



QUICR LS3: Rapid Imaging at PSCs for Thrombolysis

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Faculty/Presenter Disclosure

[Thomas Jeerakathil]

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Consulting Fees: N/A

Other: N/A

Objectives

- To discuss options and processes for rapid imaging in primary stroke centres

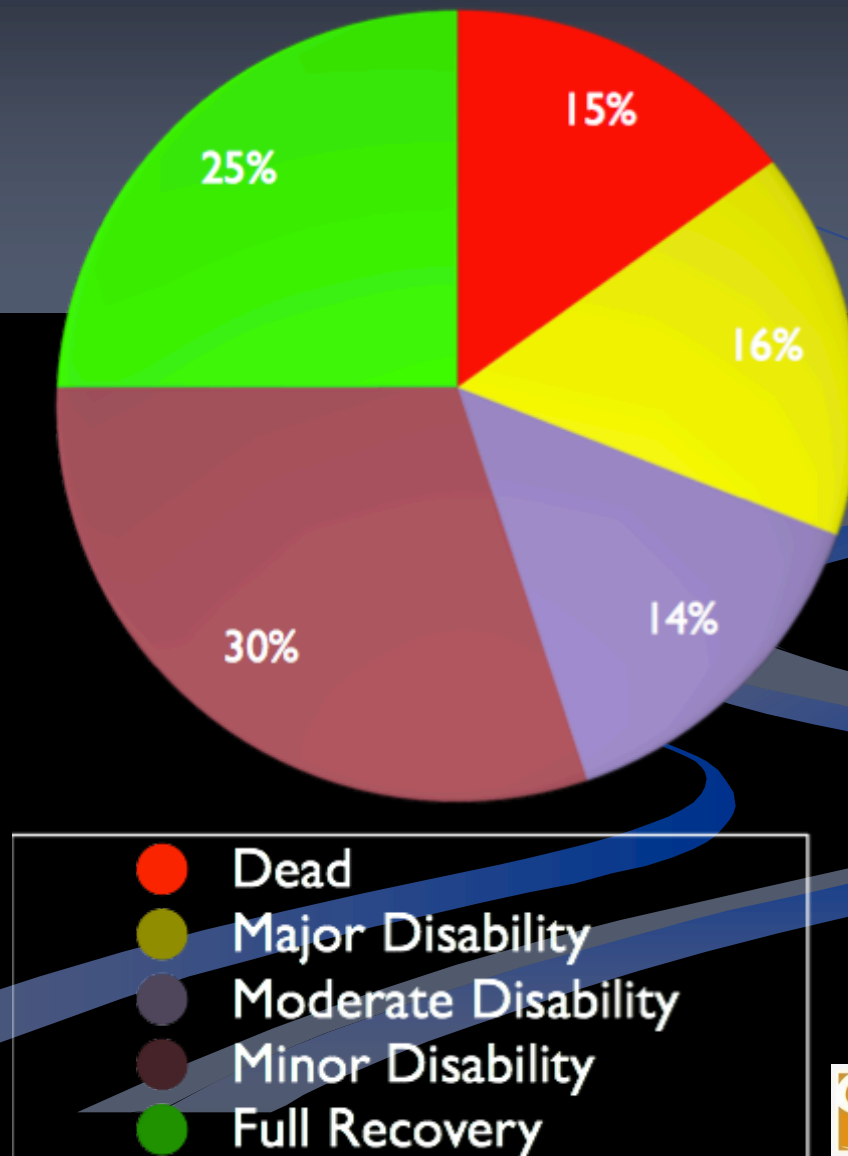
Steve

- 69 year old male
business owner with
high blood pressure
- Awoke feeling 'unwell'
with no focal symptoms
- Wife called EMS
- EMS arrival - unable to
speak
- Paralyzed on the right
side
- Right hemianopsia



The Impact of Stroke

- Leading cause of disability in adults
- Causes 10% of all deaths in the world
- The cost to Alberta is approximately 300-400 million per year
- Stroke will present soon to an ED near you!



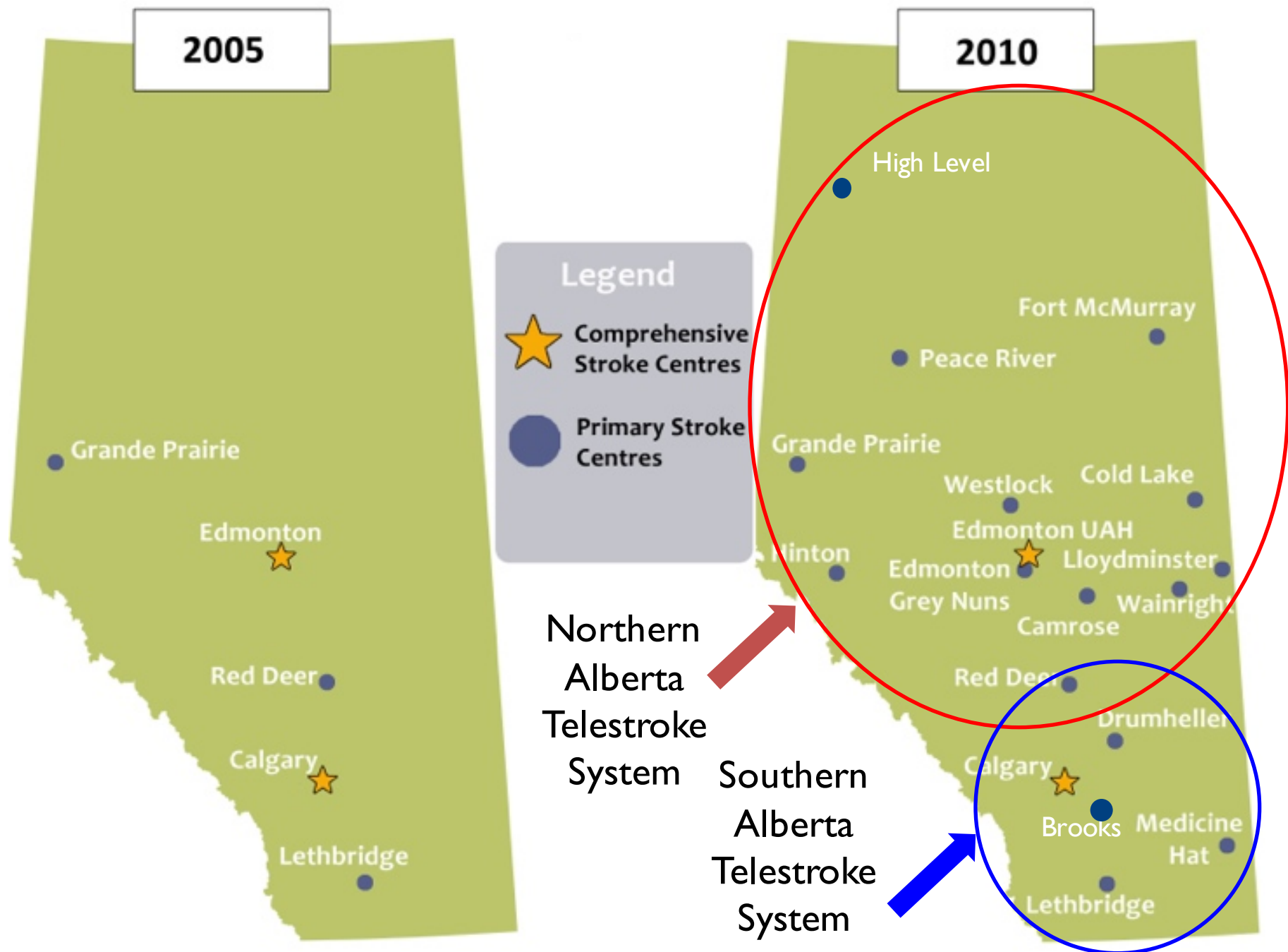
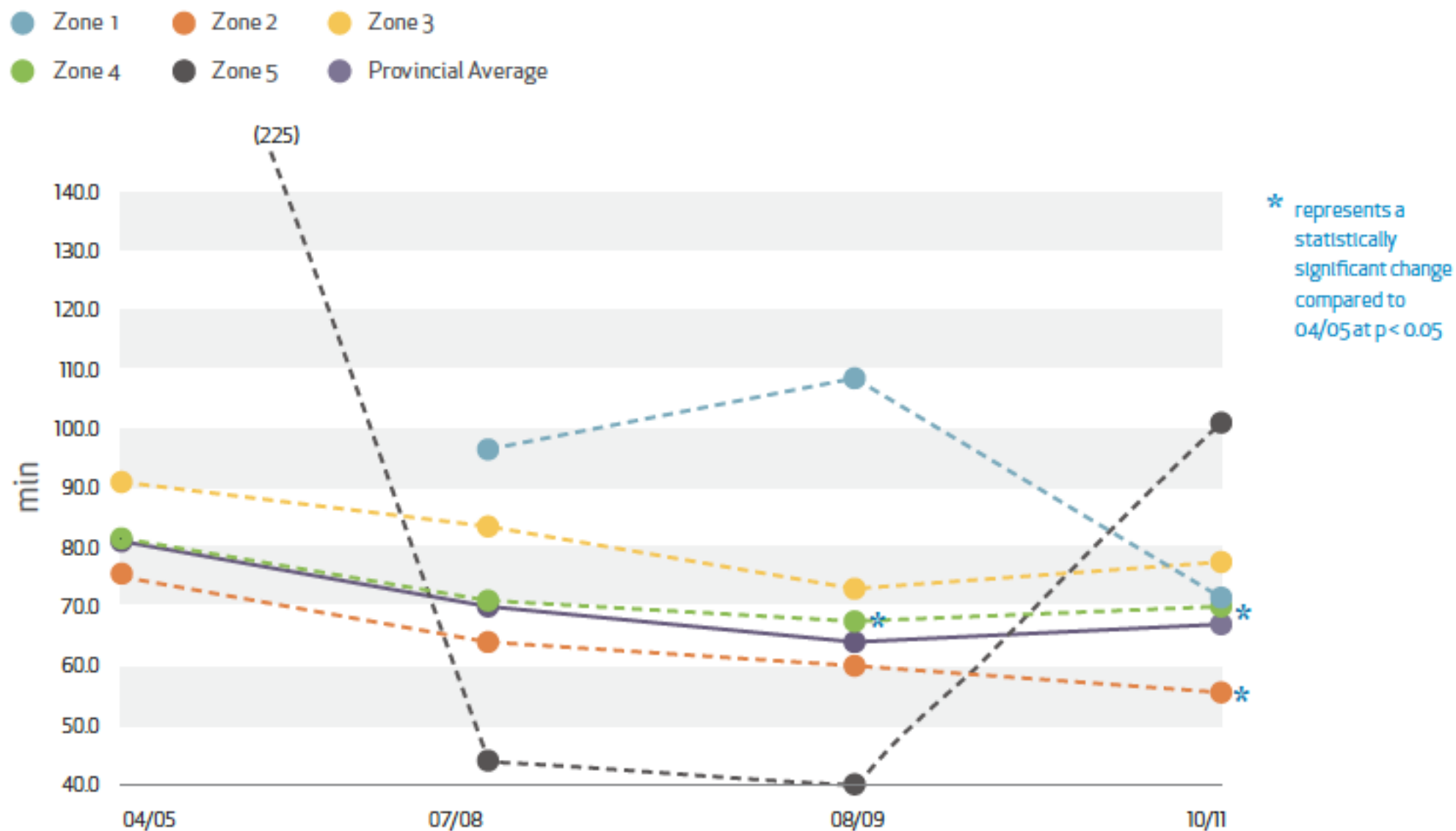
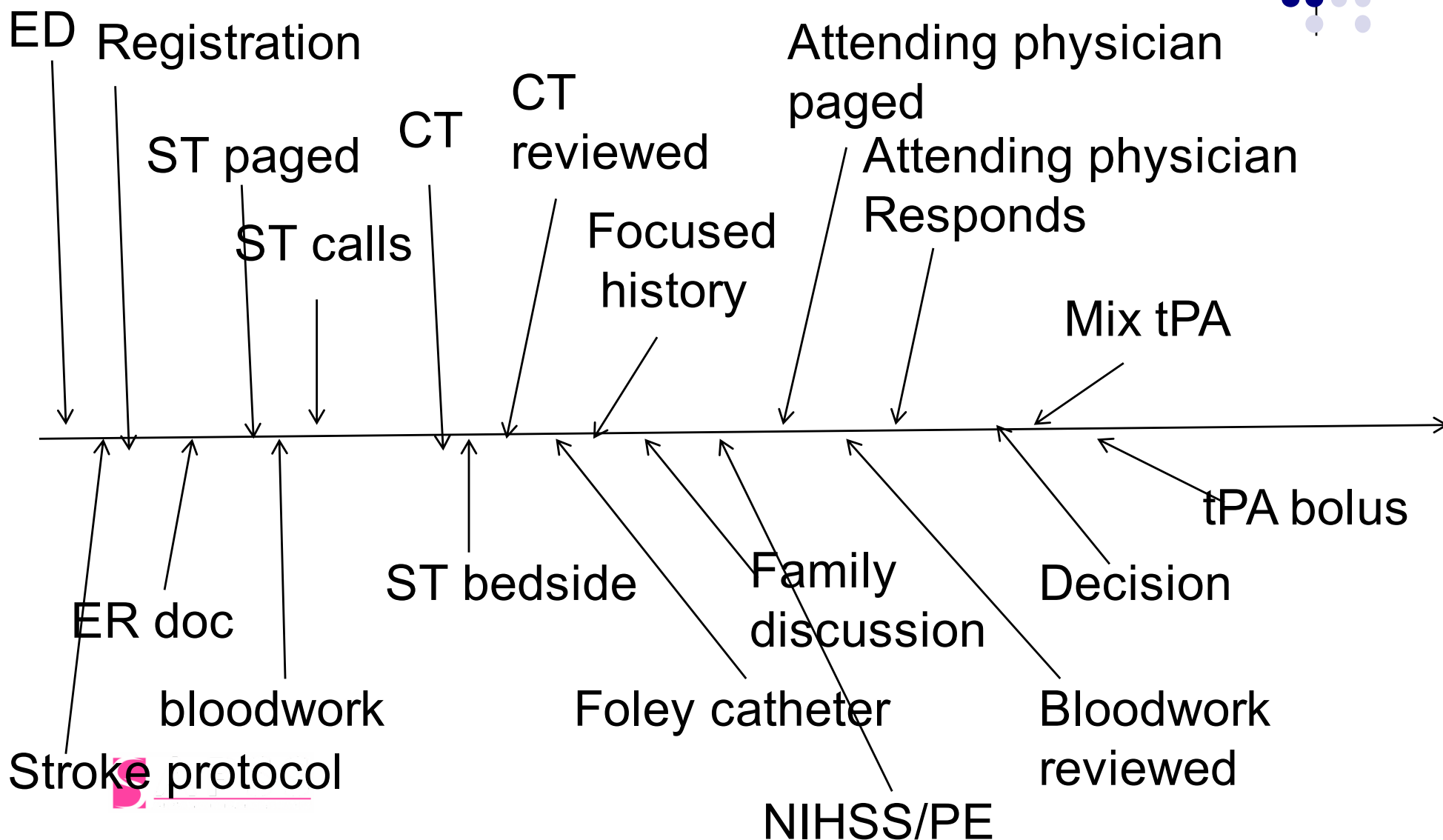


FIGURE 4.3

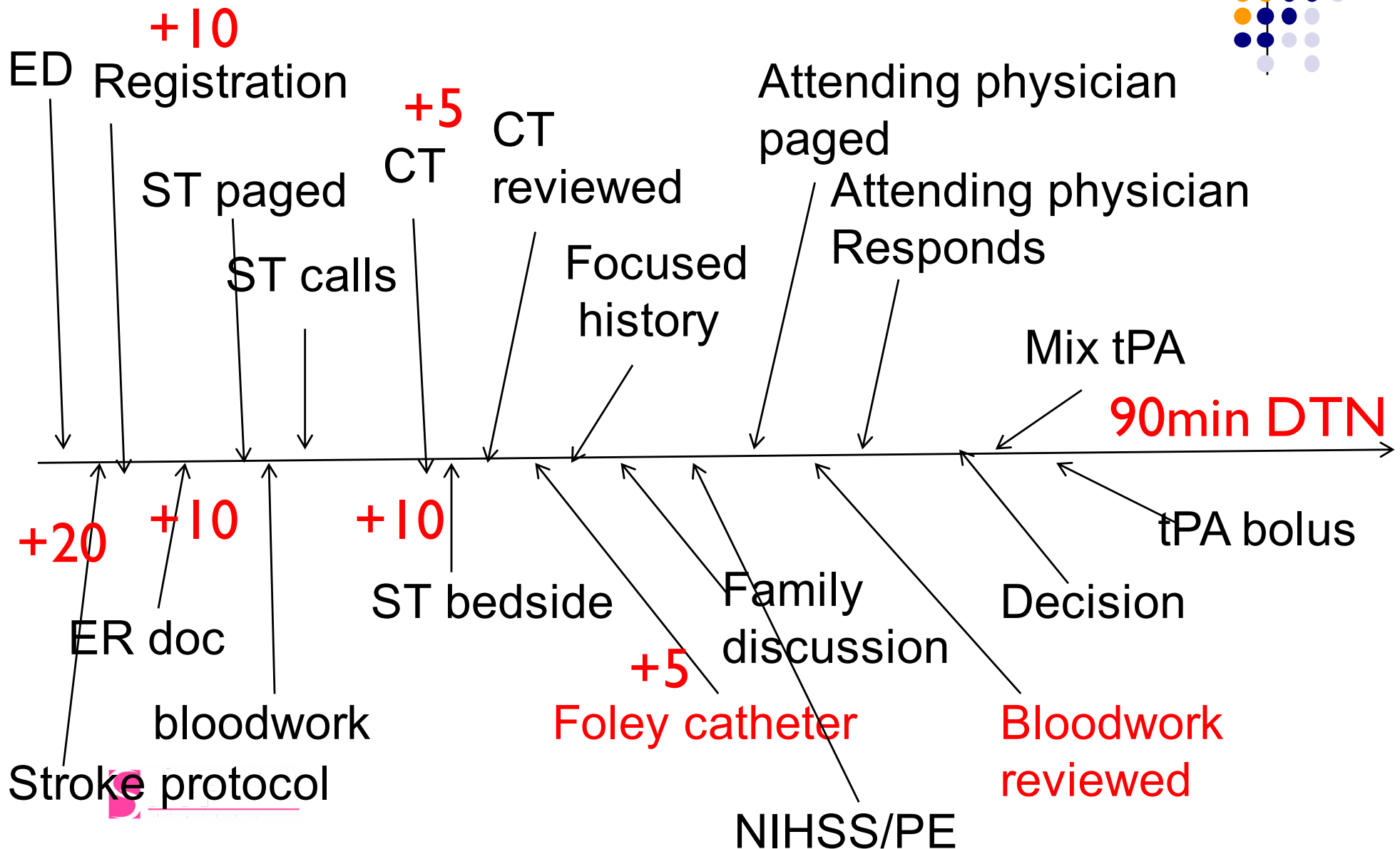
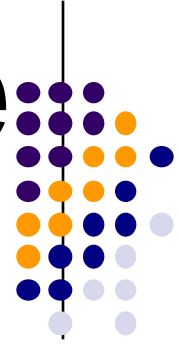
Median Door to Needle Times for Ischemic Stroke Patients Receiving IV or IV+IA tPA (minutes)



Timelines in tPA use



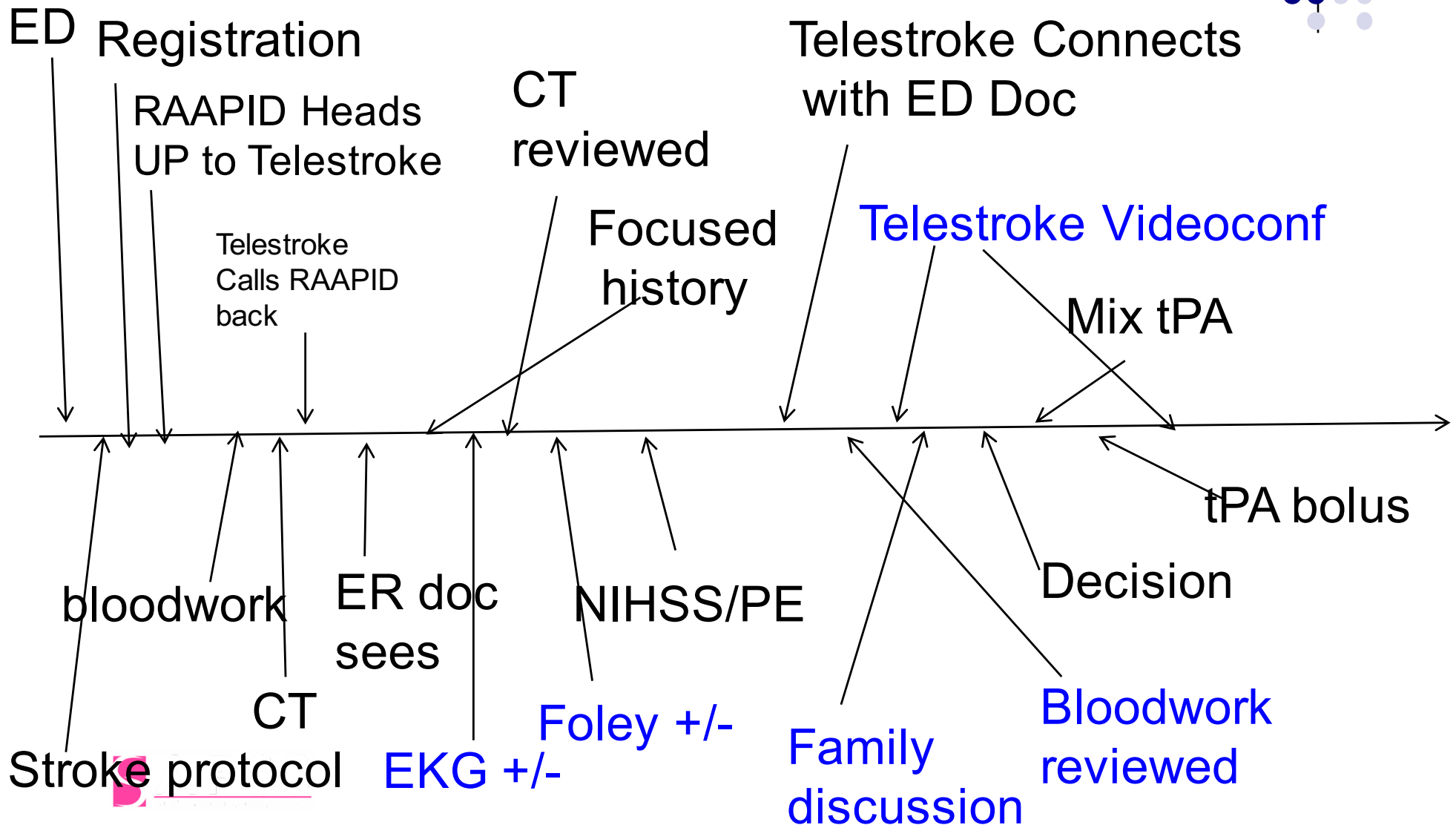
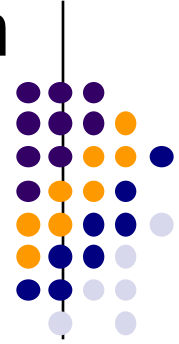
Timelines in tPA use



Timelines in tPA use – Rural/Small urban

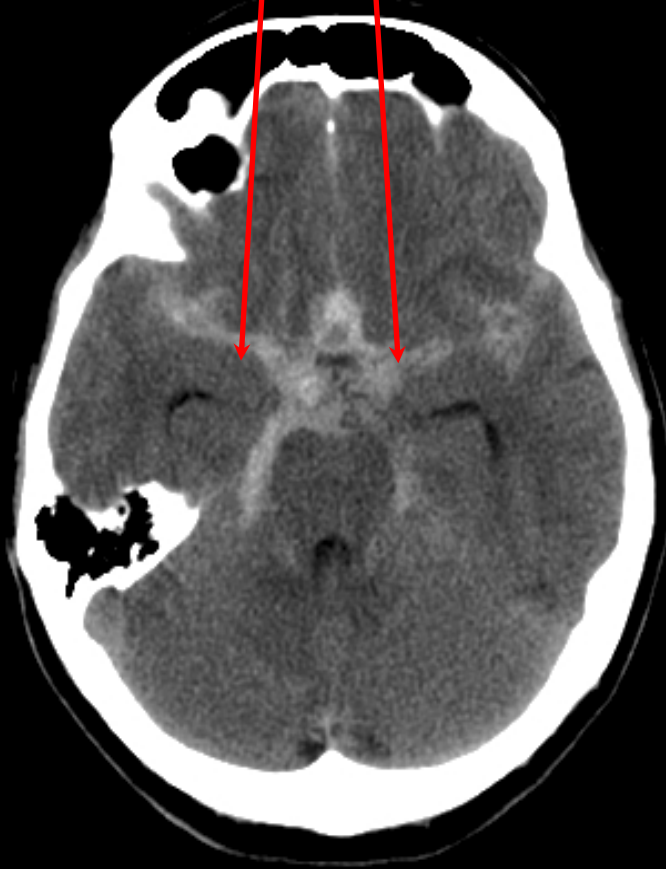


Do, but not always pre-lytic



2 kinds of hemorrhagic stroke:

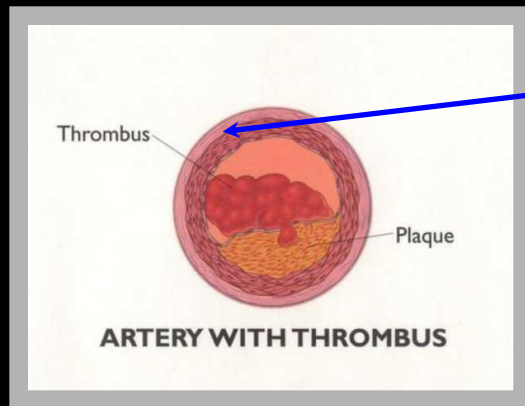
Aneurysmal
Subarachnoid



Intracerebral hematoma



Ischemic Stroke:



Clot visible blocking
the middle cerebral
artery (inside artery)



Patient 1



Technology: CT Angiogram – sometimes slows DTN but important information if done fast!

CTA speed is highly centre dependent
Ideally the first scan is a rapid CT+CTA.
Sometimes it makes more sense to initiate tPA with a plain CT then proceed afterwards with CTA.
At UAH we give the bolus in scanner after plain CT and then go to CTA



Questions :

- When do I let CT know about an acute stroke?
- When do I call my CT tech in after hours?
- When do I call my CTA tech in after hours?
- Is a CTA required every time pre-thrombolysis?
Post?
- When do we push the plain CT and CTA images?
Do I wait for post –processing?
- What is this stretcher to CT business?

Answers

- When do I let CT know about an acute stroke?
 - ASAP (they will be able to schedule)
 - With prehospital site notification
 - Again as soon as the patient arrives in the ED

Answer:

- When do I call my CT tech in after hours?
- With pre-hospital site notification ideally because of the response time required
- Failing the above then with patient arrival and acute stroke protocol activation

Steve

- Steve arrives at a primary stroke centre where the in-house technologist can do a plain CT scan
- There is a call-back needed for a CTA technologist
- Since CT + CTA is becoming the new standard do we wait for the CTA tech to arrive before proceeding with both?

This CT tech
received advanced
notice



This CT tech did
not



Steve

- Steve arrives at a primary stroke centre where the in-house technologist can do a plain CT scan
- There is a call-back needed for a CTA technologist
- Since CT + CTA is becoming the new standard do we wait for the CTA tech to arrive before proceeding with both?
- **NO! Most tPA decisions can be made on plain CT. Do the plain scan AND call in the CTA tech**

Questions :

- When do I call my CTA tech in after hours?
 - Ideally with pre-hospital notification
 - Definitely with patient arrival for an acute stroke protocol
 - Failing the above then at the time the plain CT is done

Questions :

- Is a CTA required every time pre-thrombolysis?
- No.
- However CTA is an important part of the acute stroke workup
 - Can be very useful pre-thrombolysis if done v quickly (ie < 3 min)
 - V important post-thrombolysis to determine endovascular candidates
 - In the acute stroke setting do as quickly as possible

Steve

- Steve's plain CT scan is finished
- The techs are able to do a CTA
- Should they wait until all the CTA images are post-processed before sending the CT and CTA images to PACS in one big file?

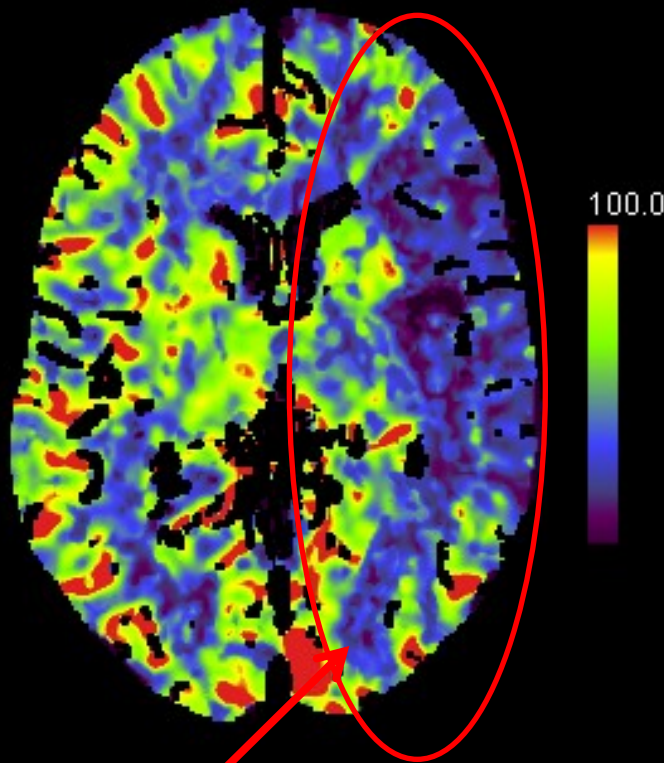
Steve

- Steve's plain CT scan is finished
- The techs are able to do a CTA v. quickly
- Should they wait until all the CTA images are post-processed before sending the CT and CTA images to PACS in one big file?
- NO!
- Acquire and push the axial plain images first
- Then acquire and push the CTA source images; post process afterwards

Questions :

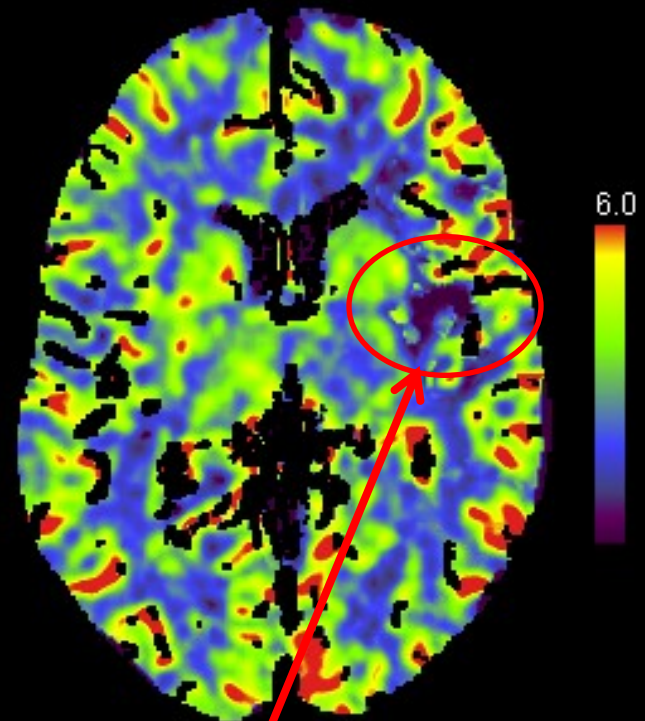
- What is this stretcher to CT business?
 - Following the 'swarm' the patient goes to CT in the EMS stretcher without pausing much in the ED
 - From Foothills DTN data stretcher to CT can save up to 20 minutes
- Will they be giving tPA in my CT scanner?
 - Maybe. This is routinely done at the UAH after plain CT and pre-CTA.
 - It may not work as well for rural/small urban sites unless the ED physician is in the CT room talking to telestroke

CT Perfusion: blood flow to brain cell microvasculature

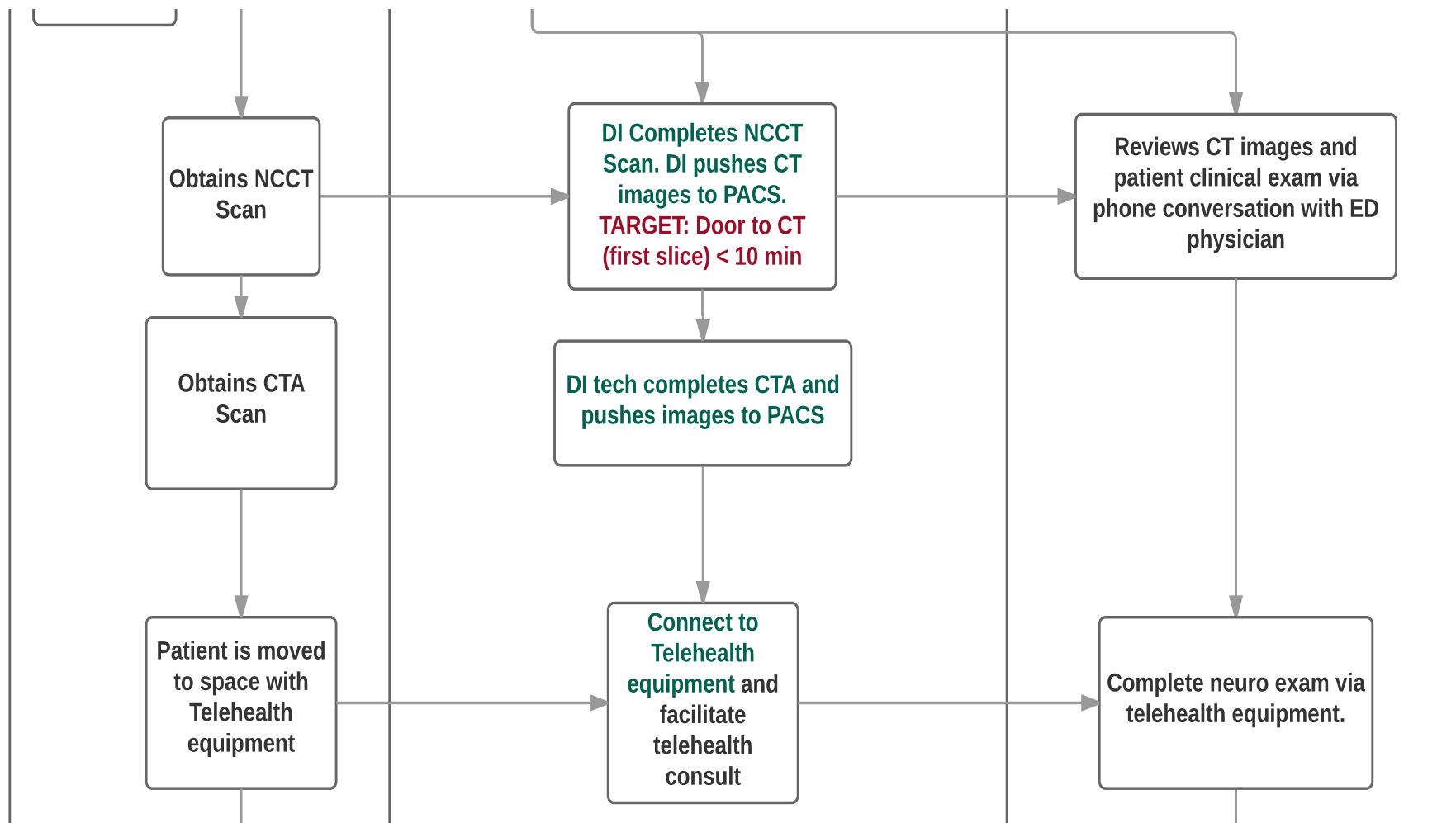


Brain at risk -
in purple

Patient I

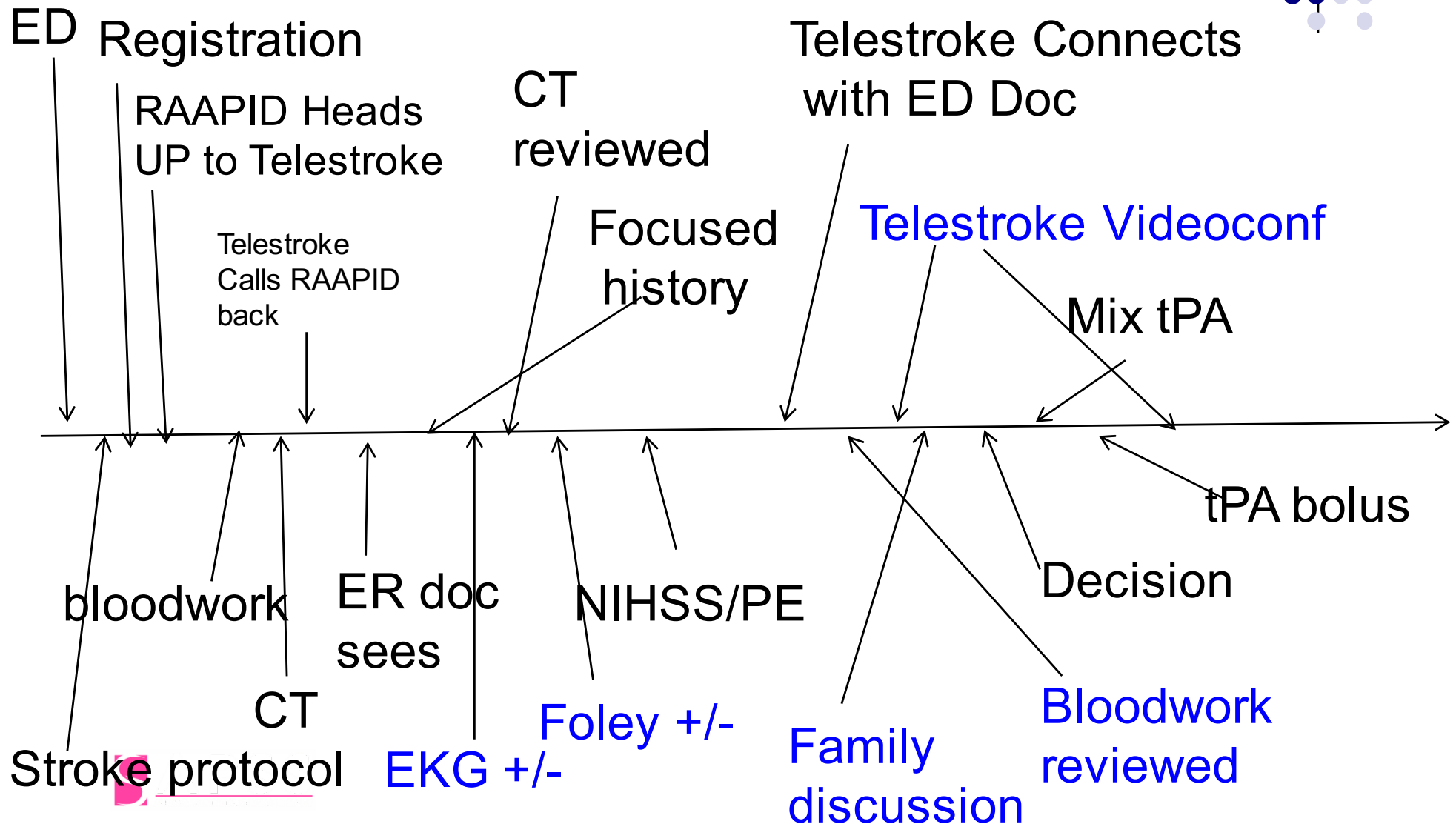
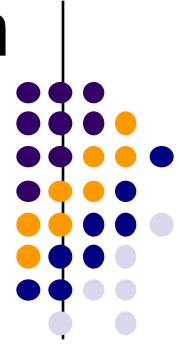


Brain
infarcted



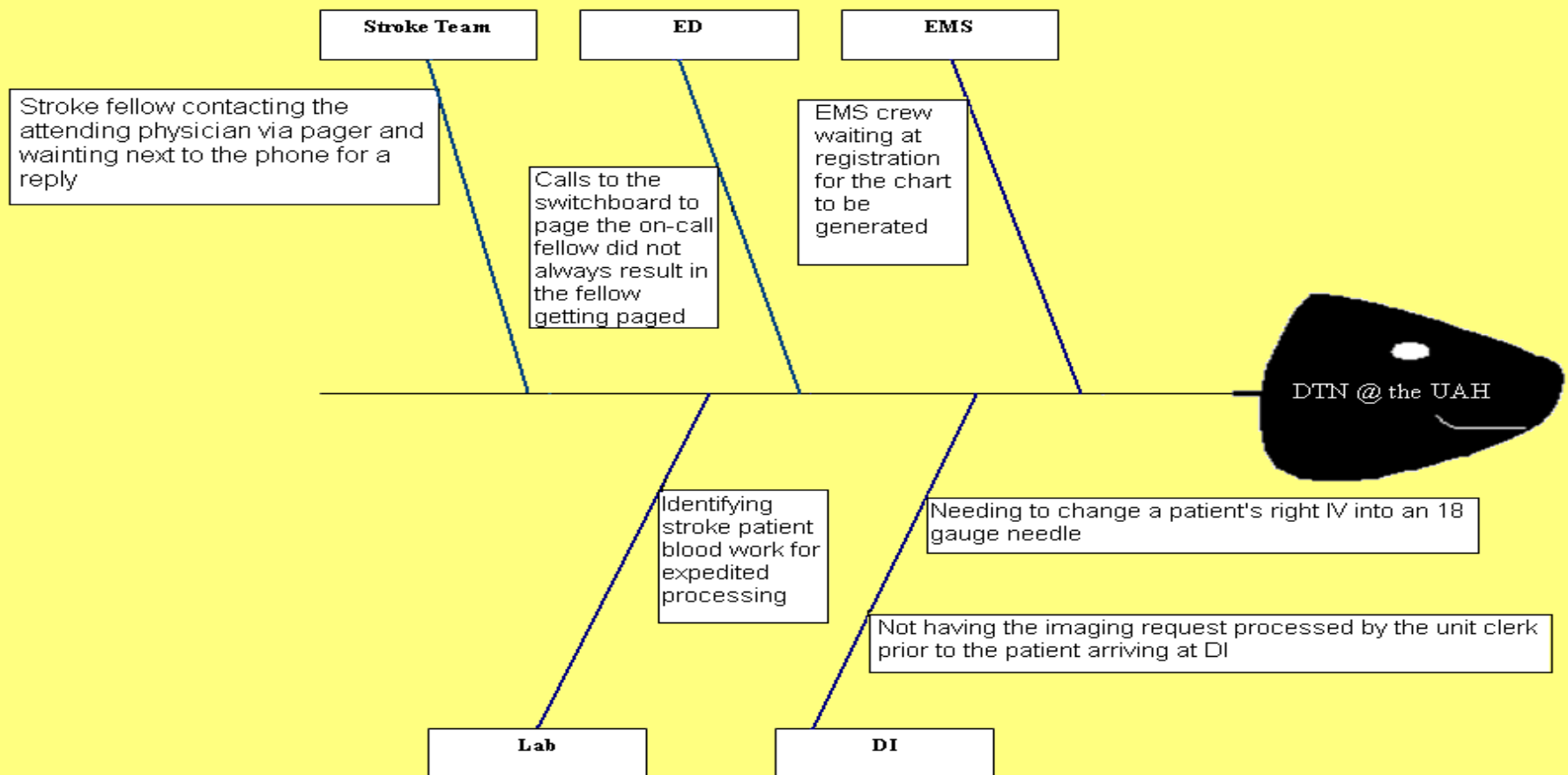
Timelines in tPA use – Rural/Small urban

 Do, but not always pre-lytic



Try mapping out the best process for your site

Title: Fishbone diagram for the Door to Needle Times at the UAH



Results- Go for the Gold!



Summary

- Stroke is a major public health threat
- Alberta is a leader and still improving
- Early access to the appropriate DI tests can make a tremendous difference in stroke outcomes

Thank-you!

Noreen Kamal

Michael Hill

Edmonton Zone Stroke Program

The whole QUICR Collaborative!