Abstracting Stroke for All Workshop Toolkit
Table of Contents

Overview ......................................................................................................................... Page 3

Acknowledgements ...................................................................................................... Page 3

Before the Event .......................................................................................................... Page 4

Workshop Binder ........................................................................................................ Page 4

Agenda Sample ........................................................................................................... Pages 5

Pre-session Survey Sample ........................................................................................ Page 6

Post-session Survey Sample ....................................................................................... Page 7

Mock Chart Index ........................................................................................................ Page 8

Mock Chart Samples:

• Drip and Ship ......................................................................................................... Pages 9-10

• Admit to Discharge - IV Alteplase and Thrombectomy ........................................ Pages 11-19
Overview

Ensuring the quality of a hospital’s stroke data is essential to its credibility and value. Stroke abstractors range from novice to expert. The need for an expanded training program focused on all levels of stroke certification was recognized by the Wisconsin (WI) Coverdell Stroke Program and the American Heart Association (AHA). The developed training workshop includes two mock charts, which incorporate data abstraction elements for Acute Stroke Ready, Primary Stroke Center, Thrombectomy Capable, and Comprehensive Stroke Centers. The training fosters networking and provides the opportunity to discuss the Get With the Guidelines® - Stroke PMT® (GWTG). This educational and training opportunity is titled “Abstracting Stroke Data That Will Work for All.” The training assists the participants in understanding the GWTG Coding Instructions, and provides a non-threatening learning environment to discuss difficult-to-interpret data elements.

Acknowledgements

Use or replication of any documents in this toolkit must include the Wisconsin Coverdell Stroke Program and AHA logos.

Contributors to the content and production of this tool kit include:

- Dot Bluma, BSN, RN, CPHQ Stroke Project Specialist, MetaStar, Inc.
- Jessica Link, Coverdell Program Director, Wisconsin Department of Health Services
- Lynn Mallas-Serdynski, RN, BSN, Quality Programs Manager, AHA
- Maureen Hess, BSN, RN (retired)
- Renee Sednew, MPH, Senior Director, Quality & Systems Improvement, AHA
- Susan Abelt, MS, Director, Quality & Systems Improvement, AHA
Planning the Event

When announcing the training and requesting registrations, be sure to request participants self-identify their level of GWTG abstraction proficiency. We use novice, competent, and expert. Provide round tables with seating for four. To ensure optimal learning opportunities, place people from different hospitals with different levels of abstraction proficiency at each table.

We recommend providing conference documents in a three-ring binder. Include the current paper GWTG case record form for abstracting the mock chart, or, if you will be performing the training with laptops, the online GWTG PMT can be utilized instead. Have several copies of the Coding Instructions available for participants to reference during the mock chart abstraction.

Workshop Binder

The agenda is always sent in advance, and is included in the participant’s binder. See pages five and six for a sample agenda.

An evaluation of pre-session and post-session understanding must be obtained to measure changes in confidence in performing specific tasks in GWTG. Ensure the pre-session surveys are collected immediately upon completion. This will safeguard participants from having access to their pre-survey responses when completing the post-session survey. See pages seven and eight for sample surveys.

The mock charts are available on pages 10-20. The mock chart guidelines must be updated to reflect future changes to abstraction guidelines. The mock chart included was utilized May 2019.
<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation Title</th>
<th>Faculty</th>
</tr>
</thead>
</table>
| 7:30AM–8:00AM   | **Registration**                                                                   | Dot Bluma, BSN, RN, CPHQ Stroke Project Specialist  
MetaStar, Inc  
Renee Sednew, MPH, Senior Director, Quality & Systems Improvement American Heart Association  
Susan Abelt, MS, Director, Quality & Systems Improvement American Heart Association |
| 8:00AM–8:15AM   | **Welcome, introductions and overview of program**                                 | Renee Sednew, MPH, Senior Director, Quality & Systems Improvement American Heart Association |
|                 | **Pre-session survey**                                                            | Susan Abelt, MS, Director, Quality & Systems Improvement American Heart Association                |
| 8:15AM–10:15AM  | **Part 1: Making sense of get with the guidelines stroke data elements—drip and ship** | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 8:15AM–9:00AM   | **Drip and ship mock chart abstraction**                                            | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 9:00AM–10:00AM  | **Review results of drip and ship mock chart abstraction and highlight difficult to abstract data elements** | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 10:00AM–10:15AM | **Break**                                                                          | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 10:15AM–1:15PM  | **Part 2: Making sense of get with the guidelines stroke data elements—arrival to discharge**   | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 10:15AM–11:15AM | **Arrival to discharge mock chart abstraction**                                     | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 11:15AM–12:30PM | **Review results of arrival to discharge chart abstraction and highlight difficult-to-abstract data elements** | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 12:30PM–1:15PM  | **Lunch**                                                                          | Attendees will complete a mock chart abstraction  
Facilitator: Susan Abelt |
| 1:15PM–2:15PM   | **Part 3: Making sense of get with the guidelines stroke data elements—advanced care**   | Group discussion of Advanced Care data elements  
Facilitator: Dot Bluma, Renee Sednew, Susan Abelt |
|                 | **Discuss advanced care chart highlight difficult-to-abstract data elements**       | Group discussion of Advanced Care data elements  
Facilitator: Dot Bluma, Renee Sednew, Susan Abelt |
| 2:15PM–2:30PM   | **Wrap-up and closing comments**                                                    | Group discussion of Advanced Care data elements  
Facilitator: Dot Bluma, Renee Sednew, Susan Abelt |
|                 | **Post-session survey**                                                            | Group discussion of Advanced Care data elements  
Facilitator: Dot Bluma, Renee Sednew, Susan Abelt |

This document was created for the WI Coverdell Stroke Program and American Heart Association and the logos must remain. To demonstrate scalability, all evaluation results must be shared with the WI Coverdell Stroke Program and American Heart Association.
Abstracting Stroke Data That Will Work for All
Get With The Guidelines Stroke® Training Pre-Session Survey

Date: __________
Location: ________

The purpose of this survey is to assess your level of confidence before the training, in understanding how to utilize the coding instructions and entering stroke data into the Get With the Guidelines® (GWTG) program.

Please choose the response that best describes your level of confidence for each of the following GWTG functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Not at all confident</th>
<th>Not very confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fully understand the GWTG coding instructions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Enter data accurately</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Understand the data elements required for a drip and ship patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Understand data elements required for an Alteplase recipient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>discharged from the admission site</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Understand data elements required for a patient who receives stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mechanical thrombectomy intervention.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following information is needed to help us match your pre-session survey to your post-session survey, which will be administered at the end of this session. Thanks for helping by providing this information!

What is the number of the month in which you were born? (Ex: May = 05) __________

What are the last two numbers of your Social Security number? __________

How many sisters do you have? __________

This document was created for the WI Coverdell Stroke Program and American Heart Association and the logos must remain. To demonstrate scalability, all evaluation results must be shared with the WI Coverdell Stroke Program and American Heart Association.
Abstracting Stroke Data That Will Work for All
Get With The Guidelines Stroke® Training Post-Session Survey
Date: __________
Location: __________

The purpose of this survey is to assess your level of confidence after the training, in understanding how to utilize the coding instructions and entering stroke data into the Get With the Guidelines® (GWTG) program.

Please choose the response that best describes your level of confidence for each of the following GWTG functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Not at all confident</th>
<th>Not very confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fully understand the GWTG coding instructions</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>2. Enter data accurately</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>3. Understand the data elements required for a drip and ship patient</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>4. Understand data elements required for an Alteplase recipient discharged from the admission site</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>5. ANSWER ONLY IF YOU ATTENDED THIS PART OF THE TRAINING:</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Understand data elements required for a patient who receives stroke mechanical thrombectomy intervention.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

The following information is needed to help us match your post-session survey to your pre-session survey. Thanks for helping by providing this information!

What is the number of the month in which you were born? (Ex: May = 05) _________________
What are the last two numbers of your Social Security number? _________________
How many sisters do you have? _________________

This document was created for the WI Coverdell Stroke Program and American Heart Association and the logos must remain. To demonstrate scalability, all evaluation results must be shared with the WI Coverdell Stroke Program and American Heart Association.
Abstraction Chart Index

Drip and Ship .............................................................................................................pages 9-10

Admit to Discharge - IV Alteplase and Thrombectomy............................................pages 11-19

Starring the Stroke Team at the Hospital of the Perpetually Ready, in order of appearance:

- Dr. Al Teplase, ED MD
- Wanda Wonderful, Stroke RN Responder
- Dr. Penumbra, Critical Care Neurology
- Dr. Van Tastic, Neuro IR
- Angel Wrkhardt, RN NICU
- Tru Sweet, APNP Neuro IR
- Carrie Goodheart, RN NICU
- Gloria Glorious, Stroke Navigator
- Terri Terrific, APNP Critical Care Neurology
<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Caregiver</th>
<th>EHR Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/22/2018</td>
<td>EMS Report</td>
<td>Demographics: Male, Black, Non-Hispanic, 55yo, DOB-2/24/1964</td>
</tr>
<tr>
<td>1249</td>
<td></td>
<td>Insurance: Exchange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current PTA Medications taken this AM:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Amlodipine-Olmesartan (Azor)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Aspirin EC 81mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Microzide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Lipitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Coumadin, last dose 8 days prior to arrival</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allergy: Latex, reaction unknown</td>
</tr>
<tr>
<td>1255</td>
<td>Hospital of the Perpetually Ready ED</td>
<td>Code Stroke. County EMS has identified a 55yo male patient with stroke-like symptoms in the field. Stroke/CVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Right side deficits with right facial droop, right arm drift, slurred speech. ALOC, stroke scale +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCS 14, BP 174/128, P 120, 96%, R 16, BS 84, O2, IV, LKW 20 minutes ago</td>
</tr>
<tr>
<td>1255</td>
<td>Dr. Al Teplase, ED MD</td>
<td>Patient arrived in ED at the Hospital of the Perpetually Ready; patient roomed in ED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BP 184/120, P 125, R 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Height: 6 feet (183 cm) Weight: 200 lbs (90.7 kg)</td>
</tr>
<tr>
<td>1305</td>
<td></td>
<td>Provider contact with patient 55 yo male who presents to ED via County EMS for right-sided stroke. LKW was witnessed by a fellow passenger at 1230 while he was on the bus. Presented with facial droop, slurred speech and right-sided weakness. Stroke alert called immediately. Patient went directly to CT with EMS. Initial NIHSS= 13. Failed dysphagia and made NPO. Patient denies any prodromal symptoms. He does admit to aortic valve and being on Coumadin; stating he has missed the last 8 days doses. Denies any active bleeding or head trauma. HX: HTN, mechanical aortic valve, hyperlipidemia, current cigarette smoker</td>
</tr>
<tr>
<td>1309</td>
<td></td>
<td>Patient’s brother in ED. Brother confirming patient’s baseline was living alone and ambulating independently. Brother involved in decision process for Alteplase (tPA). Patient and brother advised of risks and benefits regarding use of Alteplase. Discussed with Neurology, Dr. Graamatter, who recommends Alteplase treatment and admission.</td>
</tr>
<tr>
<td>1312</td>
<td></td>
<td>Risks/Benefits for Alteplase reviewed with patient and brother. All questions answered. Patient verbally agreed to plan for Alteplase.</td>
</tr>
<tr>
<td>1305-order time</td>
<td></td>
<td>BP 182/112, P 130, R 21</td>
</tr>
<tr>
<td>1333-resulted time</td>
<td></td>
<td>Labs:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Platelets: 245</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heg: 13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hct: 41.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CBC: 4.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WBC: 8.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crt: 1.05</td>
</tr>
<tr>
<td>Time</td>
<td>Event Description</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>1305</td>
<td>Order time</td>
<td></td>
</tr>
<tr>
<td>1308</td>
<td>CT Initiated</td>
<td></td>
</tr>
<tr>
<td>1321</td>
<td>Reported time</td>
<td></td>
</tr>
<tr>
<td>1328</td>
<td>BP 184/114, P 122, R 22</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Labetolol 10mg bolus IV for BP persisting &gt; 180/90</td>
<td></td>
</tr>
<tr>
<td>1340</td>
<td>BP 174/100, P 116, R 20</td>
<td></td>
</tr>
<tr>
<td>1343</td>
<td>BP 168/96, P 110, R 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IV Alteplase bolus followed with drip started</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>NIHSS 16. Patient now exhibits some neglect; speech becoming non-discernable, does not consistently follow commands.</td>
<td></td>
</tr>
<tr>
<td>1403</td>
<td>Discussed worsening exam with Neurology, Dr. Graamatter, he recommends transfer, to CSC for Interventional consideration as s/s now suggestive of LVO.</td>
<td></td>
</tr>
<tr>
<td>1406</td>
<td>Spoke with Dr. Penumbra, Critical Care Neurology, at Holy Moles Hospital. He will accept transfer. Plan to go direct to CTA on arrival.</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Patient status changed to transfer to Holy Moles- CSC hospital. EMS called for transfer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report completed to Sally Sue, RN in NICU at Holy Moles Hospital.</td>
<td></td>
</tr>
<tr>
<td>1419</td>
<td>BP 160/95, P 112, R 22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient departed from ED at the Hospital of the Perpetually Ready</td>
<td></td>
</tr>
</tbody>
</table>

**Procedure code:**
- 3E03317, Introduction of Other Thrombolytic into Peripheral Vein, Percutaneous Approach.
<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Caregiver</th>
<th>EHR Documentation</th>
</tr>
</thead>
</table>
| 2/22/2018 1249 | EMS Report | Demographics: Male, White, Hispanic, 82yo, DOB-7/3/1936  
Insurance: Exchange  
Current PTA Medications taken this AM:  
- Aspirin EC 81mg  
- Microzide  
- Lipitor  
- Coumadin, last dose 8 days pta  
Allergy: Latex, reaction unknown |
| 1255 | Hospital of the Perpetually Ready ED | Code Stroke. County EMS has identified an 82yo male patient with stroke-like symptoms in the field. Stroke/CVA  
Right side deficits with right facial droop, right arm drift, slurred speech ALOC, stroke scale +, LKW<8 hours  
GCS 14, BP 174/128, P 120, 96%, R 16,  
BS 84, O2, IV, LKW 20 minutes ago  
Patient arrived in ED at the Hospital of the Perpetually Ready; directly to CT  
BP 184/120, P 125, R 20  
Height: 6 feet (183cm) Weight: 200lbs (90.7 kg)  
Provider contact with patient  
82yo male who presents to ED via County EMS for right-sided stroke. LKW was witnessed by a fellow passenger at 1230 while he was on the bus. Presented with facial droop, slurred speech and right-sided weakness. Stroke alert called immediately. Patient went directly to CT with EMS and Stroke Responder. Patient denies any prodromal symptoms. He does admit to aortic valve and being on Coumadin; stating he has missed the last 8 days doses. Denies any active bleeding or head trauma.  
HX: HTN, mechanical aortic valve, hyperlipidemia, smoker  
CT report: No acute intracranial pathology identified. Probable chronic paranasal sinus disease  
Labs:  
Platelets: 245  
Hcg: 13.8  
Hct: 41.0  
CBC: 4.5  
WBC: 8.3  
Crt: 1.05  
Glucose: 115  
INR: 1.2  
Initial NIHSS= 13. Failed dysphagia. LKW= 2/22/2018 at 1230  
Pre-morbid Modified Rankin: no symptoms at all |
<p>| 1255-order time | Dr. Al Teplase, ED MD | |
| 1258= CT Initiated 1308= reported time |  |
| 1255-order time | Wanda Wonderful, Stroke RN Responder | |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Provider</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1305</td>
<td>Dr. Al Teplase, ED MD</td>
<td>Patient’s brother in ED. Brother confirming patient’s baseline was living alone and ambulating independently. Brother involved in decision process for Alteplase. Patient and brother advised of risks and benefits regarding use of Alteplase.</td>
</tr>
<tr>
<td>1309</td>
<td></td>
<td>Discussed with Neurology, Dr. Graamatter, who recommends Alteplase treatment and admission. Risks/Benefits for Alteplase reviewed with patient and brother. All questions answered. Patient verbally agreed to plan for Alteplase.</td>
</tr>
<tr>
<td>1312</td>
<td></td>
<td>BP 182/112, P 130, R 21</td>
</tr>
<tr>
<td>1328</td>
<td></td>
<td>BP 184/114, P 122, R 22</td>
</tr>
<tr>
<td>1330</td>
<td></td>
<td>Labetolol 10mg bolus IV for BP persisting &gt; 180/90. Alteplase delayed due to need for elevated B/P management.</td>
</tr>
<tr>
<td>1340</td>
<td></td>
<td>BP 174/100, P 116, R 20</td>
</tr>
<tr>
<td>1343</td>
<td></td>
<td>BP 168/96, P 110, R 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV Alteplase bolus followed with drip started</td>
</tr>
<tr>
<td>1400</td>
<td>Wanda Wonderful, Stroke RN Responder</td>
<td>NIHSS 16. Patient now exhibits some neglect; speech becoming non-discernable, does not consistently follow commands.</td>
</tr>
<tr>
<td>1403</td>
<td>Dr. Al Teplase, ED MD</td>
<td>Discussed worsening exam with Neurology, Dr. Graamatter and Dr. Van Tastic, Neuro IR as s/s now suggestive of LVO.</td>
</tr>
<tr>
<td>1406</td>
<td></td>
<td>CTA head/neck completed</td>
</tr>
<tr>
<td>1415</td>
<td>Wanda Wonderful, Stroke RN Responder</td>
<td><strong>Progress note:</strong> Assessment as: NIHSS= 21 Not following commands CSTAT Score: 4 (gaze=2; not following commands=1; extremity weakness=1) Patient on arrival to CT was A&amp;O, while transferring to table, began tonic/clonic seizure. Lasted for approx. 90 seconds. Respirations sonorous with sats 95%. Ativan IV stat. Dr. Penumbra, Critical Care Neurology, in CT room. No further seizure. CTA head/neck completed. Patient taken to NICU for emergent intubation prior to clot retrieval. BP 181/90, P 93, R 37, T 99.0 po, SpO2 99% Wt 76.2 kg, BMI 24.3 kg/m2</td>
</tr>
<tr>
<td>1425</td>
<td>NICU</td>
<td>Patient admitted to NICU and emergently intubated. Keppra started for seizures. Propofol for sedation.</td>
</tr>
</tbody>
</table>
Dr. Penumbra, Critical Care Neurology

**H&P**

Patient arrived to hospital via EMS. Alteplase administered. Stroke symptoms witnessed while on a bus at 12:30 today.

1st NIH Score= 13

AA male.

HX: Type A aortic dissection s/p AVR with mechanical valve in 2015, chronic use of Warfarin-densies taking for the last 8 days, HTN, HLD, and tobacco

**CTA head/neck** completed at 14:06. Patient’s sibling at bedside and consented for procedure after being informed of risks/benefits by neuro endovascular team.

**ASSESSMENT:**
- L MCA syndrome. Etiology: work up pending. Presumably cardio-embolic. Impression LVO of left MCA.
- Permissive HTN/SBP goal <180 x 24 hours s/p Alteplase
- Initiate stroke orders
- S/p IV Alteplase, on ASA 81 mg PTA
- LDL pending. Goal < 70 for secondary stroke prevention
- HgbA1C: pending. No History of DM
- Telemetry monitoring
- PT/OT/ST consulted. IPR in future as necessary
- Drug screen positive for cannabinoids
- Will provide patient and family with stroke education
- Pulmonary: Intubated for procedure and airway protection. Wean as able post procedure; smoking cessation.
- CV: On Hydrochlorothiazide per PTA med list; ECHO ordered to rule out thrombus; tele to assess for AF
- Renal: Current creatinine 1.05, no active issues, making urine; monitor I&O
- GI: Maintain NPO until speech evaluation; then advance diet as per speech

**Best Practices:**
- VTE prophylaxis: SCDs
- Peripheral IV
- Antiplatelet: on hold for 24 hours until repeat CT
- Nutrition: Currently NPO
- Therapy/mobilization: Bedrest x 6 hours post angio, and then will advance as tolerated.

**Risk Factors:**
- Smoking, drug abuse (+ drug screen), gender, HTN

**Social History:**
- Smoking Status: current every day smoker; 0.50 packs/day cigarettes
- Smokeless tobacco: Never used
- Alcohol use: Yes
- Drug use: No
- Sexual activity: Yes

No family history on file

Allergies: Latex, unknown reaction

BP 122/74; P 88; R 20; T 99.0 oral; SpO2 100%
Wt 76.2 kg, BMI 24.3 kg/m2
Neurological Exam:
- Mental Status- Alert, restless. No tracking. Non-verbal, no attempts to speak. No command following.
- CN:
  - II: no response to visual threat on right, pupils 3 mm bilateral constricting with appropriate accommodation.
  - III, IV, VI: left gaze deviation, PERRLA, no nystagmus, no ptosis
  - V: + corneal reflex bilateral
  - VII: right facial droop
  - VIII: UTD
  - IX, X: UTD
  - XI: shoulder shrug absent on right
  - XII: UTD

Strength: RUE and RLE flaccid, no motor response to noxious stimuli LUE and LLE spontaneous antigravity movement
Tone: No increased tone, cogwheel rigidity, or fasciculations present
Sensation: Does not grimace or withdraw to noxious stimuli on right
Reflexes: Up going toe on right
Coordination: UTA on RUE due to weakness
Gait/Stance: Not assessed due to acuity and right side hemiparesis.

PLAN: Start Heparin drip if CT head negative for acute bleed in am.

**Neuro IR Consult**
HX: Past TIA, marijuana use

ASSESSMENT:
- Left MCA acute ischemic stroke
- Aortic valve replacement- non-compliant with Warfarin therapy
- Subtherapeutic INR

PLAN:
- Proceed with emergent cerebral angiogram with thrombectomy and intra-arterial Alteplase.
- Dual energy CT scan post-procedure
- Bed rest x 3 hours
- Neuro checks, groin site checks, and VS per post-Neuro IR protocol
- SBP <140
- Nicardipine drip to maintain SBP goals
- High dose statin
- CT head 24 hours post Alteplase on 2/23/18
- Stroke team following
- Given risk for stroke/thromboembolic event with mechanical valve off anticoagulation will recommend resume Coumadin
- Daily INR

**Neuro IR Suite**

<table>
<thead>
<tr>
<th>Time</th>
<th>EHR Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1430</td>
<td>Patient arrived to IR</td>
</tr>
<tr>
<td>1435</td>
<td>Puncture time. Access secured right groin; catheter advanced</td>
</tr>
<tr>
<td>1437</td>
<td>Thrombus seen M2 branch L MCA</td>
</tr>
<tr>
<td>1440</td>
<td>Alteplase 3mg IA by Dr. Van Tastic</td>
</tr>
</tbody>
</table>
Neuro IR Procedure Note
Procedure: Left ICA/MCA angio, mechanical and aspiration thrombectomy; 6 mg. Alteplase IA infusion.
Findings: TICI 2a posterior frontal division of MCA (superior M2 branch of inferior division), marginal effect of 6 mg local Alteplase, following 1st pass there was TICI 1 filling of the affected branch, 2nd pass Trevo 4x20 achieving TICI 2b filling which appears nearly TICI 3 though slowed distal transit possibly due to non-visualized microemboli vs. change in flow dynamic from reversal in collaterals.
Estimated Blood Loss: approx. 150ml
Complications: None immediate

NICU
- NIHSS 16
- SCDs applied to bilateral LE
- Propofol sedation; ET; Keppra IV maintained
- BP 135/75, P 88, R, 14, vent control

CT Imaging-post procedure
1. Probable chronic ischemic microvascular changes
2. No acute hemorrhage
3. Stable scattered paranasal sinus disease consistent with chronic sinusitis, raising possibility of areas of fungal sinusitis.

CT Imaging
1. Findings concerning for evolving early subacute infarct involving the left MCA territory at the left precentral gyrus and left frontal operculum
2. Small SAH within left precentral sulcus, alternatively, small cortical/gyriform petechial hemorrhage could have a similar appearance.

BP 119/73; P 64; R 14, T 97.1 axillary, SpO2: 100%

Labs:
Calculated LDL: 35
HbA1C: 5.7
Crt: 0.95

Neuro IR Note- Post Procedure day #1
PLAN:
CVA
- Consider heparin drip this am to bridge to Warfarin (? small SAH on CT head this AM)
- Continue ASA
- High dose statin for neuro-protective effect
- Stroke Protocol per Critical Care
- Weaning sedation to extubate per Critical Care
- ECHO
- Seizure management per Critical Care
Subjective:
- Patient remains intubated, sedation vacation this AM

Neurological Exam:
- PERRL 3 mm bilateral, left gaze preference, unable to look past midline to right. Appears to have both right visual and sensory neglect (no grimacing to pain on right, but some grimacing on left), RUE flaccid, RLE has some resistance to ROM, LUE/LLE with purposeful movement, no command following, right facial droop

Progress Note
- Exam today: remains intubated and sedated. Left gaze preference and right side hemiparesis.
- Etiology: Embolic, due to mechanical valve and noncompliance with anticoagulant regimen
- Antiplatelet held in the setting of IV Alteplase
- Will initiate heparin infusion this am for mechanical valve- neuro protocol (PTT 40-60, no bolus)
- LDL: 35. On Lipitor 80mg PTA. LDL goal <70 for secondary stroke prevention. Home dose resumed.
- CXR unremarkable
- + murmur
- ECHO: NSR. s/p mechanical valve, no thrombus or vegetation. EF: 81, mildly hypo-kinetic left ventricle
- NOTE: Attending added post APNP documentation:
  ‘No evidence of SAH on CT this AM

- Heparin drip started
- Aspirin rectally
- NIHSS 14
- PT/OT working with patient
- Modified Rankin score: 4
- Extubated

Speech Therapy Evaluation: allow meds crushed po. Ice chips when awake.

Medications List:
- Heparin drip
- Coumadin
- Aspirin changed to po
- Lipitor 80 mg
- Metoprolol
- Keppra
- Norvasc

CT Imaging
1. Expected temporal evolution changes of the recent left MCA territory infarction.
2. Marked paranasal sinus disease
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Nurse</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 2/25/18 | 0900 | Gloria Glorious, Stroke Navigator | Transfer out of NICU to neuro telemetry floor **Stroke Education Record** Unable to educate patient due to AMS and no co-learner present. Stroke Folder with materials left at bedside addressing:  
- Warning signs and symptoms  
- Personal risk factors  
- Calling EMS  
- Follow-up  
- Medications prescribed at discharge  
- Understanding Stroke Booklet  
- FAST magnet  
- Support group information  
- Quit Line pamphlet, and Quitting Tobacco  
- Low Cholesterol, Low Saturated Fat, Low Sodium Diet  
- Understanding Your Cholesterol  
- Understanding Hypertension  
- BMI: What Is It?  
- Exercise and Vascular Disease  
- Walking Warm-Up Home Exercise Program  
- Medication information on Alteplase, Heparin, Aspirin, Atorvastatin and Keppra |
| 2/26/18 | 1300 | Carrie Goodheart, RN NICU | 2/26/18 Patient and family interaction achieved:  
Patient’s uncontrollable risk factors are: Male; prior TIA.  
Patient’s controllable risks: High blood pressure; high cholesterol; smoking; physical inactivity; drug abuse  
The following lifestyle modifications were recommended: monitor blood pressure, quit smoking, start an exercise program with physician approval. Patient’s personal modification goal is to quit smoking.  
Discussion and review with patient and family on documents in the previously given written materials contained in the Stroke Folder. Patient and family allowed to verbalize fears and concerns. Questions were encouraged and answered. Reviewed FAST and encouraged to call 911 if patient experiencing s/s of stroke. Discussed increasing activity. Encouraged patient to raise heart rate 30 minutes, 3 times a week. Encouraged patient to check BP at home. Discussed checking different times of the day and record readings to show to PCP. Discussed IPR. Reviewed admission process, gym, apartment, 3 hours of therapy a day, and average LOS. Discussed f/u with PCP 7-10 days after discharge and discussed f/u with Neurology after discharge.  
- NIHSS 4  
- Modified Rankin score: 2 |
| 2/27/18 | 0730 | Terri Terrific, APNP Critical Care Neurology | Brief Summary:  
- 2/23/18 Resumed Coumadin with Heparin bridge  
- 2/24/18 Extubated  
- 2/26/18 Speech Therapy advanced diet to puree consistency with honey thick liquids via small single sips from cup only. Meds crushed in puree. |
Fed via tsp.

• Labs:
  Hgb A1C: 5.7, no hx DM  
  LDL: 35, goal <70 for secondary stroke prevention.  
• Continue Atorvastatin 80mg for neuro protection x3 months  
• Permissive HTN. Goal SBP<160. On Metoprolol. B/P 138/87, P 73, R 16,  
  T 98.0 oral, SpO2 97%  
• Seizure on presentation- Continue Keppra indefinitely  
• Antiplatelet: Aspirin 81mg

Subjective:

• No new neuro s/s. Patient continues with word finding difficulties,  
  dysarthria, and dysphagia.

Neurological Exam:

• Mental Status: AAO x3. Recent & remote memory intact.  
  Follows commands. Normal attention & concentration. Speech is  
  dysarthric. No evidence of neglect on double simultaneous stimulation.

  • CN:
    o II, III, IV, VI, V: normal  
    o VII: right facial droop with slightly impaired lip seal, normal eye closure  
    o VIII, IX, X, XI: normal  
    o XII: right tongue deviation

• PT/OT consulted. Recommend PM&R to evaluate for IPR. Patient to follow up in stroke clinic after discharge.

Discharged and transferred to inpatient rehab via wheelchair. B/P 135/84, P 70, R 16

**DC Summary:**

Patient ambulatory at discharge. Requiring continued therapy for significant aphasic speech. RUE weakness improved. Remains with a subtherapeutic INR and will continue on heparin infusion.

DC diagnosis:
1. Stroke in LMCA with expressive aphasia and RUE weakness  
2. S/p Alteplase and IR Thrombectomy  
3. S/p type A aortic dissection s/p AVR with mechanical valve in 2015  
4. Tonic/clonic seizure in the ICU  
5. Long term anticoagulation, noncompliant for 8 days PTA  
6. Tobacco abuse

Discharge disposition: Inpatient Rehab. Continue care by Hospitalist and Neurology teams.

Activity: As tolerated

Diet: Diet per speech therapy

Transfer medications:

• Coumadin  
• Continue Heparin drip bridge at 1100 units/hr until INR 2.5 then
### Medications
- discontinue, goal INR 2-3
- Lipitor 80 mg
- Norvasc 10 mg
- Keppra
- KCL 10 meq
- Aspirin 81 mg
- Metoprolol 25 mg

### ICD-10 codes:
- I63.412, Stroke due to emboli LMCA
- I60.8, other nontraumatic SAH

### Procedure codes:
- 3E06317, Introduction of Other Thrombolytic into Central Artery, Percutaneous Approach
- 03CG3ZZ, Exirpation of Matter from Intracranial Artery, Percutaneous Approach

---

This document was created for the WI Coverdell Stroke Program and American Heart Association and the logos must remain. To demonstrate scalability, all evaluation results must be shared with the WI Coverdell Stroke Program and American Heart Association.