



CKHA PROCEDURE

Title: Code Stroke	Document Number: ADM-2-030
Approved by: Medical Advisory Committee (MAC)	Date Revised: April 28, 2021
Policy Owner: Emergency Program	Date of Origin: May 1, 2019

BACKGROUND

As a District Stroke Center, the Chatham Kent Health Alliance aims to follow the Canadian Stroke Best Practice Guidelines in order to provide comprehensive stroke care to all patients, whether presenting to the emergency department or as an occurrence on an inpatient unit. Up to 17% of strokes occur in patients already hospitalized, but a 2012 Canadian study shows that they wait longer for neuroimaging and thrombolysis than those who have a stroke at home and are brought to the emergency department (Heart and Stroke Foundation of Canada, 2014). The Canadian Medical Protective Association (CMPA) encourages physicians providing both primary care within hospital settings to be familiar with signs of acute stroke onset and to “recognize the *urgency* of thoroughly assessing patients presenting with possible stroke” (CMPA Perspective, 2015). The use of protocols utilizing modified pathways depending on patient location has been shown to improve care and efficiencies.

OUTCOME

All patients who experience sudden, acute onset of stroke like symptoms have access to urgent diagnostics (CT/CTA) with prompt notification of health care providers who have the expertise to provide stroke care that conforms to the Canadian Best Practice Guidelines.

PROCEDURE**Code Stroke – Chatham Emergency Department (EMS Pre-Alert):**

- 1) EMS patches Code Stroke using new mobile phone approach:
 - a. EMS gives patient health cared number, name and date of birth to secretary
 - b. Secretary hands phone to charge nurse who takes down ETA, last known well time, blood sugar, vitals, and focal neurological deficits
- 2) If ETA greater than 15 minutes:
 - a. Announce **WITHIN** the emergency department “Code Stroke, ETA ____ minutes”
 - i. Stat huddle at secretary’s desk
 - ii. Role assignment: 1 MRP, 1 RN for charting, 1 RN for lab/IV, bed assignment, OTN equipment
 - iii. Patient is pre-registered in Cerner and Code Stroke order set is placed by secretary
 - iv. Unit aid places OTN computer in assigned room and weight stretcher at CT
 - v. MRN prints lab labels to have ready for arrival of patient

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- vi. Physician obtains paper copy of NIHSS Short Form for initial assessment with laminated pictures
- 3) **EMS patches again 5 minutes out**
- a. Hospital wide “Code Stroke – ED, ETA 5 minutes” called
 - i. **Note:** this will give DI ~ 10 minutes to clear and prepare CT scanner
- 4) If ETA less than 15 minutes:
- a. Call hospital wide “Code Stroke, ETA _____ minutes”
 - i. Stat huddle at secretary’s desk
 - ii. Role assignment: 1 MRP, 1 RN for charting, 1 RN for lab/IV, bed assignment, OTN equipment
 - iii. Patient is pre-registered in Cerner and Code Stroke order set is placed by secretary
 - iv. Unit aid places OTN computer in assigned room, and weight stretcher at CT
 - v. MRN prints lab labels to have ready for arrival of patient
 - vi. Physician obtains paper copy of NIHSS Short Form for initial assessment with laminated pictures

NOTE: Walk in patients with acute stroke symptoms will be triaged as CTAS 1, placed in appropriate bed space and announced as “Code Stroke Emergency Department – ETA – Now, Bed...”

Patient Arrival

Once the patient arrives in the emergency department:

- 1) The initial patient assessment and care needs are completed by the ED staff. Patient will remain on EMS stretcher.
 - a. Clerk confirms patient identifiers and applies ID bracelet
 - b. MRN begins documentation. Triage as CTAS 1. Vital signs assessed including glucose (may use glucometer result from EMS and retake BP/HR once EMS stretcher has paused in the “Pit Stop”)
 - c. Physician lead takes report from EMS and completes brief, focused neuro assessment
 - d. 2nd RN starts IV and draws lab, labels lab specimens, and ensures IV access includes 18g or 20g in antecubital fossa

NOTE: If the MRP determines that the patient does **NOT** meet criteria for CODE STROKE to proceed, the clerk will promptly call Diagnostic Imaging to cancel CODE STROKE to minimize interruption of DI workflow. The physician or nurse will cancel the order for CT/CTA entered. The MRP will determine urgency of further imaging and follow normal process.

- 2) Response from other services includes:
 - a. Lab technician will proceed to ED to draw blood (if still required) or to transport samples to lab for STAT processing
 - b. MRN brings 2 chart labels to CT scan

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- c. MRN brings monitor from assigned bed to CT scan and switches monitoring equipment once the patient is transferred to CT table
 - d. CT tech ensures the CT scanner is available within 10 minutes of Code Stroke being announced; this includes ensuring the availability of staff with necessary competencies to complete CTA. DI staff communicates any anticipated delay in CT readiness i.e. need to set up Spec CT scanner. Images are pushed to ENITS and NeuroRad is notified once completed for STAT read
 - e. ICU assesses bed status in order to prepare for admission should patient needs/interventions dictate ICU admission
- 3) While patient is in CT scan;
- a. MRP may refer to Telestroke Referral Worksheet while accessing Physician Portal or Clinical Connect to gather past medical history
 - b. Ward clerk contacts CritiCall to set up consult with Telestroke neurologist
 - c. MRP is available to connect with Telestroke Neurologist by phone to discuss preliminary assessment and past medical history. Neurologist may have access to initial CT imaging
 - d. Charge Nurse determines bed assignment (trauma bed preferred) and ensures OTN camera is at bedside and weight stretcher is at CT
 - e. OTN camera will be initiated (warm up takes ~ two (2) minutes)
 - f. Once CT scan completed; patient is moved to weigh capable stretcher, weighed and returned to ED. Paramedics will “standby” (if available) until decision re: transfer for Endovascular Therapy (EVT) is made
- 4) OTN consultation with Telestroke neurologist commences with MRP in attendance to review NIHSS, past medical history and inclusion/exclusion criteria
- 5) Collaborative decision regarding appropriateness of thrombolysis treatment and/or EVT therapy will be made

Disposition of the Patient

- 1) Tissue Plasminogen Activator (tPA) administration indicated/No EVT: Patient will remain in ED for tPA and be admitted to ICU post administration. Handover to ICU physician will follow usual process. Transfer to ICU will not be delayed due to tPA infusion (if bed is available)
- 2) EVT (with tPA): Patient will remain in ED. Telestroke neurologist will arrange transfer to EVT center. Patient will be transferred via local EMS and nurse escort. tPA: IV bolus dose will be administered by ED physician and infusion commenced immediately. tPA infusion and patient response will be monitored by nurse escort while enroute to EVT center
- 3) EVT (without tPA): Patient will remain in ED. Requirement for nurse escort determined by ED physician
- 4) No tPA/No EVT: Appropriate admitting service consulted depending on patient acuity and care requirements
- 5) Ward clerk will fax Billing Information sheet to Telestroke neurologist
- 6) Telestroke Consult Form will be faxed to ED by the Telestroke neurologist and be placed in the patient record

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NOTE: During initial telephone consult, if it is determined that diagnostic imaging does not indicate acute ischemic stroke OR absolute exclusion criteria preclude tPA administration AND there is no indication for EVT therapy; consult may not proceed to OTN examination of patient. In this instance, NO Telestroke consult form will be sent. The ED physician will document rationale for not continuing on to OTN and proceed with appropriate interventions and management.

Code Stroke – Wallaceburg Emergency Department

- 1) If a patient presents with signs and symptoms of a stroke as a “Walk in” (or brought in by personal vehicle); Patient will be triaged as a CTAS 1 (full set of vital signs including glucometer) and brought immediately into department and seen by ED physician
- 2) If Code Stroke suspected; EMS will be notified that emergent transfer of patient to Chatham ED is required
- 3) If time permits; IV (18 or 20 in antecubital fossa) will be started and initial lab will be taken and analyzed on POC equipment. DO NOT DELAY TRANSFER
 - a. If lab taken, label and send specimens to Chatham with patient
- 4) If time permits; 12 lead ECG may be completed. DO NOT DELAY TRANSFER
- 5) Once EMS arrives; patient will be transported to Chatham ED as CTAS 1
 - a. Unstable patient requires nurse escort
 - b. Stable patient; Nurse escort may not be required
 - c. If nurse does not accompany patient; telephone report will be initiated once patient is enroute (DO NOT DELAY TRANSFER) and before patient arrives at Chatham ED. Physician to physician AND nurse to nurse handover will occur
 - d. Patient will be discharged in Launchpoint from Wallaceburg ED
- 6) EMS will continue with usual pre-alert process. CODE STROKE protocol will be implemented
- 7) On arrival to Chatham activate “Pit Stop” model. If Wallaceburg RN accompanied patient handover occurs to Chatham RN in pit stop

NOTE: For patients admitted to Wallaceburg medicine unit assessed with acute stroke-like symptoms, the MRN will notify the MRP STAT and the Wallaceburg ED physician of acute change using SBAR format. Follow above procedure if code stroke suspected

Code Stroke – Inpatient Department (See Appendix A)

To expedite urgent diagnostic imaging required to confirm acute ischemic stroke, a modified “Pit Stop” model will be followed as outlined below:

- 1) If a nurse assesses a patient who meets FAST criteria; MRP of patient will be notified STAT
- 2) SBAR will include:
 - a. Situation: What is the new neurological deficit? When did it start? What time was the last known well (LKW)? Code status
 - b. Background: Baseline level of function prior to admission? Where’s home? Capacity? Complete medication list including prns administered in the last 24hours, especially anticoagulants, heparin and antiplatelets. Recent lab work. History of brain cancer?

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Brain bleed in the last 6 months? Stroke within the last 3 months? Recent falls? **(This can also be viewed within Launchpoint by MD)**

- c. Assessment: Physical exam findings including full set of vitals and blood sugar
- 3) Once report is received, MRP will determine if inpatient Code Stroke is to be activated
- 4) DO NOT call Code Stroke for unstable patients (hypotension, tachy-arrhythmias, altered mental status, etc.). Call CCOT or announce “Code Blue” as appropriate

NOTE: Expectations for physician response time is 15 minutes according to Policy PRO-1-003: Response Time for On-Call and Most Responsible Physician. If the MRP is not available within 15 minutes, the nurse may initiate CODE STROKE, which will include entering Code Stroke Order Set. The nurse will proceed to “Pit Stop” as outlined below. Once at the Pit Stop, the ED physician will assess the patient to determine if continuation of CODE STROKE is appropriate.

- 5) Once “Code Stroke: INPATIENT, Zone ___, Level ___, Rm ___” announced throughout the hospital, response from other services includes:
 - a. MRN stays with patient and assists with assessment and interventions
 - b. If available, CCOT nurse proceeds to patient’s location to assist with assessment and transport to CT
 - c. Inpatient secretary (or charge nurse after hours) calls ED secretary and provides MPI number
 - d. ED secretary places Code Stroke Order Set
 - e. Lab technician proceeds to “Pit Stop” (Zone D, Level One elevator, middle hallway. Lab tech should be prepared to draw specimens or to transport samples obtained by ED nurse to lab for STAT testing
 - f. CT tech ensures the CT scanner is available within 10 minutes of Code Stroke being announced; this includes ensuring the availability of staff with necessary competencies to complete CTA. DI staff will communicate any anticipated delay in CT readiness i.e. need to set up Spec CT scanner. Images will be pushed to ENITS and NeuroRad will be notified once completed for STAT read
 - g. MRN arranges transport of patient (in bed) with appropriate assistance and accompanies patient to CT
 - h. ICU charge nurse prepares for possible transfer to ICU if patient condition warrants transfer to higher level of care
- 6) ED staff (ED physician, ED nurse and Clerk) prepare to meet patient (PIT STOP at “Zone D” elevator in middle hallway)
 - a. ED nurse takes lab cart and WOW to “Pit Stop” area and prints lab labels for specimen collection
 - b. ED physician will complete initial assessment to confirm Code Stroke and complete order and consent for CT/CTA.
 - c. ED nurse will ensure IV access (18g or 20g angiocath in antecubital) and may draw labs if IV started. ED nurse and MRN will accompany patient to CT
 - d. Lab tech will take lab specimens and label
 - e. MRN will stay with patient until final disposition determined
- 7) ED staff will prepare to receive patient post CT scan
 - a. MRP will consult directly with ED physician

- b. ED charge nurse will ensure OTN camera set up (Trauma bed preferred)
 - c. ED ward clerk will advise CritiCall that Telestroke consult requested
- 8) Once CT/CTA scan is completed, patient will be moved to weight capable stretcher and taken to ED for Telestroke consult
 - 9) ED physician will complete NIHSS in consultation with Telestroke neurologist

NOTE: If ED physician determines that the patient's condition does NOT warrant CODE STROKE PROTOCOL to continue, MRN will transfer the patient **immediately** to appropriate **inpatient** area (back to unit or to ICU/PCU if higher level of care needed)

- 1) The ED physician will communicate with MRP (if not at bedside) regarding decision to cancel CODE STROKE PROTOCOL and the MRP will then determine the urgency of further investigations and relay those orders to the MRN
- 2) The MRN will ensure the order for CT/CTA is cancelled

Disposition of the Patient:

- 1) No acute interventions, patient stable – MRP/MRN resumes responsibility and patient **immediately** returns to unit
- 2) Tissue Plasminogen Activator (tPA) administration indicated / No EVT: Patient will remain in ED for tPA and be admitted to ICU post administration. Handover of care by the MRN and MRP to the ICU team will be required. ED physician will communicate with ICU physician regarding findings during NIHSS assessment and other patient care needs i.e. BP management. Transfer to ICU will not be delayed due to tPA infusion. Surge bed to be utilized if needed per the Surge Policy (see link below)
- 3) Patient is NOT a Code Stroke but requires higher level of care – patient will be transferred **immediately** to ICU and handover of care by the MRN and MRP to the ICU team will occur. The ED physician will communicate any additional information to the ICU physician
- 4) EVT (with tPA): Patient will remain in ED. MRN may return to unit. Telestroke neurologist will arrange transfer to LHSC. Nurse escort required to monitor patient during tPA infusion. ICU staff will be assigned to go with patient for transport
- 5) EVT (without tPA): Patient will remain in ED. Requirement for nurse escort is determined by ED physician – ICU staff to go with patient for transport.

DEFINITIONS

Code Stroke – patient who exhibits sudden onset of stroke like symptoms which may include: limb weakness (usually one sided), facial droop, slurred/impaired speech or sudden visual disturbance

CT – Computed Tomography

CTA – Computed Tomography Angiogram

FAST Criteria – Facial droop, Arm weakness (unilateral), Speech difficulties; Time (Last Known Well less than 4.5 hours)

Tissue Plasminogen Activator – thrombolytic medication used for patients who have stroke symptoms. Time from onset of symptoms to medication administration must be less than 4.5 hours

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LINKS

[PTS-3-003: Disagreeing or Concern with Plan of Care](#)

[PTC-3-100: Bed Utilization and Surge Capacity Management Plan](#)

[PRO-1-003: Response Time for On-Call and Most Responsible Physician \(MRP\)](#)

REFERENCES

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APPENDIX A: Inpatient CODE STROKE PROCESS (QUICK REFERENCE)**Situation:** What is the new neurological deficit?

When did it start? What time was Last Known Well (LKW)? Code status?

Background: Baseline level of function prior to admission? Where's home? Capacity? Complete medication list including prns administered in last 24hrs, especially anticoagulants, heparin and antiplatelets. Recent lab work. History of brain cancer? Brain bleed in the last 6 months? Stroke within last 3 months? Recent falls?**Assessment:** Physical exam findings including full set of vitals and blood sugar**Phase 1: New Acute Focal Neurological Deficit?****Complete FAST Assessment.**

- **Stat Inpatient MRN** assessment including history, vitals, blood sugar and GCS
- Is the patient **Unstable**?
 - Acutely altered level of consciousness, tachycardia, chest pain, hypotension or shortness of breath?
 - Stat page CCOT/ICU/MRP and prepare to present SBAR
 - **Do NOT activate Code Stroke for unstable patients**
- Patient **stable**? Stat page MRP/prepare SBAR

Phase 2: Stat MRP Considerations Regarding Activation of Code Stroke Either Over-The-Phone or In-Person:

- Last seen at baseline? <4.5 hrs may be TPA candidate, <6 hrs and select few <24 hrs may be EVT candidates
- Are there major disability neurological deficits? Could this be a stroke mimic?
- Are there 'TPA Exclusions'?
 - If this is an ischemic stroke; given baseline level of function, will quality of life improve as a result of TPA and/or EVT?

Phase 3: Should MRP activate "Inpatient Code Stroke"?**"Acute CVA suspected. May benefit from TPA/EVT."**

- Switchboard activates "Inpatient Code Stroke, *unit*___"
- Inpatient ward clerk (charge nurse after hours) phones the ED secretary and provides MPI for Code Stroke order set entry
- Transport patient STAT to *middle hallway* outside of diagnostic imaging with MRN on stretcher
- Stat MRP to ED Physician consult
- ED secretary enters Code Stroke order set
- ED nurse meets at Pit Stop with lab cart and WOW and prints lab labels for specimen collection
- Lab meets at Pit Stop and prepares to draw labs or take samples to lab

"Acute CVA not suspected OR unlikely to benefit from TPA and/or EVT."

- May still benefit from neuroimaging at the MRP's discretion but "Inpatient Code Stroke" **NOT** called

Phase 4: Upon hospital wide page of "Inpatient Code Stroke, *Unit*___"

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1) ED Code Stroke Team assembles in the *middle hallway* outside of DI:

- 1 ED Physician
- 2 ED RNs and
- ED Secretary
- Lab tech

2) DI clears the CT Scanner**3) The patient is *Pitstopped*:**

- ED physician: assesses acute focal neurological deficits, considers stroke mimics and obtains consent for CT/CTA
- RN#1 draws blood and ensures 2 IVs including one antecubital (18 or 20g). Hands-off blood to waiting lab tech
- RN#2 obtains/documents vitals/blood sugar
- Secretary stands by for “We are GO or NO GO for Code Stroke”

4) If “GO for Code Stroke”:

- Patient, inpatient MRN, and ED RN stat to CT scanner
- Inpatient MRN stays with patient until the patient is dispositioned
- Stat CT/CTA. Images pushed to ENITS. Tech calls NeuroRad (LHSC) for stat read
- ED Secretary calls CritiCall for Stroke Neurologist
- ED Physician has initial conversation with Stroke Neurologist over the phone
- Charge RN clears bed and ensures OTN camera is brought to bedside
- Patient returns from CT on weight stretcher
- EKG stat upon arrival at ED bed
- ED physician:
 - Completes NIHSS tPA exclusion criteria sheet, and consults with Stroke Neurologist via OTN
 - If tPA/no EVT: tPA given and ED Physician immediately consults ICU internist for transfer of care. Inpatient MRN assists with handover to ICU. Utilize ICU Surge bed if needed
 - If EVT only: CritiCall/Stroke Neurologist arranges stat transfer to LHSC. Inpatient MRN is released. Patient will remain in ED. Requirement for nurse escort is determined by ED physician – if required, ICU staff to go with patient for transport
 - If tPA and EVT: Patient will remain in ED. MRN may return to unit. Telestroke neurologist will arrange transfer to LHSC. Nurse escort **required** to monitor patient during tPA infusion. ICU staff to go with patient for transport
 - If no tPA / no EVT: ED physician calls inpatient MRP and advises not candidate for tPA/EVT. Inpatient MRP/MRN **immediately** resumes responsibility for the patient and the patient immediately transfers back to inpatient unit for further management at the MRP’s discretion

5) If “NO GO for Code Stroke”:

- a. Patient is **immediately** transferred back to home unit with MRN
- b. “CODE STROKE CANCELLED” is called to ‘5555’ by ED Secretary
- c. ED nurse/physician ensures CT/CTA is cancelled
- d. ED Physician calls inpatient MRP with reason for NOT activating Code Stroke. Further imaging/management is at inpatient MRP’s discretion.