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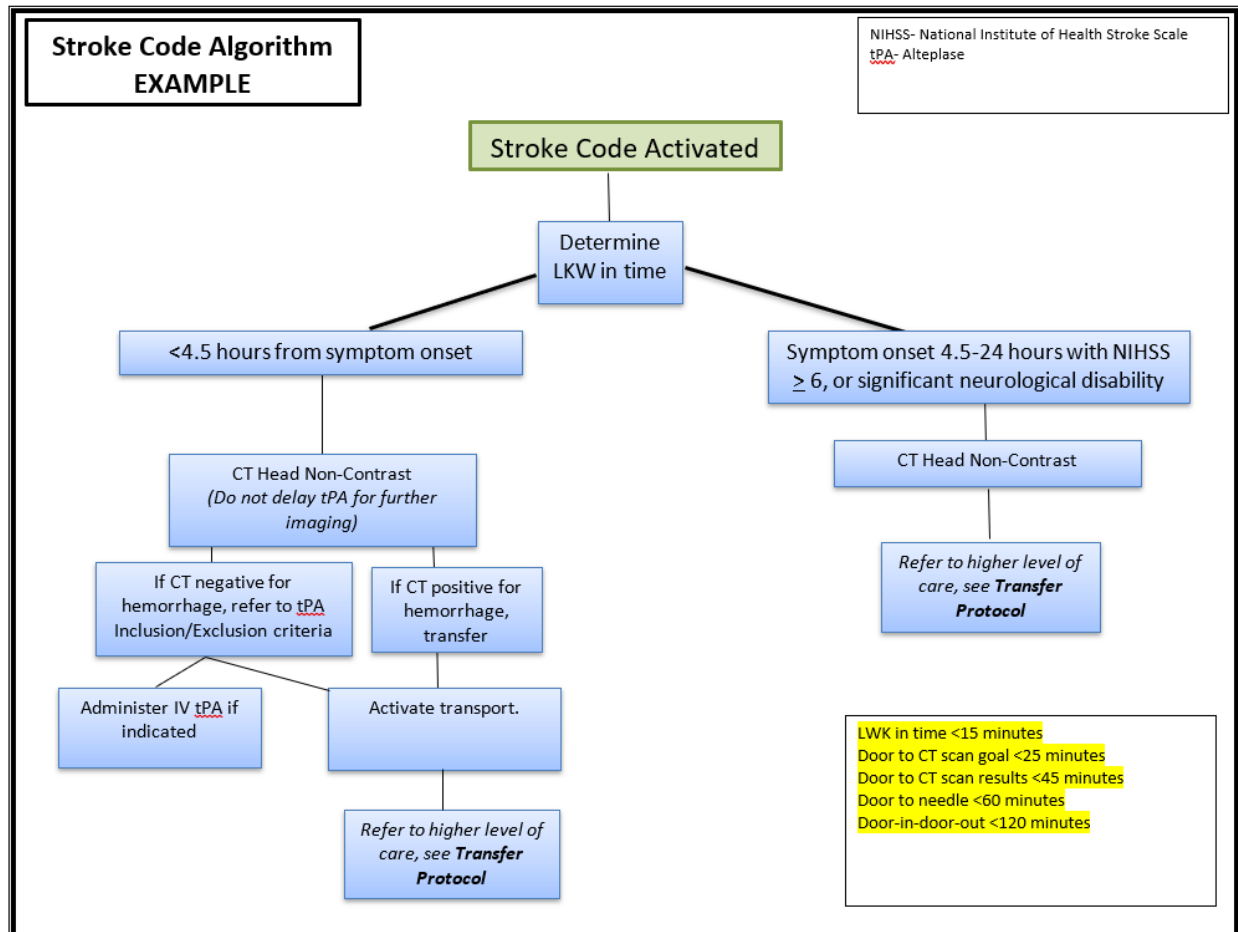
Appendix I: CEO Attestation Letter

## Appendix A1: Contact Information Form

Facility		
Street Address / PO Box		City
State	ZIP Code	Telephone Number
Primary Contact person name, credentials, and title (print)		
Primary Contact phone number		Primary Contact email
Secondary Contact person name, credentials, and title (print)		
Secondary Contact phone number		Secondary Contact email
Stroke Medical Director		
Stroke Registry/Data Entry person		
Stroke Registry Reimbursement Contact person		



## Appendix B1: Stroke Code Algorithm



## Appendix B2: Stroke Code Protocol

NORTH DAKOTA ACUTE STROKE READY HOSPITAL STROKE CODE PROTOCOL	PROTOCOL # SCP100
DATE DEVELOPED:	APPROVED BY:
DATE REVISED:	DEVELOPED BY:

Protocol: Stroke Code Protocol

Purpose: To establish high-quality standards of care that are well-coordinated; for rapid recognition and treatment of patients exhibiting stroke symptoms to improve outcomes and decrease disability from stroke.

Procedure:

### 1. Rapidly Identify Stroke Symptom

#### Inclusion Criteria:

- a. Balance-sudden trouble walking, dizziness, loss of balance or coordination, continuous vertigo.
- b. Eyes-sudden double vision or trouble seeing out of one or both eyes.
- c. Face-sudden drooping or numbness on one side of the face.
- d. Arm-sudden numbness or weakness of the arm, especially on one side of the body.
- e. Speech-sudden confusion, trouble speaking or understanding.
- f. Time-consider transport options, document time of last known well, time is brain!
- g. Severe headache that does not have obvious or known cause

### 2. Activation of Stroke Code

- Definition: consistent term used throughout facility to activate response of designated Acute Stroke Team to assist in rapid assessment, treatment, and transport of patient meeting inclusion criteria.
- Acute Stroke Team: responds to Stroke Code Activation and includes; Administrative assistant, Emergency room RN with National Institute of Health Stroke Scale (NIHSS) certification, Provider on call for Stroke codes, Stroke Coordinator, Radiology technician, Laboratory technician, Radiologist (notified of Stroke Code by Radiology technician), and Neurologist (paged separately as a consult to speak with provider)

#### 1. Ambulance service activation-may activate Stroke Code prior to patient arrival

- I. EMS notifies the Acute Stroke Ready Facility that patient is en route and is exhibiting inclusion criteria
- II. EMS to give report to Emergency Room nurse/receiving nurse including time of last known well
- III. Stroke Code Activated by receiving nurse or administrative assistant, activating Acute Stroke Team
- IV. Acute Stroke Team provider shall arrive at patient's bedside  $\leq 15$  minutes of Stroke Code Activation
- V. Receiving nurse/administrative assistant will activate Radiology Response to prepare CT

## Appendix B2: Stroke Protocol (continued)

2. Emergency Department activation-
  - I. Stroke Code activated by triage nurse or primary nurse when patient exhibiting inclusion criteria
  - II. Acute Stroke Team provider shall arrive at patient's bedside  $\leq$ 15 minutes of Stroke Code Activation
3. Inpatient activation-
  - I. Primary nurse activates Rapid Response Team when patient exhibiting inclusion criteria
  - II. Stroke Code activated by Rapid Response Team
  - III. Administrative assistant to notify Emergency Room of Stroke Code Activation
  - IV. Document last known well time (LKW), obtain vital signs, blood glucose, EKG, current weight
  - V. NIHSS certified nurse performs NIHSS
  - VI. Patient transported to Emergency Department accompanied by primary nurse
3. **Care and Treatment of a Stroke patient during Stroke Code Activation**
  1. *Goal: Acute Stroke Team provider to patient bedside <15 minutes*
  2. Obtain LKW time, assess vital signs every 15 minutes with neuro checks, blood glucose, continuous cardiac monitoring, NIHSS on arrival, O2 to keep sats >94%, keep NPO, establish IV access, Normal Saline @ TKO
  3. Provider evaluates and orders CT, lab tests
  4. Prepare for stat non-contrast CT scan. Consult Neurology. *Goal: Door to CT scan <25 minutes*
  5. Consult with Tertiary Care Center for higher level of care, initiate Transfer Protocol.
  6. *Goal: Door to CT scan results < 45 minutes*
  7. If CT is negative for hemorrhage and time of last known well 0-4.5 hours refer to Inclusion/Exclusion Criteria for IV Alteplase for Ischemic Stroke
  8. If patient meets inclusion criteria for IV Alteplase (tPA) utilize Alteplase Administration Protocol. *Goal: door to needle <60 minutes*
  9. By order of neurologist and Acute Stroke Team provider, administer IV Alteplase bolus and begin drip as directed.
  10. Follow Transfer Protocol and prepare for transfer.

## Appendix B3: Bedside Dysphagia Screen

### Bedside Dysphagia Screen

SCREEN MUST BE COMPLETED BEFORE ANY ORAL INTAKE.

1. **CHECK ONE:**     INITIAL SCREEN     RESCREEN
  
2. **Sit patient upright with HOB elevated 75–90 degrees.**
  - a. Is patient alert, able to open eyes, and focus? (Check One)  
 YES. Continue to part 2b     NO. Terminate screen, make NPO, place SLP dysphagia eval order.
  
  - b. Does patient have any of the following: (Check all that apply)
    - i.  Inability to handle secretions, such as drooling
    - ii.  Weak, hoarse, or absent voice
      1.  YES to either of the above, terminate screen, make NPO, place SLP dysphagia eval order.
      2.  NO. Continue to step 3
  
3. **Provide the patient with 90 mls of water to drink.**
  - a. Patient successful with 90 mls of water uninterrupted?
    - i. Yes
      1.  Patient has passed the screen
  
    - ii. No. Terminate screen, make NPO, place SLP dysphagia eval order.
      1. Check all that apply
        - No attempts to swallow
        - Water leaks out of the mouth
        - Coughing or throat clearing
        - Wet/gurgling voice (have patient say "ah")
        - Effortful or painful swallow
        - Patient unable to complete 90 mls uninterrupted
        - Any other reason you feel swallowing is unsafe

Nurse's Signature \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

## Appendix C: EMS Feedback Form

### Stroke Code Follow-up

<b>Case Review</b>			
<b>Age</b>			
<b>Date</b>			
<b>Mode of Arrival</b>			
<b>EMS ONLY</b>		<b>Pre-notification</b>	
		<b>Stroke Scale</b>	
<b>ED Provider</b>		<b>LKW</b>	
<b>Telestroke Provider</b>		<b>BP &amp; BG documented</b>	
<b>Primary RN</b>		<b>IV start</b>	
<b>ED Disposition</b>			
<b>ED Dx</b>			
<b>NIHSS</b>			
<b>LOS</b>			
<b>Dischage Dx</b>			
<b>Discharge Dispo</b>			

<b>LKW Clock Time</b>	
<b>Door Time</b>	

Stroke Code	Goal Times	Met	Time	Minutes
Door to Code	< 10 minutes			
Door to Provider	< 10 minutes			
Door to Stroke Team	< 15 minutes			
Door to CT	< 25 minutes			
Door to Decision	< 45 minutes			
Door to Drug	< 60 minutes			
Door to Transfer/ Door to Admit	< 90 minutes <120 minutes			

<b>Comments/Process Improvement</b>



## Appendix D: Education Plan

### Education Plan

7/2018-6/2019	Content hours	7/2019-6/2020	Content hours	7/2020-6/2021	Content hours
Stroke Risk Factors, Genetics, and Prevention -Scholarly article, test	0.5 hours	Stroke and Cardiac Conference -October 29 & 30, 2019	8 hours	Advanced Stroke Life Support Class -Providers, nurses when class available	8 hours
Genentech Rep in-service -How to mix alteplase -October 17, 2018	1 hour	Stroke Coordinator Education -New Guideline Review -January 15, 2020	1 hour	Mock Code Stroke -August 12, 2020	1 hour
Stroke Case Review -March 13, 2019	0.5 hours	SIM ND- Facial droop -May 7, 2020	1 hour	Stroke Protocol -Review, test	0.5 hours

### New AST Member Education Plan

Education	Employee #1	Employee #2
Stroke Code Protocol	Date Completed	Date Completed
NIHSS certification		
Neuro checks and BP management		
IV alteplase administration		
Dysphagia screen		

## Appendix E: Scope of Service

- **Laboratory Services**

Laboratory Services (Appendix E)			
Question	Recommendation	Comments	D/E
Lab available 24/7	Ability to complete basic lab tests <u>at all times</u>		E
STAT status for stroke alert labs?			
Ability to run coagulation studies			E
What is your process for getting labs done in a timely manner?			
Do you monitor turn-around time for stroke code labs? What is the expectation?			
Basic blood tests capability	Capability to run basic blood tests		E
Blood typing capability			D
Comprehensive blood bank or access to blood bank			D

- **Diagnostic Imaging**

Diagnostic Imaging (Appendix E)			
Question	Recommendation	Comments	D/E
What is your process for getting the CT done and read in a timely manner?			
How are the CT results reported to you?			
If teleradiology, is the consulting neurologist able to review the CT?			
Are you capable to do CTAs? How do you decide who will have a CTA?			
Radiology: What are your response times if on-call?			
What does your protocol say to do during a stroke alert?			
How do you communicate a STAT read with radiologists?			
Diagnostic Imaging available 24/7 (CT)	Acute brain imaging capabilities and interpretation services must be available on a 24/7 basis		E
Brain imaging with non-contrast CT performed and read within 45 minutes			E
ECG capability			E

## Appendix F1: Performance Improvement

- Performance Improvement

Performance Improvement (Appendix F1)			
Question	Recommendation	Comments	D/E
Formalized PI program	Hospitals must review data in a regularly convened meeting. Meeting may be included as part of a pre-existing meeting. This provides an opportunity for all to review care and identify areas to improve		E
Are there any stroke PI activities you have been involved in or are aware of?			
Participation in ND State Stroke Registry	Must be up-to-date on data submission to the ND State Stroke Registry		E
Track stroke code times for QI and follow-up with fall-outs	Should review Door to CT, Door to Needle, Door to Transfer times. Take this opportunity to call out the great work people are doing		D
Stroke cases reviewed monthly			E
Who joins PI meetings/case review?	Should include AST, and other providers who touch stroke patients (ED physicians, nurses, radiology, lab, registration)		
Review of hospital and pre-hospital stroke care			E

# Appendix F2: Performance Improvement

## Performance Improvement Progress Report

<b>Department/Service Area:</b>		
<b>Problem/Indicator:</b>		
<b>Goal:</b>		
<b>Study Timeframe:</b>	<b>Start:</b>	<b>End:</b>
<b>Actions:</b>	<b>Outcome:</b>	<b>Plan:</b>

## Appendix F2: Performance Improvement

### Performance Improvement Action Plan

Name:

Date:

Objective:

Metric (GWTG: Measure):

Analysis:

Action:

Barriers:

Next Step:

Timeline:

## Appendix F4: Performance Review

Case Review for Performance Improvement			
Question	Comments	Recommendation	Timing Indicators
Arrival mode (EMS/Walk-In)			
EMS pre-notification? (y/n)			
Glucose obtained? (y/n)			
ED Arrival Time			Door:
Last Know Well Clock			LKW to Door:
Stroke Code Activation		< 15 minutes	Door to Code:
Acute Stroke Team Assembled		< 15 minutes	Door to AST:
Telestroke Activation			Door to Telestroke:
CT Initiated		≤ 25 minutes	Door to CT:
CT Read		≤ 45 minutes	Door to CT read:
Transfer out of ED		≤ 2 hours	Door to Transfer:
IV Alteplase			
Question	Comments	Recommendation	Timing Indicators
Weight obtained (method)		Accurate method such as a bed scale	
Double checked			
Risks, benefits, informed consent			
BP Prior to Infusion		BP and pulse documented within 5 minutes of alteplase bolus. BP < 185/110	
Bolus time			
Infusion time		< 60 minutes	Door to Needle:
Post-Alteplase monitoring		BP maintained at <180/105 after alteplase is administered	VS 15 15 15 15 15 15 15 15 15 15 N 15 15 15 15 15 15 15 15 15 15 1
Documentation			
Question	Comments	Recommendation	Timing indicators
Dysphagia Screen documented (y/n)			
NIHSS documented (y/n)			
Reason no alteplase given (y/n)			
Considered for endovascular treatment (y/n)			
Comments/Summary of Case Review			

## Appendix F4: Performance Review (continued)

Is workflow in record consistent with best practice, consistent with their protocol and consistent within their own documentation?	
Are there any opportunities noted for improvement?	
Are there any concerns for patient safety?	

**Arrival date:**

**Discharge Date:**

**Alteplase Transfer?**





## Appendix G: Transfer Protocols and Agreements

- Transfer Protocols and Agreements for Stroke Patients

Transfer Protocols and Agreements for Stroke Patients (Appendix G1, G2)			
Question	Recommendation	Comments	D/E
If you initiate IV alteplase on patient, how are they typically transported?			
How is the infusion managed during transport?			
Do you have to transition the infusion to a different IV pump? If so, how do you ensure that the patient gets the entire dose?			
How do you decide what type of transport will be used?			
Which hospitals do you typically transfer patients to?			
Describe the transfer process?	≤ 2 hours		D
What information do you provide to EMS?			
Do you call report to the receiving hospital or have specific paperwork you provide?			
Written agreement between hospital and ≥ 1 hospital that has neurosurgical coverage on a 24/7 basis			E
For patients transferring to a stroke center, patients leave the hospital within 2 hours of ED arrival or when medically stable. The program includes time parameters and transfer procedures to stroke centers			D

## Appendix G1: Transfer Protocol

NORTH DAKOTA ACUTE STROKE READY HOSPITAL STROKE SPECIFIC TRANSFER PROTOCOL	PROTOCOL # SSTP100
DATE DEVELOPED:	APPROVED BY:
DATE REVISED:	DEVELOPED BY:

### Protocol: Stroke Specific Transfer Protocol

**Purpose:** To quickly and correctly recognize, stabilize, and transfer patients exhibiting stroke symptoms who will require a higher-level Stroke Center for further evaluation, intervention, and management.

**Indications:** Patients exhibiting stroke or stroke-like symptoms will be assessed and stabilized by the Acute Stroke Ready Hospital's Acute Stroke Team. A CT scan will be performed and interpreted <45minutes. The Acute Stroke Team Provider will consult with a neurologist at receiving stroke center prior to transfer of patient. Once the order to transfer has been received, transfer will not be delayed. Transportation method will be considered, transport plans will be established, and Emergency Medical Personnel will be activated for transfer. Patient will be stabilized by Acute Stroke Team, IV Alteplase infusion will be administered per protocol if patient meets Alteplase Inclusion Criteria. The goal of door in to door out for patient will be 120 minutes. Patient will then be transferred to a higher level of care for further evaluation and management.

### Procedure:

1. After being notified of a stroke patient en route to your Acute Stroke Ready Facility, the Acute Stroke Team will be activated.
2. The Acute Stroke Team Provider will consult with a neurologist at the receiving stroke center, report given, and treatment prior to transfer determined.
3. The Acute Stroke Team Provider will order transfer and determine best transportation method.
4. Acute Stroke Team nursing staff will activate the Emergency Medical Personnel with the appropriate method of transportation.
5. The Acute Stroke Team primary nurse will call report to receiving facility.
6. The Acute Stroke Team will send all the patient's records and scans to the receiving facility.
7. Patient transported after stabilization and orders to be completed prior to transfer (i.e.: initiation of IV Alteplase) are implemented. Patient will be transported via ordered transportation method with qualified transport personnel to higher level of stroke care facility within a goal of  $\leq 120$  minutes.

## Appendix G2: Stroke Specific Transfer Agreement

### Stroke Specific Memorandum of Agreement

THIS MEMORANDUM OF AGREEMENT (MOA) is made and entered in as of \_\_\_\_\_ between [Your facility (Acute Stroke Ready Hospital)] and [a Primary or Comprehensive Stroke Center].

- A. **PARTIES:** The parties in this agreement are [Your facility], an Acute Stroke Ready Hospital and [a Primary or Comprehensive Stroke Center], a certified Primary (or Comprehensive) Stroke Center with 24/7 neurosurgical and endovascular capabilities.
- B. **PURPOSE:** The purpose of this MOA is a voluntary agreement among the hospitals that establishes a relationship between [Your facility] and [a Primary or Comprehensive Stroke Center]. This MOA establishes an agreement of transfer for stroke patients requiring neurosurgical or endovascular treatment and/or evaluation.
- C. **AGREEMENT:** [Your facility] agrees to provide neurological assessment and diagnostic procedures, under supervision of the Acute Stroke Team Provider and consulted neurologist, to determine neurosurgical and/or endovascular intervention eligibility according to current guidelines. [Your facility] agrees to an established transfer protocol to consult with [a Primary or Comprehensive Stroke Center] then quickly stabilize, and transfer patients in need of a higher level of stroke care via determined method of transportation to [a Primary or Comprehensive Stroke Center]. This agreement includes but is not limited to:
  - 1. Provider consultation through telestroke or phone consult
  - 2. Providers from each hospital discuss patient status and through mutual agreement will determine the most appropriate plan of care and transport method.
  - 3. [Your facility] will arrange the transport by the determined transportation method.
  - 4. [Your facility] will provide copies of all patient records needed to provide continuity of care promptly and as requested by [a Primary or Comprehensive Stroke Center].
- D. **TRANSFER PROTOCOL:** See [Your facility's] Stroke Specific Transfer Protocol
- E. **TERMS:** The terms of this transfer agreement shall commence on the signature date and continue for a period of three years. Each Party reserves the right to terminate or update this agreement upon thirty (30) day written notice. No change will apply unless it is adopted in writing and authorized by the officials of each facility.
- F. Nothing in this Agreement will alter the independence of either facility. Nothing in this agreement limits other affiliations or contracts with any other medical center.

#### Accepted and agreed upon:

[Your facility]	[a Primary or Comprehensive Stroke Center]
By: _____	By: _____
Printed name: _____	Printed name: _____
Date: _____	Date: _____

## Appendix I: CEO Letter of Attestation

CEO Letter of Attestation  
Acute Stroke Ready Hospital

North Dakota Department of Health  
Division of EMS  
1720 Burlington Drive  
Bismarck, ND 58504

To the State Stroke System of Care Coordinator,

I hereby certify that [HOSPITAL NAME] has policies and procedures in place that comply with the Acute Stroke Ready Hospital designation criteria and up-to-date stroke care guidelines. I attest that our facility's application is accurate and current, and is a true representation of our processes, protocols, and capabilities to the best of my knowledge.

Sincerely,

Signature of CEO