Reference Guide: Acute Stroke Ready Hospital (ASRH) Designation
MINNESOTA STROKE PROGRAM
04/01/2019
For help navigating Designation applications, please contact:

Nicky Anderson, Stroke System Nurse Specialist: nicky.anderson@state.mn.us (651) 201-4095

Michelle Gray Ansari, Stroke System Designation Coordinator: michelle.gray.ansari@state.mn.us (651) 201-4097

Ally Fujii, Stroke Registry Coordinator: Allyson.fujii@state.mn.us (651) 201-3934

Minnesota Department of Health
Minnesota Stroke Program- Cardiovascular Health Unit
PO Box 64822
St. Paul, MN 55165-0882
heath.stroke@state.mn.us
www.health.state.mn.us

To obtain this information in a different format, email health.stroke@state.mn.us. Printed on recycled paper.
Contents

Welcome .......................................................................................................................... 5

Tips for Successfully Submitting your Application ..................................................... 5

Getting Started: ......................................................................................................... 5

Updating Application Sections .................................................................................. 5

Uploading Documents: ............................................................................................... 6

Submitting the Application: ....................................................................................... 7

What to Expect after Submission: ............................................................................. 7

Designation Criteria and Required Documentation .................................................. 8

Criteria 1 - ACUTE STROKE TEAM LOG .............................................................. 8

Criteria 2 - WRITTEN PROTOCOLS ........................................................................... 9

Criteria 3 - EMS COLLABORATION ...................................................................... 10

Criteria 4 - EDUCATION ......................................................................................... 10

Criteria 5 - LAB TESTING CAPABILITY ................................................................ 11

Criteria 6 - BRAIN IMAGING CAPABILITY ............................................................ 11

Criteria 7 - DATA COLLECTION AND UTILIZATION ........................................... 12

Criteria 8 - TRANSFER PROTOCOLS .................................................................... 13

Criteria 9 - STROKE LEADERSHIP TEAM ............................................................ 14

CEO ATTESTATION LETTER ..................................................................................... 14

References .................................................................................................................. 15

Appendix A: Sample Acute Stroke Team Activation Log ............................................ 15

Appendix B: Sample Written Stroke Protocol ........................................................... 16

Appendix B1: Sample Stroke Algorithm .................................................................. 21

Appendix C: EMS Stroke Protocol ........................................................................... 22

Appendix C1: EMS Agreement Letter ...................................................................... 22

Appendix D: Stroke Education Letter ....................................................................... 22

Appendix D1: Sample Stroke Education Plan ........................................................... 23

Appendix F: SOS or Policy for Lab and Radiology ..................................................... 24

Appendix G: Performance Improvement Model ........................................................ 24

Appendix G1: Target Stroke Time Tracker ............................................................... 25

Appendix G2: Sample Stroke Code Case Review Form ............................................. 26
Appendix G3: Sample Tracking PI Project Form ................................................................. 27
Appendix H: Sample Stroke Specific Transfer Protocol .................................................. 28
Appendix H1: Sample MOA ............................................................................................... 29
Appendix I: Stroke Leadership Letter ............................................................................... 30
Acute Stroke Ready Hospital Designation Checklist ......................................................... 31
Welcome

We are pleased that your facility has decided to apply for initial and/or re-designation as an Acute Stroke Ready Hospital (ASRH)! This resource is your all-in-one guide to organizing everything you need to submit your application successfully. This includes overview of the requirements, specifics about what to submit, and an Appendix full of samples to reference. If you have questions or need clarification about any of the following criteria and supplemental documentation that you will be asked to submit as part of your ASRH designation application, please contact the Minnesota Stroke Program by email at health.stroke@state.mn.us.

Tips for Successfully Submitting your Application

Please pay particular attention to the following documentation details asked of you for each submission requirement. This will benefit you and the Minnesota Department of Health (MDH) greatly by making the process much more efficient. Be mindful of the deadline for submission (April 1 or October 1) and upload a thorough, thoughtful, and complete application!

Getting Started:

▪ Please use the checklist at the end of this document when organizing your application-
  Acute Stroke Ready Hospital Designation Checklist
▪ A video tutorial with step by step instructions for application submission is also available on the mnhealth Stroke Program YouTube Channel.
▪ After you sign in to the Portal, the Designation section is located at the top menu banner from the homepage. Click on New Application. Select your facility and Designation level-MDH Acute Stroke Ready Hospital.
▪ At any point in time if you need any clinical or technical support please contact the MDH Stroke Program at health.stroke@state.mn.us

Source: Minnesota Department of Health Stroke Program Resources

Resource: mnhealth Stroke Program YouTube Channel
Source: Minnesota Department of Health Stroke Program

Updating Application Sections

▪ Contacts
  ▪ Update Contacts section in your application. If primary or secondary contacts need further updating please contact the MDH Stroke Program at
health.stroke@state.mn.us. All fields with an asterisk* must be completed. To save click Update.

- **CEO** - The administrative leader at your facility. Titles may vary.
- **Primary Contact** - The on-site designated stroke coordinator. This person manages the workload of the stroke program. This role, in collaboration with the stroke medical director, comprises the Stroke Program Leadership Team.
- **Secondary Contact** - The designated program staff member that supports the stroke program and would be point of contact in the absence of the primary contact. (i.e. DON, quality department, ED nursing director)
- **Stroke Medical Director** - The on-site physician (or mid-level professional) that has experience in acute stroke care and is provides medical leadership for the stroke program.
- **Registry/Data Entry** - The staff member who submits data into the Minnesota Stroke Registry for your hospital.

**Facility**
- Update Facility section by entering the name of the facility you are applying for. Important to note - This is the name that will appear on the certificate we will send you once your application has been approved. To save click Update.

**Stroke Program Summary**
- Update Stroke Program Summary section by entering your Stroke Program Narrative. This section provides you with an opportunity to describe your program and please include the following components at a minimum: To save click Update.
  - Which EMS agencies deliver and how you collaborate with EMS
  - Who can activate your Acute Stroke Team (AST), how it is activated (i.e. overhead page, etc.) and who logs this on the activation Log
  - How your acute stroke protocol is implemented: describe what happens when you activate
  - How and where you transfer your patients, and whether you keep alteplase patients
  - How you address staff education
  - How you utilize your activation log to conduct data collection and performance improvement
  - Who are the key providers and staff involved in your program and in the care of stroke patients

**Uploading Documents:**
- All attachments must be in PDF format.
- Once an attachment is successfully uploaded, it is saved into your application.
- Name files with short titles that are pertinent to the document you are submitting.
- Eliminate pages of unnecessary documentation by uploading only the documents, or sections of documents, that are necessary to illustrate the required criteria.
- Ensure uploads are easy to read (i.e., not upside down, not vertical layout when should be horizontal, are legible, etc.)
▪ Ensure all documentation (protocols, policies, order sets, agreements, letters, etc.) are up-to-date and are signed.
▪ Your CEO must sign the CEO Attestation Letter. The template is available for download. Please print the document on your hospital letterhead, obtain the CEO’s signature, and upload to complete required documentation.

If you are unsure or need clarification on required documentation – please contact MDH Stroke Program staff at health.stroke@state.mn.us

Submitting the Application:
▪ Once all required documentation has been updated and uploaded, the number next to the title of each section will be zero and the circles will have changed from red to green.
▪ To submit your completed application click on Submit Application.
▪ A message will appear at the top of the screen stating the application was submitted successfully. The status of your application will change from In progress to Submitted.
▪ An automated email from health.stroke@state.mn.us will be sent to you verifying application submission.

Congratulations! You have successfully submitted your application. We sincerely thank you for participating in the statewide stroke system and for working diligently to improve stroke care in your community!

What to Expect after Submission:
▪ Step 1: SUBMITTED- Internal MDH review of your application. Follow up done as needed.
▪ Step 2: IN REVIEW- ASRH Application Review Committee completes clinical review of your application. Further follow up as needed.
▪ Step 3: PENDING APPROVAL-Recommendations letter is formulated from compiled application reviews which includes identified areas of feedback in the following categories; Strengths, Immediate Actions, and Recommendations.
▪ Step 4: APPROVED-Notification of designation status including emailed copy of the Recommendations letter and copy of the signed ASRH designation certificate. Original ASRH designation certificate will be mailed to your facility (addressed to CEO).

Please note, this process takes roughly three months from submission, to review, final approval and notification.
Designation Criteria and Required Documentation

Criteria 1 - ACUTE STROKE TEAM LOG

Activation Log as evidence of an Acute Stroke Team (AST) available 24 hours a day, 7 days a week.

Rationale: An acute stroke team (AST) is a key component of an Acute Stroke Ready Hospital. Studies have shown the importance of such a response team to provide organized care in a safe and efficient manner. The presence of an AST is an independent predictor of the ability to administer intravenous thrombolytic therapy (IV alteplase) and improve the outcomes of stroke patients.

The AST may be staffed by a variety of healthcare personnel depending on the resources available at a particular facility. The AST includes all nurses and providers that respond to stroke, at a minimum, one nurse and one physician. Hospitals not staffed with an emergency department physician may assign a licensed independent practitioner (LIP) instead of a physician. Members of the AST should be available and/or on-call 24 hours a day, 7 days a week. Your stroke protocol (to be submitted in #2) must detail the roles of this Acute Stroke Team.

- Implementing an acute stroke team activation log is required. The stroke coordinator should reference the AST log regularly in order evaluate the stroke team activation process. We encourage recording all stroke team activations regardless of final clinical diagnosis. This will enable your program to thoroughly evaluate the entire code process and identify any delays in care or areas for improvement.
- To implement a log, ask yourself who activates the stroke team. Consider who answers the pre-notification call from EMS or who identifies a potential stroke and activates the code process. Regardless of arrival method, a designated staff member should record the code activation date, time, and patient identifier on a log. Keeping this at a consistent, accessible location is imperative.

What do I need to submit?

- Acute Stroke Team Activation Log that includes at a minimum the following: date and time of activation, response time to bedside, final admitting diagnosis in the ED, treatments and discharge disposition (admit, discharge, transfer). The log illustrates the use and implementation of an Acute Stroke Team. Please only submit the last quarter of your stroke code activation log. For smaller volume facilities it is acceptable to submit one year of stroke code activations.
  - If you do not have data for this yet, please attach a template of the log you plan to use to track activations going forward. We require tracking of all stroke code activations.

Example: Appendix A: Sample Acute Stroke Team Activation Log
Criteria 2 - WRITTEN PROTOCOLS

Written stroke protocols, algorithms for acute treatment in the Emergency Department.

Rationale: An ASRH should be able to deliver several acute therapies that can improve outcomes for patients with a variety of strokes. In addition, the stroke-ready hospital should have an organized set of protocols to address various clinical presentation and complications which may arise in acute stroke patients. A written protocol is essential to ensure that all stroke patients receive organized care in a safe and efficient manner. A written protocol also ensure that important care elements are not omitted, and that prohibited medications or treatments are not administered.

- This protocol should encompass care in the ED. If you have a protocol that addresses acute neurological changes or inpatient stroke code activation please submit that as well. Protocols should be developed by a multidisciplinary team and reviewed and revised to reflect changes in medical knowledge, care standards, and guidelines. Most hospitals review their policies on a scheduled timeframe for example every 1-3 years. It is recommended that policies are reviewed and updated accordingly within the last year prior to application submission.
- Include protocols for the diagnostic work-up, intervention (including IV alteplase (tPA) dosing and administration guidelines), and patient monitoring required for IV alteplase. Also include guidelines for identification of contraindications to IV alteplase (tPA) (often referred to as inclusion/exclusion criteria) and blood pressure management prior to and during IV alteplase.

What do I need to submit?

- A document that serves as a stroke protocol for the Emergency Department, which should demonstrate diagnosis and acute treatment of ischemic stroke, transient ischemic attack (TIA), and hemorrhagic stroke patients. This document should include at a minimum the following components: activation criteria, roles and responsibilities of the Acute Stroke Team, time goals, and patient monitoring. Please also include your algorithm that serves as a guide for stroke care in the code process.
- Order sets that reflect the protocol. – Include specific Emergency Department order sets that address: initial work up of an ischemic or hemorrhagic stroke, acute treatment after CT is read, and alteplase inclusion/exclusion criteria, dosing, administration, and monitoring.
- If you regularly admit alteplase patients, please attach a supporting letter signed by the coordinator, explaining circumstances in which you admit alteplase patients. Please also attach admitting order sets that are used for the care of these patients.

Example: Appendix B: Sample Written Stroke Protocol
Example: Appendix B1: Sample Stroke Algorithm
Criteria 3 - EMS COLLABORATION

The EMS stroke protocols should detail how patients with a suspected stroke will be triaged and routed to the most appropriate hospital. A written agreement between EMS agency and CEO, acknowledging agreement and providing EMS contact for quality improvement, with name and role.

Rationale: In most settings, a patient with a stroke is taken to the hospital by EMS personnel. The ability of EMS personnel to recognize patient with a possible stroke, communicate their findings to the receiving hospital, and stabilize and transport such patients is a key element of an Acute Stroke Ready Hospital. Data from recent studies have shown that EMS communication and notification to the ED that a potential stroke patient is en route can shorten door to imaging and door to needle times, both of which are key parameters in receiving IV thrombolytic therapy.

What do I need to submit?

- **EMS Stroke Protocol** for each service that represents more than 30% of your stroke volume (Optional documents to showcase relationship and collaboration: Drip and Ship/Neuro-assessment protocol from EMS, or a letter detailing process, and feedback form to EMS)
- **Letter with EMS and CEO acknowledging agreement**, and identifying contact at EMS agency for quality improvement purposes, with name and role.

Example: Appendix C: EMS Stroke Protocol
Example: Appendix C1: EMS Agreement Letter

Criteria 4 - EDUCATION

Education on identification and treatment of acute stroke. All AST (Acute Stroke Team) members (at a minimum all nurses and providers that respond to stroke) are required to receive stroke education at least two hours or two times per year.

Rationale: Most patients with acute stroke will enter the ASRH through the Emergency Department. It is essential for emergency department providers to have protocols for the acute diagnosis, stabilization, monitoring, and treatment of stroke patients. Staying up to date on current guidelines of care is vitally important in order to ensure proper care for all patients can be given.

What do I need to submit?

- **Letter on hospital letterhead signed by CEO** attesting that all AST members receive stroke education at least two hours or two times a year and that further education may be provided at the discretion of the stroke program for all other hospital staff involved in the care of stroke patients.
- **A detailed table of the stroke education plan for the next three years** with estimated date, staff targeted and expected educational hours (be sure to include providers). Please
do NOT include your educational materials, PowerPoints, agendas or attendance lists (keep these education details in your files for validation at site visits).

- Stroke education does not need to be formal CEU’s. Examples of stroke education for your AST members and other staff involved in the care of stroke patients may include but is not limited to:
  - Mock Stroke Codes
  - IV alteplase mixing and administration competencies
  - NIHSS certification
  - Case reviews
  - MDH learnings

Example: Appendix D: Stroke Education Letter
Example: Appendix D1: Sample Stroke Education Plan

Criteria 5 - LAB TESTING CAPABILITY

The capacity to complete basic laboratory tests 24 hours a day, 7 days a week.

Rationale: The ability to perform and complete basic laboratory testing on patients with a stroke is essential for diagnosing metabolic and infectious disorders that can masquerade as a stroke syndrome, to ensure stroke patients can be treated with the proper medications, and to determine the possible etiology of some types of stroke.

What do I need to submit?

- Scope of Service (SOS) or policy document- delineating:
  - Lab hours of operation
  - On-site
  - On-call including response times
  - Process for STAT labs

  *If the above required details are not included in SOS or policy please submit a supporting letter on hospital letterhead attesting to these components. This needs to be signed by the CEO.*

Criteria 6 - BRAIN IMAGING CAPABILITY

The capacity to perform and interpret brain imaging studies 24/7

Rationale: Brain imaging confirms the absence of contraindications to thrombolytic therapy and may help diagnose hemorrhagic strokes. This is an essential function of Acute Stroke Ready Hospital. In most cases, the first (and perhaps only) imaging study readily available will be a non-contrast head CT scan. This type of scan is usually sufficient to rule-out other conditions that could present with stroke-like symptoms such as hemorrhagic stroke, large abscess, or tumor. When performed accurately, a head CT will often be either negative or who only subtle changes in cases of ischemic stroke, especially if the stroke is small or very acute. A Head CT is very sensitive and accurate for the diagnosis of most types of hemorrhagic stroke (i.e. intracerebral hemorrhage or subarachnoid hemorrhage).
Acute brain imaging capabilities and interpretation services must be available on a 24/7 basis. Personnel interpreting such scans should be board-certified radiologists with experience and expertise in reading head CTs and brain MRIs.

If your facility has CT-angiogram capabilities, work closely with your Primary or Comprehensive Stroke Center partner to identify and implement a process to evaluate patients for endovascular therapy (mechanical thrombectomy).

What do I need to submit?

- Scope of Service (SOS) or policy document delineating
  - Radiology hours of operation
  - On-site
  - On-call including response times
  - Radiology services
  - Coverage times
  - Read/call back times
  - STAT status for stroke

  *If the above required details are not included in SOS or policy please submit a supporting letter on hospital letterhead attesting to these components. This needs to be signed by the CEO.*

Example: Appendix F: SOS or Policy for Lab and Radiology

**Criteria 7 - DATA COLLECTION AND UTILIZATION**

**Demonstrate collection of data and utilization of data for performance improvement.**

**Rationale:** A successful, effective, and sustainable stroke program at an Acute Stroke Ready Hospital requires dedicated staff, establishment of key structural processes, and a commitment to continuous quality improvement.

- Demonstrate that there is a process in place to utilize the data you capture. What do you do with the data that you collect? For example:
  - Establish a stroke code activation log (Criteria 1)
  - Identify cases to track for performance improvement
  - Abstract and submit data on stroke patients into the Minnesota Stroke Registry
  - Provide feedback on individual patients to staff
  - Evaluate your performance by utilizing a case review tracking log with established program goals
  - Identify program goals and conduct performance improvement projects

- Review your data in a regularly convened meeting. This can be in an existing structure, such as an ED or trauma meeting, or in a separate Stroke Committee meeting, and should involve the Acute Stroke Team and other providers who touch stroke patients (ED physicians, nurses, radiology, lab and registration). This provides an opportunity for all to review care and identify areas to improve.
What do I need to submit?

- **Evidence of data collection – a report showing three years of data.** This is to include, at a minimum, reports of Door to Imaging Initiated (CT) and Door to Needle measures. You may provide these reports in any format, from your own internal data collection process OR from the MN Stroke Portal- reports section.

- **Evidence of utilization of data for performance improvement.** Upload example Stroke Meeting agendas, minutes (from last quarter only) *(if you have not yet met, include a sample agenda of an upcoming Stroke Meeting)*. Upload projects around performance improvement efforts or projects identified via your Stroke Meetings.

**Resource:** *Stroke Patient Care Performance Improvement Guide*

**Source:** *Minnesota Department of Health Stroke Program Resources*

**Example:** Appendix G: Performance Improvement Model

**Example:** Appendix G1: Target Stroke Time Tracker

**Example:** Appendix G2: Sample Stroke Code Case Review Form

**Example:** Appendix G3: Sample Tracking PI Project Form

### Criteria 8 - TRANSFER PROTOCOLS

**Transfer protocols and agreements for stroke patients.**

**Rationale:** Many stroke patients at an Acute Stroke Ready Hospital will require emergent transportation to a Primary Stroke Center or Comprehensive Stroke Center. In some cases, the transfer will occur as soon as possible after acute therapy is initiated; in other cases the patient might require a longer stay at the ASRH if s/he is medically unstable. Even in such cases, transfer to a Primary Stroke Center or Comprehensive Stroke Center with more resources should occur as soon as possible, since a higher level of care is likely to ultimately benefit even the unstable patient. Written transfer protocols and agreements ensure that ground or air transportation arrangements are unambiguous, expectations for en-route care are clear, and appropriate documentation on the patient is provided to the receiving hospital.

Some patients who present to an Acute Stroke Ready Hospital will need acute or eventual neurosurgical evaluation and treatment, particularly those with large ischemic strokes, cerebellar strokes, intracerebral hemorrhages, or subarachnoid hemorrhages. A neurosurgeon may not be readily available in many cases. A plan for addressing potential neurosurgery cases will ensure an organized and timely transfer of care for this type of stroke patient.

New guidelines state that patients should be considered for endovascular therapy.

**What do I need to submit?**

- **A stroke specific transfer protocol from your own facility.** This document should outline what you do to initiate and complete a transfer of a stroke patient. Algorithms are
especially helpful to develop for your ED. Include specifics such as phone numbers for receiving facility and for EMS options, considerations for mode of transport, medical management and information transfer.

- **A stroke-specific transfer agreement or memorandum of agreement (MOA)** with at least one Primary or Comprehensive Stroke Center. This document must include the 24/7 availability of neurosurgery and endovascular therapy (mechanical thrombectomy) capabilities. This may require a second agreement with a hospital that has endovascular therapy (mechanical thrombectomy) capabilities.

  Example: Appendix H: Sample Stroke Specific Transfer Protocol
  Example: Appendix H1: Sample Memorandum of Agreement

**Criteria 9 - STROKE LEADERSHIP TEAM**

A designated stroke program leadership team, including a stroke coordinator and medical director.

**Rationale:** Medical leadership for the stroke program at an Acute Stroke Ready Hospital is essential. Although leadership by a neurologist or neurosurgeon might be beneficial in many cases, the distribution of these specialists is likely to limit their availability at many ASRH facilities. Others who might lead such a program include emergency medicine physicians, internists, pharmacists, and radiologists. In some settings, advance practice nurses have been very successful in leading a stroke center. Whoever the leader is, they should have demonstrated experience and expertise in the care of patients with cerebrovascular disease.

What do I need to submit?

- **Letter on hospital letterhead co-signed** by the designated stroke medical director, designated stroke coordinator and CEO attesting that each will serve in this capacity for the hospital.

  Example: Appendix I: Stroke Leadership Letter

**CEO ATTESTATION LETTER**

**CEO Attestation**
The CEO must attest that the application is accurate and current. The signed letter should declare that the documentation provided is a true representation of the hospital’s processes, protocols and capabilities.

What do I need to submit?

- **Letter on hospital letterhead** signed by the CEO, attesting to the accuracy of the application. A template can be generated from the CEO Attestation Letter section by clicking on the blue hyperlinked CEO Attestation Letter Download.
Appendix A: Sample Acute Stroke Team Activation Log

We require tracking all acute stroke team activations. We also encourage review of all activations regardless of final clinical diagnosis in order to access overall process.

<table>
<thead>
<tr>
<th>Activation Date and Clock Time</th>
<th>Time of Stroke Team Response to bedside (clock time)</th>
<th>Diagnosis (including non-stroke activations)</th>
<th>Treatment (if stroke diagnosis)</th>
<th>Final admitting diagnosis in the ED (admitted, transferred, home, other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/03/2015 14:05</td>
<td>14:10</td>
<td>Acute Ischemic Stroke</td>
<td>IV Alteplase</td>
<td>Transfer to United</td>
</tr>
</tbody>
</table>
Appendix B: Sample Written Stroke Protocol

Protocol #141
Page 1 of 5

Essentia Health - ST. JOSEPH’S MEDICAL CENTER
BRAINERD, MINNESOTA

PROTOCOL: STROKE ALERT

PURPOSE
To establish a standard, well-coordinated and integrated approach to the recognition and treatment of any patient exhibiting signs and symptoms of acute stroke less than 8 hours in duration or arriving within 8 hours of waking up with stroke-like symptoms.

INCLUSION CRITERIA

Sudden onset of any one of the following;
1. Numbness or weakness in the face, arms or legs, particularly on one side of the body
2. Confusion with aphasia (expressive and / or receptive)
3. Difficulty speaking or understanding what others are saying
4. Difficulty walking, loss of balance or coordination
5. Severe headache that does not have obvious or known cause
6. Nonspecific visual complaints with Partial, Complete or Bilateral visual field loss or double vision
7. Sudden onset of continuous vertigo and ANY of the following
   - 65 years of age or older
   - Younger than 65 with risk factors (i.e. Smoking, diabetes, HTN, etc.)
   - Posterior neck pain in setting of recent manipulation or injury (suggesting dissection).

DEFINITIONS
Stroke ALERT—Consistent phrase used to identify all patients meeting inclusion criteria, regardless of the transportation destination.

Team members: Responsible Licensed Practitioner (RLP) or ED physician, ED RN, ED Technician, ED Ward Clerk, ICU RN, Lab Phlebotomist, CT Tech, Pharmacist.

PROCEDURE

1. Activation of Stroke Alert
   A. Ambulance Service may activate Stroke Alert protocol prior to arrival
      1. Notifies the ED that the patient en route meets inclusion criteria
      2. Nurse receiving report will notify Ward Clerk to activate Stroke Alert team and provide ETA
      3. Nurse will inform ED Provider and obtain direction re: timing of initial CT
      4. The ED will notify CT when the CT will be performed prior to going to ED exam room
   
   B. Emergency Department activation:
      1. Activated by the triage nurse when inclusion criteria is met.
      2. Activated upon the direction of the emergency room provider.

   C. Inpatient activation:
      1. Activated at the direction of the Rapid Response Team
         a. May be activated by ICU nurse in absence of MD
      2. Obtain a stat blood sugar
      3. Initiate O2 per nasal cannula at 4 liters
      4. Obtain vital signs
5. Notify the Emergency Department to activate the Stroke Alert
6. Obtain ED room assignment
7. Patient will be transported immediately to assigned ED exam room via hospital bed accompanied by primary nurse, RRT nurse and the RLP activating the Stroke Alert

**Physician**

**TIME GOAL:** Stroke Alert initiated prior to arrival for patients that are identified in the field and meet inclusion criteria.

*Stroke Alert initiated < 5 minutes after arrival and patient headed to CT < 10 minutes*

- Initial patient contact will occur in CT when EMS has been directed there
- Obtain history and review criteria for treatment
- Review initial info re: case with Neuro by phone if they are calling in and using video connection
- Order antihypertensive treatment if BP > 180 / 105
- Oversee that at least 1 IV is started and blood drawn before patient leaves for CT and ensure 15-minute door to CT goal is achieved
- Perform NIH stroke scale in ER with Neuro via video or alone and finish it en route to CT

**TIME GOAL:** Drug ordered < 20 minutes

**ED Ward Clerk**

**TIME GOAL:** Door / notification to page out < 5 minutes

- Overhead page the Stroke Alert
- Alpha Page Stroke Alert group with location of stroke alert patient

**TIME GOAL:** Telestroke unit connected < 10 minutes

- Call United Hospital Telestroke #651-241-8400, specify request for Allina Health Telestroke service to initiate telestroke. (Document time of calls). Provide information including patient name, hospital location, physician name (requesting provider), and ED call back number
- Initiate stroke alert initial eval and treatment order set (labs, CT, CTA, EKG, NIH neuro checks / VS)
- Find family for consent and bring to patient room for history – especially if using telestroke
- Provide MRI Questionnaire to family to complete
- Fax the following to 651-241-5398
  1. Neuro fax cover sheet
  2. Demographics sheet
  3. Request for neuro consult
- Notify CT to make copy of scans if patient is being transferred
- Notify United Patient Placement center if patient is to be transferred 651-241-4700 to obtain disposition

**RADIOLIGIST**

- Radiologist reading CT will call CT reading to the on-call Stroke Neurologist

**ED Nurse**

**TIME GOAL:** VS, abbreviated NIHSS, monitor, O2 < 5 minutes & door to drug < 30 minutes

- Transport and set up Telestroke Unit - Camera should be at foot of stretcher on side opposite nurse working on VS/startng IVs
  - Connect the unit
  - Turn on the unit
  - Activate connection to Omnijoin Telestroke site
- Take stretcher from planned exam room and move it to CT and wait for patient arrival if indicated
- Document using Stroke Alert section on the ED narrator to include vital signs, abbreviated NIHSS, pupil size and reaction, and dysphagia screening
- Finger stick glucose (if not done by EMS)
REFERENCE GUIDE FOR ASRH DESIGNATION

Apply continuous pulse oximetry monitoring device. Keep oxygen saturations >94%, apply supplemental oxygen as needed.

Obtain or determine patient weight for alteplase dosing

Notify physician if BP greater than 180 / 105

Obtain medication list and allergies

Verify 2nd IV is started, if not completed prior to CT. Must have 2 IV sites prior to alteplase administration.

Administer antihypertensive treatment if needed (before or after CT)

Remains available to provide status updates and lab results to stroke team.

Ensure IV alteplase is started and infusing in a timely matter when instructed to do so.
  - Verify order to administer
  - Verify drug mixing – 1 mg/ml
  - Verify drug dosage is weight appropriate (0.9 mg/kg) and total dose not > 90 mg
  - 10% of total dosage given as bolus and remainder infused over next 50 minutes and then flush line with 50 mL NS

Perform NIH abbreviated neuro check every 15 minutes after IV alteplase is started x 4

If not a candidate for IV alteplase
  - Keep NPO until swallow evaluation has been completed
  - Perform bedside swallow evaluation and document results

ED / ICU Assisting Nurse TIME GOAL: 2 IVs < 15 minutes

Start IVs and ensure blood is drawn and orders are placed (if not done by EMS)
  - 2 functional IVs needed – with at least one 18-20 gauge
  - @ least one IV site prior to CT.
    - Verify 2nd IV is started upon return from CT (if not done prior)

Accompany patient to CT

Administer anti-hypertensive as ordered

Monitor vital signs and patient status during imaging

Provide an update of the patient's vital signs / status to the Stroke Team upon return from CT

Insert Foley catheter if needed (either prior to alteplase or no sooner than 30 min post infusion)

Administer IV alteplase when instructed to do so.
  - Verify order to administer
  - Verify drug mixing – 1 mg/ml
  - Verify drug dosage is weight appropriate (0.9 mg/kg) and total dose not > 90 mg
  - 10% of total dosage given as bolus and remainder infused over next 50 minutes and then flush line with 50 mL NS

Perform abbreviated NIHSS every 15 minutes after alteplase given

Keep NPO if given IV alteplase

Assist as needed.

Phlebotomist TIME GOAL: Creatinine resulted < 45 minutes

- Draw 2 green top tubes, 1 blue top, 1 purple top and 1 red top tubes
- Notify the lab and immediately send tubes of blood to the lab

EKG personnel
- Complete EKG once patient has returned from CT

CT Tech TIME GOAL: CT without contrast completed < 20 minutes

- Clear table for stroke alert patient
- Perform CT
- Load results to PACS and send for stat read
- Enter Name and telephone number of Neurologist into system for Radiologist to call result
- Perform CTA (if ordered, must have one 18-20G IV, no dye allergy, renal status cleared)
**Pharmacist**  
**TIME GOAL:** Drug calculation done – ready to mix alteplase < 10 minutes
- Deliver Stroke Alert Kit to treatment room
- Ensure the patient’s weight, real or estimated, has been entered in the EMR
- Complete calculation for mixing drug. **Reminder:** 1 mg/ml
- Await order from MD – alteplase will be mixed in the Emergency Department.
  - Hand off alteplase to nurse caring for patient when order to administer is verified

**Neurologist**  
**TIME GOAL:** To ED via video < 10 minutes and door to drug ≤ 30 minutes
- Call ER to confirm page received and get initial info (patient name and record number if known).
  - Let staff know connecting via Telestroke.
  - For *stroke alerts*, ask staff to set up connection.
- Connect to Omnikon
- Perform NIHSS while patient is getting IV started if they are still in ED or when back from CT
- Obtain history from family and ER physician if patient is in CT
- Review CT remotely with PACS
- Receive Radiologist CT reading
- Communicate CT results to ED MD
- Discuss case with physician and order mixing of the alteplase
- Review CTA when able
- Order administration of the alteplase if treatment is appropriate
- Start discussion with interventional neuroradiology if needed

**DOCUMENTATION REMINDERS**

The Stroke Alert Treatment Record provides dual purpose and is essential to the review process:
- Audit tool
- Worksheet / transfer record

**PHONE LIST** commonly used phone numbers during Stroke Alert

- Admitting: 7550
- CT Scan: 6208
- EMS Dispatch: 6512
- ER: 7555
- Lab: 7500
- Pharmacy: 8111
- X-ray Main: 7660

*Telemedicine Alliance Network:* 851-241-9400
*United Patient Placement Center:* 851-241-4700
*Fax United ER:* 851-241-5398
Date of Origination: December 2011

REVIEW/REVISION: Reviewed and Approved at ED Services August 21, 2013
Revised September 2013
Revised February 2014
Revised August 2014
Revised July 2016
Revised June 2017
Revised February 2018
Reviewed and Approved at Stroke Team Meeting February 15, 2018

NEXT REVIEW: February 2021

ADDITIONAL REFERENCES
Alteplase Treatment Recommendations
Stroke Alert Worksheet-Audit Tool
Abbreviated Stroke Neuro Assessment
Provider Stroke Neuro Assessment

©This P&P is copyright 2011 by Essentia Health. It is for internal use only and is not to be shared outside of Essentia Health facilities without permission from a member of the Essentia Health Leadership Team.
Appendix B1: Sample Stroke Algorithm

Evidence of Acute Stroke Symptoms or Positive FAST Exam
- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes (visual field changes)

CLOCK TIME
LAST KNOWN WELL

- 0-4.5 hours → tPA Candidate
- 0-12 hours → IR Treatment Candidate
- 12+ hours → Consider neuro consult, transfer or inpatient

ACTIVATE STROKE CODE
Goal: < 5 min

ASSESSMENT
- Assess ABCs
- O2 only if needed to keep sats greater than 93%
- POC Glucose
- Start 1 large bore IV
- Draw Labs:, INR, CMP, CBC, Troponin, , pregnancy screen (blood0607)
- 12 Lead EKG (do not delay CT for EKG)
Goal: < 10 min

Non-contrast Head CT
Goal: < 25 min

CONTINUED ASSESSMENT
- Perform NIHSS
- Tele-stroke (if available)
- One Call for Neurologist/surgeon Consult
- H & P (include pt. WEIGHT)
Goal: 20-45 min

IV tPA Candidate
Inclusion / Exclusion Screen & Checklist
START second large bore IV

Swallow Screen:
- Past then give ASA PO
- Fail then give ASA rectal

Transfer Patient
Goal: < 90 min

Consider transfer or admission as inpatient.

Interventional Radiology (IR) Candidates
- Ischemic stroke pts out of IV tPA window
- Ischemic stroke pts with IV tPA contraindications
- Patients s/p IV tPA with NIHSS greater than 10

Aisleplase: Start tPA 0.9mg/kg STAT. Bolus 10% of the over 1 min. Infuse remainder dose over 60 minutes. Max dose is 90mg. Goal: ≤ 60 min

Manage Blood Pressure:
- SBP less than 185
- DBP less than 110

Discussion with pt/family and Neurologist on risks/benefit/alternatives regarding tPA
Appendix C: EMS Stroke Protocol

A Stroke protocol from EMS should include the following components:

- Assessment
- Glucose check
- Oxygen to maintain saturations > 94%
- Activation criteria
- Pre-notification using consistent terminology “code stroke” or “stroke alert”
- Neurological exam to assess for changes (BE FAST, LAMS, RACE, Cincinnati)
- Establish Last Known Well as clock time
- Transport to the nearest appropriate state-designated facility

Appendix C1: EMS Agreement Letter

The letter on hospital letterhead must include the plan for triage and transportation of patients, including the following components:

- Process of pre-notification
- Documentation of Last known Well clock time
- Stabilization and triage of patient
- Communication and handoff of patient
- Feedback mechanism to EMS from hospital (if applicable)
- Must identify a contact at the EMS agency for quality improvement purposes, with name and role.

This letter must be co-signed by the CEO of the hospital and the EMS agency.

Appendix D: Stroke Education Letter

This letter on hospital letterhead must attest to the following components:

- At least one qualified clinician per shift is available for acute diagnosis, stabilization, monitoring and treatment of stroke patients.
- Stroke education is required two hours or two times per year for all Acute Stroke Team members.
- Additional education may be provided at the discretion of the Stroke Program leadership team (Stroke Coordinator and Medical Director) for all staff involved in the care of stroke patients.

This letter must be signed by the CEO.
Appendix D1: Sample Stroke Education Plan

A detailed table of the stroke education plan for the next three years with estimated date, staff targeted and expected educational hours (be sure to include providers). Individual staff records of completed staff education should be kept.

<table>
<thead>
<tr>
<th>Department</th>
<th>Hours needed</th>
<th>Content</th>
<th>Date assigned</th>
<th>Content hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2019</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| ED & ICU nursing    | 2 hours or 2x annually | * IV alteplase competency  
                        |               | 01/01/2019                                         | 0.5 hours    |
|                     |              | * NIHSS certification                             | 03/01/2019    | 3 hours       |
| All nursing staff   | Annual       | * Stroke code process                             | 01/01/2019    | 0.5 hours     |
| ED providers        | 2 hours or 2x annually | * Annual Stroke education- provided by  
                        |               | 05/15/2019                                         | 1 hours      |
|                     |              | Telestroke partners  
                        |               | 03/01/2019                                         | 1 hours      |
|                     |              | * NIHSS refresher                                 |               |               |
| **2020**            |              |                                                   |               |               |
| ED & ICU nursing    | 2 hours or 2x annually | * IV alteplase competency  
                        |               | 01/01/2020                                         | 0.5 hours    |
|                     |              | * Mock code                                       | 03/01/2020    | 1 hour        |
| All nursing staff   | Annual       | * Stroke code process                             | 01/01/2020    | 0.5 hours     |
| ED providers        | 2 hours or 2x annually | * Annual Stroke education- provided by  
                        |               | 05/15/2020                                         | 1 hours      |
|                     |              | Telestroke partners  
                        |               | 03/01/2020                                         | 1 hours      |
|                     |              | * Mock code                                       |               |               |
|                     |              | * Inclusion/exclusion criteria IV alteplase       |               |               |
| **2021**            |              |                                                   |               |               |
| ED & ICU nursing    | 2 hours or 2x annually | * IV alteplase competency  
                        |               | 01/01/2021                                         | 0.5 hours    |
|                     |              | * Dysphagia screening                             |               | 0.5 hours     |
| All nursing staff   | Annual       | * Stroke code process                             | 01/01/2021    | 0.5 hours     |
| ED providers        | 2 hours or 2x annually | * Annual Stroke education- provided by  
                        |               | 05/15/2021                                         | 1 hours      |
|                     |              | Telestroke partners  
                        |               | 03/01/2021                                         | 0.5 hours    |
|                     |              | * Inclusion/exclusion criteria IV alteplase       |               |               |
Appendix F: SOS or Policy for Lab and Radiology

These sections require the submission of a Scope of Service or a Policy document for both Laboratory and Radiology services. These should include the following components:

- Description of 24/7 services, with times of on-site and on-call services stated
- Description of any on-call staff, with roles and response times to hospital
- Description of contract radiology services, including times of coverage, read/call back times, and STAT status for strokes

If the above required details are not included in SOS or policy please submit a supporting letter on hospital letterhead attesting to these components. This needs to be signed by the CEO.

Appendix G: Performance Improvement Model

[Diagram of Performance Improvement Model]

1. Stroke Code Activation Log (Criterion 1)
   Tracking tool for case identification

2. Identify Cases and Keep a Stroke Code PI Log
   Stroke Code PI Log = data collection tool for case performance
   - All stroke code activations - regardless of final diagnosis
   - Established process goals/metrics for key time intervals
   - Reference Target: Stroke Campaign Manual
   - Process goals may vary
   Note: For some the activation log and PI log are the same document

3. Registry
   - Submit confirmed stroke cases to Minnesota Stroke Registry (Portal)
   - OPTIONAL: Include all stroke code activations to create a comprehensive case-level performance improvement report
   - Only eligible cases will be included on metric reports (e.g., SQIRMS)

4. Feedback
   Individual feedback on case performance
   - Stroke Code response team
   - Stroke Program Committee

5. Evaluation
   Collective evaluation of established process goals on key time intervals
   - Minnesota Stroke Registry case level reports or
   - Facility-based reports
   - Total overall program performance evaluated on regular basis
   - Program performance reviewed with Stroke Committee

6. Performance Improvement
   Identify an area for improvement from overall program performance evaluation
   - Design a plan
   - Present plan to committee/team members for approval/support
   - Implement plan, collect data, evaluate results, & report back to Stroke Committee
   - Celebrate your successes!
## Appendix G1: Target Stroke Time Tracker

### Patient Time Tracker
Updated 2014

**TARGET: STROKE™ PHASE II**

### Acute Ischemic Stroke Treatment Goal:

<table>
<thead>
<tr>
<th>DTN Time Within 60 Minutes</th>
<th>DTN Time Within 45 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Place patient sticker here.</td>
</tr>
</tbody>
</table>

**Last Known Well**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
</table>

**Weight:** ________ (kg)  
**Total IV tPA Dose:** ________ (mg)  
**IV tPA Bolus:** ________ (mg)

**Clock starts for Door-to-Needle (DTN)**

<table>
<thead>
<tr>
<th>Patient Arrival</th>
<th>Stroke Team Activation</th>
<th>Stroke Team Arrival</th>
<th>ED Physician Assessment</th>
<th>Brain Imaging Ordered</th>
<th>Brain Imaging Initiated</th>
<th>Brain Imaging Interpreted</th>
<th>Lab Tests Ordered</th>
<th>Lab Test Complete</th>
<th>IV tPA Ordered*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IV tPA Initiated:** (Goal ≤ 60 minutes) (Goal ≤ 45 minutes)

*Date only needs to be entered once, unless the time span crosses midnight and date changes.

*If IV tPA not given, select reason(s) for non-treatment within the Patient Management Tool™ (PMT). See Get With The Guidelines® coding instructions for definitions.

**DTN Time data feedback provided**

**Patient’s Care Team Members**

---

Patient time tracker sheets are valuable quality improvement tools. Using time tracker sheets raises stroke team members’ awareness of DTN time. Reviewing sheets can help to identify problem areas or aid in spotting patterns to target for process change.

**TIME LOST IS BRAIN LOST.**
Learn more at Stroke.org/TargetStroke.
Appendix G2: Sample Stroke Code Case Review Form

### Stroke Code Feedback Form

<table>
<thead>
<tr>
<th>Date</th>
<th>Stroke Code Components</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrival time/mode OSH</td>
</tr>
<tr>
<td></td>
<td>Stroke Code called/time</td>
</tr>
<tr>
<td></td>
<td>NIHSS score</td>
</tr>
<tr>
<td></td>
<td>BG documented/time</td>
</tr>
<tr>
<td></td>
<td>Weight documented/time</td>
</tr>
<tr>
<td></td>
<td>50cc NS bag documented</td>
</tr>
<tr>
<td></td>
<td>after tPA administered</td>
</tr>
</tbody>
</table>

**STROKE code staff**

<table>
<thead>
<tr>
<th>ER Physician</th>
<th>ER Nurse</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Door to MD Assess/order</th>
<th>Door to One Call/Neuro Teleconnect</th>
<th>Door to CT Scan</th>
<th>Door to tPA order</th>
<th>Door to INR Results if applicable</th>
<th>Door to tPA Administered</th>
<th>Door to dc from OSH</th>
<th>NIHSS et dc from ANW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Time: c 10 mins</td>
<td>Goal Time: c 10 mins</td>
<td>Goal Time: c 10 mins</td>
<td>Goal Time: c 35 mins</td>
<td>Goal Time: c 40 mins</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pt Scenario:**

**Opportunities:**

**STROKE CODE Follow Up:**
### Appendix G3: Sample Tracking PI Project Form

<table>
<thead>
<tr>
<th><strong>Department/Service Area:</strong></th>
<th>Emergency Department/Radiology</th>
</tr>
</thead>
</table>
| **Problem/Indicator:**      | Stroke code activations door to CT metric.  
Goal time for door to CT is 25 minutes.  
Average time for door to CT is currently 30 minutes.  
40% of stroke code activations are within goal time for door to CT metric. |
| **Goal:**                   | Decrease average door to CT for stroke code activations to 20 minutes or less resulting in higher percentage within goal time. |
| **Study Timeframe:**        | **Start:** 01/07/2019  
**End:** 03/04/2019 |
| **Actions:**                | EMS stroke code arrivals that are stable will stay on the EMS cot and go straight to CT. |
| **Outcome:**                | EMS stroke code arrivals will see a decrease in door to CT time to average 15 minutes or less. 80% of EMS arrivals will be within goal. |
| **Plan:**                   | Data to track/evaluate: Door to CT for overall stroke code activations, % within goal time, door to CT for EMS arrivals, door to CT for private vehicle arrivals.  
Review above outcome data at Stroke committee meeting on 04/08/2019.  
Include successes and barriers. |
|                            | Private vehicle arrivals will be triaged quickly. Once stroke code activated they will be transported straight to CT instead of roomed. |
|                            | Private vehicle stroke code activations will achieve a decrease in door to CT time to average 15 minutes or less. 80% of private vehicle arrivals will be within goal. |
|                            | Data to track/evaluate: Door to CT for overall stroke code activations, % within goal time, door to CT for EMS arrivals, door to CT for private vehicle arrivals.  
Review above outcome data at Stroke committee meeting on 04/08/2019.  
Include successes and barriers. |
Appendix H: Sample Stroke Specific Transfer Protocol

Saint Elizabeth’s Medical Center
MINISTRY HEALTH CARE

PROTOCOL: Transfer of the stroke patient

New: 3/15/17  Reviewed:

PURPOSE:
To quickly and correctly identify and stabilize patients who will require transfer to a tertiary stroke center for definitive management

INDICATIONS/PROTOCOL:
Stroke patients will require evaluation by the emergency department providers and consultation with a stroke neurologist at the receiving stroke center before the decision to transfer is made.

Once the decision to transfer has been made, it should not be delayed. At this point, focus of the emergency department staff is on treatment with t-PA (if appropriate) and stabilization with the goal of minimizing the patient’s length of stay in the emergency to less than 2 hours.

Early consideration should be given to method of transfer. Ground transport can be used if the patient is not a air transport candidate or if the air transport cannot fly. All patient’s must be transferred under the care of personnel who are adequately trained to manage a stroke victim.

PROCEDURE:

1. After becoming aware that a stroke code patient, who will likely require emergent transfer, is en route, the emergency department staff activated the stroke code team.
2. The provider identifies and contacts the receiving facility physician to accept transfer. They should discuss the physiological status of the patient, further testing or treatments to be done prior to the transfer and the optimal timing of transfer.
3. The provider identifies the appropriate mode of transport (air versus ground) and qualifications of the transport personnel.
4. Nursing staff arranges for transport then calls to give nurse to nurse at the receiving facility and approximated arrival time to the receiving facility.
5. Nursing asks Radiology to push scan to Q-reads if going to Mayo at Rochester or asks a CD of the scan be made to send with the patient. Labs, preliminary radiology reports, documentation are either sent with the patient or faxed.
6. Prior to dismantling the team a review of case, what went right and what did not go right.

TH/ Stroke folder 3/17
Appendix H1: Sample MOA

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (the “MOA”) is made and entered into as April 1, 2017 between Essentia Health Duluth and Holy Trinity Hospital and Essentia Health Fargo.

A. PARTIES. The parties in this agreement are Holy Trinity Hospital, a Critical Access Hospital, and Essentia Health Fargo, a Joint Commission Certified Primary Stroke Center with 24/7 neurosurgery and endovascular capabilities.

B. PURPOSE. This MOA is a voluntary agreement among the hospitals that establishes an agreement for transfer for stroke patients requiring neurosurgical evaluation and/or treatment.

C. AGREEMENTS. Holy Trinity Hospital agrees to perform neurological assessment and diagnostic procedures to determine neurosurgical or endovascular intervention eligibility according to current guidelines. Holy Trinity Hospital agrees to establish transfer protocol to assess neurological consultation with Essentia Health Fargo, including, but not limited to:

1. Consultation through tele-ED or phone consult as an initial point of contact.
2. Providers from both hospitals discuss the neurological status of the patient and decide on the appropriate medical procedures and mode of transfer (air or ground).
3. Holy Trinity Hospital contacts Essentia Health Fargo through One Call to transfer patient to Essentia Health Fargo at 701.394.2255 and determines the appropriate level of medical or ground transportation and obtains an ETA.
4. Holy Trinity Hospital attaches copies of all available documentation to accompany the patient (examples include the EMS run sheet, CT scans, and lab results).
5. TRANSFER PROTOCOL. An Interfacility Transfer Agreement supplements this MOA.

D. TERMS. The term of this agreement is for three (3) years, commencing on date of final signature. Either party may terminate this agreement without cause after 30 days written notice to the other party.

Essentia Health Duluth
Duluth, MN 55804

Holy Trinity Hospital
Duluth, MN 55804

Essentia Health Fargo
Fargo, ND 58103

Signed:

[Signature]
John Smith, CEO
Holy Trinity Hospital
Appendix I: Stroke Leadership Letter

This is a letter on hospital letterhead, co-signed by the CEO, designated Stroke Medical Director, and designated Stroke Coordinator. This needs to state that each person agrees to serve in the capacity for the hospital.
Acute Stroke Ready Hospital Designation Checklist

Use this checklist to organize your documents to ensure that you have considered all relevant materials to submit a complete application.

✓ **Activation Log as evidence of Acute Stroke Team availability 24/7**
  - Activation log: a blank template or filled in, as long as it hits the minimum for all stroke alerts: Activation Date and Time, Time of AST response, Diagnosis, Treatment, and Final admitting diagnosis.

✓ **Written stroke protocols or algorithms for acute treatment in the ED**
  - **Protocol/Algorithm that reflects ED process for stroke**
    - If you have a policy that provides a detailed description of the stroke code process and roles, we recommend that you also develop an abbreviated algorithm or one page guideline that can be used as a quick reference by ED personnel. All of the following components should be included either in this protocol *or the order sets that support it* (these should reflect your own logo and process at your individual hospital):
      - Roles and Responsibilities of AST staff
      - Time goals [Door to Provider, Door to Telestroke, Door to CT, Door to CT read, Door to Needle, Door to Door (Transfer out)]
      - Time Frame for Activation/ Clock Time Last Known Well
      - Symptoms and criteria for Activation
      - Labs (glucose, coags, etc.)
      - IV access
      - Vitals and BP parameters and BP meds
      - NIHSS/Neuro assessment
      - Non-contrast Head CT (do you also provide CTA? Add this into narrative/protocol/algorithm)
      - Consultation with Neurology/Tele-stroke
      - Consideration of treatment by times from last known well (consideration of alteplase, endovascular, hemorrhage)
      - Inclusion/Exclusion criteria for alteplase
      - Alteplase dosing and administration (accurate weights)
      - Post-alteplase management and consideration of complications
      - Endovascular consideration

☐ **Protocol/policy for inpatient stroke code**

☐ **Order sets to support protocol/algorith**m
  - ED order sets (ischemic with/without alteplase, which include the initial work-up and management of stroke) to include at a minimum the following:
    - Weights
    - Vital signs and neuro checks
    - BP parameters (Notify MD if BP >220/120, if alteplase candidate >185/110)
    - Pre-checked labs
    - Radiology orders
• Dysphagia screen/order for strict NPO until screened
• IV access

☐ Alteplase order set and/or supporting documentation (this can be included in above order set)
  • Inclusion/Exclusion criteria
  • Alteplase Dosing and administration instructions (bolus and infusion)
  • Patient monitoring during and after alteplase infusion
    ▪ Vital signs and neuro checks
    ▪ BP parameters during infusion and meds
    ▪ Complications to monitor for and actions to take if they occur
    ▪ Avoid antiplatelets, anticoagulants, IV starts, etc.
    ▪ Transfer (if not admitted)

☐ Admission order sets for stroke with alteplase (only if your hospital routinely keeps patients who have received IV alteplase). Also include a letter describing the circumstances when you will admit an alteplase patient, signed by the stroke coordinator.
  • Vital signs and neuro assessments
  • BP parameter and BP meds
  • Imaging- CT/CTA, MRI/MRA, CUS, echocardiogram, TEE
  • Labs
  • Dysphagia screening
  • Core measure related orders
  • PT/OT/SLP
  • Meds- ASA, Plavix, statins
  • Stroke education
  • Cardiac monitoring
  • When to call the provider

✓ EMS
  ☐ EMS stroke protocol
  ☐ Letter between EMS and hospital CEO, with a contact person for feedback
  ☐ Optional: Interfacility Transport Protocol for Alteplase Patients (Drip and Ship)

✓ Education
  ☐ Letter stating required education is provided two hours or two times a year
  ☐ Grid showing recent and planned education in next 3 years, with which type of providers targeted and for how long. Education with CE provided is not required. Mock stroke codes or other learning activities are acceptable.
Lab
- Scope of Service showing 24/7 availability
- STAT labs reflected in ED order set

Radiology
- Scope of Service that contains the below. If missing from SOS, attach a letter from radiology to describe following:
  - CT tech on site or on call, specify hours, specify expected response time when called in
  - Radiologist on site or teleradiology, specify hours, specify expected turnaround time (read back) for stroke
  - STAT read for stroke (can be in order sets)

PI
- Three years of data from MSRT
- Any PI evidence- agendas/minutes describing stroke case review, past PI project descriptions or current PI plans

Transfer agreements
- Protocol or algorithm that describes how you prepare a patient to transfer out of your ED. Must contain:
  - Phone number to call for transfer to next level of care (transfer center or similar at receiving facility – if you commonly transfer to more than one facility, include contact information for each)
  - Who makes decisions on air vs ground transport
  - Phone number to call for EMS (or who contacts them if done by receiving facility)
  - Handoff to EMS: Consideration of tubing and pump exchange if sending with alteplase infusion
  - Consideration of how to get records to next hospital (if no shared electronic health record, which records/imaging is sent?)
  - Report to next facility
- MOA or transfer agreement
  - stroke specific
  - signed by CEO or designee of both hospitals
  - must be active

Stroke Leadership
- Letter from CEO, co-signed by SC and MD, attesting to roles
  - SC or MD must have some time on-site to manage stroke program.
  - MD should be on-site and can have medical direction provided through telestroke with engaged case review.