warm blanket).

Medications

Use caution when giving medications to intoxicated patients, as alcohol can intensify sedation effects.

- Oral vs Intramuscular - If the patient is cooperative, offer oral medications first
  - May give the patient sense of some control.
  - Avoid trauma of being physically restrained for IM shot.
  - Many medications are equally effective in oral form
  - If patient is not cooperative, the oral route is not going to be an option.
- Benzodiazepines
  - Lorazepam – 0.05-0.1 mg/kg/dose (PO/IM/IV)
  - Midazolam – 0.25-0.5 mg/kg/dose PO; 0.2-0.3 mg/kg IN; 0.1-0.15 mg/kg/dose IM
- First Generation Antipsychotics
  - Haloperidol – 0.5-5 mg PO; 0.05-0.15 mg/kg IM (up to 5 mg/dose)
- Second Generation Antipsychotics
  - Risperidone – 0.25-2 mg PO/ODT
  - Olanzapine – 2.5-5 mg PO/ODT
- Others:
  - Diphenhydramine – 1 mg/kg/dose (PO/IM)
  - Ketamine
    - Rapid onset due to high bioavailability (even when given IM)
    - No QT prolongation issues
    - Safe even in overdose (important when you aren't sure of patient weight)
    - No respiratory depression (rarely, may see laryngospasm)

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Involuntary Psychiatric Admissions

This guideline only applies to medically stable patients.

Patient in village.

- Health aide sends RMT for potential Involuntary Psychiatric Admission.
- Provider instructs health aide to contact BH on call if not done already.
- If patient has medical concerns, provider manages as appropriate (e.g. NAC for acetaminophen overdose, hemorrhage control for wounds).
- RMT provider can sign title paperwork or talk to BH about who should sign.
- Patient brought to Bethel with escort. (See box.) BH arranges travel.

Patient in Bethel.

Behavioral Health coordinates transfer to Bethel ED, MC-105 (T-47), and escort by Bethel Police.

Escorts

- Must be sober and responsible and ensure patient arrives safely. May be TPO/VPO or Trooper.
- If patient is a minor, try to get legal guardian as escort to sign documents and assist with placement if needed.

Contact

- BH Emergency Services: x6499
  - Tiger Connect BH Emergency (not under roles)
- Psychiatry: Tiger Connect role Psych Inpt On Site

Is patient intoxicated?

Yes → MC-105 (T-47) maintained until alcohol level <80.

No → ED provider evaluates patient.

Work-up

As there is no medical indication for routine lab work on psychiatric patients, provider may decline to obtain lab work and document reasoning. The following may be considered:

- CBC, CMP
- UDS: result can be followed by DES/inpatient unless newly psychotic patient with concern for acute drug intoxication
- EtOH (BAL or serum)
- APAP/salicylate levels if suspected ingestion or history
- UA if age >65

Definitions

- MC-100: Petition for Order Authorizing Hospitalization for Evaluation. Must be confirmed by a judge.
- MC-105: Notice of Emergency Detention and Application for Evaluation, often referred to as "Title 47." May be completed by law enforcement or physician.

Is the patient any of the following?

1. Threat to self
2. Threat to others
3. Gravely disabled

Yes

- MC-105 (T-47) is maintained.
- ED provider performs appropriate work-up (see box) and determines when patient is medically stable.
- BH or psychiatry provider evaluates patient and completes MC-100.
- If BH evaluation will be delayed and ED / NW provider are in agreement patient warrants admission on psychiatric hold, BH evaluation may occur after admission.

Admission

- Hospitalist admits patient to hospital using BH Inpatient Admission order set along with general admission orders.
- Hospitalist writes H&P, addressing both psychiatric and medical conditions.
- When patient is medically stable, hospitalist signs patient over to psychiatry service:
  - Hospitalist documents in a note that patient is cleared for transition to psychiatry service.
  - Hospitalist confirms plan with charge nurse and psychiatry service verbally or via Tiger Connect.
  - Hospitalist places communication order "The patient is transferred to psychiatry service."
  - Hospitalist does not need to round on patient any longer but may choose to remain involved as needed and may be re-consulted for concerns.

Medications to Treat a Combative Patient

(Use ED T-47, Psychiatric Disorder Power Plan.)

- Olanzapine 5-10 mg IM/PO Q30 minutes up to max daily dose 60 mg.
- Haloperidol 2.5-10 mg IM/PO Q30 minutes, max daily dose 100 mg.
- Diphenhydramine 25-50 mg IV/IM/PO Q4-6h.
- Lorazepam 2-10 mg IV/IM/PO Q30 minutes, titrate to effect. No max dose. Avoid in intoxicated patients due to risk of respiratory depression.
- Ketamine 0.1-2 mg/kg IV Q10 minutes, max 2 mg/kg total dose.
- Ketamine 1-5 mg/kg IM Q30 minutes, max 5 mg/kg total dose. Consider for temporary control when other medications have failed or if immediate sedation is needed to prevent harm to patient or staff.

CAUTION: There is a risk of respiratory depression with all sedative medications, especially in the setting of alcohol use. Start with 1-2 agents and titrate. Do not add additional medications until prior medications are given time to work. All patients receiving sedative medications must be on continuous pulse-oximetry when they are no longer combative. 1:1 monitoring is required due to ligature risk. Consider ET CO_2 monitoring.

No

- MC-105 (T-47) is allowed to lapse.
- Behavioral Health evaluates patient and works with provider to determine disposition, which may include home with a safety plan, CRC, or voluntary admission to Inpatient Unit.

Services at YKHC

- Behavioral Health (BH): Masters level clinicians (MSW, LPC, etc.) who provide consultation services and are physically present in the hospital. They field calls from patients, assist Pyschiatry in determining whether a patient needs involuntary hospitalization, and coordinate the logistics for where psychiatric patients go. They do not have legal authority to place psychiatric holds and do not have admitting privileges. **It is ultimately a physician's responsibility to determine suitability of psychiatric hold and appropriate disposition.** Non-physician providers may evaluate and treat these patients and maintain existing T-47s. If a new T-47 needs to be initiated, a physician must sign off on it.
- Psychiatry: All inpatient psychiatric care (including discharge or transfer to a higher level of care) is provided by a psychiatric physician or an advanced practice psychiatric provider under direct supervision by a psychiatric physician. Psychiatry will manage all patients on the psychiatry service, will be responsible for all patients on Title 47 commitments with the aid of BHES, and will also provide consultation for psychiatric patients on the Inpatient Unit.
- Inpatient Hospitalists: Family medicine physicians who admit patients, stabilize medical problems, and transfer to psychiatric service when medically stable. Hospitalist determines whether a patient has medical concerns requiring active ongoing inpatient management (e.g. infection, electrolyte abnormality, alcohol withdrawal). If medical problems, hospitalists remain primary service of record until active medical problems are resolved, writing daily progress notes, placing orders, and billing as usual with psychiatry consulting. If no medical problems, hospitalist may immediately sign patient over to psychiatry service. They can defer all psychiatric management to psychiatry service or collaborate with psychiatry team in rendering diagnoses and ordering medications. This should be communicated clearly both in the note and via direct conversation with psychiatry service.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 5/15/23. Click here to see the supplemental resources for this guideline. **If comments about this guideline, please contact Travis_Nelson@ykhc.org or Kaia_Pearson@ykhc.org.**

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Yukon-Kuskokwim HEALTH CORPORATION

Trauma/Injury/Ingestion Guidelines

Trauma/Injury/Ingestion

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Acetaminophen Overdose (Adult and Pediatric)

Contact Poison Control at 800-222-1222 for:

- Pediatric patients <12 years of age.
- Polysubstance or Tylenol PM overdose.
- Any questions or advice.

Patient presents with acute acetaminophen ingestion.

Intentional overdose → Notify BH on call.

Hours post-ingestion

< 4 hours:
- Administer activated charcoal 1 gram/kg (max 50 grams) if airway intact.
- If ingestion is suspected to be >150 mg/kg or >7.5 grams, start acetylcysteine 30-60 minutes after activated charcoal.

Draw labs 4 hours post-ingestion.

> 4 hours or unknown:
- Draw acetaminophen level, CMP, and PT/INR.
- Consider starting acetylcysteine while awaiting results.
- If suspected intentional and/or polysubstance ingestion, expand work-up to include UDS, salicylate level, alcohol level, pregnancy test, VBG, lactate, and EKG (if appropriate).

Does patient meet criteria for NAC? (See box.)

No → Behavioral Health evaluation if intentional; otherwise discharge.

Yes → Admit to hospital for IV or PO acetylcysteine. Consider consult with toxicologist/Poison Control.

Recheck acetaminophen level, CMP, and INR Q12h.

Indications to stop NAC met → Discontinue NAC.

Indications to stop NAC not met after 21 hours of therapy:
- Continue NAC at 6.25 mg/kg/hour IV or 70 mg/kg PO Q4h.
- If ALT >1000 or trending up, INR >1.5 or trending up, or patient worsening, consult Poison Control and/or hepatologist via ANMC, SCH, or UW Medcon. Consider transfer.

Indications for Starting N-acetylcysteine (NAC)

- Acetaminophen level above treatment line on nomogram.
- Suspected ingestion >150 mg/kg or >7.5 grams total in patient who will not get labs within eight hours of ingestion.
- Acetaminophen level >10 mcg/mL and time of ingestion unknown.
- Possible acetaminophen ingestion and ANY evidence of liver injury.

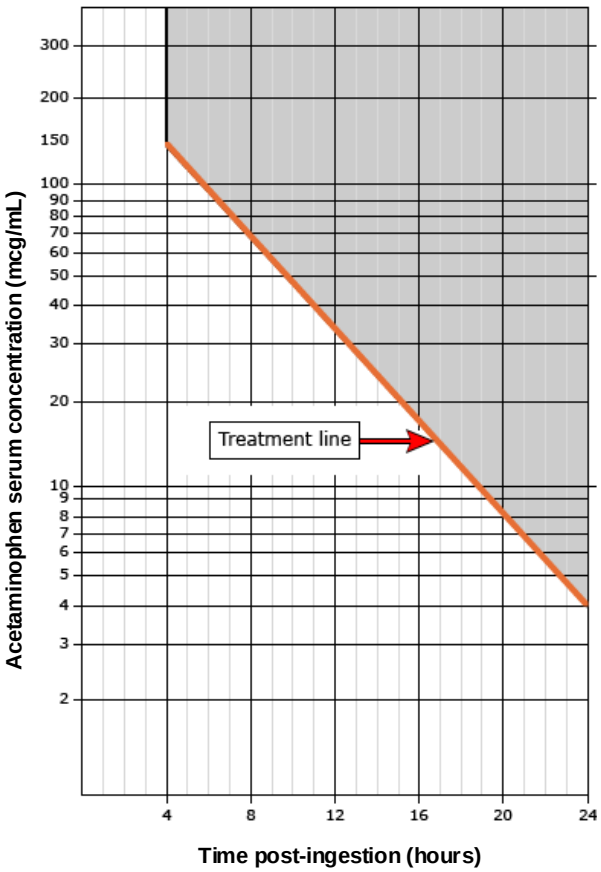
Indications for Stopping N-acetylcysteine (NAC)

All must be true.

- 21 hour IV protocol is complete or patient has received at least 21 hours of oral therapy.
- Acetaminophen level undetectable.
- ALT trending down (less than 50% of peak level).
- Patient is asymptomatic (especially no RUQ pain).

Note: If polysubstance ingestion, other substances such as diphenhydramine may affect absorption, so this guideline may be less relevant. Consult Poison Control.

Rumack-Matthew Nomogram for Single Acute Acetaminophen Poisoning



Village Management

- Administer activated charcoal 1 gram/kg (max 50 grams) if airway intact and <4 hours since ingestion.
- If patient in village and toxicity is at all possible, start treatment with oral acetylcysteine and draw blood at 4 hours post ingestion. Instruct health aide to draw 2 mL (minimum 200 microliters) in a gold/SST or green top tube.
- Transport patient and blood work to Bethel on next available commercial flight, if stable.

For vomiting:

- If within one hour of NAC dose, repeat full dose.
- May give ondansetron or metoclopramide.

N-Acetylcysteine (NAC) Administration Protocols

1. IV 21 Hour Protocol: Dose is 150 mg/kg (max 15 grams) over 60 minutes immediately followed by 50 mg/kg (max 5 grams) over 4 hours immediately followed by 100 mg/kg (max 10 grams) over 16 hours (6.25 mg/kg/hour).
Dilute with D5W or ½ NS. See **Dose Calculator** for details on dose and dilution, especially in children under 40 kg. Note: calculator defaults to pounds.

2. PO 72 Hour Protocol: Dilute with strongly-flavored juice or soda. Mix one part medication with three parts juice/soda.
Loading dose is 140 mg/kg.
Maintenance dose of 70 mg/kg Q4h for up to 72 hours.
The villages carry vials of inhalation/oral solution that is 200 mg/mL in 30 mL vials.
See **this resource** for details on dosing, including diluent and dosing volumes for weight.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 4/28/23.
Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Burns (Adult and Pediatric)

Severe Criteria

- Circumferential burns
- Burns across joints
- Burns of face, neck, or groin
- Electrical/chemical burns
- Inhalation injuries/respiratory distress
- Trauma (refer to ATLS)
- Any full-thickness (3rd degree) burns

Disposition Considerations/Criteria

Village: *wound care by health aides over RMT, consider PT by telehealth.*
- Pain controlled on PO regimen.
- No sign of wound infection.
- Unlikely to require further debridement.
- Patient/caregiver/health aide able to perform dressing changes.

Outpatient (ED/Outpatient Clinic/PT): *daily follow-up for wound management and ROM exercises.*
- Wound infection improving on PO antibiotic regimen.
- Debridement not more than once/day.
- Dressing changes not more than twice/day.
- Need for PT assessment not more than twice/week.

Inpatient YKHC:
- Pain uncontrolled on oral medications.
- Dressing changes more than twice/day.
- Wound infection requiring IV antibiotics.
- Nonambulatory (including wounds on both feet).

Inpatient ANMC:
- Critical illness.
- Wound requiring operative debridement or grafting.
- Surgeon recommends higher level of care.
- Child with severe criteria.
- If expected wound care exceeds currently available resources at YKHC.

Patient presents with a burn injury.

↓

Assess VS, circulation, airway, and breathing.

↓

Are there signs of impending airway compromise? See Box. → Yes → Consider early endotracheal intubation.

No ↓

Assess total body surface area (TBSA) affected by partial or full thickness burns.

↓

Adult TBSA > 10%? Child TBSA > 5%? Severe criteria? See Box. → Yes →
- IV access
- Analgesia
- Labs: CBC with diff, CMP, UDS, EtOH, CK, coags.
- If inhalation injury, add ABG, carboxyhemoglobin.
- If TBSA >15%, give IVF per Consensus Formula in box.

No ↓

Wound Care

- Debridement as appropriate. Debride clear blisters >2 cm. Consider sedation.
- Cleanse in dilute chlorhexidine solution.
- Apply bacitracin or mupirocin and cover with Adaptic.
- Wrap with dry gauze.
- Elevate/compress affected extremities.

Consult General Surgeon.

↓

Determine disposition. See Box.

Signs of Impending Airway Compromise

- History of enclosed space fire (including house fire)
- Burn injury or soot in oropharynx
- Stridor or wheezing
- Circumferential burn of neck

Village Management

For any burn that warrants travel to Bethel, instruct health aides to apply bacitracin and NOT silvadene to avoid painful cleaning of wounds in Bethel.

Findings Concerning for Abuse

- Delay in seeking care
- Variations in history
- Injuries inconsistent with history
- Immersion injuries
- Uniform depth
- Well-demarcated burn margins
- Geometric pattern/object imprint

If any concern for abuse, send a message to Child Abuse on Call by Tiger Connect.

Consensus Formula (Brooke/Parkland)

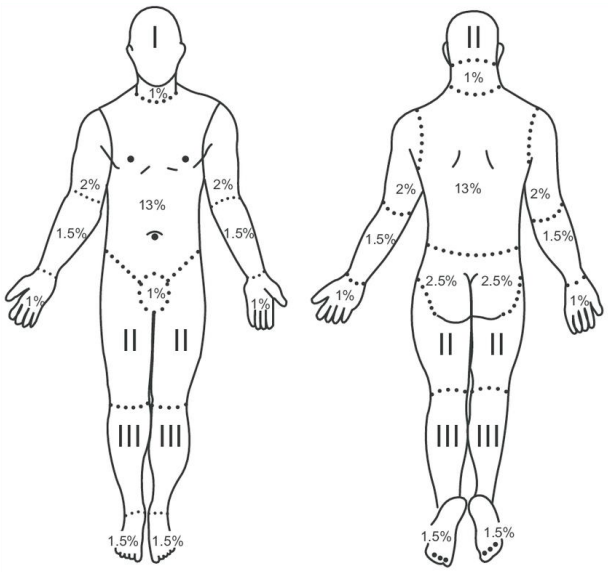
Only used if TBSA >15%.

(weight in kg) x 2-4 mL x %TBSA = total fluid to be given over 24 hours
Do not convert %TBSA to a decimal. For example, 15% TBSA would be 15.

Give half in first eight hours from time of burn. Give other half over the next sixteen hours.
If delayed presentation, begin at initial calculated 8 hour rate; do not "catch up" with fluid boluses.
Goal UOP 0.5-1 mL/kg/hour.

Use LR used for adults unless mitigating circumstances. For pediatric patients <30 kg, add D5.

Lund and Browder Chart to Estimate TBSA in Adults and Children



Age	0	1	5	10	15	Adult
Front or back half	(%)	(%)	(%)	(%)	(%)	(%)
I (Head)	9½	8½	6½	5½	4½	3½
II (Thigh)	2¾	3¼	4	4¼	4½	4¾
III (Leg)	2½	2½	2¾	3	3¼	3½

Classification of Burns by Depth

Burns evolve over time; initial TBSA and depth classification can change and often the difference between deep partial thickness and full thickness can only be determined operatively.

- Superficial (1st degree): epidermis only, dry, red, blanches with pressure, no blisters, painful.
- Superficial partial-thickness (2nd degree): epidermis and part of dermis, blisters, moist, red, weeping, blanches with pressure, painful.
- Deep partial-thickness (2nd degree): epidermis and deep dermis, blisters, wet or waxy dry, patchy white to red, does not blanch, pressure sensation only.
- Full-thickness (3rd degree): epidermis and entire dermis, waxy white to leathery gray to charred/black, dry and inelastic, does not blanch, sensation to deep pressure only, may be defined as 4th degree with extension into underlying fascia, muscle, or bone.

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Approved by Clinical Guideline Committee 4/28/23. Click here to see the supplemental resources for this guideline.
If comments about this guideline, please contact Travis_Nelson@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Frostbite

Patient identified as having potential frostbite.

Stabilize Patient

- Primary survey: Airway, Breathing, Circulation, Disability, Exposure
- Temperature and blood sugar

Hypothermia Treatment (Village)

1. Turn up heat.
2. Remove wet clothes. Wrap in warmed blankets.
3. Active rewarming with warm IV fluids.
4. Consider medevac for moderate to severe hypothermia requiring more invasive rewarming (DPL/thoracotomy), management of comorbidities, or if eligible for thrombolytics.

Rewarm

ONLY REWARM If THERE IS NO CHANCE OF REFREEZING.

- Rapid rewarming of affected areas in warm water (maintained between 98.6–102.2°F) for 20–40 minutes or until thawing is complete. In hospital, warming tub located on Inpatient in Tub Room and may be brought to ED.
- Rewarming is usually painful. Manage pain with ibuprofen and opioids prn.
- Elevate extremities. No weight bearing.
- Administer warm IV fluids.
- Tetanus PPX.
- Perform wound care. (See box.)
- Ensure pre- and post-warming images are in RAVEN.

Eligibility for Thrombolytics

- Injury is grade 3 or 4 after rewarming.
- High risk for life-altering disability.
- Patient able to arrive in Bethel <24 hours from time rewarming completed. (Must document time.)
- Patient or guardian has given verbal informed consent.
- No contraindications per **checklist**.

If patient will not make it to Bethel within 24 hours, do not medevac for frostbite alone.

Determine grading. (See box.)

Grade 1 or 2:
- May manage in the village/SRC/outpatient clinic.
- Grade 2 should have daily wound checks with referral to PT and/or Bethel if there is concern for infection, etc.

Grade 3 or 4: **Is patient eligible for thrombolytics? (See box.)**

Frostbite Grading

Determine grading after rewarming. Staging information in parentheses.

- Grade 1: No cyanosis of the extremities. (Numbness, central pallor, surrounding erythema/edema, desquamation, dysesthesia.)
- Grade 2: Cyanosis on the distal phalanx only. (Usually clear skin blistering with surrounding erythema.)
- Grade 3: Cyanosis on intermediate and proximal phalanx. (Usually hemorrhagic blistering. Tissue loss involving entire thickness of skin.)
- Grade 4: Cyanosis on carpal and tarsal bones. (Tissue loss involving deeper structures.)

Wound Care

- Debride clear blisters, likely to develop 4-24 hours after rewarming.
- Leave hemorrhagic blisters intact, as they indicate deeper, more vascular tissue damage. Consider debriding 48-72 hours after rewarming if they are large/distended or impede function.
- Apply aloe vera to all intact affected areas.
- Apply topical antibiotic (bacitracin or mupirocin) to all open wounds until edema has resolved and wounds are stable.
- Cover all open wounds with Adaptic followed by an absorptive dressing (ie. abdominal pad). Space digits with Adaptic and gauze and secure all dressing with Kerlix.
- Mild bleach bath with warm water (1.5 mL of 6% sodium hypochlorite per gallon of bath water or 60 mL for a regular-sized tub) for 10-15 minutes once daily before wound care for the first 3 days, then *prn*.
- Consult Wound Care Team on Tiger Connect with any questions.

Consultant Information

- For beneficiaries: ANMC specialists via Tiger Connect.
  - Extremities: Orthopedics
  - Trunk: General Surgery
  - Face, ears, nose: ENT
- For non-beneficiaries: vascular surgeon on call at PAMC or ARH.

Yes:
1. If in village, discuss case with E1/E2 physician.
2. Call appropriate consultative service (see box) to confirm plan for thrombolysis and to obtain accepting physician.
3. Complete checklist with patient.
4. Activate medevac to Bethel.

- Check CBC, CMP, PT, PTT.
- IVF.
- Pain control with morphine IV, ibuprofen PO, and gabapentin..

Alteplase Protocol

1. Patient signs informed consent for thrombolysis.
2. Give alteplase bolus: 0.15 mg/kg IV over 15 minutes.
3. Follow bolus with infusion of 0.15 mg/kg/hour IV over 6 hours or until total dose 100 mg (including bolus) has been given.
4. When alteplase infusion complete, give therapeutic heparin drip for 72 hours or therapeutic LMWH.

Arrange transfer to ICU by medevac.

No:

If in village, arrange commercial travel to Bethel.

- Check CBC, CMP, PT, PTT.
- IVF.
- Pain control with morphine IV and ibuprofen PO.

Admit to inpatient. Consult PT for wound care.

- Elevate area. Avoid any pressure on wound, including blankets. No weight-bearing. Heel stryker or post-op shoes for feet. ROM exercises for digits.
- See wound care box.
- Consider BH referral, nutrition consult, tobacco cessation referral.
- Medications (scheduled):
  - Ibuprofen 400 mg Q6h
  - Gabapentin 300 mg TID
  - Consider protein supplement
  - Vitamin C 500 mg daily
  - Vitamin E 400 IU daily
  - Multivitamin daily
  - Consider pentoxyfilline 400 mg TID
  - Additional analgesia prn
- Discharge criteria: outpatient wound care plan in place, pain controlled with oral analgesia.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Shawn_Vainio@ykhc.org.

Note: people in crises such as frostbite have time to think and are open to change. Alcohol, nicotine, and behavior modification counseling are very effective during these times.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Thrombolytics in Frostbite

Alteplase Checklist

INDICATIONS *(initial yes or no)*		
YES	**NO**	
		Grade 3 or 4 frostbite.
		High risk for life-altering disability.
		Patient able to arrive in Bethel <24 hours from time rewarming complete.
		Patient or guardian able to give informed consent.

ABSOLUTE CONTRAINDICATIONS *(initial yes or no)*		
YES	**NO**	
		Prior intracranial hemorrhage.
		Known structural cerebral vascular lesion.
		Known malignant intracranial neoplasm.
		Ischemic stroke within three months.
		Suspected aortic dissection.
		Active bleeding or bleeding diathesis (excluding menses).
		Significant closed-head trauma or facial trauma within three months.

RELATIVE CONTRAINDICATIONS *(initial yes or no) – If any of the following relative contraindications are present, consider expert consultation prior to giving thrombinolytic and/or consider these with consent and shared decision-making.*		
YES	**NO**	
		History of chronic, severe, poorly controlled hypertension.
		Severe uncontrolled hypertension on presentation (SBP >180 mmHg or DBP >110 mmHg)
		History of ischemic stroke more than three months prior
		Traumatic or prolonged (>10 minute) CPR or major surgery less than three weeks
		Recent (within two to four weeks) internal bleeding or recent invasive procedure or serious trauma.
		Noncompressible vascular punctures.
		Pregnancy.
		Active peptic ulcer GI malignancy, GI hemorrhage in previous 21 days, h/o GI bleed.
		Pericarditis or pericardial fluid.
		• Therapeutic LMWH. • Current use of any anticoagulant that has produced an elevated INR >1.7 or PT >15 seconds or abnormal PTT.
		Age >75 years.
		Diabetic retinopathy.
		Platelet count <100,000.

This checklist is advisory for clinical decision-making and may not be all-inclusive. Risks and benefits will need to be assessed individually.

Physician signature: _____

Printed name: _____ Date and time: _____

Place patient ID sticker here.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Head Injury in Patients < 18 Years Old

Head injury in a child <18 years.

If GCS ≤ 8, intubate and refer to PALS stabilization algorithms.

Low Risk

GCS=15
AND
No risk factors (see Intermediate and High Risk boxes)

Discharge with return precautions and competent caregiver.

Intermediate Risk

GCS=15
AND one or more of the following:
- Occipital, parietal, or temporal scalp hematoma
- Loss of consciousness > 5 seconds
- Not acting normal per parent
- **Severe mechanism of injury****
- If older than 2: vomiting or severe headache
- Amnesia

High Risk

One or more of the following:
- GCS≤14
- **Altered mental status***
- Signs of skull fracture
- Focal neurological deficits
- Seizure
- Loss of consciousness > 1 minute
- Suspected non-accidental trauma

***Altered Mental Status**

- Agitation/irritability
- Inconsolability
- Somnolence/lethargy
- Slow response
- Repetitive questions

****Severe Mechanism of Injury**

- Fall: >3 feet if younger than 2 years, >5 feet if older than 2 years
- Motor vehicle accident with ejection, rollover, or fatality
- Unhelmeted bike/pedestrian vs vehicle
- Head struck by high-impact object

Factors to consider when deciding to observe vs perform head CT:

- Provider experience
- Multiple vs isolated findings
- Worsening signs/symptoms
- Age <3 months
- Parental preference

In all pediatric trauma:

- Remember to complete full trauma survey to identify other injuries.
- Consider further evaluation for non-accidental trauma (skeletal survey, dilated eye exam, etc.). See **Suspected Physical Abuse Procedure**.

Observation
- Observe in the ER 4-6 hours post-injury.
or
- If presenting >4 hours post-injury AND not improving per caregiver, observe 4 hours.

Not improved → CT Scan: Perform noncontrast head CT with spinal motion restriction

Improved → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

CT Scan → Normal / Abnormal

Normal → Is patient improving? Yes → Discharge with return precautions and competent caregiver. Consider concussion follow-up (see Concussion Management box).

Is patient improving? No → Consult PICU and trauma service.

Village Management

- If Low Risk: Discharge with competent caregiver with clear return precautions. Do not send to Bethel unless otherwise indicated.
- If Intermediate Risk: Consider medevac vs observation with Q1h VS and neuro checks. If any worsening or no improvement over 4 hours, activate medevac.
- If High Risk: Activate medevac.

Plain films of the skull are not recommended.

C-spine Injury

Please see the **YKHC Spinal Cord Injury Management guideline** for pediatric C-spine resources.

Concussion Management

- Complete **Acute Concussion Evaluation** at every visit.
- Follow-up in outpatient clinic in 1-2 weeks.
- Consider **Sport Concussion Assessment Tool (SCAT)** at follow-up.
- Consider balance testing.
- Avoid medications that can worsen somnolence.
- If symptoms persist >3-4 weeks, consider referral to neurologist, psychologist, physical therapy, etc.
- Return to school per **CDC Heads Up Protocol**.
- Return to play per **ASAA Guidelines**.

Pediatric Glasgow Coma Scale (GCS)

	Infant	Child	
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain	To pain	2
	No response	No response	1
Best verbal response	Coos, babbles	Orientated, appropriate	5
	Irritable cry	Confused	4
	Cries to pain	Inappropriate words	3
	Moans to pain	Incomprehensible sounds	2
	No response	No response	1
Best motor response	Moves spontaneously	Obeys commands	6
	Withdraws to touch	Localizes painful stimulus	5
	Withdraws to pain	Withdraws to pain	4
	Flexion to pain	Flexion to pain	3
	Extension to pain	Extension to pain	2
	No response	No response	1

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Hypothermia

Hypothermic patient.

- Palpate for a pulse for a full minute.
- If able, use ultrasound to assess for cardiac activity. If cardiac contractions seen, do not do CPR, as this can provoke a lethal arrhythmia.

Pulse or cardiac contractions present

- Obtain core temperature. Insulate to prevent further heat loss.
- Remove cold/wet clothing. Consider placing defibrillator pads.
- POC glucose and labs. Insert large bore IVs.

No pulse or cardiac contractions

- No obvious lethal injury.
- Chest not too stiff for chest compressions.
- No clear history of arrest before hypothermia.

Initiate ACLS:
CPR, ET intubation, rhythm check.
Place large-bore IVs.
POC glucose and labs.

- If VT/VF, defibrillate once at 200 J.
- Administer one round of ACLS drugs.

- If no ROSC, initiate active internal rewarming to 30 – 32 °C (86 – 89 °F), then re-evaluate.
- No further meds or shocks until temp >30°C (86°F).
- When temp 30 – 35 °C (86 – 95 °F), resume defibrillation per ACLS and give ACLS medications at regular doses but double the typical interval between administration.
- When temp >35, resume regular dosing intervals.
- If ROSC, rewarm per pathway to left.

Mild
32 – 35 °C
(89.6 – 95 °F)

- Passive external rewarming.
- If trauma present, give volume resuscitation per ATLS and add active external rewarming.

Moderate
28 – 32 °C
(82.4 – 89.6 °F)

- Passive and active external rewarming.
- Consider warm IV fluids and oxygen.
- Volume replacement.

Severe
< 28 °C
(< 82.4 °F)

- Place defibrillator pads.
- ET intubation.
- Volume replacement.
- Active external rewarming.
- Active internal rewarming.
- If hemodynamically unstable, rewarm to 30 °C, then re-evaluate.

Village/SRC Management

- Hypothermia with a pulse: Passive external rewarming. Add Bair Hugger if SRC. POC glucose. Consider medevac for moderate or severe.
- Hypothermia with no pulse: Perform CPR for at least 30 minutes (or longer per team discretion).

Core Temperature

Esophageal probe preferred over rectal in intubated patients. Place after intubation and verify placement with CXR. Preferred location is distal third of esophagus. Estimate insertion length using OG landmarks but end at mid-sternum rather than xyphoid. Oral insertion route preferred.

Contact

ANMC Trauma Surgeons are the consultants of choice. Contact them via Tiger Connect ANMC On-Call General Surgery/Trauma Attending.

Rewarming Methods

If goal rewarming rate not met after one hour, escalate to next level.

Rewarm trunk first and minimize movement (especially of extremities) to avoid increasing the return of cold blood to central circulation, which can lead to hemodynamic instability and cardiac arrest (known as core afterdrop).

- Passive external rewarming: Remove cold stress and wet clothing. Place in warm, dry environment. Provide insulation with warm blankets. Allow shivering.
  Goal increase 0.5 °C/hour (~1 °F/hour).
- Active external rewarming: Add exogenous heat via forced-air rewarming device (Bair Hugger™), external temperature control system (Arctic Sun™), or radiant warmer for young children.
  Goal increase 2 °C/hour (~3.5 °F/hour).
- Active internal rewarming:
  - Warm IV fluids: Use normal saline and not LR, as hepatic metabolism of lactate is impaired. IVF should be 40 – 42 °C (104 – 107 °F). If no warmer available, place a 1L bag of NS in a conventional microwave for 30 second intervals until temperature 40 °C/104 °F. Do not do this with blood products, dextrose-containing fluids, or glass bottles.
  - **Thoracic cavity lavage**
  - **Peritoneal lavage**

When to Cease Resuscitative Efforts

- If potassium >10.
- If temperature >32°C (89°F) and no ROSC.

Decision to continue resuscitative efforts must be based on clinical judgment and available resources. Providers are encouraged to contact the CD on call or clinical ethicist early in resuscitative efforts for guidance. In a mass casualty event or when the number of critically ill patients requiring treatment exceeds the capability of the available staff and resources, consultation with CD on call and the clinical ethicist should occur promptly.

Pitfalls & Pearls

- Avoid transporting in hospital until patient is rewarmed to 30 – 32 °C (86 – 89 °F).
- If passive external rewarming fails to rewarm a mildly hypothermic patient, strongly consider antibiotics, as infection can contribute to slowed/failed rewarming.
- Pupils can be fixed and dilated below 27 °C (80 °F) without associated neurologic deficit.
- Bradycardia is expected in moderate or severe hypothermia. Normal heart rate should be considered relative tachycardia in these patients.
- Hyperkalemia can be present without EKG changes. Potassium levels can fluctuate rapidly during rewarming.
- If placing CVL, femoral line preferred to avoid irritating heart.
- YKHC ventilators cannot warm air. High-flow nasal cannula, BiPAP, and CPAP can warm air.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Rabies

Patient reports animal bite (or exposure to brain tissue) from animal who is a possible reservoir for rabies (dog, fox, bat, wolf)

Does the patient require rabies post-exposure prophylaxis? See Box 1.

No → Provide usual wound treatment. Consider amoxicillin-clavulanate prophylaxis for open wounds.

If patient needs extensive wound care, recommend immediate travel to ED for treatment.

Yes or maybe

Patient in village?

No →
1. Patient presents to ED or outpatient clinic.
2. Ad hoc form in RAVEN entitled "Rabies Investigation Report" is started.
3. Provider forwards the final note to the OEH department pool.

Patient is given Day 0 vaccine, and the wound is infiltrated with immunoglobulin.

Appointment is made for the outpatient clinic for Days 3, 7, and 14.
If any of these fall on a weekend, patient is seen in the ED.

Yes →
1. Health Aide completes visit in RAVEN.
2. Ad hoc form in RAVEN entitled "Rabies Investigation Report" is started.
3. Patient is reported to RMT provider.
4. Provider forwards the final note to the OEH department pool.

1. RMT provider orders the vaccine for HAND CARRY to village clinic – 3 doses.
2. Contact inpatient pharmacy on call to arrange the HAND CARRY to the village.

Patient is given Day 0 vaccine in village clinic.

Day 3 vaccine and immunoglobulin given in Bethel outpatient clinic unless it is the weekend (then patient goes to ED). At that visit:
-Wound is assessed.
-Immunoglobulin is infiltrated directly into wound site.

Day 7 & 14 vaccine given in village.

Box 1

Indications for rabies prophylaxis:
1. The bite was from a fox, bat, coyote, skunk, woodchuck, or wolf, and this animal is not available to test.
2. The bite was from a dog who was behaving abnormally.
3. The bite was from a dog not available for quarantine.
4. If the dog is available for quarantine, do not start post-exposure prophylaxis regardless of vaccination status. OEH (Office of Environmental Health) will initiate a 10-day quarantine. Please check under "all documents" for Alert Note or for the rabies investigation report from OEH.
5. If consultation is needed, call OEH at 543-6420 or State Section of Epidemiology 907-269-8000 or 800-478-0084 after hours.

Other Resources

- See the **supplement** to this guideline on the wiki.
- **State of Alaska DHSS Rabies** page.
- Use the Power Plans "AMB/ED Rabies Prophylaxis" to find all necessary orders.

Notes:
- Day Zero is the first day the vaccine is given, not the day of the exposure.
- Immunoglobulin must be given within seven days of first vaccine dose.

If patient is immunocompromised, he/she requires an additional dose on day 28.

Required Notifications:

- The Rabies Investigation Report is an ad hoc form that is started by the CHA/P in village clinic or by the ED/outpatient clinic provider when the patient first presents for care. This is sent electronically to the OEH (Office of Environmental Health) who will follow up on the status of the dog. Please check under "all documents" for this and for recommendations from OEH.
- Forward your PowerChart note to Rabies Control Officer Pool and OEH Department Pool.

Animals in Alaska that have tested positive for rabies:
1. Arctic fox
2. Caribou
3. Cat
4. Coyote
5. Dog
6. Keen's myotis bat
7. Little brown bat
8. Red fox
9. Reindeer
10. River otter
11. Wolf
12. Wolverine

For village patient:
Day 0 dose: Given in village from HAND CARRY.
Day 3 dose: Given in Bethel.
Day 7 dose: Given in village from HAND CARRY.
Day 14 dose: Given in village from HAND CARRY.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC 12/2/20. Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Abigail_Klager@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Strangulation

Goals

1. Evaluate carotid and vertebral arteries for injuries.
2. Evaluate bony/cartilaginous and neck soft tissue structures.
3. Evaluate brain for anoxic injury.

Note: Life-threatening injuries can be present up to one year after strangulation event.

Helpful Links

- S/Sx strangulation in **adults** and **children**
- Physiological consequences **timeline**

Patient presents with concern for strangulation

Are ANY of the following present?

- Airway: subcutaneous emphysema (can be a sign of tracheal or laryngeal rupture)
- Neurological: loss of consciousness, seizures, mental status changes, amnesia, cortical blindness, movement disorders, stroke-like symptoms
- HEENT:
  - Visual changes: spots, flashing lights, tunnel vision, etc.
  - Facial, intra-oral, or conjunctival petechial hemorrhage
  - Odynophagia
- Neck:
  - Ligature mark, neck contusion, soft tissue injury, swelling, carotid tenderness, etc.
  - Dysphonia/aphonia, hematoma, laryngeal fracture, recurrent laryngeal nerve injury
- Bladder or bowel incontinence
- Pulmonary: dyspnea, phrenic nerve injury

Yes to ANY

Rule Out Life-Threatening Injuries

- If GFR ≥30: CT angio of carotid/vertebral arteries. This is the gold standard for evaluation of vessels and bony/ cartilaginous structures but is not very sensitive for soft tissue trauma.
- If GFR <30: non-contrast CT of neck. This study is less sensitive than CT angio for vessel injury but gives good visualization of bony and cartilaginous structures.

Injury identified

- Consult trauma surgery and plan to transfer.
- Consider ENT consult for laryngeal trauma with dysphonia.

No injury identified

How recent was event?

<48 hours ago

Observe in ED or admit to inpatient until 48 hours post-event based on severity of symptoms.

≥ 48 hours ago

No to ALL

Is there reliable home monitoring AND a safe place to go to?

Yes

- Discharge home with detailed instructions to return to ED if any neurological signs/symptoms, dyspnea, dysphonia, odynophagia dysphagia, or voice changes occur or worsen.
- Give custom Strangulation Patient Education handout.

No

- Consider discharge to TWC.
- May call TWC Crisis Line (543-3456) for assistance with safe shelter.
- Also may call SART on call at 545-4238 for further assistance.

Tundra Women's Coalition (TWC)

- Crisis Line: 543-3456
- Main office: 543-3444
- On-call advocate: 545-4328

Services Provided by TWC

- Emergency shelter
- Hospital accompaniment
- Information about community resources
- Legal advocacy
- Violent crime compensation
- Funds for emergency air or cab transportation

If patient would like to report incident:

- If occurred in a village: Alaska State Troopers 543-2294
- If occurred in Bethel: Bethel Police Department 543-3781

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Trauma Outside Bethel

Trauma patient outside Bethel

- Identify mechanism.
- Transfer to clinic with Spinal Motion Restriction (SMR) if indicated.
- See Box 1.

Trauma Primary Survey: **ABCDE**

- **Airway:** Loss of airway, stridor, expanding neck/submental swelling, impending airway compromise
- **Breathing:** Hypoxia, marked tachypnea, flail chest, absent breath sounds
- **Circulation:** Absent pulses, pulsatile bleeding
- **Deficit:** *Objective* neurologic deficit
- **Exposure:** Unclothe patient, eval for occult injuries

Emergent findings in Primary Survey AND/OR Any condition in Box 2?

Yes →
- Contact Emergency RMT/Wards Doctor STAT.
- Stabilize and evaluate. See Box 4.
- Proceed to **secondary survey** after patient is stabilized.

No ↓

Proceed to focused HPI (Box 3) and and **secondary survey**.

Findings on secondary survey warrant transfer to higher level of care.

No →
- Discharge with thorough return precautions.
- Feel free to contact RMT provider if questions.

Yes ↓

Patient is cognitively intact, hemodynamically stable, and ambulatory.

No →
- Likely to require medevac.
- Contact Emergency RMT/Wards Doctor.

Yes ↓
- Likely candidate for commercial transfer.
- Contact RMT provider to notify.

Box 1: If responding to scene

- *Do not risk safety of medical staff under any circumstance.*
- If scene is compromised by combative patient or unsafe bystanders, leave scene immediately and do not return until scene secured by law enforcement.
- If CPR in progress, stay on-scene; CPR is often interrupted or lowered in quality by transport.
- Otherwise, prioritize transport to clinic. Aggressive medical interventions in field delay definitive care.

Box 2: Common conditions which warrant emergent transport

- Physiologic instability: MAP <70, RR >30, GCS <10 if not intoxicated.
- Anatomic injuries: *penetrating* wounds to head, neck, torso, eye.
- Crushed/degloved/mangled extremity.
- Non-digital amputation.
- Pelvic fracture.
- Open/depressed skull fracture.
- Paralysis.

Box 3: Contents of Focused HPI

Age, sex, mechanism of injury (MOI)

Details by MOI:

1. Penetrating trauma:
- Knife: Type, length, depth.
- GSW: Caliber, distance from victim, entrance/exit.

2. Blunt trauma:
- MVC: Vehicle type, speed, ±LOC, ±ambulatory afterwards, ±restraint, ±helmet.
- Fall: Distance, ±LOC, ±ambulatory afterwards.

3. Environmental
- Cold Exposure: Temperature, time of exposure.
- Heat Exposure: Structure/materials involved.

Additional important information:
- Anticoagulants
- Pregnancy
- Presence of burns
- Ability to void since injury

**Contact

- To reach Wards Doctor, send message via Tiger Connect to "Yukon Wards Doctor (Emergency RMT)" or "Kusko Wards Doctor (Emergency RMT)."
- If this is not practical, call the ED at (907) 543-6395 and ask for the wards doctor to be paged.

Please use this guideline as well as ATLS principles in all trauma cases, including for delayed presentation to care. Although delayed presentations are often less emergent, these principles still apply, and this process should be followed.

If health aide present, consider asking them to look up and follow CHAM section on Major Trauma.

Box 4: Interventions

1. Stabilization
- Two 18g (or largest bore available) PIV
- Spinal motion restrictions (SMR) if indicated
- Pressure dressing to briskly bleeding wounds
- Pelvic wrap/binder if indicated
- Splinting of fractures
- Do not apply a tourniquet without input from RMT or ED provider.

2. Diagnostics
- CXR, AP Pelvis
- Glucose POC, CBC, CMP

Abbreviations

MAP: mean arterial pressure
GCS: Glasgow coma scale
SMR: spinal motion restrictions
LOC: loss of consciousness
MOI: mechanism of injury

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 3/24/23.
Click **here** to see the supplemental resources for this guideline.
If comments about this guideline, please contact Clinical_Guidelines@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Trauma Outside Bethel

Secondary Survey Checklist

Document in your note using autotext "..traumasurvey"

	Mental Status: **GCS**
	Scalp: • Lacerations / swelling • Evidence of skull fracture
	Eyes: • Visual Acuity • Pupil size/reactivity • Globe integrity • Extraocular muscle movement
	Ears: • Hemotympanum • TM rupture
	Face: • Nose: Epistaxis, septal hematoma, fracture • Mouth: Midline, symmetric jaw, able to open and close.
	Neck: • Swelling / soft tissue injury • TTP over cervical spine
	Chest: • Ecchymoses, swelling, flail chest • TTP, crepitus, displaced ribs • Bilateral lung sounds
	Abdomen: • TTP, distension, absent bowel sounds
	Pelvis/GU: • Stability to pressure at the anterior superior iliac spine • TTP of femoral head • Testicular swelling • Blood at urethral meatus
	Back: • TTP along T/L spine
	Long bones: • Deformity/TTP • Lacerations over fractures (should be treated as open fractures) • Limitations in active ROM
	Integument (all sites): • Cold, pale, cap refill >3 seconds • Lacerations: *If not over vascular area, explore with sterile glove* • Hematomas (watch for expansion) • Burns

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline
Care of a Pediatric Patient with Suspected Multisystem Inflammatory Syndrome (MIS-C)

Pediatric patient meets criteria (see box) for MIS-C.

↓

Prepare to transfer to ANMC for consideration of IVIg and echo. Low threshold to consult PICU.

↓

Work-up

- Labs: CBC with diff, CRP, procalcitonin, CMP, ESR, blood culture, COVID-19 test
- CXR (PA and lateral)
- EKG (12 lead)

↓

Do lab values meet high-risk criteria (see box)?

Yes → Expand lab work-up: ferritin, D-dimer, troponin, BNP, fibrinogen, and LDH.

No

↓

- Methylprednisolone 1-2 mg/kg IV.
- Aspirin 3-5 mg/kg up to max dose 81 mg PO if no contraindications (platelet count <50, active bleeding, bleeding diathesis).
- Discuss Lovenox with accepting team.

↓

If concern for shock:

- Give ceftriaxone 50 mg/kg IV.
- Dopamine is not pressor of choice. Consult with PICU.

NOTE: MIS-C is a reportable disease. Please ask the accepting facility who should make the report. The form can be found here.

Case Definition for Multisystem Inflammatory Syndrome in Children (MIS-C) According to the CDC

An individual <21 years presenting with:

1. Measured or subjective fever ≥ 100.4°F for ≥ 24 hours.

2. Laboratory evidence of inflammation with one or more of the following: elevated CRP, procalcitonin, ESR, fibrinogen, D-dimer, ferritin, LDH, IL-6, or neutrophils; low lymphocytes or albumin level.

3. Evidence of clinically severe illness requiring hospitalization with at least two organ systems involved:
   - Rash: polymorphic, maculopapular, petechial, NOT vesicular
   - GI symptoms: diarrhea, abdominal pain, vomiting
   - Extremity Changes: erythema and edema of hands and feet
   - Oral Mucosal Changes: erythema and cracking of lips, strawberry tongue, erythema of oral and pharyngeal mucosa
   - Conjunctivitis: bilateral bulbar conjunctival injection without exudate
   - Lymphadenopathy: cervical > 1.5 cm unilateral
   - Neurologic: headache, irritability, lethargy, AMS

4. No alternative plausible diagnoses.

5. Evidence of current or recent (within the last four weeks) COVID-19 infection.

May consider diagnosis even with negative COVID-19 testing if clinical suspicion is high.

High-Risk Lab Criteria

- CRP ≥ 3 and/or ESR ≥ 40

AND

- Lymphopenia < 1000, thrombocytopenia < 150,000, or sodium < 135

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Emergency Use of Molnupiravir

Molnupiravir

- Mechanism: The oral prodrug of a ribonucleoside with activity against RNA viruses.
- Regimen: 800 mg PO twice daily for five days. Initiate within five days of symptom onset.
- Main concerns: Risk of fetal toxicity.

If considering administration in a village, a pharmacist MUST be consulted.
- Weekdays: Send message via Tiger Connect to "Village Ops Pharmacist."
- Weekends: Send message via Tiger Connect to "Inpatient Pharmacy."

Criteria:
- Age ≥18 years.
- Lab-confirmed COVID-19
- Mild to moderate disease in the outpatient setting
- High risk of progressing to severe illness.
- Alternative antiviral therapies not accessible or clinically appropriate.

↓

No contraindications, warnings, or precautions. (See box.)

↓

Counsel patient and document per requirements in box.

↓

- Prescribe molnupiravir as soon as possible after positive COVID test and within five days of symptom onset.
- Patient should take molnupiravir 800 mg (four 200 mg capsules) PO twice daily for five days.

Adverse Reactions

In the clinical studies quoted in the EUA, the following adverse events were reported: diarrhea, nausea, and dizziness.

Contraindications, Warnings, and Precautions

- Molnupiravir is NOT authorized for use in patients who are hospitalized, requiring supplemental oxygen, or requiring more than their baseline supplemental oxygen flow rates due to COVID.
- Pregnancy: Due to risk of fetal toxicity, molnupiravir is NOT recommended for use during pregnancy.
- Breastfeeding: Not recommended to breastfeed during treatment period and for four days after the last dose. Instruct patients to pump and discard milk.
- Patients with childbearing potential:
  - Females: Instruct patients to use effective contraception during the treatment period and for four days after the last dose.
  - Males: Instruct patients with partners of childbearing potential to use effective contraception during the treatment period and for three months after the last dose.
- <18 years: Due to risk of bone and cartilage growth disruption, molnupiravir is NOT recommended for patients younger than 18 years old.

Documentation Requirements for Molnupiravir

Communicate and document the following in the medical record:
- **Fact Sheet for Patients and Parents/Caregivers** given to patient/caregiver.
- Inform patient/caregiver of alternatives to receiving molnupiravir. See **clinicaltrials.gov** for emerging data.
- Inform patient/caregiver that molnupiravir is an unapproved drug that is authorized for use under Emergency Use Authorization.

Reporting of Adverse Events

The prescribing health care provider is responsible for mandatory reporting of all medication errors and adverse events potentially related to molnupiravir. Reports must be made within seven days of the event.
Serious adverse events include: death; life-threatening adverse event; inpatient hospitalization or prolongation of existing hospitalization; persistent or significant incapacity or substantial disruption of the ability to conduct normal life function; congenital anomaly/birth defect; or medical or surgical intervention to prevent death, a life-threatening event, hospitalization, disability, or congenital anomaly.

Submit report to FDA MedWatch by completing the online form **here**.
The report should include "use of molnupiravir under Emergency Use Authorization (EUA)" in the "Describe Event" section.

See the **FDA MedWatch program** for more information.

Resource: Fact Sheet for Health Care Providers Emergency Use Authorization (EUA) of Molnupiravir.
Updated March 2022. Click **here** for source.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved 6/6/22.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Guideline

Emergency Use of Paxlovid

Ritonavir-Boosted Nirmatrelvir (brand name Paxlovid)

- Mechanism: Nirmatrelvir is a protease inhibitor; ritonavir is a cytochrome P450 3A4 inhibitor that increases nirmatrelvir concentrations.
- Regimen: Paxlovid is packaged with nirmatrelvir 150 mg x2 and ritonavir 100 mg. Take all three pills (nirmatrelvir 300 mg and ritonavir 100 mg) PO twice daily for five days. Initiate within five days of symptom onset.
- Main concerns: Significant drug-drug interactions.

A pharmacist must be involved with all Paxlovid prescriptions.

Village and SRC Prescriptions

If considering administration in a village or SRC, either provider or health aide to contact pharmacist:
- Weekdays: Send message via Tiger Connect to "Village Ops Pharmacist."
- Weekends: Send message via Tiger Connect to "Inpatient Pharmacy on Call."

ED or Outpatient Clinic Prescriptions

If considering prescribing to a patient in the ED or Outpatient Clinic, provider to contact pharmacist:
- Business hours: Send prescription to pharmacy as usual.
- Weekends, 7 am to 7 pm: Send message via Tiger Connect to "Inpatient Pharmacy on Call."
- Overnight: Send email to InpatientPharmacists@ykhc.org with the patient's name, MRN, and a reliable phone number. Tell the patient that a pharmacist will call in the morning to discuss the medication and logistics.

Criteria:
- Age ≥12 years and weight ≥40 kg
- Lab-confirmed COVID-19
- Mild to moderate disease in the outpatient setting
- High risk of progressing to severe illness.
- No contraindications (see box).

↓

- Document using "..Paxlovid" autotext and comment on need for labs. May place this in an Alert Note and complete full documentation later.
- Consult a pharmacist. (See red box for details.)

↓

Pharmacist reviews chart and determines:
- If labs are necessary (see box).
- If medication list needs modification during course of treatment.
- If renal dosing is needed.

↓

Pharmacist contacts health aide (for village patients) or provider (for SRC/Outpatient/ED patients) and makes plan for labs and dose, as appropriate.

↓

Counsel patient/caregiver and document per requirements in box.

↓

- Prescribe Paxlovid as soon as possible after positive COVID test and within five days of symptom onset.
- Patient should take nirmatrelvir 300 mg (two 150 mg tabs) and ritonavir 100 mg PO twice daily for five days unless renal adjustment is needed.

Note

- Ritonavir can have significant **drug-drug interactions**. These interactions are increased with renal or hepatic insufficiency.
- Pharmacist involvement is essential in making adjustments to chronic medications and creating a patient-specific, tailored plan.

Indications for Labwork (CMP)

- Age ≥65 years.
- Hypertension, diabetes, or CVD
- Other chronic viral illness (HIV, Hepatitis C)
- Malignancy, autoimmune diseases, nephrolithiasis, or recurrent UTIs
- Chronic use of nephrotoxic medications
- Family history or past history of CKD
- Clinical judgment.

(May defer If checked in the last 12 months and no suspicion for worsening renal or hepatic impairment in that time.)

Adverse Reactions

In the clinical studies quoted in the EUA, the following adverse events were reported: dysgeusia, diarrhea, hypertension, and myalgia.

Contraindications

- Paxlovid is NOT authorized for use in patients who are hospitalized, requiring supplemental oxygen, or requiring more than their baseline supplemental oxygen flow rates due to COVID.
- Do not give to any patient with known hypersensitivity to any ingredient of Paxlovid.
- Review patient's medications (including herbal supplements) for drug-drug interactions, summarized at the **NIH COVID Treatment Guidelines** website and on pages 9-15 of the **EUA Fact Sheet for Health Care Providers**.

Special Populations

- Pregnancy & Breastfeeding: There are no available data in these populations to use to make a recommendation.
- Renal Impairment:
  - Moderate (eGFR ≥30 to <60 mL/min): change dose to nirmatrelvir 150 mg (one tab) and ritonavir 100 mg (one tab)
  - Severe (eGFR <30 mL/min): not recommended
- Hepatic Impairment: not recommended if **Child-Pugh Score** Class C.

Documentation Requirements for Paxlovid

Communicate and document the following in the medical record:
- **Fact Sheet for Patients and Parents/Caregivers** given to patient/caregiver.
- Inform patient/caregiver of alternatives to receiving Paxlovid. See **clinicaltrials.gov** for emerging data.
- Inform patient/caregiver that Paxlovid is an unapproved drug that is authorized for use under Emergency Use Authorization.

Reporting of Adverse Events

The prescribing health care provider is responsible for mandatory reporting of all medication errors and adverse events potentially related to Paxlovid. Reports must be made within seven days of the event.
Serious adverse events include: death; life-threatening adverse event; inpatient hospitalization or prolongation of existing hospitalization; persistent or significant incapacity or substantial disruption of the ability to conduct normal life function; congenital anomaly/birth defect; or medical or surgical intervention to prevent death, a life-threatening event, hospitalization, disability, or congenital anomaly.

Submit report to FDA MedWatch by completing the online form **here**.
The report should include "use of Paxlovid under Emergency Use Authorization (EUA)" in the "Describe Event" section.

See the **FDA MedWatch program** for more information.

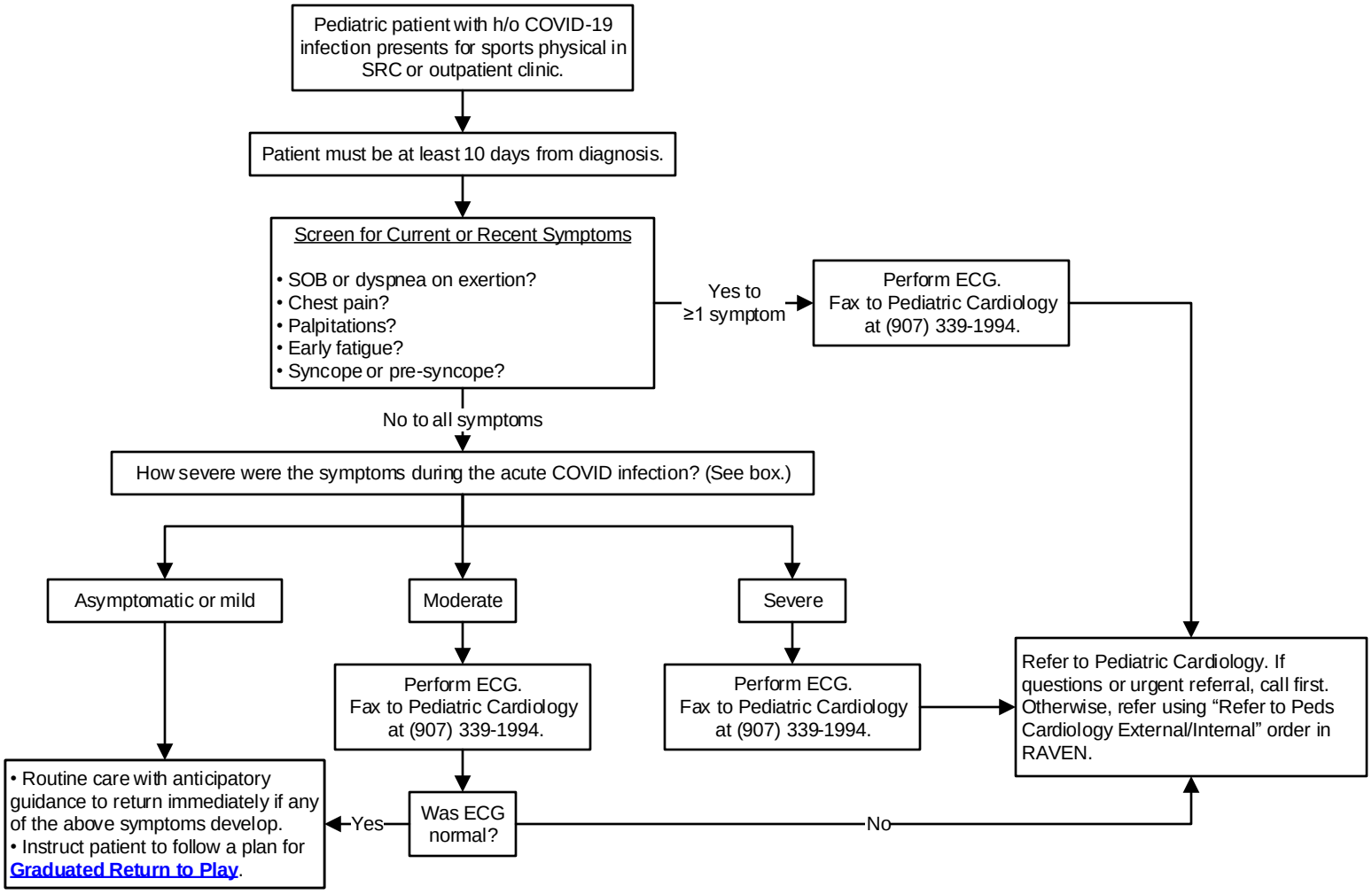
Resource: Fact Sheet for Health Care Providers Emergency Use Authorization (EUA) of PAXLOVID.
Updated September 2022. Click **here** for source.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guideline Committee 12/9/22.
If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

COVID-19 Clinical Guideline

Sports Clearance for Pediatric Patients with History of COVID-19



Symptom Severity Classification for this Guideline

- Mild: no fever, <3 days of symptoms
- Moderate: prolonged fevers and bedrest, hospitalization not required, no abnormal cardiac testing throughout course
- Severe: hospitalized, abnormal cardiac testing, or MIS-C

Note: Providers may use their clinical judgment and perform an ECG if cardiac concerns not addressed by this guideline.

Phone Numbers

Seattle Children's Pediatric Cardiology of Alaska (located in Anchorage):
- Phone: (907) 339-1945
- Fax: (907) 339-1994

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner. Approved by MSEC ad hoc committee for COVID-related guidelines 8/24/21. Click here to see the supplemental resources for this guideline.

If comments about this guideline, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

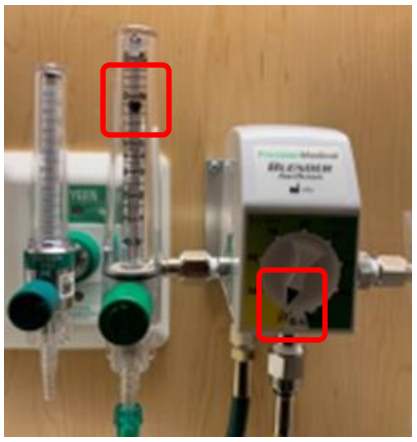
Neonatal Reference

Yukon-Kuskokwim HEALTH CORPORATION

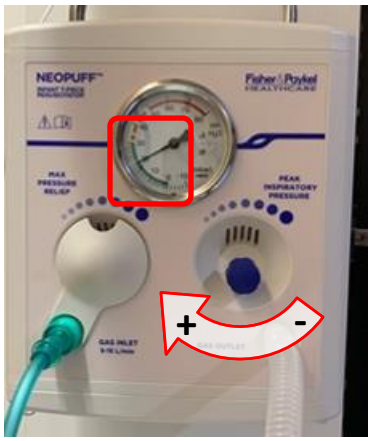
Clinical Resource

Setting Up the Neopuff™ T-piece Resuscitator in Patient Rooms on OB

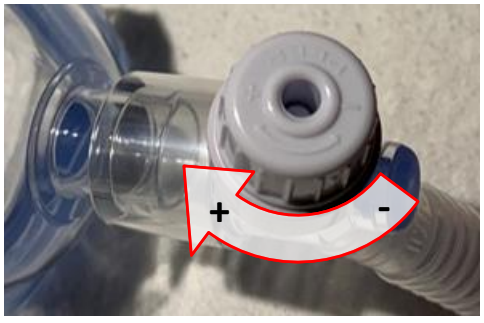
Attach the oxygen tubing to a 15 L flow meter.
Set blender to 21% and consider increasing depending on clinical status.
Set the flow meter to **10 L**.

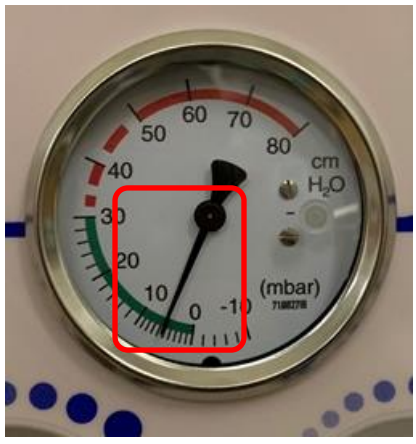


Occlude both the mask and the hole.
Set the PIP: Turn the knob labeled Peak Inspiratory Pressure until the arrow on the dial points to **20**.



Occlude only the mask.
Set the PEEP: Turn the PEEP knob until the arrow on the dial points to **5**.





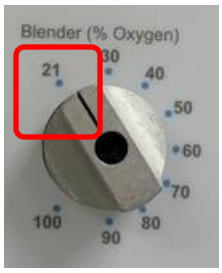
Troubleshooting: If you cannot achieve the desired pressures, try changing the liters on the flow meter or turning the Max Pressure Relief knob located under the flap.

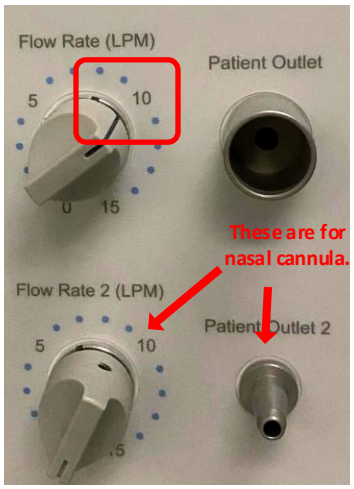
Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

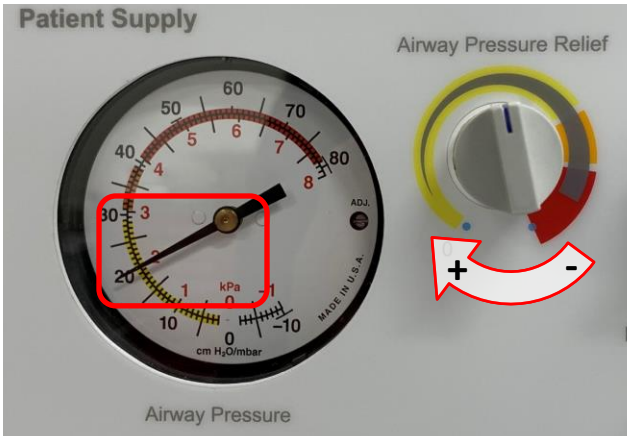
Setting Up the Neopuff™ T-piece Resuscitator in the Nursery

- Turn Gas Supply switch on. Down is ON.
- Set blender to 21% and consider increasing depending on clinical status.
- Set the top flow meter to **10 L**.
- The bottom flow meter is for use with nasal cannula.

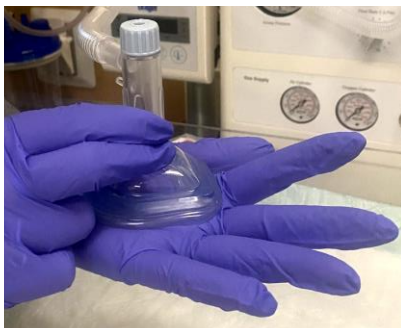


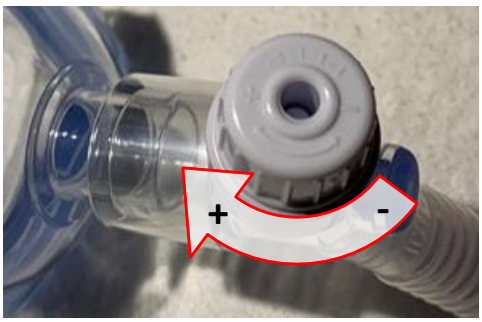


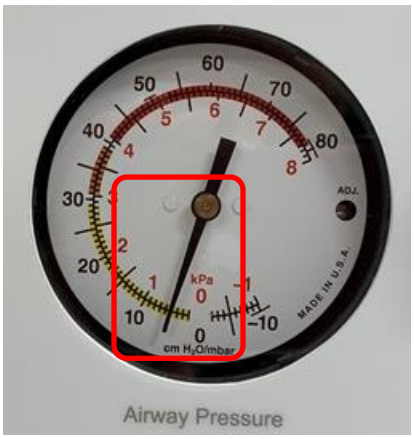
- Occlude both the mask and the hole.
- <u>Set the PIP</u>: Turn the knob labeled Airway Pressure Relief until the arrow on the dial points to **20**.



- Occlude only the mask.
- <u>Set the PEEP</u>: Turn the PEEP knob until the arrow on the dial points to **5**.







Troubleshooting: If you cannot achieve the desired pressures, try changing the liters on the flow meter.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Surfactant Administration Protocol

Indications for Curosurf®

- GA<26 weeks.
- GA 26-29 weeks with supplemental oxygen requirement ≥ 40%.
- GA>29 weeks with CXR-proven RDS.

Curosurf® Storage

- Curosurf® is stored at 36-46°F.
- If warmed and not opened or used, may be returned to refrigerated storage one time.
- Curosurf® is located in the OB medication refrigerator. If going on a medevac, ask the nurses to get the Curosurf®. It can be stored in a pink thermal bag that is kept next to it in the refrigerator.

Reference:

See this **YouTube video** for a demonstration of the Y catheter.

Preparation of Curosurf®

- Warm to room temperature and gently invert. Do not shake.
- Choose Curosurf® dose using the **Neonatal Resuscitation Summary** using estimated gestational age. If weight is known, calculate dose to be 2.5 mL/kg.
- Draw up total Curosurf® dose using a 20 gauge or larger needle.

Preparation of Equipment and Patient

- Prior to intubation, if possible, check the ETT cap and make sure it comes on and off easily.
- Make sure you have the correct size Y cap for the ETT size.
- Check fit of Y cap on ETT. Attach catheter and feed it down the tube until it is ½ cm past the tip. Look for the number or color that will tell you the depth of the catheter at this point.
- Intubate patient with ETT cap on tube.
- Verify placement and secure tube.

Administration of Curosurf®

- Infant should be supine.
- Disconnect Neopuff, bag, or ventilator.
- Remove ETT cap and replace with Y cap. (If ETT cap is stuck, cut the tube as high as possible and then place the Y cap.)
- Attach the Neopuff or bag to the larger port on the Y cap.
- Attach the catheter to the smaller port on the Y cap and advance it until it is at the desired depth.
- Inject the syringe of Curosurf® through the catheter.
- Pull the catheter all the way out but leave attached.
- Bag the baby at a rate of 40-60 breaths/minute for one minute.
- Allow the baby to recover.
- Remove the Y cap and replace the ETT cap.
- Resume ventilation.
- Do not suction for one hour after administration unless required for obstruction.
- Remember to adjust pressure on Neopuff as lung compliance improves.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Village Deliveries (Pediatrics)

Preparation in the Village for the Health Aides

• Turn the heat up until everyone is sweating. May need extra space heaters.
• In the warmest part of the clinic, prepare a table with clean blankets, towels, saran wrap, etc.
• If the clinic has a dryer, instruct the health aides to warm the blankets there prior to birth.
• Ensure the following are prepared and functional: suction, oxygen tanks and tubing, BVM with smallest available mask, bulb suction.
• If available, set up desk lamps with old-style bulbs (not the spiral energy-efficient bulbs) to generate more heat.
• Seek out extra health aides or former health aides to help.

Preparation for Medevac

• Review prenatal history and note risk factors for the baby.
• Coordinate with family medicine hospitalist activating the medevac and LifeMed crew about when to meet at the hangar. The LifeMed hangar is located at 3600 Tower Road.
• Turn over the Tiger Connect role for "Peds Wards on Duty" to another pediatrician or the family medicine hospitalist staying behind.
• Establish roles with LifeMed crew. Discuss doses and equipment based on estimated GA.

What to Bring

• Curosurf if GA <32 weeks or unknown: located in the OB medication refrigerator. Place in pink thermal case.
• OB & Pediatric Village Delivery Backpack containing OB and pediatric supplies located in the nursery.
• Resources: **Neonatal Resuscitation Summary**, **Surfactant Administration**, **Neopuff Set Up Guide**, **Pneumothorax Evacuation**, **Neonatal Glucose Screening Guideline**.
• Warm clothing. (There is extra warm gear under the bed in the peds call room)
• Snacks, drinks, money, motion sickness medication.

Delivery is Imminent

• Set up monitor, Neopuff, and intubation equipment (all carried by LifeMed), using sizes recommended by **Neonatal Resuscitation Summary**.
• Activate chemical mattress just prior to delivery. Cover with single baby blanket.

For High Risk Deliveries, including GA <32 weeks:
• Discuss with neonatologist early – call (907) 212-3614.
• Activate medevac to Anchorage. Consider direct transfer from village, ramp transfer in Bethel, or further stabilization with NICU team in Bethel, as appropriate.
• Prepare polyurethane bag.

Delivery is not Imminent

• Hospitalist assesses mother, does vaginal exam, obtains cultures, etc.
• LifeMed crew cares for mother.
• Pediatrician should help however possible and otherwise stay out of the way.
• Occasionally a mother will be transported to Bethel dilated and in labor. This decision is made if the benefit of being at a higher level of care outweighs the risks of potential delivery en route.

Resuscitation

• Resuscitate per NRP algorithm. Remember that CPAP is a great tool for non-invasive respiratory support for transport.

For infants <32 weeks:
• Place infant directly into polyurethane bag without drying. If intubated, bag may cover face/head.
• Attempt IV or UVC access early.
• See **Surfactant Protocol**, if indicated.

Prior to Transport

• Communicate with OB staff so they are prepared.
• Ensure an Anchorage team has been activated, if needed.

Medications

• Give erythromycin to eyes and vitamin K IM if infant is stable.
• Hepatitis B and HBIg can wait until arrival in Bethel.
• Give ampicillin per Neonatal Resuscitation Summary for all preterm and high risk infants.
• Gentamicin should not be given in the village, as it is high-risk.

Temperature

• Hypothermia in newborns is defined as temp <97.7°F.
• Cold babies do very poorly.
It is better to over-prepare (use a polyurethane bag in term babies, etc.) rather than under-prepare.
• The baby pod carried by LifeMed does not have a heat source. It will not generate heat. Avoid placing the baby into it until it has warmed from being outside.
• Check axillary temperature at 5 minutes of life and then Q30 minutes.
• Place a hat and/or saran wrap on the baby as soon as possible.
• Do not remove hat, chemical mattress, or polyurethane bag until arrived at YKHC.
• You may tear holes in the bag to gain access to the baby for procedures.
• Avoid weighing premature babies, as this frequently contributes to heat loss in the village.

Procedures

Intubation
• Prepare equipment.
• Wipe upper lip and rest of face.
• If need for sedation is anticipated, use morphine 0.05 mg/kg.
• Intubate and confirm placement with auscultation and $ETCO_2$ detector.
• Tape tube with Benzoin and tape.
• Consider using Neopuff to ventilate en route rather than ventilator.

UVC *(Always attempt PIV placement first unless infant is very unstable.)*
• Use sterile technique.
• Flush catheter and stopcock with sterile saline. NOTE: the syringes for premade saline flushes are not sterile. You will have to use a sterile syringe to draw up flushes from a NS bag.
• If baby is in polyurethane bag, tear a small opening in the plastic.
• Place the UVC just far enough to get blood return.
• Cover skin around umbilicus with Tegaderm. Tape the UVC to the Tegaderm to secure it.

See **Surfactant Administration** and **Pneumothorax Evacuation** Resources.

Glucose

• Check glucose as soon as possible.
• See **Neonatal Glucose Screening Guideline**. Goal glucose is >35 in first four hours of life.
• On babies <32 weeks, start D10 maintenance as soon as IV access has been established.
• If unable to get a glucose, have a low threshold to give sugar in preterm or high risk infants.
• If oral dextrose gel unavailable, may give Sweetease, oral glucose, colostrum, formula, or homemade sugar paste. May smear on gums for buccal absorption.

Yukon-Kuskokwim HEALTH CORPORATION

Outpatient Protocols

Outpatient Protocols/Reference

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Chronic Pain: Narcotic Treatment Eligibility

Non-Narcotic Analgesics on the YKHC Formulary

Muscle Relaxants
- Baclofen
- Cyclobenzaprine
- Tizanidine

NSAIDS
- Aspirin
- Ibuprofen
- Indomethacin
- Meloxicam
- Nabumetone
- Naproxen

Topical Analgesics
- Capsaicin Cream
- Diclofenac gel
- Lidocaine patch
- Lidocaine topical jelly
- Mentholmethylsalicicylate (BenGay)

Other
- Acetaminophen

SNRI
- Duloxetine

Tricyclics
- Amitriptyline
- Nortriptyline

Neuropathic Pain Agents
- Carbamazepine
- Gabapentin
- Pregabalin

Headache Agents
- Butalbital/APAP/Caffeine (Fioricet)
- Rizaltriptan
- Sumatriptan
- Topiramate

Has the patient had chronic pain for >6 months that is interfering with his/her daily habits, subsistence activities, and/or job?

No → Optimize Pain Treatment Options (see box below) and non-narcotics.

Yes

Has the patient done ALL of the following?

- Seen ACT Clinician for ½ hour evaluation.
- Seen PT and performed home exercises.
- Tried three types of non-narcotic medications for at least six months.

No → Refer for these steps and plan follow-up after all have been completed.

Yes

Is the patient >45 years old?

No → Refer to Pain Committee for special consideration.

Yes

Does the patient have one of the following conditions?

- Orthopedic surgery
- Rheumatoid arthritis
- Severe spinal stenosis

No → Refer to Pain Committee for special consideration.

Yes

Perform all comprehensive assessments

- History
- Physical
- Previous record review
- Toxicology screen
- Opioid Risk Tool (Ad Hoc form in RAVEN)
- Brief pain inventory (found using RAVEN autotext "..painChronicHPI")
- Pain diary (an example can be found **here**)

ALL assessments are completed

Patient meets criteria for narcotic treatment. Complete **Controlled Substance Agreement** (Pain Contract) with patient and prescribe medications.

Follow-up at least Q6 months. See **next page**.

Note: A maximum of 3 months of short-acting chronic pain medications may be prescribed before an agreement is required. The reason for continued opioid use past seven days should be documented in the chart for each refill. No chronic pain medications should be continued past 3 months without a valid agreement.

Types of Pain and Recommended Management

Treatment options for all types of pain: sleep hygiene, yoga, meditation

1. Nociceptive Pain (muscle, joint, or visceral): examples include strain, tension headache, osteoarthritis, low back pain, chronic cystitis, myofascial pain.
Suggested treatments: NSAIDs, acetaminophen, PT, trigger point or joint injections, capsaicin cream, lidocaine patch/cream, yoga, meditation
2. Neuropathic Pain:
Suggested treatments: NSAIDs, antidepressants (first-line TCAs, duloxetine), gabapentin
Management for specific conditions:
   - Nerve compression: EMG, MRI, referral to surgeon
   - Nerve damage: EMG
   - Nerve traction: EMG, PT, yoga, meditation
   - Migraine: sumatriptan, rizatriptan, beta-blockers, etc.
   - Reflex sympathetic dystrophy: lidocaine patch
3. Idiopathic Pain: examples include fibromyalgia
Suggested treatments: exercise, antidepressants (including duloxetine), yoga, meditation, sleep hygiene

This protocol is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 2/1/22.
If comments about this guideline, please contact Heidi_Salisbury@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Follow-up of Chronic Pain Patients

At follow-up appointments, assess for:

1. Functionality
2. Adverse effects
3. Achievement of goals
4. Analgesia
5. Behaviors of concern (see box)

Were goals achieved?

Yes → Reassess Q6 mo:

- Review agreement.
- Revisit goals.
- Taper dose as indicated.

No, 1st or 2nd time → Reevaluate diagnosis, goals, Tx.

No, 3rd time → Assess goal failure

1. Opioid non-responsive pain
2. Incorrect diagnosis
3. Psychiatric illness
4. Unrealistic goal-setting
5. Secondary gain (e.g. litigation)
6. Diversion and/or abuse
7. Consider BH Consult

Reevaluate diagnosis, goals, Tx. / Assess goal failure → Consider tox screen.

Consider tox screen. → Behaviors of concern? (See box.)

Yes → Refer to Chronic Pain Committee for review.

- Consider stopping outpatient opiates while under review.
- Monitor and use Compliance Tools (eg pill audits, UDS).

Chronic Pain Committee will evaluate strikes. If three, contract will be cancelled.

After one year of cancellation, patient may request reevaluation.

If patient has made significant efforts at treatment, consider restarting agreement.

Behaviors of concern? (See box.)

No, 1st or 2nd time → Change treatment/agreement.

No, 3rd time → Consider referral to pain specialist, behavioral health, addiction therapy.

Refer to Pain Committee for review.

Behaviors of Concern

1. ETOH abuse
2. Poly-drug abuse
3. Cocaine abuse (+tox screen)
4. Forgery
5. Stealing. Buying from the street.
6. Negative tox screen for prescribed opioid/benzodiazepine.
7. Hospitalization related to substance abuse.
8. Drug overdose.
9. Injection oral medications.
10. Visit to ED with intoxication.
11. Specific opioid/benzodiazepine (by name) request.
12. Multiple unsanctioned opioid/benzodiazepine dose escalations.
13. Recurring lost/stolen opioid/benzodiazepine prescriptions.

For terminal cancer patients (with life expectancy less than or equal to 6 months) who have previously demonstrated good compliance with Chronic Medication agreement, documentation of titration for pain control as appropriate is acceptable without requiring new agreement. Continue to monitor for achievement of goals/behaviors of concern.

This guideline is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by MSEC 2/1/22.
If comments about this guideline, please contact Heidi_Salisbury@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Resource

DME Documentation Requirements

Wheelchairs

Standard Manual Wheelchair Criteria
1. The patient cannot use a cane or a walker for mobility and why (include diagnosis).
2. The patient requires a wheelchair to complete mobility-related ADLS (: toileting, feeding, dressing, grooming, bathing, etc.).
3. The patient is able/willing to propel the wheelchair.
OR
A caregiver is present and can propel the wheelchair.
4. The hallways and doorways in the home are adequate in width to allow a wheelchair to pass through.
5. Timeframe of need: lifetime or a specified amount of time.
6. Size wheelchair needed: 18 inches is standard; 16 inches is narrow; 20 inches is small bariatric.
7. Height and weight within the last 30 days.

Hemi Wheelchair
Standard Manual Wheelchair Criteria met AND one of the following:
a. Lower seat height (17" to 18") required due to short stature.
b. Patient needs to place feet on the ground for propulsion.

Lightweight Wheelchair
Standard Manual wheelchair criteria met AND *both* of the following:
a. Unable to self-propel in standard chair.
b. Able to self-propel in lightweight chair.

Heavy Duty Wheelchair
Standard manual wheelchair criteria met AND one of the following:
a. Weight over 250 lb,
b. Severe spasticity.

Extra Heavy Duty Wheelchair
Standard wheelchair criteria met AND weight over 300 lbs.

Notes

- Case Management will complete a wheelchair packet that includes measurements of the patient and the household doors.
- Wheelchairs are expected to last five years. If a new one is needed sooner, Medicaid will not pay for it.
- Physical Therapy typically stocks standard manual wheelchairs only.
- Other size wheelchairs (hemi, lightweight, heavy duty, etc.) must be ordered from Prodigy by the case managers.
- Custom wheelchairs (e.g. electric) require referral to National Seating and Mobility Clinic (at Providence). Talk to case manager.
- Transport wheelchairs are not covered by Medicaid or provided by Prodigy, but can be shopped for online.

Commode

Standard Commode Requirements
1. Patient is physically incapable of utilizing toilet facilities. This would occur in the following situations:
a. The patient is confined to a single room (confinement to a single room means the patient is bedridden, cannot walk with a cane or walker, or cannot use or be wheeled in a wheelchair to access the bathroom).
b. The patient is confined to one level of the home environment and there is no toilet on that level.
c. The patient is confined to the home and there are no toilet facilities in the home.
2. Height and Weight within 30 days of prescription.

Extra Wide/Heavy Duty Commode Chair
Patient meets standard commode requirements AND weight >300 lbs documented in medical record within 30 days.

Drop-Arm Commode
Patient meets standard commode requirements AND detachable arms feature is necessary to facilitate transferring the patient OR the patient has a body configuration that requires extra width.

A commode is NOT covered by Medicare for the following conditions/situations:
- Urinary urgency or incontinence.
- Slow gait and cannot get to the bathroom in a timely manner.
- Patient is able to walk with or without an assistive device, are able to use a wheelchair in the home, and are able to get to the bathroom.

Semi Electric Hospital Bed

One or more of the following criteria
a. Medical condition which requires positioning of the body in ways not feasible with an ordinary bed.
b. Requires positioning of the body in order to alleviate pain.
c. Requires head of bed to be elevated more than 30 degrees most of the time due to congestive heart failure, chronic pulmonary disease, or problems with aspiration.
d. Requires traction equipment, which can only be attached to a hospital bed.
e. Requires frequent changes in body position and/or has an immediate need for a change in body positions (i.e. a patient has large or multiple pressure ulcers on the trunk or pelvis and needs to be repositioned frequently and is unable to do so without assistance; or the patient has limited strength to move or shift their body).

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Resource
Incontinence Supplies
Documentation Requirements

The following must be included in a provider note for a patient to receive incontinence supplies:

1. Patient is incontinent of feces and urine.
2. All incontinence care is provided by a care taker.
3. 6-8 briefs daily are needed.
4. All attempts at training patient to toilet independently have failed.
5. Length of time needed (may be lifetime).
6. Prognosis of independent bladder control: Poor/not likely.

Note

If patient is expected to need more than six briefs per day, a separate letter of medical necessity must be drafted by the case managers.

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Treatment Protocol

Pre-Anesthesia Management

Age	Hb/Hct	Coags	Lytes	BUN/Cr	Glucose	LFTs	EKG	CXR	T&S
30 months – 59 years	No routine testing needed in this age group.								
60 – 74 years							X		

Disease	Hb/Hct	Coags	Lytes	BUN/Cr	Glucose	LFTs	EKG	CXR	T&S
Hypertension			X				X		
Card – moderate	X		X	X			X		
Smoker > 20 years	X								
Malignancy	X								
Lymphoma	X (CBC)							X	
Hepatic	X	X	X			X			
Renal	X	X	X	X					
Bleeding	X (CBC)	X							
Diabetes			X	X	X		X		
Expected blood loss	X								X

Medication	Hb/Hct	Coags	Lytes	BUN/Cr	Glucose	LFTs	EKG	CXR	T&S
Diuretic			X	X					
Antihypertensive			X	X			X		
Cardiac medication			X	X			X		
Steroid			X		X				
Anticoagulant	X	X							

Other

Urine hCG: obtain within 48 hours of surgery in women of childbearing age (13-50).
Drug Levels: draw level on all patients on digoxin or phenytoin.
CXR: obtain if recent change in sputum quality or color, pneumonia in past three months, chronic home oxygen use, planned intrathoracic surgery, or if exam reveals rales, rhonchi, or wheezes.

Surgical Risk Screening for Elective Procedures (including endoscopy)

1. Patients who are not to be scheduled at YKHC:
    a. Patients with BMI > 45.
    b. Severe obstructive sleep apnea.
    c. Patients with pending cardiology, pulmonology, or sleep study referrals.
    d. Patients younger than 30 months.
    e. Patients older than 75 years.
    f. Medically unstable patients (for example, uncontrolled diabetes mellitus, uncontrolled hypertension, etc.).
2. Preventative antibiotic therapy will be administered within one hour prior to skin incision per protocol pre-operatively based on procedure type and patient's allergies unless otherwise ordered by physician.
3. DVT/VTE prevention methods will be implemented using **SCIP Mechanical Prophylaxis Protocol** unless contraindicated or otherwise documented in orders by physician.

Diabetes Management

1. Oral agents: Discontinue SGLT2 inhibitors 3-4 days prior to surgery. Discontinue all other oral agents the evening prior to surgery, except Metformin can be taken. No oral agents except Metformin the morning of surgery.
2. **For patients who take insulin, consult pharmacy.**
   For patients who take long acting insulin in the morning, take 50% dose of NPH insulin or 75% dose of long-acting insulin (lantus) the morning of surgery.
   For patients who take long acting insulin at night, take 75% dose of NPH or lantus the night before surgery.
   For patients who take short acting insulin (regular, aspart), stop this insulin when fasting begins.
3. Consume apple or cranberry juice up to two hours prior to arrival to surgery if insulin was given.
4. For insulin pumps, set to basal rate and continue throughout pre-operative period.
5. Upon arrival to Holding Area, obtain glucose level. Anesthesia will treat results.

Please send a message via Tiger Connect to "OR CRNA on call" with any questions about patient selection, etc.

See YKHC Policy & Procedure on Patient Selection Criteria for Ambulatory Surgery.

This protocol is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved 6/6/22.
If comments about this protocol, please contact Jennifer_Lent@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Pre-Anesthesia Management

NPO Guidelines

1. All patients are to be NPO after midnight the night before the procedure. Additionally, patients undergoing endoscopy or with delayed gastric emptying will receive more extensive NPO instructions.
2. Patient may brush his/her teeth but should not swallow toothpaste.
3. Gum and candy of any type are not allowed.
4. All patients will be allowed to eat a full, regular diet (solids) up to eight hours prior to surgery. Patients going to the OR at 0730 who were NPO after midnight are considered to meet this standard.

Estimated Energy Requirements for Various Activities, Based on Duke Activity Status Index*		
1 MET	**Can you...**	
		...take care of yourself?
		...eat, dress, or use the toilet?*
		...walk indoors around the house?
		...walk one or two blocks on level ground at 2-3 mph (3.2-4.8 kph)?
< 4 METs	**Can you...**	
		...do light work around the house, such as dusting or washing dishes?
≥ 4 METs	**Can you...**	
		...climb a flight of stairs or walk up a hill?
		...walk on level ground at 4 mph (6.4 kph)?
		...run a short distance?
		...do heavy work around the house, such as scrubbing floors or lifting or moving furniture?
		...participate in moderate recreational activities, such as golf, bowling, dancing, doubles tennis, or throwing a baseball or football?
≥ 10 METs	**Can you...**	
		...participate in strenuous sports, such as swimming, singles tennis, football, basketball, or skiing?
* MET = metabolic equivalent		
Adapted from J AM Coll Cardiol, with permission from Elsevier.		

Yukon-Kuskokwim HEALTH CORPORATION

Resource

Wound Care Supplies

Dressing	Description	Drainage	When to Use	Frequency of Change	Examples
Polymem	Pink foam	Light to moderate	Burns, lacerations, abscesses, pressure injuries; nearly any superficial or partial-thickness wound. Doesn't stick to wound.	QOD, up to Q7 days	
Mepilex	White foam	Light to moderate	Burns that are smaller in size, lacerations, abscesses, pressure injuries, nearly any superficial or partial-thickness wound. Doesn't stick to wound. Silicone backing keeps dressing from sliding	QOD, up to Q7 days	
Adaptic	Impregnated gauze	Light to heavy	Burns, frostbite, abcesses, pressure injuries; nearly any superifical, partial or full-thickness wound. Doesn't stick to wound.	Daily	
Gauze	Woven white material	Light to heavy	Always put Adaptic down first. Gauze will stick to wound if applied directly. Used to absorb drainage.	Daily	
ABD pad	Thick white pad	Heavy	Always put Adaptic down first. ABD will stick to wound if applied directly. Used to absorb drainage.	Daily	
Duoderm	Tan with gel-like backing	Light to moderate	Pressure injuries (Stage I-III)	Q3 days	
Sorbalgon	Tightly woven seaweed	Moderate to heavy	Helps absorb exudate. Cut to fit in cavity wound. Not indicated for tunneling as particles may remain when dressing removed.	Daily	
Packing strip	Strips of tightly woven gauze	Light to heavy	Used to fill tunnels, undermining or the wound bed. Pack lightly not tightly. Always document how many pieces used and remove that same number at next dressing change.	Q1-2 days	
Kerlix	Fluffy white roll	Heavy	To secure primary dressing in place vs using tape.	When primary dressing is changed	
Flexicon	Roll with blue line	Light to moderate	To secure primary dressing in place vs using tape.	When primary dressing is changed	

Notes

- Primary dressing is directly in contact with the wound.
- Secondary dressing is the outer dressing (Medipore pad, Flexicon, etc.).
- Frequency of dressing change will almost always be based on amount of drainage. The goal is to select a dressing that allows for changes every other day or longer.

Yukon-Kuskokwim HEALTH CORPORATION

Resource

Wound Care Supplies

Dressing	Description	When to Use	Frequency of Change	Examples
Tegaderm	Clear sheet	Can be used in place of tape for larger wounds. Occlusive.	When primary dressing is changed.	
Medipore pad	Thin white foam with tape border	Can be used to secure Polymem, Mepilex, or Adaptic with gauze.	When primary dressing is changed.	
Cavilon No-Sting Barrier	Wipe or lollipop	Used around outside of wound to protect skin. Used with moderate to heavily draining wounds or with tape irritation.	Apply every three dressing changes.	
Bacitracin	Antibiotic ointment	For wounds with local or systemic infection.	With every dressing change.	
Santyl	Enzymatic debrider (ointment)	Wounds with adherent slough. Must be able to reach base of wound to be effective (bottom-up debrider).	Daily	
Duoderm hydrogel	Hydrating ointment	Use over exposed tendon for hydration; use over thick eschar that needs to soften for debridement.	With every dressing change.	
Aquaphor	Clear emmoliant	Burns or frostbite wounds that are epithelializing, healed wounds that itch due to dryness.	Daily (sometimes 2-3x/ day).	
Calmoseptine	Pink lotion	On skin that itches (intact or with little wounds). Can also be used to protect against moisture from exudate, urine, or stool.	Daily (do not scrub off).	
Cavilon Barrier Cream	White lotion	Good on perineum to protect against urine and stool.	Daily (do not scrub off).	
Chlorhexidine	Liquid or scrub	If baterial load is high. Can be used 1-3 times and then stop to prevent cytotoxic effects.	At most 3 consecutive days.	
Interdry	White fabric	Used to wick moisture between skin folds (with or without the presence of yeast). Do not use with creams or powders. Allow a minimum of 2" of fabric exposed outside the skin for moisture evaporation.	Can be used up to 5 days, depending on fabric soiling, odor, amount of moisture.	

Notes

- Primary dressing is directly in contact with the wound.
- Secondary dressing is the outer dressing (Medipore pad, Flexicon, etc.).
- Frequency of dressing change will almost always be based on amount of drainage. The goal is to select a dressing that allows for changes every other day or longer.

Yukon-Kuskokwim HEALTH CORPORATION

Resource

Wound Care Sample Scripts

Wound Type	Sample Wound Care Scripts
Burn	Initial Dressings (when wound drainage is heavy, first 1-2 weeks): *Usually changed 1-2x/day.* 1. Bacitracin ointment applied to Adaptic then applied to wound 2. Cover with Abdominal pad 3. Secure with Kerlix or Flexicon Once Drainage Slows: *Usually changed every 2 days.* 1. Cover wounds with just Polymem or Mepilex 2. Secure with Flexicon Aquaphor or similar emollient should be applied to newly healed skin daily to prevent drying out and cracking.
Frostbite	Initial Dressings (when wound drainage is heavy, first 1-2 weeks): *Usually changed 1-2x/day.* 1. Bacitracin ointment applied to Adaptic then applied to wound. 2. Cover with Abdominal pad. 3. Secure with Kerlix or Flexicon. Once Drainage Slows: *Usually changed every two days.* 1. Cover wounds with just Polymem or Mepilex. 2. Secure with Flexicon. Aquaphor or similar emollient should be applied to newly healed skin daily to prevent drying out and cracking. Allow blackened areas to remain dry. No ointment application here.
Abscess	Lightly fill wound cavity with Packing Strip (usually ¼" width) or Calcium Alginate (Sorbalgon). If drainage is heavy: *Usually changed daily.* 1. Cover with Adaptic and ABD pad. 2. Secure with Flexicon. If drainage is light: *Usually changed every two days.* 1. Cover with Polymem or Mepilex. 2. Make sure all edges are secure (Medipore tape, Medipore pad, Tegaderm or wrap). Discontinue packing once wound bed has filled and cavity no longer exists
Tunneling Abscess	Lightly fill wound tunnel with Packing Strip to base of tunnel. Then fill remaining cavity with more Packing Strip or Calcium Alginate (Sorbalgon). If drainage is heavy: *Usually changed daily.* 1. Cover with Adaptic and ABD pad. 2. Secure with Flexicon. If drainage is light: *Usually changed every two days.* 1. Cover with Polymem or Mepilex. 2. Make sure all edges are secure (Medipore tape, Medipore pad, Tegaderm, or wrap). Discontinue packing once tunnel is <2 cm.
Pressure Ulcer	Stage II: *Usually changed every 3 days.* Cover wound with Tegaderm Hydrocolloid or Duoderm. Stage III and IV Fill wound cavity with Packing strip (usually ¼" width) or Calcium Alginate (Sorbalgon). If drainage is heavy: *Usually changed daily.* 1. Cover with Adaptic and ABD pad. 2. Secure with Tegaderm transparent film. If drainage is light: *Usually changed every three days.* Cover with Duoderm or Tegaderm Hydrocolloid
Laceration	If edges are slightly jagged but can nearly come together Apply Steri strips or tissue adhesive. If edges are quite jagged and cannot approximate: *Usually changed daily.* 1. Apply bacitracin to wound (use <1 week). 2. Cover with Adaptic and gauze and secure with Medipore pad for first 2-3 days. Once bleeding/drainage slow: *Usually changed every 2-3 days.* 1. Cover with Polymem or Mepilex. 2. Make sure all edges are secure (Medipore pad, Tegaderm, Medipore tape, or wrap).
Abrasion	If drainage is heavy: *Usually changed daily.* 1. Cover with Adaptic and gauze. 2. Secure with Medipore pad. If drainage is light: *Usually changed every 2-3 days.* 1. Cover with Polymem or Mepilex. 2. Make sure all edges are secure (Medipore pad, Tegaderm, Medipore tape, or wrap).

Notes

- Any wound that is draining heavily will likely need Cavilon No-Sting skin protectant applied around wound to prevent maceration. This can be reapplied every other dressing change.
- All wounds should be cleaned with wound cleanser or saline prior to application of new dressings.

Pediatric Protocols/Reference

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

PAMC/YKHC Post-NICU Caffeine Protocol

IF ANY CONCERN FOR APNEA, please consult a pediatrician immediately to determine need for further evaluation, transfer, medevac, etc.

Recommendations on Management of Caffeine After NICU Discharge

- Recommended dose of caffeine is 12 mg/kg PO daily.
- Patient should be seen in Bethel by a pediatric provider within one week of returning to the region.
- Dose should be weight-adjusted every 1-2 weeks. This can occur in outpatient clinic with a pediatric provider or a pediatric consult, in an SRC with a pediatric consult, or in a village by RMT to Chronic Peds.
- Stop the caffeine when the baby is 42 weeks corrected gestational age.
- Discontinuation of caffeine may be delayed for another week so as not to coincide with immunizations, recent URI, or planned anesthesia (as all of these events can cause re-emergence of intermittent hypoxia with periodic breathing).

When a Baby is Discharged from the NICU on Caffeine

- Update the Problem List with the plan, including the target dose, how often to weight-adjust, and the expected end date (when 42 weeks corrected gestational age will be).
- Write a prescription for the caffeine. Include the target dose. Under "eRx Note to Pharmacy," state "do not fill until family calls for refills."
- Assess caffeine dose at every encounter.

Rationale

- In the past, premature infants were given caffeine until about 34 weeks post-menstrual age. Some needed caffeine past this point and went home on caffeine and an apnea monitor.
- Recent studies have shown that many preterm infants who have been taken off caffeine will go on to have intermittent hypoxia and subclinical apnea and bradycardia events after discharge from the hospital.
- Evidence is also building that prolonged use of caffeine results in better neurodevelopmental outcomes.
- As of January 2019, caffeine has been continued in preterm infants after discharge from the PAMC NICU.
- The PAMC NICU stopped the routine use of apnea monitors for babies discharged on caffeine due to sub-optimal monitor technology and frequent frustration among parents and providers. They prefer to emphasize the importance of giving caffeine rather than use of apnea monitors.

Source

Adapted from letter from Alaska Neonatology Associates, Inc., Pediatrix Medical Group, an affiliate of MEDNAX.
1/10/2019
Providence Alaska Medical Center (PAMC)
Neonatal Intensive Care Unit (NICU)

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Checklist for Complex Pediatric Patients Returning to YKHC Region

□ Has YKHC pediatric group been briefed and asked for feedback on concerns or issues?	□ N/A
□ Prior to patient returning, has care conference been scheduled with 1-2 pediatricians to represent group/consensus recommendations? Other key participants include: case managers, SRC providers, health aides, and family members.	□ N/A
□ Where will primary care occur – village, SRC, Bethel, or Anchorage?	□ N/A
□ Does home have electricity, running water, and a refrigerator?	□ N/A
□ Is there a back-up plan in place if electricity goes down?	□ N/A
□ Have family/caregivers received CPR training?	□ N/A
□ Does the family have needed emergency equipment? Ex: ambu bag (if no CHA available), suction, pulse-oximeter, oxygen, glucometer, etc. Have they received training on how to use this equipment?	□ N/A
□ Does the family have needed supplies: medications, beds, commodes, syringes, dressings, wheelchair, lotions, etc.?	□ N/A
□ If the patient is at risk for seizures, has the family received Diastat or intranasal midazolam and received the appropriate training?	□ N/A
□ If the patient has a G-tube, are the caregivers comfortable replacing it? Do they have emergency supplies, including an extra G-tube and Foley catheters in the same French size and smaller sizes?	□ N/A
□ If the patient has a port, are the caregivers comfortable accessing it? Have they received the appropriate training? Do they have all the supplies needed to access it?	□ N/A
□ Has an Informed Consent to Return to Village been customized for this patient and approved by Risk Management (Linda Weisweaver and Chris Beltzer as of 11/2022)? [See **Peds Folder → Informed Consent to Return to Village** for template.]	□ N/A
□ Have the caregivers completed the Informed Consent to Return to Village?	□ N/A
□ If patient is returning to the village against medical advice, have Risk Management, Clinical Director, and appropriate administrators been made aware?	□ N/A
□ If the patient is DNR/DNI/Comfort Care, have the **Expected Home Death Forms** been completed? Has the **POLST Form** been completed? Does family have enough medications needed for comfort care?	□ N/A
□ Have all current and anticipated prescriptions with refills been ordered on the YKHC RAVEN Medication List?	□ N/A
□ Is there a prescription for electrolyte replacement solution (ex: Pedialyte)?	□ N/A
□ Has the YKHC RAVEN Problem List been updated with care plans, follow-up needs, therapeutic parameters, etc.?	□ N/A
□ Has a clinic appointment been scheduled to establish care at YKHC?	□ N/A
□ Have the health aides been notified of the complex needs of this patient?	□ N/A
□ Have the nearest SRC providers been notified of the complex needs of this patient?	□ N/A
□ After the care conference: has a detailed note been placed in the chart summarizing the care conference? Has this note been sent by email to the pediatric group, case managers, and SRC providers?	□ N/A
□ Has family referral to YKHC BH been offered?	□ N/A
□ Have VTC appointments been set up for patient and family?	□ N/A

Yukon-Kuskokwim HEALTH CORPORATION

Congenital Sucrase-Isomaltase Deficiency (CSID) Resource

Congenital Sucrase-Isomaltase Deficiency (CSID)

- This condition leads to an inability to digest sucrose (table sugar).
- Signs/symptoms:
  - Watery diarrhea after food containing sucrose
  - Abdominal pain/distension
  - Malnutrition, poor growth, FTT
- The condition is seen in Alaska Native people but is often under-diagnosed because patients unknowingly manage it with a traditional diet.

If you are considering this diagnosis, please consult a pediatrician. There are many more resources in the Pediatrics Folder on the vault, including sucrose content of medications and formulas.

CSID suspected

↓

- Consult a YKHC pediatrician.
- Consult the **ANMC CSID Guideline** for details on testing.

↓

- After CSID has been confirmed, treat with sacrosidase enzyme replacement (Sucraid). Sucraid is not covered by Medicaid, so there are many necessary steps.
- To obtain Sucraid:
  1. Go to: **Sucraid.com → How to Order**.
  2. Click Physician Prescription Form.
  3. Fill out the information in the form with CSID as the diagnosis with 11 refills. (Must fill out this form annually.)
  4. Fax this form to the number at the top.
  5. Instruct family to fill out HIPAA form, found **here**. This is the form to get the Sucraid for free via the financial assistance program.
  6. Fax this form to the number at the top.
  7. Get a reliable phone number for the family and tell them they must answer their phone when the company calls. They will need to give more information over the phone.
  8. Call the company to confirm everything has been arranged: 1-833-800-0122.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Dexamethasone in Meningitis

*The following is adapted from the "**ANMC Pediatrics Statement on Dexamethasone and Hearing Screening in Meningitis**," dated 2/4/20.*

Haemophilus influenzae type A

In recent years, *Haemophilus influenzae* type A (HiA) meningitis has been more common than other causes of bacterial meningitis in children admitted to ANMC. Many of these children have been transferred from YKHC. See this **State Epidemiology Bulletin** for information about Alaska cases in 2014-2018, including the outbreak in 2018.

The pattern of disease in HiA is similar to that seen in *Haemophilus influenzae* type B (HiB) meningitis. In HiB meningitis, dexamethasone has been shown to decrease the incidence of severe hearing loss. In Alaska, there have been multiple cases of sensorineural hearing loss associated with HiA meningitis. It is suspected that dexamethasone may confer similar benefits in HiA meningitis. As a result, our local experts (including infectious disease and endocrinology experts) recommend giving dexamethasone with all cases of suspected bacterial meningitis.

Dexamethasone

- Indications: A child >6 weeks old with clinical meningitis or visibly purulent spinal fluid.
- Timing: First dose should be given 10-20 minutes prior to or concurrent with the first dose of antibiotics; if given after antibiotics have been given, there is no evidence that dexamethasone will improve outcomes.
- Dose: Dexamethasone 0.15 mg/kg/dose IV.
- Course: If dexamethasone is initiated and HiA/HiB is confirmed, continue dexamethasone 0.15 mg/kg/dose IV Q6h for 2-4 days. If CSF culture/PCR show a different pathogen or are negative, stop the dexamethasone.

Hearing Screening

- All children with bacterial meningitis should be referred to audiology.
- Hearing evaluation should be scheduled one month after hospital discharge.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Pediatric Diabetic Ketoacidosis Management Protocol

General Guidelines and Definitions

Disclaimer: These are guidelines—not hard and fast rules. Some patients, such as younger children (<5 years) and poorly controlled diabetics (HbA1c >10%), may not adhere to the usual course and guidelines may need to be modified. The below categorizations of mild, moderate, and severe are not the consensus-statement published definitions, but are more "real-world" categorizations.

DKA: A state of *insulin deficiency* and characterized by *severe depletion of water and electrolytes* (see Appendix 1).The primary goals are to **treat the insulin deficiency** (which will correct the acidosis and reverse the ketosis) and to **replace fluids and electrolytes**. Other goals include gradually achieving euglycemia, monitoring for complications of DKA, and identifying and treating any precipitating event.

Clinical signs of DKA: dehydration, tachycardia, tachypnea, Kussmaul respirations, acetone breath odor, nausea, vomiting, abdominal pain, blurry vision, confusion, drowsiness, progressive decrease in level of consciousness, loss of consciousness.

Biochemical criteria for DKA: hyperglycemia (BG > 200mg/dl); venous PH <7.3 or serum bicarb <15, beta-hydroxybutyrate ≥3 or moderate/large ketonuria

Diabetic ketosis without significant acidosis: Urine ketones moderate/large, nausea +/- vomiting, pH >7.3, Bicarb >15
Management:
• Oral or IV hydration, depending on vomiting, ability to tolerate PO.
• Supplemental insulin (Novolog, SQ: 0.1-0.2 units/kg every 4 hours) in addition to patient's usual long-acting insulin (ie Lantus, Tresiba).
• Often managed as outpatient at home or in Emergency Department.
• In established patient with good family support, sometimes managed at home by phone under guidance from on-call physician with no knowledge of laboratory results other than self-monitored blood glucose and urinary ketones.

Mild-moderate DKA: Urine ketones mod/large, persistent vomiting, pH 7.2-7.3, Bicarb 10-15
Management:
• Oral or IV hydration (usually IV).
• Supplemental insulin should be used (Novolog SQ 10% of total daily insulin dose or 0.1-0.2 units/kg every 2 hours[*]) in addition to the patient's usual long-acting insulin (ie Lantus, Tresiba).
• May require admission and management with IV regular insulin infusion (0.05-0.1 units/kg/hr).

Severe DKA: Urine Ketones Large, pH <7.2, Bicarb <10 *OR* mild/moderate DKA with other organ system impairment (altered mental status, impaired renal function, respiratory distress, compromised circulation) (published definition: pH <7.1, bicarb <5)
Management:
• Admit to hospital for therapy and intensive monitoring.
• PICU status may be appropriate in some cases (altered mental status, hypokalemia, hyponatremia (after sodium corrected for glucose[†]), young age (<5 years), hypotension, per admitting physician).
• IV hydration (3 L/m^2/day)[¥]
• IV insulin (0.1 units/kg/hour).
• Intensive monitoring for improvement and signs of cerebral injury.
• Follow guidelines as given in the remainder of this protocol.

Some useful formulas:
[*]Total daily insulin dose approx. = Lantus dose x 2 (In general, Lantus dose is 50% of patient's total daily insulin)
[†]Corrected sodium = [((Glucose -100)/100) x 1.6] + Pt's Na [glucose is mg/dL]
[¥]BSA (m^2)= sq root [(wt(kg) x ht(cm))/3600]; estimated BSA = (wt(kg) x 4 + 7)/(90 + wt(kg))
[‡]Anion Gap = Na – (Cl + HCO_3); normal is 12 +/- 2 mmol/L
[€]Effective osmolality = 2 x (Na + K) + glucose/18 [glucose is mg/dl]

Fluid Management (2 bag system)
• Total fluids should not exceed about 3500 mL/m^2/day.
• Volume expansion (fluid bolus) should be initiated prior to insulin administration, and insulin should be initiated at least 1 hour after the fluid administration has begun.
  ▫ Initial bolus of NS or LR with 20 mL/kg over 1-2 hours.
  ▫ If poor peripheral perfusion, hypotension, or shock persist after the initial 20ml/kg, it may be appropriate to repeat with asecond 10-20 mL/kg NS bolus.
• Rehydration: assume 10% dehydration and plan to replace the deficit over 24 hours. (See Appendix 2.)
  ▫ This can often be accomplished by running IV fluids at 1.5 x maintenance or 3000 mL/m^2/day.
  ▫ Initial IVF with ½NS + 20 mEq/L K-phosphate + 20 mEq/L K-acetate (or KCl if K-acetate is not available). **Note: there is zero dextrose in this fluid.
    ♦ Consider NS if measured Na level is low and does not rise with the fall in glucose.
    ♦ If K is >6, repeat the BMP and add the K to the fluids when the K is <6; If K is low, may need up to 60 mEq/L K total (typically 30 and 30 of the two types of K solution).
  ▫ "Y-in" D10 ½NS + 20 mEq/L K-phosphate + 20 mEq/L K-acetate (or KCl) when the serum glucose is less than 250 mg/dL or if glucose falls faster than 100mg/dL per hour.
  ▫ 2 bag method: Use 2 separate bags of IV rehydration fluid with identical electrolyte composition; one bag has NO dextrose and the other has 10% dextrose. Increase and decrease the rate of each bag reciprocally so that the total rate is constant at the desired rehydration rate (ie, 3 L/m^2/day) and the glucose is maintained between 150 and 250.
    ♦ Typically, when the BG is ≤ 250, run the 2 fluids at 50/50 rates and when the BG is <200, stop running the fluid without the dextrose and run the D10 fluid at 100% of the desired rate.
    ♦ DO NOT REDUCE INSULIN INFUSION RATE BECAUSE OF FALLING BLOOD GLUCOSE UNTIL THE REDUCTION IS INDICATED BASED ON RESOLUTION OF KETOACIDOSIS; *If the patient is still acidotic, they still need the insulin*—increase the dextrose content instead (can use D12.5% fluids prn).
• **Do not administer sodium bicarbonate to correct the acidosis** (***cautious*** administration may be ***considered*** if pH <6.9 and the acidosis is so profound as to adversely affect the action of epinephrine during resuscitation, decreased cardiac contractility, impaired tissue perfusion from vasodilation, or life-threatening hyperkalemia; dose should be 1-2 mmol/kg over 60 minutes).

This protocol is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
If comments about this protocol, please contact Jane_McClure@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Pediatric Diabetic Ketoacidosis Management Protocol

Insulin Therapy

• "Low-dose continuous IV insulin infusion" = 0.1 units/kg/ hour regular insulin, IV (conc. 1 unit/mL).
  ▫ Start insulin 1 hour after initial fluids have been started but do not further delay in starting insulin.
• Do not give intravenous insulin bolus or subcutaneous insulin bolus when starting the continuous infusion. (*If a delay in starting the insulin infusion is expected to be longer than 1 hour (i.e. more than 2 hours after IVF have been started, then a SQ insulin dose may be warranted.)
• CONTINUE IV INSULIN INFUSION AT 0.1 UNITS/KG/HOUR UNTIL THE KETOACIDOSIS IS RESOLVED, bicarb >18, the anion gap is closed (AG <12)‡, and the patient is awake and can tolerate PO fluids.
  ▫ A lower continuous rate (0.05 – 0.08 units/kg/hr may be needed in patients with marked insulin sensitivity.
• Usually, long-acting basal insulin (ie Lantus, Tresiba) should be given at the usual time, even if the patient is on an insulin infusion (this is most frequently given at bedtime; its onset of action is approx. 1-2 hours).
  ▫ Administering basal insulin while on the insulin infusion allows us to d/c the insulin infusion when it is appropriate (see above) without waiting for subcutaneous insulin to be given; it also provides background insulin so that DKA does not recur after the insulin infusion is discontinued (remember: without SQ insulin, once the IV insulin infusion is stopped, the patient has no other insulin on board!)
  ▫ In new-onset diabetes, the usual starting total daily dose of insulin is 0.5-1 units/kg/day, 50% of which should be given as basal insulin; in known diabetes, the patient's home dose of basal can be used.
  ▫ For those patients on insulin pumps, they will not be on a long-acting basal insulin, so do not need to receive this unless there is a plan to not restart the patient's pump while they are hospitalized. Otherwise, they can simply be restarted on their pump when the IV insulin infusion is completed.

Cerebral Injury in DKA

The most common cause of death during DKA in children is clinically apparent cerebral injury, which occurs in about 0.5-0.9% of cases and manifests as sudden neurologic decline. It often occurs early in the course of DKA (sometimes even before treatment has been started) and when it is clinically apparent, the prognosis is usually poor; mortality rate is up to 21-24%. The pathogenesis is incompletely understood, but may result from cerebral hypoperfusion and the effects of reperfusion, along with neuroinflammation. Cerebral *edema* is likely a consequence (rather than the cause) of cerebral injury, and often develops hours or days after the diagnosis of brain injury.

• Risk factors include:
  ▫ Younger age; New-onset diabetes; Longer duration of symptoms
  ▫ ***Sodium bicarbonate treatment for correction of acidosis***
  ▫ Administration of insulin in the first hour of fluid treatment
  ▫ Increased BUN at presentation
  ▫ Greater hypocapnia at presentation after adjusting for degree of acidosis
  ▫ More severe acidosis at presentation
  ▫ An attenuated rise in measured serum sodium concentrations during therapy
• Children with DKA are frequently sleepy, but **warning signs and symptoms of cerebral injury include**:
  ▫ Worsening of Glasgow Coma Scale (GCS) Score
  ▫ Slowing of heart rate, rising blood pressure, decreased O_2 saturation (Cushing's Triad)
  ▫ Change in neurological status (restlessness, irritability, increased drowsiness, incontinence)
  ▫ Headache, vomiting, focal neurological signs, dilated/unresponsive/sluggish/unequal pupils, papilledema
  ▫ Decreasing urine output without clinical improvement or tapering of fluids

• CEREBRAL INJURY IS A LIFE THREATENING MEDICAL EMERGENCY REQUIRING IMMEDIATE AGGRESSIVE INTERVENTION AND IMMEDIATE TRANSFER TO AN INTENSIVE CARE UNIT SETTING.

• Treatment includes:
  ▫ Give Mannitol 0.5-1 gm/kg over 10-15 min and repeat if no initial response in 30 minutes to 2 hours.
    ♦ Hypertonic saline (3% saline) 2.5-5ml/kg over 30 min may be an alternative or 2nd line.
  ▫ Elevate the head of the bed to 30 degrees and keep the head in a midline position.
  ▫ Adjust fluid administration as indicated to maintain normal BP and optimize cerebral perfusion; avoid hypotension that mightcompromise cerebral perfusion pressure.
  ▫ Administer oxygen as needed to maintain normal oxygen saturation.
  ▫ Intubation may be necessary if impending respiratory failure, but aggressive hyperventilation to hypocarbia (pCO_2 <22 mmHg) has been associated with poor outcome and is not recommended.
  ▫ Head CT scan should be obtained to rule out other possible intracerebral causes of neurologic deterioration AFTER treatment for cerebral injury has been started (DO NOT DELAY TREATMENT TO GET THE HEAD CT!); changes that will be detectable on head CT often occur late in the development of cerebral injury.

Monitoring and Other Recommendations

• Height and weight are both needed in order to calculate body surface area.
• Vital Signs Q1 hour for at least first 12 hours, then Q2 hours; HR monitor and pulse oximetry.
• Neuro checks/GCS score Q1 hour.
• Strict monitoring of Intake and Output is essential (Strict I/O).
• Check blood sugar (bedside glucose) every hour while on insulin infusion.
• NPO until acidosis is resolved in order to strictly monitor total intake, avoid excessive fluid administration, and decrease the risk of aspiration should consciousness be altered.
• BMP, Magnesium, Phosphorus, beta-hydroxybutyrate initially and q4-6 hours.
• I-Stat-7 Q2 hours until pH >7.25, then q4-6 hours.
• After first 12-18 hrs of DKA treatment, check urine ketones every void until negative twice in a row.
• Mannitol 1 gm/kg or 3% Saline at bedside (and ready to be given for acute change in mental status).
• Two peripheral IV catheters should be placed for fluid and insulin administration and for blood sampling.
• A flow sheet with lab results and clinical response can be a useful guide to therapy.
• Initial labs should include: Hemoglobin A1c, BMP, Mg, Phos, Beta-hydroxybutyrate, diabetes autoantibodies (islet cell antibody, insulin antibody, glutamic acid decarboxylase (GAD-65) antibody, ZnT8 antibody), celiac panel (total IgA and TTG), TSH and free T4 (if patient is very ill, the TSH and free T4 should wait until child is more stable to avoid abnormalities of "sick euthyroid syndrome"), insulin and c-peptide (do not measure insulin if patient has already been started on insulin), CBC, cultures if indicated (fever, etc; **leukocytosis is a common finding in DKA and does not alone indicate infection).
• Call 907-563-2662, ask to speak with pediatric endocrinologist on call any time of the day or night.

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Treatment Protocol

Pediatric Diabetic Ketoacidosis Management Protocol

Prevention of DKA is key

• In patients with newly diagnosed diabetes, education of the public and health care providers to recognize early signs of diabetes can lead to diagnosis of type 1 diabetes before DKA develops.

• In patients with known diabetes, sick day reeducation with diabetes educator is important to discuss factors that led to DKA in this situation and how to avoid it in the future (ie urine ketone monitoring with illness or high blood glucose, avoiding insulin omission, appropriate use of insulin pump and trouble-shooting with pump problems).

• Appropriately manage sick days and ketones at home or in the hospital to prevent progression to DKA (see below).

Sick day management guide when a patient has ketones based on amount of ketones and the blood sugar			
Urine Ketones	Blood Glucose		
	<100	100-200	Over 200
Neg/Trace/Small	Push sugar-containing fluids	Push fluids (sugar and sugar-free)	Push sugar free fluids; continue to check ketones while ill; give correction dose if BG>250-300
Moderate	Push ~30-60g carBG to get BG over 200, consider mini-dose glucagon (see below)	Push ~30g carbs to get BG over 200 (recheck BG q 30-60min)	Give extra NovoLog (10% of total daily dose or 0.1 units/kg or double the BG correction dose); check BG and ketones in 2 hrs; repeat Novolog dose in 2 hrs if ketones do not decrease
Large, but well patient (not continuously vomiting, no difficulty breathing, awake)	Push fluids (30-60g carBG), consider mini-dose glucagon	Push ~30 g carbs to get BG over 180-200 (recheck BG q30-60 min)	Give extra Novolog (20% of total daily insulin dose or double the BG correction); check BG and ket in 2 hrs ; repeat Novo-Log dose in 2 hours if ketones do not decrease
Large, and sick pt (cont vomiting, difficulty breathing, lethargy)	Bring to ER, consider mini-dose glucagon on the way	Bring to ER Cont to push fluids if possible on the way	Bring to ER (can give an extra insulin dose while on their way to the ER if they live far away)

Total daily insulin dose approx. = 2 x Lantus/Tresiba dose

Double the correction: calculate what insulin dose would be based on their BG correction factor and give 2 x that dose

References:

Kuppermann et al, N Engl J Med. 2018: 378(24):2275-87
Woflsdorf et al, Ped Diab. 2018:19 (Suppl 27):155-77 Wolfsdorf et al, Diab Care. 2006:29(5):1150-59
White NH, Washington Univ in St Louis; 1989 (rev 2003)

Appendix 1

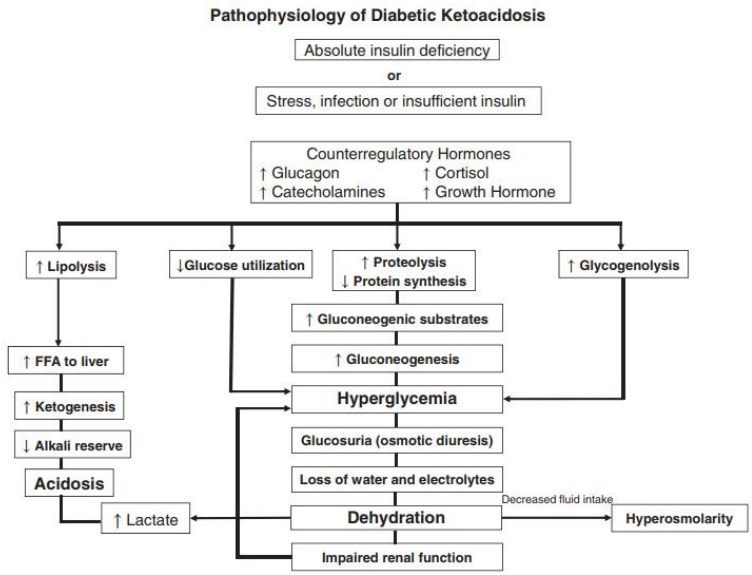

FIGURE 1 Pathophysiology of diabetic ketoacidosis. Copyright© 2006 American Diabetes Association. From diabetes care, Vol. 29, 2006:1150-1159. Reprinted with permission of *The American Diabetes Association*

Appendix 2: Fluid maintenance and replacement volumes based on body weight and an assumption of 10% dehydration

Body weight (kg)	Maintenance (mL/24 h)	DKA: give maintenance +5% of body weight/24 h	
		mL/24 h	mL/h
4	325	530	22
5	405	650	27
6	485	790	33
7	570	920	38
8	640	1040	43
9	710	1160	48
10	780	1280	53
11	840	1390	58
12	890	1490	62
13	940	1590	66
14	990	1690	70
15	1030	1780	74
16	1070	1870	78
17	1120	1970	82
18	1150	2050	85
19	1190	2140	89
20	1230	2230	93
22	1300	2400	100
24	1360	2560	107
26	1430	2730	114
28	1490	2890	120
30	1560	3060	128
32	1620	3220	134
34	1680	3360	140
36	1730	3460	144
38	1790	3580	149
40	1850	3700	154
45	1980	3960	165
50	2100	4200	175
55	2210	4420	184
60	2320	4640	193
65	2410	4820	201
70	2500	5000	208
75	2590	5180	216
80	2690	5380	224

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Treatment Protocol

Pediatric Endocrine Emergency Protocols

Hypoglycemia

If low BG and cause unknown, ***GET CRITICAL SAMPLE PRIOR TO TREATMENT!***

Labs tested during hypoglycemia are critical to identifying cause and preventing recurrence.

- Serum critical sample:
  - BMP, insulin, C-peptide, Cortisol, GH
  - Free fatty acids, β-hydoxybutyrate, acetoacetate
  - Lactate, ammonia, Save serum (sulfonylureas), total and free carnitine
- At any time:
  - Acylcarnitine profile, serum amino acids
- Urine – as quickly after hypoglycemia as possible
  - Urine ketones
  - Urine organic acids
- If suspect hyperinsulinism, perform glucagon stim test (administer 0.03 mg/kg, max 1 mg) and measure lab glucose at 0, 15, and 30 minutes.

Acute Treatment: obtain critical sample and correct hypoglycemia within 10-15 minutes.

- Glucose gel per eCHAM guidelines.
- IV or IO dextrose bolus (D10% or D25%) followed by continuous infusion of dextrose IVF and frequent blood sugar checks (Q1-2h or more frequently initially)
  - D25%: 2-4 mL/kg; D10%: 5-10 mL/kg. (For neonates, give D10% 2 mL/kg.)
- If insulin-mediated, treat with glucagon 0.03 mg/kg up to 1 mg OR for patients < 20 kg give 0.5 mg IM and for patients > 20 kg give 1 mg IM.

Adrenal Insufficiency

Critical Sample before treatment: cortisol

- If suspect primary adrenal insufficiency, include ACTH, renin, aldosterone.
- If suspect CAH, include 17OH-progesterone or CAH-6b panel (send-outs).
- Also check BMP, CBC, U/A.

Treat while awaiting results.

- Normal Saline Bolus 20 mL/kg.
- Hydrocortisone 50-100 mg/m^2 IV bolus (lower end of range if less sick, higher end of range if more sick) followed by 50-65 mg/m^2/day, divided q6h
  - If no IV access, SoluCortef IM or Dexamethasone IM
  - SoluCortef 50-65 mg/m^2 IV/IM – short acting
    - At this dose, adequate mineralocorticoid activity to replace moderate doses of oral fludrocortisone (80 mg HC = 0.2 mg fludrocortisone)
  - Dexamethasone 1.5-2 mg/m^2 IV/IM—long acting
    - *No mineralocorticoid activity*
    - Does not cross react with cortisol in lab assay so can use Dex if unable to get cortisol before treatment and then do Cortrosyn stimulation test after treatment
  - SoluMedrol 10-15 mg/m^2 IV/IM–intermediate acting
    - *No mineralocorticoid activity*
- For milder presentation, ex. known diagnosis with flu symptoms, but hemodynamically stable, can skip load, use 50-65/m^2/day, divided every 6 hours.

Known adrenal insufficiency (ie CAH or hypopituitarism) and adrenal crisis

- Loading dose hydrocortisone IV or IM 50 mg/m^2 x1 then 50 mg/m^2/day divided q6h
- If BSA unknown or for more rapid dosing, can use age:

  <3 y.o.: 25 mg IM/IV bolus followed by 25-30mg/day divided q6h

  3-12 y.o.: 50 mg IM/IV bolus followed by 50-60mg/day divided q6h

  >12 y.o.: 100 mg IM/IV bolus followed by 100mg/day divided q6h
- If severely ill or unable to take PO due to continued emesis, but no IV, can give SoluCortef 30-50 mg/m^2 IM (better for CAH because has fludrocortisone activity at high doses, but only lasts about 6 hours), or Dexamethasone 1.5-2 mg/m^2 IM.
- If less ill (ie, not in crisis but needs stress doses because of fever or vomiting), can give double or triple oral dose (usually double if fever, triple if vomiting or more sick).
- Normal saline bolus 20 mL/kg/ IV then D5NS or D10NS (depending on blood sugar) at 1.5 x maintenance.
- Monitor electrolytes, BP.
- For anesthesia: begin triple dose the night before the procedure, then 30-50 mg/m^2 IV or IM on call to the OR prior to anesthesia; and continue stress doing for 24 hours after procedure.

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Treatment Protocol

Pediatric Endocrine Emergency Protocols

Hypercalcemia

Critical sample: Ca, Phos, iPTH
• Other labs: 25-OH-D, 1,25 $(OH)_2$ D, urine Ca/Cr, CBC
Treatment for severe hypercalcemia (Ca >14): same initial treatment independent of the cause
• Saline diuresis: NS bolus followed by 2.5-3 L/m^2/day
    ▫ Saline diuresis generally works rapidly, but only as long at it is continued, and usually does not normalize calcium.
• Consider calcitonin 4 units/kg IV/IM/SQ q12h
    ▫ Tachyphylaxis common (often 2nd-line therapy y
    ▫ Common side effects: nausea, vomiting, flushing
• May need bisphosphonates.
• Discontinue any medications known to cause or worsen hypercalcemia.
• Avoid immobilization.

If mild/moderate (Ca <13-14) and no contraindication to PO: 2-3 L/day water plus PO salt to promote Ca excretion.

Therapy specific for underlying disorder
• Hyperparathyroidism → parathyroidectomy
• Glucocorticoids → effective if associated with hematologic malignancy or diseases with increased 1,25 $(OH)_2$ vitamin D.

Hypocalcemia

Critical sample: Calcium, Phosphorus, Magnesium, intact PTH before treatment.
• Ca and PTH need to be simultaneous, and PTH *MUST* be obtained while Ca is low.
• Collect urine Ca/Cr while Ca low if possible.
• If there is reason to suspect low albumin, check ionized calcium or calculate corrected calcium using albumin
    ▫ Corr Ca = measured calcium + [0.8 (4-albumin)]
• Other useful labs: CMP (kidney, liver, bone function), 25-OH-D, 1,25 $(OH)_2$ D, urine Ca/Cr.

Treatment if Symptomatic - tetany, seizure, apnea, heart failure, laryngospasm.
• *Slow* (<1 ml/min) IV infusion 10% Ca gluconate 1 mL/kg
    ▫ 100 mg/ml Ca Gluconate = 9 mg/mL elemental Ca
    ▫ Cardiac monitoring (bradycardia, shortened QT_c); close attention to infusion site if not central IV (risk of tissue necrosis if peripheral IV infiltration)
• If Mg low, replace with 0.1-0.2 mL/kg 50% Mg Sulfate

If not acutely symptomatic, can do more comprehensive evaluation first to determine cause and appropriate oral treatment.

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Treatment Protocol

Pediatric Endocrine Emergency Protocols

Thyroid Storm (Thyrotoxic Crisis)

Score ≥45 → highly suggestive of thyroid storm; 25–44 →thyroid storm; and <25 → thyroid storm unlikely.

Thermoregulatory dysfunction	Score
Temperature (C)	
37-37.7	5
37.7-38.3	10
38.3-38.8	15
38.8-39.3	20
39.4-39.9	25
40	30
Central nervous system effects	
Mild - agitation	10
Moderate - delirium, psychosis, extreme lethargy	20
Severe - seizure, coma	30
Gastrointestinal-hepatic dysfunction	
Moderate - diarrhea, nausea/vomiting, abdominal pain	10
Severe - unexplained jaundice	20
Cardiovascular dysfunction	
Tachycardia (heart rate/min)	
99-109	5
110-119	10
120-129	15
130-139	20
≥ 140	25
Congestive heart failure	
Mild - pedal edema	5
Moderate - bibasilar rales	10
Severe - pulmonary edema	15
Atrial fibrillation	10
Precipitant history	
Negative	0
Positive	10

Critical Sample: **Free T4 and TSH,** run STAT
• Other labs: TBII, TSI, TPO antibodies
• Useful to measure: CMP (glucose, liver function), CBC (acute infection?), urine pregnancy test

Acute Treatment
• Oxygen
• Adrenergic blockade (if not in CHF) - goal HR<100
  ▫ Propranolol (PO 2 mg/kg/day div q6-8h or IV 0.01 mg/kg/dose (max 5mg) over 10-15 min).
  ▫ If contraindication to propranolol (ie asthma), can use atenolol (cardioselective) with caution.
• IV fluids (cooled if necessary)
• Cooling blankets
• Antipyretics should be avoided when possible.
• Sedation – phenobarbital stimulated thyroid hormone clearance.
• Hemodynamic support/treat CHF if present.

Longer term treatment:
• Block thyroid hormone synthesis and release
  ▫ Thionamides – block thyroid hormone synthesis
    ♦ PTU (propylthiouracil): black box warning in peds
    ♦ Methimazole : ~0.8 mg/kg up to 60 mg loading, then ~0.4 mg/kg up to 30 mg every 6 hours (5, 10 mg tabs)
  ▫ High Dose Iodine – blocks release of already formed thyroid hormone
    ♦ Should be delayed until 1-2 hours after thionamide, to prevent transient increase in thyroid hormone levels
    ♦ SSKI (Lugol solution) 5 drops every 6-12 hours
    ♦ Use will necessitate delay in radioactive iodine treatment if that is desired
• Block peripheral conversion of T4 to T3
  ▫ Corticosteroids (stress dose HC or equivalent)
  ▫ Propranolol
  ▫ Iodinated contrast agents

Identify and treat precipitating event causing severe decompensation.
• Infection, pregnancy, emotional stress, DKA, pulmonary embolism, CVA, trauma, hypoglycemia.

Assess for underlying cause
• Grave's disease, functioning thyroid nodule ("hot nodule").

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Treatment Protocol

Pediatric Endocrine Non-emergency Recommendations

Please remember that this is just a list of lab tests often recommend prior to seeing patients. These are not physician orders. However, they are recommended prior to specialty appointments.

Congenital Adrenal Hyperplasia (CAH): meds are often adjusted based on labs/growth/bone age
- 17-OH-P (17-OH hydroxyprogesterone) often every 3-6 months Infants/toddlers often ordered q 1-3 months. (Goal: ~300-900)
- Androstenedione: Often every 3-6 months. Infants/toddlers often ordered every 1-3 months. (Goal: w/in normal range)
- Renin Activity: Often every 3-6 months. Renin hard to obtain in villages as must be sent frozen. (Goal: w/in normal range)
- Bone age after 2-3 years of age, then annually
- Accurate height and weight measurements each visit
- F/u in endo clinic every 3 to 6 months

Newborn with + FH of CAH but no ambiguous genitalia (ie no physical s/s of CAH):
- Newborn screen after 24hrs of life (in all infants).
- Serum 17OHP around day 3-4 of life (17OHP levels are normally high during the first 2-3 days after birth but by the 3rd day, levels in healthy infants fall and levels in affected infants rise to diagnostic levels).
- Alert state newborn screening program of patient at risk of CAH.
- Measure serum electrolytes prior to hospital discharge and at 5 and 10 days of age (hyponatremia and hyperkalemia are usually not present before 7 days of age and salt-losing crisis will typically occur in the second week of life).
- After newborn is sent home, parents should be cautioned to watch for signs of salt-losing crisis including vomiting, diarrhea, lethargy, dehydration, decreased PO intake.
- If positive newborn screen or elevated 17OHP, patient should be seen immediately and consult endocrinologist on call.

Congenital Hypothyroid/Hashimoto Thyroiditis/Goiter: meds are usually adjusted based on labs
General Information
- When a med dosage change is made, labs are usually repeated in 4-6 weeks and then again before the next clinic visit.
- Under certain circumstances, a thyroid ultrasound is sometimes ordered – not routine.
- Growth records on all children with any thyroid condition should be plotted.
- Often other thyroid labs are done as part of initial workup, but depends on what the presumptive diagnosis is. (TSI, Antithyroid peroxidase AB, etc.)

Specific Labs – Goal: normal Free T4 and TSH (infants should have a free T4 at least once).

Congenital Hypothyroidism
- FT4 & TSH 2weeks after dose started.
- 0-6 Months: FT4 & TSH every month
- 6-12 Months: FT4 & TSH every 2 months
- 1-3 Years: FT4 & TSH every 3 months

Acquired Hypothyroidism
- FT4 & TSH 4-6 weeks after starting med or after dose change
- FT4 & TSH every 6 months routinely

Central Hypothyroidism (ie, hypopituitarism)
- Free T4 every 4-6 months routinely

Hypopituitarism/Septooptic dysplasia/Optic nerve hypoplasia: (any combination of deficiencies of GH, TSH, ACTH, LH/FSH, ADH)
- Labs to follow depend on deficiency
- If panhypopituitarism
    - IGF-1 every 6-12 months if on GH (see below).
    - Free T4 every 4-6 months (see above).
    - May check BMP if concerns about inadequate adrenal hormone replacement.
    - Na levels if DI depend on thirst—if intact thirst, Na level every 3-4 months; if non-intact thirst, may need Na every 2-4 weeks.
    - LH/FSH pediatric, estradiol ultrasensitive or total testosterone at approximately age 12.
    - Accurate height and weight plotted on growth chart.

Work-up of Short Stature
- X-ray: bone age XR left hand/wrist
- bloodwork: TSH, free T4, TTG IgA, IgA, CMP, CBC, IGF-1, IGFBP-3, ESR. Also do chromosome microarray if a girl.
- urine: urinalysis (looking for RTA)

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Treatment Protocol

Pediatric Endocrine Non-emergency Recommendations

Children on Growth Hormone Injections: (GH deficiency/Turners/Noonan's/Prader-Willi Syn/SGA/Panhypopituitarism/CRF)

- Free T4 and IGF-1
  - Usually obtained q 6-12 months. Other labs including these may be done for initial diagnosis which may include GH stimulation tests.
  - GH dose will be adjusted based on IGF-1, growth pattern and weight.
- Bone age: includes left hand and wrist – please have radiology send via PACS to ANMC.
  - Initially and approximately every year.
- Accurate height and weight
  - Crucial to have correct plotting on growth record. (Lengths are done on infants and toddlers less than 2 years of age or if not able to stand well; plotted on 0-24mo WHO growth chart; heights are done when the child is over age 2 and plotted on the CDC 2-20 growth chart.)

Insulin Resistance/Obesity: goal is to prevent these children from becoming diabetic; not usually managed in endocrine clinic unless there is an endocrine condition (diabetes, prediabetes, PCOS, dyslipidemia); hypertension is managed by PCP or nephrology.

** Refer to publications in *Pediatrics*.

- Screening fasting plasma glucose, HbA1c every 2 yrs. OGTT if needed (Fasting Insulin **not** routine).
  - Fasting plasma glucose <100 is normal; 100-125 = prediabetes, >125 = diabetes.
  - OGTT-fasting plasma glucose, then drink 1.75 g/kg (max 75 g) of Glucola (within 10-15 min) and repeat plasma glucose in 2 hours.
    - Fasting 101-125 = impaired fasting glucose; over 125 = diabetes
    - 2 hour 141-199 = impaired glucose tolerance; over 199 = diabetes
  - HbA1c: 5.7% to 6.4% = prediabetes; >6.4%, likely diabetes but not necessarily diagnostic in children
- Fasting lipids initially and then per recommendation, usually every 2 years
  - If abnormal, repeat after 2 weeks but before 3 months (see below).
  - If still abnormal, dietitian referral.
- Liver function tests-AST/ALT every 2 years.
- Growth records with accurate height & weight plotted-also calculate and plot BMI.
  - Only obtain TSH & Free T4 initially if patient is showing growth deceleration.
- All patients should have initial evaluation and then monthly appointments with a dietitian whenever possible.
  - Daily activity, one hour/day with lifestyle change.
  - The more they see their primary provider and dietician, the more likely they are to comply with changes in dietary and activty levels.

Type 2 Diabetes

- At diagnosis: HgbA1C. Other labs depend on the individual case.
  - Criteria for dx of diabetes (per ADA):
    - FPG > 125 (no caloric intake for 8 hrs)
    - OR 2-hr glucose >199 during an OGTT
    - OR HbA1c >6.4% (**controversial for dx in children)
    - **the above 3 criteria require repeat testing in the absence of unequivocal hyperglycemia)
    - OR classic symptoms of hyperglycemia or hyperglycemic crisis and a random plasma glucose >199
- HbA1c every 3 months: Goal A1c <7%
- Fasting lipid panel soon after diagnosis and every 5 years if normal.
  - If abnormal, repeat after 2 weeks but before 3 months (see below).
  - If still abnormal, dietitian referral.
- Random urine microalbumin/creatinine soon after diagnosis and annually.
  - If abnormal, repeat with first morning urine MA/Cr or overnight collection; if still abnormal, referral to nephrology.
- Eye exam soon after diagnosis and annually.
- Dental exam annually.
- Dietician visit q 3-6 months.
- RN-CDE for education.

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Treatment Protocol

Pediatric Endocrine Non-emergency Recommendations

Type I Diabetes Mellitus

New Diagnosis: HbA1c, BMP, c-peptide, insulin level, other labs depending on patient and presentation (for diagnostic criteria, see above; type 1 distinguished from type 2 based on presentation, physical exam, sometimes on labs such as c-peptide and diabetes antibodies)

- Hemoglobin A1C: Every 3 months (lifetime standard of care for DM)
  - This lab helps determine the overall status of blood glucose readings over a 3 month period and gives an average of all readings.
  - A1c goal is generally 7%; infants and toddlers, tolerate A1c goal of ~8%.
- Fasting Lipid Panel
  - Initial check soon after diagnosis, once blood sugars stabilized, if over 2 years old.
  - Repeat fasting lipid panel every 5 years if initial is normal (starting at 9 years old).
  - If abnormal, fasting lipid panel should be repeated at least 2 weeks later but less than 3 months later to confirm.
  - If confirmed abnormal, referral to dietician for lifestyle/diet modification.
- Thyroid and Thyroid Auto Antibodies
  - Obtain Free T4 & TSH at diagnosis and annually.
  - Antibodies not routine, but if done it includes thyroid peroxidase AB.
- Celiac screening
  - TTG IgA and total serum IgA soon after diagnosis.
  - Annually for the first 5 years, more frequent if symptoms.
- Eye exam
  - Initial eye exam soon after diagnosis to detect cataracts or major refractive errors
  - Annual eye exam should start at:
    - 9 years if 5-year duration diabetes.
    - 11 years if 2-year duration diabetes.
    - After 2 years duration if diabetes diagnosed in an adolescent.
- Urine microalbumin/creatinine screen
  - Spot urine microalbumin/creatinine annually after age 10 years.
  - If abnormal, repeat with first morning void or an overnight urine collection.
- Flu Vaccine recommended yearly.
- Dental evaluation recommended yearly.
- RN CDE referral for all aspects of Diabetes education. Work closely with CDE if patient is on Lantus + rapid acting insulin intensive regimen-ideally.
- Dietitian CDE for dietary/CHO counting/activity/insulin (learning to count carbs).
- All children should see Pediatric Endocrinologist every 3 months (may alternate depending on needs of family/primary provider).
  - Families need to know when to do Urine Ketones: if BS over 300 or if ill.

Table 8–1. Acceptable, Borderline-High, and High Plasma Lipid, Lipoprotein and Apolipoprotein Concentrations (mg/dL) For Children and Adolescents*

NOTE: Values given are in mg/dL; to convert to SI units, divide the results for TC, LDL-C, HDL-C and non-HDL-C by 38.6; for TG, divide by 88.6.

Category	Acceptable	Borderline	High+
TC	< 170	170-199	≥ 200
LDL-C	< 110	110-129	≥ 130
Non-HDL-C	< 120	120-144	≥ 145
ApoB	< 90	90-109	≥ 110
TG			
0-9 years	< 75	75-99	≥ 100
10-19 years	< 90	90-129	≥ 130

Category	Acceptable	Borderline	Low*
HDL-C	> 45	40-45	< 40
ApoA-I	>120	115-120	<115

*Values for plasma lipid and lipoprotein levels are from the National Cholesterol Education Program (NCEP) Expert Panel on Cholesterol Levels in Children. Non-HDL-C values from the Bogalusa Heart Study are equivalent to the NCEP Pediatric Panel cut points for LDL-C. Values for plasma apoB and apoA-I are from the National Health and Nutrition Examination Survey III.

†The cut points for high and borderline-high represent approximately the 95th and 75th percentiles, respectively. Low cut points for HDL-C and apoA-I represent approximately the 10th percentile.

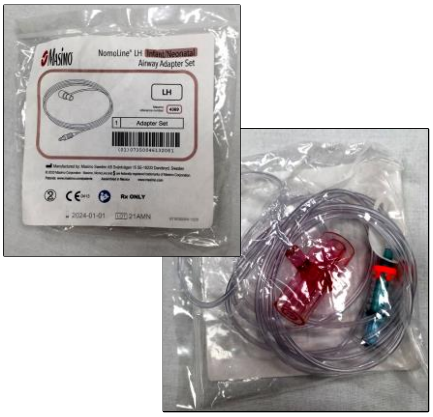
Yukon-Kuskokwim HEALTH CORPORATION

How to Set Up ET CO_2 Monitoring on the SpaceLab™ Monitor for Ventilated Pediatric Patients

What You Need

SpaceLab™ Monitor

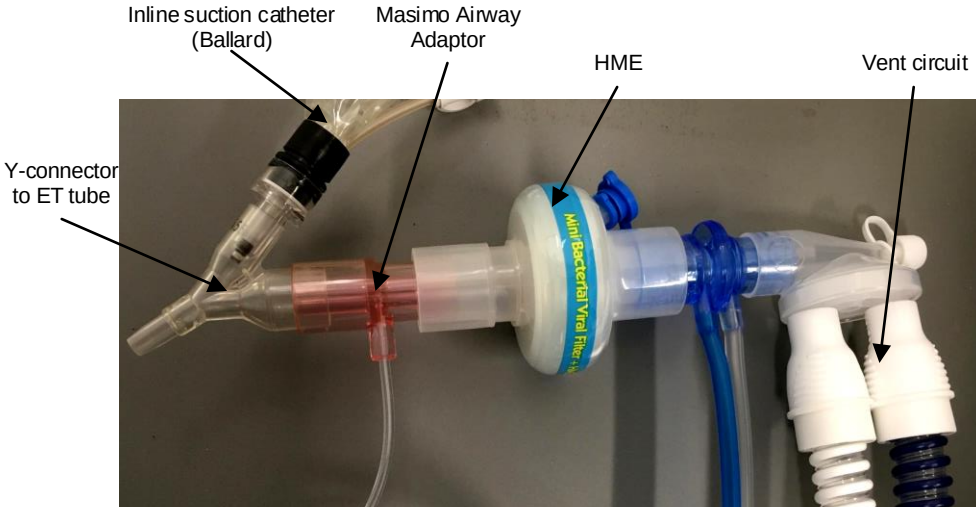
Masimo Airway Adaptor (front and back of infant/neonatal package shown here)

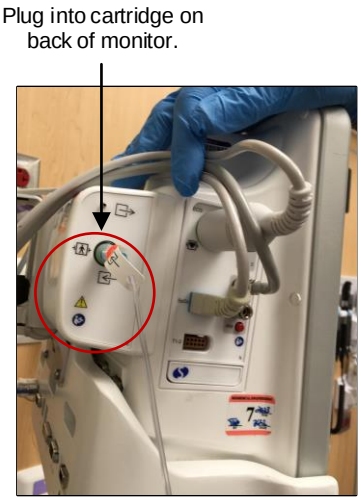


Heated Moisture Exchanger (HME)

Vent Circuit

How to Set it Up





Troubleshooting: Things to Try if Unable to Get Reading

- Swap the cartridge on the back of the monitor with one from another room. (See photo to right.) Some monitors are not defaulted to monitor CO2 and must be set up: (1) After plugging cartridge in, screen will show "NO SAMPLING LINE – Check system." (2) Press "GAS." (3) Press "SETUP." (4) Press "RESUME CO2."
- Try new Masimo Airway Adaptor.
- Calibrate the monitor by pressing "cal" → "gas."
- Make sure there is no moisture in the adaptor.
- Check that all connections fit tightly.

Cartridge

This resource is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guidelines Committee 11/27/22.
If comments about this resource, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

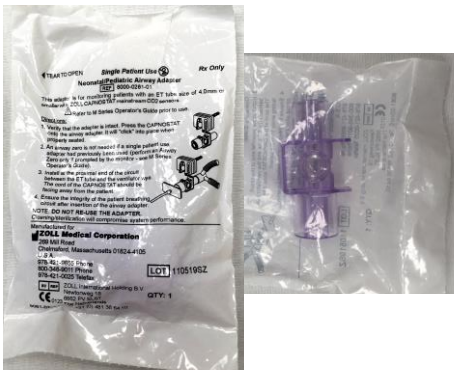
How to Set Up ET CO_2 Monitoring on the Zoll™ Monitor for Ventilated Pediatric Patients

What You Need

Zoll™ Monitor with this cable

Zoll Airway Adaptor

- Neonatal/Pediatric adaptor (shown) is purple and is for ETT sizes 4.0 or smaller.
- Pediatric/Adult adaptor is clear and is for ETT sizes larger than 4.0.



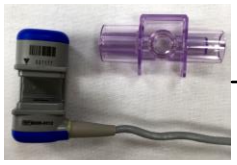
Heated Moisture Exchanger (HME)

Vent Circuit

How to Set it Up

Plug cable into back of monitor.

Allow two minutes for monitor to warm up.



Inline suction catheter (Ballard)

Zoll Airway Adaptor

HME

Vent circuit

Y-connector to ET tube

Troubleshooting: Things to Try if Unable to Get Reading

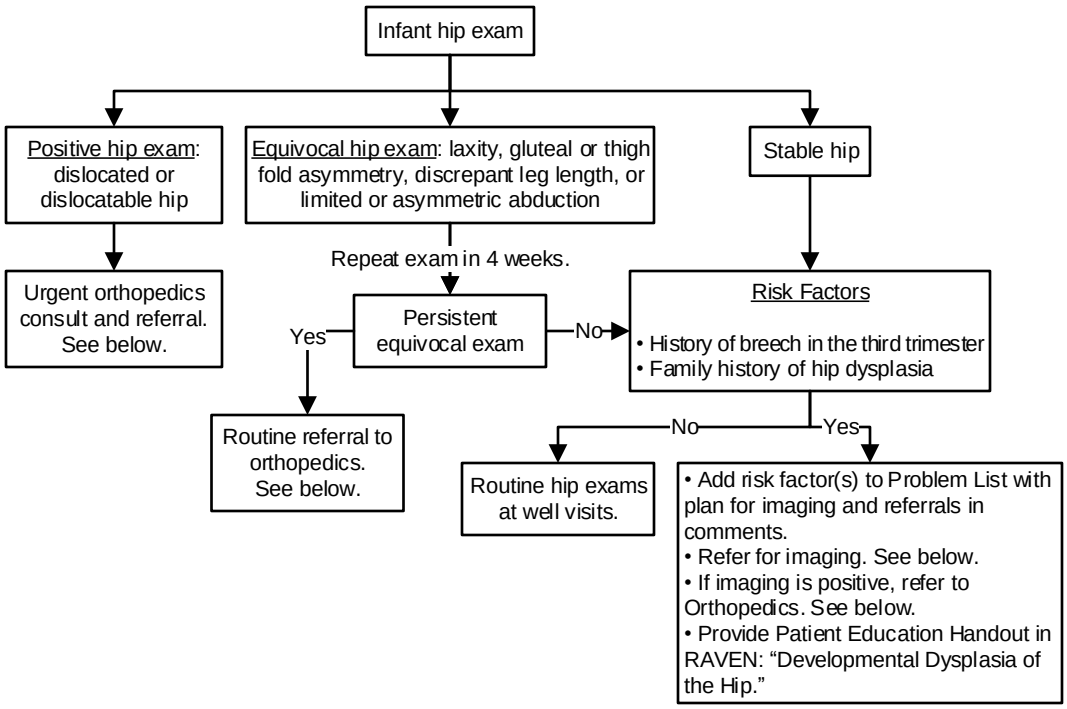
- Make sure the Zoll has had two minutes to warm up.
- Try new Zoll Airway Adaptor.
- Make sure there is no moisture in the adaptor.
- Check that all connections fit tightly.

This resource is designed for the general use of most patients but may need to be adapted to meet the special needs of a specific patient as determined by the medical practitioner.
Approved by Clinical Guidelines Committee 11/27/22.
If comments about this resource, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Infant Hip Exam and Surveillance Protocol



Barlow and Ortolani Tests

• The Barlow test is for laxity of the hip joint. It should be performed gently with no posterior force. If positive, you will feel laxity or the hip will sublux or dislocate.
• The Ortolani test is the maneuver to reduce a dislocated hip. If positive, you will feel a clunk.
• Per the AAP, "One can think of the Barlow and Ortolani tests as a continuous smooth gentle maneuver starting with the hip flexed and adducted, with gentle anterior pressure on the trochanter while the hip is abducted to feel whether the hip is locating into the socket, followed by gently adducting the hip and relieving the anterior pressure on the trochanter while sensing whether the hip slips out the back. The examiner should not attempt to forcefully dislocate the femoral head."
• See **this video** for AAP guidance on these exam maneuvers.

Orthopedics Consults & Referrals

1. Consultation:
   • Beneficiary patients: contact ANMC orthopedic surgeon on call at (907) 563-2662 (*97) or send message through Tiger Connect.
   • Non-beneficiary patients: contact Ken Thomas, MD at Anchorage Fracture & Orthopedics at (907) 563-3145.

2. Referral:
   • Place an order for "Refer to Orthopedics External" with brief history. Note the orthopedist who was consulted. Indicate where the referral should be sent.
   • Send a RAVEN Communication to Chronic Peds Case Manager Pool about the referral and level of importance.

Imaging

Patient must have either ultrasound or X-ray, as below.

1. Hip ultrasound: 6 weeks to 4 months of age.
   • Performed at ANMC for beneficiaries and Alaska Regional Hospital for non-beneficiaries.
   • Place order for "Refer to Pediatric Clinic External (MRI / EEG / VFSS / Hip US)" with brief history.
   • If patient is a beneficiary, request follow-up appointment at Southcentral Foundation Team B.
   • If patient is not a beneficiary, request follow-up appointment with a pediatric provider in Bethel.
   • Send a RAVEN Communication to Chronic Peds Case Manager Pool about the referral and level of importance.

2. X-ray, AP pelvis: over 4 months of age. (Note: in premature infants, ossification of femoral heads is delayed. May use corrected gestational age of 4 months or later.)
   • Performed at YKHC.
   • Place an order for "XR Pelvis (Pelvis AP only)" and put in comments "AP view with hips in neutral position to rule-out developmental dysplasia of the hip."
   • Send a RAVEN Communication to Chronic Peds Case Manager Pool stating the order was placed and requesting an appointment for this with a pediatric provider in Bethel.

Approved by Clinical Guideline Committee 12/9/22.
Click **here** to see the supplemental resources for this guideline.
If comments about this protocol, please contact Leslie_Herrmann@ykhc.org.

Yukon-Kuskokwim HEALTH CORPORATION

Treatment Protocol

Induced Sputum Collection Protocol

This protocol has been designed to maximize efficacy, use the least invasive measures that are still effective, and minimize hospital length of stay. ***Please follow these steps to optimize sample quality.***

☐ 1. **Premedicate** with albuterol 2.5 mg/3mL (0.083%) solution – 3 mL via nebulizer to induce bronchodilation, facilitate delivery of hypertonic saline, and help prevent bronchospasm during delivery of hypertonic saline. May substitute MDI with mask and spacer. ***DO NOT COMBINE with hypertonic saline***.

☐ 2. Administer 5 mL of 3% hypertonic saline solution via nebulizer ***over a period of at least 10 minutes***. Prolonged administration has been shown to yield better samples.

☐ 3. If patient has copious nasal secretions, consider nasal suction with olive tip.

☐ 4. Obtain sample using mucus specimen trap with suction catheter appropriate for patient size. Measure from tip of nose to the tragus to cricoid cartilage for depth of catheter insertion and obtain sample via suction of the nasopharynx. The goal is to induce a gag and then a cough. *Sample is expected to be blood- tinged*.

(Note: This process may induce a vagal response. The patient should be sitting up with feet supported or lying down, NOT standing. If vasovagal syncope does occur, immediately place the patient supine with the legs elevated.)

☐ 5. Place specimen in appropriate collection container for desired test.

a. For rule-out pulmonary tuberculosis:

i. Collect three induced sputum samples ***at least 8 hours apart*** – one must be first morning sample (fasting goal 6-8 hours). Send for Acid Fast Bacilli Smear and Culture. Sample must be in an AFB container (conical with orange top), with a minimum volume of 2 mL (although 5 mL is preferable); sterile water may not be added to dilute sample.

ii. Two samples should also be sent for Xpert MTB-RIF. This test requires 3-5 mL of mucous in a sterile specimen cup. ***DO NOT DILUTE***, or "saline wash" nares during suction for this specimen.

iii. AFB and Xpert may be obtained at the same time; if quantity not sufficient for both tests, prioritize the AFB.

b. Standard sputum cultures do not have a minimum volume and can be placed in a sterile specimen cup.

☐ 6. Label with full name of collector and date and time of the collection. This should be written ***below the barcode***, NOT beside it. ***If not labelled correctly, state lab will reject specimen.***

☐ 7. Collect specimen in RAVEN. Confirm the correct accession number and deselect any additional (future) accession numbers. ***Ensure the collector ID, date, and time entered into RAVEN are an exact match to the written label.***

Contraindications to collecting an induced sputum: oxygen saturation of <92% despite supplemental oxygen therapy, inability to protect the airway, severe bronchospasm, or designation as inappropriate by the clinician for another reason (eg., midface trauma). After exclusion or resolution of these conditions, sputum induction can be considered.

Special considerations:

This procedure can also be used for patients who are able to follow instructions but do not have a productive cough. In these cases, suction may or may not be necessary.

While there are no contraindications due to age, for infants younger than 6 months, the sensitivity of induced sputum samples is lower than that of gastric aspirates. Thus, three first morning gastric aspirates collected 24 hours apart or a single first morning gastric aspirate followed by 2-3 induced sputum samples eight hours apart may be preferable. Please consult a pediatric TB officer to discuss this plan.

NOTE: Gastric aspirate samples cannot be sent for sputum culture or Xpert MTB-RIF.

Young infants with CPT1A-AV may need dextrose-containing mIVF while NPO. Very young infants may not tolerate fasting intervals of 6-8 hours; consider allowing breastmilk up to 4 hours pre-procedure and/or clear liquids up to 2 hours pre-procedure.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Protocol

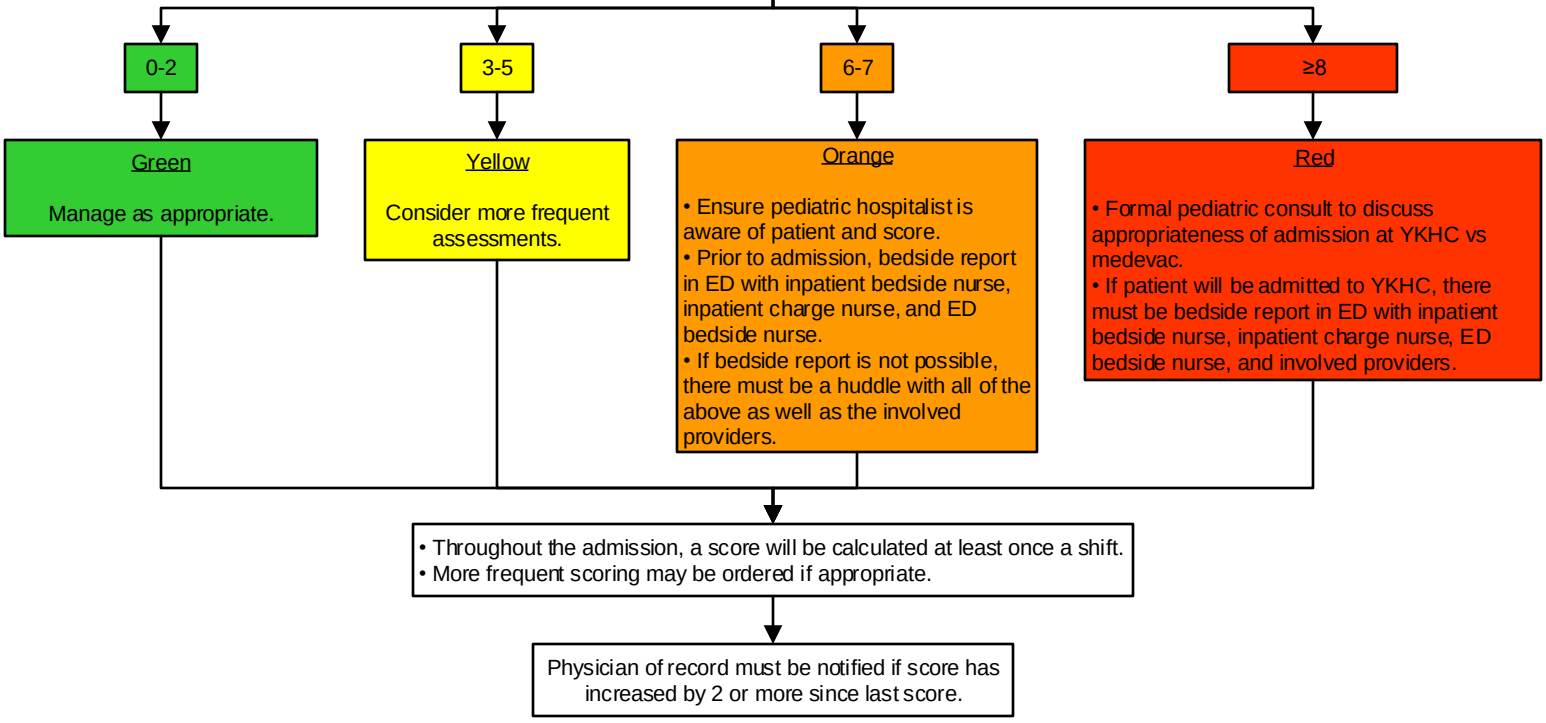
mPEWS Protocol for Pediatric Patients

mPEWS (modified Pediatric Early Warning System)

• YKHC uses the mPEWS to monitor admitted pediatric patients. Scoring is required prior to and throughout admissions to screen patients for acuity and help determine appropriate disposition.
• This is a scoring system that can help identify patients at risk for deterioration. YKHC uses it as a communication tool to highlight these patients.
• The score is calculated using the Ad Hoc form called "mPEWS," found in three places: (1) in ER encounters, under "mPEWS;" (2) in inpatient encounters, under "Assessments" → "mPEWS;" and in other encounters in "Asmt/Tx/Monitoring" folder.

Scoring details can be found at this link.

• The ED will calculate a score prior to admission to the inpatient unit using the most recent vital signs and several aspects of PMH. If PMH unclear, the provider of record will clarify.
• Upon admission, the Inpatient Unit will calculate a score using the first vital signs taken.



• Throughout the admission, a score will be calculated at least once a shift.
• More frequent scoring may be ordered if appropriate.

Physician of record must be notified if score has increased by 2 or more since last score.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Documentation Requirements for Pediatric Nutritional Supplements

Documentation Requirements for Pediatric Nutritional Supplements

The following resource is from the Medicaid Certificate of Medical Necessity.

Medicaid, Medicare, and other insurers have specific requirements for medical provider documentation. If those requirements are not met, nutritional supplements will not be covered.

Use the autotext "..nutritionalsupplementdocumention."

Documentation Requirements for the Prescription of Nutritional Supplements:

The following objective documentation is required to show the medical necessity of the nutritional supplement being prescribed.

This information needs to appear in the body of the medical provider's chart notes:

- Diagnosis of the patient including ICD-10 code.
- Product being prescribed. (Example: Pediasure)
- Why product is medically necessary.
- Goal or target weight for the patient.
- Total daily caloric requirement.
- Total daily calories obtained from ingestion (oral) foods.
- Total daily calories to be obtained from nutritional supplement.

Documentation Example

Pediasure is medically necessary for this child.
Diagnosis: dysphagia (R13.10), G-tube dependence
Product: Pediasure
Medical Necessity: Patient has severe dysphagia. He is undergoing oral feeding therapy but is unable to take any degree of sufficient calories by mouth and is thus entirely dependent on a G-tube for nutrition. Pediasure will give him the nutrition he needs to survive.
Goal/Target Weight: currently at target weight of XX kg (XXth percentile for age when corrected for prematurity). Target weight along this trajectory in one year will be XX kg.
Total Daily Caloric Requirement: XX calories/day (usually estimate 100-120 cal/kg/day – adjust based on growth)
Total Calories Obtained from Oral Intake: 0 calories/day
Total Daily Calories to be Obtained from Nutritional Supplement: XX calories/day

For resources and information about nutritional supplements in former premature babies, please see the ANMC Guideline on Preterm Infant Nutrition through 2 Years Old.

Yukon-Kuskokwim HEALTH CORPORATION

Clinical Resource

Suspected Septic Arthritis & Osteomyelitis

Please see the **ANMC Pediatric Acute Hematogenous Septic Arthritis/Osteomyelitis Guideline**.

- Please note: this guideline was designed at ANMC, where recommended labs, MRI, and operative management are immediately available and antibiotics can be started after these interventions.
- When evaluating a patient at YKHC with possible septic arthritis or osteomyelitis, strongly consider empiric antibiotics if there is going to be a delay of >6 hours to perform the recommended work-up (joint aspiration, surgical drainage, etc.), as noted in ANMC's guideline.
- Always discuss antibiotics with ANMC consultants and advocate for empiric usage if appropriate. Keep in mind possible delays, including weather, transport difficulties, and other emergencies. If deferring antibiotics, ensure that patient is closely monitored for development of worsening infection.
- Always feel free to consult YKHC pediatric hospitalist with any questions.