Chinook Regional Hospital Stroke Alert Cases

Background

- **53,260** ED Department visits last year
- Stroke Alert started October 19 , 2015
- **106 minutes** Median DTN at beginning of QuiCR project
- **73** Stroke Alert patients since start of project
- **18** Patients were administered TPA since start of project

Staffing

Physicians

- 2 Physicians - Days
- 3 Physicians - Evenings
- 1 Physician - Nights

Nursing (RN Only)

- ED Nursing Unit Manager on Days
- 8 RN's - Days
- 10 RN's - Evenings
- 6 RN's - Nights

Neurology

- Local =32%
- Locum =6%
- Calgary =62%

EMS

- AHS coverage to rural areas
- Contract with City of Lethbridge

Diagnostic Imaging

- 4 CT Techs - Days
- 1 CT Tech - Evenings
- 1 Gen RAD Tech – Nights
- Radiologist-South Zone Coverage

Inpatient Units

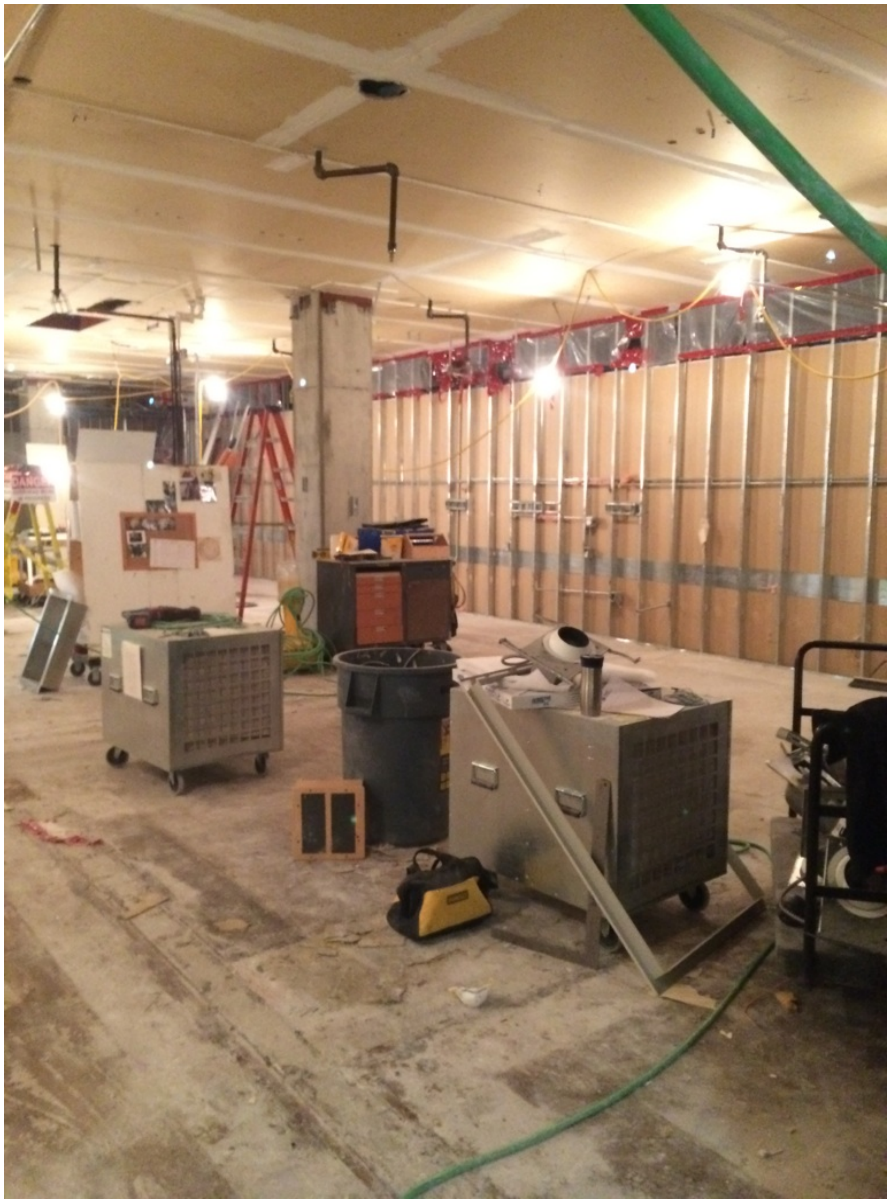
- ICU
- 4C

Strategies

- Stroke Alert Protocol
- Update Stroke Tote
- EMS Pre-notification
- Development of a **IT** protocol for accessing South zone PACS images to on Citrix (MyAPPs)

Changes

- Increase in Diagnostic Imaging hours to provide CT/CTA coverage until 2315
- Stroke Alert Protocol
- ED Renovations
  - Trauma rooms
  - Triage
  - Entrance to the hospital



Case 1

70year old, Male

22:00 LSN

22:15 Symptom Onset

Pt and his wife had driven back from Cranbrook, when the

Pt did not come into house after 15 minutes his wife went to look for him. She found her husband sitting in car, not responding to her verbally, she assisted to him chair in the garage. Wife witnessed onset of pt. speech arrest and right-sided weakness

Background:

- High cholesterol for which he was on simvastatin
- Low dose of prednisone 5mg
- Life long smoker,
- Drinks 2-3 alcoholic beverages per week

EMS

23:04- City of Lethbridge EMS dispatched
23:19- Pre-notification to CRH triage, ETA 20min.
23:23- Arrived at scene, EMS Stroke Screen, IVx1
23:30- EMS left scene
23:49- Arrived @ CRH

Case 1

2319 Pre-notification, ETA 20 in minutes

2320 Stroke Alert announced in department

2335 Neurologist arrived in department

2354 Triage

0004 Non Contrast CT

0014 CT report -early acute left MCA territory infarct, possibly related to thrombus in the M1 segment of the left middle cerebral artery, Aspect score 7

0018 nursing assessment, temp 36.5, HR 62, BP 200/97 RR 16, spO2 95%, BGM 5.5, 82 kg ECG, IV#2 to LFA, NIH 13

0018 Labetalol 5 mg IV given

0020 TPA bolus 7.4mg, NIH 13

0021 TPA IV 66.4mg

0030 Labetalol 2.5mg IV, BP 200/97pressure decreased to 154/82

0130 CTA head/neck

0200 Neurologist discussed findings of CTA with radiologist

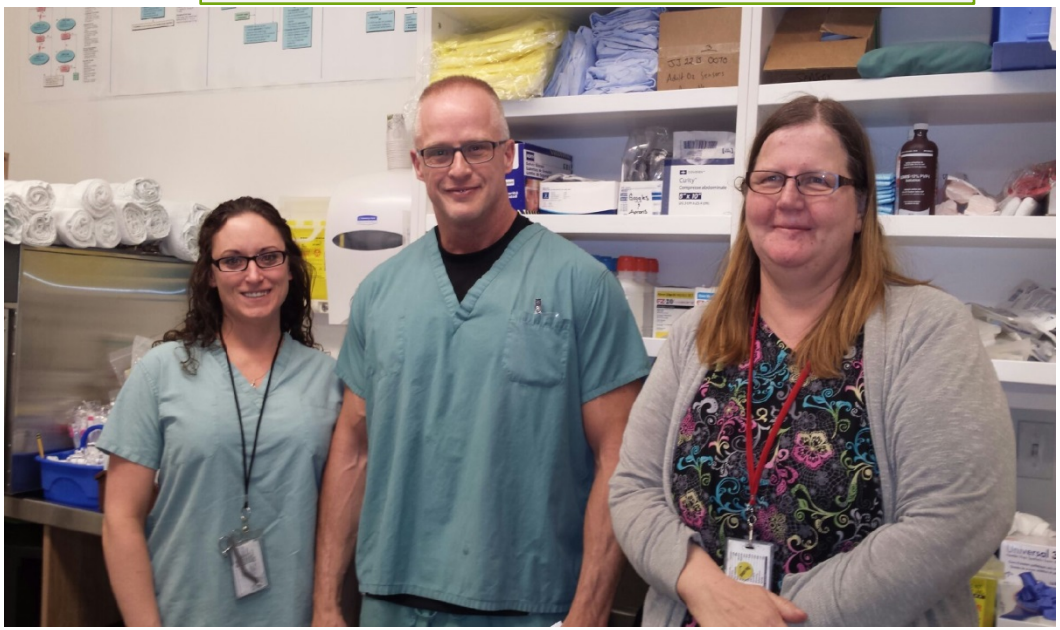
- recanalization of the M1 with migration of the clock distally to the M# branches
- patent L proximal MCA with abrupt cut off of distal MCA
- L MCA territory infarct, left inferior frontal region
- 80% stenosis of Left internal carotid artery origin occlusion
- Suspect thrombus involving the right proximal transverse sinus and possibly high parietal cortical veins

0208 Patient sent to ICU for close observation x 24 hours

0610 TORRBST completed

0800 NIH 3

Learning



What went well

- Pre-notification
- Stroke Alert
- Locum coverage
- Scene with a Team

Improvements

- Process of registering patients

Case 2

81year old, F

14:30 LSN

- At Lunchtime she had a syncopal episode, Husband said this is common when she has a BM

1600 Awoke with Symptoms

- Pt not responding appropriately, post nap, fainted, when she regained consciousness she vomited and couldn't follow commands

Background:

- Recent SX
- Prior left temporal stroke
- HTN
- Vasovagal syncope
- Hypothyroidism, Thyroidectomy
- Dyslipidemia
- Chronic ischemic colitis
- Type 1 diabetes for 30 years
- Chronic kidney disease
- Cholecystectomy
- Celiac disease

Case 2

Medications:

- Aspirin, 81mg
- Synthroid 125 mcg
- Norvasc 5mg BID
- Irbesartan 150mg BID

EMS

1639 EMS dispatched
1647 arrived scene
1700 IVx1 inserted,

- N/S 200ml bolus initiated
- BGM 11.2
- Temp 40 degrees
- Gravol 25 mg given
- Provider Impression Code P-88 unknown L-1, E99

1705 Left scene
1716 arrival at CRH

Stroke Alert

1720 Triage

17:30 ED physician assessment, temp 38.1, arms rigid, folded arms across chest, able to wiggle toes slightly

BP 152/84, T36.1, HR111,

1730 lab @ bedside, IV #2 intiated

1735 CT

1753 CTA

1800 Pt. back in ED

1803 CT Report: signs of unchanged chronic lacunar infarct, moderate cerebral and cerebellar parenchymal loss and unchanged encephalomalacia involving the right temporal lobe

1820-Raapid notified using wording "Stat Stroke" needing consult with Calgary

Case 2

1841 Calgary documented in their **consultation report** that they were notified at this time as well as the following items:

- Did not have access to images on NetCare today
- Calgary IMPAX system is down and we were not able to access images today
- Completely reliant on records. Noted that they did read full reports reported by a radiologist
- CTA was also read. No findings for ICA stenosis, There was a subtle short segment narrowing or the distal M1 segment just before the bifurcation. Opacification beyond this point were normal.
- Calgary asked about contraindications including recent surgery, ICH, and bleeding disorder
- INR @ 1730 1.0

1828 ECG sinus @68 with PAC

1852 Given fact that the pt. had been living at home. **Calgary advised the use of TPA within next 8 minutes** (Time from symptom onset to this time was **4 hours and 23 minutes**). Pt did not qualify for endovascular therapy Phone consultation with Calgary concluded

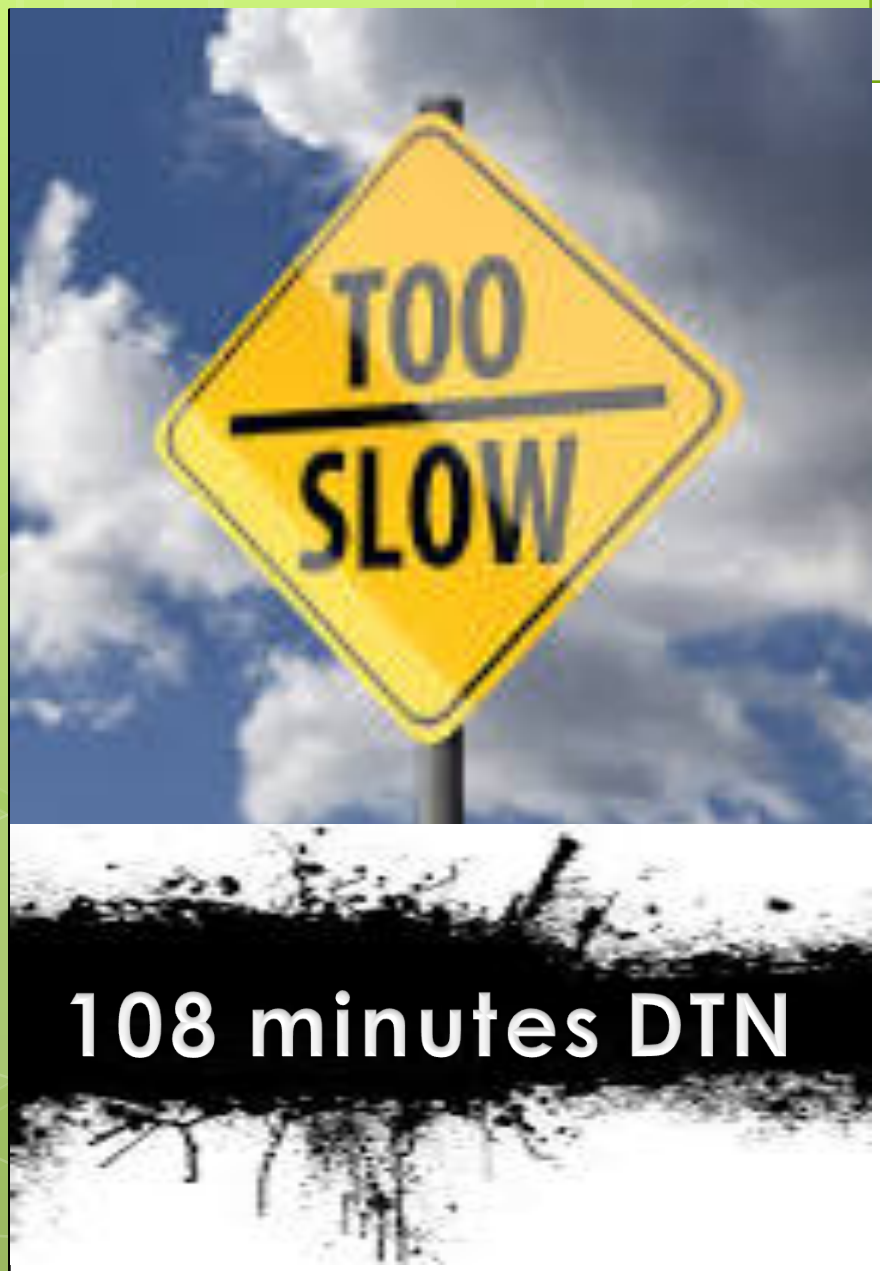
1908 TPA bolus 5mg given, BP 133/58, NIH 20

1910 TPA IV 45.4mg given

2015 NIH 12

2225 Admit to ICU

Learning



What went well

- Quick Physician assessment
- Detailed consultation report from Calgary

Improvements

- EMS Screening process
- Triage Criteria
- IT working with Calgary on improving access to images for south zone

Case 3

70 year old, M

16:00 LSN

- Pt came to ED day before reporting a several day history of feeling malaise. Awoke this morning with bilateral low back pain increasing with movement, no dysuria, no urinary frequency
- At approx. 1500 pt. c/o Left arm and leg weakness, left facial droop, expressive aphasia

Background:

- Sleep apnea (wears a dental appliance)
- CV risk factors >55, remote smoking history, ? Diabetes

Case 3

Medications:

- No home medications

No EMS

1625 arrived from clinic with private vehicle

Stroke Alert

1626 Triage

1630 Attempt to set –up telestroke unit

1639 IV initiated to R ACF

1642 IV initiated to RFA

1647 Non contrast CT

1655 CTA

CT/CTA reported

1720 Calgary Neuro phone consultation

1720 Foley catheter inserted, NIH 8

1727 TPA order written

1735 family at bedside

1736 TPA bolus 8.6mg Given

1740 TPA 77.8mg IV

1815 internal med in to see

1850 Transfer to ICU

Learning

What went well

- Timely phone consultation with Calgary

Improvements

- Telestroke Unit
- Administration of TPA

Where are we now

- **52 minutes** Median Door to needle time
- Stroke Protocol has been modified to improve hyper-acute stroke care outcomes
- Continued work with **IT** and Calgary Neurology to reduce decision time for TPA administration
- In-servicing in a timely manner with ED/ICU staff regarding hyper-acute stroke care and management