Lakeridge Health	**Inpatient Code Stroke – Policy and Procedures**	
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	Document Applies to: All Inpatient Nurses, All Physicians	
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Introduction

Evidence shows that 1.9 million brain cells die for every minute an artery is occluded. The purpose of this policy is to ensure rapid identification and management of patients experiencing an acute neurological event while admitted to Lakeridge Health in order to identify if they may be eligible for Thrombolysis and/or Endovascular Thrombectomy (EVT).

Policy

All patients **admitted** to Lakeridge Health who demonstrate the sudden onset of new neurological deficits will be rapidly assessed to determine if the patient may be an eligible candidate for Thrombolysis treatment and/or EVT.

Note: a patient may receive both a Thrombolytic and EVT.

Resource availability

Due to differences in travel time and resource availability, last seen well time is:

- 4.5 hours for Lakeridge Health Oshawa (LHO) and Lakeridge Health Ajax Pickering (LHAP).
- 3.5 hours for Lakeridge Health Bowmanville (LHB), Lakeridge Health Port Perry (LHPP) And Lakeridge Health Whitby (LHW).
- Medical Radiation Technologists (MRTs) have varying availability between sites
    - LHAP - MRT is not on site between 2300-0700 Monday to Friday and between 2100-0700 on Saturday, Sunday and holidays. Physician to call radiologist directly to facilitate call-in of MRT.
    - LHPP - MRT is not on site between 2400-0800. Physician to call Stroke Physician for transfer.

Provincial Benchmarks for hyper acute treatment (note with inpatients door "time" is the time the patient is identified with new neurological symptoms)

- Door to Physician – 5 minutes
- Door to Computed Tomography Scan (CT) – 10 minutes
- Door to Needle – 30 minutes
- Door In to Door Out for EVT – 45 minutes
- Door to monitored bed- 180 minutes
- Patients may receive EVT up to 24 h after last seen well time.

Thrombolytic administration

A Thrombolytic **will not** be administered to stroke patients who have systolic blood pressure above 180mmHg, and/or diastolic blood pressure above 105 mmHg.

Patients who have received thrombolysis will be transferred to the Critical Care Unit (CCU) for 24 hours post-administration. After the 24 hours monitoring period and a follow-up CT scan, medically stable patients may be transferred out of the CCU to the most appropriate level of care.

Documentation
Documentation is captured in a nursing note format, using smart text **NURSINGIPCODESTROKENOTE**, or on the appropriate paper documentation forms during a downtime event and scanned into the health record.

Definition(s)

Thrombolytic is a medication that is administered by bolus or infusion to break down blood clots. Patients may be eligible for thrombolysis within 4.5 hours of symptom onset.

CritiCall is a 24-hour-a-day emergency consultation and referral service for physicians based in acute care hospitals across the Province of Ontario and is funded by the Ministry of Health.

Endovascular Thrombectomy (EVT) is an image guided procedure for clot removal performed by a specialist with neuro-interventional expertise. Select patients may be eligible for EVT within 24 hours of symptom onset.

Most Responsible Practitioner (MRP) is the physician that has primary responsibility for coordinating and directing the care of a specific patient.

Neuro Vital Signs includes completing a full set of vital signs and the Canadian Neurological Scale to assess for changes in neurological status.

Primary Nurse is a Registered Nurse or Registered Practical Nurse assigned to provide care for a patient during their shift.

Stroke Physician is a Physician who assesses patients for eligibility of treatment with Thrombolysis and EVT, and directs treatment when appropriate. There is Stroke Physician coverage 24/7 at LHO.

Telestroke Program provides virtual consultation with a neurologist via OTN to support decision making for the treatment of patients with acute stroke symptoms. The Telestroke

equipment is used primarily at LHAP, where a Stroke Physician is not available. It is also at LHO for support in thrombolytic decision making.

Procedure(s)

Inpatient Code stroke process: Lakeridge Health Oshawa
Inpatient Code stroke process: Lakeridge Health Ajax Pickering
Inpatient Code stroke process: Lakeridge Health Bowmanville and Port Perry
Inpatient Code stroke process: Lakeridge Health Whitby

Inpatient Code Stroke Process Lakeridge Health Oshawa (LHO) (Appendix A)

1. An LH team member identifies that a patient is demonstrating the onset of new neurological deficits.
    a. If the team member is not a nurse, they immediately notify a nurse.
2. The Nurse will**:**
    a. determine the patient's last seen well time, and
    b. measure neuro vital signs and glucose meter reading (GMR), and
    c. contact the MRP/Medicine on Call/ED physician or to determine if Code Stroke should be called. Primary nurse to remain with patient.
        i. If the page is not returned in 5 minutes, page the Stroke physician.
        ii. MRP may consult with Stroke physician.
    d. If the MRP (or delegate) determines that a Code Stroke will be called, the primary nurse or delegate calls 611 and directs that a "Code Stroke" is paged overhead with location.
    e. Stroke physician enters orders for blood panel, STAT CT Head, Computed tomography angiography (CTA) and checks Life or Limb to facilitate emergency consent for contrast.
    Note: Stroke Pre-Tenecteplase Administration (Phase 1) Order Set is not used for inpatients at LHAP and LHO.
3. Primary nurse ensures patient has 2 patent IVs, one being an 18-gauge or a pressure injectable 20-gauge for contrast in a large vein.
    a. Avoid the hand.
    b. If unable to get the IV after 2 attempts proceed to CT. The MRT may be able to assist.
4. The designated phlebotomist will report to the patient unit/location and collect the stroke blood panel.
5. The Critical Care (CCU) stroke nurse responds to the overhead page with the code stroke cart, green transfer sheet, IV infusion pump and portable cardiac monitor.
    a. The CCU stroke nurse attaches the portable cardiac monitor to the patient.
6. The designated Service Associate (SA) will bring a stretcher to the unit**.**
    a. The primary nurse and CCU stroke nurse will transfer the patient onto the stretcher, using the green transfer sheet.
7. The charge nurse in the patient care unit will contact the patient's family/Substitute Decision Maker (SDM) to provide an update.
8. The patient care unit will hold the patient's bed until it is confirmed that the patient is being transferred to a different care area (i.e. if a candidate for thrombolysis and/or EVT).
9. CCU stroke nurse, primary nurse, stroke physician and SA accompany the patient to CT.

a. While in the CT, a patient weight is obtained for correct dosing of the Thrombolytic if appropriate.
b. Stroke physician provides MRT with their contact number (cell, ASCOM, extension).

10. CT head is completed.
    a. The radiologist calls the stroke physician with a verbal interpretation.
    b. If the imaging shows an etiology other than stroke, the CTA may be cancelled.
11. The stroke physician makes the decision regarding administration of the thrombolytic and enters the Stroke Tenecteplase Administration (Phase 2) order set if appropriate.
12. **If ELIGIBLE** for Thrombolysis
    a. The primary nurse will provide TOA to the CCU stroke nurse and return to their home unit.
        i. Document TOA as per patient care standards, in electronic chart.
        ii. The patient's bed on home unit will be released.
    b. CCU stroke nurse checks blood pressure (BP).
        i. If BP within range administer the thrombolytic as per the LH Tenecteplase Monograph.
        ii. If BP out of range treat as ordered and complete CTA.
        iii. CCU nurse repeats BP (if it was out of range prior to CTA).
        iv. If within range administer thrombolytic prior to transfer to CCU.
        v. If remains out of range - transfer to CCU for BP management and thrombolytic administration.
    c. Transfer patient to CCU for monitoring
        i. Intensivist to enter Stroke Tenecteplase Admission (Phase 3) orders.
    d. If patient eligible for EVT in addition to thrombolysis follow steps 13. c-d below.
13. **If NOT ELIGIBLE** for Thrombolysis
    a. Obtain CTA to determine if eligible for EVT.
    b. Primary nurse and SA to transport the patient back to home unit after CTA to await decision on EVT.
    c. Stroke physician to liaise with Stroke EVT Team via CritiCall if appropriate.
        i. If eligible for EVT, transfer as a Life or Limb via CritiCall.
        ii. Primary nurse to complete EVT Transfer Communication Form and fax to receiving facility. A copy will accompany the patient.
    e. Provide patient/family with EVT Patient Handout.
14. If **NOT ELIGIBLE** for Thrombolysis OR EVT, care will resume as per previous orders.

Inpatient Code Stroke Process: Lakeridge Health Ajax Pickering (Appendix B)

1. Follow steps 1 through 9 as outlined above in Inpatient Code Stroke Process: LHO, with the following site considerations
    a. The Critical Care ResponseTeam Nurse is in place of the roles outlined above for CCU Stroke Nurse
    b. LHAP does not have a dedicated Stroke Physician
        i. The Stroke Physician at LHAP is either the MRP or the Medicine on Call Physician.

ii. The Telestroke Neurologist will make decisions related to eligibility for Thrombolysis and or EVT in collaboration with the MRP/Medicine on Call.

c. Following CT and CTA, the patient is transferred to the CCU procedure room where the Telestroke equipment and Ethernet is available

d. The MRP or Medicine on Call Physician will consult with the Telestroke Neurologist to determine the course of treatment

2. **If eligible for Thrombolysis**
   a. Follow step 12-13 as outlined above in Inpatient Code Stroke Process: LHO.
3. **If eligible for EVT**
   a. Follow step 13 as outlined above in Inpatient Code Stroke Process: LHO.
4. **If NOT eligible for EVT** or Thrombolysis
   a. Follow step 14 as outlined above in Inpatient Code Stroke Process: LHO.

Inpatient Code Stroke Process: Lakeridge Health Bowmanville (Appendix C) and Port Perry (Appendix D)

1. Follow steps 1 through 9 as outlined above in Inpatient Code Stroke Process: LHO, with the following site considerations:
   a. **LHB** MRP/Medicine on Call Physician can call the ED physician as needed to perform initial assessment or stabilization while Medicine on Call Physician is on route to the hospital between the hours of 1630 – 0730.
   b. **LHPP –** ED physician responds to inpatient Code Stroke after hours between 1630 – 0800.
   b. Once the code stroke has been announced, the charge nurse or delegate will contact paramedic services to notify of a potential transfer.
   c. Charge nurse will update family or SDM.
   d. The patient care unit will hold the patient's bed until it is confirmed that the patient is a thrombolysis and/or EVT candidate, and is being transferred.

2. **If the patient is eligible for Thrombolysis**
   a. Patient is transferred to CT for CT head and CTA (note – **LHPP** has **no CT or CTA** available between the hours of 2400 – 0800, ED physician to consult with LHO Stroke physician for transfer.
   b. Radiologist will call MRP/Medicine on Call/ED physician with the results of imaging.
      i. If the patient remains eligible for Thrombolysis, the LHO Stroke physician is notified by the MRP/Medicine on Call/ED physician and paramedics are notified to confirm the transfer.
   c. Patient is transported via paramedic services to LHO ED with primary nurse.
      i. Paramedics will notify the LHO ED charge nurse phone when at least 5 minutes from LHO ED.
   d. The LHO ED Charge Nurse (or delegate) will call 611 and Inpatient Stroke Alert with estimated time of arrival is announced overhead.
   e. The Stroke physician will be paged.
   f. The ED stroke nurse will meet the patient and the Stroke physician in the ED.
      i. The Stroke physician will assess the patient for ongoing eligibility for thrombolysis.
      ii. If eligible, patient transferred onto a stretcher and transferred to CCU with the Stroke physician and ED nurse. Stroke physician will enter orders for Stroke Tenecteplase Administration (Phase 2) and provide

intensivist with TOA. If patient's CTA positive for a large vessel occlusion, Stroke physician will consult CritiCall.

3. **If the patient is NOT eligible for Thrombolysis or EVT**
    a. The charge nurse (or delegate) will notify the paramedics that the transfer is cancelled.
    b. Nurse to follow Physician orders.

Inpatient Code Stroke Process: Lakeridge Health Whitby (Appendix E)

1. An LH team member identifies that a patient is demonstrating the onset of new neurological deficits.
    a. If the team member is not a nurse, they immediately notify a nurse.
2. The Primary Nurse will**:**
    a. Determine the patient's last seen well time.
    b. Measure vital signs, neuro vital signs and Glucose Meter Reading (GMR).
    c. Contact the MRP.
        i. If the MRP is on site, the nurse will notify them to come to the clinical area, and assess the patient to determine if the patient requires a transfer to the LHO ED.
        ii. If the MRP is NOT on site, the nurse will notify the MRP and call 911 for immediate transfer to the LHO ED.
3. If 911 was called and the patient is transferred to the LHO ED
    a. Patient will follow the LHO Code Stroke process.
2. If the patient is NOT eligible for Thrombolysis or EVT
    a. The Charge Nurse (or delegate) will notify the paramedics that the transfer is cancelled.
    b. Nurse will follow MRP orders.

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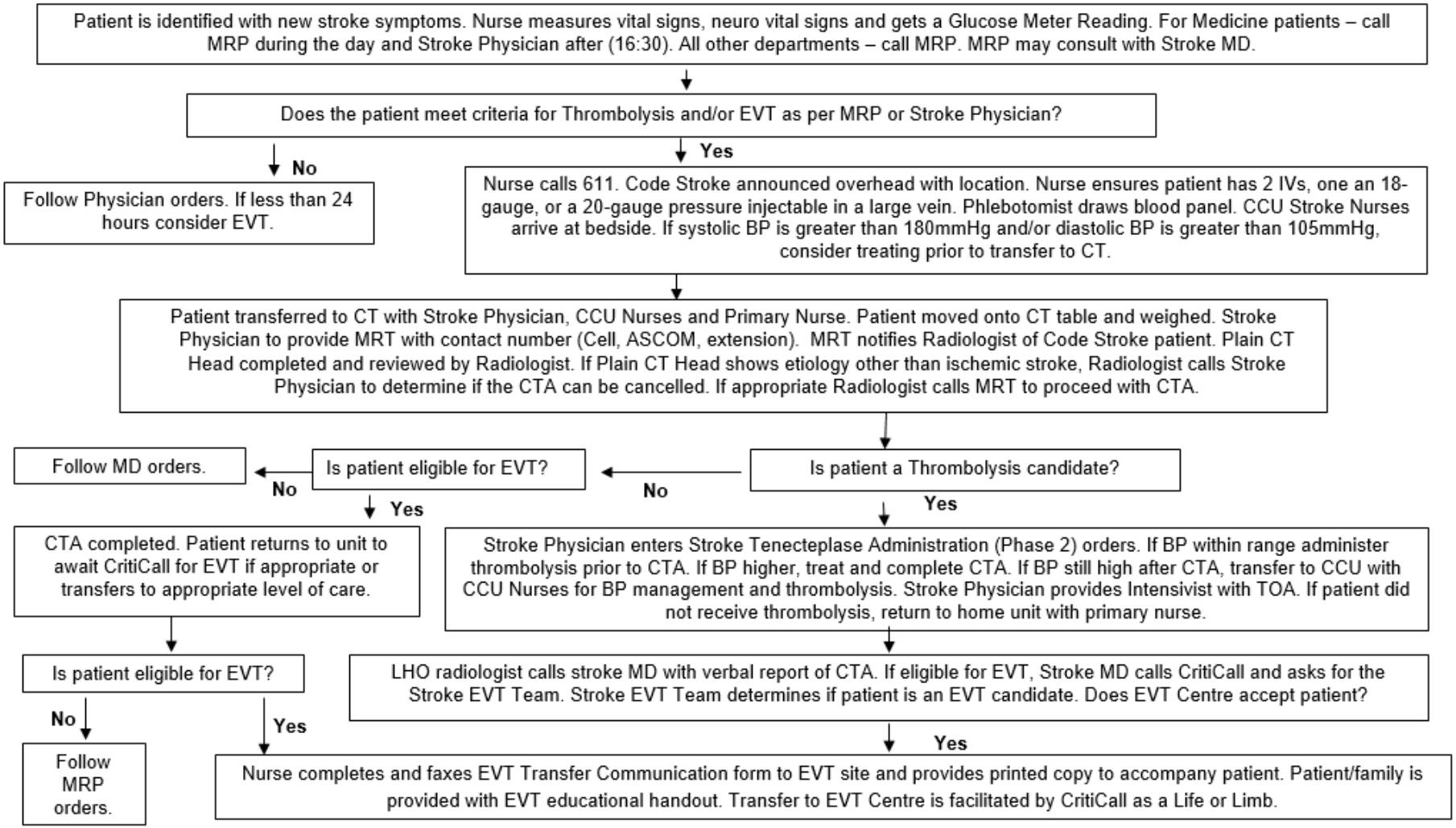
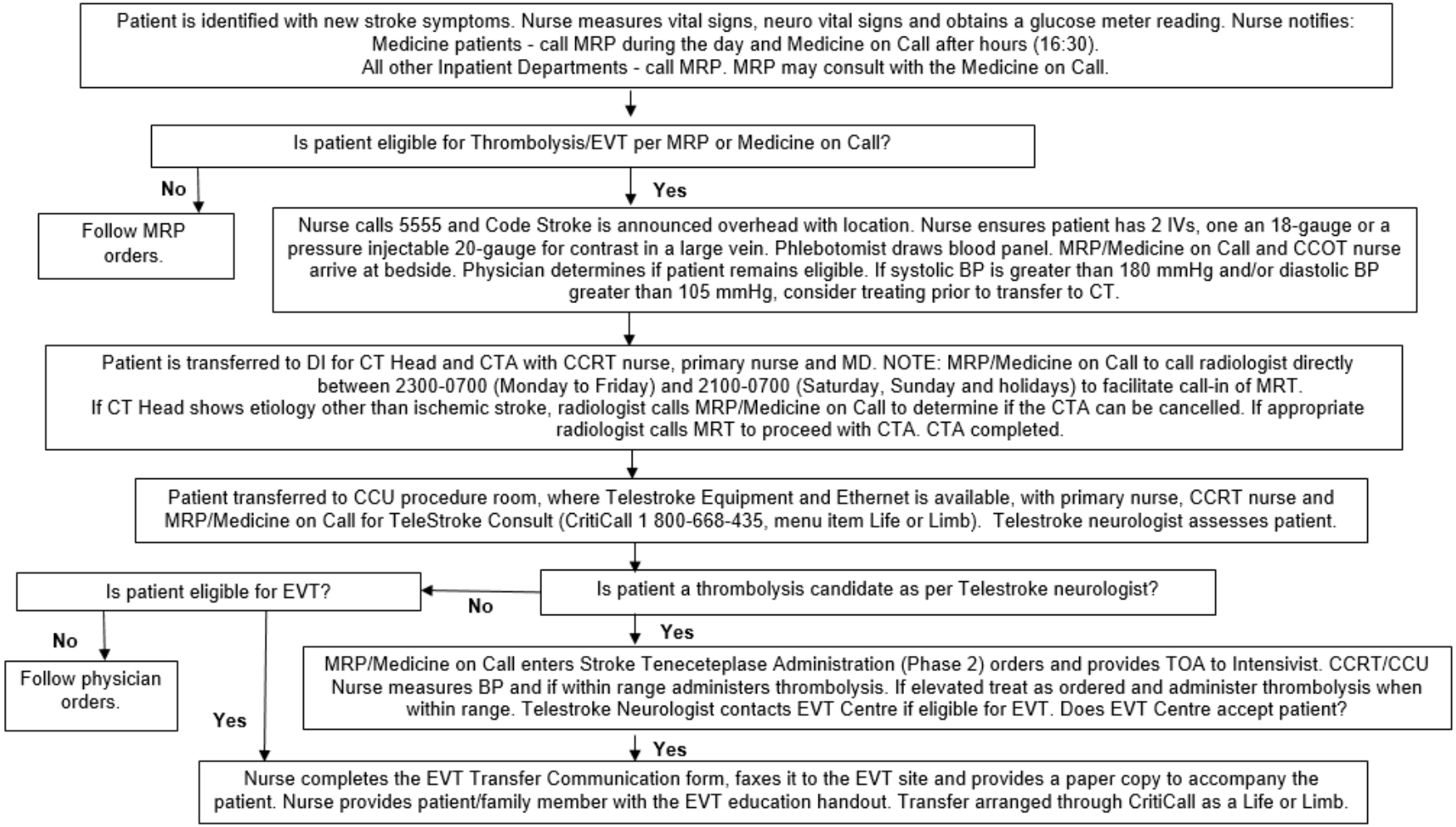
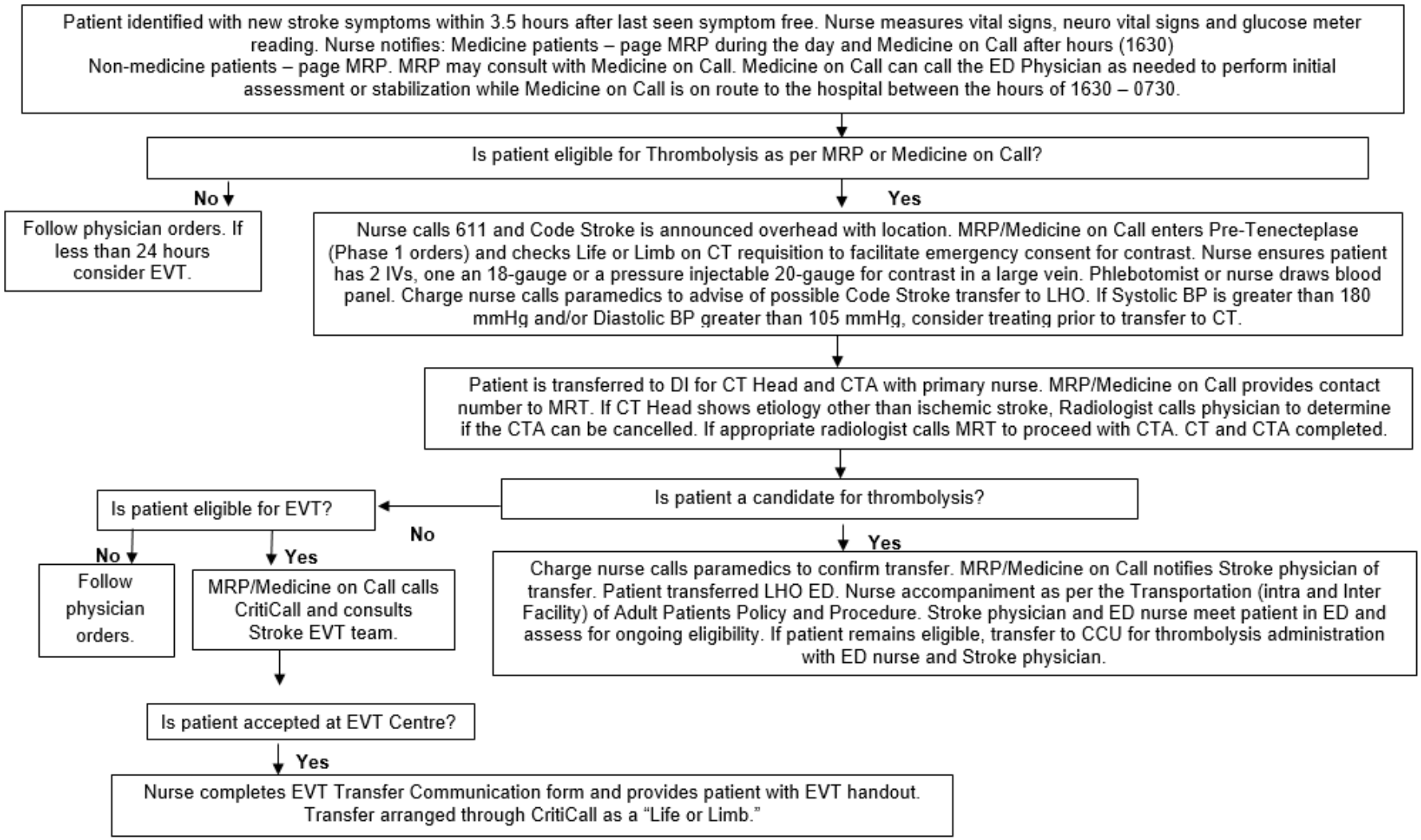
Appendix A: LHO Inpatient Code Stroke Algorithm (last seen symptom free within 4.5 hours)



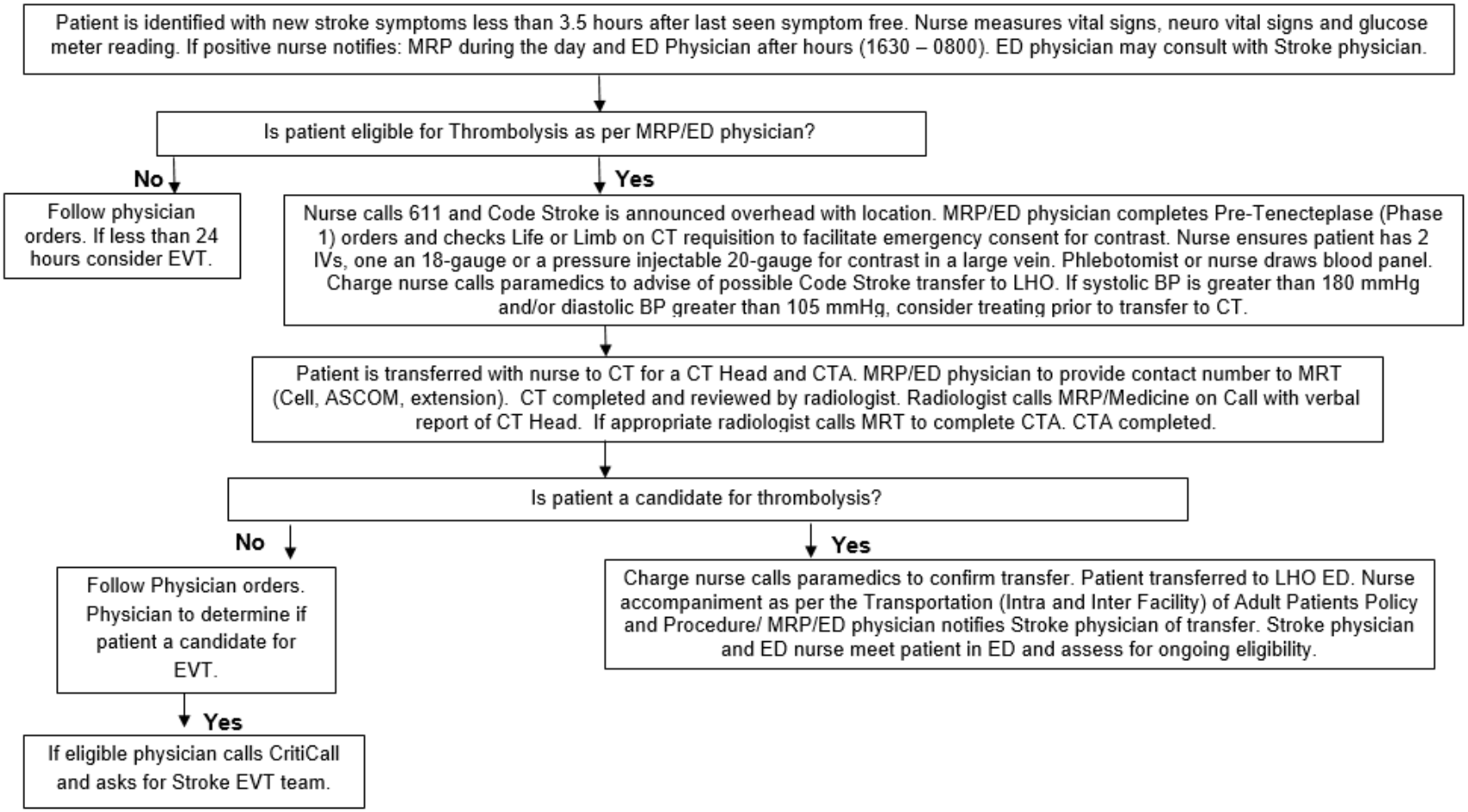
Appendix B: LHAP Inpatient Code Stroke Algorithm (last seen symptom free within 4.5 hours)



Appendix C: LHB Inpatient Code Stroke Algorithm (last seen symptom free within 3.5 hours)



Appendix D: LHPP Inpatient Code Stroke Algorithm (last seen symptom free within 3.5 hours)



Appendix E: LHW Inpatient Code Stroke Algorithm (last seen symptom free within 4.5 hours)