



2021 North Dakota Stroke and Cardiac Conference

FINANCIAL DISCLOSURE:
No relevant financial relationship exists

STROKE AND CARDIAC SYSTEMS OF CARE UPDATES

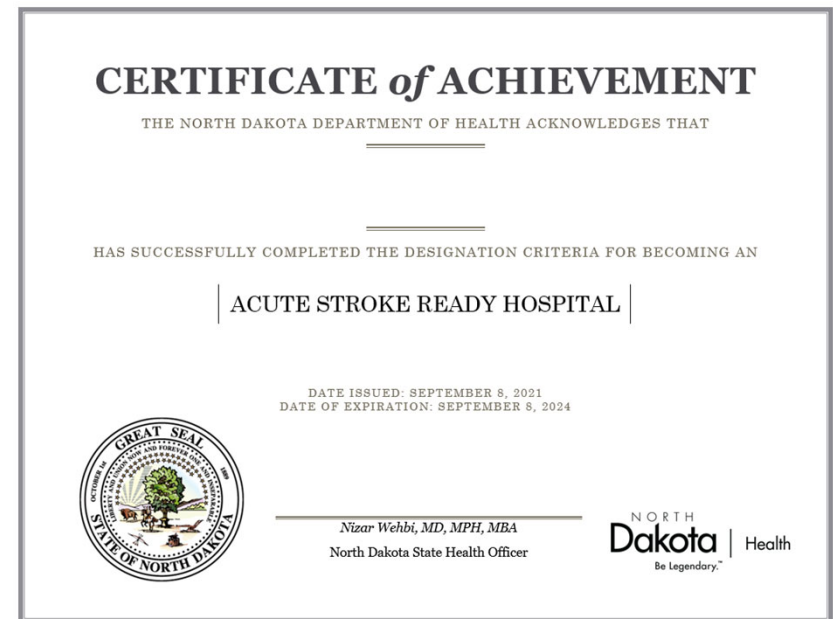
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ACUTE STROKE READY HOSPITAL DESIGNATION

- The COVID-19 pandemic has affected the Acute Stroke Ready Hospital (ASRH) Designation process
- All ASRH redesignation site visits have been delayed, leaving many sites overdue
- ASRH site visits have been prioritized in order to address the most overdue sites first



ASRH SITE VISITS

- Held in-person or virtually
- Review team includes a Stroke Coordinator from a tertiary hospital and the State Stroke Coordinator.
- A virtual provider-to-provider interaction will be scheduled with case review.
- Each ASRH provides a presentation on their stroke program, quality metrics, and performance improvement program.

Acute Stroke Ready Hospital Designation Site Visit Agenda

10:00–10:45 am	Welcome and Introductions Opening Session ✓ Stroke Program Presentation ✓ Stroke Quality Metrics Presentation ✓ Question and Answer	Stroke Program Leadership Team Hospital Administration Hospital Departmental staff NDDoH staff and Reviewer EMS
10:45–11:30 pm	ED Tour ✓ Ambulance garage or entrance, Helipad ✓ Ambulatory entrance ✓ ED, Triage, EMS radio report areas ✓ Radiology (CT), Pharmacy (how you store alteplase), Lab ✓ ICU/floor (if admit Alteplase)	Stroke Program Leadership Team NDDoH staff and Reviewer Departmental staff (when department visited)
11:30–12:45 pm	Working Lunch Case Review (Tracer Activity) ✓ Alteplase given and transferred ✓ Alteplase given and admitted (OR non-alteplase admitted) ✓ Other stroke transfers	Stroke Program Leadership Team NDDoH staff and Reviewer Staff to navigate EMR as needed
12:45–1:15 pm	Data and Performance Improvement Session ✓ Data presentation ✓ Case review process: how do you identify and look at cases PI process: how do you turn case review into performance improvement activities	Stroke Program Leadership Team NDDoH staff and Reviewer Abstractor Quality Department staff
1:15–1:45 pm	Pre-conference Session (closed)	NDDoH staff and Reviewer
1:45–2:15 pm	Closing Session Verbal Report Provided by Site Reviewer	Stroke Program Leadership Team Hospital Administration Hospital Departmental staff NDDoH staff and Reviewer EMS

Inclusion and Exclusion Criteria for IV Thrombolytic Treatment of Ischemic Stroke



For consideration of eligibility within less than 4.5 hours of last known well, wake-up, or unknown time of onset:
Date _____ Time _____

INCLUSION CRITERIA - Patient who should receive IV Thrombolytic

- ☐ Symptoms suggestive of ischemic stroke that are deemed to be disabling*, regardless of improvement (see Reference Table below for considered disabling symptoms)
- ☐ Able to initiate treatment within 4.5 hours of Time Last Known Well (document clock time)
- ☐ Age 18 years or older
- ☐ WAKE-UP or unknown time of onset Acute Ischemic Stroke (If MRI Available)-IV alteplase administered within 4.5 hour of stroke symptom recognition can be beneficial in patients with AIS who awake with stroke symptoms or have unknown time of onset >4.5 hour from last known well or at baseline state and who have a DW-MRI lesion smaller than one-third of MCA territory and no visible signal change on FLAIR. (COR II; LOE B-R)

IV Thrombolytic Medications

- ☐ IV Alteplase (0.9mg/kg, maximum dose 90mg over 60 minutes with initial 10% of dose given as bolus over 1 minute) is recommended for selected patients who can be treated within 3 and 4.5 hour of ischemic stroke symptom onset or patient last known well (COR I; LOE B-R)
- ☐ It may be reasonable to choose Tenecteplase single IV bolus of 0.25mg/kg, maximum 25mg over IV alteplase in patients with the same indications for IV fibrinolytics who are also eligible to undergo mechanical thrombectomy (COR II; LOE B-R)

ABSOLUTE EXCLUSION CRITERIA - If patient has any of these, do NOT initiate IV Thrombolytic

- ☐ CT scan demonstrating intracranial hemorrhage or subarachnoid hemorrhage
- ☐ CT exhibits extensive regions (> 1/3 MCA Territory on CT) of clear hypo attenuation
- ☐ Unable to maintain BP <185/110 despite aggressive antihypertensive treatment
- ☐ Ischemic stroke within last 3 months
- ☐ History of intracranial hemorrhage
- ☐ Severe head trauma within last 3 months
- ☐ Active internal bleeding (i.e., Aortic Dissection, hematemesis or melena)
- ☐ Arterial puncture at non-compressible site within 7 days
- ☐ Infective endocarditis
- ☐ Gastrointestinal bleeding within 7 days prior to IV thrombolysis
- ☐ Intracranial surgical resection within 3 months
- ☐ Blood glucose >400 mg/dL (however should treat if stroke symptoms persist after glucose normalized)

Results of required lab treatment less patients on anticoagulant therapy or there is another reason to suspect an abnormality:

- ☐ INR >1.5
- ☐ Platelet count < 100,000/mm³ or < 15 sec, aPTT > 1.5 sec

Medications

- ☐ **Full dose intravenous weight heparin (LMWH) within last 24 hours (patients on prophylactic dose of LMWH should NOT be excluded)
- ☐ Received direct oral anticoagulant (DOAC) within last 48 hours (assuming normal renal metabolizing function)
- Commonly prescribed DOACs: apixaban (Eliquis), dabigatran (Pradaxa), rivaroxaban (Xarelto), edoxaban (Savaysa)

CONSIDERATION for EXCLUSION (RELATIVE) - Seek Neurology consultation from a Stroke Expert

- ☐ Stroke severity too mild (non-disabling)
- ☐ IV or IA thrombolysis/thrombectomy at an outside hospital prior to arrival
- ☐ Life expectancy < 1 year or severe co-morbid illness or comfort measure only (CMO) on admission
- ☐ Patient/family refusal
- ☐ Pregnancy
- ☐ Major surgery or major trauma within 14 days
- ☐ Seizure at onset and postictal impairment without evidence of stroke
- ☐ Myocardial infarction within last 3 months
- ☐ Acute pericarditis
- ☐ Lumbar puncture within 7 days
- ☐ Past gastrointestinal or genitourinary bleeding
- ☐ Any other condition or history of bleeding diathesis which would pose significant bleeding risk to patient. Conditions may include acute pericarditis, SBE (spontaneous bacterial endocarditis), hemostatic defects, diabetic hemorrhagic retinopathy, septic thrombophlebitis, occluded AV cannula, or patient is currently receiving oral anticoagulants (e.g., Warfarin or DOACs).
- ☐ Presence of known intracranial conditions that may increase risk of bleeding (arteriovenous malformation, aneurysms >10mm, intracranial neoplasm, amyloid angiopathy)
- ☐ High likelihood of left heart thrombus (e.g., mitral stenosis with atrial fibrillation)
- ☐ Blood glucose > 400 mg/dL (however should treat with IV alteplase if stroke symptoms persist after glucose normalized)

IV THROMBOLYTIC CHECKLIST

- Inclusion and Exclusion Criteria for IV Thrombolytic Treatment of Ischemic Stroke updated to include the use of Tenecteplase
- For consideration of eligibility within less than 4.5 hours of last known well, wake-up, or unknown time of onset

ACUTE CARDIAC READY HOSPITAL DESIGNATION



North Dakota Acute Cardiac Ready Hospital Designation Criteria

PRE-HOSPITAL CARE

- ☐ Collaboration with local EMS to allow for pre-hospital activation of STEMI process
- ☐ Documentation supporting hospitals reaching back to EMS to provide patient outcomes, what went well, opportunities for improvement on cardiac arrest calls (feedback forms, integration of quarterly meetings, etc.)
- ☐ EMS to provide current contact information to hospital facility

EMERGENCY ASSESSMENT OF STEMI PATIENTS

- ☐ ED triage protocol that includes a stat ECG (<10 minutes after arrival) for patients with Acute Coronary Syndrome (ACS) based signs and symptoms, including atypical presentations
- ☐ ED treatment protocol(s) for diagnosis and treatment of the STEMI patient
- ☐ STEMI activation plan
- ☐ STEMI Team with required experience or competency/skills validation in STEMI care
- ☐ STEMI Team ACLS certified
- ☐ STEMI Team response to bedside <20 min.
- ☐ Acute Cardiac Team members have one-hour training and education annually specific to STEMI recognition, identification, treatment, and transfer (not including BLS or ACLS recertification)

TREATMENT

- ☐ Documentation of reperfusion strategy(ies) (Fibrinolytics vs Primary PCI)
- ☐ Protocol that outlines each step in STEMI treatment and transfer process that follows current clinical practice guidelines (Examples include goal metrics for Door to ECG within 10 minutes of arrival, Door to transport activation and Door-in to Door-out within 45 minutes, Arrival to Thrombolytics within 30 minutes)
- ☐ Documentation by provider on why the patient did not receive fibrinolytic therapy
- ☐ Provide STEMI order sets which include current clinical practice guidelines
- ☐ Ensure consent for fibrinolytic therapy (oral/emergent)

FIBRINOLYTIC THERAPY

- ☐ Provide order sets/protocols for fibrinolytic therapy administration
- ☐ Documentation of fibrinolytic checklist use
- ☐ Documentation of the process in place when the STEMI patient is not eligible for fibrinolytic therapy
- ☐ Documentation of annual Tenecteplase (TNK) administration refresher for STEMI Team
- ☐ IV TNK available 24/7 (Recommend: 2 doses TNK available)

TRANSFER PROCESS

- ☐ Transport plans or agreement for STEMI patient to be transferred to a PCI capable center
- ☐ Documentation where expected length of stay in ED for STEMI patients transferred for PCI \geq 45 minutes (Door-in to Door-out)

PERSONNEL

- ☐ STEMI Coordinator name and leadership roles specific to STEMI Systems of Care
- ☐ Name of Medical Director/Physician Champion and leadership roles specific to STEMI Systems of Care
- ☐ Designated smoke free campus

PROCESS IMPROVEMENT

- ☐ STEMI activation log
- ☐ Process improvement documentation, keeping track of quality metrics and addressing outliers, why the metric is an outlier, and what has been done to improve outliers
- ☐ Report metric data at interdisciplinary meeting (including EMS personnel), can be built into an already existing quarterly meeting or can be a meeting on its own.
- ☐ Use of cardiac registry with capabilities for state reporting
- ☐ Performance improvement program must include, but not limited to, tracking the following metrics:
 - ☐ Door to ECG within 10 minutes
 - ☐ STEMI positive ECG to EMS transport activation within 10 minutes
 - ☐ Door to fibrinolytics (in fibrinolytic eligible patients) \leq 30 minutes
 - ☐ Door-in door-out time (length of stay) \leq 45 minutes
 - ☐ Aspirin given prior to transfer
 - ☐ Loading dose of Plavix or Brilinta prior to transfer
 - ☐ Loading dose of weight-based Heparin
 - ☐ If fibrinolytics given, initiation of Heparin drip
- ☐ Review of hospital and pre-hospital STEMI care

RECOMMENDATIONS:

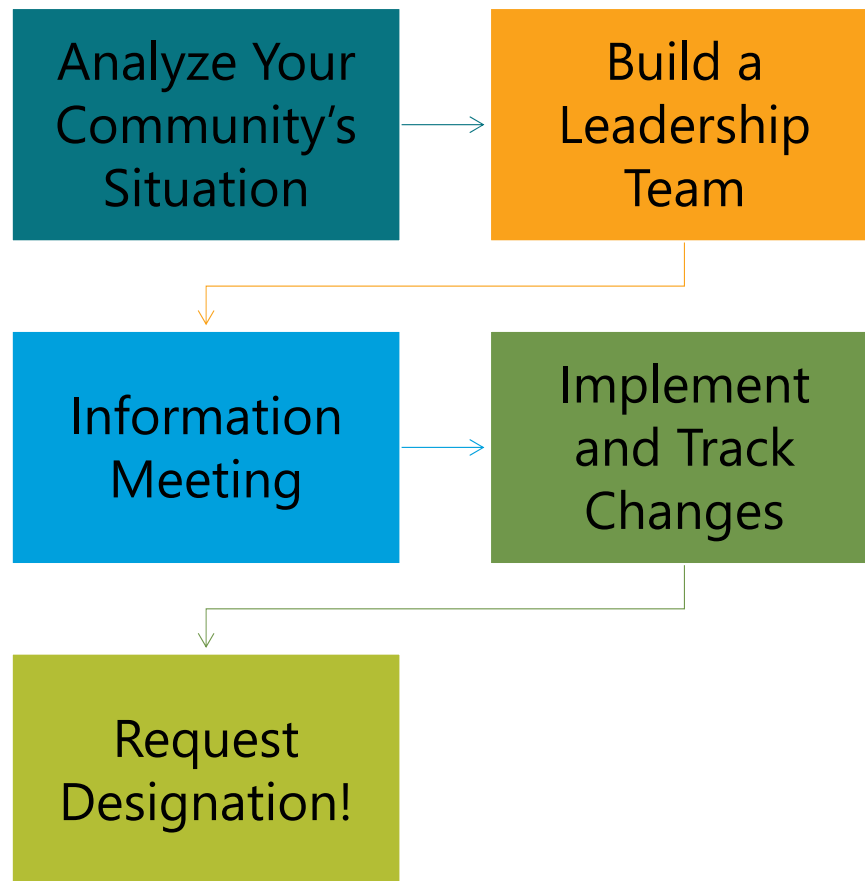
- ☐ Documentation supporting annual public awareness campaign provided to community
- ☐ Outreach to local dispatch regarding pre-arrival CPR instruction
- ☐ Participation in Cardiac Arrest Registry to Enhance Survival (CARES)



ACUTE CARDIAC READY HOSPITAL DESIGNATION

- Meets requirement of Century Code 23-47: Acute Cardiovascular Emergency Medical System
 - Creates hospital standards for designation, evaluation, and quality improvement
- Statewide cardiac registry selected: Get with the Guidelines-Coronary Artery Disease (GWTG-CAD)
- Modeled after the Acute Stroke Ready Hospital designation process
- Q&A Webinar upcoming for Critical Access Hospitals

CARDIAC READY COMMUNITY PROGRAM



Guidelines

- Community Leadership
- Ongoing Community Awareness
- Community Blood Pressure Program
- CPR & AED Training
- Public Access AED Locations
- EMS Dispatching Program
- EMS Agencies
- Hospital Services
- Program Evaluation

CARDIAC READY COMMUNITY UPDATE



No scoring system that required communities to obtain points by meeting multiple criteria

Answer open-ended questions in each category to describe community's effort to increase cardiovascular readiness

More straightforward and attainable by a community of any size.

Locate the new CRC Guidelines: <https://www.health.nd.gov/north-dakota-cardiac-ready-community-and-campus-designation>

CARES

- Free statewide
- EMS agency data from ESO will bridge directly into CARES
- Hospitals will complete two small sections
- Required participation by the new Cardiac Ready Community guidelines
- Recommended participation for Acute Cardiac Ready Hospital Designation
- Roll-out anticipated 2022



FOR QUESTIONS, PLEASE CONTACT:

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