

Advanced Comprehensive Stroke Center Receiving Center

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Financial disclosures

No financial disclosures

Call to CSC

- BAT telephone 913-588-3727 or transfer center and ask for stroke neurology.
- Call for
 - Guidance on if Alteplase is appropriate
 - Potential transfer for endovascular therapy
 - Other emergent stroke questions (stroke in the young, dissection, complex patients etc.)

Key info

- Name of Patient
- Age
- Sex
- **NIHSS and what deficits are**
- **Time of Onset**
- **Last known well**
- **Wake Up Stroke/Time indeterminate**
- **CT scan results**
- **Baseline function/mRs**
- Meds/PMH/recent surgeries/allergies
- Phone number of family

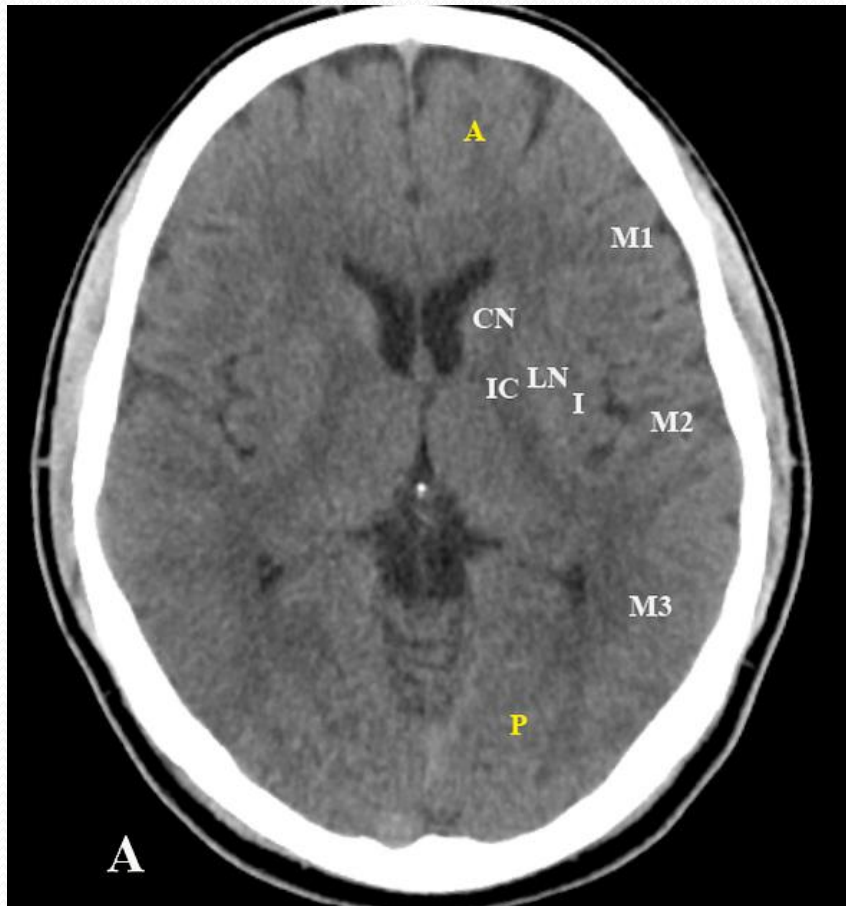
American Heart and Stroke Association Guidelines

Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria (*Class I; Level of Evidence A*). (New recommendation):

- a. Prestroke mRS score 0 to 1,
- b. Acute ischemic stroke receiving intravenous r-tPA within 4.5 hours of onset according to guidelines from professional medical societies,
- c. Causative occlusion of the ICA or proximal MCA (M₁),
- d. Age ≥ 18 years,
- e. NIHSS score of ≥ 6 ,
- f. ASPECTS of ≥ 6 , and
- g. Treatment can be initiated (groin puncture) within 6 hours of symptom onset

Stroke. 2015.

ASPECTS SCORE



- The **Alberta stroke progame early CT score (ASPECTS)** ¹ is a 10-point quantitative topographic CT scan score used in patients with **middle cerebral artery (MCA) stroke**. Segmental assessment of the MCA vascular territory is made and 1 point is deducted from the initial score of 10 for every region involved:
- **caudate**
- **putamen**
- **internal capsule**
- **insular cortex**
- M1: "anterior MCA cortex," corresponding to frontal operculum
- M2: "MCA cortex lateral to insular ribbon" corresponding to anterior temporal lobe
- M3: "posterior MCA cortex" corresponding to posterior temporal lobe
- M4: "anterior MCA territory immediately superior to M1"
- M5: "lateral MCA territory immediately superior to M2"
- M6: "posterior MCA territory immediately superior to M3"

Key points for Primary Stroke Centers (PSC)/Stroke Ready Hospitals (SRH)

- Call CSC early. Call transport early.
- Advanced imaging (CTA/CTP) not necessary.
 - Do not delay transfer to get this.
- Can base need for transfer on CT scan and NIHSS.
- Don't wait for bed assignment. We will have a bed.
- Don't delay transfer with copy records or disc.

Important items for transfer

- Transfer order set if patient received Alteplase
- IVF
- 2 IV's. One large bore in AC

After you get off the phone with CSC

- We alert: transfer center (they call back and get face sheet, help with bed assignment), interventional radiology team, neuro-icu/stroke team nurse, neurology resident, CT scanner with ETA (hold table), ED coordinator (page stroke team when ground or flight crew calls in)
- Stroke team meets patient at ambulance bay or on roof and takes them to CT scanner.
- CTA/CTP and immediate radiology read.
- IR or ICU.

Goal times



- Door-to-needle 45 minutes
- Door-to-departure (arrival at facility to transfer out)
 - With tpa: 90 minutes
 - Without tpa: 60 minutes
- Onset of symptoms to endovascular treatment:
 - AHA/ASA Guidelines: 6 hours
 - DAWN: onset to 24 hours
 - Off label: wake up and unknown time of onset based on imaging

Pitfalls

- Delay in recognition of stroke
- Not treating due to low NIHSS or resolving/fluctuating
- Delay in call to CSC
- Delay in call for transport
- Advanced imaging at PSC that takes too long
- Prolonged door-in-door-out

Partnership

- CSC provides education
- CSC should be helpful when people call
- CSC should provide timely feedback reports to sending hospitals
- Sending facility should give feedback to CSC
- Sending facility should optimize door-to-needle and door-to-departure
- CSC should optimize door-to-skin puncture

Partnership

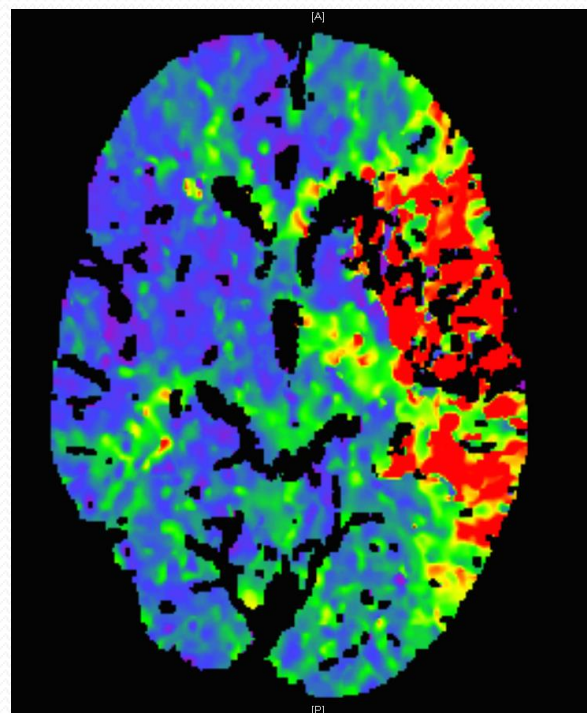
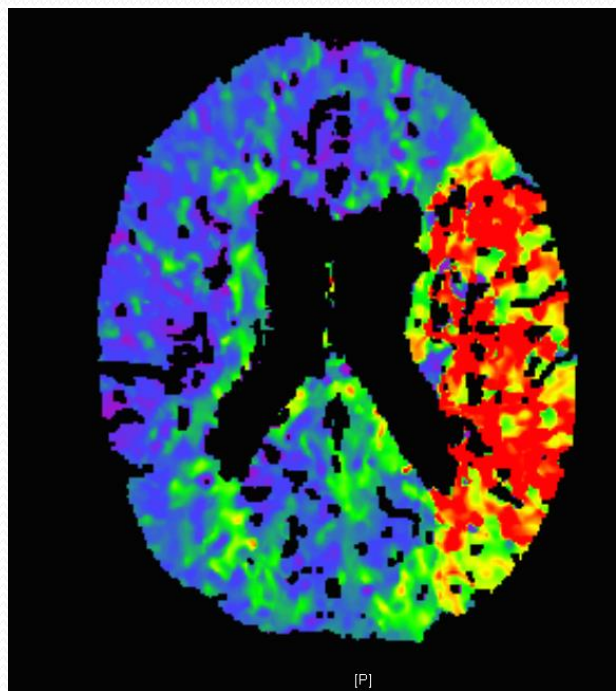
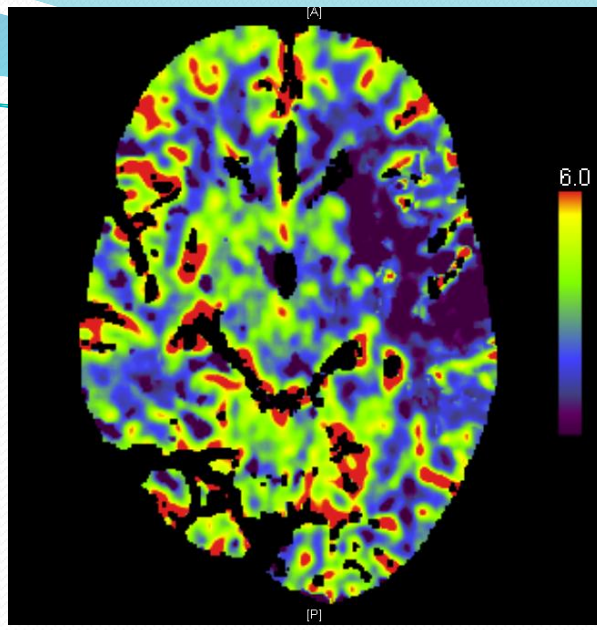
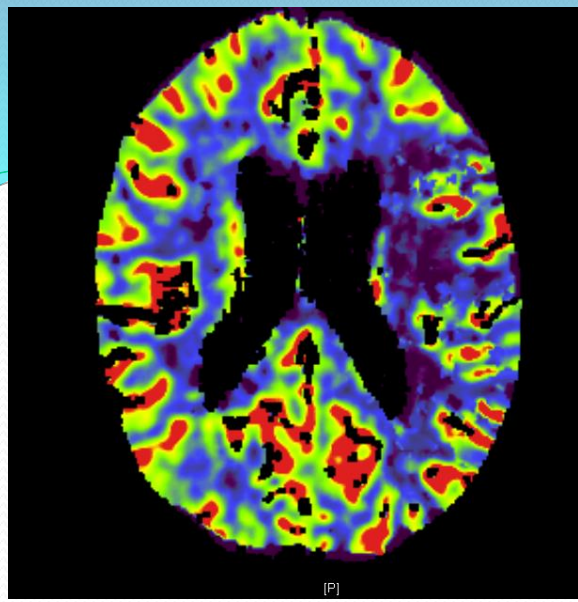
- Partnership between PSC/SRH and CSC can ensure that patients can be treated appropriately for acute ischemic stroke from large vessel occlusion.
- Partnership can ensure that patients stay at PSC/SRH if they don't need to be transferred.

Case

- Called by Dr. Trent at LMH.
 - Male with symptom LKN 8:40 am. Wife heard fall in bathroom at 8:47 am.
 - Brought to LMH by EMS.
 - Right sided hemiparesis, aphasia, right facial droop. NIHSS 20.
 - He received IV tpa at 9:30 am.
 - CTA that showed left ICA occlusion. CTP small area of core infarct but significant area of penumbra.
 - He was transferred to KU via helicopter.

Prior to patient arrival

- Transfer center (they call back and get face sheet, help with bed assignment)
- Interventional radiology team
- Neuro-icu/stroke team nurse and neurology resident
- CT scanner with ETA (hold table), ED coordinator (page stroke team when ground or flight crew calls in)





CSC

- Pre notified by flight crew so stroke team met him on the roof.
- NIHSS at KU was 12.
- He went directly to IR and 15 minutes later had skin puncture.

Key points

- Key patient info was quickly relayed by LMH
- No delays in IV tpa or advanced imaging at LMH
- Called CSC early, called transport early
- CSC was prepared for patients arrival