

**Patient Care Orders for CODE STROKE:**

**alteplase Administration order set for Acute Ischemic Stroke less than 4.5 hours**

Allergy Alert:  NO  YES (Refer to Care-Area Administrative Data Screen in MEDITECH)

**Orders: The prescriber must check the tick box or complete the blank to activate the order. Any changes to be initialled by prescriber. An order without a tick box or a blank is to be considered a standard order. Orders cannot be revised after faxing to Pharmacy.**

**Orders BEFORE CT Scan**

1. STAT registration of patient
2. Point of Care blood glucose (may use EMS result)
3. Initiate 2 large bore IV's (greater or equal to 18 gauge, at least one in antecubital site)
4. Call Criticall STAT → request TeleStroke Neurologist
5. Order-enter STAT CT Angiogram Head Non-Contrast & page CT tech
6. CBC, diff, electrolytes, urea, creatinine, plasma glucose, PTT/INR, , CK, LFT's, Group and Screen
7.  Troponin I (if clinically indicated)
8. If female and of child bearing age → add serum Beta-HCG
9. EMS Crew transport patient to CT on EMS stretcher (*do not delay for blood work*)

**Orders AFTER CT Scan**

10. MRN document time CT Angiogram Scan completed
11. Transport patient back from CT Scanner on ED weighing stretcher, and weigh patient
12. Keep head of bead at 30 degrees
13. Set up Telestroke Ontario camera in patient's room
14. ECG
15. NPO
16. Continuous cardiac monitor
17. Vital signs q15 minutes
18. Complete an Initial Canadian Neurological Scale score
19. Apply oxygen via nasal prong if oxygen saturation less than 92 %
20. MD to calculate CrCl. If CrCl is less than 50 mL/min, give 500 mL bolus of NS IV over \_\_\_\_\_ minutes

**Blood Pressure Monitoring and Treatment: For Patients receiving alteplase**

21. Monitor Blood Pressure. Target is SBP less than 185 mmHg and DBP less than 110 mmHg.
    - a. If BP exceeds target after 2 measurements, give:
      - labetalol 10 mg IV over 2 min, q10 mins until goal met (max 300 mg labetalol).  
(NOTE: labetalol contraindicated if severe bradycardia, 2nd degree heart block, asthma)  
Hold labetalol if HR is less than 50
    - b. If labetalol contraindicated or target BP not reached in 1 hour, give:
      - enalaprilat 1.25 mg IV over 5 minutes x 1 dose
    - c. If target BP not achieved within 1 hour, notify MD
      - repeat enalaprilat 1.25 mg IV over 5 minutes
- OR**
- IV nitroprusside infusion \_\_\_\_\_ mcg/kg/min (usual start 0.2 mcg/kg/min, to maximum 10 mcg/kg/min). Titrate nitroprusside to target BP: \_\_\_\_\_

**Treatment Decision Process**

22. MRP complete Appendix A: "Code Stroke – Eligibility Assessment for alteplase Treatment"
23. MRP conduct Appendix B: NIH Stroke Score
24. MRP consult with Telestroke Neurologist

25. alteplase to be given? (yes or no)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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26. MRP document <u>Exact Time of Decision</u> (24-hour clock – hh:mm):	:
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**ED Physician Signature:**

**Date (d/m/y):**

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27. MRP document type of Stroke: <input type="checkbox"/> Ischemic <input type="checkbox"/> Hemorrhagic <input type="checkbox"/> Transient ischemic attack	
28. If decision is <b>NOT</b> to give alteplase, indicate why: <input type="checkbox"/> Failed exclusion criteria <input type="checkbox"/> Beyond 4.5 hour threshold <input type="checkbox"/> CT Angiogram shows finding that excludes alteplase <input type="checkbox"/> Clinical decision by Stroke Neurologist <input type="checkbox"/> Treatment declined by Patient or Substitute Decision Maker <input type="checkbox"/> Other reason: _____	
<b>If decision is to treat with alteplase, proceed with alteplase infusion orders:</b> 29. MRP refer to Appendix C: <u>alteplase Infusion Chart</u> , complete exact dose of alteplase, and give to MRN. 30. MRN to administer alteplase <u>bolus dose</u> and document time. 31. MRN to administer alteplase <u>infusion dose</u> over 1 hour.	
<b>If decision is to treat with endovascular therapy, proceed with Stroke transfer orders.</b>	
<b>Procedure During and After alteplase Infusion:</b> 32. NPO 33. Vital signs q15 mins x 1 hour, then q30 mins x 4 hours, then q2h and prn 34. Oxygen prn to keep oxygen saturation greater than 92 %. 35. Bedrest 36. Canadian Neurological Scale (CNS) assessment at time of bolus, q15minutes during infusion, and then q30minutes x 4 hours, then q2h until transferred. 37. MRP to consult for admission: <u>Hospital Based Internist (0730-1700h)</u> or <u>Internal Medicine On-Call (after hours)</u> 38. After completion of alteplase infusion in ED, admit patient to Stepdown or ICU, at consultant discretion 39. Admitting physician to complete orders: "Post Thrombolytic Therapy with alteplase for Acute Stroke".	
<b>Blood Pressure Monitoring and Treatment</b> 40. Monitor Blood Pressure with <u>manual BP cuff</u> . Target is SBP less than 185 mmHg and DBP less than 110 mmHg. a. If BP exceeds target after 2 measurements, give: <input type="checkbox"/> labetalol 10 mg IV over 2 min, q10 mins until goal met (max 300 mg labetalol). ( <i>NOTE: labetalol contraindicated if severe bradycardia, 2nd degree heart block, asthma</i> ) b. If labetalol contraindicated or target BP not reached in 1 hour, give: <input type="checkbox"/> enalaprilat 1.25 mg IV over 5 minutes x 1 dose c. If target BP not achieved within 1 hour, notify MD <input type="checkbox"/> repeat enalaprilat 1.25 mg IV over 5 minutes OR <input type="checkbox"/> IV nitroprusside infusion _____ mcg/kg/min (usual start 0.2 mcg/kg/min, to maximum 10 mcg/kg/min). Titrate nitroprusside to target BP: _____	
41. MRN to observe for angioedema: a. Document state of tongue/oropharynx at 30 mins, 45 mins and 60 mins after onset of alteplase infusion b. If facial, tongue and/or pharyngeal angioedema: <ul style="list-style-type: none"> <li>• STOP infusion and notify MRP</li> <li>• MRP to assess patient STAT and write treatment orders on separate Orders Sheet</li> </ul>	<b><u>Angioedema Treatment Advice:</u></b> <ul style="list-style-type: none"> <li>• diphenhydrAMINE 50 mg IV q 4h</li> <li>• ranitidine 50 mg IV q 8h</li> <li>• methylPREDNISolone 80 mg IV q 8h (if symptoms are severe)</li> <li>• <u>Avoid EPINEP</u>Hrine due to increased risk of hemorrhage (May use if severe resp compromise.)</li> </ul>
42. MRN observe for signs and symptoms of hemorrhage, and report to MRP if any occur, for example: <ul style="list-style-type: none"> <li>• Decline in neurological status or worsening stroke symptoms</li> <li>• Significant change in vital signs</li> </ul>	
<b>ED Physician Signature:</b>	<b>Date (d/m/y):</b>

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#### Appendix A:

#### Code Stroke – Eligibility Assessment for alteplase Treatment

Emergency Physician complete, sign and date below

<b>INCLUSION CRITERIA: All criteria must be checked “Yes” to continue</b>	YES	NO	U/K*
• History and physical exam consistent with acute ischemic stroke <i>(Acute onset of facial weakness, speech deficit, unilateral motor weakness/drift, visual changes)</i>			
• Onset or Time last seen normal less than 4.5 hours before beginning treatment			
• Age 18 years or greater <i>(if less than 18, request pediatric Neuro consultation)</i>			
<b>ABSOLUTE EXCLUSION CRITERIA: All criteria must be checked “No” to continue</b>	YES	NO	U/K*
• CT evidence of hemorrhage or large recent infarction (acute)			
• Stroke in previous 3 months			
• Significant head trauma, brain surgery or spine surgery (3 months)			
• History of intracranial hemorrhage (6 months)			
• Intracranial neoplasm, arteriovenous malformation, or aneurysm (ever)			
• Symptoms suggest subarachnoid hemorrhage (acute)			
• Recent lumbar puncture or arterial puncture at a non-compressible site (7 days)			
• Recent active internal bleeding, e.g Ortho, GI or GU (14 days)			
• Recent major surgery or trauma (cardiac, thoracic, abdominal, orthopaedic) (14 days)			
• Elevated blood pressure (systolic greater than 185 mm Hg or diastolic greater than 110 mm Hg) not easily controlled			
• Platelet count less than 100, 000/mm <sup>3</sup>			
• IV heparin received within 48 hours, resulting in abnormally elevated aPTT greater than 40			
• Low molecular weight heparin at full anticoagulant levels (e.g. for Treatment of DVT/PE)			
• warfarin use with INR greater than 1.7			
• Novel Oral Anticoagulant [rivaroxaban (XARELTO), dabigatran (PRADAXA), apixaban (ELIQUIS)] taken within previous 48 hours			
<b>RELATIVE CONTRAINDICATIONS (Consider on an individual basis based on benefit/risk)</b>	YES	NO	U/K*
• Recent large myocardial infarction (3 months)			
• Glucose less than 2.7 or greater than 22 mmol/L			
• Seizure at onset of stroke with residual postictal neurological impairments			
• Neurological symptoms rapidly improving or minor (sensory loss, dysarthria or minor weakness) (NIHSS less than or equal to 4)			
• Profound Stroke with obtundation, fixed eye deviation and complete hemiplegia (NIHSS greater than or equal to 25)			
• Previously non-ambulatory, ADL dependent			
• Caution with Patients who are pregnant (consider benefits/risks)			

\*U/K = “unknown”

<b>SUMMARY ELIGIBILITY ASSESSMENT (All must be checked “Yes”)</b>	YES	NO
1. The patient meets all INCLUSION criteria		
2. The patient does NOT have any ABSOLUTE EXCLUSION criteria.		
3. The patient may have one or more of the relative contraindications, but potential benefits of alteplase exceed potential risks as assessed by Telestroke consultant		
4. alteplase (tPA) to be given?		
5. Document Telestroke Neurologist Name: Dr.		
<b>ED Physician Signature:</b>	<b>Date (d/m/y):</b>	

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#### Appendix B:

#### NIHSS – National Institutes of Health Stroke Score

Emergency Physician complete, sign and date below

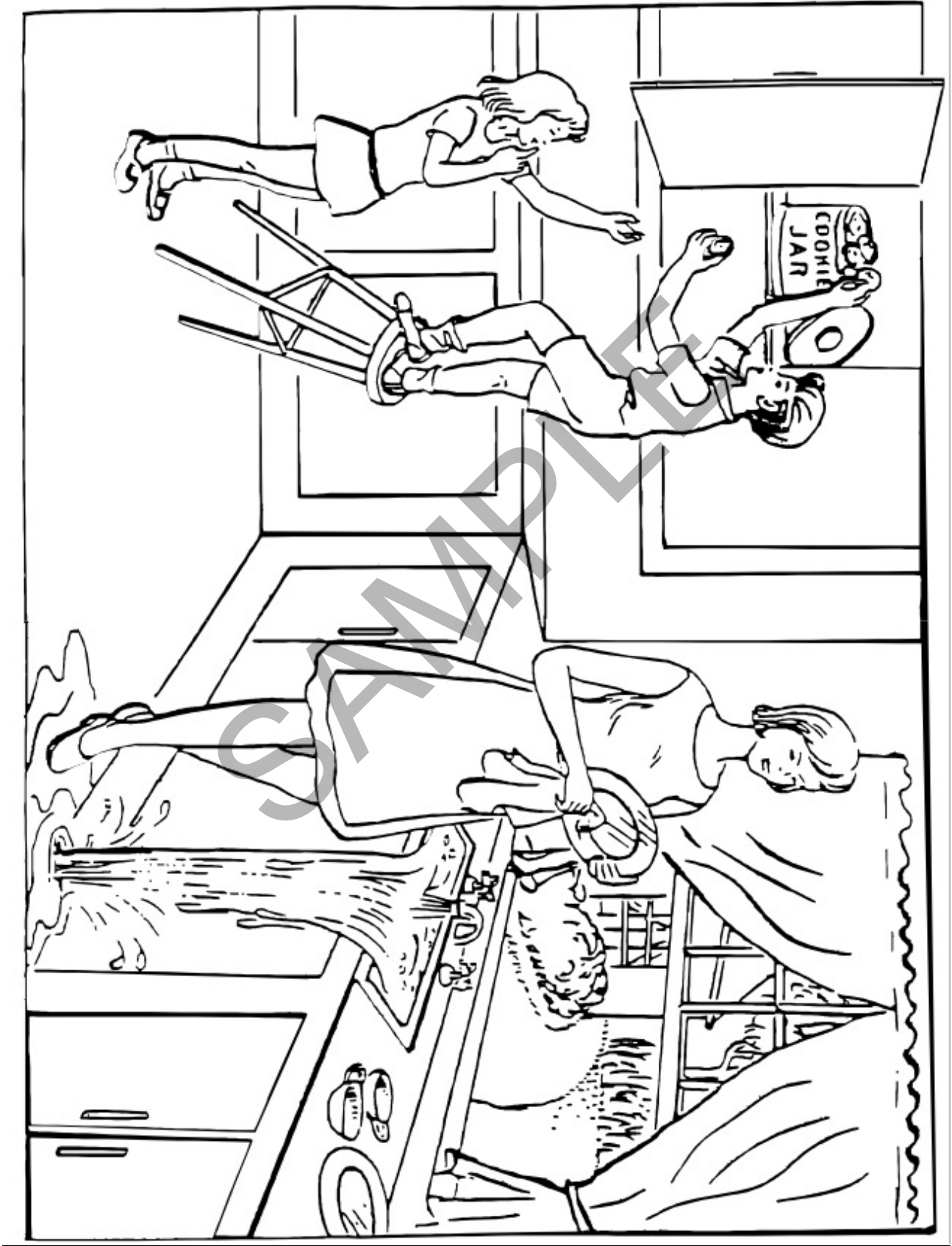
<b>1a. Level of Consciousness:</b> General level of consciousness	0 = Alert; keenly responsive. 1 = Not alert; but arousable by minor stimulation to obey, answer, or respond. 2 = Not alert; requires repeated stimulation to attend, or is obtunded and requires strong or painful stimulation to make movements (not stereotyped). 3 = Responds only with reflex motor or autonomic effects or totally unresponsive, flaccid, and areflexic.	<b>Score:</b>  _____
<b>1b. LOC Questions:</b> Ask the month and patient's age.	0 = Answers both questions correctly. 1 = Answers one question correctly. 2 = Answers neither question correctly	_____
<b>1c. LOC Commands:</b> Open and close eyes Grip and release best hand.	0 = Performs both tasks correctly. 1 = Performs one task correctly. 2 = Performs neither task correctly.	_____
<b>2. Best Gaze:</b> Horizontal eye movements.	0 = Normal. 1 = Partial gaze palsy; gaze is abnormal in one or both eyes, but forced deviation or total gaze paresis is not present. 2 = Forced deviation, or total gaze	_____
<b>3. Visual:</b> Test visual fields in both eyes by confrontation, using finger counting or visual threat.	0 = No visual loss. 1 = Partial hemianopia. 2 = Complete hemianopia. 3 = Bilateral hemianopia (blind including cortical blindness).	_____
<b>4. Facial Palsy:</b> Show teeth, raise eyebrows, close eyes.	0 = Normal symmetrical movements. 1 = Minor paralysis (flattened nasolabial fold, asymmetry on smiling). 2 = Partial paralysis (total or near-total paralysis of lower face). 3 = Complete paralysis of one or both sides (absence of facial movement in the upper and lower face).	_____
<b>5. Motor Arm:</b> Arm Raise x 10 seconds 90 degrees (if sitting) 45 degrees (if supine)	0 = No drift; limb holds 90 (or 45) degrees for full 10 seconds. 1 = Drift; limb holds 90 (or 45) degrees, but drifts down before full 10 seconds; does not hit bed or other support. 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. 3 = No effort against gravity; limb falls. 4 = No movement. UN = Amputation or joint fusion, explain: _____	5a. Left Arm  _____  5b. Right Arm  _____
<b>6. Motor Leg:</b> Leg raise x 5 seconds x 30 degrees (always tested supine).	0 = No drift; leg holds 30-degree position for full 5 seconds. 1 = Drift; leg falls by the end of the 5-second period but does not hit bed. 2 = Some effort against gravity; leg falls to bed by 5 seconds, but has some effort against gravity. 3 = No effort against gravity; leg falls to bed immediately. 4 = No movement. UN = Amputation or joint fusion, explain: _____	6a. Left Leg  _____  6b. Right Leg  _____
<b>7. Limb Ataxia:</b> Right/left finger-nose-finger test. Right/left heel-shin test.	0 = Absent. 1 = Present in one limb. 2 = Present in two limbs. UN = Amputation or joint fusion, explain: _____	_____
<b>8. Sensory:</b> Pin sensation x 4 limbs, face and trunk.	0 = Normal; no sensory loss. 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 of being touched. 2 = Severe to total sensory loss; patient is not aware of being touched in the face, arm, and leg.	_____
<b>9. Best Language:</b> Describe Cookie Jar picture Name objects in picture (cactus) Read sentences (You know how)	0 = No aphasia; normal. 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 materials difficult or impossible. For example, in conversation about provided materials, examiner can identify picture or naming card content from patient's response. 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. 3 = Mute, global aphasia; no usable speech or auditory comprehension.	_____
<b>10. Dysarthria:</b> Pronounce words (e.g. Mama")	0 = Normal. 1 = Mild-to-moderate dysarthria; patient slurs at least some words and, at worst, can be understood with some difficulty. 2 = Severe dysarthria; patient's speech is so slurred as to be unintelligible in the absence of or out of proportion to any dysphasia, or is mute/anarthric. UN = Intubated or other physical barrier, explain: _____	_____
<b>11. Extinction/Inattention:</b> Test extinction by bilateral, simultaneous touch, then visual stimulation.	0 = No abnormality. 1 = Visual, tactile, auditory, spatial, or personal inattention or extinction to bilateral simultaneous stimulation in one of the sensory modalities. 2 = Profound hemi-inattention or extinction to more than one modality; does not recognize own hand or orients to only one side of space.	_____
<b>Total Score</b>		_____

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You know how.

Down to earth.

I got home from work.

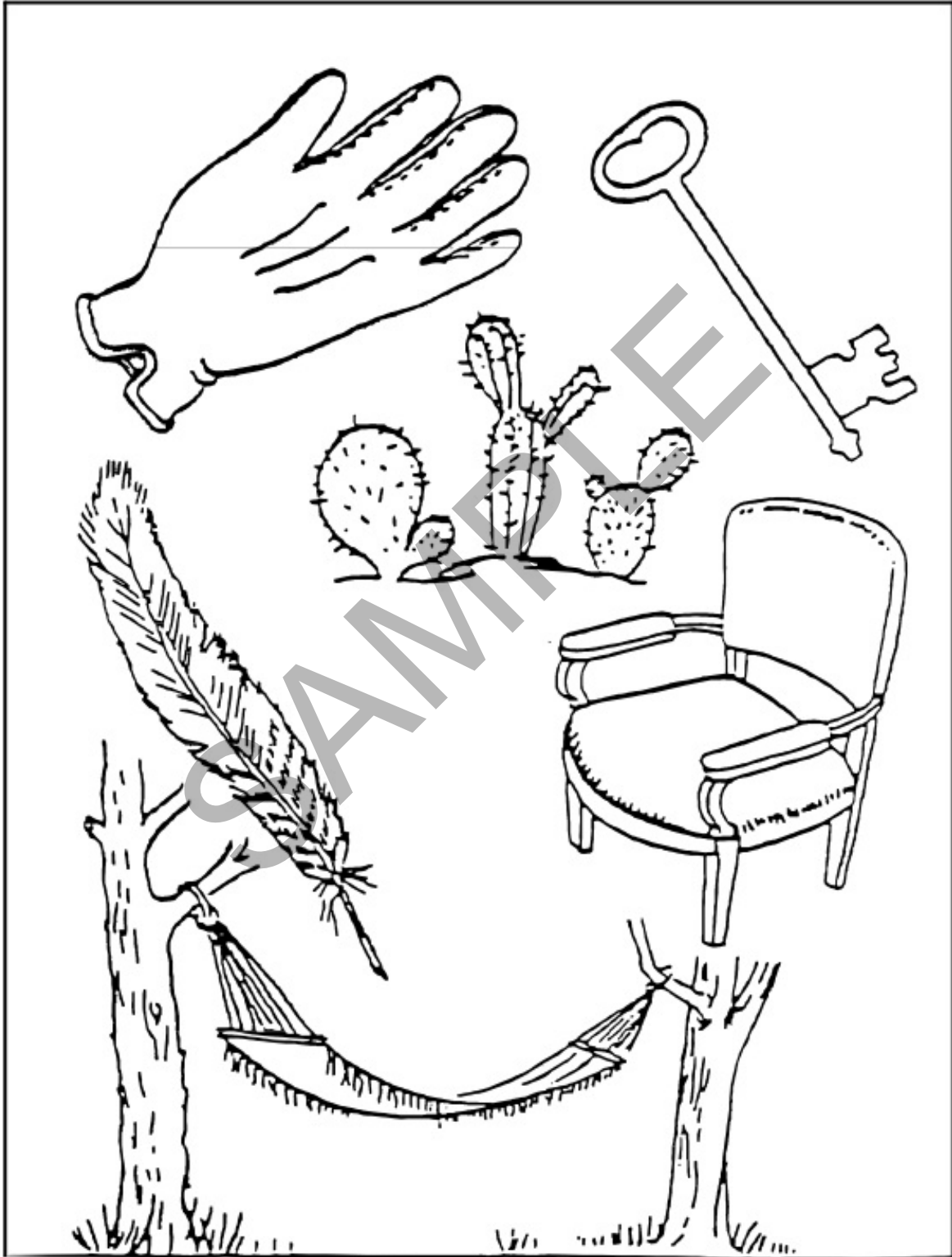
Near the table in the dining room.

They heard him speak on the radio last night.

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**MAMA**

**TIP – TOP**

**FIFTY – FIFTY**

**THANKS**

**HUCKLEBERRY**

**BASEBALL PLAYER**



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**Appendix C:**

**alteplase infusion chart – for Acute Ischemic Stroke**

Emergency Physician complete, sign and date below

Weight		Total dose (mg)	STEP # 1 REMOVE from vial and waste (mg)	STEP # 2 Bolus dose (mg) Administered over 1 minute	STEP # 3 Remaining dose (mg) to be administered over 1 hour
_____ kg	_____ lbs	_____ mg	_____ mg	_____ mg	_____ mg
ED Physician Signature:		Date (d/m/y):		Time (hh:mm)	

**alteplase infusion chart – for Acute Ischemic Stroke**

100 mg in 100 mL with a Final concentration 1 mg/mL

Weight		Total dose (mg)	STEP # 1 REMOVE from vial and waste (mg)	STEP # 2 Bolus dose (mg) Administered over 1 minute	STEP # 3 Remaining dose (mg) to be administered over 1 hour
(kg)	(pounds)				
41 – 42	90 – 93	37	63	4	33
43 – 44	94 – 97	39	61	4	35
45 – 47	98 – 103	41	59	4	37
48 – 49	104 – 108	44	56	4	40
50 – 51	109 – 112	45	55	5	40
52 – 54	113 – 119	48	52	5	43
55 – 56	120 – 124	50	50	5	45
57 – 58	125 – 129	52	48	5	47
59 – 60	130 – 133	54	46	5	49
61 – 62	134 – 137	55	45	6	49
63 – 64	138 – 142	57	43	6	51
65 – 66	143 – 146	59	41	6	53
67 – 68	147 – 151	61	39	6	55
69 – 70	152 – 155	63	37	6	57
71 – 72	156 – 159	64	36	6	58
73 – 74	160 – 164	66	34	7	59
75 – 76	165 – 168	68	32	7	61
77 – 78	169 – 173	70	30	7	63
79 – 80	174 – 176	72	28	7	65
81 – 82	177 – 181	73	27	7	66
83 – 84	182 – 185	75	25	8	67
85 – 86	186 – 190	77	23	8	69
87 – 88	191 – 194	79	21	8	71
89 – 90	195 – 199	81	19	8	73
91 – 92	200 – 203	82	18	8	74
93 – 94	204 – 208	84	16	8	76
95 – 96	209 – 212	86	14	9	77
97 – 98	213 – 216	88	12	9	79
99	217 – 219	89	11	9	80
100 and up	220 and up	90	10	9	81