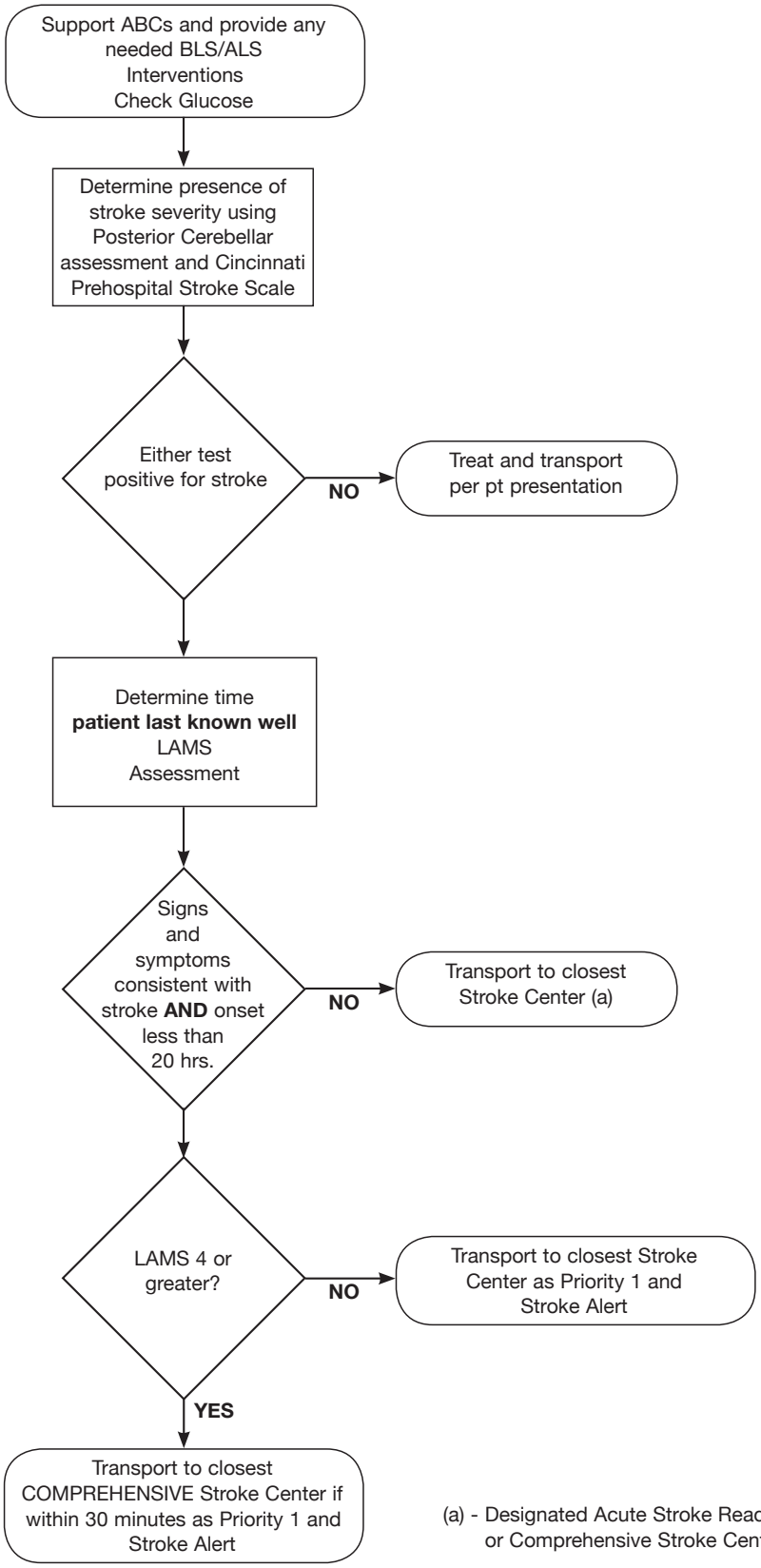
B. LAMS Stroke Research Protocol (NEW '19)

EMS STROKE ALGORITHM



(a) - Designated Acute Stroke Ready, Primary, or Comprehensive Stroke Center

1. Initiate General Patient Care.

2. Presentation
   Patient may present with numbness or weakness (often on one side only), difficulty speaking, sudden onset of dizziness or loss of balance, blurred vision (including intermittent loss of vision in one or both eyes, which may have resolved upon arrival of EMS), or a severe, unexplained headache. May be accompanied by seizures or altered mental status.

3. Treatment
   a) Position patient with head elevated at 30 degrees.
   b) If the patient has a positive Posterior Cerebellar Assessment OR Cincinnati Stroke Scale AND can be delivered to the hospital within 20 hours* of when patient was last known well, transport the patient to the closest Designated Acute Stroke Ready, Primary, or Comprehensive Stroke Center. If this adult patient also has a LAMS score of 4 or greater, they are to be transported to a Comprehensive Stroke Center or the endovascular capable Sinai Hospital. If there is not one within 30 minutes, then go to the closest Designated Acute Stroke Ready or Primary Stroke Center if within 30 minutes.

The Cincinnati Prehospital Stroke Scale

(Kothari R, et al. Acad Emerg Med 1997; 4:9866-990.)

Facial Droop (have patient show teeth or smile):
- Normal – both sides of face move equally
- Abnormal – one side of face does not move as well as the other side

Arm Drift (patient closes eyes and holds both arms straight out for 10 seconds):
- Normal – both arms move the same or both arms do not move at all (other findings, such as strength of grip, may be helpful)
- Abnormal – one arm does not move or one arm drifts down compared with the other

Abnormal Speech (have the patient say “you can’t teach an old dog new tricks”):
- Normal – patient uses correct words with no slurring
- Abnormal – patient slurs words, uses the wrong words, or is unable to speak

Posterior Cerebellar assessment: Balance and Eyes: patient complains of sudden onset of loss of balance or dizziness, or has sudden vision loss (including intermittent loss of or blurred vision) indicates a stroke affecting the posterior cerebellar circulation.

If Posterior Cerebellar assessment OR Cincinnati Prehospital Stroke Scale is positive, perform the Los Angeles Motor Scale (LAMS). Relay LAMS score to the receiving hospital during Stroke Alert notification.

The Los Angeles Motor Scale (LAMS)	
Facial droop	
Absent	0
Present	1
Arm drift	
Absent	0
Drifts down	1
Falls rapidly	2
Grip strength	
Normal	0
Weak grip	1
No grip	2

IF PATIENT MEETS ABOVE STROKE CRITERIA, THIS PATIENT IS A PRIORITY 1 PATIENT AND REQUIRES NOTIFICATION OF THE NEAREST DESIGNATED ACUTE STROKE READY, PRIMARY, OR COMPREHENSIVE STROKE CENTER AS SOON AS POSSIBLE TO ALLOW HOSPITAL PREPARATION. DURING THE CONSULTATION WITH THE RECEIVING FACILITY, THE PROVIDER SHALL USE THE VERBIAGE, “STROKE ALERT WITH A LAST KNOWN WELL TIME OF XX:XX” AS THE UNIVERSAL METHOD OF NOTIFYING THE FACILITY THAT THE PATIENT MEETS THE STROKE INCLUSION CRITERIA.

PROVIDERS SHOULD OBTAIN AND DOCUMENT A CONTACT TELEPHONE NUMBER FOR ONE OR MORE INDIVIDUALS WHO HAVE DETAILS ABOUT THE PATIENT’S MEDICAL HISTORY SO THAT THE PHYSICIAN MAY OBTAIN AND VALIDATE ADDITIONAL PATIENT INFORMATION.

WHILE STROKES DURING PREGNANCY OR SHORTLY AFTER GIVING BIRTH ARE RARE, THERE HAS BEEN A SIGNIFICANT RISE REPORTED IN THE LITERATURE. MOTHERS-TO-BE AND POSTPARTUM MOTHERS HAVE AN INCREASED RISK.

c) Use glucometer and treat if glucose less than 70 mg/dl.
d) Establish IV access with LR.
e) If the patient is hypotensive, obtain medical consultation.
f) Consider obtaining blood sample using closed system.
g) Do not treat hypertension in the field.

4. Continue General Patient Care.

C. PEDIATRIC DESTINATION DECISION TREE (PDTree)

1. PURPOSE

This evidence-based decision support tool is designed to assist providers in choosing the facility type most likely to deliver definitive care for pediatric patients requiring transport. This represents an ideal destination choice. Destination selection for any individual patient will include other factors, including transport time, unit availability, and patient/family requests.

2. INDICATIONS

Current Maryland Medical Protocols for EMS Providers (MMP) should take precedence. The PDTree should be applied to patients considered "pediatric" ages by the MMP. For medical pediatric patients, this is birth up to the 18th birthday. For trauma patients, the PDTree may be used for patients from birth up to the 15th birthday. For this research protocol, both trauma and medical pediatric patients will be called "child."

3. CONTRAINDICATIONS

a) Pregnant patients
b) Newly born infants should be transported (with their mother) to the closest appropriate facility able to receive the post-partum mother.

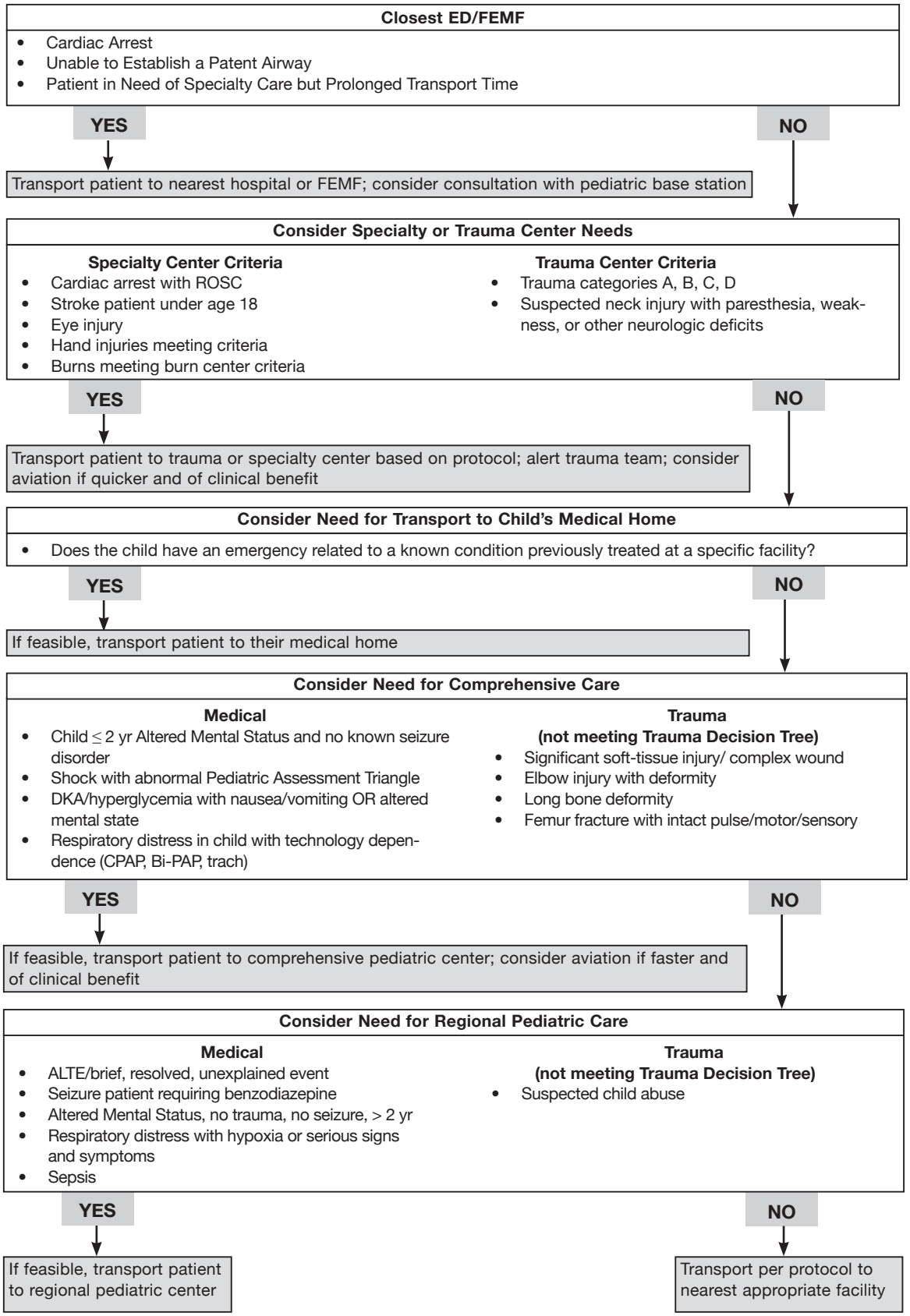
4. DEFINITIONS

a) Pediatric Base Stations currently designated by MIEMSS include Johns Hopkins Hospital Children's Center and Children's National Medical Center. These Pediatric Base Stations may be consulted at any time by any Maryland EMS provider for on-line medical direction and assistance with destination decision-making.
b) Specialty or Trauma Center is defined by current MIEMSS facility designations for Trauma, Eye, Burn, and Pediatric Specialty Centers.
c) Medical Home is defined as the ED/hospital where the patient has their medical records and has established care by specific physicians to address the patient's unique needs. Existing MMP suggests that EMS providers should transport (repatriate) the patient to that hospital as long as that hospital is not more than 15 additional minutes further than nearest hospital (or greater if allowed for by the EMS Operational Program).
d) Comprehensive Pediatric Center is defined as a hospital ED with pediatric ICU on-site.
e) Regional Pediatric Care Center is defined as a hospital ED with inpatient pediatric services and/or a designated pediatric ED staffed by pediatric specialty trained physicians 24/7 or a Freestanding Emergency Medical Facility (FEMF) with designated pediatric ED staffed by pediatric specialty trained physicians 24/7.
f) Nearest Appropriate Facility is defined as the closest hospital ED or FEMF that is available as an EMS transport destination.
g) Feasibility of transport to the suggested destination type is left to the discretion of the EMS Operational Program.

5. PEDIATRIC DESTINATION DECISION TREE (See page 450-5)

CHILDREN WHO ARE IN CARDIAC ARREST, OR IF A PATENT AIRWAY CANNOT BE ESTABLISHED, MUST BE TRANSPORTED TO THE NEAREST APPROPRIATE HOSPITAL-BASED EMERGENCY DEPARTMENT OR DESIGNATED FREESTANDING EMERGENCY MEDICAL FACILITY.

PD Tree


Closest ED/FEMF
• Cardiac Arrest
• Unable to Establish a Patent Airway
• Patient in Need of Specialty Care but Prolonged Transport Time
YES
NO
Transport patient to nearest hospital or FEMF; consider consultation with pediatric base station
Consider Specialty or Trauma Center Needs
Specialty Center Criteria
• Cardiac arrest with ROSC
• Stroke patient under age 18
• Eye injury
• Hand injuries meeting criteria
• Burns meeting burn center criteria
Trauma Center Criteria
• Trauma categories A, B, C, D
• Suspected neck injury with paresthesia, weakness, or other neurologic deficits
YES
NO
Transport patient to trauma or specialty center based on protocol; alert trauma team; consider aviation if quicker and of clinical benefit
Consider Need for Transport to Child's Medical Home
• Does the child have an emergency related to a known condition previously treated at a specific facility?
YES
NO
If feasible, transport patient to their medical home
Consider Need for Comprehensive Care
Medical
• Child ≤ 2 yr Altered Mental Status and no known seizure disorder
• Shock with abnormal Pediatric Assessment Triangle
• DKA/hyperglycemia with nausea/vomiting OR altered mental state
• Respiratory distress in child with technology dependence (CPAP, Bi-PAP, trach)
Trauma
(not meeting Trauma Decision Tree)
• Significant soft-tissue injury/ complex wound
• Elbow injury with deformity
• Long bone deformity
• Femur fracture with intact pulse/motor/sensory
YES
NO
If feasible, transport patient to comprehensive pediatric center; consider aviation if faster and of clinical benefit
Consider Need for Regional Pediatric Care
Medical
• ALTE/brief, resolved, unexplained event
• Seizure patient requiring benzodiazepine
• Altered Mental Status, no trauma, no seizure, > 2 yr
• Respiratory distress with hypoxia or serious signs and symptoms
• Sepsis
Trauma
(not meeting Trauma Decision Tree)
• Suspected child abuse
YES
NO
If feasible, transport patient to regional pediatric center
Transport per protocol to nearest appropriate facility