Draft KGH Roles and Responsibilities Chart: Stroke Activation and Administration of rt-PA Protocol, Endovascular Thrombectomy (EVT), rt-PA+EVT Pilot

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Function	Components	Responsible person
Communication re: activation of Acute Stroke Protocol	• Pre-hospital pre-notification: Communicate with Regional Stroke Center ED. Upon scene departure, advise KGH that stroke protocol is en route and estimated time of arrival • Additional updates to ED while en route to include establishment of IVs	Paramedic
	• Call or delegate a KGH staff member to call switchboard to alert stroke team: stroke protocol - XX minutes out	ED Charge Nurse
	• Initiate stroke protocol call • Call KGH staff listed in Appendix A • Ensure that all members on the stroke team are aware that patient is on the way to the ED, and estimated time of arrival	Switchboard
Patient Registration	• Register patient as soon as patient arrives in ED	ED Registration Clerk
Initial ED evaluation including medical screening by ED physician or Neurologist	• Ambulance triage in ED • If patient walks into ED, perform rapid triage with recognition of stroke symptoms • Ask ED Registration Clerk to register patient if not already done • Notify CT of patient's arrival in ED • Upon patient arrival at central desk near Section A- o Paramedic reports last seen well, symptoms, medical conditions and medications if available, vital signs and glucometer reading o ED physician or Neurologist delegates KGH staff member to notify CT of patient's arrival in ED o ED physician or Neurologist does an immediate medical screen to ascertain if patient is indeed a potential stroke client and needs stroke team activation. Decision is made re whether to cancel the stroke activation. This decision is made with "time is brain" in mind	Triage-trained Nurse ED Charge Nurse Paramedic Attending ED physician or Neurologist-first to arrive
Stroke call cancellation if needed	• After arrival in the ED and ED physician or Neurologist has done initial screen, if stroke activation is to be cancelled, notify or delegate a KGH staff member to call switchboard • Switchboard repeats calls to those listed in Appendix A and notes "stroke protocol cancelled"	ED Charge Nurse Switchboard
CT Readiness	• Ensure that patient is "next on scan", and that CT scan is ready for stroke patient within 10 min of arrival to ED	CT technologist
Repatriation planning	• If the attending physician suspects that the patient may not be a rt-PA +/EVT candidate, and will qualify for repatriation back to a bypassed community hospital ED, dispatch will be immediately contacted to request that the EMS crew be held up to the regulated timeframe, while the decision is made as to rt-PA +/-EVT candidacy, medical stability and medical diagnosis	ED physician and/or Neurologist
Bed planning	• Maintain communication within ED re: patient status and rt-PA +/-EVT candidacy • Bed planning is initiated to prepare for assigning D4ICU bed if IV rt-PA	ED Charge Nurse D4ICU Charge Nurse

Medical assessment and clinical decision making	• Initial patient assessment and emergency medical management of stroke patient until attending neurologist arrives in the ED. Initial assessment re: candidacy for rt-PA administration +/-EVT until attending neurologist arrives in the ED • During the night, Junior PGYI should contact more senior internal medicine PGY2 on call in ED, until attending neurologist arrives on site • Responsibility to oversee neurology house staff until attending neurologist arrives on site • Completion of NIH Stroke Scale (found in stroke package)	Attending ED physician Attending ED physician Neurology House staff under the supervision of Attending Neurologist
Preparation of patient before CT	• Print blood labels • 2 peripheral IVs - (1 IV with 18 gauge needle in Rt. ACF is preferred- if unable, use 20 Gauge; must be above the hand) • Blood work sent to lab via tube system using Acute Stroke Protocol package yellow labeled blood tubes. Attending physician directs nurse to draw bloodwork before or after CT. Waiting for blood work results is not mandatory to make decision for rt-PA +/-EVT • Patient to remain on EMS stretcher until CT • Switch paramedic's monitor to portable wheeled ED monitor, check leads are moved away from center chest area • Follow patient to CT scan with ED stretcher • Ensure jewelry, dentures, and hearing aids are removed from patient	ED Staff Nurse assigned to stroke patient
POC INR	• When possible, obtain INR using Point-of-Care (POC) device during preparation of patient. Quality assurance check to be done q 24 h	Attending Neurologist or Stroke Specialist/Case Manager
Lab Blood Work	• Lab processes blood work stat and informs ED of results ASAP	Lab
Patient Transport to CT and back to ED	• Patient to remain on EMS stretcher until CT • Transport of patient to CT and care for patient during CT • Transport patient back to ED • Before paramedics leave, report is given to ED Nurse, if not previously given to ED Nurse	ED Staff Nurse assigned to stroke patient
Consent processes	• Patent and family education is ongoing throughout to prepare for consent	Attending Neurologist
Consent for CT+/-CTA	• Verbal consent is obtained for IV contrast for CTA if this is to be used, and is documented in the chart. If verbal consent cannot be obtained, emergency consent procedures are followed and documented	CT technologist
Medical Management & Decision making & Communication re administration of rt-PA+/-EVT	• The attending Neurologist will view the CT scan +/-CTA with multiphase CTA with Neuroradiology • Notify ED if candidate for rt-PA and if potential candidate for EVT • The Neurologist will use the ESCAPE trial model to determine if patient is candidate for EVT. If the neurologist deems the patient is a candidate for administration of rt-PA +/-EVT, then the patient will be transferred to the Neurology service • If the patient is a candidate for EVT, notify Interventional Radiologist • D4ICU nurse in charge will be notified of the decision re tPA OR	Attending Neurologist If IV rt-PA alone-ED Charge nurse assigned to patient notifies

	K2ICU will be notified if a candidate for EVT +/-tPA in order to prepare for a bed • Medical management and clinical decision-making surrounding initial and any additional radiological imaging performed. (i.e., CT Perfusion, MRI, MRA, Angiography). Interpretation of imaging. Decisions re indications for pursuing additional diagnostic imaging. This is done keeping "time is brain" in mind. • Accountability regarding clinical interpretation of diagnostic imaging and decision regarding treatment choice re: administration of IV or IA rt-PA, or EVT. Decision based on inclusion/exclusion criteria for IV tPA +/-EVT	D4ICU. If EVT+/-rt-PA case, Neurologist notifies K2ICU Intensivist. Kidd 2 Intensivist notifies K2ICU charge RN (Stroke Specialist/Case Manager will verify that Kidd 2 Charge RN is aware). Attending Neurologist jointly with Neuroradiologist, (and Interventional Radiologist where appropriate) For IA rt-PA the Attending Neurologist will complete the Indications Section of the IA rt-PA Check List
For patients who are not candidates for rt-PA administration +/-EVT: admission or repatriation from ED	If the patient's clinical situation is not appropriate for administration of rt-PA +/-EVT, then the patient may: • A) be transferred to neurosurgery • B) be admitted via neurology to KGH acute stroke unit – using order sets for those **not** receiving tPA (in stroke package) • C) remain under the care of the ED physician while arrangements are made for the patient to be repatriated back to the local bypassed emergency. • In the case of C) ED to ED repatriation • Dispatch must be immediately notified regarding the repatriation transport needs of the patient. • The criteria for repatriation from KGH ED back to the bypassed ED site are: ▪ Established medical diagnosis ▪ Patient no longer needs tertiary care ▪ Investigations that are NOT available at the local facility are complete ▪ Communication has occurred with the patient/family/significant other • **Reminder**! D4ICU charge nurse should be notified if a D4ICU bed is not needed for the patient	Attending Neurosurgery Attending Neurologist Attending ED Physician ED Charge Nurse
Consultation in the case of IA rt-PA	• Provide timely consultation re: interpretation of radiological imaging and treatment recommendations associated with same • Determination of need for anesthesiology attendance, consultation or notification • Provide timely consultation on the need for anesthesia or basal sedation when requested by attending neurologist	Neuroradiologist; if not on duty rota or in department, to be called by on call Radiologist Attending Neurologist in consultation with Interventional Radiologist

		Anesthesiologist on call
Obtain consent for IV rt-PA	• NOTE: this process begins PRIOR to CT to prepare for timely decision post CT • Patient or substitute decision-maker is provided appropriate and specific information regarding the risks and benefits of the planned procedure, and sufficient time is given to patient/family to give an informed consent • For IV rt-PA administration +/-EVT verbal consent is obtained from patient or substitute decision maker	Attending Neurologist
EVT +/- IV rt-PA or IA rt-PA consent	• For EVT +/-IV rt-PA or IA rt-PA administration written consent is obtained from patient or substitute decision maker using the appropriate radiology consent form • Part A: Explained to patient and consent obtained by Neurologist • Part B: Explained to patient and consent obtained by Interventional Radiologist	Attending Neurologist and Interventional Radiologist
IV rt-PA or EVT +/-IV rt-PA or IA rt-PA if unable to consent	• If patient is unable to consent, and there is no substitute decision-maker at KGH, a verbal consent over the telephone may be obtained from a substitute decision-maker • In a case where the patient is unable to give consent, and a substitute decision-maker cannot be contacted, the Neurologist and Interventional Radiologist for IA rt-PA for EVT is responsible for making the decision to treat the patient based on clinical judgment • The rationale for the treatment decision and reasons why consent could not be obtained must be documented • Fill in and sign Emergency Consent Form	Attending Neurologist Neurologist and Interventional Radiologist IA rt-PA
Consent withdrawal	• Responsibility to assess and communicate with patient or substitute decision-maker in circumstances where consent is withdrawn during the rt-PA administration +/-EVT • Clinical reassessment as part of ongoing monitoring and confirmation of consent • Assess competency to provide consent	Attending Neurologist (for IV rt-PA) Attending Neurologist and Interventional radiologist (for IA rt-PA or EVT)
If IV rt-PA is administered without EVT		
Administration of rt-PA in ED	• Contact ED if patient is to receive IV rt-PA to direct ED to prepare for IV rt-PA • Write order for IV rt-PA in the chart • Administer bolus dose of r-tPA, begin infusion with assistance of assigned ED Nurse	Attending Neurologist Neurology House staff under the supervision of Attending Neurologist
Patient assessment & monitoring during and following rt-PA infusion (IV and IA)	• Follow Acute Ischemic Stroke CCP re IV-rt-PA • IV rt-PA infusion • CNS Scale & VS q 15 min, follow CCP • Assess patient's airway, comfort, and level of consciousness, sedation, and agitation • Continuous SpO2 & cardiac monitoring • Monitor for angioedema & bleeding • Keep patient NPO • Change patient into hospital gown	Staff Nurse assigned to stroke patient

	• ECG post initiation of IV rt-PA infusion	
Patient transfer to D4ICU bed	• Stroke rt-PA admission orders are completed (order set found in stroke packages) • Communicate with D4ICU Charge Nurse re: bed planning; stroke patients' readiness for transfer • Monitor in accordance with the Acute Ischemic Stroke CCP while awaiting transfer to unit	Attending Neurologist ED Charge Nurse
If EVT with or without IV rt-PA		
Clinical decision re EVT	• Notify ED if potential EVT candidate prior to IV rt-PA bolus • Decision to proceed with EVT after multiphase CTA is interpreted	Attending Neurologist Joint decision by Attending Neurologist and Interventional Radiologist
Communication	• Notify IR Technologist and IR Charge Nurse of EVT candidate, and when • Communicate to IR staff regarding triaging priorities for service in the IR Suite • Notify family-inform family to wait in IVR Waiting Room • Notify ED IVR suite is ready • Notify K2ICU Charge RN that patient is in IVR (in addition to when previously informed by the K2ICU Intensivist via the Neurologist when EVT decision was first made)	Interventional Radiologist IR Charge Nurse
Patient to receive IV rt-PA	• See above for IV rt-PA • While patient receives IV rt-PA in ED, prepare IVR Suite	See above for IV rt-PA IR Technologist & IR Nurse
Prepare patient for EVT procedure	• Ensure patient is in hospital gown with no underwear • If potential candidate for EVT, insert foley catheter (if patient is to receive rt-PA, insert foley catheter **prior to IV rt-PA** • Ensure 2 working IVs • Transport patient to IR when IVR suite is ready • Prepare patient for procedure including- o Place patient on continuous SpO2 & cardiac monitoring o Shave prep both groins-only if absolutely necessary • Complete procedural radiology-Part B consent • Administer conscious procedural sedation & follow Procedural Sedation policy& IVR Procedure Order Set	ED Staff Nurse IR Staff Nurse assigned to patient Interventional Radiologist IR staff nurse assigned to patient
Monitor patient during procedure	• Follow standard IVR care processes including: o Continuous SpO2 & Cardiac monitoring o BP monitoring o Assess patient's airway, comfort, and level of consciousness, sedation, and agitation • Monitor for andgioedema & bleeding • Keep patient NPO	Interventional Radiologist IR technicians IR nurses
Medical management of patient in IVR suite	• As a general principle, patients undergoing procedures are under the immediate care of the procedural physician although that physician may seek consultative support from the referring and other physicians • Decision making regarding modifying/aborting planned EVT procedure	Interventional Radiologists with consultation as required with the Attending Neurologist
Anesthesiology	• For pilot EVT cases, patients that require intubation and mechanical ventilation will NOT be candidates for EVT	Neurologist

Medical Management of Sedation	• Ordering sedation and analgesia as required-as per IVR Procedure Order Set (Adult) • When no Anesthesiologist is present the medical management of a patient who develops complications in IVR suite, including consultation of other medical services (i.e. Anesthesiology) is initiated by Interventional Radiologist in consultation with the Neurologist • If there is a concern about the patient's airway or LOC in the IVR suite, a code 99 for Anesthesiology is to be called	Neurologist with Interventional Radiologist
Femoral Sheath Removal	• Check ACT & remove sheath per IVR Femoral Arterial Sheath Removal Nursing Policy & Procedure & Arterial Sheath Removal Order Set • Apply bandage to puncture site • If Angio-Seal is not applied post procedure and femoral sheath remains in situ-complete femoral sheath removal order set. IVR nurse removes femoral sheath where the patient is located (i.e., K2 ICU) per arterial sheath removal orders.	IR Nurse Interventional Radiologist IR Nurse
For Cases Where EVT is Aborted	• In the case that EVT is aborted, patient to return to ED (Exception: Femoral Sheath in situ) while bed location is determined • Notify ED prior to transport back to ED	Interventional Radiologist with Attending Neurologist
Notify D4ICU that bed is not needed	• Notify D4ICU that bed is not needed.	Kidd 2 Charge Nurse notifies Admitting. Admitting notifies D4ICU
Transfer patient to K2 ICU	• Notify K2 ICU Charge nurse when procedure is completed. • Kidd 2 nurse and Intensivist arrive in IVR to receive handover report from IVR staff and transfer patient with Neurologist to Kidd 2 ICU • IR nurse returns ED portable monitor to ED • Neurologist gives report once patient has been transferred to Kidd 2 ICU	IR Charge Nurse Attending Neurologist
If IA rt-PA is Administered		
IR suite triaging	• In cases of more than one patient requiring emergent IR procedures in the IR suite, a clinical decision and plan regarding most appropriate triage care must be executed in consultation with all attending physicians responsible for care of all patients requiring emergent IR procedures	Daily Operations Team for IR suite, on the principle that IA rtPA in appropriate stroke patients is an A Emergency
Clinical decision re: IA rt-PA treatment	• Decision to proceed with IA rt-PA administration	Joint decision by Attending Neurologist and Interventional radiologist
Communication	• Notify IR technologist and IR nurses that IA rt-PA will be administered, and when • Communication to IR staff and triaging regarding priorities for service in the IR Suite. • Hospital plan for IR nursing coverage will be followed	Interventional radiologist
Prioritization in IR suite	• Prioritizes interventional radiology cases based on clinical indications	Daily Operations Team in IR Suite

	• Directs resources within the IR suite according to patient load, urgency, complexity, and hospital policies	
Consultation of anesthesia	• Attending Neurologist will assess the need for anesthesia prior to the procedure in consultation with the interventional radiologist. For all IA cases, anesthesia will be notified and consulted	Attending neurologist notifies and consults Anesthesology
Angiogram &Admin of IA rtPA	• Catheter placement and injection of IA rt-PA	Interventional Radiologist
Medical management of patient in IR suite	• As a general principle patients undergoing procedures are under the immediate care of the procedural physician although that physician may seek consultative support from the referring and other physicians • Initial clinical decision making re IA procedure after completion of initial arteriogram and placement of catheter • After initial decision to proceed the neurologist should remain able to be immediately contacted by phone and be able to attend within 15 minutes. • Ordering sedation and analgesia as required ▪ If an anesthesiologist is present patient monitoring, sedation and analgesia will be the responsibility of the anesthesiologist • When no anesthesiologist is present the medical management of a patient who develops complications in IR suite, including consultation of other medical services (i.e. anesthesia) is initiated by Interventional radiologist in consultation with the neurologist • Decision making regarding modifying/aborting planned IR procedure	Interventional Radiologists (IR) with consultation as required from the neurologist. Attending Neurologist in consultation with IR Attending neurologist IR in consultation with anesthesia Anesthesiologist IR in consultation with the neurologist IR in conjunction with Attending Neurologist
Patient assessment and care during stay in IR suite	• Patient assessment, monitoring and care during stay in IR suite when anesthesiologist present • Patient assessment, monitoring and care during stay in IR suite when no anesthesiologist present	Anesthesiologist IR in conjunction with Attending Neurologist
	• CNS Scale q 15 min, follow CCP • Assess patient's airway, comfort, and level of consciousness, sedation, and agitation. • Follow monitoring for conscious sedation protocol if applicable • Report changes in patient status and problems to interventional radiologist and attending neurologist • Follow KGH policies and procedures to maintain patient safety • Communicate patient concerns or expression of withdrawal of consent to Interventional Radiologist and Attending Neurologist	Staff Nurse assigned to stroke patient
Emergency airway management and administration of anesthetic	• If anesthesia clearly required, provide anesthesia services in the IR suite on an A Emergency basis which may require the attendance of the second on call anesthesiologist. • If requested by the attending neurologist provide timely consultation in the understanding that such cases represent an A emergency (circumstances may demand the second on call for such consultations).	Anesthesiologist on call Anesthesiologist on call

	• If the patient's condition changes during the procedure so that the airway is compromised the interventional radiologist with the assistance of the neurologist or IR nurse will contact the anesthesiologist on call, who has been previously informed of the procedure. If necessary a code 99 may be called	Interventional Radiologist or Neurologist calls the Anesthesiologist on call
Patient requiring ICU care	• Contact ICU service physician re: bed and make arrangement to transfer patient to ICU bed if clinically indicated	Attending Neurologist
Patient transfer to bed	• Communicate with nurse in charge from receiving unit re: bed being ready and stroke patients' readiness for transfer. • Monitor in accordance with the Acute Ischemic Stroke CCP while awaiting transfer to unit.	IR Staff Nurse
Protocol Coordination		
Protocol Coordination Functions	• Facilitate stroke protocol as it relates to external bodies (ambulance services, base hospital, central ambulance communication center, paramedics, other hospitals)	Regional Director & Regional Stroke Best Practice Coordinator, Stroke Network of Southeastern Ontario
	• Facilitate the stroke protocol internally	Stroke Specialist Case Manager and Stroke Neurologist

Appendix A

Acute Stroke Protocol Team Activation by Switchboard

DAYS:

Staff Neurologist on Call Neurology Fellow
Dr. Al Jin
Dr. Gord Boyd
Neuroradiologist
PGY2 (or PGY1 if PGY2 is post call)
ED Charge Nurse
ED Registration Clerk
D4ICU Charge Nurse
Stroke Specialist Case Manager (page)
CT technologist
Admitting
Core Lab
Regional Director, Stroke Network of Southeastern Ontario (leave message)

After hours, weekends, and holidays:

Staff Neurologist on Call
Dr. Al Jin
Dr. Gord Boyd
Neurology Fellow (if on call)
Radiology resident on call
ED Charge Nurse
ED Registration Clerk
D4ICU Charge Nurse
Administrative Coordinator
CT technologist (on call)
Admitting
Core Lab
Stroke Specialist Case Manager (leave message)
Regional Director, Stroke Network of Southeastern Ontario (leave message)

When all have confirmed, call ED and report, "all have confirmed".