Maine, NH, VT
NECC, 2019

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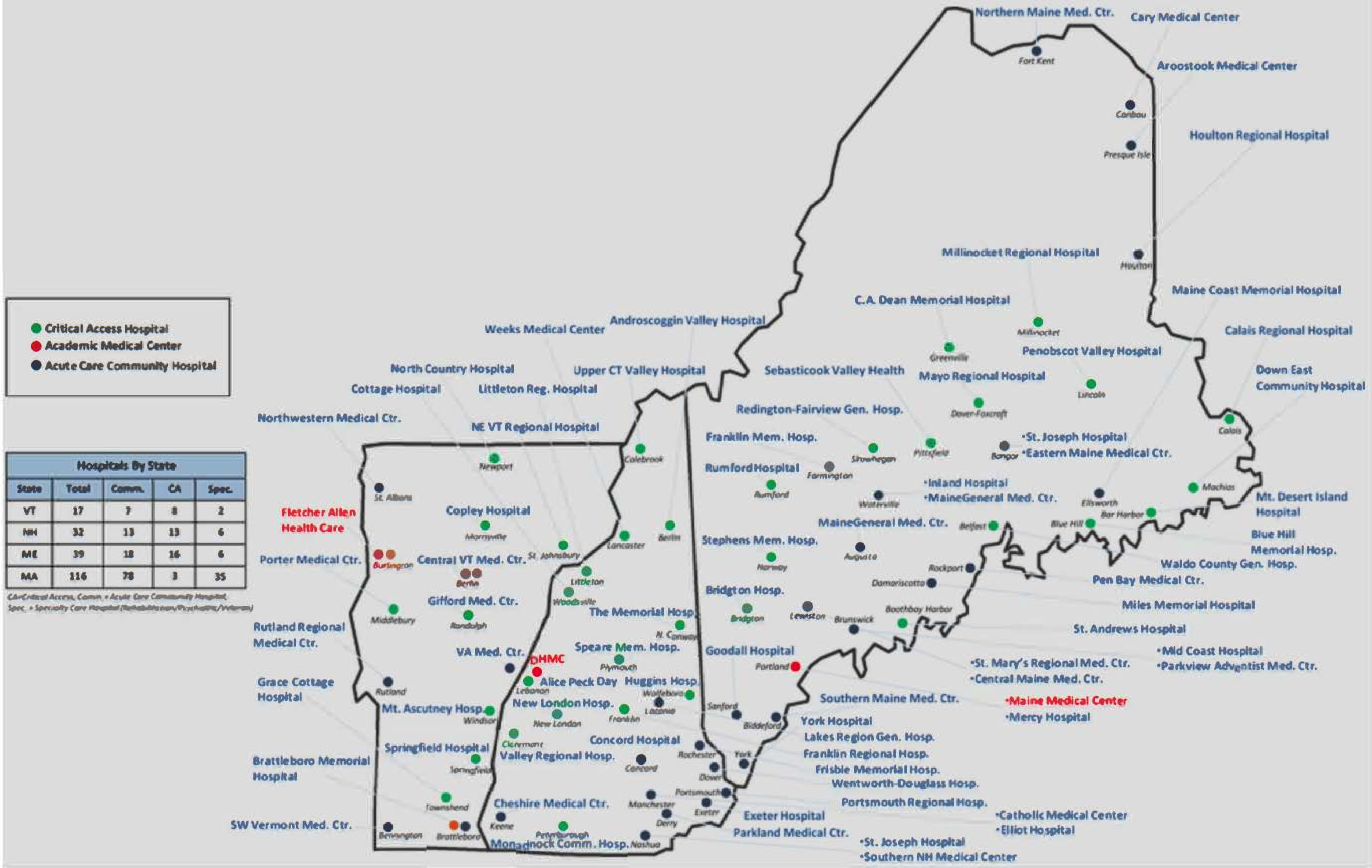
Umm..
what's next?

- Roll call (and "1 thing" that could improve stroke care in our region)
- Current structure for stroke care planning our states
- Updated data on thrombolysis and ME
- Updated tri-state EMS protocol
- Training for FAST-ED scale
- Documenting FAST-ED
- Update from "Non-acute" care participants
- Discussion (4:00)
- ACTION plan



Hospitals By State				
State	Total	Comm.	CA	Spec.
VT	17	7	8	2
NH	32	13	13	6
ME	39	18	16	6
MA	116	78	3	35

- Maine Stroke Alliance
- NH Stroke Collaborative
- VT Stakeholders
- Tri-State EMS protocol Workgroup
- NECC Quarterly Workgroup

NECC Quarterly Workgroup								
	CT	NJ	RI	NH	VT	ME	MA	NY
							Regional Representatives	
Neurologist/ Interventionalist	Chas Wira, MD Amre Nouh, MD	John Halperin, MD	Arshad Iqbal, MD Mahesh Jayaraman, MD	Tim Lukovits, MD	Matt Siket, MD	Jane Morris, MD	Lee Schwamm, MD Thabele Leslie-Mazwi, MD Brian Silver, MD Edward Feldman, MD	Robert Sawyer, MD Sara Rostanski, MD Alan Boulos, MD Steve Levine, MD Gene LaTorre, MD
ED/EMS	Richard Kamin, MD, FACEP	Mark Merlin, DO, EMT-P, FACEP	Ken Williams, MD, FACEP, FAEMS	Deb Pendergast Vicki Blanchard, BS	Dan Wolfson, MD, FACEP, ABEM/EMS	Matt Sholl, MD, MPH	Jonathan Burstein, MD Sophia Dyer, MD	Michael Redlener, MD, FAEMS David Ben-Eli, MD, FACEP, FAEMS Johnathan Berkowitz, MD Michael Jorolemon, DO Jeremy Cushman, MD Ethan Brandler, MD, MPH, FACEP Chirstopher Zammit, MD Michael Dailey, MD
DOH		Abate Mammo, PhD Scot Phelps, JD, MPH, Paramedic	Michelle Barron Magee			Tina Love	Anita Christie, RN, MHA	Ian Brissette, PhD

SUSPECT STROKE: with any of the following new or sudden symptoms and/or complaints:

- Unilateral motor weakness or paralysis to face, limb or side of body, including facial droop
- Unilateral numbness
- Dizziness/vertigo
- Acute visual disturbance, loss of vision in one eye or one side of vision
- Difficulty with balance or uncoordinated movements of a limb, gait disturbance
- Difficulty with speech understanding or production (slurred or inappropriate use of words)
- Severe headache for no obvious reason
- Altered mental state

EMT STANDING ORDERS

- Routine Patient Care.
- Complete the Prehospital Stroke Screening Tool
  - If Prehospital Stroke screen is positive, complete stroke severity score (e.g., FAST-ED) to determine probability of a large vessel occlusion (LVO)
- Establish Stroke Alert Criteria and notify receiving hospital of "Stroke Alert" with findings from the screening tools, thrombolytic checklist and time last known well (TLKW).
- For symptomatic:
  - Administer oxygen to maintain O_2 between 94% - 99%
  - Elevate head of stretcher to 30 ° (unless patient requires spinal motion restriction);
  - Minimize on-scene time; do not delay for ALS intercept;
  - Acquire and transmit 12-lead ECG, if available;
  - Correct glucose if < 60 mg/dL. See Hypoglycemia Protocol 2.8A or 2.8P.
  - Rapid transport to the most appropriate facility based on the destination guidance utilizing your local stroke plan.

AEMT & PARAMEDIC STANDING ORDERS

- Establish IV (18 gauge catheter & right AC preferred site) and administer 250 mL 0.9% NaCl bolus.

Prehospital Stroke Screening Tool

Stroke screen is positive if any abnormal finding in facial droop, arm drift or speech.

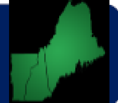
Time Last Known Well: ________ *(If patient awoke with symptoms, time last known to be at baseline)*

Witness: Best contact number for witness: ( ) -

Prehospital Stroke Scale Examination	Please check: Normal	Abnormal
Facial Droop: *Have the patient smile and show teeth.* Normal: Both sides of the face move equally well.. Abnormal: One side of the face does not move as well as the other.	Normal	Abnormal
Arm Drift: *Have the patient close their eyes and hold arms extended for 10 seconds.* Normal: Both arms move the same, or both arms don't move at all. Abnormal: One arm doesn't move, or one arm drifts down compared to the other.	Normal	Abnormal
Speech: *Ask the patient to repeat a phrase such as, "You can't teach an old dog new tricks".* Normal: Patient says the correct words without slurring. Abnormal: Patient slurs words, says the wrong word, or is unable to speak.	Normal	Abnormal
Blood Glucose:		

Protocol Continues

Northern NE Protocol Group has taken extreme caution to ensure all information is accurate and in accordance with professional standards in effect at the time of publication. These protocols, policies, or procedures MAY NOT BE altered or modified.



If stroke screening scale is positive calculate stroke severity score using FAST-ED

Stroke Severity Score (FAST-ED)		
A FAST-ED greater than or equal to 4 is considered high probability for an LVO		
Assessment	**Points**	**Score**
Facial Palsy (ask the patient to smile)		
No facial droop or only minor paralysis on one side of the face	0	
Partial or complete paralysis of one side of the face	1	
Arm Weakness (arms out with palms up for 10 secs)		
No drift, or both arms slowly move down equally	0	
Arm drift or some effort to lift the affected arm against graivity	1	
No effort against gravity or no movement in one or both arms	2	
Speech Change (ask the patient to name 3 common items; ask them to show you 2 fingers)		
Able to name at least 2 of 3 objects and follow command	0	
Names none, or only 1 of the 3 items correctly	1	
Unable to "show two fingers" to command	1	
Time - when was patient last know well?		
Eye Deviation		
Able to look to both sides without difficulty	0	
Able to move eyes horizontally in both directions but not without clear difficulty	1	
Gaze is fixed to one side and does not move	2	
Denial/Neglect (only do if there is arm weakness AND commands followed)		
Recognizes weakness in their weak arm and recognizes their weak arm	0	
Unable to recognize weakness when asked "Are you weak anywhere"	1	
Does not recognize own arm when asked "Whose arm is this?"	1	
Total		

Establish Stroke Alert Criteria

Stroke Alert Criteria – Please check Yes or No:

Yes	No	
☐	☐	Blood glucose is or has been corrected to greater than 60 mg/dL?
☐	☐	Deficit unlikely due to head trauma or other identifiable causes?
☐	☐	Positive Prehospital Stroke Screen: - and time last known well is less than 4.5 hours **OR** - FAST-ED score is greater than or equal to 4 AND time last known well is less than 24 hours

Stroke Alert Criteria – If yes to all criteria determine appropriate destination, contact receiving hospital and report a STROKE ALERT with time last know well, FAST-ED score & thrombolytic checklist results

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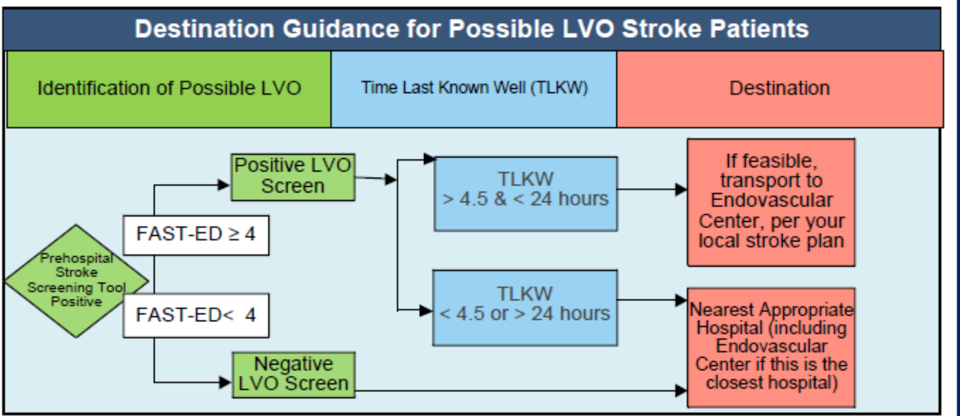
Destination Guidance for Possible LVO Stroke Patients



Work with your regional endovascular center when developing your local stroke plan.

Thrombolytic Checklist for patients eligible for thrombolytics (t-PA), try to complete the following:

YES	NO	Has the patient had any of the following:
☐	☐	1. Severe head trauma or intracranial or spinal surgery within the past 3 months?
☐	☐	2. Major non-cranial surgery or trauma within 14 days with uncontrolled bleeding (e.g.; internal organs)?
☐	☐	3. Spontaneous (non-traumatic) intracranial hemorrhage at any time in the past?
☐	☐	4. Is the patient taking any anticoagulants, including oral or injectable mediations? If yes, clarify when last dose was taken (see PEARLS below)

PEARLS for Anticoagulants:

- Patients may recognize anticoagulants as "blood thinners". Ask about anticoagulants including warfarin (Coumadin or Jantoven), Heparin (IV/IM - including Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), apixaban (Eliquis), betrixaban (Bevyxxa) or edoxaban (Savaysa) and immediately communicate to hospital staff.
- **Please note**, medication manufacturers are producing new anticoagulants frequently.

PEARLS:

- **Stroke requires time sensitive interventions. Time = Brain**
- Every minutes of acute stroke = about 2 million neurons lost.
- Transport witness, family or caregiver or obtain witness best phone number for hospital staff to verify time of symptom onset or Time Last Known Well (TLKW).
- TLKW is the last time patient known to be at their neurological baseline. If patient awakes with symptoms, TLKW is time patient was last known to be at their neurological baseline – Ask if patient got up during the night and was at baseline!
- Consider **stroke mimics** including: migraine, hypoglycemia, seizures, intoxication, sepsis cerebral infectious process, toxic ingestion, neuropathies (Bell's palsy), neoplasms, hypertensive encephalopathy.

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FAST-ED training

Documenting FAST-ED score in EMS reports

Patient was transferred to ambulance cot via draw sheet. Patient was secured with straps. Patient was placed into GCA85. 12 lead EKG showing Atrial fibrillation via monitor interpretation. IV access 18 Left AC after 1 failed attempt in Right AC. BGL obtained 123 mg/dl. Patient was given a 250 mL bolus of 0.9% NSS per protocol. Vitals were taken and monitored as previously noted. Patient was transported to DHMC-ED for further evaluation and care without any further changes in condition. Stroke Alert was called and DHMC was alerted of 15 min ETA. Patient to room 4 on arrival. Patient was transferred to Hospital stretcher via draw sheet. Patient care and report to ED team. Dr. A. Odermann signed acceptance of patient. Patient's daughter signed for patient due to patient's condition and AMS at time of transport. GCA85 cleared the call and returned to quarters in service without further incident.

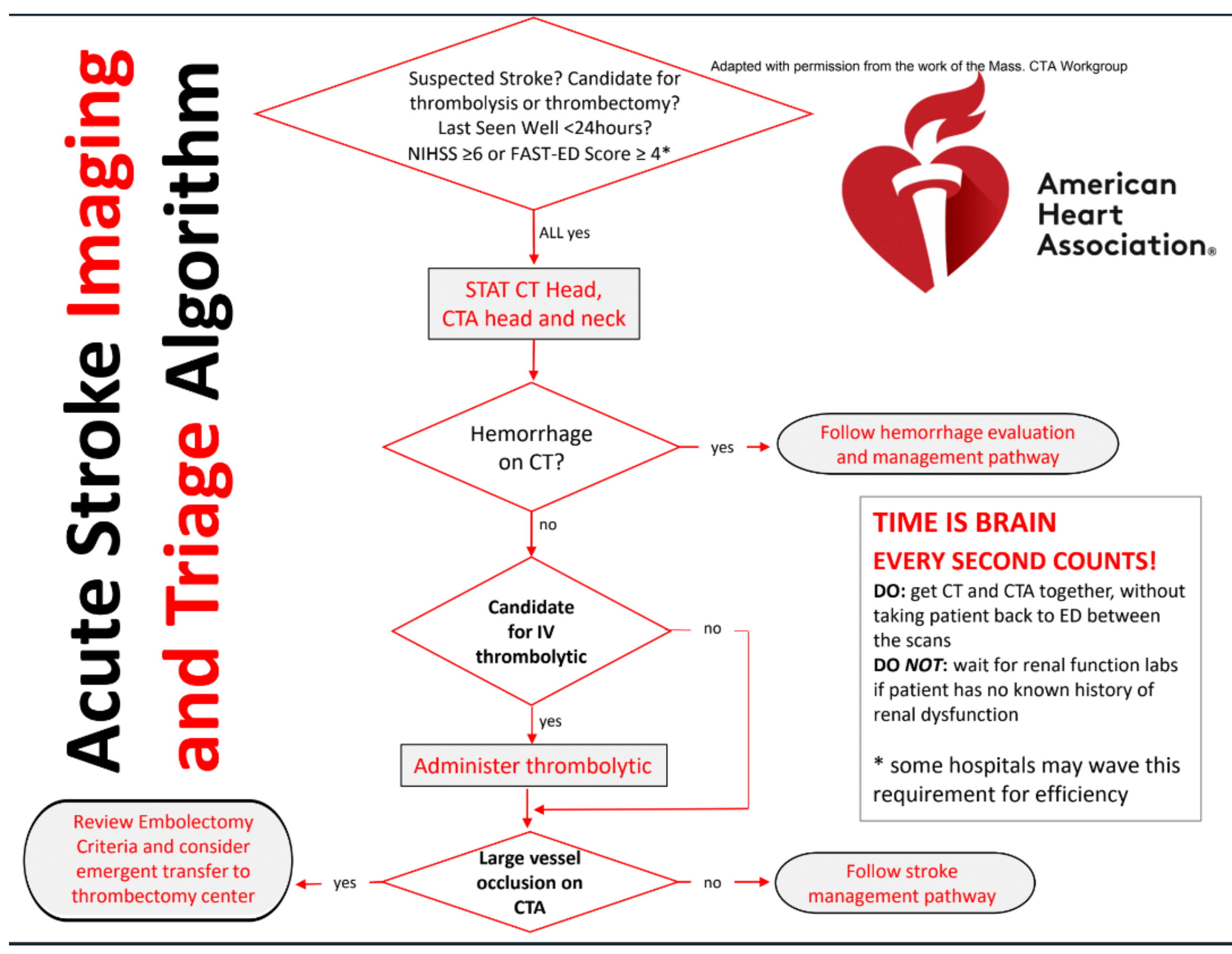
Patient Vitals

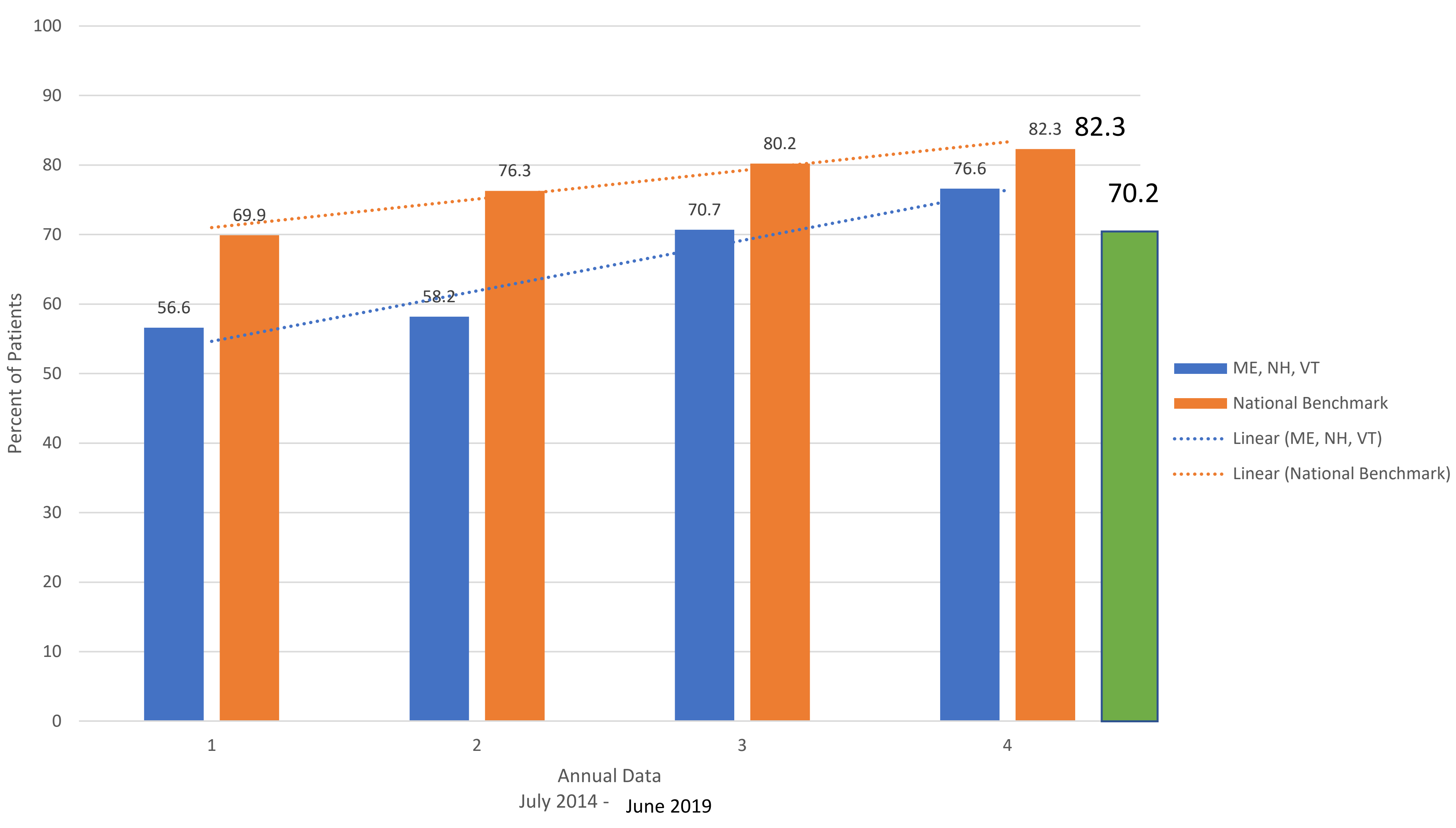
PTA	Time	B/P	Pulse	Resp.	Effort	SpO2	SpO2 Qual.	Temp	CO	EtCO2	AVPU	GCS	Pain	Stroke Scl	BGL	Limb
Y		180/100		24												
Y		201/106		24												
N	19:14															
N	19:16	200/111	86	20		98		94.8				13			123	
N	19:26	196/132	80	20		98						13				
N	19:37	181/75	78	20		94						13				
N	19:46	185/84	77	20		94						13				
N	19:57	175/78	66	20		94						13				

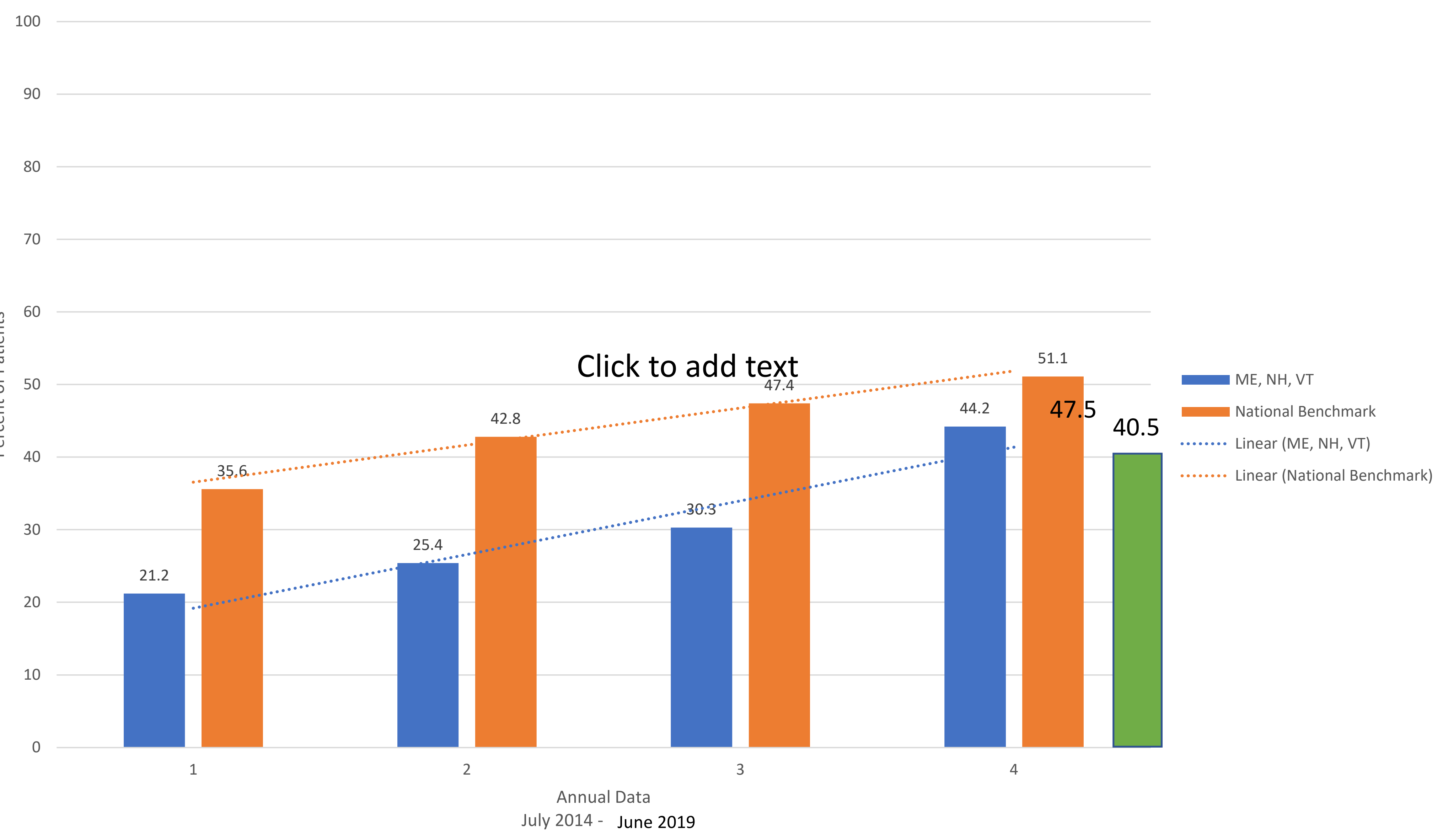
Past Medical History

MEDICATION ALLERGIES	Generic Name
Other	

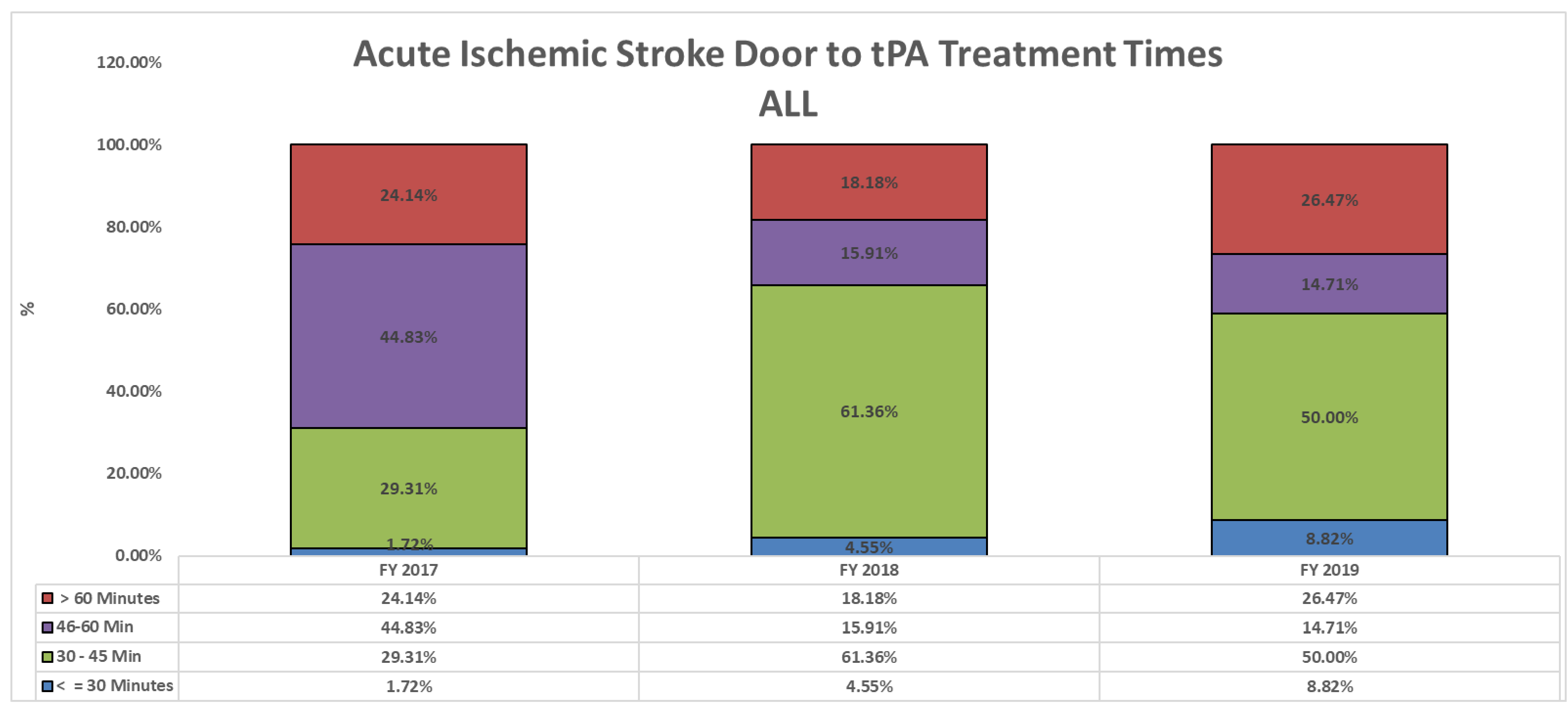
AHA imaging algorithm



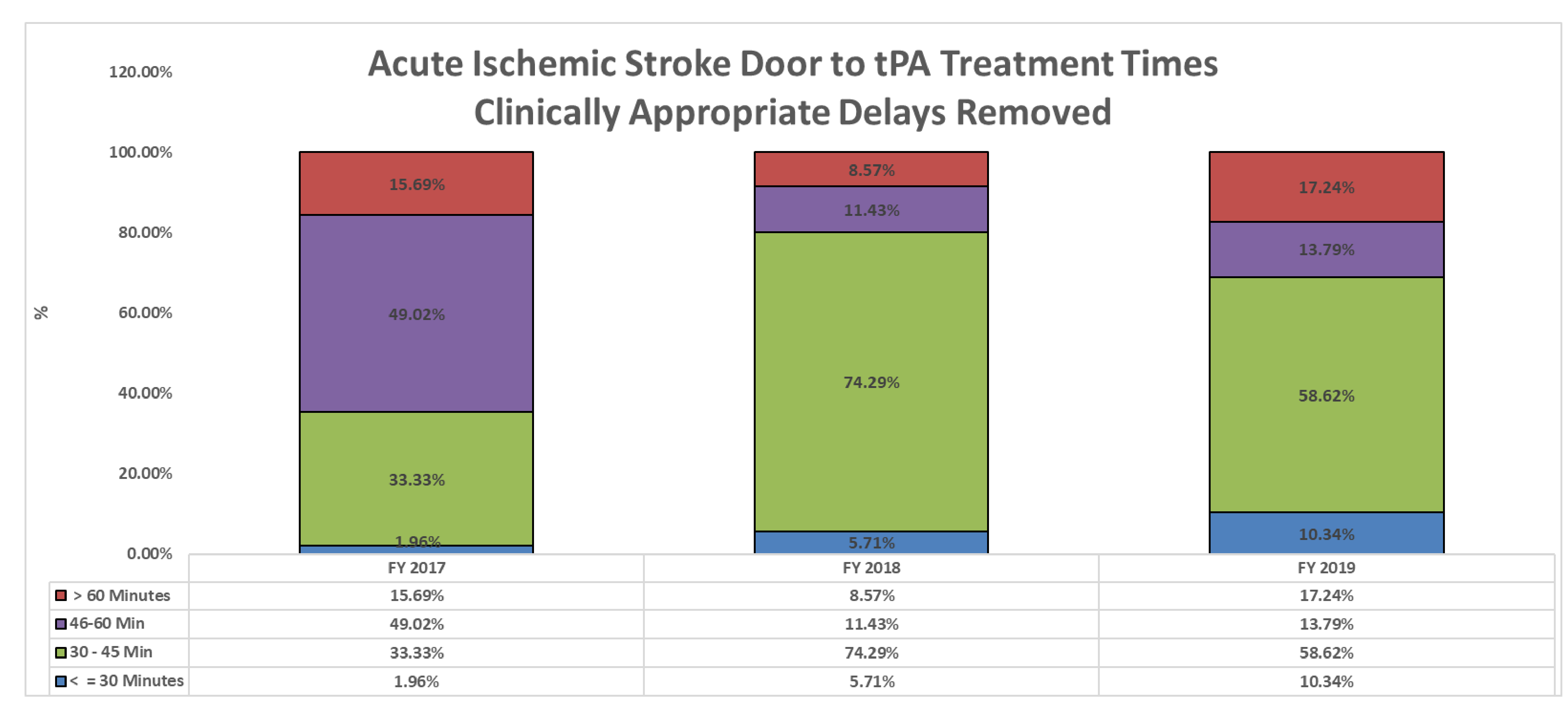

Time to Intravenous Thrombolytic Therapy - 60 min
100
90
80
70
60
50
40
30
20
10
0
Percent of Patients
56.6
69.9
58.2
76.3
70.7
80.2
76.6
82.3
82.3
70.2
1
2
3
4
Annual Data
July 2014 -
June 2019
ME, NH, VT
National Benchmark
Linear (ME, NH, VT)
Linear (National Benchmark)


Time to Thrombolytic Therapy - 45 min
100
90
80
70
60
50
40
30
20
10
0
Percent of Patients
Click to add text
21.2
35.6
25.4
42.8
30.3
47.4
44.2
51.1
47.5
40.5
1
2
3
4
Annual Data
July 2014 - June 2019
ME, NH, VT
National Benchmark
Linear (ME, NH, VT)
Linear (National Benchmark)

Maine (from Dr Morris)



	FY 2017	FY 2018	FY 2019
> 60 Minutes	24.14%	18.18%	26.47%
46-60 Min	44.83%	15.91%	14.71%
30 - 45 Min	29.31%	61.36%	50.00%
< = 30 Minutes	1.72%	4.55%	8.82%


Acute Ischemic Stroke Door to tPA Treatment Times
Clinically Appropriate Delays Removed
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
%
15.69%
49.02%
33.33%
1.96%
8.57%
11.43%
74.29%
5.71%
17.24%
13.79%
58.62%
10.34%
FY 2017
FY 2018
FY 2019
> 60 Minutes 15.69% 8.57% 17.24%
46-60 Min 49.02% 11.43% 13.79%
30 - 45 Min 33.33% 74.29% 58.62%
< =30 Minutes 1.96% 5.71% 10.34%

ALL

	FY 2017	FY 2018	FY 2019
< =30 Minutes	1	2	3
30 - 45 Min	17	27	17
46-60 Min	26	7	5
> 60 Minutes	14	8	9

Clincally Appropriate Delays Removed

	FY 2017	FY 2018	FY 2019
< =30 Minutes	1	2	3
30 - 45 Min	17	26	17
46-60 Min	25	4	4
> 60 Minutes	8	3	5

Mechanical Embolectomy:
Maine, NH and VT Combined (source GWTG and Dr Morris)

FY, July 1-June 30 x)	Grand Total	
2016	115	
2017	154	
2018	163	
2019	213(wo VT)	

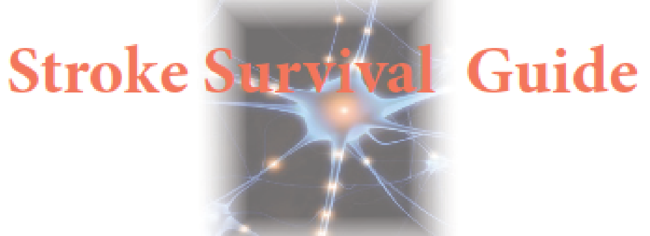
Specific news from our states

News from "Non-Acute" care participants

- Rehab
- Prevention and Others

New Hampshire Stroke Collaborative

Stroke Survival Guide



Practical tips and resources for individuals affected by stroke

Working together to prevent strokes, improve outcomes, and inspire hope.

Revised June 2019

Brain Injury Association of NH Neuro-Resource Facilitation Stroke Program

This program is designed to have a Neuro-Resource Facilitator call you at home, a few weeks after your discharge to ask how you're doing. This free service is to make sure you're doing well at home and if you'd like, the Neuro Resource Facilitator can provide stroke resources to assist you, if needed.

If you'd like a call from a Neuro-Resource Facilitator, please sign below:

____

Individual/Guardian   Date of Discharge

____

Phone

For more information about the Neuro-Resource Facilitation Stroke Program, please call:

603-225-8400

Fax: 603-228-6749

- NECC site

Action Plan