

# MaineHealth TeleStroke Network

## 2024 TeleStroke Packet

1. Acute Stroke Need to Know
2. TeleStroke Code Stroke Process
3. TNK Contraindications
4. BE-FAST and FAST-ED Score
  - with tips & tricks for comatose and difficult to examine patients
5. Dual Antiplatelet Therapy in TIA and Acute Ischemic Stroke
6. MH Guidelines for the Administration of IV Thrombolysis for Stroke

### ***Mission of TeleStroke:***

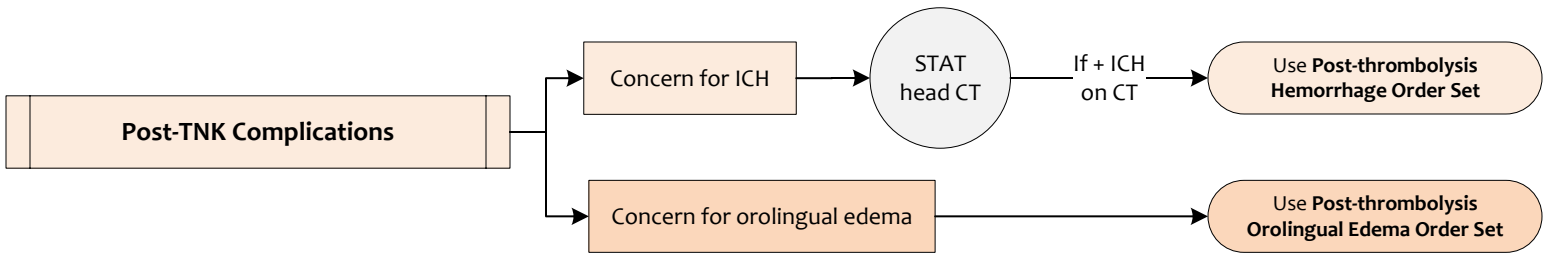
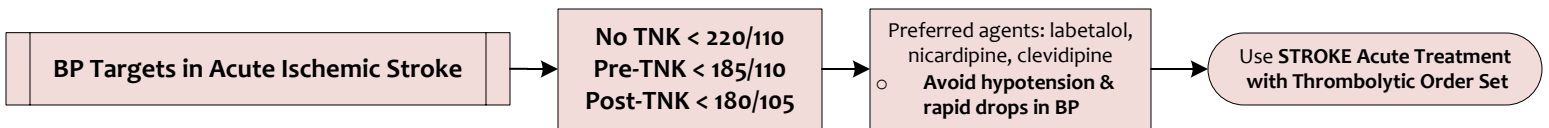
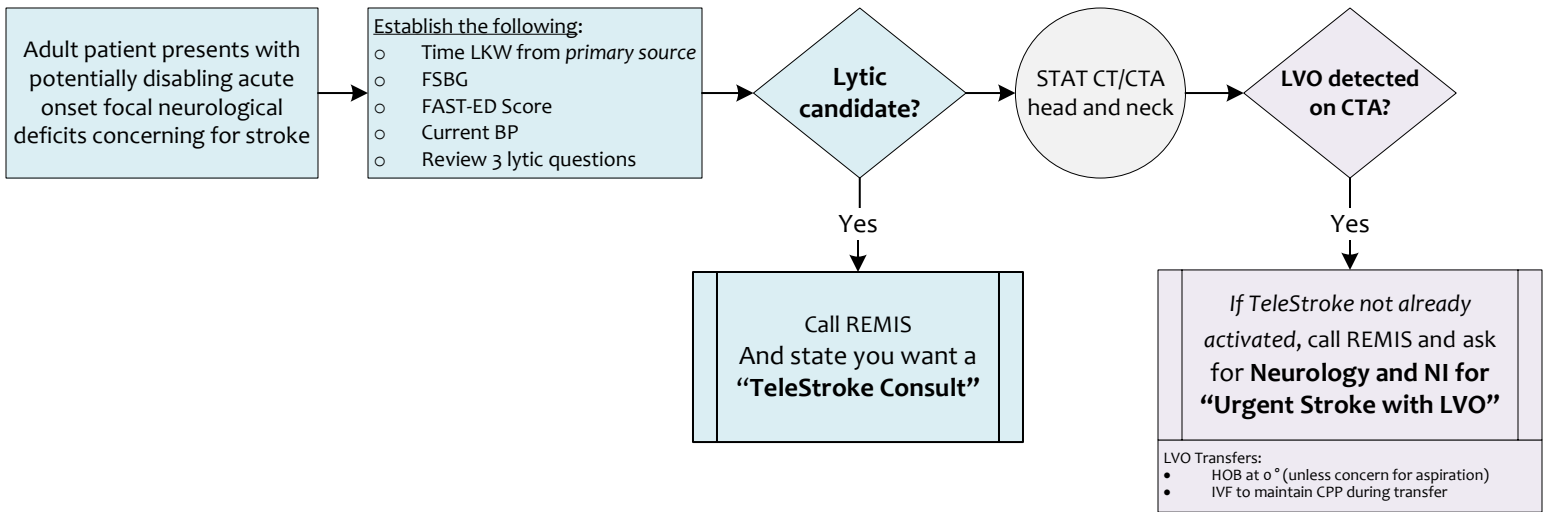
*To provide emergent access to Neurological consultation for acute stroke management with a focus on the appropriate and timely use of IV thrombolysis and identification of patients eligible for endovascular therapies (EVT) for stroke.*

*The information in this packet is intended to help facilitate appropriate and consistent care of patients presenting with symptoms of acute stroke.*

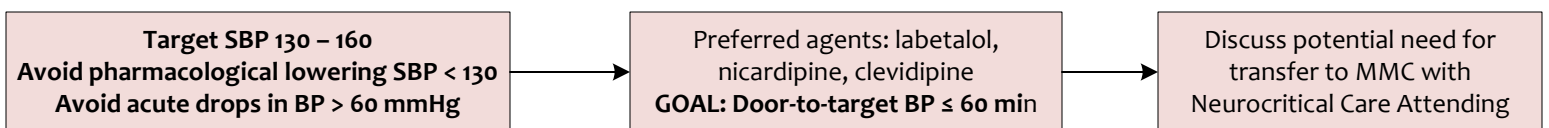
*These recommendations do not supersede physician judgment, nor do they reflect the individual needs of every patient.*

# ACUTE STROKE MANAGEMENT NEED TO KNOW

## ACUTE ISCHEMIC STROKE



## INTRACEREBRAL HEMORRHAGE



LKW = last known well (the time pt last seen without current deficits)  
CPP = cerebral perfusion pressure  
LVO = large vessel occlusion  
NI = neurointerventionalist

# TeleStroke CODE STROKE Process

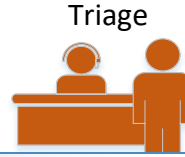
Arrival via ambulance



Prenotification  
FSBG

Time LKW  
FAST-ED Score

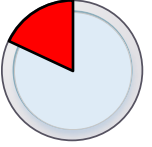
Arrival via walk-in



Triage

Time LKW  
BEFAST Score

Pre-hospital notification  
T - 10 min



Arrival T = 0

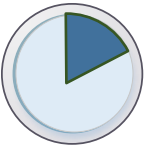
Acute assessment  
BP, FSBG, FAST-ED, LKW

Patient assessed to be stable & presentation consistent with **potentially disabling stroke**



Obtain Clinical History & Ask the 3 Lytic Questions (see TNK Contraindications)

DTA Goal = 10 min



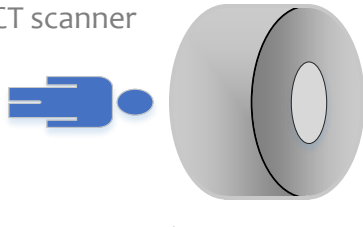
Use the ED Acute Stroke Order Set

D2CT

en route to CT

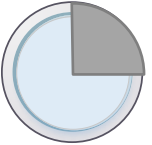
If LKW ≤ 4.0 hr & no lytic contraindications = **Possible Lytic Candidate**  
→ Enter **OneCall** order & Call **REMIS**  
Ask for **“TeleStroke Consult”**

CT scanner



DTCT Goal = 15 min

If **concern for acute stroke** call radiologist and request **STAT** read

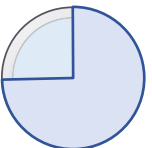


REMIS 207-662-2950,  
Option 1

after CTA  
(if TeleStroke not already consulted)

If LVO detected on CTA & infarct not already completed on head CT = **Possible EVT Candidate** →  
Enter **OneCall** order & Call **REMIS**  
Ask for **“Urgent Stroke with LVO”**

DTN Goal = 45 min



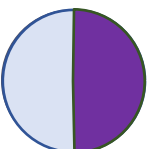
45 min Goals:

- TNK administered to lytic candidates
- Imaging reviewed by radiology

If pt determined to be a good candidate for EVT, transfer patient to MMC STAT

HOB at 0° unless concern for aspiration (then HOB at 30°) and IVF with NS to maintain euolemia during transfer

DIDO Goal = 90 min



FSBG = fingerstick blood glucose  
LKW = last know well  
D2CT = direct-to-CT  
CTA = CT angiogram  
LVO = large vessel occlusion  
DTA = door-to-activation  
DTCT = door-to-CT  
DTN = door-to-needle (TNK)  
DIDO = door-in-door-out (for thrombectomy cases only)

# TNK Contraindications

For patients with potentially disabling symptoms thought most likely to be secondary to ischemic stroke

TNK is contraindicated

Lytic is not recommended/  
potentially harmful

Clinical presentation/  
medical history

- LKW > 4.5h
- Symptoms of SAH

- BP cannot be lowered to < 185/110
- Sx concerning for infective endocarditis
- Known or suspected aortic dissection
- **On anti-amyloid immunotherapy**
- **Anti-amyloid immunotherapy** (IV infusions): aducanumab (Aduhelm), lecanemab (Leqembi), donanemab (enrolled in the TRAILBLAZER Trial)

3 Lytic Questions

Have you had any  
recent trauma, surgeries or  
procedures?

- Severe head trauma w/in 3 mo

- Intracranial or intra-spinal surgery w/in 3 mo
- Major non-cranial surgery or trauma within 14 days with uncontrollable bleeding site (e.g. internal organs)

Have you had any  
bleeding problems?

- H/o intracranial hemorrhage\*
- Structural GI malignancy or GIB w/in 21 days

\*Not all ICH are absolute contraindications to lytics – **discuss with neurology**

Are you taking any  
blood thinners?

- Warfarin with INR > 1.7
- Heparin with an elevated aPTT
- Therapeutic dose LMWH within 24 hrs
- DOAC taken within 48 hrs

**DOACs:** Dabigatran (Pradaxa), Rivaroxaban (Xarelto), Apixaban (Eliquis), Edoxaban (Savaysa)

## FAST-ED with TIPS and TRICKS

		0	1	2	Comatose	Difficult to examine or confused patient	Score
<b>F</b>	<b>Facial palsy</b>	Normal	Unilateral droop	N/A	Score: 1	If confused and nonverbal, use noxious stimulation to elicit grimace and score if asymmetric	
<b>A</b>	<b>Arm weakness</b> Extend arm with palm facing down	No drift x 10 sec	Partial drift to bed	Drifts to the bed or no movement	Score: 2	If unable to follow directions, use observation of spontaneous arm movements and hold up arms and note any effort against gravity or asymmetry of drop	
<b>S</b>	<b>Speech changes</b> Note pt's speech; ask pt to name 3 common items and show 2 fingers w/o visual cues	Normal	Impaired	Incomprehensible	Score: 2	Choose score based on ability for the examiner to understand any attempts at communication and whether or not patient is following any commands	
<b>T</b>	<b>Time LKW</b> (not scored)	N/A	N/A	N/A	N/A	N/A	
<b>E</b>	<b>Eye deviation</b> Horizontal gaze only	Normal	Gaze preference	Forced gaze deviation	Use Doll's eye maneuver	Make eye contact and move your face from side to side and note if the patient tracks you or use Doll's eye maneuver	
<b>D</b>	<b>Denial/Neglect</b> Test extinction to DSS and anosognosia	Normal	+ Extinction No anosognosia	+ Extinction + Anosognosia	Score: 0	Score only if present – note if pt only tends to stimuli on one side (typically the left hemisphere) or only orients eyes to one hemifield	
	<b>TOTAL SCORE</b>						

**Comatose** = patient is not alert or interactive despite verbal or noxious stimuli

**Doll's eye maneuver** = Hold eyes open and turn head side-to-side – Normal = eyes move all the way to the right and left; 1 = eyes only move to one direction; 2 = eyes are deviated to one direction and do not cross midline when head is turned in the opposite direction

**DSS** = double-simultaneous stimulation: With eyes closed, touch the patient on both arms at the same time and ask if they feel both sides; + Extinction = Unable to feel one side when both sides are touched at the same time

**Anosognosia**: Show the patient the hand on the side of their weakness and ask them "Whose hand is this?" + Anosognosia = Pt does not recognize their hand as their own

## BE-FAST

### Triage Nurse screens Walk-In Patients for symptoms of stroke

Symptoms due to stroke are usually **sudden** in onset and otherwise **unexplained** (i.e. by trauma, intoxication, pre-existing condition)

<b>B</b>	<b>E</b>	<b>F</b>	<b>A</b>	<b>S</b>	<b>T</b>
<b>Balance</b>	<b>Eyes</b>	<b>Face</b>	<b>Arm</b>	<b>Speech</b>	<b>Time</b>
Sudden unexplained loss of balance, dizziness or vertigo	Loss of vision in one eye or one side of vision or Double vision	Smile is asymmetric	Arm/hand (or leg) weakness	Slurred speech or trouble speaking or understanding speech	Time to activate a Code Stroke*

\*Any of these findings should prompt urgent evaluation by an ED physician or LIP, who would then make the decision whether or not to activate a Code Stroke

**BE-FAST** was developed by Intermountain Healthcare, as an adaptation of the FAST model implemented by the American Stroke Association. Reproduced with permission from Intermountain Healthcare. Copyright 2011, Intermountain Healthcare.

# Dual Antiplatelet Therapy in TIA and Acute Ischemic Stroke

For patients with acute ischemic stroke who are not candidates for thrombolysis

**Non-disabling Acute Ischemic Stroke**  
(ARAMIS)

**Minor stroke or high-risk TIA**  
(CHANCE, POINT, THALES)

**Symptomatic Atherosclerotic Vascular Disease**

w/o disabling stroke  
(SAMMPRIS, CASSISS) (THALES)

**NIHSS  $\leq 5$ ,**  
Including LOC 1a 0 and  
 $\leq 1$  point on single-item scores

**ABCD<sub>2</sub> Score  $\geq 4$**   
OR  
**NIHSS  $< 4$  (CHANCE/POINT)**  
**NIHSS  $< 5$  (THALES)**

TIA or nondisabling stroke due to **high-grade intracranial artery stenosis**  
OR  
TIA secondary to  **$> 50\%$  intracranial or extracranial atherosclerotic vascular disease**

- Clopidogrel 300 mg load, then 75 mg qd x12-21 days
- Plus aspirin 81 mg qd\*

- Clopidogrel 300 mg load, then 75 mg qd x 21d (CHANCE/POINT)
- OR ticagrelor 180 mg load, 90 mg bid x30d (THALES)
- Plus aspirin 81 mg qd\*

**70-99% symptomatic intracranial stenosis:**

- Clopidogrel 300 mg load, then 75 mg qd x90d

**50-99% extracranial stenosis:**

- Clopidogrel 300 mg, then 75 mg qd x21d
- OR ticagrelor 180 mg, then 90 mg bid x 30d

- Plus aspirin 81 mg qd\*
- Plus high-intensity statin

Started within 4.5 hours LKW

Start ASAP, but DAPT is effective at reducing recurrent stroke risk in patient presenting up to 72 hours after onset of stroke symptoms

Discuss with **Neurointerventionalist only if recurrent symptoms when already on maximal medical management**

## ABCD<sub>2</sub> Score (risk stratification for TIA)

▪ Age greater than 60	1 point
▪ BP greater than or equal to 140/90	1 point
▪ Clinical features:	
▪ Unilateral weakness w/ or w/o speech impairment	2 points
▪ Speech impairment w/o unilateral weakness	1 point
▪ Neither motor nor speech impairment	0 points
▪ Duration	
▪ Greater than or equal to 60 min	2 points
▪ 10-59 min	1 point
▪ Less than 10 min	0 points
▪ Diabetes	1 point

- \*If pt is aspirin naïve, consider initial loading dose of aspirin 324 mg
- If the pt is NPO; give aspirin 300 mg PR
- If the pt is NPO or fails swallow screen and clopidogrel/ticagrelor and/or statin are recommended, **place an NGT for administration**
- High-intensity statin:
  - Atorvastatin 40-80 mg qHS
  - Or rosuvastatin 20-40 mg qHS

Bleeding risks must also be taken into consideration when using DAPT and ultimate recommendation will be the discretion of the treating physician

## MaineHealth Clinical Practice Guidelines for the Administration of IV Thrombolysis for Treatment of Suspected Acute Ischemic Stroke

1. MaineHealth recognizes that IV thrombolysis is the standard of care for the treatment of patients presenting with symptoms of acute stroke in whom the benefits are felt to outweigh the risk by the treating physician.

2. In March 2021 the use of tenecteplase (TNK) became an acceptable alternative to alteplase (tPA) for acute stroke treatment at Maine Medical Center after which use began to spread to other hospitals throughout MaineHealth. **The use of “tPA” below is considered to be acceptably substituted with “TNK”.**

3. MaineHealth does not require written consent for the use of thrombolysis to treat patients with presumed acute ischemic stroke within the FDA approved guidelines or within the scope of guidelines published by the American Heart Association/American Stroke Association.<sup>1</sup> However, an informed discussion with the patient and/or patient representative regarding risks and benefits of thrombolysis use for stroke is highly recommended, and written consent should be obtained where feasible. Where written consent is not feasible, documentation of this discussion in the patient’s medical record is highly recommended.

4. Patients presenting with aphasia or other cognitive impairments that do not allow for an informed discussion regarding the risks and benefits of thrombolysis should not be denied this treatment if, to the best of the treating physician’s ability, the patient is determined to be a good candidate for thrombolysis.

- **AHA/ASA Recommendation: “In an emergency, when the patient is not competent and there is no immediately available legally authorized representative to provide proxy consent, it is recommended to proceed with IV tPA in an otherwise eligible patient with acute ischemic stroke.”<sup>1</sup>**

4. There are many clinical situations where a patient presents with symptoms consistent with a stroke, but ultimately are found to have another explanation for the deficits. We call these “stroke mimics.” Differentiating stroke from another cause can be difficult, especially given the urgency of the initial work up and goal of rapid thrombolytic administration.

- **AHA/ASA Recommendation: “The risk of symptomatic intracranial hemorrhage in the stroke mimic population is quite low; thus, starting intravenous tPA is probably recommended in preference over delaying treatment to pursue additional diagnostic studies.”<sup>1</sup>**

5. Time-Specific Number Needed to Treat Estimates for Tissue Plasminogen Activator Therapy in Acute Stroke<sup>2</sup>

Lansberg MG et al. <i>Stroke</i> . 2009;40:2079-2084	Plain language explanation for patients
<p><b>Figure.</b> Number of patients who benefit and are harmed per 100 patients treated in each time window.</p>	<p><b>0-90 min:</b> “For every 100 patients with acute stroke treated with thrombolysis within 1 ½ hours of onset of symptoms, 29 will benefit and 1-2 will be harmed”</p> <p><b>91-180 min:</b> “For every 100 patients with acute stroke treated with thrombolysis within 1 ½ to 3 hours of onset of symptoms, 23 will benefit and 2-3 will be harmed”</p> <p><b>181-270 min:</b> “For every 100 patients with acute stroke treated with thrombolysis within 3-4.5 hours of onset, 17 will benefit and 3-4 will be harmed”</p>

**References:** 1. AHA/ASA Scientific Rationale for the Inclusion and Exclusion Criteria for Intravenous Alteplase in Acute Ischemic Stroke. *Stroke*.2016;47:581-641  
2. Treatment Time-Specific Number Needed to Treat Estimates for Tissue Plasminogen Activator Therapy in Acute Stroke Based on Shifts Over the Entire Range of the Modified Rankin Scale. *Stroke*.2009;40:2079-2084.