

Advancing Stroke Systems of Care to Improve Outcomes

Target: Stroke Phase III

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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.

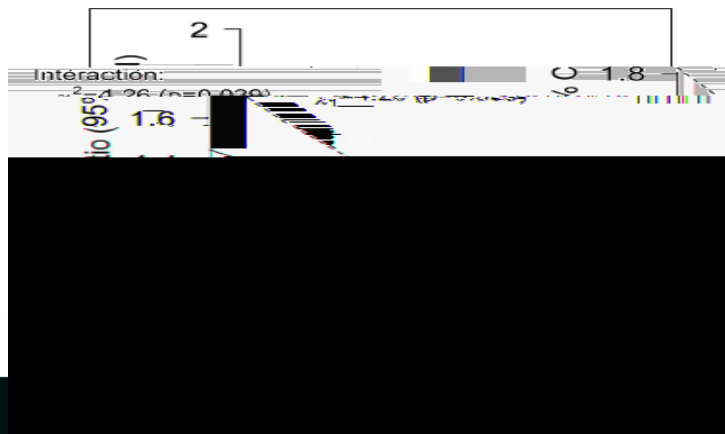
Shorter onset to treatment times are associated with improved functional outcomes, lower complication rates, and in some studies lower mortality.

Because of the importance of rapid treatment, AHA/ASA Guidelines recommend a door-to-needle time of less than 60 minutes.

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 w

EFFECT OF INTRAVENOUS ALTEPLASE IS TIME DEPENDENT



Trials –
Pooled RCTs

Practice –
National GWTG-Stroke

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

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).



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.



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

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%	<0.000 1	0.79 (0.75-0.84)	<0.0001	0.90 (0.84-0.95)	0.0004
Discharge Home	37.6%	43.3%	<0.000 1	1.25 (1.20-1.29)	<0.0001	1.13 (1.08-1.17)	<0.0001
Ambulatory Status Independent	42.2%	45.9%	<0.000 1	1.16 (1.10-1.22)	<0.0001	1.02 (0.96-1.09)	0.4538
Symptomatic ICH	5.74%	4.74%	<0.000 1	0.81 (0.75-0.88)	<0.0001	0.84 (0.78-0.92)	<0.0001
Any alteplase Complications	6.75%	5.54%	<0.000 1	0.80 (0.75-0.86)	<0.0001	0.84 (0.78-0.91)	<0.0001

Target: Stroke Phase II

TARGET: STROKE PHASE II

NATIONAL GOAL:



- Target: Stroke Phase II was launched in 2014 with a goal of improving DTN times to
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- This study aimed to assess whether DTN times and outcomes could be further
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Target: Stroke (2003-2009), Phase I (2010-2013), and Phase II (2014 to 2018) periods
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- Treatment rates and clinical outcomes of in-hospital mortality, discharge home, and
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Time Trend in DTN Times within 60 and 45 Minutes Pre-Target: Stroke, Target: Stroke Phase I, and Target: Stroke Phase II

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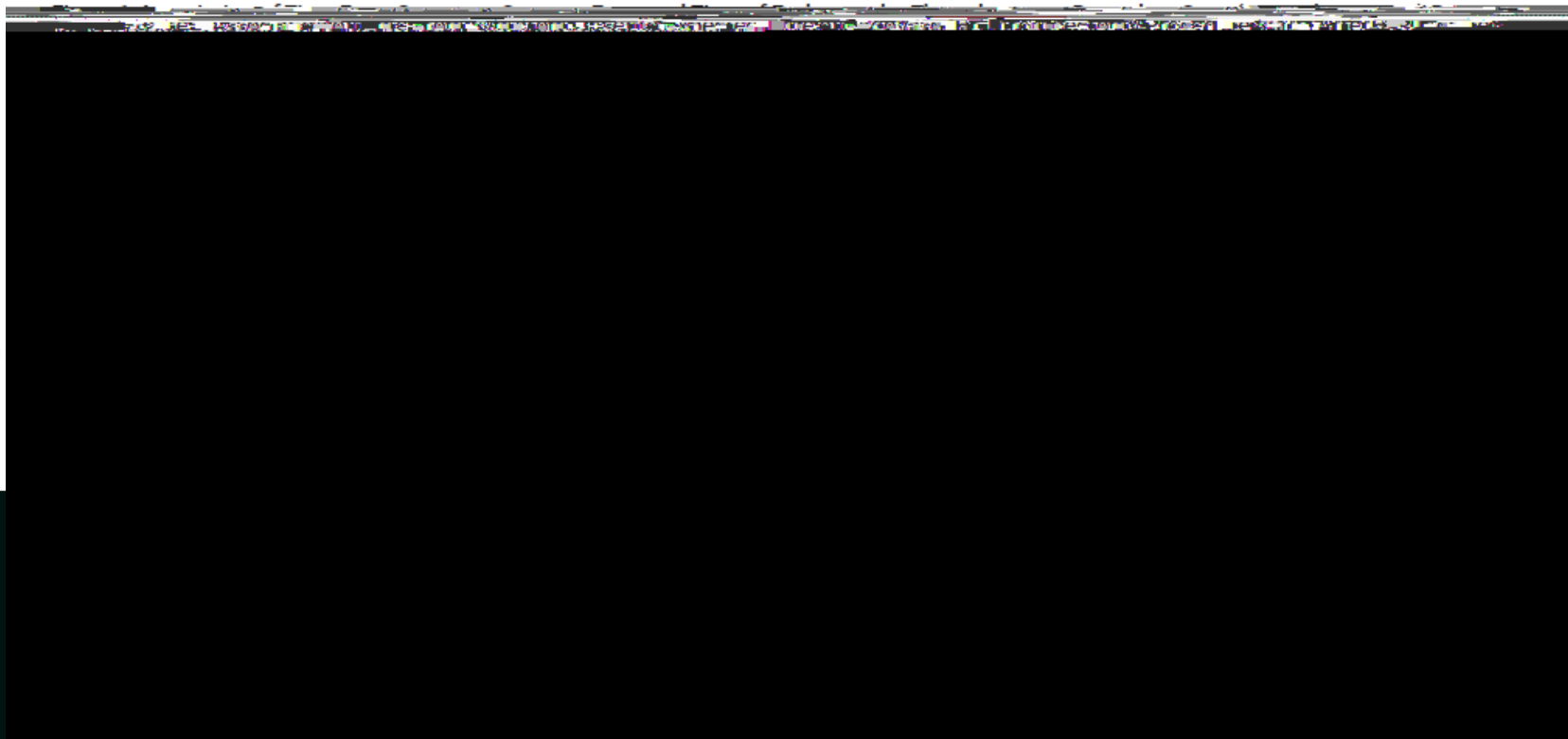
Clinical Outcomes Pre-Target: Stroke, Target: Stroke Phase I, and Target: Stroke Phase II

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)

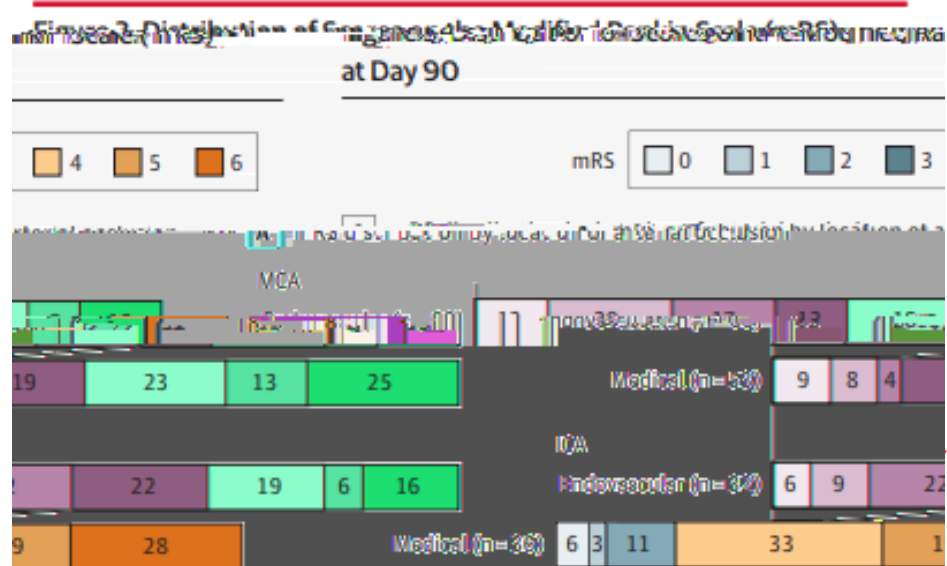
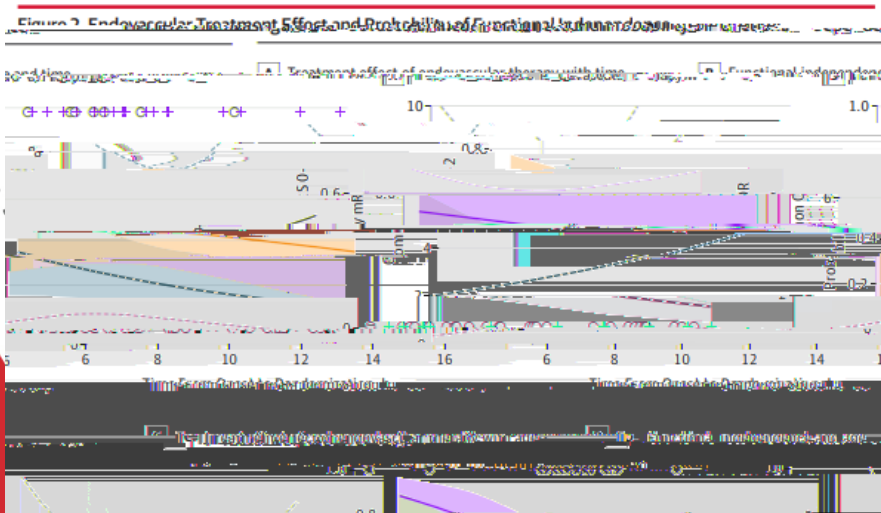


TARGET: STROKE PHASE III

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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 Xv } À • μ o Æ d Z Neuroangiography Suite

10 Team Based Approach

11 X

TARGET: STROKE PHASE III RECOGNITION

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

Recognition Eligibility (continued)

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 hospitals but this decision must be applied consistently to all to all endovascular
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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 thrombolytics 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 PMTUPDATE

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

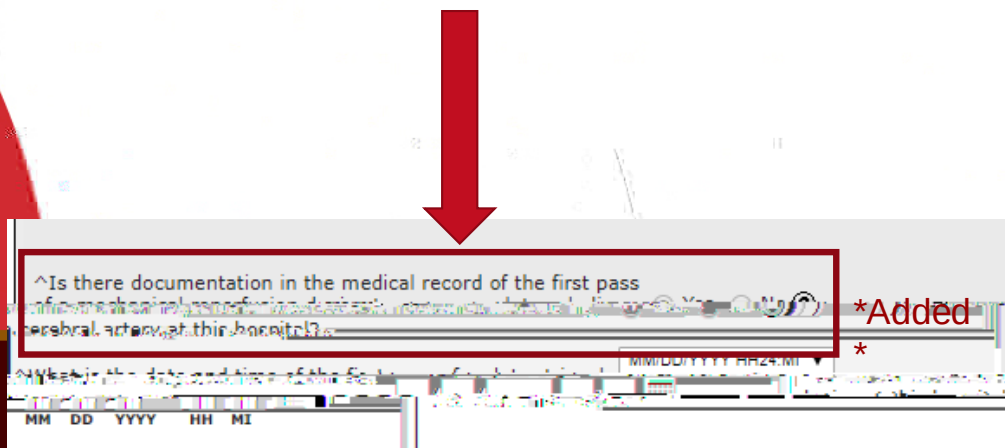
- **OPERATIONAL UPDATES**

- 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 ALTEP BASE MINUTES

MER FORMADDED “DOCUMENTATION OF FIRST PASS” DATA ELEMENT

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 procedure attempted during this episode of
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 question is required



A screenshot of a medical record form. A large red arrow points down to a new field that has been added to the form. The field is labeled "Is there documentation in the medical record of the first pass of a mechanical reperfusion device (e.g., catheter, stent, or other device) to the infarct-related artery at this hospital?" and is marked with a red asterisk and the word "Added". Below the field is a date and time selector with fields for MM, DD, YYYY, HH, and MI.

- š } D Z (} Æ u P Æ } μ %
 (previously only on Comprehensive layer)
- Used for collection of first pass time for Target: Stroke Advanced

MER FORM DOCUMENTATION OF FIRST PASS

Catheter-based/Endovascular Stroke Treatment

MM/DD/YYYY HH:MM

What is the date and time of skin puncture at this hospital to access the arterial site selected for endovascular treatment of a cerebral artery occlusion?

Was a mechanical endovascular reperfusion catheter attempted at this hospital?

Significant distal blood reperfusion (MRS ≥ 3)

MEP ≥ 6

Reasons for not performing mechanical endovascular reperfusion therapy (select all that apply)

- ☐ Length of contrast material
- ☐ Equipment not available
- ☐ No endovascular specialist available
- ☐ Delay in stroke diagnosis
- ☐ Vascular imaging not performed
- ☐ Advanced age
- ☐ Other

Retrievable stent

Cerebral mechanical thrombectomy device beside stent retrieval

Stent retriever device

Cervical carotid angioplasty, with or without permanent stent

Other

device at this hospital?

MM/DD/YYYY HH:MM

NIHSS ≤ 6

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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

minutes for patients transferred from an outside hospital OR 90 minutes for patients presenting

New Reporting Measures

REPORT 1

GWTC Standard Measures: **GWTC Target Stroke Set**

LDL Documented

GWTC Enhanced Version & Special Initiative Measures:

IV Alteplase, Arrive by 3.5 Hour, Treat by 4.5 Hour

Historic Measures:

% No IV Alteplase 3 Hour

% No IV Alteplase 4.5 Hour

GWTC Additional Patient Population Measures:

NIHS Report

REPORT 1

GWTC Standard Measures:

GWTC Enhanced Version & Special Initiative Measures:

therapy - 30 min

therapy - 45 min

therapy Times

Reasons for no IV Alteplase (hospital-Related)

Reasons for no IV Alteplase

GWTC Additional Patient Population Measures:

Historic Measures:

Time to Intravenous Thrombolytic

Time to Intravenous Thrombolytic

Time to Intravenous Thrombolytic

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

Step 4

of acute ischemic patients receiving intravenous thrombolytic therapy within 45 minutes of arrival to the hospital

GWTC Standard Measures:

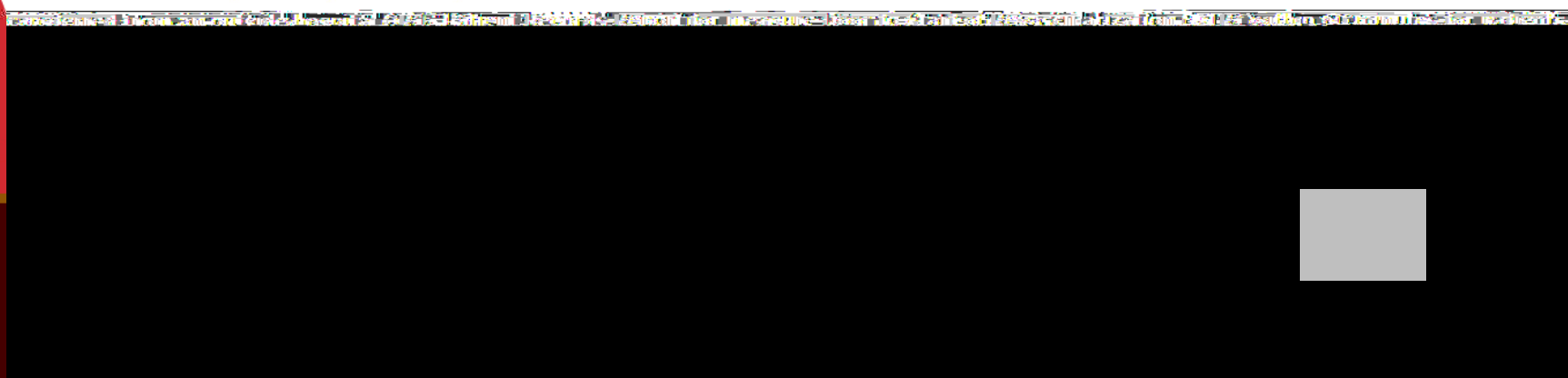
GWTC Enhanced Version &

Population Measures:

Historic Measures:

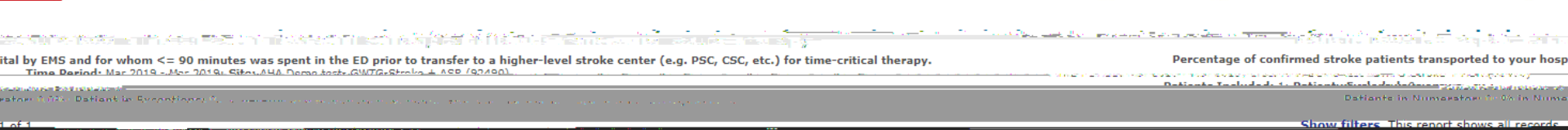
My Hospital
All AZ Hospitals
(ctrl-click to select multiple)

Percent stroke patients receiving intravenous thrombolytic therapy within 45 minutes of arrival to the hospital

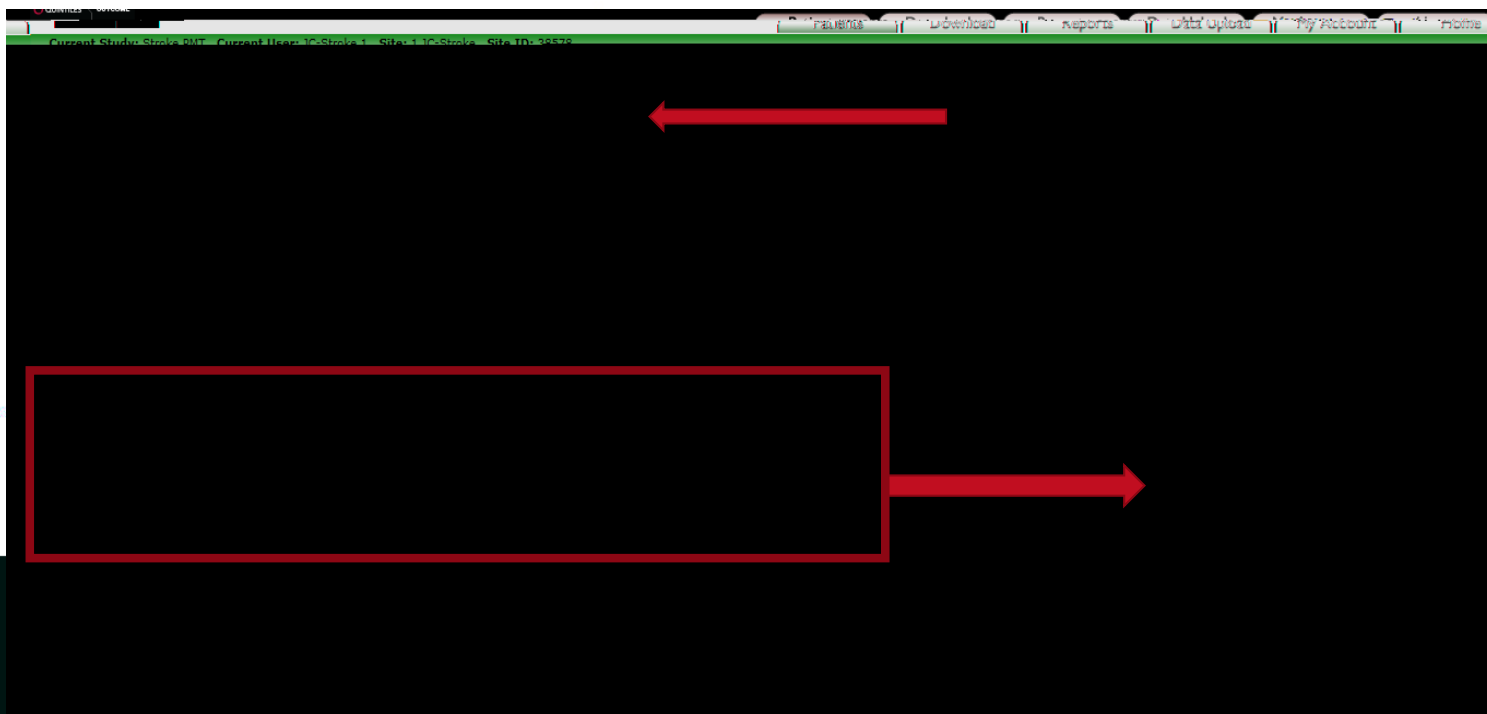
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ADDITIONAL MEASURE UPDATES

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



REASON FOR TRANSFER



Requires "Select reason(s) for why patient transferred" when

- o š X

STROKE FORM REASON FOR DELAY IN TRANSFER

Discharge Date:

(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

INTENSIVE STATIN THERAPY (QUALITY MEASURE)

REPORT 1

GWTC Standard Measures: Select Measure ▼ Percentage of Ischemic Stroke and TIA patients who are

GWTC Enhanced Version 8

GWTC Additional Patient

Population Measures: AD: if > 75 years of age, are

Format: F

West Region Hospitals

All Hospitals (non-expedited) ▼

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 2020; Site: 1 20-Stroke (20079)

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 discerned:	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 Medication	Reasons for Not Prescribing	Stroke Event
12345	Included	No	No	01/29/2019	27		Ischemic Stroke						No, patient admitted as inpatient								1
PAT01	Included	No	No	01/01/2019 00:00	56		Ischemic Stroke	4 - Not Documented/UTD		8 Not Documented or Unable to Upshift (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		Home	2 Hospice			No, patient admitted as inpatient				None	contraindicated		Yes	1
PAT28	Excluded			02/27/2019 00:00	9	Stroke occurred after hospital arrival (in ED/Observation)	Ischemic Stroke					Yes	No, patient admitted as inpatient				Statin	Amiodarone (Caduet)		No	

Site: 1 20-Stroke (20079) © 2020 American Heart Association. All rights reserved. Patient data is intended for internal quality improvement. Distribution is prohibited.

UPDATED MEDICAL HISTORY MEASURE

REPORT 1

GWTG Standard Measures:
 GWTG Enhanced Version & Special Initiative Measures:
 GWTG Additional Population Measures:
 Historic Measures:
 Format:
 Compare to: (ctrl-click to select multiple)

Added:
Inclusion- s d l W



Added:
Inclusion- M2
Æ o μ-Allergy to
contrast material



TJC LAYERS

ADDED: ASRP AND ASRP MEASURE GROUPS



ADD CST-01 REPORT TO STK LAYER

Configurable Measure Reports

Generate Report

TIME PERIOD

Interval

STK-5
STK-6
STK-8
STK-10

Special Initiatives Historic

Calculate

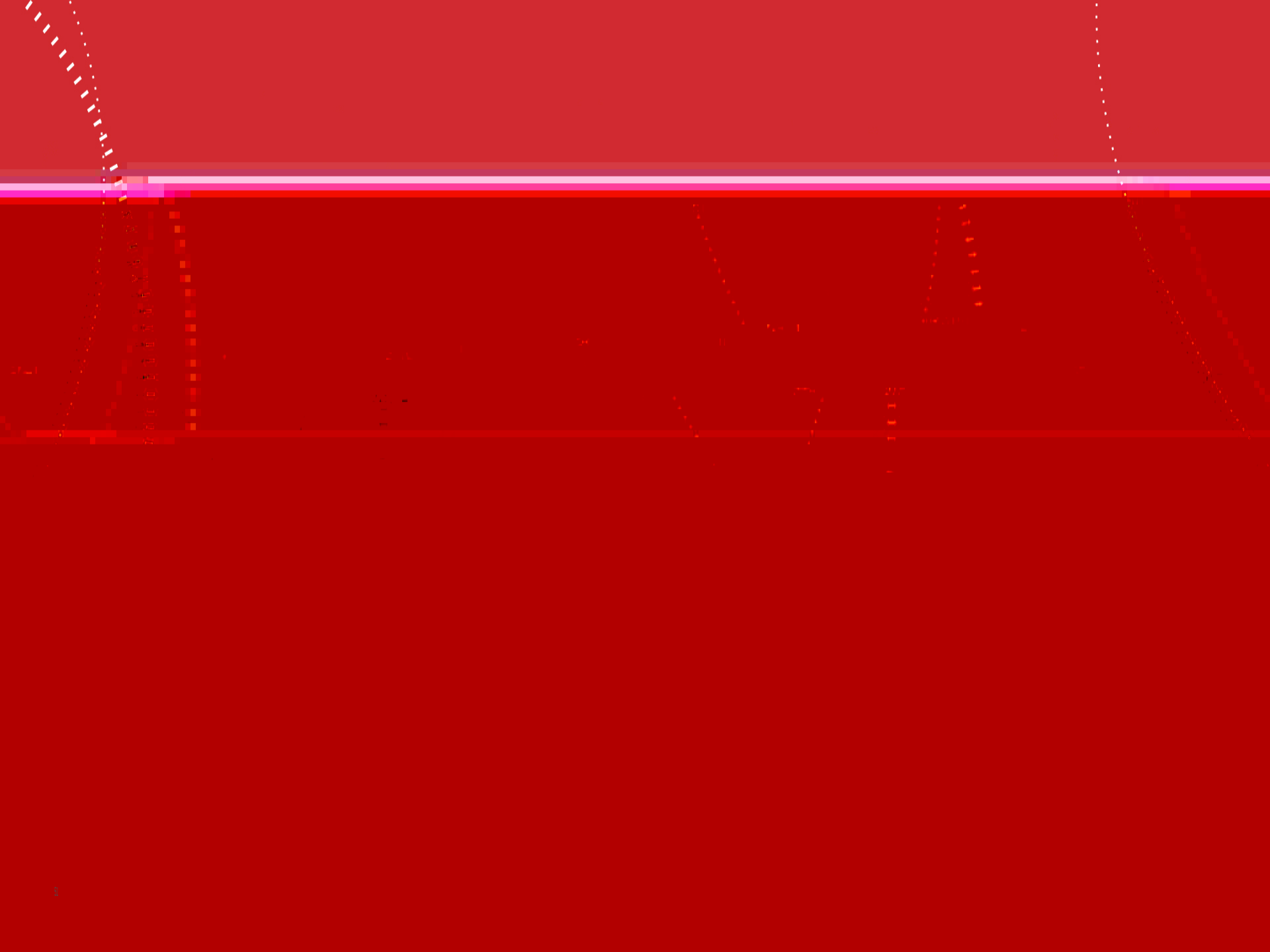
Measure Name

Measure Name	Excluded	Excluded	Excluded	Excluded
STK-5	Excluded	Excluded	Excluded	Excluded
STK-6	Excluded	Excluded	Excluded	Excluded
STK-8	Excluded	Excluded	Excluded	Excluded
STK-10	Excluded	Excluded	Excluded	Excluded

Excluded from the measure based on the data

Excluded from the measure based on the data

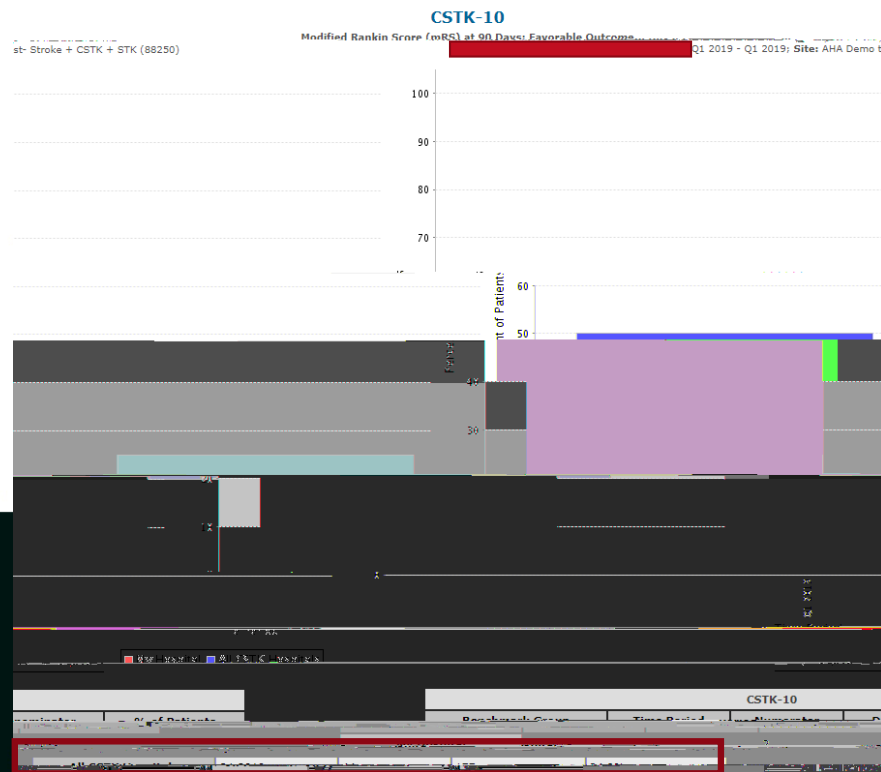
- Also added to **STK Measure Set**





FIXED “ALL CSTK HOSPITALS” BENCHMARK ERROR

Zero cases reporting in Ze update:



NEW FILTER OPTIONS



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