

The 12th Annual NECC Summit



State Breakout Sessions

Maine, New Hampshire, Vermont

GWTG-Stroke Data

January 2016 – December 2016

Agenda

1. Review data from GWTG-Stroke
2. Review Mission: Lifeline stroke triage algorithm
3. Review region's current protocol(s) & discuss next steps

Preview of GWTG-Stroke Data

Data by NECC State: Slides 5 – 12

Data by New York Region: Slides 14 – 21

- Stroke Diagnosis Type
- Arrival Mode
- Last Known Well to ED Arrival Times
- Stroke Care Measures
 - Pre-notification by EMS
 - Door to CT \leq 25min
 - Ischemic Stroke patients who received IV tPA
 - Ischemic Stroke patients who received IA catheter-based reperfusion
 - Time to IV tPA – 60min
 - Time to IV tPA – 45min

Notes:

- This data is a reflection of hospital documentation of pre-hospital care, and may not be a true reflection of care provided by EMS.
- At the present time, GWTG-Stroke doesn't collect data specific to LVO patients.

Data by NECC State

Stroke Diagnosis Type, 2016

by Region

% of patients (number of patients)



Stroke Diagnosis Type	Region							
	NECC States						North-east	Nation
	ME, NH, & VT	MA	RI	CT	NY	NJ		
Ischemic Stroke	69.7% (2,824)	66.8% (10,252)	74.6% (1,743)	71.5% (3,928)	60.5% (29,546)	62.2% (10,771)	63.7% (83,004)	67.7% (384,294)
TIA	6.6% (269)	18.4% (2,819)	7.1% (165)	9.7% (534)	20.1% (9,825)	20.9% (3,620)	18.7% (24,373)	12.5% (70,985)
Subarachnoid Hemorrhage	4.0% (164)	3.0% (459)	3.5% (81)	3.8% (207)	3.5% (1,725)	3.5% (600)	3.4% (4,430)	3.8% (21,812)
Intracerebral Hemorrhage	13.1% (532)	8.3% (1,279)	13.4% (312)	10.4% (573)	10.2% (4,990)	10.5% (1,823)	10.1% (13,143)	11.1% (63,081)
Stroke, not otherwise specified	1.1% (43)	0.7% (102)	0.4% (9)	0.1% (7)	0.4% (193)	0.2% (31)	0.5% (696)	1.0% (5,848)
Total cases in GWTG	4,054	15,342	2,337	5,497	48,815	17,315	130,251	567,714

• The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

• Cases with a “missing diagnosis”, “no stroke related diagnosis” or “elective carotid intervention only” are not listed here, therefore the sum of the number of patients within each diagnosis may not equal the “Total cases in GWTG” for each region.

Arrival Mode, 2016

by Region

% of patients (number of patients)



Arrival Mode	Region							
	NECC States						North-east	Nation
	ME, NH, & VT	MA	RI	CT	NY	NJ		
EMS from home/scene	39.5% (1,550)	54.6% (7,994)	51.4% (1,169)	53.1% (2,735)	55.2% (24,340)	53.6% (8,856)	52.2% (63,510)	45.8% (245,777)
Private transport/ taxi/other from home/scene	25.7% (1,008)	29.0% (4,250)	22.3% (507)	27.3% (1,406)	31.3% (13,793)	38.0% (6,275)	32.5% (39,585)	33.8% (181,265)
Transfer from other hospital	23.8% (935)	15.4% (2,262)	25.8% (587)	18.4% (948)	12.8% (5,621)	7.0% (1,162)	13.8% (16,825)	18.3% (98,298)
Not documented or unknown	1.1% (43)	0.8% (124)	0.5% (12)	1.1% (57)	0.7% (293)	1.4% (236)	0.8% (965)	0.8% (4,447)
Total N	3,921	14,646	2,276	5,148	44,081	16,529	121,646	537,005

• The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

• Cases with a “blank” for Arrival Mode are not listed here, therefore the sum of the number of patients for each arrival mode may not equal the “Total N” for each region.

Last Known Well to ED Arrival Times, 2016

(For patients who arrive by EMS from home/scene),

by Region

% of patients (number of patients)



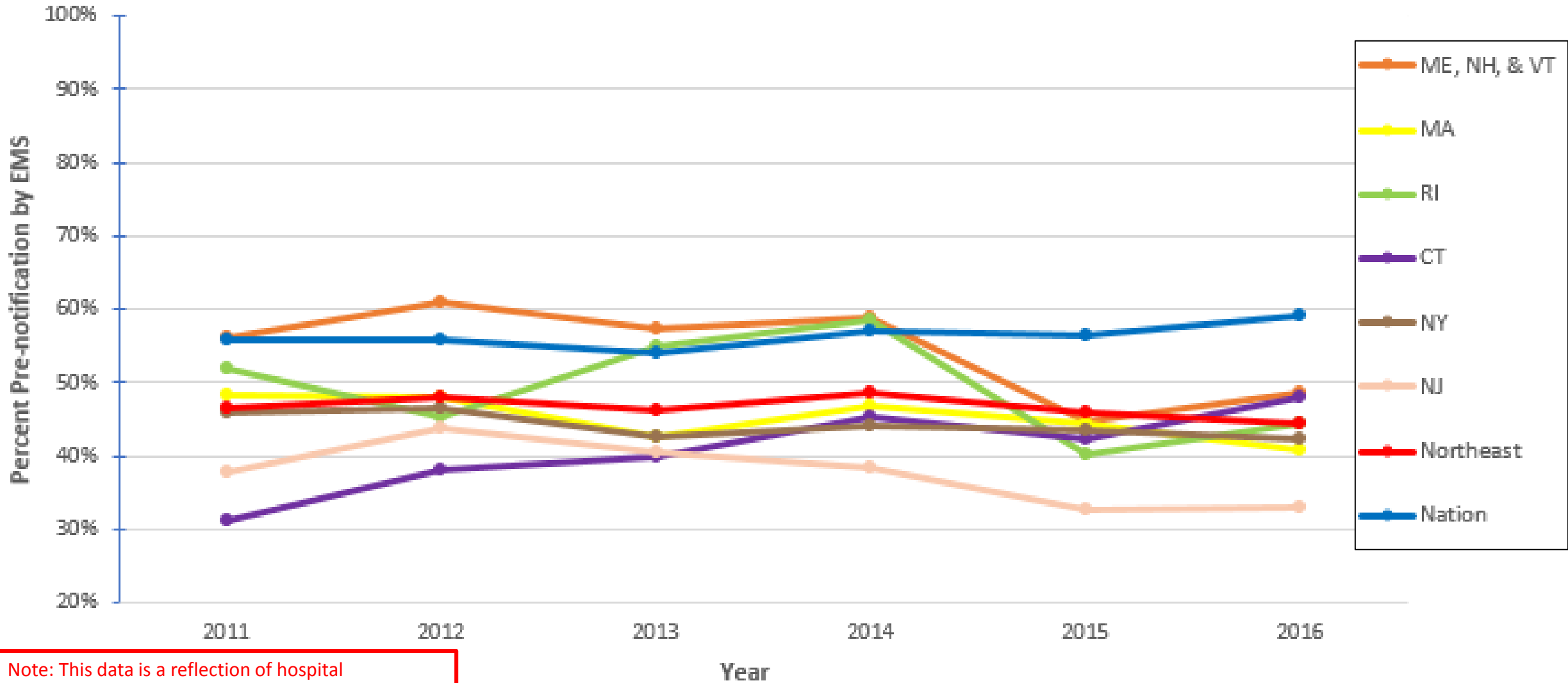
LKW to Arrival Time Group	Region							
	NECC States						North-east	Nation
	ME, NH, & VT	MA	RI	CT	NY	NJ		
0-30 min	5.0% (76)	5.4% (428)	3.7% (43)	3.8% (102)	3.4% (830)	3.0% (266)	3.7% (2,307)	4.3% (10,550)
31-60 min	13.2% (202)	14.2% (1,129)	11.5% (134)	13.9% (378)	11.5% (2,792)	13.4% (1,171)	12.5% (7,876)	12.9% (31,238)
61-120 min	12.8% (196)	13.2% (1,046)	10.7% (125)	13.3% (359)	13.3% (3,214)	14.1% (1,233)	13.5% (8,535)	13.1% (31,797)
121-180 min	5.3% (81)	6.2% (492)	5.1% (60)	4.5% (122)	6.2% (1,497)	6.0% (524)	6.0% (3,781)	5.8% (14,299)
181-540 min	14.4% (220)	13.1% (1,037)	15.3% (179)	13.4% (363)	13.4% (3,259)	14.2% (1,231)	13.3% (8,428)	13.2% (32,166)
> 540 min	12.7% (194)	13.5% (1,075)	14.9% (174)	10.8% (294)	13.9% (3,372)	14.3% (1,249)	13.5% (8,525)	13.3% (32,310)
LKW or Arrival Time unknown, or Arrival \geq 2 days after LKW	38.0% (583)	35.8% (2,848)	39.1% (455)	40.9% (1,109)	39.6% (9,595)	36.5% (3,192)	38.7% (24,430)	38.4% (93,343)
Total N	1,533	7,958	1,166	2,713	24,205	8,755	63,071	24,280

• The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

• Cases with documented arrival and LKW time, and LKW to arrival \geq 2 days, will be included in both the ">540 min" and "LKW or Arrival Time unknown, or Arrival \geq 2 days after LKW" categories.

Pre-notification by EMS, 2011-2016

(For patients who arrive by EMS from home/scene),
by Region

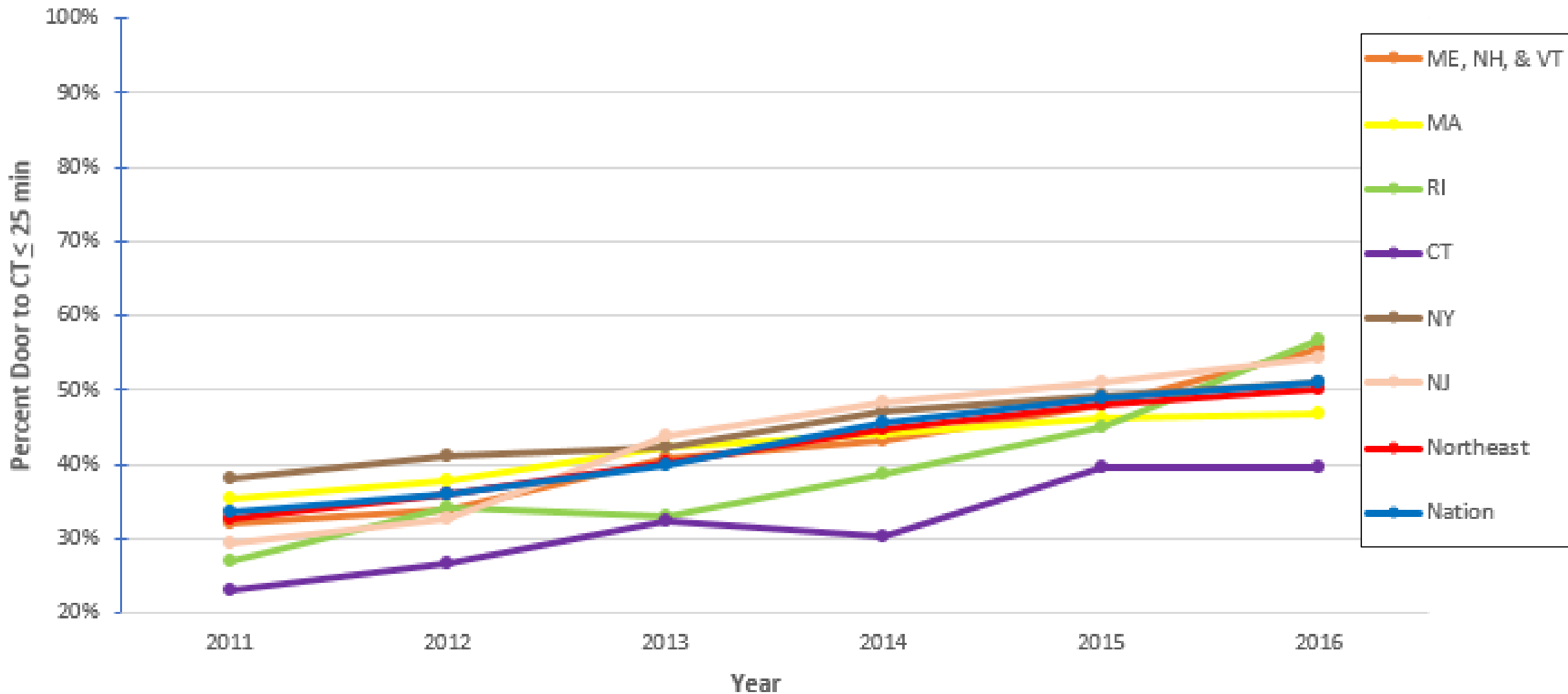


Note: This data is a reflection of hospital documentation of pre-hospital care, and may not be a true reflection of care provided by EMS.

• The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

Door to CT \leq 25 min, 2011-2016

(For patients who arrive by EMS from home/scene),
by Region



• The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania



Stroke Care Measures, 2016

(For patients who arrive by EMS from home/scene),
by Region
% of patients (number of patients)

Measure	Region							
	NECC States						North-east	Nation
	ME, NH, & VT	MA	RI	CT	NY	NJ		
Pre-notification by EMS	48.6% (632)	40.8% (3,249)	44.4% (488)	48.0% (1,264)	42.2% (10,263)	32.9% (2,913)	44.4% (27,914)	59.0% (141,001)
Door to CT ≤ 25 min	55.4% (679)	46.7% (2,917)	56.8% (557)	39.7% (866)	51.1% (9,603)	54.4% (3,806)	50.1% (24,881)	51.1% (101,239)

- The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

Additional Stroke Care Measures, 2016

by Region
% of patients (number of patients)



Measure	Region							
	NECC States						North-east	Nation
	ME, NH, & VT	MA	RI	CT	NY	NJ		
Ischemic Stroke patients who received IV tPA (excluding patients with stroke after arrival)	8.9% (251)	10.1% (1,035)	11.5% (200)	10.1% (397)	10.6% (3,114)	12.4% (1,336)	10.1% (8,376)	11.0% (42,165)
Ischemic Stroke patients who received IA catheter-based reperfusion (excluding patients with stroke after arrival)	1.8% (51)	2.6% (270)	8.4% (146)	2.9% (113)	3.4% (986)	2.8% (305)	3.2% (2,622)	3.3% (12,584)

- The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania
- IA catheter-based treatment includes both pharmacologic thrombolytic therapy and mechanical devices.

- Patients who receive IV tPA or IA catheter-based reperfusion at a non-GWTG hospital, who are subsequently transferred to a GWTG hospital, would not be captured in the measures for % of patients who received IV tPA, or IA catheter-based reperfusion.



Additional Stroke Care Measures, 2016

by Region
% of patients (number of patients)

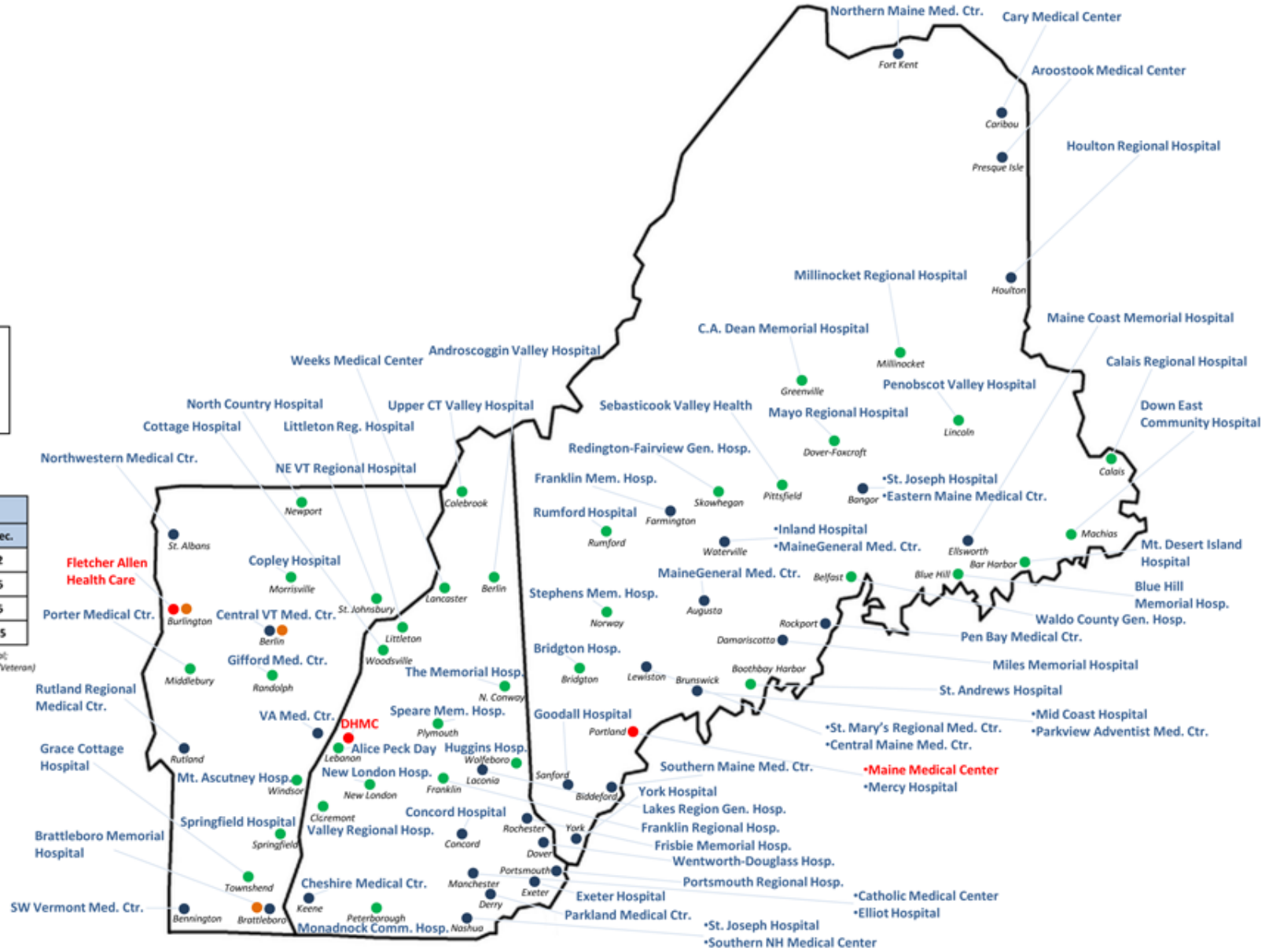
Measure	Region							
	NECC States							North-east
	ME, NH, & VT	MA	RI	CT	NY	NJ		
Time to IV tPA - 60min (in eligible patients)	63.9% (124)	63.2% (494)	82.1% (124)	70.6% (202)	81.4% (1,869)	78.5% (832)	76.3% (4,801)	78.4% (25,233)
Time to IV tPA - 45min (in eligible patients)	27.3% (53)	33.5% (262)	49.0% (74)	34.6% (99)	45.2% (1,037)	48.6% (515)	41.7% (2,624)	44.9% (14,457)

- The Northeast region benchmarking group includes the 8 NECC states and Pennsylvania

- Critical Access Hospital
- Academic Medical Center
- Acute Care Community Hospital

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

CA=Critical Access; Comm.=Acute Care Community Hospital;
Spec.=Specialty Care Hospital (Rehabilitation/Psychiatric/Veteran)

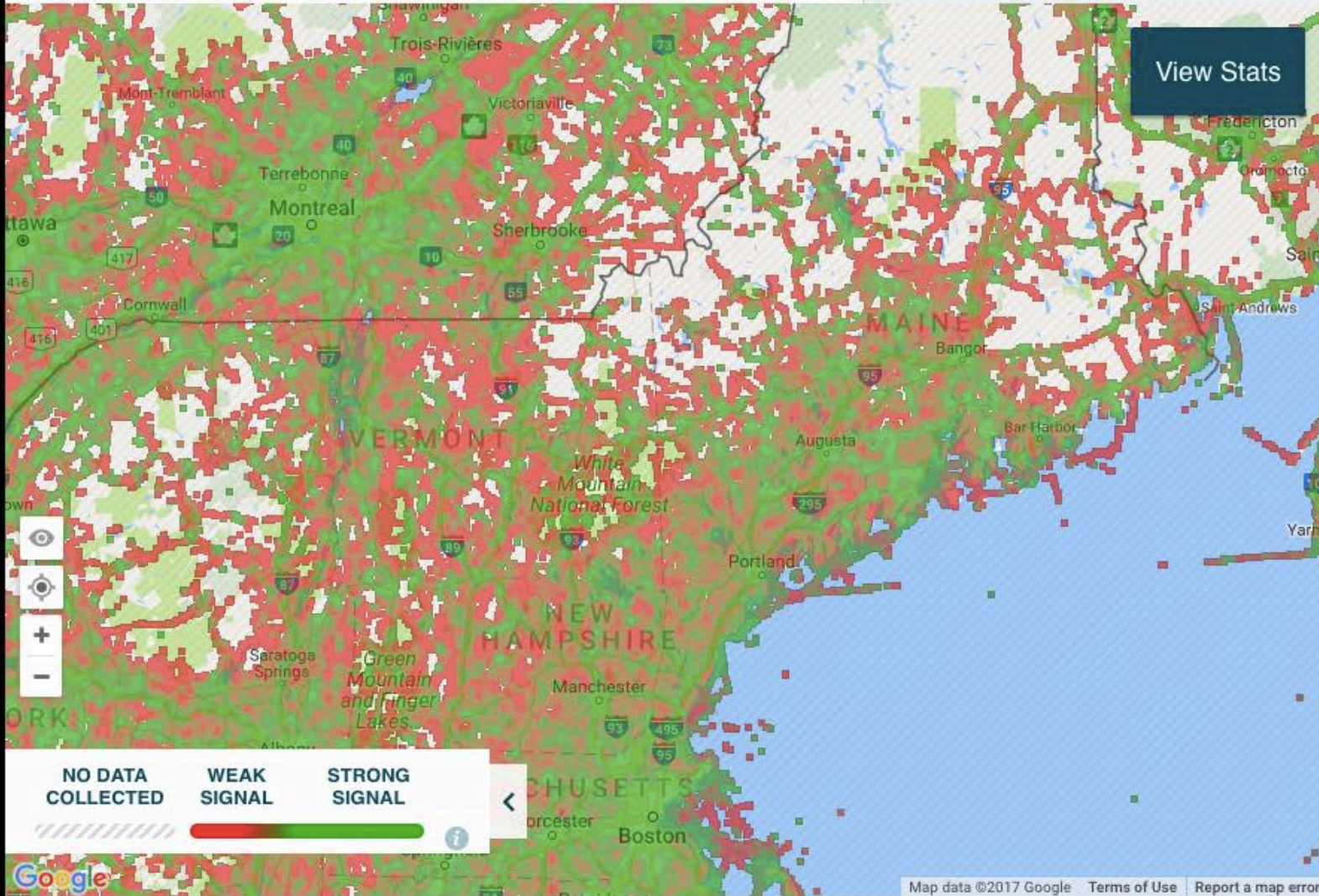


Norwich US

All networks

NETWORK TYPE
2G/3G 4G

View Stats



NO DATA COLLECTED

WEAK SIGNAL

STRONG SIGNAL



Map data ©2017 Google Terms of Use Report a map error

Maps updated on 19th Sep 2017

Let's map coverage together.

Download OpenSignal to measure coverage and contribute to the crowdsourced map.



Northern New England Unified Guideline Stroke – Adult DRAFT 2.23

Stroke Screening Tool

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

Witness: Best contact number for witness: () -

Prehospital Stroke Scale Examination Please check:

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.

Arm Drift: Have the patient close their eyes and hold arms extended.

- 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.

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.

Blood Glucose:

- | Yes | No | Stroke Alert Criteria – Please check Yes or No: |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Time from onset of symptoms is known to be less than 6 hours? |
| <input type="checkbox"/> | <input type="checkbox"/> | Blood glucose is or has been corrected to greater than 60 mg/dL? |
| <input type="checkbox"/> | <input type="checkbox"/> | Any abnormal finding on Prehospital Stroke Scale examination? |
| <input type="checkbox"/> | <input type="checkbox"/> | Deficit unlikely due to head trauma or other identifiable causes? |

Stroke Alert Criteria – If yes to all criteria contact receiving hospital and report a STROKE ALERT

EMT STANDING ORDERS

Northern New England Unified Guideline Stroke – Adult DRAFT 2.23

Stroke Screening Tool

Last Time Known Well: (If patient awoke with symptoms, last time 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.. Normal Abnormal
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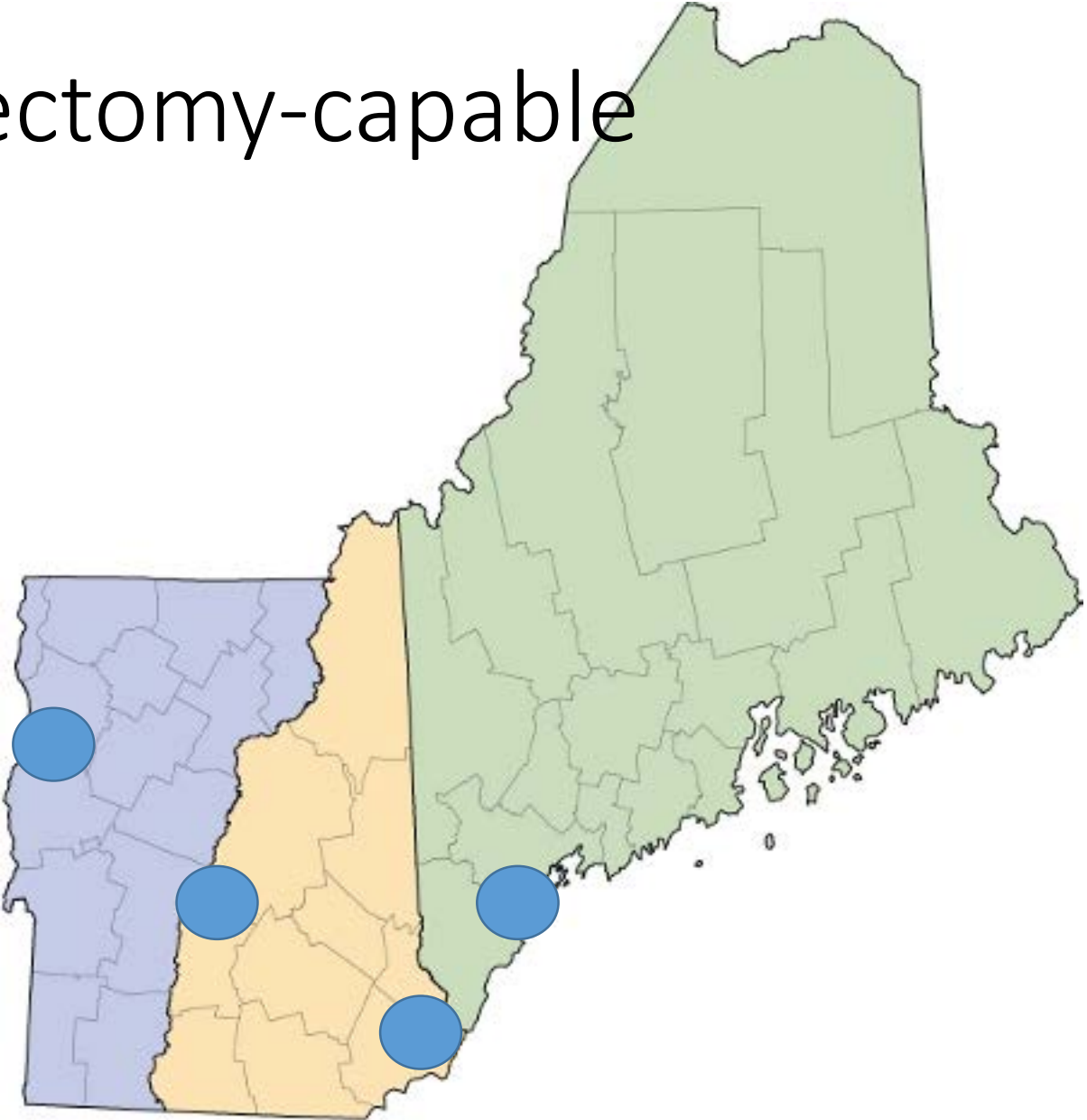
Blood Glucose:

- | Yes | No | Stroke Alert Criteria – Please check Yes or No: |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Time from onset of symptoms is known to be less than 6 hours? |
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| <input type="checkbox"/> | <input type="checkbox"/> | Any abnormal finding on Prehospital Stroke Scale examination? |
| <input type="checkbox"/> | <input type="checkbox"/> | Deficit unlikely due to head trauma or other identifiable causes? |

Stroke Alert Criteria – If yes to all criteria contact receiving hospital and report a STROKE ALERT

EMT STANDING ORDERS

Thrombectomy-capable





Our Local EMS Stroke Triage Protocol(s)

Maine

- Maine Medical Center's (MMC's) CSC survey on Nov 29-30th
- EMS education on using the LVO Race Score in Portland area
- EMS Direct – CT Activation at MMC – before EMS comes to our door, CT is notified and bring patient direct to CT
- In talks department of public health, stroke workgroups, and management across the MaineHealth system to set up some sort of Statewide System of Stroke Care
- Neurohospitalist program – building a Neurohospitalist Program and almost complete; currently have 5 Neurohospitalists and may hire a 6th one.
- TeleStroke Program - 6 hospitals, 8 sites (because two hospitals have two EDs), we offer inpatient TeleStroke to 3 of the 6 hospitals and are expanding next year.

EMS Stroke Inter-Facility Transfer Order Set

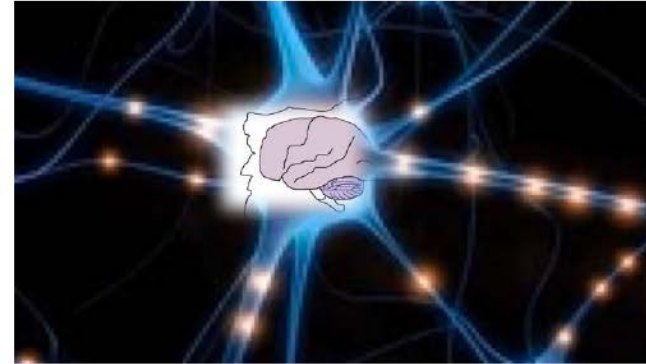
E

an 180/105
Ischemic Stroke without TPA - less than 220/110

Vermont

New Hampshire

PLANNING FOR A NEW HAMPSHIRE STROKE CARE SYSTEM



**A report prepared by the
NH STROKE COLLABORATIVE**

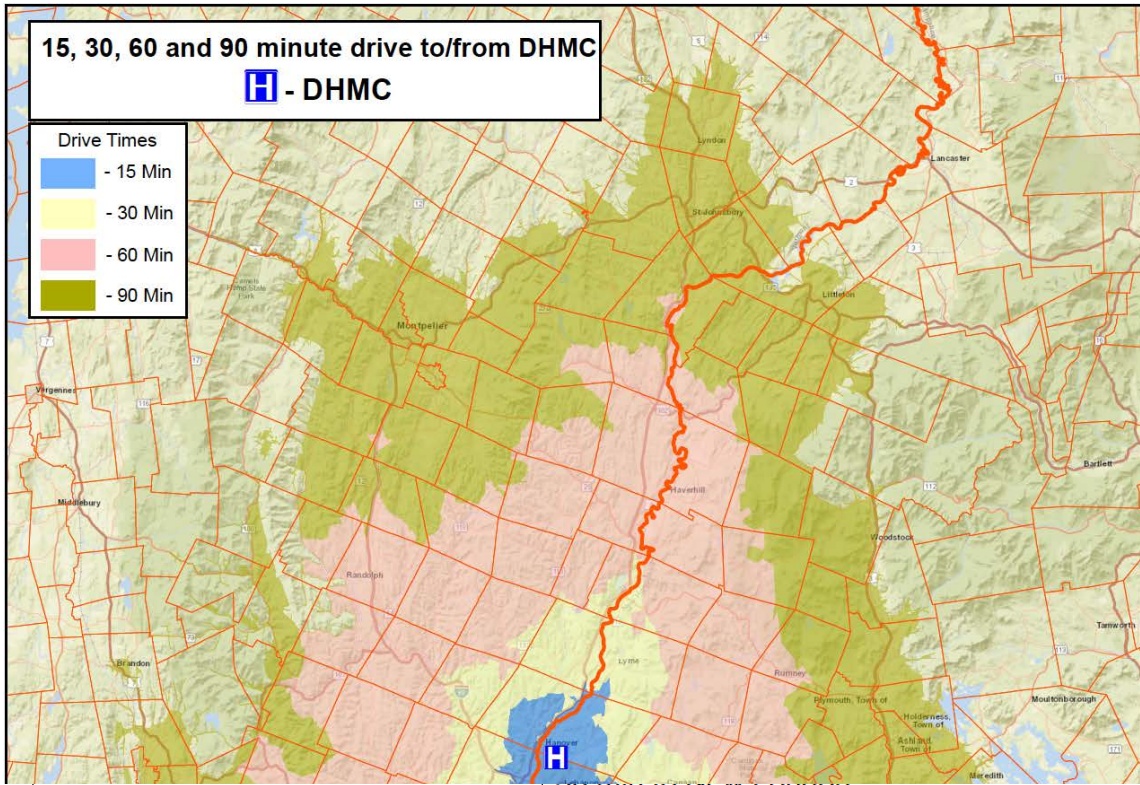
May 10, 2017

15, 30, 60 and 90 minute drive to/from DHMC

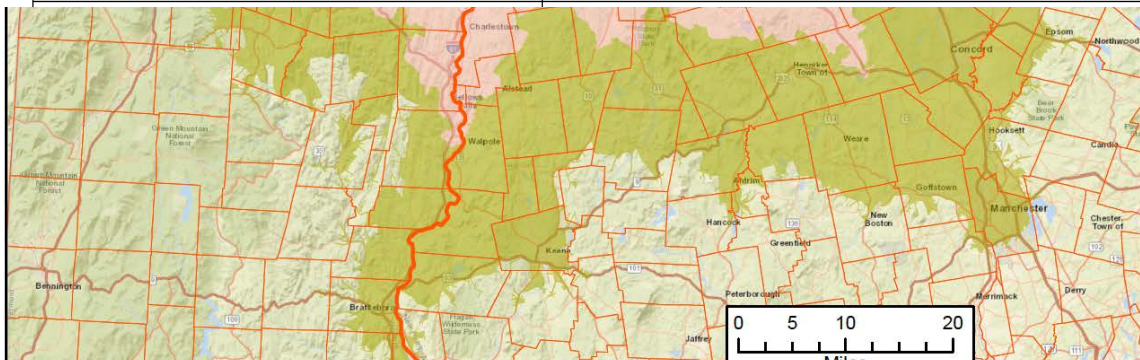
H - DHMC

Drive Times

- 15 Min
- 30 Min
- 60 Min
- 90 Min



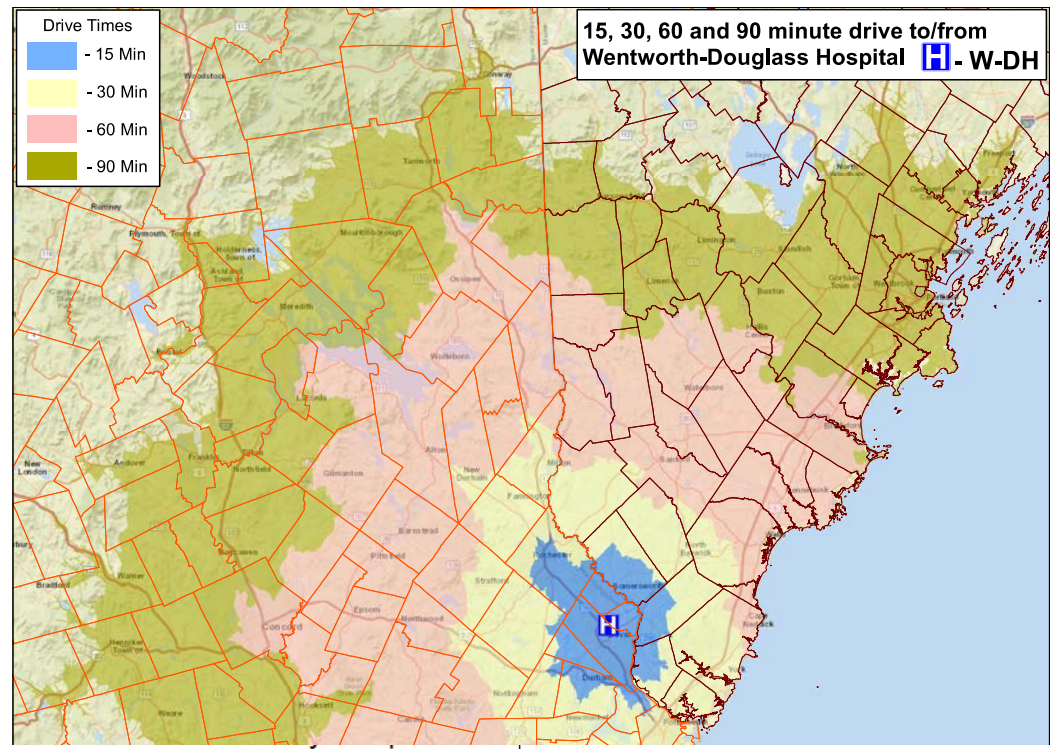
DHMC	36 min to New London
	10 min to Alice Peck Day Hospital
	64 min to Spere Memorial Hospital
	86 min to Lakes Region General Hospital
	31 min to New London Hospital
	63 min to Franklin Regional Hospital
	37 min to Valley
	58 min to Concord



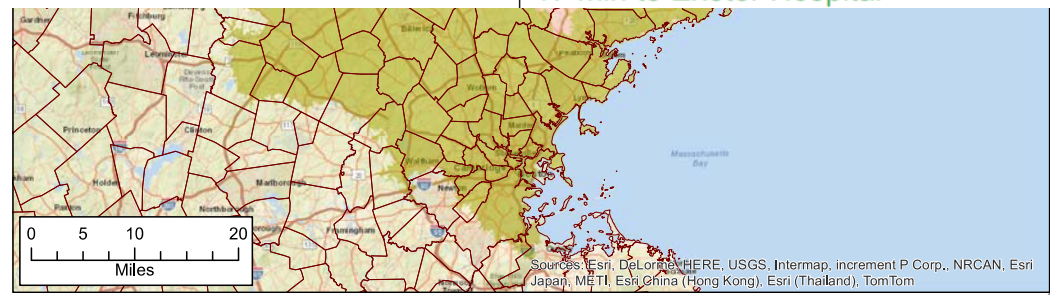
Drive Times

- 15 Min
- 30 Min
- 60 Min
- 90 Min

15, 30, 60 and 90 minute drive to/from Wentworth-Douglass Hospital H - W-DH

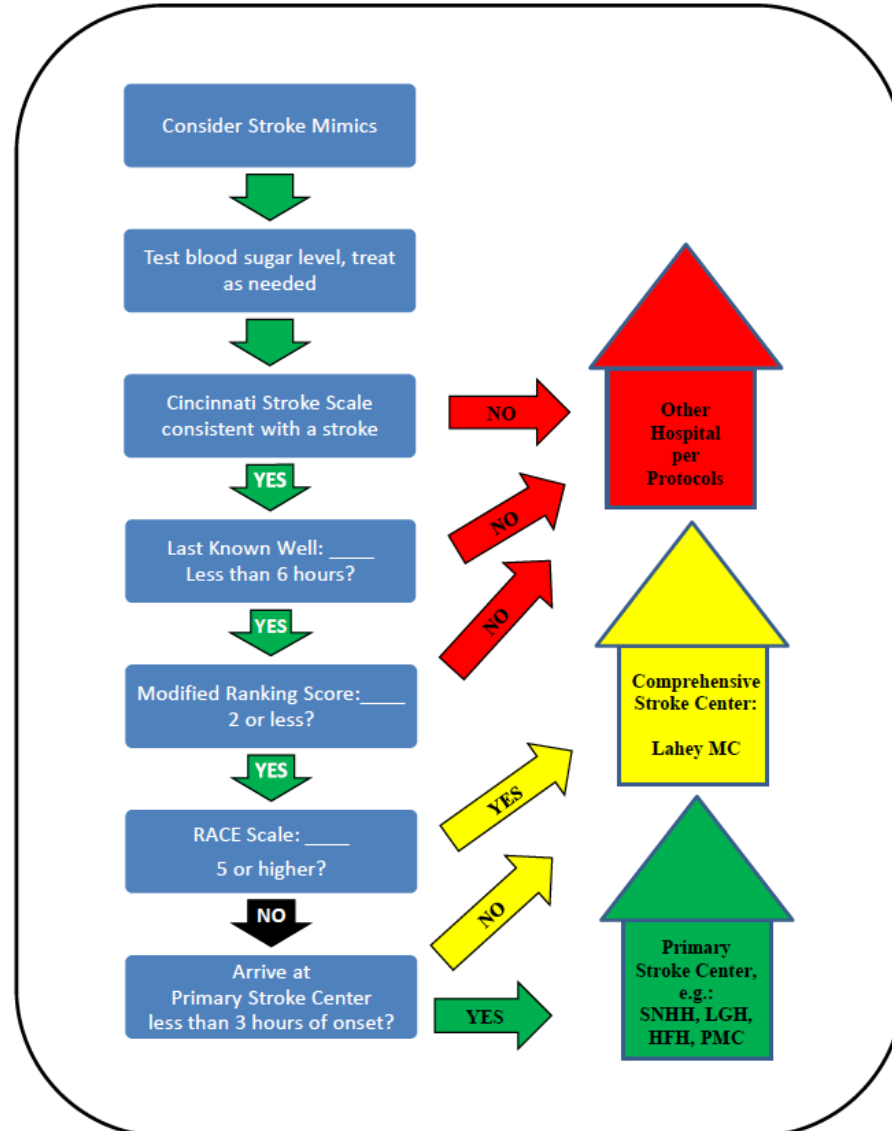


Frisbie Memorial Hospital	38 min to Huggins Hospital
	15 min to Wentworth-Douglass Hospital
	28 min to Portsmouth Regional Hospital
Wentworth-Douglass Hospital	15 min to Frisbie Hospital
	21 min to Portsmouth Regional Hospital
Portsmouth Regional Hospital	28 min to Frisbie Memorial Hospital
	21 min to Wentworth-Douglass Hospital
	17 min to Exeter Hospital



Source: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

Pelham, NH and Lahey



Nashua area to Lahey approx 25-30 mins

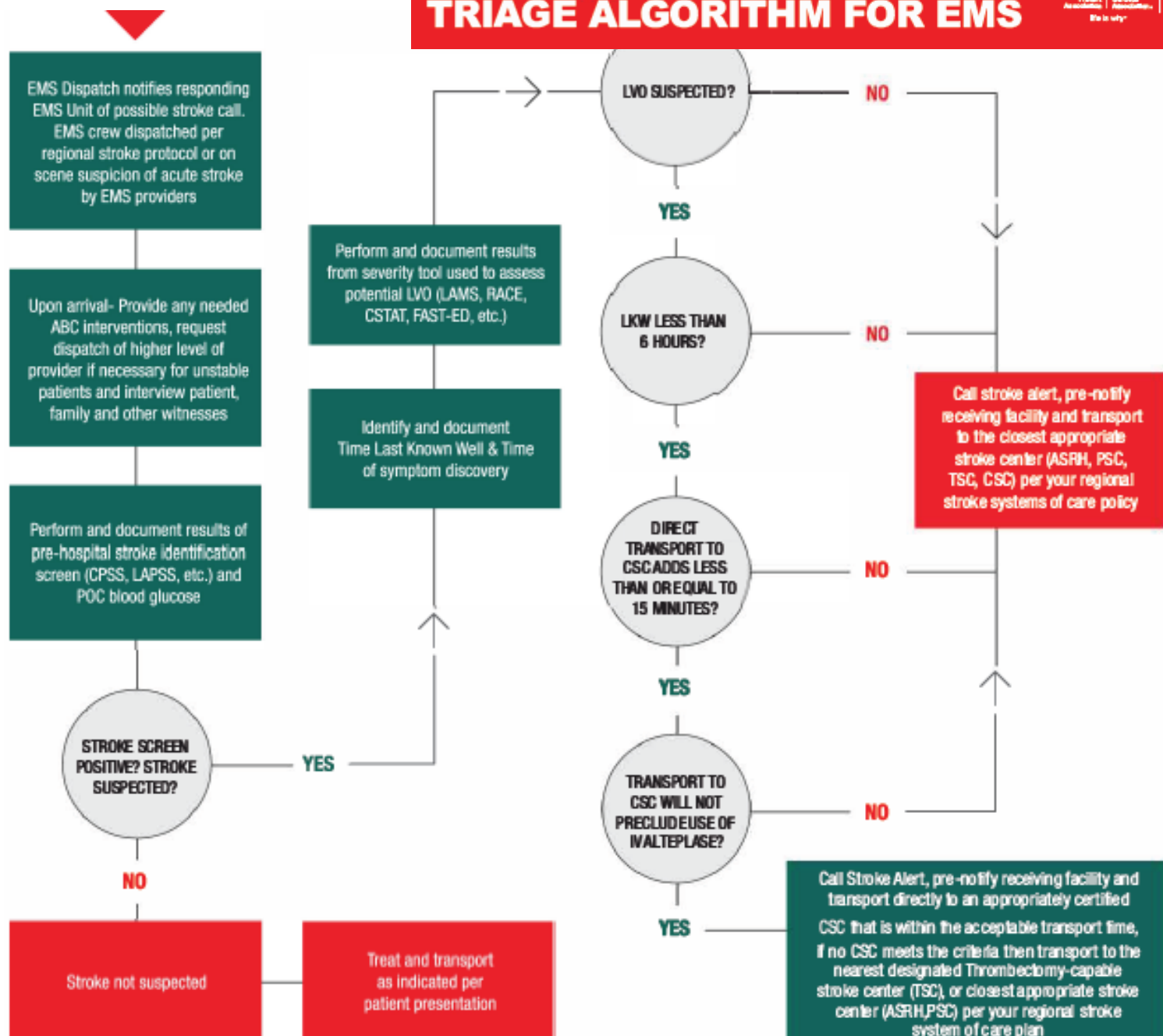
CMC

- <https://www.youtube.com/watch?v=Cpn3He3bW34>

SEVERITY-BASED STROKE TRIAGE ALGORITHM FOR EMS



MISSION: LIFELINE



ON SCENE

- Interview patient, family members and other witnesses to determine Last Known Well (LKW) time and time of Symptom Discovery.
- Attempt to identify possible stroke mimics (eg. seizure, migraine, intoxication) and determine if patient has pre-existing substantial disability (need for nursing home care or inability to walk without help from others).
- Encourage family to go directly to Emergency Department if not transported with patient and obtain mobile number of next of kin and witnesses.
- If Mobile Stroke Unit available—follow Mobile Stroke Unit Protocol.
- Each EMS agency should utilize a published and validated stroke screen to assess patients with non-traumatic onset of focal neurologic deficits and validated tool to assess possible Large Vessel Occlusion (LVO).
- Patients who are eligible for IV Alteplase if transported to nearest Acute Stroke Ready Hospital (ASRH) or PSC should not be rerouted to a CSC or Thrombectomy-capable Stroke Center if doing so would result in a delay that would make them ineligible for IV Alteplase.
- Collect a list of current medications (especially anticoagulants) and obtain patient history including co-morbid conditions (eg. serious kidney or liver disease, recent surgery, procedures or stroke) that may impact treatment decisions.

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Severity-Based Stroke Triage Algorithm for EMS

From the webinar,
“Mission: Lifeline Stroke presents the Severity-
based Stroke Triage Algorithm for EMS”
Peter D. Panagos, MD, FAHA, FACEP
Lee Schwamm, MD, FAHA
Joe Acker, EMT-P, MPH

* What It Is:



Evidenced-based best-practice, multi-specialty review of currently available data for time-dependent benefits of IV tPA and EVT, stroke scale predictive power and EMS Stroke Triage capabilities

* What It Is Not:



Prescriptive template for every EMS region. Requires customization to local resources and geography

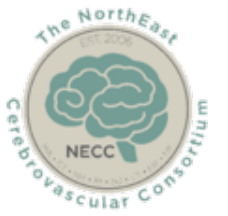
Key Assumptions

- * Balance access to EVT in suspected LVO patients with potential harm of delay in IV tPA
- * Minimal disruption in clinical work-flow to get EMS on board
- * More PSCs (N=1182) than CSCs (N=118) and ASRH (N=24)
- * Avoid overcrowding at CSC and reducing expertise at PSC
- * No single Severity Tool is superior. Aim for uniformity by region
- * Hemorrhagic stroke triage guided by symptom severity
- * Acceptable delay for re-routing still unclear. RCTs underway
- * Every 15 minute delay increases mortality and sICH
- * In rural settings, longer times (20-30 min?) may be reasonable
- * Update algorithm when better evidence exists

From the webinar,
“Mission: Lifeline Stroke presents the Severity-based Stroke Triage Algorithm for EMS”

Peter D. Panagos, MD, FAHA, FACEP
Lee Schwamm, MD, FAHA
Joe Acker, EMT-P, MPH

Similarities and/or Differences with National Mission: Lifeline Triage Algorithm



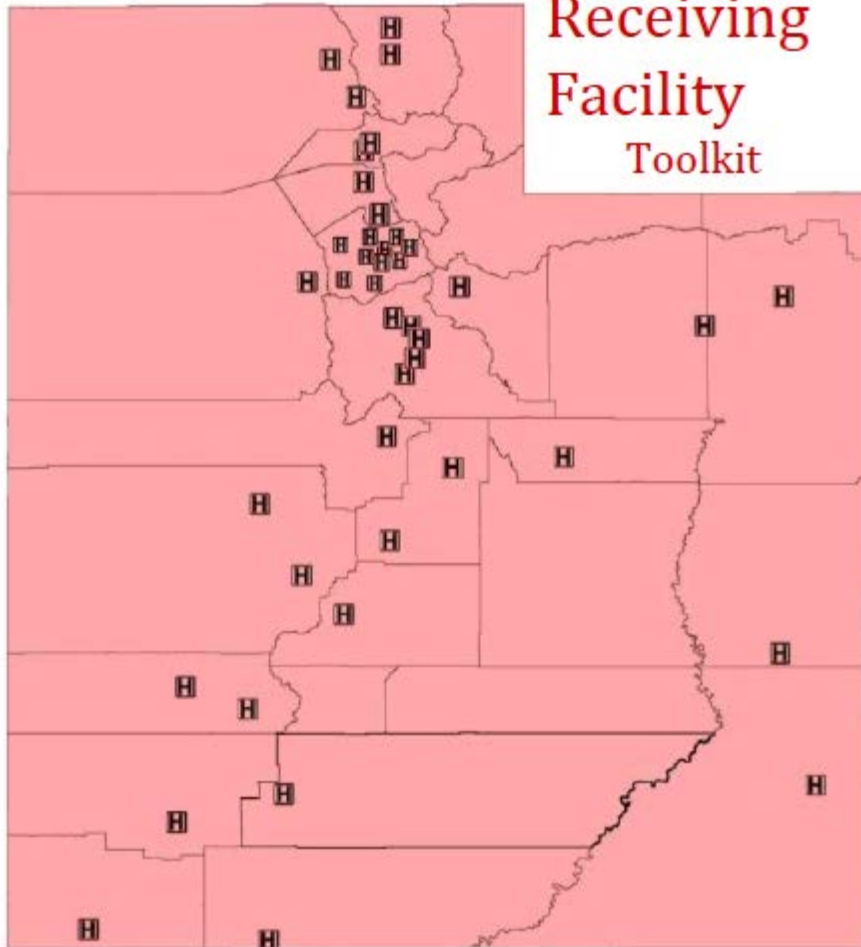
Next Steps as a Region?

New England Stroke System of Care Workgroup

- Met Sept 29 and will meet Nov 17th 9-10AM and then monthly
- Dan Wolfson (VT), Jim Suozzi (NH), Matt Sholl (ME), Tim Lukovits (DHMC) joined AHA staff and representatives of CT and RI. To include Guillermo Linares (UVM).
- Purpose
 - Offer a forum for state medical directors to work collaboratively to improve the systems of care for stroke patients in ME, NH, VT, RI, CT & MA
 - Gain a better understanding of current systems and barriers to care
 - Share best practices, protocols, how to build statewide consensus among stakeholders, how to gain transparency into individual hospital capabilities, etc.
- Consensus on top 3 priorities
 - Build off of the combined EMS protocol shared between New Hampshire, Vermont, and Maine for the rest of New England states, as appropriate
 - Identify hospitals' capabilities and competencies for treating stroke; determine the minimum necessary for a hospital to demonstrate to receive acute stroke patients
 - Develop screening protocol for LVO patients and their transportation

ASRH or easier?

Stroke Receiving Facility Toolkit



Utah State Stroke System

Utah Stroke Receiving Facility

Laboratory Availability

11. Is the hospital laboratory staffed 24/7?

12. Are the following test results available within 45 minutes of patient arrival:

- CBC
- BMP
- PT/PTT/INR

Quality Improvement Plan

13. Can the hospital demonstrate a plan to collect and review standard stroke quality improvement data? *Please attach copy of the plan and the data elements*

14. Will the hospital collect and report quality improvement data to the UDOH Stroke Program on a quarterly basis?

15. Will the hospital participate in stroke-specific training offered or approved by the Utah Department of Health?

Attachment Checklist: The following items should be returned as attachments to this application:

- Stroke Physician Call Roster
- Stroke Assessment Tool
- Acute Ischemic Stroke Protocol
- Stroke Box Contents and Location
- Stroke Inter-hospital Transfer/Transport Protocol
- Stroke Quality Data Plan and Elements



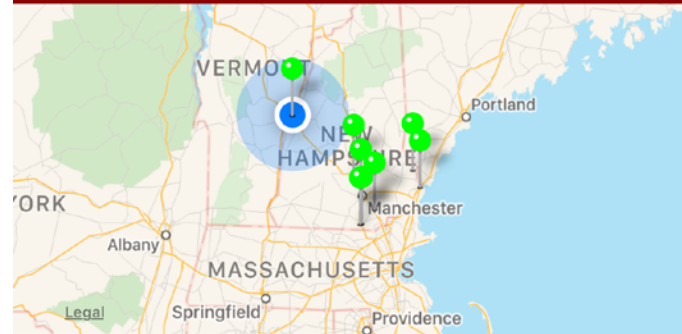
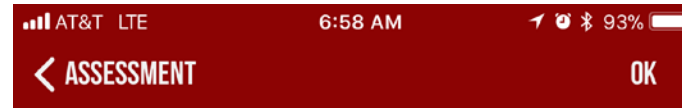
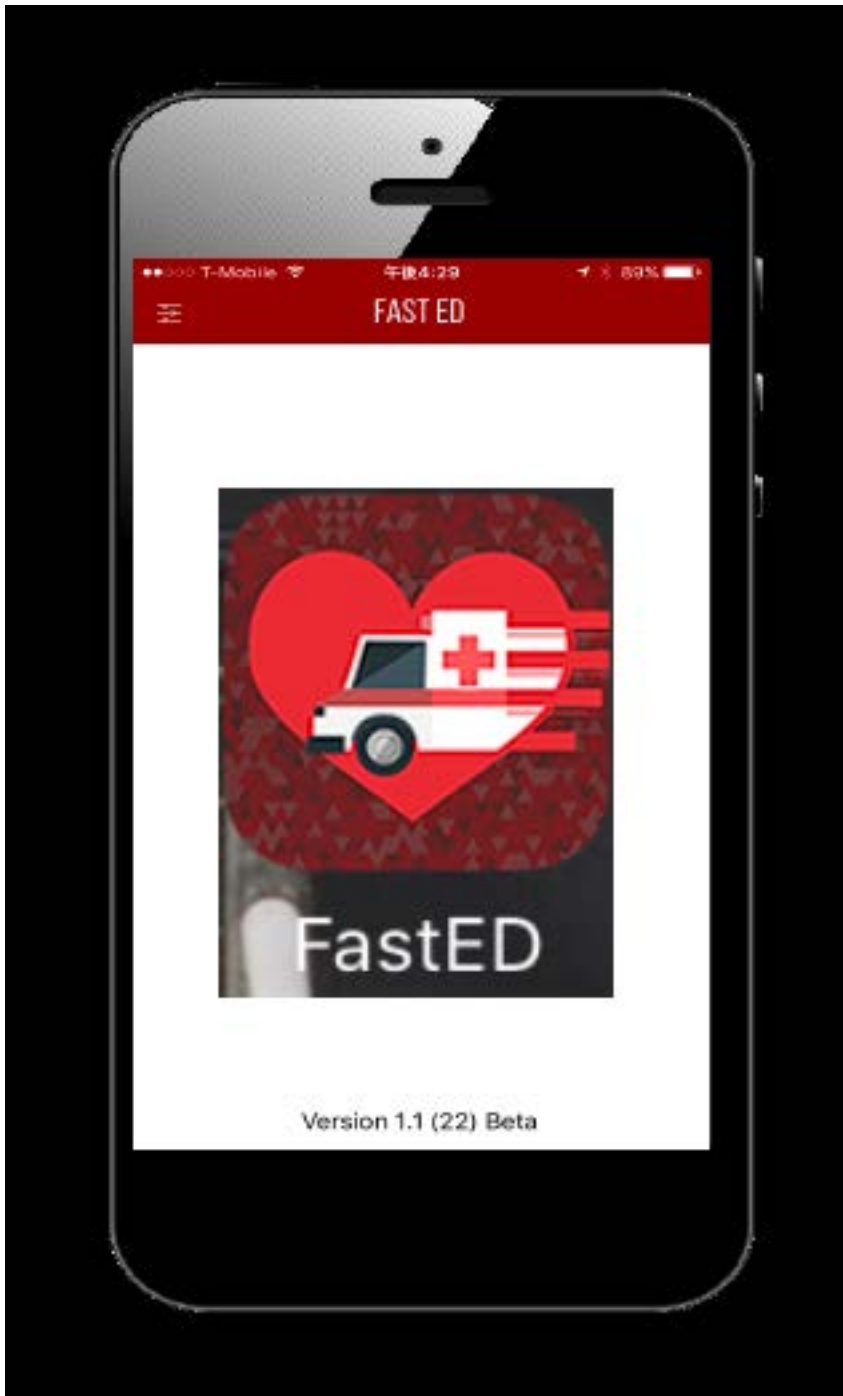
APPROVED: New Thrombectomy-Capable Stroke Center Advanced Certification Program

The Joint Commission announces a new Thrombectomy-Capable Stroke Center (TSC) certification program with requirements effective January 1, 2018. This advanced certification program was developed in collaboration with the American Heart Association/American Stroke Association in response to the need to identify hospitals that meet rigorous standards for performing endovascular thrombectomy (EVT) and caring for patients after the procedure.

The Joint Commission currently provides three levels of stroke center certification—Acute Stroke Ready Hospital (ASRH), Comprehensive Stroke Center (CSC), and Primary Stroke Center (PSC). One third of Joint Commission-certified PSCs perform EVT, a procedure that recent studies

Table 1. TSC Certification Eligibility Volume Requirements

Number of neuro-interventionists	Minimum number of thrombectomies in the previous 12 months	or, Minimum number of thrombectomies in previous 24 months
1	12	24
2	24	48
3	36	72



Dartmouth-Hitchcock Medical Cen...

3 mins | 0.8 mi | primary

Concord Hospital

59 mins | 59.6 mi | primary

Catholic Medical Center

1 hour 11 mins | 73.4 mi | primary

Parkland Medical Center

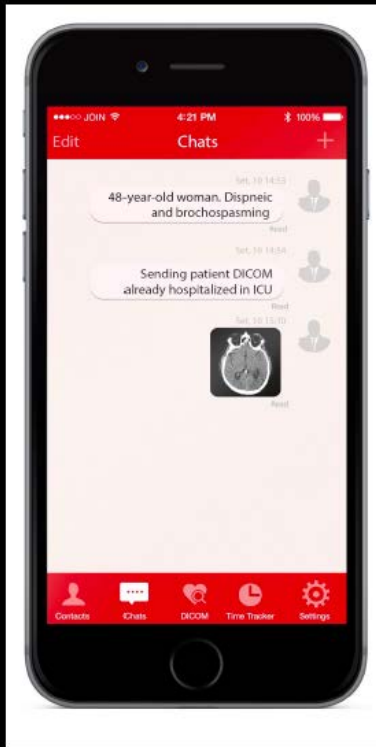
1 hour 23 mins | 85.3 mi | primary

Saint Joseph Hospital

1 hour 27 mins | 92.3 mi | primary

Southern New Hampshire Medical...

1 hour 30 mins | 93.4 mi | primary



CHAT ROOM
one-to-one or group chat



DICOM Viewer



Video Conferencing



[OVERVIEW](#) [ABOUT](#) [SAVING BRAIN](#) [TEAM](#) [CAREERS](#) [CONTACT](#)



DEMOCRATIZING CARE

Viz fuses artificial intelligence and medical imaging to help doctors provide efficient care independent of geography