# Advancing Stroke Systems of Care to Improve Outcomes
## Target: Stroke Phase III

Gregg C. Fonarow MD[1], Lee H. Schwamm, MD[2]

[1]UCLA Division of Cardiology
[2]Department of Neurology Massachusetts General Hospital

# ACUTE ISCHEMIC STROKE REPERFUSION THERAPY

The benefits of acute ischemic stroke treatment both with intravenous tissue plasminogen activator (tPA) or endovascular therapy are highly time dependent.

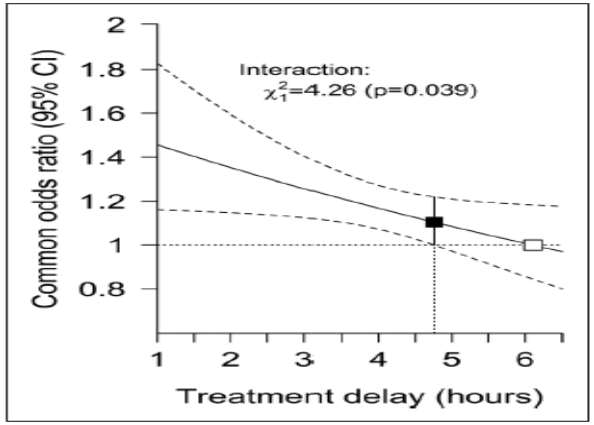
Shorter onset to treatment times are associated with improved functional outcomes, lower complication rates, and in some studies lower mortality.

Because of the importance of rapid treatment, AHA/ASA Guidelines recommend a door-to-needle (DTN) time of ≤60 minutes for IV alteplase.

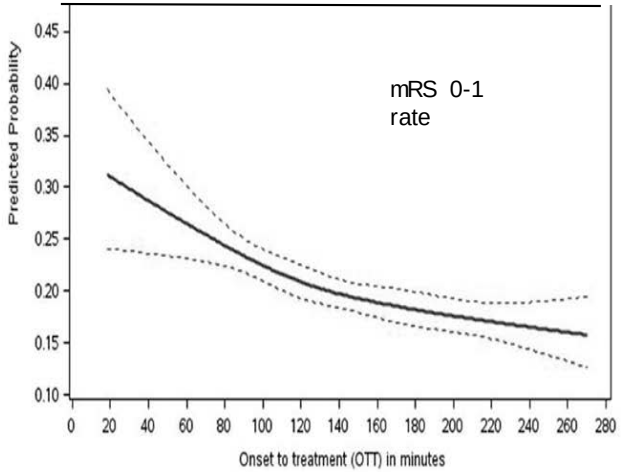
Yet prior studies indicated fewer than 30% of IV alteplase treated acute ischemic stroke patients in the United States were meeting this goal.

Fonarow GC, Smith EE, Saver JL, Reeves MJ, Bhatt DL, Grau-Sepulveda MV, Olson DM, Hernandez AF, Peterson ED, Schwamm LH. Timeliness of tissue-type plasminogen activator therapy in acute ischemic stroke: patient characteristics, hospital factors, and outcomes associated with door-to-needle times within 60 minutes. Circulation. 2011;123(7):750-758.

# EFFECT OF INTRAVENOUS ALTEPLASE IS TIME DEPENDENT




*Trials –*
*Pooled RCTs*




*Practice –*
*National GWTG-Stroke*

*Stroke 2016;47:2373-2379*
*Circulation 2017;135:128–139*



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# AHA/ASA Guideline Recommendations

*EDs should establish standard operating procedures and protocols to triage stroke patients expeditiously (Class I, Level of Evidence B).*

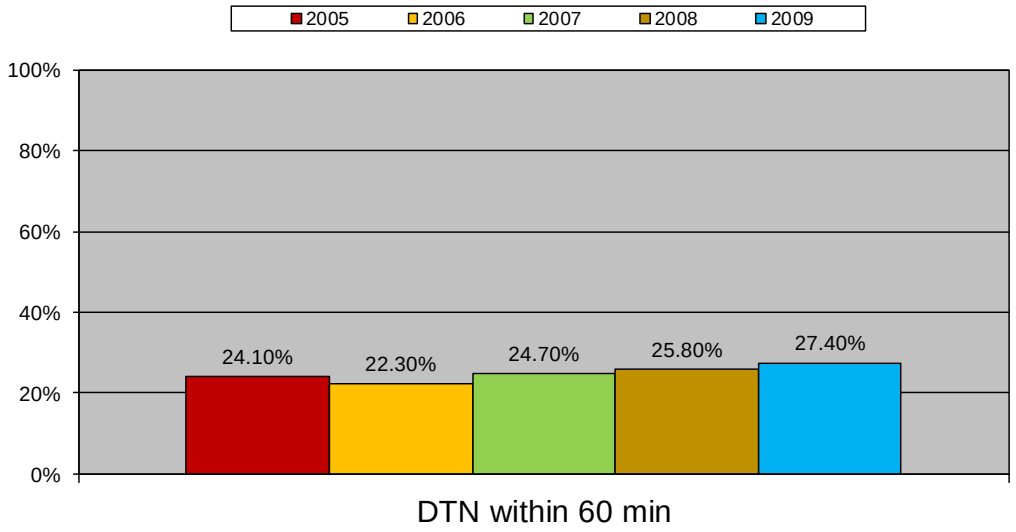
*Standard procedures and protocols should be established for benchmarking time to evaluate and treat eligible stroke patients with rt-PA expeditiously (Class I, Level of Evidence B).*

*Target treatment with rt-PA should be within 1 hour of the patient's arrival in the ED (Class I, Level of Evidence A).*

Comprehensive overview of nursing and interdisciplinary care of the acute ischemic stroke patient: a scientific statement from the American Heart. Association. *Stroke* 2009;40;2911-2944

# Substantial Opportunity to Improve Timeliness of IV alteplase in Ischemic Stroke

Percent treated within DTN benchmark of 60 minutes




Fonarow GC, Smith EE, Saver JL, Reeves MJ, Bhatt DL, Grau-Sepulveda MV, Olson DM, Hernandez AF, Peterson ED, Schwamm LH. Timeliness of tissue-type plasminogen activator therapy in acute ischemic stroke: patient characteristics, hospital factors, and outcomes associated with door-to-needle times within 60 minutes. Circulation. 2011;123(7):750-758.

# TARGET: STROKE PHASE I

- Target: Stroke was initiated by the AHA/ASA as a national collaborative comprising a broad alliance of hospitals and clinicians.
- The goal of Target: Stroke was for GWTG participating hospitals to treat at least 50% of alteplase treated acute ischemic stroke patients within 60 minutes of hospital arrival.
- An expert working group performed a literature review to identify 10 key evidence-based strategies associated with timely alteplase administration that could be most rapidly and feasibly adopted by hospitals.

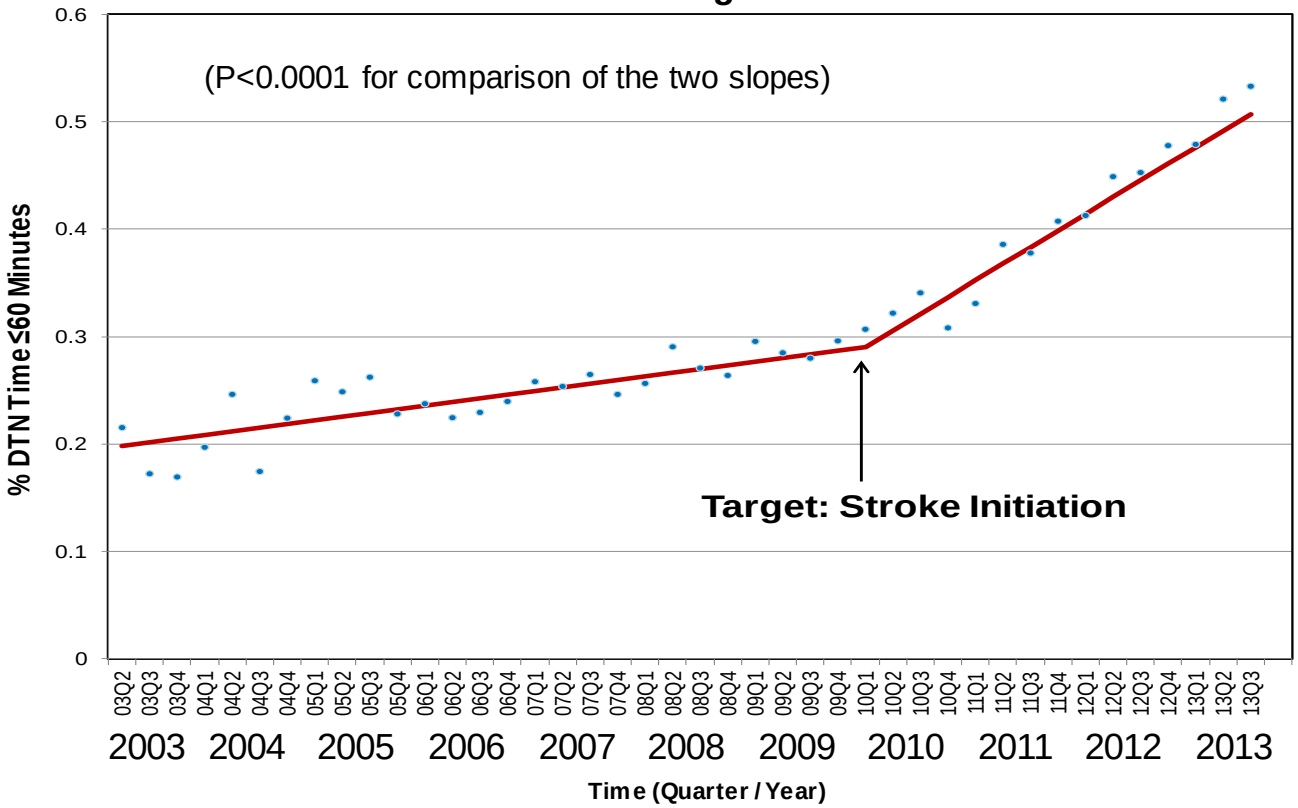
Fonarow GC et al. JAMA. 2014;311(16):1632-1640.

# TARGET: STROKE 10 KEY BEST PRACTICE STRATEGIES

1. Hospital pre-notification by Emergency Medical Services
2. Rapid triage protocol and stroke team notification
3. Single call/paging activation system for entire stroke team
4. Use of a stroke toolkit containing clinical decision support, stroke-specific order sets, guidelines, hospital-specific algorithms, critical pathways, NIH Stroke Scale and other stroke tools
5. Rapid acquisition and interpretation of brain imaging
6. Rapid Laboratory Testing (including point-of-care testing) if indicated
7. Pre-mixing alteplase medication ahead of time for high likelihood candidates
8. Rapid access to intravenous alteplase in the ED/brain imaging area
9. Team-based approach
10. Rapid data feedback to stroke team on each patient's DTN time and other performance data

Fonarow GC et al Stroke. 2011;42:2983-2989.

## Time Trend in the Proportion of Patients with DTN Times within 60 Minutes Pre- and Post-Target: Stroke



# TARGET: STROKE RESULTS: alteplase USE

The Target: Stroke intervention was also associated with an increase in alteplase use.

alteplase use in eligible patients arriving by 2 hours and treated by 3 hours: 64.7% pre- vs. 85.2% post-intervention, P<0.0001

alteplase use in eligible patients arriving by 3.5 hours and treated by 4.5 hours: 22.5% pre- vs. 63.9% post-intervention, P<0.0001

alteplase use among all acute ischemic stroke patients: 5.7% pre- vs. 8.1% post-intervention, P<0.0001

No evidence for unintended consequences with the intervention with alteplase use being avoided in patients who may have less favorable DTN times

Fonarow GC et al. JAMA. 2014;311(16):1632-1640.

# Clinical Outcomes Pre- and Post-Target: Stroke in Patients in Patients with Onset to Treatment Time within 4.5 Hours

| Outcome | Pre-Target: Stroke (n=29,986) | Post-Target: Stroke (n=53,234) | P Value | Unadjusted Odds Ratios (95% CI) | P Value | Adjusted Odds Ratios (95% CI)* | P Value* |
|---|---|---|---|---|---|---|---|
| In-Hospital Mortality | 9.95% | 8.08% | <0.0001 | 0.79 (0.75-0.84) | <0.0001 | 0.90 (0.84-0.95) | 0.0004 |
| Discharge Home | 37.6% | 43.3% | <0.0001 | 1.25 (1.20-1.29) | <0.0001 | 1.13 (1.08-1.17) | <0.0001 |
| Ambulatory Status Independent | 42.2% | 45.9% | <0.0001 | 1.16 (1.10-1.22) | <0.0001 | 1.02 (0.96-1.09) | 0.4538 |
| Symptomatic ICH | 5.74% | 4.74% | <0.0001 | 0.81 (0.75-0.88) | <0.0001 | 0.84 (0.78-0.92) | <0.0001 |
| Any alteplase Complications | 6.75% | 5.54% | <0.0001 | 0.80 (0.75-0.86) | <0.0001 | 0.84 (0.78-0.91) | <0.0001 |

*Adjusted for patient characteristics including age, sex, race, medical history of atrial fibrillation, prosthetic heart valve, previous stroke/transient ischemic attack, coronary heart disease or prior myocardial infarction, carotid stenosis, peripheral vascular disease, hypertension, dyslipidemia, and current smoking, stroke severity (NIHSS), arrival time during regular work hours, arrival mode, onset-to-arrival time; hospital characteristics of hospital size, region, teaching status, certified primary stroke center, annual volume of tPA, and annual stroke discharge.

Fonarow GC et al. JAMA. 2014;311(16):1632-1640.

# Target: Stroke Phase II

# TARGET: STROKE PHASE II

**NATIONAL GOAL:**

- Achieve DTN times within 60 minutes for 75% of eligible patients
- Achieve DTN times within 45 minutes for 50% of eligible patients


**ADDITIONAL HOSPITAL RECOGNITION**

- Target: Stroke Honor Roll: existing criteria
- Target: Stroke Honor Roll Elite: DTN ≤ 60 minutes in 75% of eligible patients
- Target: Stroke Honor Roll Elite-Plus: DTN ≤ 60 minutes in 75% of eligible patients and DTN ≤ 45 minutes in 50% of patients

**ADDITIONAL TARGET: STROKE RESOURCES**

- Updated time tracker and new tools
- Additional strategies (transfer patient directly to CT, timer or clock at bedside) and evidence
- New educational resources

# TARGET: STROKE PHASE II 12 KEY BEST PRACTICE STRATEGIES

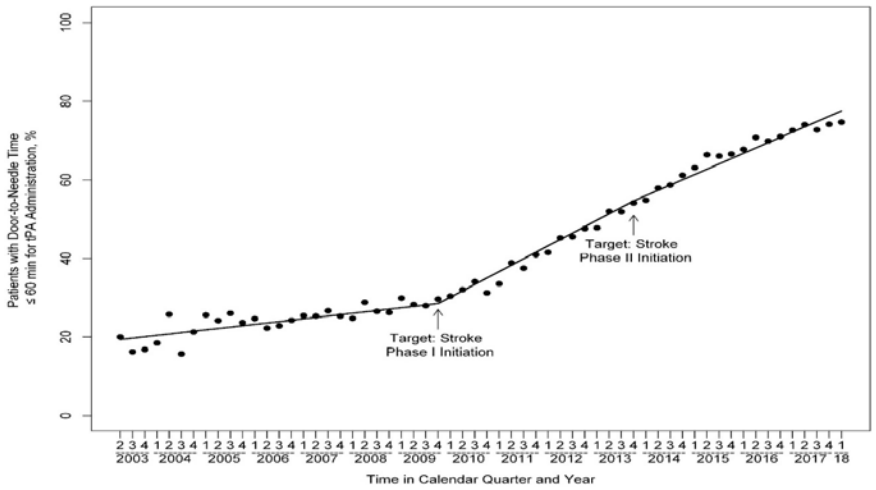
1. Hospital pre-notification by Emergency Medical Services
2. Rapid triage protocol and stroke team notification
3. Single call/paging activation system for entire stroke team
4. Use of a stroke toolkit containing clinical decision support, stroke-specific order sets, guidelines, hospital-specific algorithms, critical pathways, NIH Stroke Scale and other stroke tools
5. Timer or clock attached to chart, clipboard, or bed
6. Transfer directly to CT/MRI scanner
7. Rapid acquisition and interpretation of brain imaging
8. Rapid Laboratory Testing (including point-of-care testing) if indicated
9. Pre-mixing alteplase medication ahead of time for high likelihood candidates
10. Rapid access to intravenous alteplase in the ED/brain imaging area
11. Team-based approach
12. Rapid data feedback to stroke team on each patient's DTN time and other performance data

Updated from Fonarow GC et al Stroke. 2011;42:2983-2989.

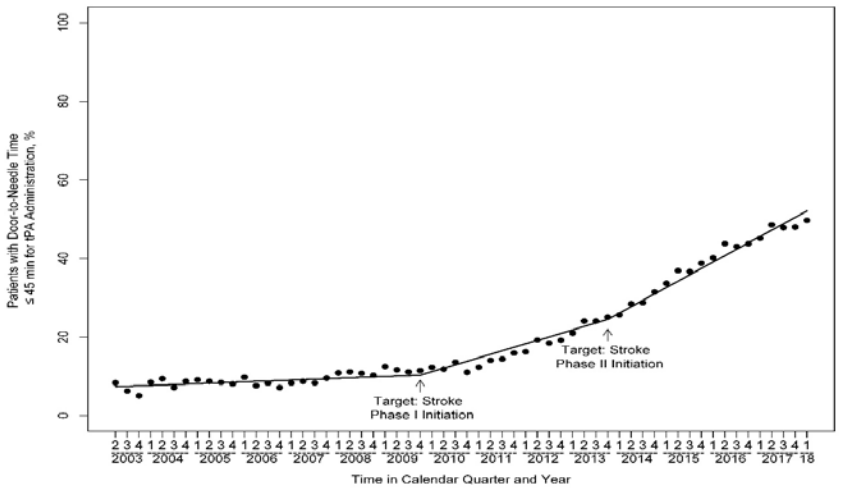
- Target: Stroke Phase II was launched in 2014 with a goal of improving DTN times to ≤60 min in 75% and ≤45 min in 50% of patients.
- This study aimed to assess whether DTN times and outcomes could be further improved with the launch of Target: Stroke Phase II in Q1 2014.
- Rates of DTN times ≤60 minutes and ≤45 minutes were compared between pre-Target: Stroke (2003-2009), Phase I (2010-2013), and Phase II (2014 to 2018) periods using weighted linear weighted regression.
- Treatment rates and clinical outcomes of in-hospital mortality, discharge home, and ambulatory status, symptomatic ICH within 36 hours were compared using GEE and adjusting for pre-specified covariates including NIHSS.
- There were 154,221 intravenous alteplase treated patients from 913 GWTG-Stroke hospitals participating during all the study periods.

# Time Trend in DTN Times within 60 and 45 Minutes Pre-Target: Stroke, Target: Stroke Phase I, and Target: Stroke Phase II

**DTN ≤ 60 Minutes**




**DTN ≤ 45 Minutes**



- Median DTN times significantly declined from Pre-Target: Stroke, to Phase I to Phase II: 78 minutes (IQR 47-81) to 66 minutes (IQR 51-87) to 50 minutes (IQR 37-66), absolute difference -28 minutes, (P<0.0001).

- The % of patients with DTN times ≤60 minutes increased from Pre-Target: Stroke to Phase I to Phase II: 26.5% to 42.7% to 68.4%, absolute difference +41.9%, (P<0.0001). In Q3 2018, 75.4% of patients had DTN times ≤60 minutes (**GOAL met**).

- The % of patients with DTN times ≤45 minutes also increased from Pre-Target: Stroke to Phase I to Phase II: 10.0% to 17.7% to 41.4%, absolute difference +31.4%, (P<0.0001). In Q3 2018, 51.7% of patients had DTN times ≤45 minutes (**GOAL met**).



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# Clinical Outcomes Pre-Target: Stroke, Target: Stroke Phase I, and Target: Stroke Phase II

| Outcome | Pre-Target: Stroke (n=24,365) | Post-Target: Stroke Phase I (n=44,257) | Post-Target: Stroke Phase II (74,447) | P value | Adjusted OR 95% CI (Phase I vs Pre Target: Stroke) | Adjusted OR 95% CI (Phase II vs Pre Target: Stroke) |
|---|---|---|---|---|---|---|
| **In-Hospital Mortality** | 10.0% | 8.2% | 6.2% | <0.0001 | 0.85 (0.80-0.91) | 0.72 (0.67-0.77) |
| **Discharge Home** | 35.8% | 41.5% | 49.0% | <0.0001 | 1.21 (1.16-1.27) | 1.35 (1.27-1.45) |
| **Ambulatory Status Independent** | 41.5% | 44.6% | 52.7% | <0.0001 | 1.05 (0.99-1.22) | 1.35 (1.27-1.45) |
| **Symptomatic ICH within 36 Hours** | 5.7% | 4.5% | 3.6% | <0.0001 | 0.79 (0.72-0.86) | 0.67 (0.61-0.73) |

# TARGET STROKE PHASE II

The timeliness of thrombolytic administration improved in GWTG-Stroke hospitals after initiation of Phase II of the Target: Stroke quality initiative. The national goals were achieved in 2018.

Target: Stroke Phase II was associated with additional improvements in clinical outcomes.

The results of this study provide further evidence supporting the favorable impact of Target: Stroke.

Nevertheless, there remain opportunities to further improve the timeliness of acute ischemic stroke care including the timeliness of endovascular therapy.



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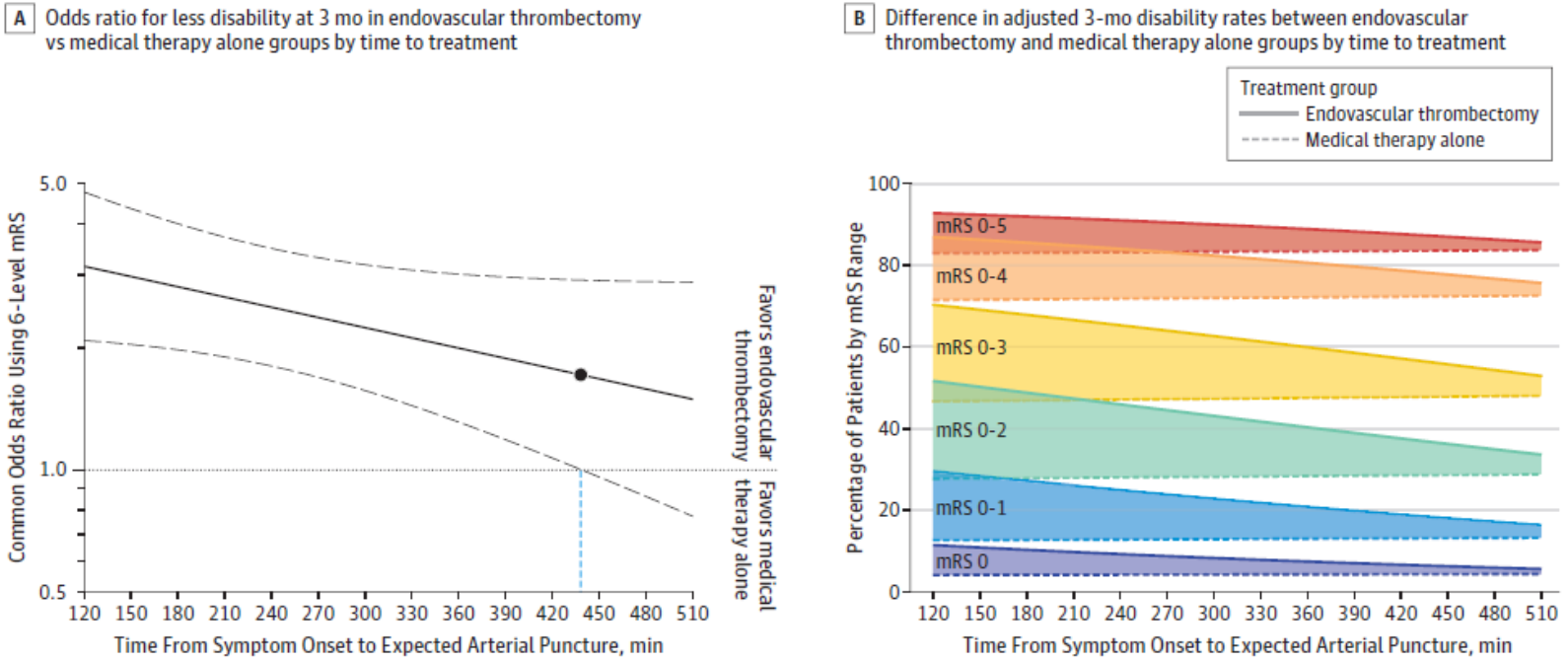
# TARGET: STROKE PHASE III

# Association Of Time From Symptom Onset To Start Of Endovascular Thrombectomy (Arterial Puncture) With Disability Levels At 3 Months In Endovascular (N = 633) Vs Medical Therapy (N = 645) Groups

**Figure 1. Association of Time From Symptom Onset to Expected Time of Endovascular Thrombectomy Procedure Start (Arterial Puncture) With Disability Levels at 3 Months in Endovascular (n = 633) vs Medical Therapy (n = 645) Groups**




Saver et al. JAMA. 2016 Sep 27;316(12):1279-88.



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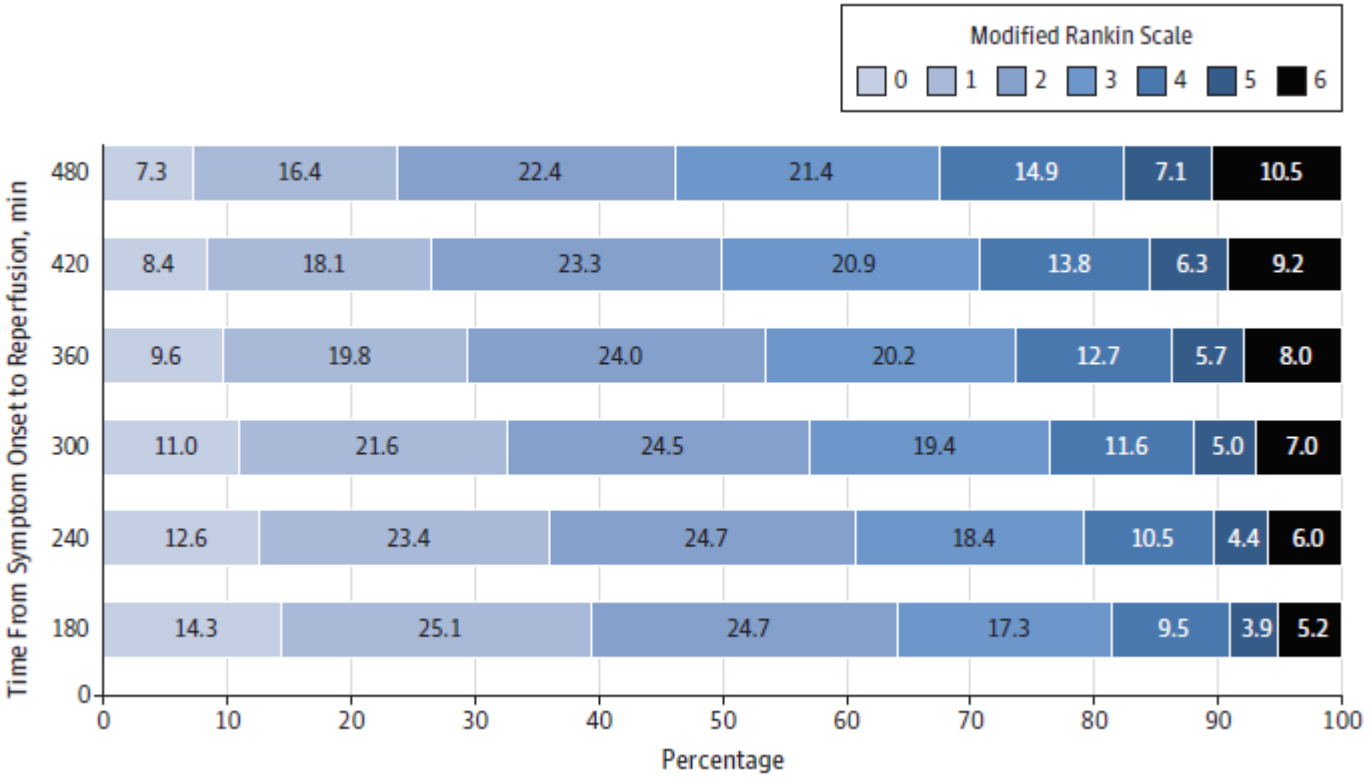
# Association Of Time From Symptom Onset To Actual Reperfusion Among Patients In The Endovascular Thrombectomy Group Achieving Substantial Reperfusion With 90-day Disability Outcomes Using An Adjusted Ordinal Logistic Regression Model




Data are from the 390 endovascular group patients in whom substantial reperfusion (modified TICI 2b/3) was achieved. Rows are intercepts from a single model using all 390 patients, treating time as a continuous variable. Model adjusted for age, sex, baseline stroke severity, target occlusion location, and concomitant intravenous alteplase.



Saver et al. JAMA. 2016 Sep 27;316(12):1279-88.

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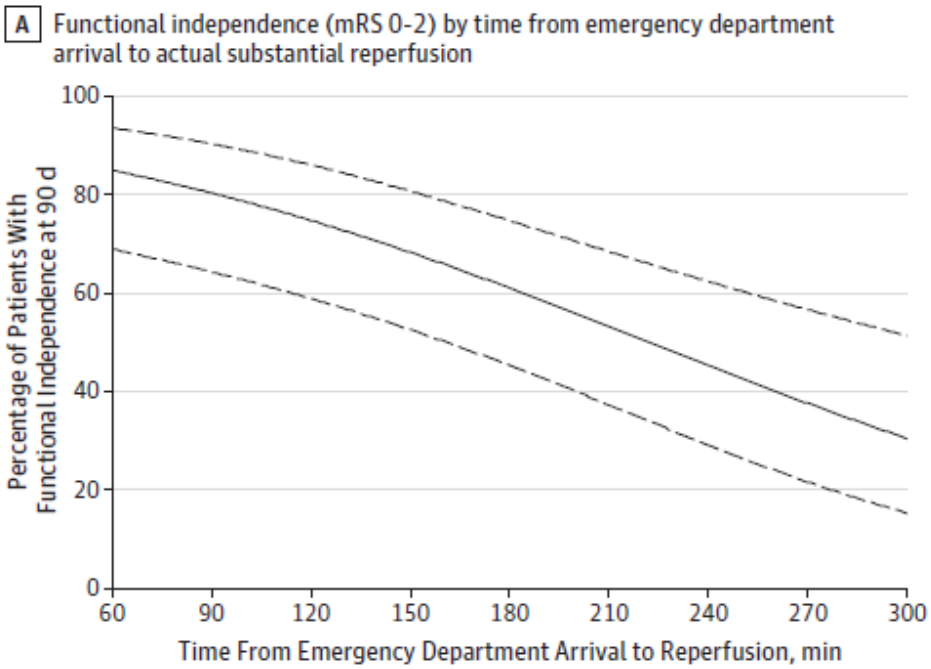
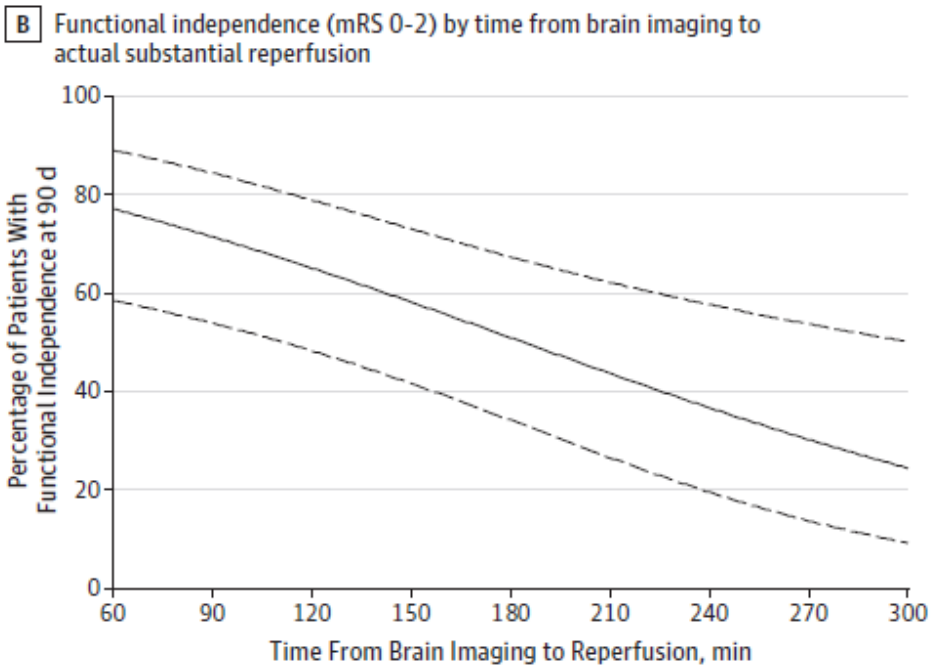
# Relation Between In-hospital Treatment Speeds And Functional Independence (mRS 0-2) At 3 Months Among Direct Arrival Patients In The Endovascular Thrombectomy Group Achieving Substantial Reperfusion (mTICI Score 2b Or 3)




Data are from the 390 endovascular group patients in whom substantial reperfusion (modified TICI 2b/3) was achieved. Rows are intercepts from a single model using all 390 patients, treating time as a continuous variable. Model adjusted for age, sex, baseline stroke severity, target occlusion location, and concomitant intravenous alteplase. Curves were obtained from logistic regression of outcome on time as a continuous variable, after adjustment for age, sex, baseline NIHSS, target occlusion location, and concomitant intravenous alteplase. Solid curves indicate point estimates. Dashed curves indicate 95%CIs..



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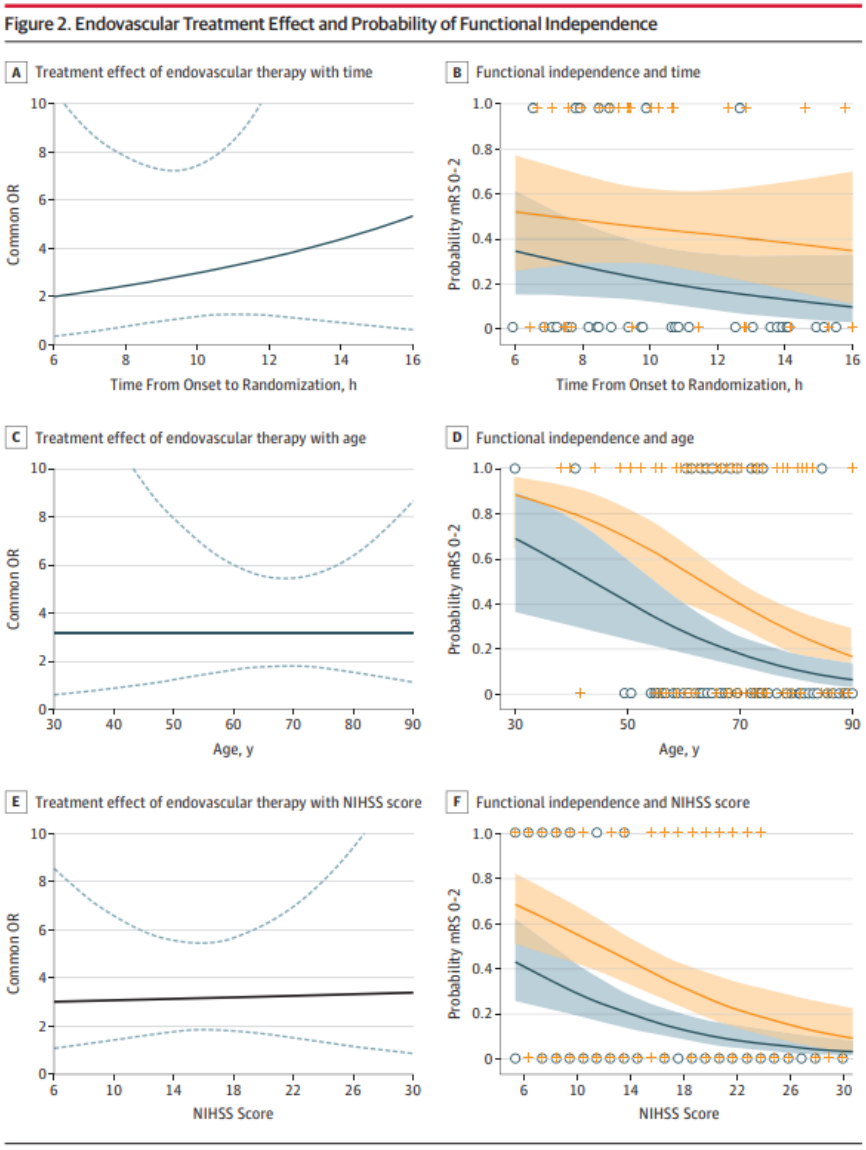
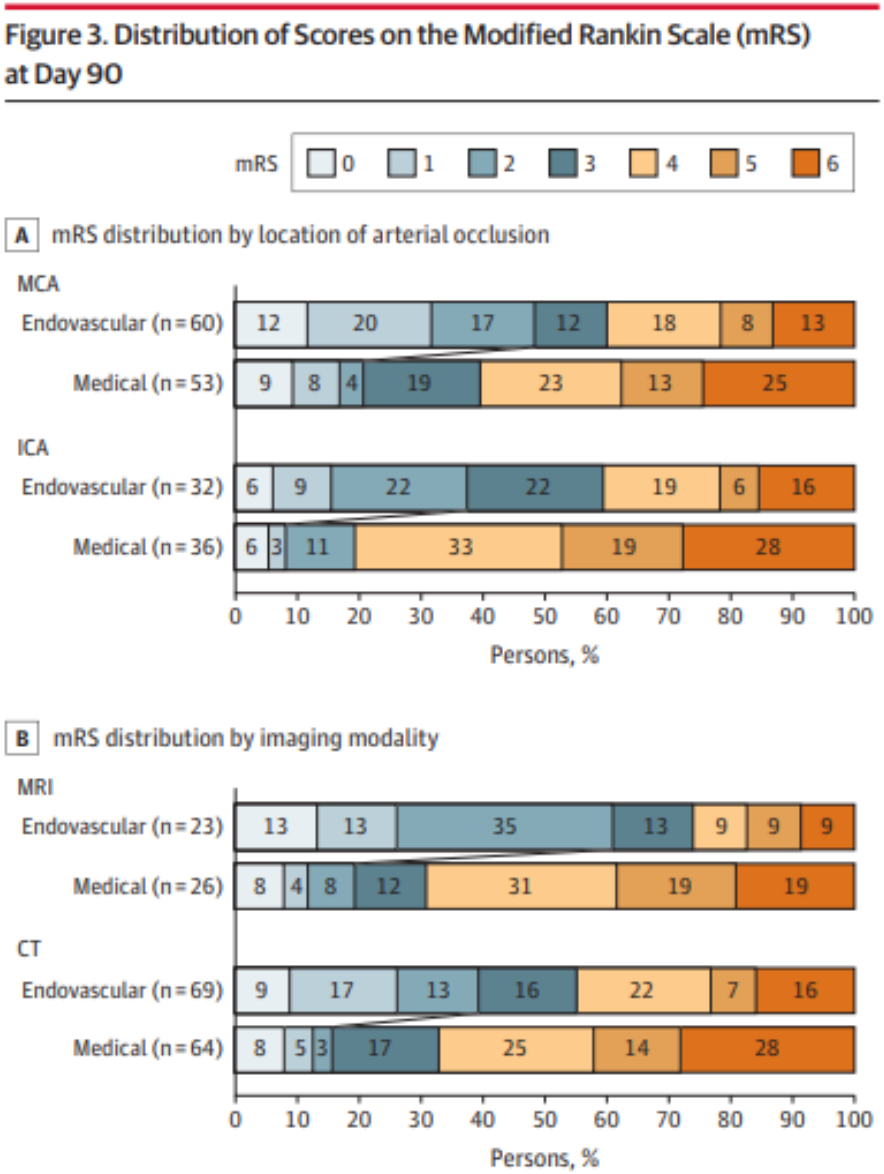
Saver et al. JAMA. 2016 Sep 27;316(12):1279-88.

The common odds ratio for improved functional outcome with endovascular therapy, adjusted for these variables, was 3.1 (95% ci, 1.8-5.4). There was **no significant interaction** between this treatment effect and **age** (P = .93), **NIHSS** (P = .87), **time** to randomization (P = .56), **imaging** modality (P = .49), or **location** of the arterial occlusion (P = .54). [DEFUSE3 Study]




Lansberg et al. JAMA Neurol. 2019;76(4):447-453

# TARGET: STROKE PHASE III NATIONAL GOALS

## PRIMARY GOALS:

- Achieve door-to-needle times within 60 minutes in 85% or more of acute ischemic stroke patients treated with IV thrombolytics
- Achieve **door-to-device** times (arrival to first pass of **thrombectomy** device) in 50% or more of eligible acute ischemic stroke patients within 90 minutes (for direct arriving patients) and within 60 minutes (for transfer patients) treated with endovascular therapy (EVT)

## SECONDARY GOALS:

- Achieve door-to-needle times within 45 minutes in 75% or more of acute ischemic stroke patients treated with IV thrombolytics
- Achieve door-to-needle times within 30 minutes in 50% or more of acute ischemic stroke patients treated with IV thrombolytics

# Target: Stroke Phase III Door-to-Device Time Key Best Practice Strategies

**Target: Stroke advocates the adoption of these 12 key best practice strategies for reducing door-to-device times for endovascular therapy in acute ischemic stroke.**

1. Rapid Administration of Alteplase
2. Rapid Acquisition and Interpretation of CT/MR Angiography
3. Rapid Acquisition and Interpretation of Additional Imaging
4. Pre-Notification and Rapid Activation of the Neurointerventional Team
5. Rapid Availability of the Neurointerventional Team
6. Timer or Clock Attached to Chart, Clip Board, or Bed
7. Transfer Directly to Neuroangiography Suite
8. Transfer Directly from Brain Imaging Suite to Neuroangiography Suite
9. Endovascular Therapy Ready Neuroangiography Suite
10. Team Based Approach
11. Anesthesia Access and Protocols
12. Prompt Data Feedback

# TARGET: STROKE PHASE III RECOGNITION

- **HONOR ROLL**
- **HONOR ROLL ELITE**
- **HONOR ROLL ELITE PLUS**
- **HONOR ROLL ADVANCED THERAPY**

# RECOGNITION CRITERIA

| | TARGET: STROKE PHASE II | TARGET: STROKE PHASE III |
|---|---|---|
| **HONOR ROLL** | Time to thrombolytic therapy within 60 minutes in 50% or more of acute ischemic stroke patients treated with IV tPA | DTN times within 60 minutes for at least **75%** of applicable patients are required. |
| **HONOR ROLL ELITE** | Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA | DTN times within 60 minutes for at least **85%** of applicable patients are required. |
| **HONOR ROLL ELITE PLUS** | Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA AND time to thrombolytic therapy within 45 minutes in 50% of acute ischemic stroke patients treated with IV tPA | DTN times within **45 minutes** for at least 75% of applicable patients and DTN times within **30 minutes** for at least 50% of applicable patients. |
| **HONOR ROLL ADVANCED THERAPY** | - | DTD times in at least 50% of applicable patients within 90 minutes for direct arriving and within 60 minutes for transfers |



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# Recognition Eligibility

- Must currently hold Gold, Silver or Bronze performance achievement status in Get With The Guidelines®-Stroke
- At minimum, met the goal of door-to-needle (DTN) times as specified for each award in applicable patients (minimum of six patients) for at least one calendar quarter for the initial honor roll award and 4 consecutive quarters for renewal of the honor roll and initial or renewal of honor roll elite or honor roll elite plus.
- Honor Roll Advanced Therapy requires door-to-device (DTD) times in applicable patients (minimum of six patients that qualify for the measure denominator, such that the total of direct arriving or transfer is six or more) for at least one quarter for initial award and for 4 consecutive quarters for renewal of the honor roll advanced therapy.

# Recognition Eligibility (continued)

- Either the Time to Intravenous Thrombolytic therapy - 60 min or Door to IV rt-PA in 60 min (historic-quality) measure may be used to qualify.
  - Comparable measure constructs for 45 minute and 30 minutes may be used as well.

- For Honor Roll Advanced Therapy, patients with arrival times >6 hours after last known well can be included or excluded at the discretion of participating hospitals but this decision must be applied consistently to all to all endovascular patients.

# Conclusions

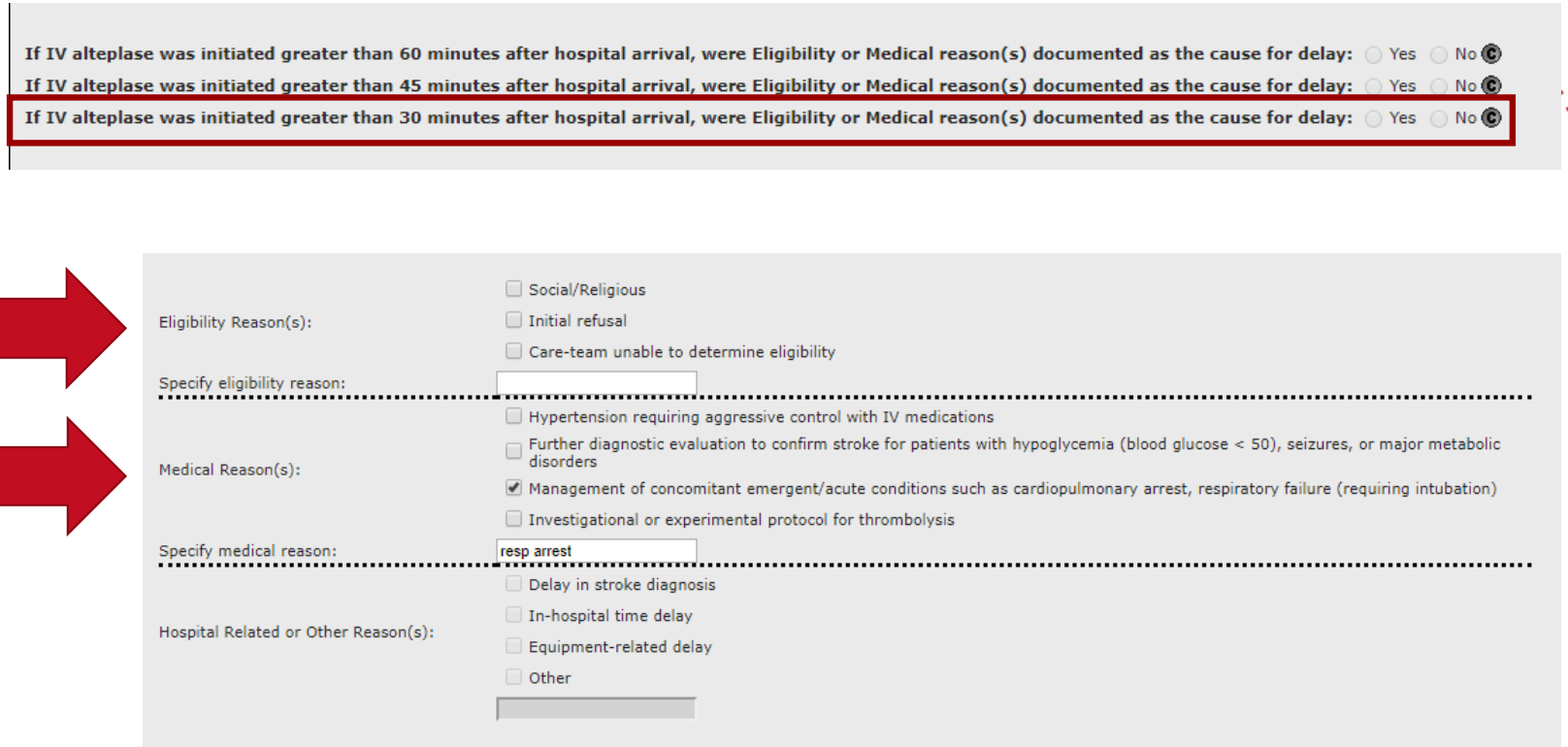
- Findings from Target: Stroke Phase I and II support the favorable impact of applying performance improvement techniques: identifying best practices, clinical decision support, guideline-driven care improvement tools, educational outreach, collaborative support, performance profiling, feedback, and recognition.
- Programs to facilitate rapid administration of thombolytics such as Target: Stroke have substantially improved care and outcomes and should be applied globally
- Target: Stroke Phase II goals were achieved
- Target: Stroke Phase III aims to facilitate and incentive hospitals and stroke systems of care to provide IV thrombolytic and endovascular therapy to eligible patients with acute ischemic stroke in a timely fashion.
- Target: Stroke Phase III is designed to further improve care and outcomes for patients with acute ischemic stroke.

# TARGET: STROKE PHASE III PMT UPDATE

# SUMMARY OF UPDATES

- TARGET: STROKE 3 UPDATES
  - Stroke / Limited form
  - MER form
  - Measures
- ADDITIONAL MEASURE UPDATES
  - DIDO measure
- TJC LAYER UPDATES
  - STK-OP-1 and CSTK-01 added to STK layer
  - ASR-IP and ASR-OP measure bundles
- OPERATIONAL UPDATES
  - Removed error when not completing advanced imaging questions
  - CSTK benchmarking error when running CSTK-10 report
  - New filter options
  - Additional items

# STROKE FORM - REASON FOR DELAY IN IV ALTEPLASE – 30 MINUTES



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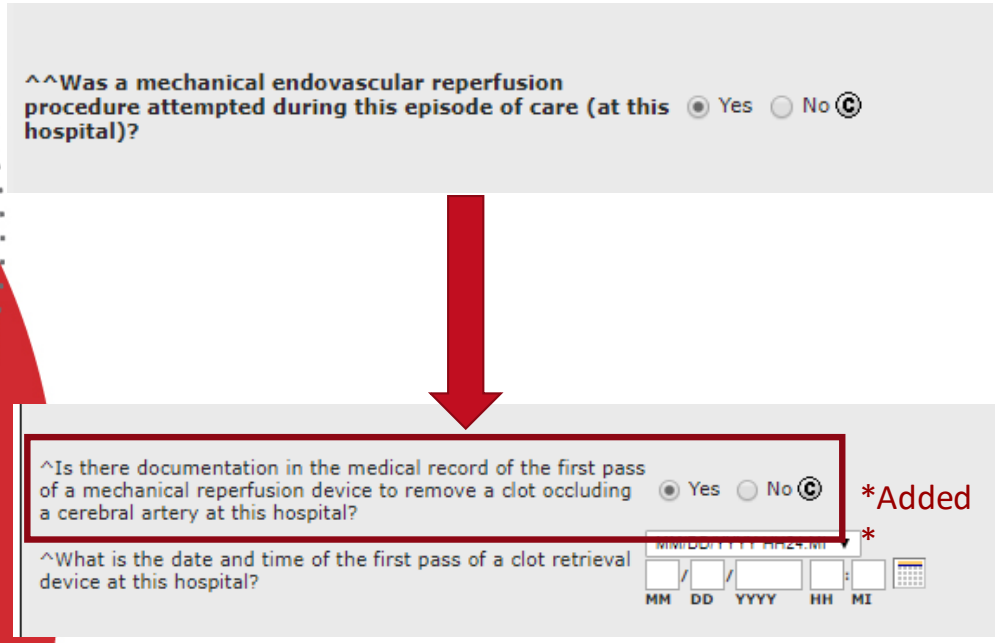
# MER FORM - ADDED "DOCUMENTATION OF FIRST PASS" DATA ELEMENT




IF "Was a mechanical endovascular reperfusion procedure attempted during this episode of care (at this hospital)?" = Yes, then First Pass question is required

- Added to MER form group (previously only on Comprehensive layer)
- Used for collection of first pass time for Target: Stroke Advanced



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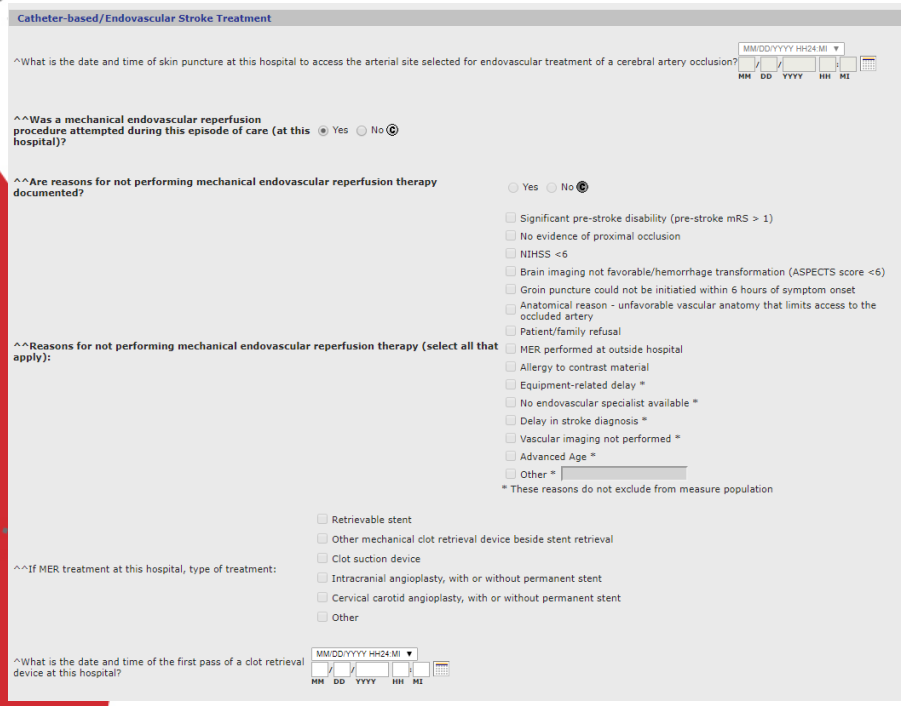
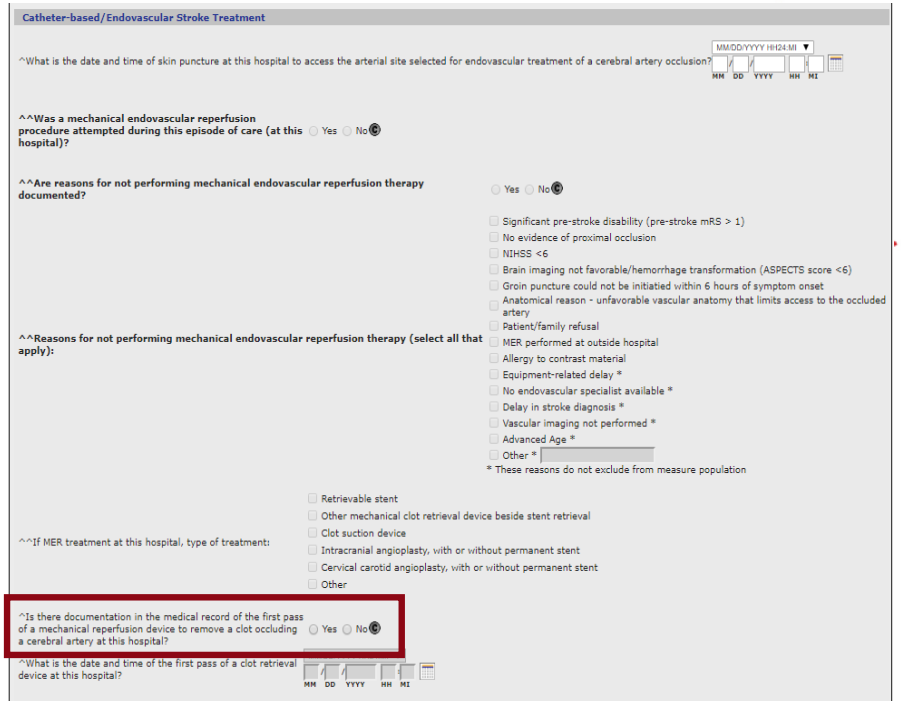
# MER FORM – DOCUMENTATION OF FIRST PASS




Will impact sites with MER form group active and not Comprehensive.



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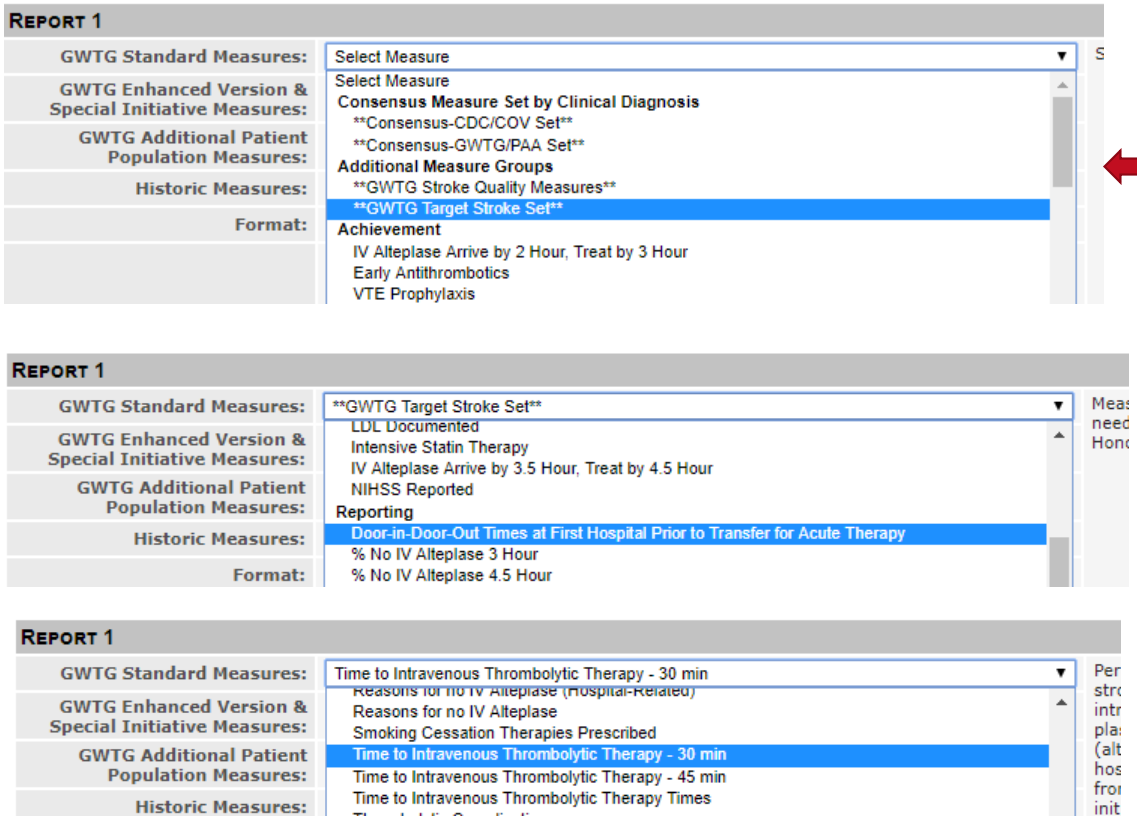
# UPDATED TARGET: STROKE MEASURES




Added:

- Door-in-Door-Out Times at First Hospital Prior to Transfer for Acute Therapy
- Time to Intravenous Thrombolytic Therapy - 30 min
- Door to Start of Revascularization (DTR) within 60 minutes for patients transferred from an outside hospital OR 90 minutes for patients presenting directly.

New Reporting Measures



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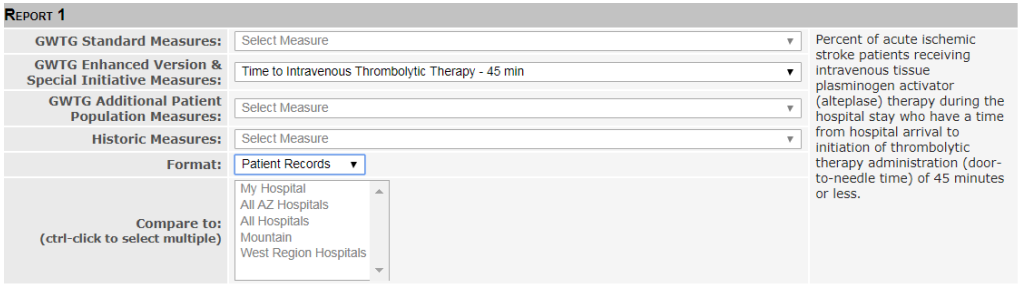
# UPDATE "TIME TO INTRAVENOUS THROMBOLYTIC THERAPY - 45 MIN" MEASURE LOGIC




## Patient Records Report for measure Time to Intravenous Thrombolytic Therapy - 45 min

**Percent of acute ischemic stroke patients receiving intravenous tissue plasminogen activator (alteplase) therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 45 minutes or less.**

**Time Period:** Q1 2019 - Q1 2019; **Site:** AHA Demo test- Stroke + CSTK + STK (88250)
**Patients Included:** 0; **Patients Excluded:** 4
**Patients in Numerator:** 0; **% in Numerator:**

**Show filters** This report shows all records. 4 of 4

| Patient ID | Included in Results? | In Numerator? | Age: | Patient location when stroke symptoms discovered: | Hospital Arrival Date and Time | IV Alteplase Initiation Date/Time | When was the patient last known to be well? | Cause for IV alteplase delay - 45 minutes | Cause for IV alteplase delay Eligibility Reason(s) | Cause for IV alteplase delay Medical Reason(s) | Clinical Trial | IV alteplase at an outside hospital or EMS / Mobile Stroke Unit? | Final clinical diagnosis related to stroke: | IV alteplase initiated at this hospital? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test101 | Excluded | | 37 | Not in a healthcare setting | 01/01/2019 10:00 | | 01/01/2019 09:00 | | | | No | | Ischemic Stroke | No |
| Test202 | Excluded | | 68 | Not in a healthcare setting | 01/08/2019 10:00 | 01/08/2019 11:00 | 01/08/2019 09:00 | Yes | Care-team unable to determine eligibility | | No | No | Ischemic Stroke | Yes |
| Test303 | Excluded | | 78 | Another acute care facility | 02/01/2019 10:00 | | 02/01/2019 08:00 | | | | No | Yes | Ischemic Stroke | No |
| Test404 | Excluded | | 63 | Not in a healthcare setting | 01/01/2019 10:00 | | 01/01/2019 09:00 | | | | No | Yes | Ischemic Stroke | No |



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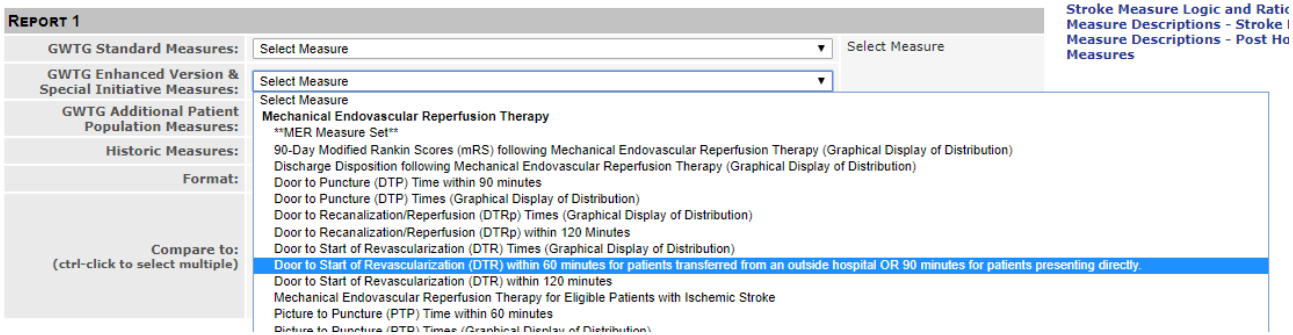
# ADDED MEASURE - DOOR TO START OF REVASCULARIZATION




## Patient Records Report for measure Door to Start of Revascularization (DTR) within 60 minutes for patients transferred from an outside hospital OR 90 minutes for patients presenting directly.

**Percentage of patients with acute ischemic stroke who receive mechanical endovascular reperfusion therapy and for whom the first pass (i.e., deployment) of the device is <= 60 minutes in patients who are transferred in from an outside hospital or < 90 minutes for patients presenting directly.**

**Time Period:** Jan 2019 - Mar 2019; **Site:** AHA UAT Site - Stroke + MER (91870)
**Patients Included:** 2; **Patients Excluded:** 1
**Patients in Numerator:** 1; **% in Numerator:** 50.0%; **Patient in Exceptions:** 0

**Show filters** This report shows all records. 3 of 3

| Patient ID | Included in Results? | In Numerator? | Exception? | Age: | Final clinical diagnosis related to stroke: | First Pass of a Mechanical Reperfusion Device | Patient location when stroke symptoms discovered: | Hospital Arrival Date and Time | First Pass Date/Time | Discharge Date: | Elective Carotid Intervention | MER delay documented | MER Reasons for delay | How patient arrived at your hospital |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3563q | Included | No | No | 68 | Ischemic Stroke | Yes | Not in a healthcare setting | 01/01/2019 10:00 | 01/01/2019 11:40 | 01/05/2019 10:00 | No | No | | Transfer from other hospital |
| 3563t | Included | Yes | | 78 | Ischemic Stroke | Yes | Not in a healthcare setting | 01/01/2019 10:00 | 01/01/2019 10:50 | 01/03/2019 10:00 | No | No | | Transfer from other hospital |



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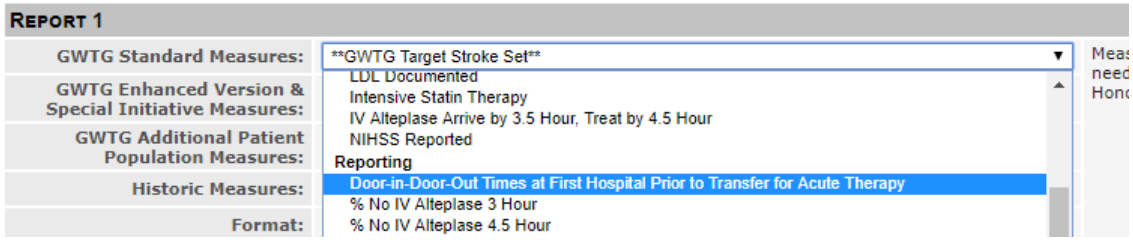
# ADDITIONAL MEASURE UPDATES

# DOOR-IN-DOOR-OUT TIMES AT FIRST HOSPITAL PRIOR TO TRANSFER FOR ACUTE THERAPY




## Patient Records Report for measure Door-in-Door-Out Times at First Hospital Prior to Transfer for Acute Therapy

**Percentage of confirmed stroke patients transported to your hospital by EMS and for whom <= 90 minutes was spent in the ED prior to transfer to a higher-level stroke center (e.g. PSC, CSC, etc.) for time-critical therapy.**
**Time Period:** Mar 2019 - Mar 2019; **Site:** AHA Demo test- GWTG-Stroke + ASR (92490)
**Patients Included:** 1; **Patients Excluded:** 0
**Patients in Numerator:** 0; **% in Numerator:** 0.0%; **Patient in Exceptions:** 0

**Show filters** This report shows all records. 1 of 1

| Patient ID | Included in Results? | In Numerator? | Exception? | Age: | Final clinical diagnosis related to stroke: | Not admitted | Reason Not Admitted | Patient arrival transfer reason | Patient location when stroke symptoms discovered: | How patient arrived at your hospital | Hospital Arrival Date and Time | Discharge Date: | Clinical Trial (Meaningful Use) | Elective Carotid Intervention | Documented reason for delay in transfer to referral facility? | Specific reason for delay documented in transfer patient (check all that apply): |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mar101 | Included | No | No | 47 | Ischemic Stroke | Yes, not admitted | Transferred from your ED to another acute care hospital | Post Management of IV alteplase (e.g. Drip and Ship) | Not in a healthcare setting | EMS from home/scene | 03/01/2019 10:00 | 03/01/2019 12:20 | | No | Yes | Initial refusal |



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# REASON FOR TRANSFER


Requires “Select reason(s) for why patient transferred” when “Transferred from your ED to another acute care hospital” is selected.



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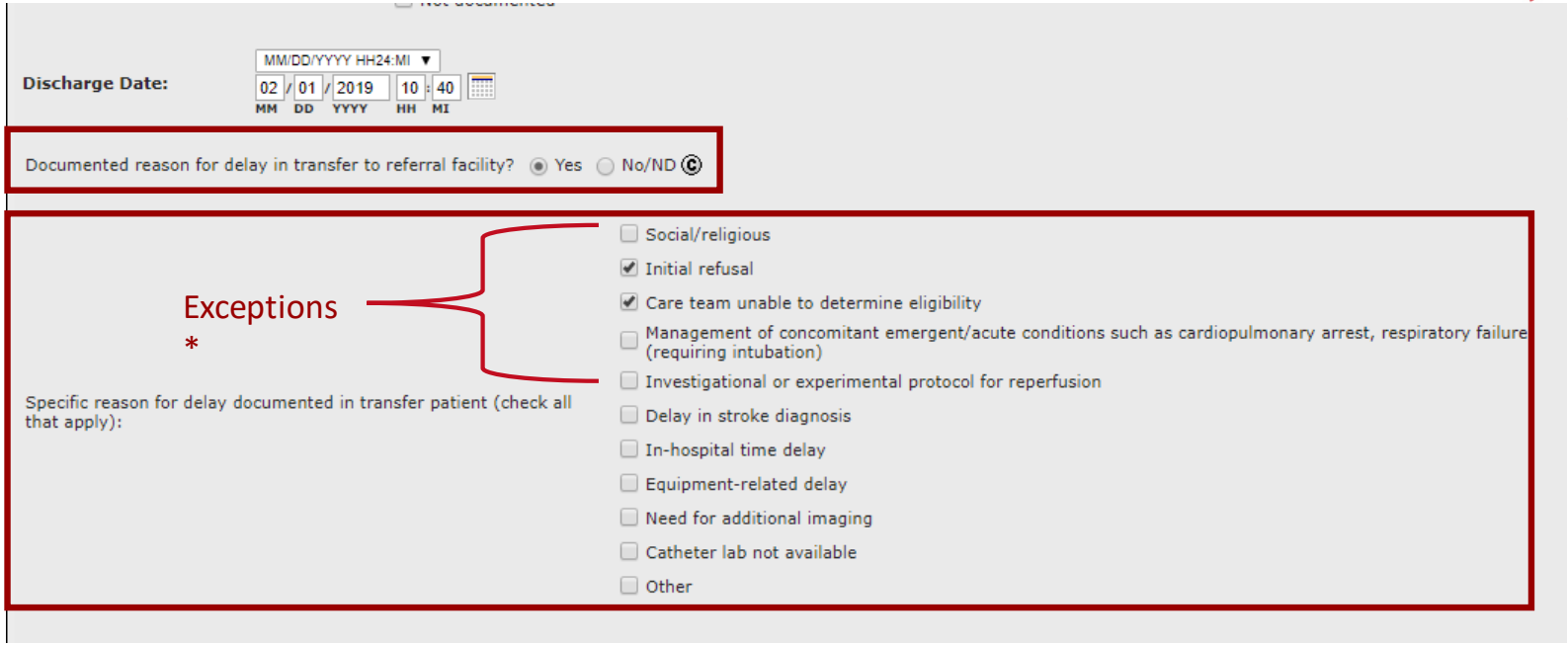
# STROKE FORM - REASON FOR DELAY IN TRANSFER




(Door-in-Door-Out Times at First Hospital Prior to Transfer for Acute Therapy)

*Removed from the denominator if present and numerator is not met



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# INTENSIVE STATIN THERAPY (QUALITY MEASURE)

**REPORT 1**

| | |
|---|---|
| **GWTG Standard Measures:** | Select Measure |
| **GWTG Enhanced Version & Special Initiative Measures:** | Intensive Statin Therapy |
| **GWTG Additional Patient Population Measures:** | Select Measure |
| **Historic Measures:** | Select Measure |
| **Format:** | Patient Records |
| **Compare to: (ctrl-click to select multiple)** | My Hospital<br>All AZ Hospitals<br>All Hospitals<br>Mountain<br>West Region Hospitals<br>All Hospitals (non-expedited) |

Percentage of Ischemic Stroke and TIA patients who are prescribed high-intensity statin therapy at discharge OR, if > 75 years of age, are prescribed at least moderate-intensity statin therapy at discharge.

Print | Export to Excel | Export to .csv

**Patient Records Report for measure Intensive Statin Therapy**

Percentage of Ischemic Stroke and TIA patients who are prescribed high-intensity statin therapy at discharge OR, if > 75 years of age, are prescribed at least moderate-intensity statin therapy at discharge.
Time Period: Jan 2019 - Mar 2019; Site: 1 JC-Stroke (38578)
Patients Included: 3; Patients Excluded: 3
Patients in Numerator: 0; % in Numerator: 0.0%; Patient in Exceptions: 0

Show filters This report shows all records. 6 of 6

| Patient ID | Included in Results? | In Numerator? | Exception? | Discharge Date: | Age: | Patient location when stroke symptoms discovered: | Final clinical diagnosis related to stroke: | When is the earliest documentation of comfort measures only? | Discharge Status | Discharge Disposition | Evidence of Atherosclerosis | Intensive Statin Therapy | Not admitted | Clinical Trial | Elective Carotid Intervention | LDL: | Cholesterol Reducing Tx: | Statin Medication | Statin Dose | Reason for Not Prescribing Statin Medication at Discharge | Stroke Form Type Bitmap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12345 | Included | No | No | 01/29/2019 | 27 | | Ischemic Stroke | | | | | | No, patient admitted as inpatient | | | | | | | | 1 |
| PAT01 | Included | No | No | 02/01/2019 00:00 | 56 | | Ischemic Stroke | 4 - Not Documented/UTD | | 8 Not Documented or Unable to Determine (UTD) | | | No, patient admitted as inpatient | No | No | | | | | | 1 |
| PAT19 | Included | No | No | 02/07/2019 00:00 | 56 | | Ischemic Stroke | | | | | | No, patient admitted as inpatient | No | No | | | | | | 1 |
| 1234 | Excluded | | | 01/01/2019 01:00 | 28 | | | | | | | | No, patient admitted as inpatient | | | | | | | | 1 |
| numfilter01 | Excluded | | | 02/11/2019 00:00 | 31 | Not in a healthcare setting | Ischemic Stroke | | | 2 Hospice - Home | | NC | No, patient admitted as inpatient | | | | None - contraindicated | | | Yes | 1 |
| PAT28 | Excluded | | | 02/27/2019 00:00 | 9 | Stroke occurred after hospital arrival (in ED/Obs/inpatient) | Ischemic Stroke | | | | | Yes | No, patient admitted as inpatient | | | | Statin | Amlodipine + Atorvastatin (Caduet) | 5/80 mg | No | 1 |

Date of report: 02/28/2019 04:11:39 GMT-05:00 run by User: JC-Stroke 1 (1jcstroke) at Site: 1 JC-Stroke (38578) in Stroke PMT
Please note: GWTG aggregate comparative data is intended for internal quality improvement. Permission is required from the American Heart Association and Quintiles for external presentation or publication of benchmark data.



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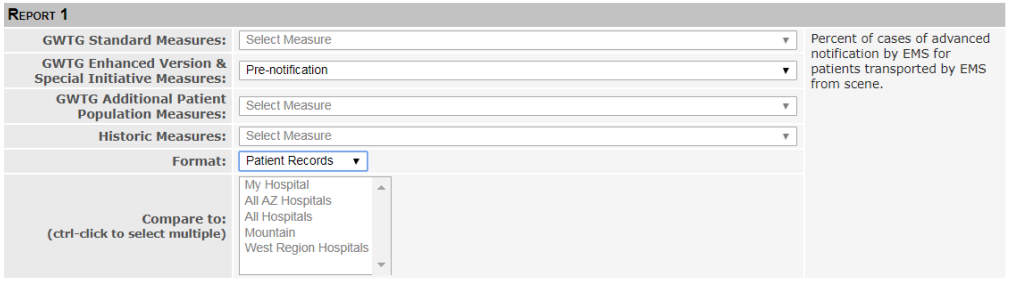
# UPDATED PRE-NOTIFICATION MEASURE




Added:
Inclusion – Arrived by MSU

## Patient Records Report for measure Pre-notification

**Percent of cases of advanced notification by EMS for patients transported by EMS from scene.**
**Time Period:** Q1 2019 - Q1 2019; **Site:** AHA Demo test- Stroke + CSTK + STK (88250)
**Patients Included:** 2; **Patients Excluded:** 2
**Patients in Numerator:** 2; **% in Numerator:** 100.0%

**Show filters** This report shows all records. 4 of 4

| Patient ID | Included in Results? | In Numerator? | How patient arrived at your hospital | Age: | Final clinical diagnosis related to stroke: | Clinical Trial | Elective Carotid Intervention | Advanced notification by EMS or MSU? |
|---|---|---|---|---|---|---|---|---|
| Test202 | Included | Yes | EMS from home/scene | 68 | Ischemic Stroke | No | No | Yes |
| Test404 | Included | Yes | Mobile Stroke Unit | 63 | Ischemic Stroke | No | No | Yes |
| Test101 | Excluded | | Private transport/taxi/other from home/scene | 37 | Ischemic Stroke | No | No | |
| Test303 | Excluded | | Transfer from other hospital | 78 | Ischemic Stroke | No | No | |



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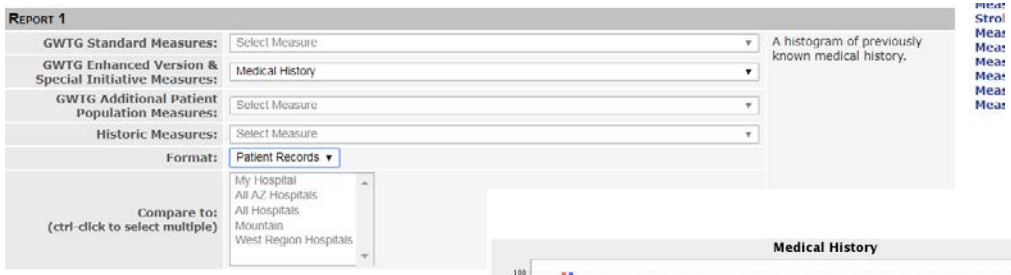
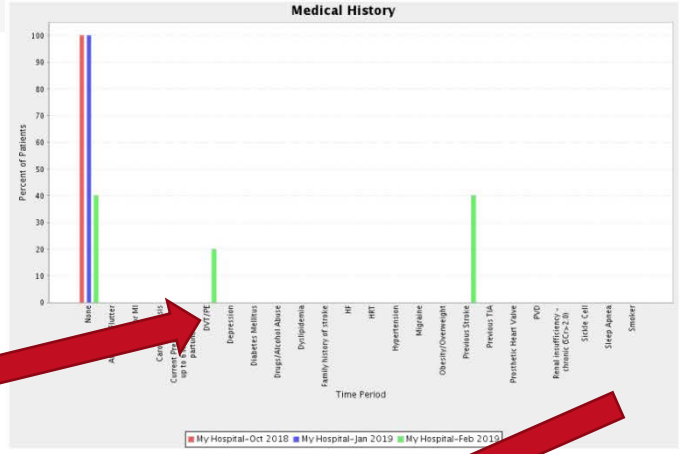
# UPDATED MEDICAL HISTORY MEASURE




Added:
Inclusion – DVT/PE




**Medical History**

Note: Time periods/Categories at the end of the graph and data table have been omitted because there were no patient records during that time.

| Benchmark Group | Time Period | None | Atrial Fib/Flutter | CAD/Prior MI | Carotid Stenosis | Current Pregnancy (or up to 6 weeks post partum) | DVT/PE | Depression | Diabetes Mellitus | Drugs/Alcohol Abuse | Dyslipidemia | Family history of stroke | HF | HRT | Hypertension | Migraine | Obesity/Overweight | Previous Stroke | Previous TIA | Prosthetic Heart Valve | PVD | Renal insufficiency - chronic (SCr>2.0) | Sickle Cell | Sleep Apnea | Smoker | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| My Hospital | Oct 2018 | 1 (100%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 |
| | Nov 2018 | | | | | | | | | | | | | | | | | | | | | | | | | 0 |
| | Dec 2018 | | | | | | | | | | | | | | | | | | | | | | | | | 0 |
| | Jan 2019 | 2 (100%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 2 |
| | Feb 2019 | 2 (40%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (20%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 2 (40%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 5 |



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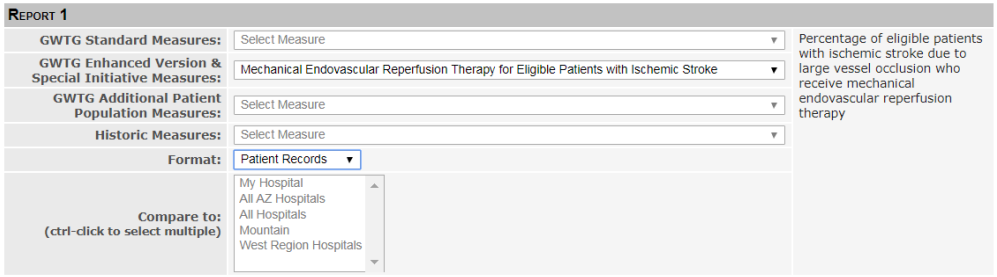
# UPDATE MECHANICAL ENDOVASCULAR REPERFUSION THERAPY FOR ELIGIBLE PATIENTS WITH ISCHEMIC STROKE MEASURE




Added:
Inclusion – M2
Exclusion – Allergy to contrast material

## Patient Records Report for measure Mechanical Endovascular Reperfusion Therapy for Eligible Patients with Ischemic Stroke

Percentage of eligible patients with ischemic stroke due to large vessel occlusion who receive mechanical endovascular reperfusion therapy
**Time Period:** Jan 2019 - Dec 2019; **Site:** 1 JC-Stroke (38578)
**Patients Included:** 0; **Patients Excluded:** 8
**Patients in Numerator:** 0; **% in Numerator:** ?; **Patient in Exceptions:** 1

Show filters This report shows all records. 8 of 8

| Patient ID | Included in Results? | In Numerator? | Exception? | Age: | Final clinical diagnosis related to stroke: | Target lesion visualized | Site of occlusion: | MER ICA | MER MCA | NIHSS Score Documented Closest to IA Alteplase or MER Initiation | Hospital Arrival Date and Time | When was the patient last known to be well? | Patient location when stroke symptoms discovered: | Discharge Date: | Clinical Trial | Elective Carotid Intervention | Documented reasons for no MER | Reasons for not performing MER | MER at this hospital? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1234 | Excluded | | | 28 | | | | | | | 12/01/2018 12:00 | | | 01/01/2019 01:00 | | | | | |
| 12345 | Excluded | | | 27 | Ischemic Stroke | | | | | | 12/01/2018 | 01/23/2019 00:00 | | 01/29/2019 | | | | | Yes |
| numfilter01 | Excluded | | | 31 | Ischemic Stroke | | | | | | 02/10/2018 01:00 | 02/09/2018 10:00 | Not in a healthcare setting | 02/11/2019 00:00 | | | | | |
| PAT01 | Excluded | | | 56 | Ischemic Stroke | | | | | | 02/01/2019 00:00 | | | 02/01/2019 00:00 | No | No | | | |
| PAT19 | Excluded | | | 56 | Ischemic Stroke | | | | | | 02/05/2019 00:00 | | | 02/07/2019 00:00 | No | No | | | |
| PAT28 | Excluded | | | 79 | Ischemic Stroke | Yes | MCA | | M2 | | | | ND or Cannot be Determined | 02/27/2019 00:00 | | | | | |
| PAT29 | Excluded | No | Yes | 50 | Ischemic Stroke | Yes | ICA | | | 7 | 02/25/2019 01:00 | 02/25/2019 04:00 | | 02/28/2019 00:00 | | | Yes | Allergy to contrast material | No |
| wo129 | Excluded | | | | | | | | | | | | | 02/01/2019 00:00 | | | | | |

Date of report: 03/04/2019 04:51:30 GMT-05:00 run by User: JC-Stroke 1 (1jcstroke) at Site: 1 JC-Stroke (38578) in Stroke PMT
Please note: GWTG aggregate comparative data is intended for internal quality improvement. Permission is required from the American Heart Association and Quintiles for external presentation or publication of benchmark data.



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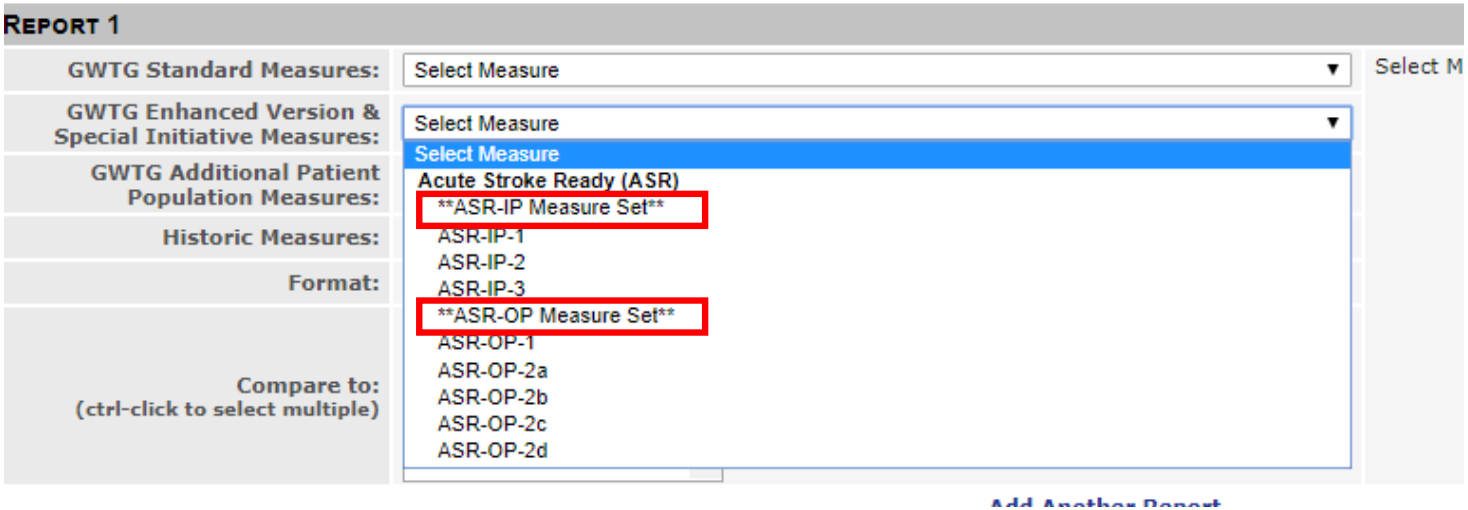
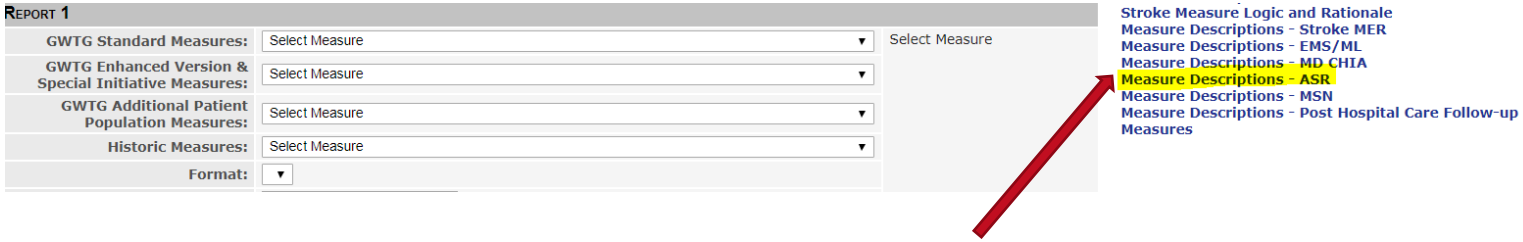
# TJC LAYERS

# ADDED: ASR-IP AND ASR-OP MEASURE GROUPS




Added ASR Measure Description Document



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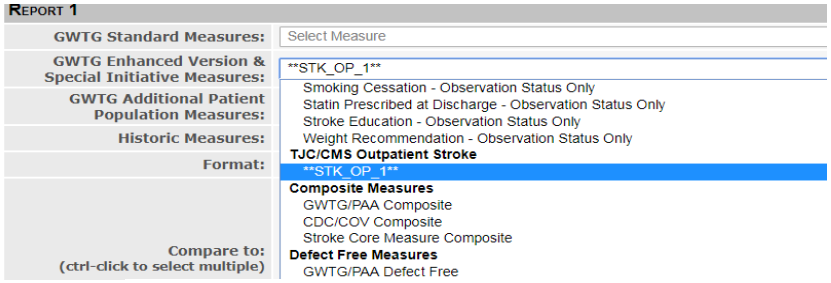
# ADD STK-OP-1 REPORT TO STK LAYER

- Runs as a measure group (**STK_OP_1**)
- Output displays all subpopulations of STK-OP-1 as separate measures
  - STK-OP-1a
  - STK-OP-1b
  - STK-OP-1c
  - STK-OP-1d
  - STK-OP-1e
  - STK-OP-1f




**Patient Records Report for measure STK-OP-1a**

Overall Rate (Not Reported)
Time Period: Dec 2017 - Dec 2017; Site: 1 JC-Stroke (38578)
Patients Included: 8; Patients Excluded: 1
Population D: 8; Population R: 1

Show filters This report shows all records. 9 of 9

| Patient ID | Included in Results? | Measure Value | Measure Population | Encounter Date | Date of Birth | Race | Hispanic Ethnicity | Gender | Payment Source - Medicare | ICD-10-CM Principal Diagnosis Code: | E/M Code | Discharge Code STK | When is the earliest physician/APN/PA documentation of comfort measures only? | Hospital Arrival Date and Time | What is the date/time the patient departed from the emergency department? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STKOP1b | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6001 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1c | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1c1 | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1d | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1d1 | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1e | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1f | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| STKOP1f1 | Included | 3615 | D | 12/02/2018 | 09/20/1935 | White | No/UTD | Male | Medicare | I6300 | 99281 - EMERGENCY DEPT VISIT | 4a Acute Care Facility - General Inpatient Care | 2- Day 2 or after | 12/01/2018 11:45 | 12/05/2018 00:00 |
| TRA391 | Excluded | | R | | 09/20/1935 | White | No/UTD | Male | Medicare | I6001 | | | 4- Not Documented/UTD | 08/31/2015 00:11 | |

**Patient Records Report for measure STK-OP-1b**

Hemorrhagic Stroke
Time Period: Dec 2017 - Dec 2017; Site: 1 JC-Stroke (38578)
Patients Included: 1; Patients Excluded: 8
Population B: 7; Population D: 1; Population R: 1

Show filters This report shows all records. 9 of 9



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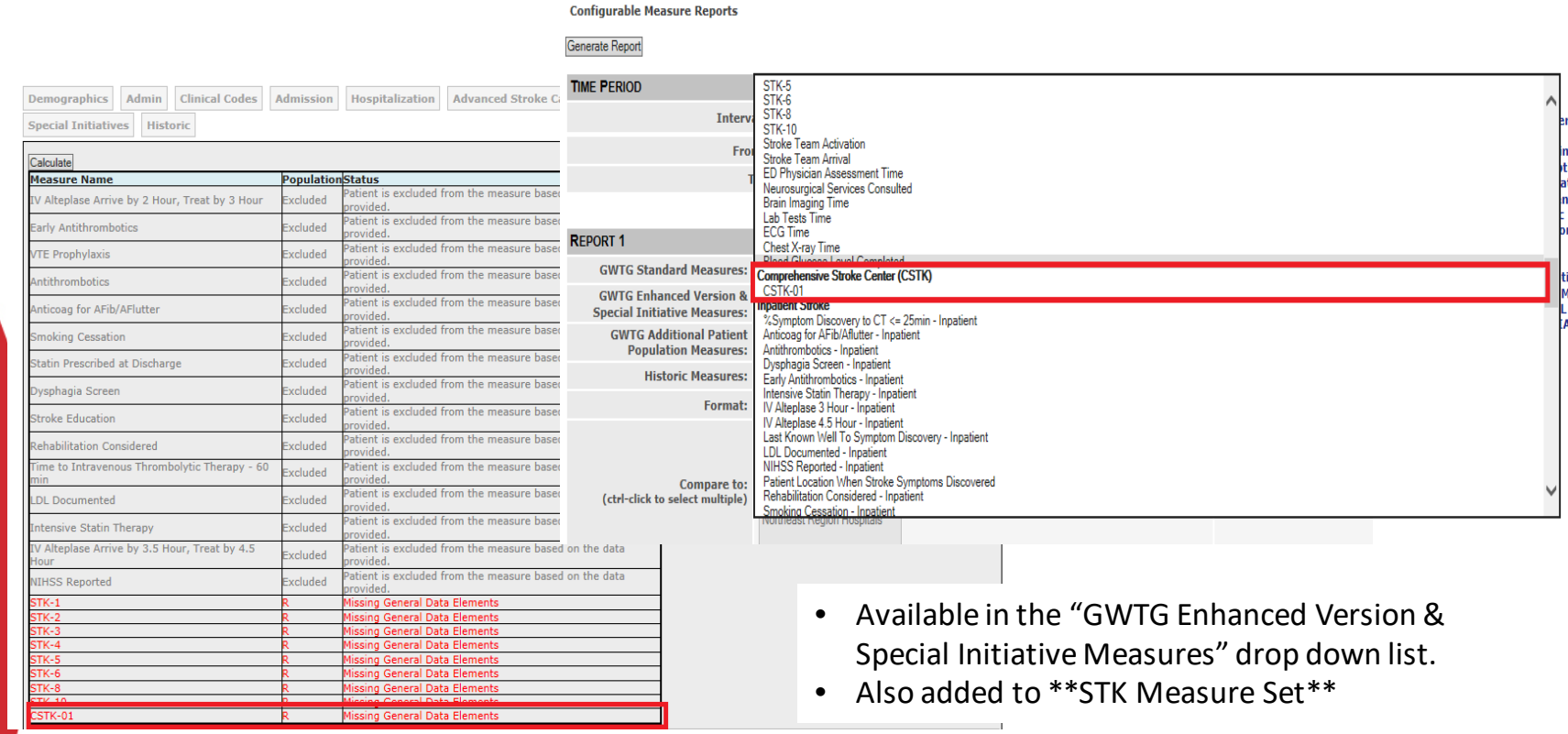
# ADD CSTK-01 REPORT TO STK LAYER




- Available in the “GWTG Enhanced Version & Special Initiative Measures” drop down list.
- Also added to **STK Measure Set**



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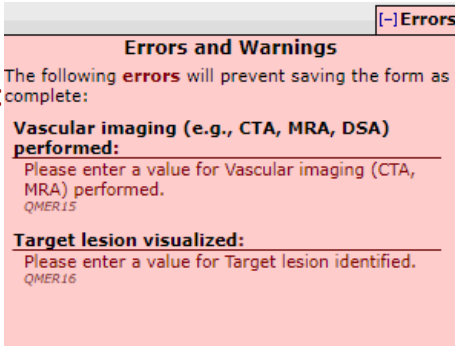
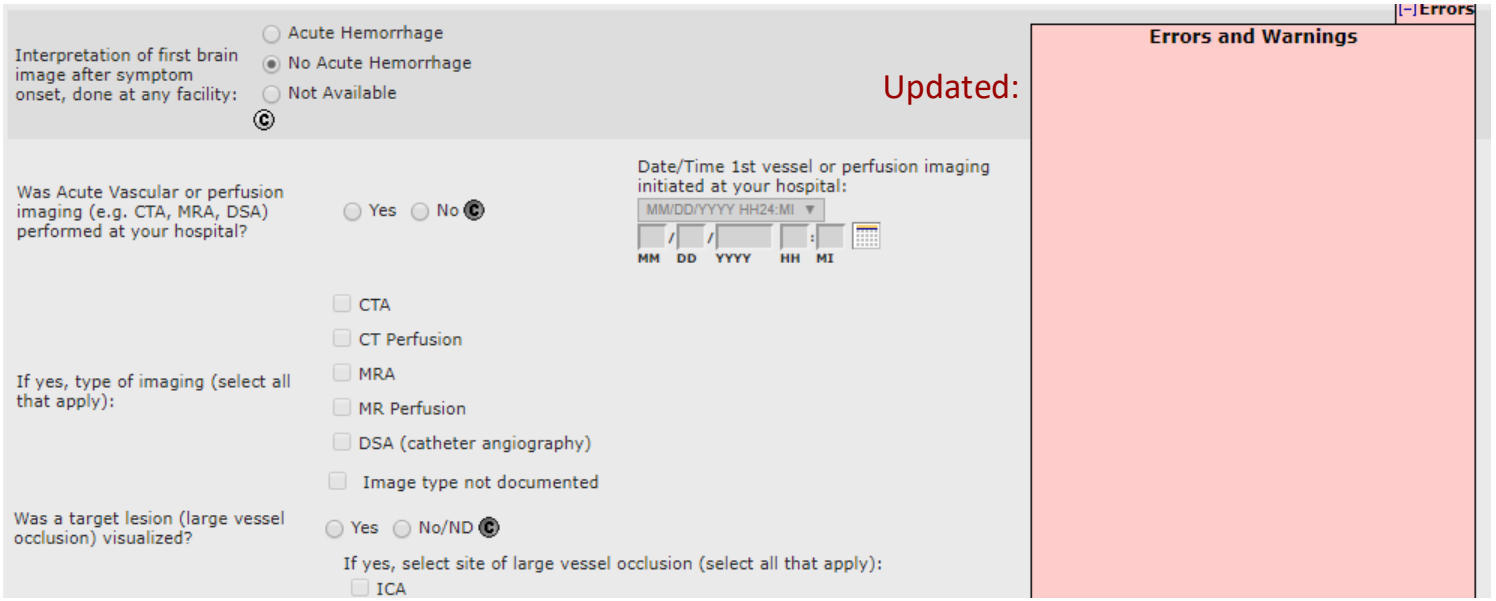
# OPERATIONAL UPDATES

# VASCULAR IMAGING ERROR

Previous:




Updated:



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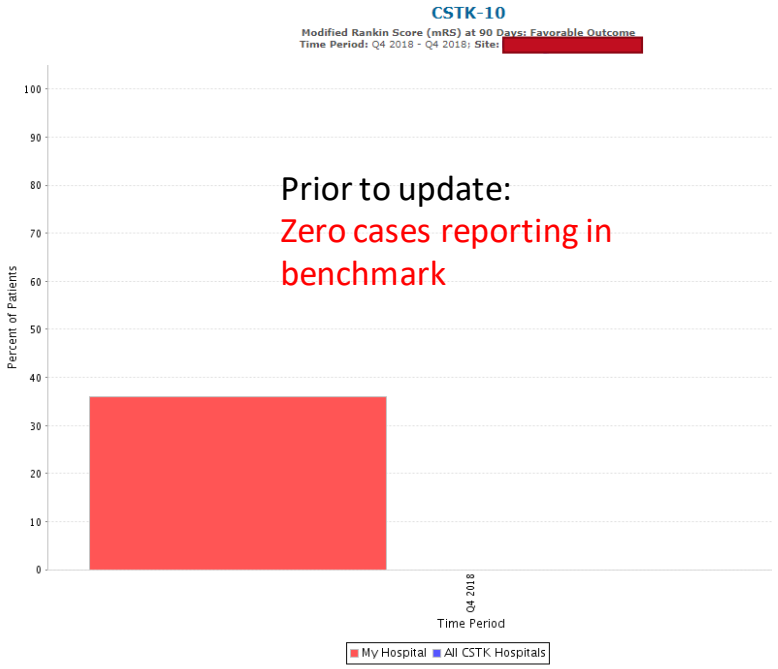
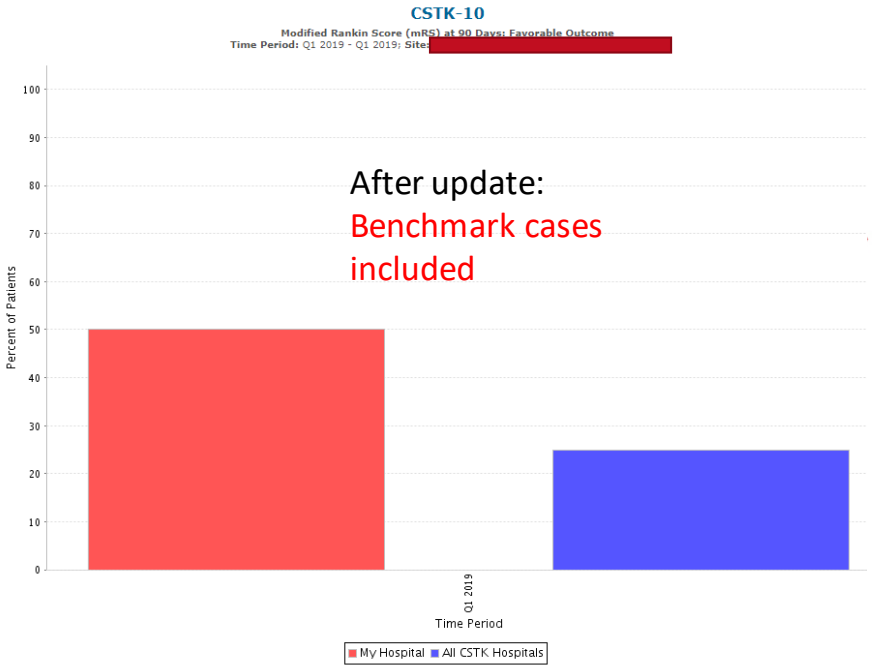
# FIXED - “ALL CSTK HOSPITALS” BENCHMARK ERROR




Prior to update:
Zero cases reporting in benchmark

| CSTK-10 | | | | |
|---|---|---|---|---|
| Benchmark Group | Time Period | Numerator | Denominator | % of Patients |
| My Hospital | Q4 2018 | 18 | 50 | 36.0% |
| All CSTK Hospitals | Q4 2018 | 0 | 0 | |




After update:
Benchmark cases included

| CSTK-10 | | | | |
|---|---|---|---|---|
| Benchmark Group | Time Period | Numerator | Denominator | % of Patients |
| My Hospital | Q1 2019 | 1 | 2 | 50.0% |
| All CSTK Hospitals | Q1 2019 | 44 | 177 | 24.9% |



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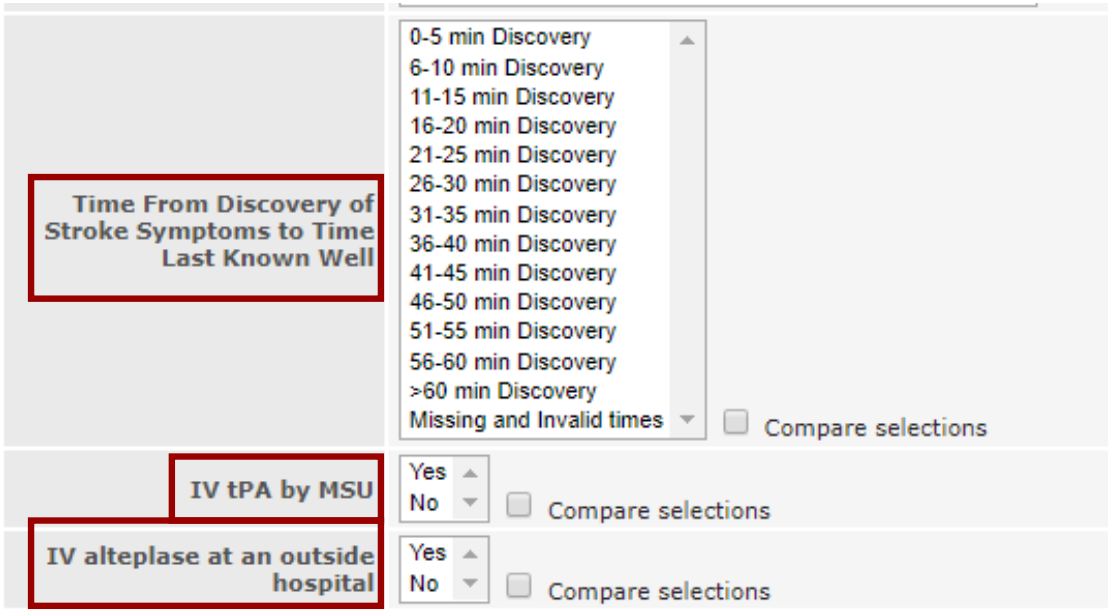
# NEW FILTER OPTIONS



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# ADDITIONAL ITEMS

- UPDATE USER INACTIVITY TIMEOUT TO 15 MINUTES FOR PMT (ALL)
- UPDATED – CHANGED "TPA" TO "ALTEPLASE IN ALL TJC AND GWTG MEASURES
- REPAIRED – DISPLAY OPTION, ACHIEVEMENT GOAL MISSING FOR ACHIEVEMENT MEASURE "STATIN PRESCRIBED AT DISCHARGE"
- REPAIRED - PRE-DEFINED CONSENSUS MEASURE ERROR REPORTED BY USERS

# QUESTIONS