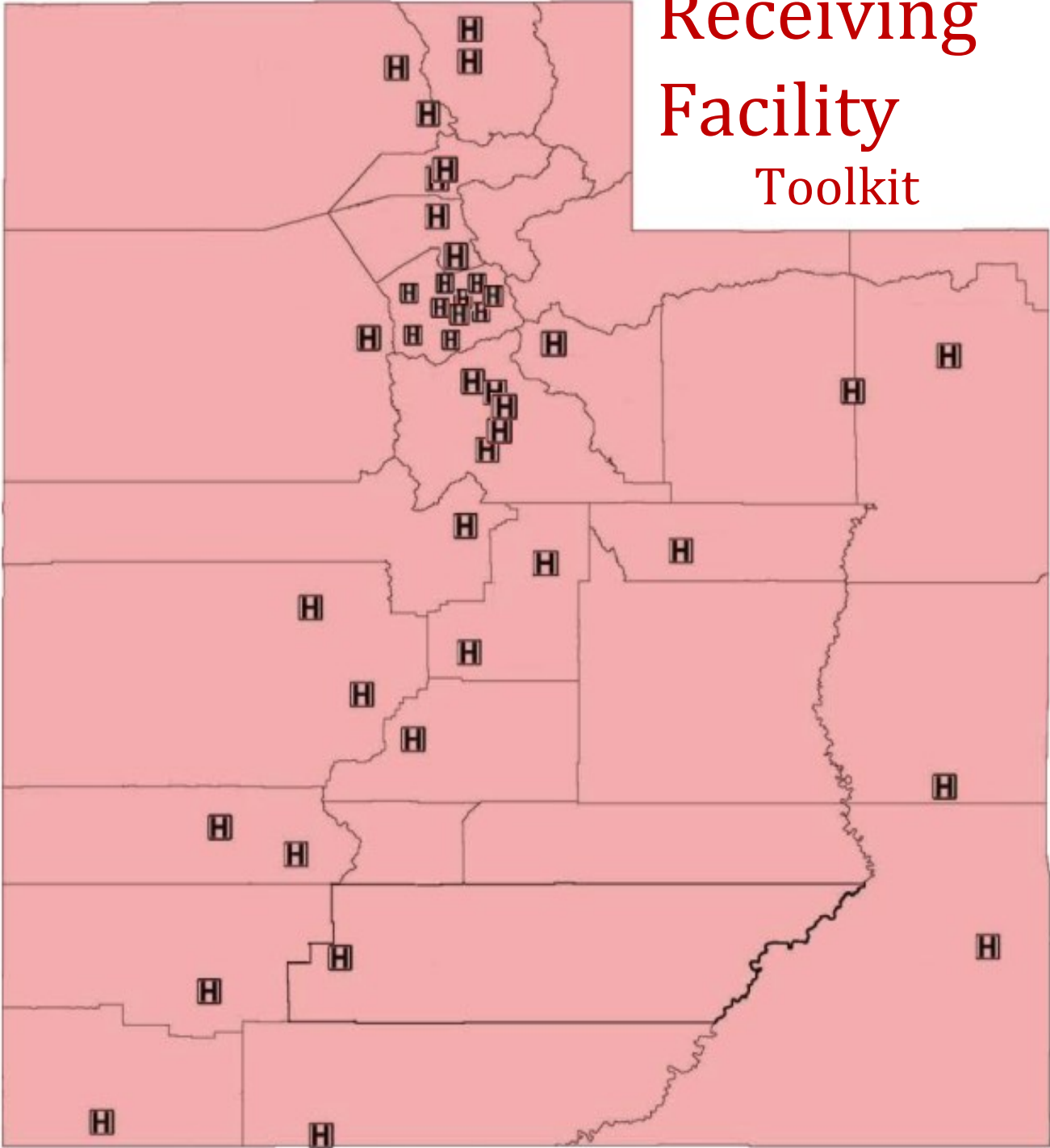


Stroke Receiving Facility Toolkit



Utah State Stroke System

Revised
June 2010

Stroke Receiving Facility

A Utah State Stroke System Toolkit



Table of Contents

Becoming a Stroke Receiving Facility

Why Become a Stroke Receiving Facility?	2
Description of Stroke Receiving Facility Requirements	4
Stroke Receiving Facility Application Process	6

Medical Treatment and Protocol

EMS Assessment and Management Guidelines.....	8
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Initial Treatment and Triage

Physician Acute Stroke Checklist	10
Post rt-PA Protocol- Physicians.....	11
Initial ED Nursing Orders for Acute Stroke	12
ED Nursing Orders for Treating Stroke with rt-PA.....	13

Stroke Protocol Algorithm	14
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Evaluation and Improvement

Quality Improvements and Performance Measures	16
Educational Resources and References	17

Appendices

A: Transfer Protocols.....	20
B: Inclusion and Exclusion Criteria	21
C: Risks and Benefits of rt-PA.....	23
D: Dosing Chart for rt-PA.....	24
E: Mixing instructions for rt-PA.....	26
F: Blood Pressure Guidelines PRE- and POST- ICH	27
G: Algorithm for Management of Suspected ICH	28
H: NIH Stroke Scale	29
I: Utah Stroke Receiving Facility Application.....	37

Becoming a Stroke Receiving Facility

Overview
Requirements
Application Process

Why Become a Stroke Receiving Facility?

This toolkit is designed to provide hospitals with the necessary information and requirements to become a Stroke Receiving Facility.

Why become a Stroke Receiving Facility? The goal of the Utah Stroke System is to provide quality and timely emergency care to every stroke patient in the state. This is accomplished through a multi-pronged approach. Beginning with public education to call 911 immediately for concerning symptoms, we hope to minimize the delay in patients seeking emergency evaluation. Through 911-dispatch center and EMS training, patients will be screened with standardized protocols allowing dispatchers and medics to recognize and respond to possible strokes as time-critical emergencies. Finally, through regular training, the use of nationally-recognized stroke protocols, and timely consultation with stroke neurologists at Primary Stroke Centers, hospitals will be able to provide rapid, efficient, and optimal emergency stroke care.

The Utah Stroke System consists of a “spoke and hub” system, where the “hub” hospitals are the Joint Commission certified Primary Stroke Centers. Hub hospitals act as the expert resource centers for the “spoke” hospitals, the Stroke Receiving Facilities.

Please consult the website (www.health.utah.gov/ems/strokesystem) for the most updated list of Primary Stroke Centers and Designated Stroke Receiving Facilities in our state.

What is a Stroke Receiving Facility? A Stroke Receiving Facility (“spoke” hospital) will provide immediate and time-critical care to the stroke patient, including initial emergency evaluation and screening, stroke scale assessment and, if indicated, thrombolytic treatment. Using standardized and evidence-based protocols, Stroke Receiving Facilities will be able to provide the optimum level of care to the acute stroke patient. To assist in this evaluation and decision-making, “spoke” hospitals will have 24-hour access to the expert neurologic resources of hub hospitals (Primary Stroke Centers) for consultation. Local EMS agencies will be notified that a Stroke Receiving Facility has been identified by the BEMS and is “stroke ready” to receive acute stroke patients as identified by EMS personnel in the field. The intent of this approach is to get the patient as quickly as possible to a facility that can provide appropriate acute stroke care.

A hospital of any size and location that meets the attached criteria may apply to become a Stroke Receiving Facility. After receiving an application, the Utah Bureau of Emergency Medical Services and Preparedness (BEMS) will survey the hospital. If all criteria are met, EMS agencies in the area will then be notified that suspected stroke patients may be transported to this facility. All hospitals are encouraged to complete the implementation and application process.

The standardized pre-hospital stroke screening, treatment, and transportation to stroke-ready Primary Stroke Centers or Stroke Receiving Facilities in Utah will reduce the time to treatment for patients with acute ischemic strokes who may benefit from thrombolysis. It will also reduce delays and improve the overall care of other stroke patients who may not qualify for thrombolysis (stroke symptoms >3 hours, hemorrhagic strokes, stuttering strokes (or TIAs), severe hypertension, etc.).

What’s the Background? Stroke is the third leading cause of death and a leading cause of disability in Utah (Utah Heart Disease and Stroke Prevention Program, 2007). Between 2003 and 2007, the Utah mortality (crude) rate for stroke was 30.03 deaths per 100,000 population. In Utah, about 2,800 hospital

discharges with the primary diagnosis of stroke occurred per year for the years 2003-2007. (UDOH: IBS Public Health, 2009; ACT for Stroke, 2006)

The Utah Department of Health (UDOH) recognizes that all hospitals do not have the capabilities to become Primary Stroke Centers. However, by becoming a Stroke Receiving Facility in Utah, a hospital signals to its community that it is committed to the best nationally accepted standards of acute stroke treatment. Hospitals that have established dedicated stroke programs have demonstrated improved treatment, better patient outcomes, and reduced care costs. They have the required infrastructure, training, and written protocols to provide the best emergency care available to acute stroke patients.

((Utah Department of Health: IBS Public Health, 2009; ACT for Stroke, 2006)

What does this toolkit do? This toolkit will provide medical professionals and hospital administrators the necessary information to improve their hospital's acute stroke care and become a Stroke Receiving Facility in Utah. Each hospital is invited to review the information contained in this toolkit and plan its Stroke Receiving Facility implementation.

Description of Stroke Receiving Facility Requirements

The following describes the specific requirements to be a Stroke Receiving Facility in Utah.

1. Acute Stroke Team

- a. Is available 24/7 and includes:
 - A physician trained in evaluation and treatment of acute stroke is available to the bedside within 10-20 minutes of patient arrival.
 - A call roster of physicians trained to treat strokes.
 - If desired, immediate consultation with a stroke expert at a Primary Stroke Center hospital may be done by phone or using Telestroke technology, as available. The contact information for the Primary Stroke Center is immediately available.
 - An ED nurse, who is authorized to begin stroke protocol using the standardized forms and protocols.
- b. Utilizes a standardized stroke scale and treatment protocol that:
 - Includes the use of a written protocol for patients eligible to receive intravenous tPA (Alteplase)
 - Identifies eligible patients for t-PA that is administered as soon as possible, using NINDS criteria and standard 3-hour time-to-treatment criteria.
- c. Protocols that provide information regarding emergency care of acute ischemic strokes, stabilization of vital functions, initial diagnostic tests, and initial use of medications and are reviewed at least annually.

2. Neuroimaging Services

- CT scan with interpretation within 45 minutes of stroke patient arrival at the facility.

3. Laboratory Services

- CBC, BMP, PT/PTT/INR completed within 45 minutes patient arrival.

4. Emergency Department (ED)

- a. Must be open 24/7
- b. Personnel should be trained to diagnose and treat acute strokes.
- c. ED should document stroke patient encounter, including time from “last known well”.
- d. Educational activities for ED staff should occur annually to reinforce stroke diagnosis and treatment.
- e. Have a plan in place for transfer of stroke patients, if necessary.

5. Commitment and Support of Medical Organization

- a. A Stroke Receiving Facility should designate an individual to serve as Stroke Coordinator
- b. Hospital administration is committed to providing financial and logistical resources as a Stroke Receiving Facility.

6. Outcome and Quality Improvement Activities

- a. Collect and submit standardized data regularly to the State Stroke System Coordinator
- b. A database or registry of stroke patients is developed, including specific performance measures.
- c. Benchmarks for comparison should be collected and reported by the stroke coordinator.

7. Continuing Education

- a. The Stroke Receiving Facility is encouraged to develop regular and appropriate education activities to insure staff competence in care and treatment of stroke patients.
- b. A Stroke Receiving Facility is encouraged to hold regular public education programs for community members on stroke risk factors, symptom recognition, prevention, etc.

Note: Stroke Receiving Facilities are encouraged to keep uncomplicated stroke patients during the duration of treatment if the facility is comfortable with the post-acute stroke care. The Primary Stroke Centers in the state are available for consultation at any time during the patient’s hospitalization.

The following are UDOH contacts for the Utah Stroke System. Any questions on planning and operations can be directed to:

Peter Taillac, MD, FACEP
Medical Director
Bureau of EMS and Preparedness
801.273.6646
ptailiac@utah.gov

Robert F. Jex, RN, MHA, FACHE
Stroke/STEMI Program Coordinator
Bureau of EMS and Preparedness
801.273.4161
rfjex@utah.gov

Stroke Receiving Facility Application Process

1. Hospitals wishing to become a Stroke Receiving Facility must submit a letter of intent to the UDOH, which states interest in becoming a Stroke Receiving Facility and requesting an application for review.

Applications may be requested from and returned to:

Robert F. Jex, RN, MHA, FACHE
Utah Department of Health
P.O. Box 142004
Salt Lake City, Utah 84114
801-273-4161

The application can also be accessed at: www.utah.gov/ems/strokesystem

2. Upon receipt of the completed application, the UDOH will review the application for completeness and schedule a site visit to the applicant hospital.
3. The Department will select a team of qualified consultants and a department representative to assess the applicant's readiness to become a Stroke Receiving Facility. Upon completion of the visit, the site team will review its findings with the hospital administrator and/or his or her representatives. Those findings will include the following:
 - Hospital Stroke Program Strengths
 - Weaknesses
 - Any recommendations pertinent to the site visit
4. Successful applicants will receive a letter identifying that the hospital has met Stroke Receiving Facility requirements. UDOH will work with the Stroke Receiving Facility to develop a process for periodic review of its status as a Stroke Receiving Facility.
5. Facilities not receiving approval to be a Stroke Receiving Facility will be given the opportunity for a focused repeat visit as soon as they are ready. UDOH will provide technical assistance at the facilities request.

Please see Appendix D for the Utah Stroke Receiving Facility Application.

Medical Treatment and Protocol

EMS Assessment and Management Emergency Department Initial Evaluation and Treatment

These are recommended “model” protocols for consideration by EMS agencies and Emergency Departments. They are evidence-based recommendations developed by a panel of EMS and stroke experts. They are provided for your guidance and consideration, however, each EMS agency and Emergency Department should adopt or modify them to meet their own individual needs, after consultation with their individual medical and nursing directors.

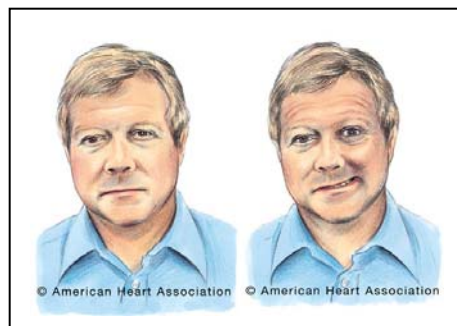
EMS Assessment and Management Guidelines

Prompt stroke recognition and treatment by EMS is a critical component of acute stroke care. As an integral part of the Utah Stroke System, EMS will use a standardized prehospital treatment protocol for suspected stroke patients. The following model EMS stroke protocol is provided as a guideline.

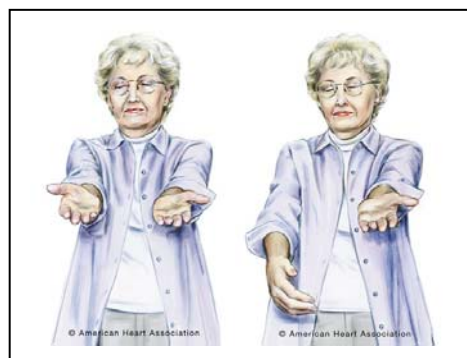
On Scene:

1. Manage ABCs (Airway, Breathing, and Circulation). Give oxygen if needed.
2. Perform pre-hospital stroke assessment using the Cincinnati Stroke Scale.

- **Facial Droop** (have patient smile)
 - **Normal:** Both sides of face move equally
 - **Abnormal:** One side of face does not move as well



- **Arm Drift** (have patient hold arms out for 10 seconds)
 - **Normal:** Both arms move equally or not at all
 - **Abnormal:** One arm drifts compared to the other, or does not move at all



- **Speech** (have patient speak a simple sentence)
 - **Normal:** Patient uses correct words with no slurring
 - **Abnormal:** Slurred or inappropriate words, or mute

3. Establish and record an exact time, in military time, when patient was “Last Known Normal.”

In Transit:

1. Rapidly transport to closest Primary Stroke Center or Stroke Receiving Facility, if available.
2. Bring witness or family member if possible, or record the names and phone numbers of witnesses.
3. Alert the receiving emergency department that a suspected stroke patient is en-route, so they can begin to activate their acute stroke team and be ready on arrival.
4. Check and record blood glucose to assess for hypoglycemia.
5. Check and record blood pressure. Do NOT administer any hypertensive medication without physician approval.
6. Establish cardiac monitoring and IV access with large bore catheter, if possible.
7. Keep NPO.
8. Bring medications or medication list.

(Photos from <http://www.strokecenter.org/trials/scales/cincinnati.html>)

Emergency Department Initial Evaluation and Treatment

Physician Acute Stroke Checklist TO DETERMINE rt-PA ELIGIBILITY AND ADMINISTER rt-PA

1. Ensure "ED Nursing Orders for Acute Stroke" (p.3) are initiated.
2. Record exact date and time of stroke onset (defined as the **last time patient was known to be normal**)
Date: _____, Time: _____ am / pm.
3. Complete brief initial evaluation. Determine if patient has:
 - a. Suspected ischemic stroke
 - b. Is onset less than 180 min? If yes, proceed.
 - c. If no, is it less than 8 hours? If yes, call primary stroke center
4. Order STAT non-contrast head CT; notify radiologist and technician that this study is for "possible **rt-PA** therapy in acute stroke"
5. Ensure STAT labs are drawn (see nursing orders) – CBC with platelets, glucose, PT/PTT/INR, BMP
6. Order additional laboratory studies in select patients: pregnancy test, drug screen, blood alcohol level, liver function tests, chest x-ray
7. Give NO aspirin, heparin or warfarin for patients being considered for rt-PA therapy.
8. Complete focused history and physical examination.
9. Complete NIH Stroke Scale (Appendix G). Total NIHSS = _____ (time ____/____ am/pm)
10. Complete "rt-PA (Activase[®]/Alteplase) Stroke Inclusion /Exclusion Form" (Appendix A). If all inclusion criteria are "yes" AND all exclusion criteria are "no", proceed to treatment.
11. Is BP > 185 / 110 mm Hg on two separate measurements? If yes, See Appendix D, BP Guidelines
12. Ensure nurse places Foley prior to rt-PA administration if patient non-ambulatory.
13. Obtain informed consent from family or patient (See Appendix B).
14. Determine total dose of rt-PA (Activase[®]/Alteplase). **DO NOT USE CARDIAC DOSE OR RETAVASE[®]/RETEPLASE!**
15. See dosing chart for weight-based dose (Appendix C).
Weight: _____ kg / pounds (measure in ED) **Total rt-PA Dose:** _____ mg
16. See mixing and preparation protocol for mixing instructions (Appendix D)
17. Give 10% of total dose of rt-PA (Activase[®]/Alteplase) over 1-2 min as IV bolus.
Bolus: _____ mg
18. Start IV infusion of remaining 90% of total dose to run over one hour.
Infusion Rate: _____ mg/hr

POST rt-PA PROTOCOL - PHYSICIANS

1. Maintain Systolic BP < 180 mm Hg and Diastolic BP < 105 mm Hg. See BP guidelines (Appendix E).
2. Arrange admission to stroke unit or ICU, or transfer to primary stroke center, as per individual hospital protocol
3. Avoid aspirin, heparin, warfarin, or other anti-platelets and anti-coagulants for 24 hrs post-rt-PA administration.
4. If patient develops severe headache, acute hypertension, nausea, or vomiting, stop rt-PA (if being infused) and obtain emergency head CT to evaluate for possible ICH (See "Algorithm for Management of Suspected ICH", Appendix F).
5. Implement rt-PA (Activase[®]/Alteplase) / Stroke inpatient orders (per individual hospital protocol).

Initial ED Nursing Orders for Acute Stroke

1. Start continuous cardiac and oxygen saturation monitoring.
2. Oxygen at 2 LPM via nasal cannula: maintain spO₂ > 93%.
3. IV access: Normal saline infusion at 75 mL/hr; (can go lower if CHF); saline lock in opposite arm.
4. Place Foley prior to rt-PA administration if patient non-ambulatory.
5. STAT blood draw for:
 - a) CBC with platelets
 - b) PT, PTT, and INR
 - c) Glucose (done at bedside)
 - d) Basic Metabolic Panel
6. EKG
7. Patient's weight _____ kg or lb (*circle one*) [MEASURE IN ED]
8. STAT non-contrast head CT
9. Do not give aspirin, heparin, or warfarin.
10. Vital signs and focused neurochecks every 5 minutes.
11. Obtain temperature; give acetaminophen if febrile.
12. Check BP every 15 minutes; set BP alarms for 180/110 mm Hg.
13. Obtain IV pump for possible infusion.

ED Nursing Orders For Treating Stroke with rt-PA (Activase[®] /Alteplase[®])

1. Confirm total rt-PA (Activase[®] /Alteplase[®]) dose. See weight-based dosing chart (Appendix C).
2. Prepare rt-PA as a 1:1 dilution (See Mixing Instructions, Appendix D).
3. Give rt-PA (Activase[®] /Alteplase[®]) IV bolus dose. Bolus dose = 0.1 x Total dose (in mg).
4. Start rt-PA (Activase[®] /Alteplase[®]) IV infusion. Infusion dose = Total dose - Bolus dose, given over 1 hour.
5. Vital signs and neuro checks every 15 minutes for 2 hrs post-rt-PA. Use manual BP cuff to avoid bruising.
6. Notify ED attending physician **immediately** for:
 - a. Any change in level of consciousness or any worsening of neurologic function.
 - b. Any abrupt rise in blood pressure.
 - c. Any SBP > 180 mm Hg OR DBP > 105 mm Hg.

Stroke Protocol Algorithm

Identify signs of possible stroke



Critical EMS assessments and actions

- Support ABCs; give oxygen if needed
- Perform prehospital stroke assessment
- Establish time when patient last known normal (Note: stroke therapies may be available beyond 3 hours from onset)
- Alert Hospital
- Check glucose if possible
- Transport to a Stroke-Receiving Facility or Primary Stroke Center, if available; bring a witness or family member, or get the names and phone numbers of witnesses.

ED Arrival: 10 min

Immediate general assessment and stabilization

- Assess ABCs, vital signs
- Provide oxygen if hypoxemic
- Obtain IV access and blood samples
- Check glucose; treat if indicated
- Perform neurologic screening assessment
- Activate stroke team
- Order emergent CT scan of brain
- Obtain 12-lead ECG

ED Arrival: 25 min

Immediate neurologic assessment by stroke team or designee

- Review patient history
- Establish symptom onset
- Perform neurologic examination (NIHSS)

ED Arrival: 45 min

Does CT scan show any hemorrhage?

No Hemorrhage

Probable acute ischemic stroke; Consider fibrinolytic therapy

- Check for fibrinolytic exclusions
- Repeat neurologic exam: are deficits rapidly improving to normal?

Hemorrhage

Consult neurologist or neurosurgeon;
consider transfer if not available

Not a Fibrinolytic Candidate?

Administer Aspirin

ED Arrival: 60 min

Patient remains candidate for fibrinolytic therapy?

Fibrinolytic Candidate

Review risks/benefits with patient and family. If Acceptable:

- Give t-PA
- No anticoagulants or antiplatelet treatment for 24 hours

- Begin stroke pathway
- Admit to stroke unit if available
- Monitor BP; treat if indicated
- Monitor neurologic status; emergent CT if deterioration
- Monitor blood glucose; treat if needed
- Initiate supportive therapy; treat comorbidities

Evaluation and Improvement

Quality Improvements
Educational Resources
Other Resources

Quality Improvements and Performance Measures

Hospitals should regularly monitor key performance measures to learn their strengths and needs in training stroke patients. Hospitals may choose which performance measures that will internally monitor, based on the specific needs and goals of their stroke program.-Some examples of stroke performance measures are:

- Length of stay
- Cost/charge per stroke patient
- Diagnostics/bed utilization
- Clinical outcomes (improvement in stroke scales after treatment)
- Percent of eligible patients treated with TPA
- Time data (door-to-needle time, door-to-CT time)
- Complications (intracranial hemorrhage, other hemorrhage, etc.)
- Customer satisfaction

The Stroke Receiving Facility process will require monitoring and reporting to the UDOH specific performance measures, to be regularly reviewed by the State Stroke Advisory Committee. These required measures will include:

- Listing of acute stroke patients cared for in the E.D.
- Percent of eligible stroke patients treated with thrombolysis
- Door-to-needle times for patients undergoing thrombolysis

All performance improvement information submitted to the DOH will be kept confidential and will not be released or published, as provided in Utah Code 26-25-3 Confidential Information Release.

As the Utah Stroke Program matures, the required performance measures may be changed based on review and performance of the program and recommendations of the State Stroke Advisory Committee.

Educational Resources

The following websites are recommended for more information on stroke care and treatment.

American Heart Association

<http://learn.heart.org/>

- Distance Learning via Printed Material, DVD, CD-ROM
 - A Clinician's Guide to Thrombosis DVD and Monograph
 - Stroke: Improving the Chain of Recovery
- Online Courses, Webinars and Webcasts
 - Get With the Guidelines on-line courses
 - NIHSS Stroke Scale Training and Certification
 - Focus on Acute Ischemic Stroke and Thrombolytics 2007
 - Stroke Pre-hospital care
- Podcasts/Audiocasts
 - Key Findings: An International Stroke Conference Podcast
- Satellite Broadcasts with Web Course Archives
 - Ischemic Stroke: Risk Factors and Primary Prevention Strategies
 - Risk Factor Control for Stroke: Secondary Prevention Strategies

Brain Attack Coalition

<http://www.stroke-site.org/>

- Guidelines and example Hospital Admission Orders, Physician Orders, and pertinent checklists
- Patient Resources

Medical Priority Consultants

www.medicalpriority.com

- For medical dispatchers: The EMD Advancement Series: The MPDS Stroke Protocol

National Guideline Clearinghouse

http://www.guideline.gov/summary/summary.aspx?doc_id=12972&nbr=6681&ss=6&xl=999

- Diagnosis and initial treatment of ischemic stroke

National Institute for Neurological Disorders and Stroke

<http://www.ninds.nih.gov/>

<http://stroke.nih.gov/> - Know Stroke website

- NIH Stroke Scale
- NIH Stroke Scale Training DVD

National Stroke Association

www.stroke.org

- Guidelines
 - Building the Case for a Primary Stroke Center: A Resource Guide
- On-line Courses
 - For EMS providers: Stroke rapid response on-line or classroom training
- NIH Stroke Scale Exam, Scoring and Registration Service
- Stroke Nurse Education Modules
 - www.stroke.org/strokenurse
 - Developed in partnership with the American Association of Neuroscience Nurses. These accredited online modules are ideal for those who are new to stroke as well as for seasoned

stroke care providers committed to keeping their stroke knowledge and practice up-to-date. The completion of all 10 modules will result in the achievement of a minimum of eight contact hours consistent with The Joint Commission's requirements for core stroke team members.

North Carolina AHEC

www.aheconnect.com/courses

- Dysphagia Assessment: A Screening Protocol for Stroke Patients
- Saving Lives: Understanding Stroke- 911 Telecommunicators
- Saving Lives: Understanding Stroke- EMS Providers

The Sullivan Group

<http://thesullivangroup.com/hci/>

- Web-based education that offers contact hours for both physicians and nurses. Most modules are 1 to 1.5 contact hours.

Utah Heart Disease and Stroke Prevention Program

www.hearhighway.org

- Provides local stroke public health and preventive information and resources.

Utah Bureau of Emergency Medical Services and Preparedness

www.utah.gov/ems/strokesystem

- **Up to date information on the Utah Stroke System, current listing of Primary Stroke Centers and Stroke Receiving Centers in Utah, information and applications for hospitals interested in becoming Stroke Receiving Centers**

References

ACT for Stroke. Building the case for a primary stroke center. Elmsford, NY: Rxperience. 2006.

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Utah Heart Disease and Stroke Prevention Program. The impact of heart disease and stroke in Utah. Salt Lake City, UT: Utah Department of Health. 2007.

Appendices

- A: Transfer Protocols**
- B: Inclusion and Exclusion Criteria for rt-PA**
- C: Risks and benefits of rt-PA**
- D: Dosing Chart for rt-PA**
- E: Mixing Instructions for rt-PA**
- F: Blood Pressure Guidelines for Pre-and Post-rt-PA**
- G: Algorithm for Management of Suspected ICH**
- H: NIH Stroke Scale**
- I: Utah Stroke Receiving Facility Application**

Suggested Information to be Provided to Primary Stroke Center When Transferring a Stroke Patient

- 1) Date/time of report
- 2) Transferring physician's name
- 3) Patient name
- 4) Patient age
- 5) Family contact information
 - a. Contact name
 - b. Contact phone number (preferably cellular)
- 6) Code status of patient: (dnr/dni?)
- 7) Time of stroke onset (or last known normal)
- 8) Brief history
- 9) Brief past medical history
- 10) Brief physical exam
- 11) Brief course in Emergency Department
- 12) NIH stroke scale
 - a. On arrival (time)
 - b. Prior to transfer (time)
- 13) Measured current weight
- 14) Vital signs (BP, HR, R, T, SaO2)
 - a. Initial
 - b. Prior to transfer
- 15) Initial blood sugar measurement
- 16) Brief summary of treatment in ED (i.e., BP management, medications given, any procedures performed)
- 17) Was IV rt-PA given?
 - a. Dose and time of rt-PA bolus
 - b. Dose and time of rt-PA drip completion
- 18) Attach lab results and ECG
- 19) Attach CT report and CT images on disk

Inclusion and Exclusion Criteria

Appendix B

A. Inclusion Criteria

Answers to ALL of the following statements must be "YES" to be eligible for rt-PA (Activase [®] /Alteplase) therapy for stroke.	Yes	No
1. Age 18 years or older		
2. Clinical diagnosis of ischemic stroke causing a measurable neurological deficit (impairment of language, motor function, cognition and/or gaze, vision, or neglect)		
3. Time of onset (DEFINED AS TIME LAST SEEN NORMAL) established to be less than 180 minutes before treatment would begin. <i>NOTE: If patient awakens from sleep with new symptoms, the last time the patient was observed to be neurologically intact is considered to be the time of onset.</i>		
Last Seen Normal: Date ____/____/____ Time ____:____ am / pm		

Inclusion and Exclusion Criteria-Continued

B. Exclusion Criteria

Answers to ALL of the following must be “NO” to be eligible for rt-PA	Yes	No
Hemorrhage on head CT		
If on oral anticoagulants (e.g., warfarin) AND prothrombin time > 15 sec or INR > 1.7		
Use of heparin in the previous 48 hours AND prolonged aPTT		
Blood pressure > 185 / 110 mm Hg on 2 separate measurements and refractory to treatment with 1-2 doses of labetolol, nitropaste, or nicardipine infusion (see Physician Checklist and Appendix D, BP Guidelines)		
Platelet count < 100,000/mm ³		
Glucose < 50mg/dL		
Clinical presentation that suggests subarachnoid hemorrhage even if the initial CT scan is normal		
Clinical presentation consistent with acute MI or post-MI pericarditis		
History of any prior intracranial hemorrhage (which places the patient at risk for future hemorrhage)		
History of MI in the previous 3 months		
History of lumbar puncture or arterial puncture at a non-compressible site in previous 7 days		
History of serious head injury or stroke (any type) in the previous 3 months		
History of seizure at the time of stroke onset		
Suspected to be pregnant (check pregnancy test)		
Mild symptoms, such as sensory loss alone, dysarthria alone, or minimal weakness (NIHSS < 4 AND normal language AND normal visual fields)		
Rapidly resolving symptoms; however, if patient still has clinical disabling deficits, consider rt-PA		
CT shows hypodensity in > 1/3 cerebral hemisphere (such early changes increase risk of ICH)		
History of gastrointestinal or urinary bleeding within the preceding 21 days		
History of major surgery, serious trauma, or biopsy of a parenchymal organ within the last 14 days		
Active bleeding / acute trauma (fracture) (consider rt-PA if bleeding / fracture can be treated)		
History of intracranial neoplasm, arteriovenous malformation or aneurysm (risk of ICH increases if lesion currently has risk of hemorrhage)		

- In a large study conducted by the National Institute of Neurological Diseases and Stroke (NINDS Stroke Study), selected patients with stroke were treated with rt-PA or placebo (an inactive substance) by random (chance) assignment within 3 hours of symptom onset. **This study showed at least 11 out of 100 patients treated with rt-PA as compared to those receiving placebo had minimal or no disability at 3 months after treatment.**

Within the first 36 hours after stroke onset, **6.4% of patients who received rt-PA as compared to 0.6% of patients who received placebo had bleeding in the brain that resulted in worsening of the stroke. Despite this difference in hemorrhage, there was no significant difference in the number of patients among those who died who were treated with rt-PA (17%) and those treated with placebo (21%).** Patients treated with rt-PA who had a very severe stroke or were of advanced age (>77 years old) tended to have more symptomatic bleeding.

Based on the results of the NINDS study, rt-PA has been approved by the FDA for use in selected stroke patients provided it can be given within 3 hours of stroke onset.

- In addition to obtaining informed consent from your patient, patients receiving rt-PA must be admitted to an intensive care unit for at least 24 hours to be observed for any complications related to rt-PA treatment and undergo a CT scan of the head prior to treatment to determine the presence of bleeding within the brain. Follow-up CT scans may be done to determine bleeding complications within the brain.
- rt-PA dissolves blood clots, regardless of their location in the body. Therefore, its most frequent side effect is bleeding. Minor bruising and bleeding of blood vessel sites that have been punctured is not uncommon and is generally easily controlled. Occasionally bleeding may be severe enough to require blood transfusions. There is also a risk of serious internal bleeding, which is more difficult to control. Bleeding in the brain may cause stroke. With rt-PA treatment, there is a risk of bleeding in the brain (stroke), which can lead to permanent disability or death. Even without treatment with rt-PA, stroke patients have a risk of bleeding in the brain.

Other side effects that may occur with rt-PA are nausea and/or vomiting, low blood pressure, and fever. These have been reported in patients receiving rt-PA for treatment of a heart attack and may have been related to the heart attack rather than the medication.

Angioedema (with swelling of the airway) or other serious allergic reactions may also occur, particularly in patients who take ACE inhibitors.

Some pregnant patients have received rt-PA without complications. However, little is known regarding potential harm to the fetus from rt-PA.

rt-PA (Activase®/Alteplase®) Dose Calculation for Treatment of Acute Stroke

NOTE: DO NOT SUBSTITUTE ANY OTHER THROMBOLYTICS FOR Activase®/Alteplase® OR USE ANY OTHER DOSING CRITERIA WHEN ADMINISTERING rt-PA THERAPY FOR STROKE.

Total Dose = 0.9 mg/kg x weight in kg; maximum dose 90 mg.

Give 10% of Total Dose as IV bolus over 1 - 2 minutes

Give remaining 90% of Total Dose over 1 hour via IV infusion pump

Patient	Weight	Total Dose	Discard from Vial	Bolus Dose	Infusion Dose	Patient	Weight	Total Dose	Discard from Vial	Bolus Dose	Infusion Dose
Lbs	Kg	mg = mL	mg = mL	mg = mL	mg = mL	Lbs	Kg	mg = mL	mg = mL	mg = mL	mg = mL
90	40.9	36.8	63.2	3.7	33.1	156	70.9	63.8	36.2	6.4	57.4
92	41.8	37.6	62.4	3.8	33.8	158	71.8	64.6	35.4	6.5	58.1
94	42.7	38.4	61.6	3.8	34.6	160	72.7	65.4	34.6	6.5	58.9
96	43.6	39.2	60.8	3.9	35.3	162	73.6	66.2	33.8	6.6	59.6
98	44.6	40.1	59.9	4.0	36.1	164	74.6	67.1	32.9	6.7	60.4
100	45.5	41.0	59.0	4.1	36.9	166	75.5	68.0	32.0	6.8	61.2
102	46.4	41.8	58.2	4.2	37.6	168	76.4	68.8	31.2	6.9	61.9
104	47.3	42.6	57.4	4.3	38.3	170	77.3	69.6	30.4	7.0	62.6
106	48.2	43.4	56.6	4.3	39.1	172	78.2	70.4	29.6	7.0	63.4
108	49.1	44.2	55.8	4.4	39.8	174	79.1	71.2	28.8	7.1	64.1
110	50.0	45.0	55.0	4.5	40.5	176	80	72.0	28.0	7.2	64.8
112	50.9	45.8	54.2	4.6	41.2	178	80.9	72.8	27.2	7.3	65.5
114	51.8	46.6	53.4	4.7	41.9	180	81.8	73.6	26.4	7.4	66.2
116	52.7	47.4	52.6	4.7	42.7	182	82.7	74.4	25.6	7.4	67.0
118	53.6	48.2	51.8	4.8	43.4	184	83.6	75.2	24.8	7.5	67.7
120	54.6	49.1	50.9	4.9	44.2	186	84.6	76.1	23.9	7.6	68.5
122	55.5	50.0	50.0	5.0	45.0	188	85.5	77.0	23.0	7.7	69.3
124	56.4	50.8	49.2	5.1	45.7	190	86.4	77.8	22.2	7.8	70.0
126	57.3	51.6	48.4	5.2	46.4	192	87.3	78.6	21.4	7.9	70.7
128	58.2	52.4	47.6	5.2	47.2	194	88.2	79.4	20.6	7.9	71.5
130	59.1	53.2	46.8	5.3	47.9	196	89.1	80.2	19.8	8.0	72.2
132	60	54.0	46.0	5.4	48.6	198	90.0	81.0	19.0	8.1	72.9
134	60.9	54.8	45.2	5.5	49.3	200	90	81.8	18.2	8.2	73.6
136	61.8	55.6	44.4	5.6	50.0	202	91.8	82.6	17.4	8.3	74.3
138	62.7	56.4	43.6	5.6	50.8	204	92.7	83.4	16.6	8.3	75.1
140	63.6	57.2	42.8	5.7	51.5	206	93.6	84.2	15.8	8.4	75.8
142	64.6	58.1	41.9	5.8	52.3	208	94.6	85.1	14.9	8.5	76.6
144	65.5	59.0	41.0	5.9	53.1	210	95.5	86.0	14.0	8.6	77.4

146	66.4	59.8	40.2	6.0	53.8		212	96.4	86.8	13.2	8.7	78.1
148	67.3	60.6	39.4	6.1	54.5		214	97.3	87.6	12.4	8.8	78.8
150	68.2	61.4	38.6	6.1	55.3		216	98.2	88.4	11.6	8.8	79.6
152	69.1	62.2	37.8	6.2	56.0		218	99.1	89.2	10.8	8.9	80.3
154	70.0	63.0	37.0	6.3	56.7		220+	100	90.0	10.0	9.0	81.0

Preparation of t-PA (Activase®/Alteplase) for Acute Ischemic Stroke

Ensure you are using Activase®/Alteplase for your t-PA – no other thrombolytics are approved in stroke!

RECONSTITUTING t-PA (Activase®/Alteplase)

- a. Activase® is supplied as a powder for reconstitution in a 100 mg vial and is accompanied by a vial of 100 mL of Sterile Water for Injection.*
- b. Using aseptic technique, pierce the vial of Sterile Water with the provided transfer device. DO NOT invert the vial of Sterile Water. Holding the vial of Activase® powder upside down, place the center of the stopper over the exposed piercing pin and insert.
- c. Now invert the two vials allowing the Sterile Water to flow into the Activase® vial. (May take a couple of minutes.) DO NOT shake; gently swirl only. **DO NOT HANG AND INFUSE THE ENTIRE VIAL!** Vial contains 100 mg (1 mg/mL) when reconstituted.

*Note: Activase® is also supplied as a powder for reconstitution in a 50 mg vial and is accompanied by a vial of 50 mL of Sterile Water for Injection. However, the 100mg/mL kit is most commonly used.

PREPARING BOLUS AND INFUSION

- a. Refer to the dosing chart to determine the correct bolus and infusion doses of t-PA needed based on the patient's weight.
- b. Draw out the exact amount for the **bolus** from the Activase® vial into a 10mL syringe. This will be given over 1 minute by peripheral I.V.
- c. Draw out the exact amount for the **infusion** from the vial and put it in an empty IV bag. This will be given over 60 minutes immediately following the bolus dose.

OR

For those who prefer to use the Activase® vial instead of an IV bag for infusion, the following procedure may be used:

Draw out the volume that will **NOT** be used from the Activase® vial so that only the exact amount needed for **infusion** is remaining in the vial. **Be sure to label the vial with the correct dose.** This will be given over 60 minutes, immediately following the bolus dose.

- d. Document the time the bolus was given and the time the infusion pump was started.

AFTER INFUSION ENDS

When the IV bag or vial is empty, but there is still drug in the IV chamber, be sure to inject 50 mL 0.9 NS into the infusion bag and restart the IV pump at the same rate to flush the total amount of drug through the tubing. **As much as one third of the t-PA dose can be left in the tubing resulting in an under-dose of drug if this step is omitted.**

Return any un-used reconstituted medication in the vial to the pharmacy so that they can return the product to Genentech for reimbursement.

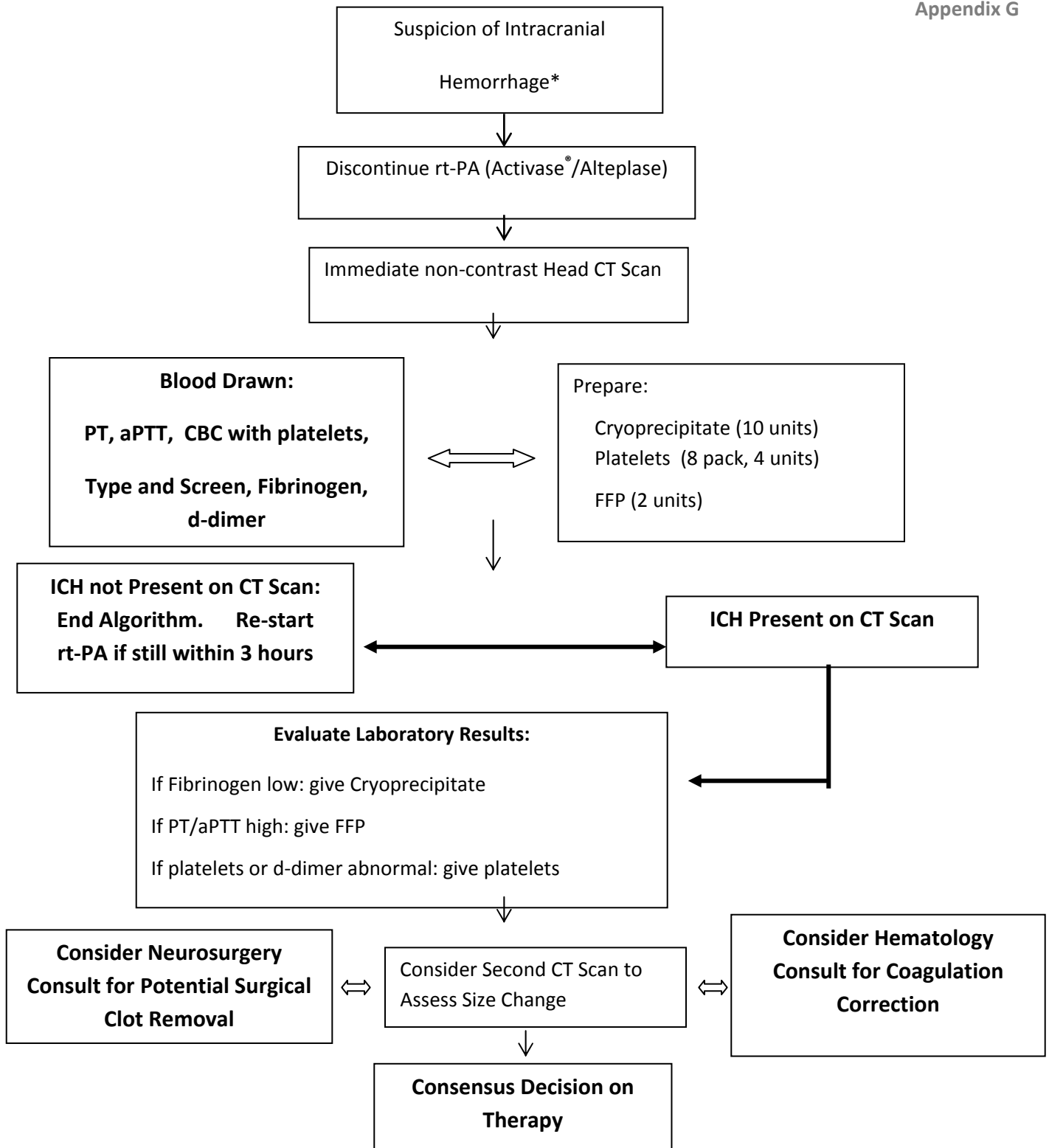
PRE-rt-PA treatment blood pressure control recommendations:

- A. Monitor blood pressure every 15 minutes.
- B. If systolic BP is > 185 mm Hg or diastolic BP is > 110 mm Hg on 2 separate measures 5-10 min apart, *and patient is a thrombolytic candidate*, attempt BP lowering as follows:
 1. Labetalol 10-20 mg IV over 1-2 minutes, repeating once if needed
 - i. peak onset within 5 minutes, contraindicated if decompensated heart failure, bradycardia
 2. Nitropaste (2% nitroglycerin ointment): 1-2 inches applied topically
 - i. peak onset 30-60 min, contraindicated if recent use of erectile dysfunction agents
 3. Nicardipine IV infusion
 - i. Start at 5 mg/ hr
 - ii. May titrate up by 2.5 mg/hr at 5-15 minute intervals to a maximum rate of 15 mg/hr
 - iii. When desired BP reached, reduce nicardipine to 3 mg/hr
 - iv. peak onset 1 minute
 4. Hydralazine 5-20 mg IV over 1 minute
 - i. peak onset 10 minutes, watch for reflex tachycardia
- C. If one or two of these measures are not effective in reducing the blood pressure below 185/110 mm Hg, the patient should not be treated with rt-PA (Activase®/Alteplase).

POST- rt-PA treatment blood pressure control recommendations:

- A. Check BP every 15 min for 2 hours, then every 30 min for 6 hours, then every hour for 16 hours.
- B. If systolic BP is 180 -230 mm Hg or if diastolic BP is 105-120 mm Hg on two or more readings 5-10 minutes apart:
 1. Give Labetalol 10 mg IV over 1-2 minutes. The dose may be repeated or doubled every 10-20 minutes, up to a maximum of 300 mg.
 2. Or Labetalol 10 mg IV followed by an infusion at 2-8 mg/min
 3. Or Nicardipine IV infusion at 5 mg / hr, titrate up by 2.5 mg/hr at 5-15 minute intervals, maximum rate 15 mg/hr; when desired BP reached, reduce nicardipine to 3 mg/hr
 4. Monitor blood pressure every 15 minutes during treatment and observe for development of hypotension.
- D. If systolic BP is > 230 mm Hg or if diastolic BP is in the range of 121-140 mm Hg for two or more readings 5-10 minutes apart:
 1. Give Labetalol 10 mg IV over 1-2 minutes. The dose may be repeated or doubled every 10-20 minutes, up to a maximum of 300 mg.
 2. Or Nicardipine IV infusion at 5 mg/hr as starting rate. May increase by 2.5 mg/hr every 5-15 minutes to a maximum rate of 15 mg/hr.
 3. If no satisfactory response, give Nitroprusside IV infusion at 0.5-10 microgram/kg/min. Continuous arterial monitoring is advised with nitroprusside infusion.
 4. Monitor blood pressure every 15 minutes during treatment and observe for development of hypotension.

Algorithm for Management of Suspected ICH



*Symptoms such as neurological deterioration, new headache, acute hypertension, nausea, vomiting

Administer stroke scale items in the order listed. Record performance in each category after each exam. Follow directions provided for each exam technique.

DATE: _____ **TIME:** _____

INSTRUCTIONS	SCALE DEFINITION	SCORE
<p>1a. Level of Consciousness (LOC): The physician must choose a response even if a full evaluation is prevented by such obstacles as an endotracheal tube, language barrier or orotracheal trauma/bandages. A 3 is scored only if the patient makes no movement (other than reflexive posturing) in response to noxious stimulation.</p>	<p>0 = Alert; keenly responsive.</p> <p>1 = Not alert., but arousable by minor stimulation to obey, answer, or respond.</p> <p>2 = Not alert, requires repeated stimulation to attend, or is obtunded and requires strong or painful stimulation to make movements (not stereotyped).</p> <p>3 = Responds only with reflex motor or autonomic effects or totally unresponsive, flaccid, areflexic.</p>	
<p>1b. LOC Questions: The patient is asked the month and his/her age. The answer must be correct - there is no partial credit for being close. Aphasic and stuporous patients who do not comprehend the questions will score 2. Patients unable to speak because of endotracheal intubation, orotracheal trauma, severe dysarthria from any cause. language barrier or any other problem not secondary to aphasia are given a 1. It is important that only the initial answer be graded and that the examiner not help the patient with verbal or non-verbal cues.</p>	<p>0 = Answers both questions correctly.</p> <p>1 = Answers one question correctly.</p> <p>2 = Answers neither question correctly.</p>	
<p>1c. LOC Commands: The patient is asked to open and close the eyes and then to grip and release the non-paretic hand. Substitute another one step command if the hands cannot be used. Credit is given if an unequivocal attempt is made but not completed due to weakness. If the patient does not respond to command. the task should be demonstrated to them (PANTOMIME) and score the result (i.e., follows none, one or two commands). Patients with trauma, amputation, or other physical impediments should be given suitable one-step commands. Only the first attempt is scored.</p>	<p>0 = Performs both tasks correctly.</p> <p>1 = Performs one tasks correctly.</p> <p>2 = Performs neither task correctly.</p>	
<p>2. Best Gaze: Only horizontal eye movements will be tested. Voluntary or reflexive (oculocephalic) eye movements will be scored but calorific testing is not done. If the patient has a conjugate deviation of the eyes that can be overcome by voluntary or reflexive activity the score will be 1. If a patient has an isolated peripheral nerve paresis (CN III, IV OR VI) score a 1. Gaze is testable in all aphasic patients. Patients with ocular trauma. bandages, pre-existing blindness or other disorder of visual acuity or fields should be tested with reflexive movements and a choice made by the physician. Establishing eye contact and then moving about the patient from side to side will occasionally clarify the presence of a partial gaze palsy.</p>	<p>0 = Normal.</p> <p>1 = Partial gaze palsy. This score is given when gaze is abnormal in one or both eyes, but where forced deviation or total gaze paresis are not present.</p> <p>2 = Forced deviation, or total gaze paresis not overcome by the oculocephalic maneuver.</p>	

INSTRUCTIONS	SCALE DEFINITION	SCORE
<p>3. Visual: Visual fields are tested by confrontation, using finger counting or visual threat as appropriate. Patient must be encouraged, but if they look at the side of the moving fingers appropriately, this can be scored as normal. If there is unilateral blindness or enucleation, visual fields in the remaining eye are scored. Score only if a clear-cut asymmetry, including quadrantanopia, is found. If patient is blind from any cause score 3. Double simultaneous stimulation is performed at this point. If there is extinction patient receives a 1 and the results are used to answer question 1.</p>	<p>0 = No visual loss.</p> <p>1 = Partial hemianopia.</p> <p>2 = Complete hemianopia.</p> <p>3 = Bilateral hemianopia (blind including cortical blindness).</p>	
<p>4. Facial Palsy: Ask or use pantomime to encourage the patient to show teeth or smile and close eyes. Score symmetry of grimace in response to noxious stimuli in the poorly responsive or non-comprehending patient. If facial trauma/bandages, orotracheal tube, tape or other physical barrier obscures the face, these should be removed to the extent possible.</p>	<p>0 = Normal symmetrical movement.</p> <p>1 = Minor paralysis (flattened nasolabial fold, asymmetry on smiling).</p> <p>2 = Partial paralysis (total or near total paralysis of lower face).</p> <p>3 = Complete paralysis with absence of facial movement in the upper and lower face).</p>	
<p>5. Motor Arm: Extend the arms 90 degrees (if sitting) or 45 degrees (if supine). Drift is scored if the arm falls before 10 seconds. The aphasic patient is encouraged using urgency in the voice and pantomime but not noxious stimulation. Each limb is tested in turn, beginning with the non-paretic arm. Score each limb separately.</p>	<p>0 = No drift. Limb holds 90 (or 45) degrees for full 10 seconds.</p> <p>1 = Drift. Limb holds 90 (or 45) degrees, but drifts down before full 10 seconds; does not hit bed or other support.</p> <p>2 = Some effort against gravity, limb cannot get to or maintain (if cued) 90 (or 45) degrees, drifts down to bed but has some effort against gravity.</p> <p>3 = No effort against gravity, limb falls.</p> <p>4 = No movement</p> <p>5a. LEFT ARM</p> <p>5b. RIGHT ARM</p>	<p>5a. ____</p> <p>5b. ____</p>

The National Institutes of Health Stroke Scale (NIHSS) cont.

INSTRUCTIONS	SCALE DEFINITION	SCORE
<p>6. Motor Leg: Extend the leg 30 degrees (always tested with patient supine). Drift is scored if the leg falls before 5 seconds. The aphasic patient is encouraged using urgency in the voice and pantomime but not noxious stimulation. Each limb is tested in turn, beginning with the non-paretic arm. Score each limb separately.</p>	<p>0 = No drift. Limb holds 30 degrees for full 5 seconds.</p> <p>1 = Drift. Limb holds 30 degrees, but drifts down before full 5 seconds; does not hit bed or other support.</p> <p>2 = Some effort against gravity, limb cannot get to or maintain (if cued) 30 degrees, drifts down to bed but has some effort against gravity.</p> <p>3 = No effort against gravity, limb falls.</p> <p>4 = No movement</p> <p>6a. LEFT LEG</p> <p>6b. RIGHT LEG</p>	<p>6a. ____</p> <p>6b. ____</p>
<p>7. Limb Ataxia: This item is aimed at finding evidence of a unilateral cerebellar lesion. Test with eyes Open. In case of visual defect, insure testing is done in intact visual field. The finger-nose-finger and heel-shin tests are performed on both sides and ataxia is <u>scored only if present out of proportion to weakness. Ataxia is absent in the patient who cannot understand or is hemiplegic.</u></p>	<p>0 = Absent.</p> <p>1 = Present in one limb.</p> <p>2 = Present in two limbs.</p>	
<p>8. Sensory: Sensation or grimace to pinprick when tested, or withdrawal from noxious stimulus in the obtunded or aphasic patient. Only sensory loss attributed to stroke is scored as abnormal and the examiner should test as many body areas (limbs, trunk, face) as needed to accurately check for hemisensory loss. A score of 2, "severe or total", should only be given when a severe or total loss of sensation can be clearly demonstrated. Stuporous and aphasic patients will therefore probably score 1 or 0. The patient with a brainstem stroke who has bilateral loss of sensation is scored 2. If the patient does not respond and is quadriplegic score 2. Patients in coma (item 1a = 3) are arbitrarily given a 2 on this item.</p>	<p>0 = Normal; no sensory loss.</p> <p>1 = Mild to moderate sensory loss; patient feels pinprick is less sharp or is dull on the affected side; or there is a loss of superficial pain with pinprick but patient is aware he/she is being touched.</p> <p>2 = Severe total sensory loss; patient is not aware of being touched in the face, arm, and leg.</p>	

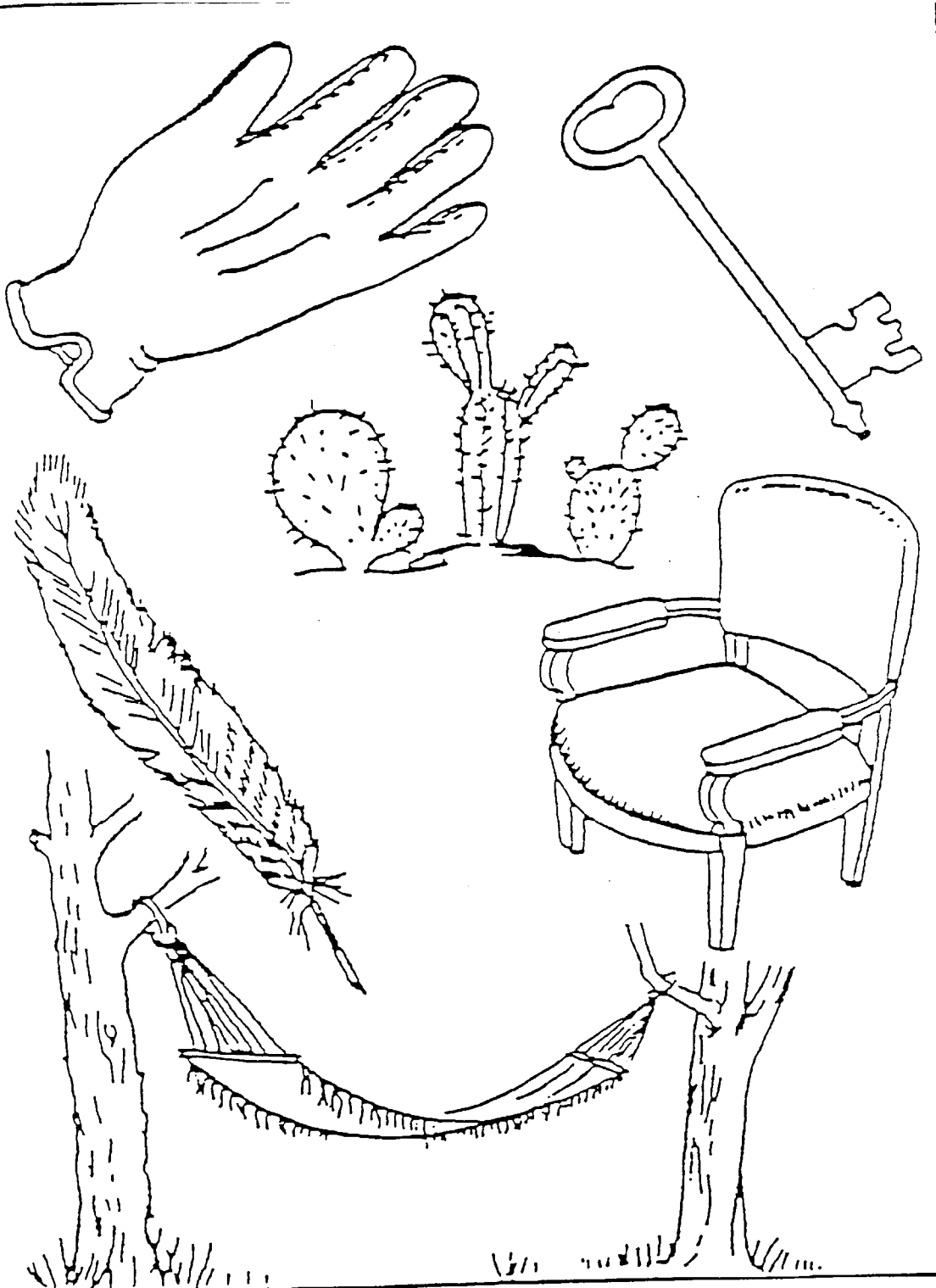
The National Institutes of Health Stroke Scale (NIHSS) cont.

INSTRUCTIONS	SCALE DEFINITION	SCORE
<p>9. Best Language: A great deal of information about comprehension will be obtained during the preceding sections of the examination. The patient is asked to describe the attached picture, to name the items on the attached naming sheet, and to read from the attached list of sentences. Comprehension is judged from responses here as well as to all of the commands in the preceding general neurological exam. If visual loss interferes with the tests, ask the patient to identify objects placed in the hand, repeat. and produce speech. The intubated patient should be asked to write. The patient in coma (question 1 a - 3) will arbitrarily score 3 on this item. The examiner must choose a score in the patient with stupor or limited cooperation, but a score of 3 should be used only if the patient is mute and follows no one-step commands.</p>	<p>0 = No aphasia, normal.</p> <p>1 = Mild to moderate aphasia; some obvious loss of fluency or facility of comprehension without significant limitation on ideas expressed or form of expression. Reduction of speech and/or comprehension, however, makes conversation about provided material difficult or impossible. For example, in conversation about provided materials, examiner can identify picture or naming card from patient's response.</p> <p>2 = Severe aphasia; all communication is through fragmentary expression; great need for inference. Questioning and guessing by the listener. Range of information that can be exchanged is limited; listener carries burden of communication. Examiner cannot identify materials provided from patient response.</p> <p>3 = Mute, global aphasia; no usable speech or auditory comprehension.</p>	
<p>10. Dysarthria: If patient is thought to be normal, an adequate sample of speech must be obtained by asking patient to read or repeat words from the attached list. If the patient has severe aphasia, the clarity of articulation of spontaneous speech can be rated.</p>	<p>0 = Normal.</p> <p>1 = Mild to Moderate: patient slurs at least some words and, at worst, can be understood with some difficulty</p> <p>2 = Severe: patient's speech is so slurred as to be unintelligible in the absence of, or out of proportion to, any dysphasia, or is patient mute/anarthric</p>	
<p>11. Extinction and Inattention (formerly Neglect): Sufficient information to identify neglect may be obtained during the prior testing. If the patient has a severe visual loss preventing visual double simultaneous stimulation, and the cutaneous stimuli are normal, the score is normal. If the patient has aphasia but does appear to attend to both sides, the score is normal. The presence of visual or spatial neglect or anosognosia may also be taken as evidence of abnormality. Since the abnormality is scored only if present, the item is never untestable.</p>	<p>0 = No abnormality.</p> <p>1 = Visual, tactile, auditory, spatial or personal inattention. Extinction to bilateral simultaneous stimulation in one of the three sensory modalities.</p> <p>2 = Profound hemi-inattention or hemi-inattention to more than one modality. Does not recognize own hand or orients to only one side of space.</p>	

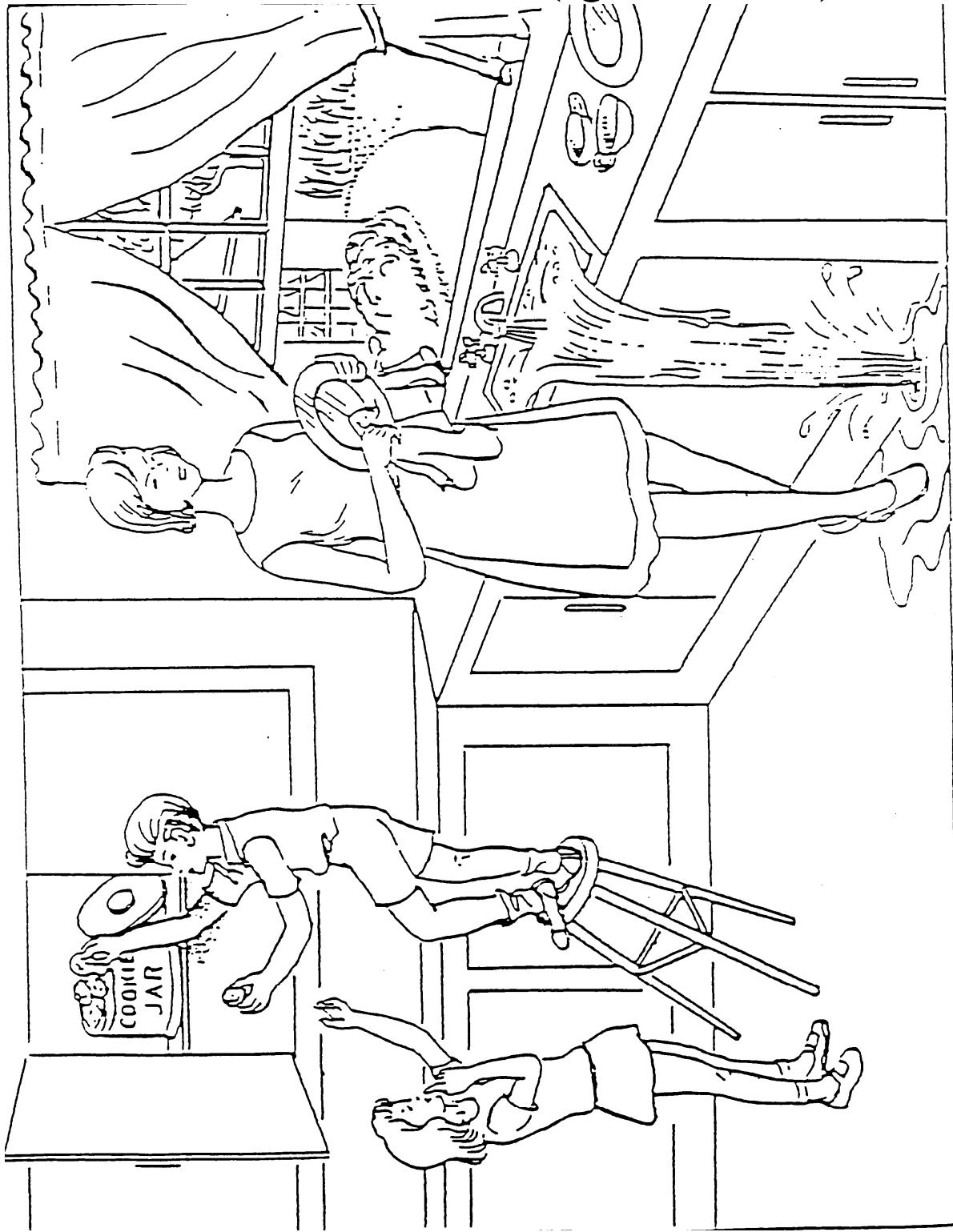
TOTAL SCORE _____

INITIALS OF MD/RN PERFORMING NIHSS _____

Pictures to Name for Aphasia Testing (Q9)



Picture to Describe for Aphasia Testing (Q9) and Visual Field Assessment (Qs 3 and 11)



Sentences to read for Aphasia (Q9)

You know how.

Down to earth.

I got home from work.

Near the table in the dining room.

**They heard him speak on the radio
last night.**

Words to speak for Dysarthria (Q10)

MAMA

TIP - TOP

FIFTY - FIFTY

THANKS

HUCKLEBERRY

BASEBALL PLAYER



Hospital Name	Address
Administrator	
Designated Stroke Coordinator	Phone Number
	Email Address
Number of Licensed Beds	

THE RESPONSES TO THESE QUESTIONS AND ALL SUBMITTED DATA WILL BE USED EXCLUSIVELY FOR STATE PERFORMANCE IMPROVEMENT PURPOSES.

If you need information about how to respond to a question, please e-mail Robert F. Jex, rfjex@utah.gov or call 801.201.6074.

For Department Use Only

	Yes	No
1. Is the Emergency Department staffed with an RN 24/7		
2. Is there a designated stroke coordinator? (need not be a full time position)		
3. If the Emergency Department is not staffed with a physician 24/7:		
• Is there a requirement that a physician respond in 30 minutes or less?		
• Is the RN authorized to initiate stroke protocol?		
4. Is the Emergency Department staff trained in the use of a standardized assessment tool for stroke severity? What assessment tool are they trained to use? <i>Please include a copy of the tool.</i>		
5. Does the hospital use a standardized acute ischemic stroke protocol? <i>Please include a copy of the protocol used.</i>		
6. Is ACTIVASE OR rt-PA stocked in hospital?		
7. Does the hospital staff have access to a standardized "Stroke Box"? <i>Please attach a list of the contents and location.</i>		
Transfer and Transport Protocol		
8. Does the hospital have a transport protocol with contingency plans for bad weather, no bed availability, etc? <i>Please attach a copy of that protocol</i>		
Stroke Care and Treatment		
9. Is there a physician (ED or neurologist) readily available 24/7 trained to treat acute ischemic stroke? (May include telephone or telestroke) <i>Please include a copy of the call schedule.</i>		
CT Availability		
10. Does the hospital have CT (with interpretation) available within 45 minutes of patient arrival?		

Utah Stroke Receiving Facility Application (Page 3 of 3)

Appendix I

	Yes	No
Laboratory Availability		
11. Is the hospital laboratory staffed 24/7?		
12. Are the following test results available within 45 minutes of patient arrival:		
• CBC		
• BMP		
• PT/PTT/INR		
Quality Improvement Plan		
13. Can the hospital demonstrate a plan to collect and review standard stroke quality improvement data? <i>Please attach a copy of the plan and the data elements</i>		
14. Will the hospital collect and report quality improvement data to the UDOH Stroke Program on a quarterly basis?		
15. Will the hospital participate in stroke-specific training offered or approved by the Utah Department of Health?		
Attachment Checklist: The following items should be returned as attachments to this application:		
• Stroke Physician Call Roster		
• Stroke Assessment Tool		
• Acute Ischemic Stroke Protocol		
• Stroke Box Contents and Location		
• Stroke Inter-hospital Transfer/Transport Protocol		
• Stroke Quality Data Plan and Elements		

