PRESENTER DISCLOSURE

- **Presenter:** Marnie Reiber, RN – Stroke Navigator

- **No relationships with financial sponsors**
- **No conflicts of interest**

LLOYDMINSTER HOSPITAL

"How they became one of the best performing sites?"

June 12, 2018

LLOYDMINSTER HOSPITAL

- 95-100% occupancy

- 18 ER beds

- Trauma (Tele stroke equipment, Resus, Minor OR)

- X-ray, 24 HR CT, U/S, Mammography/Lab

- 24hr Respiratory Therapist

- 38 Medical Floor Beds

- 13 Maternity Beds

- 6 Day Surgery Beds

- 12 Surgical Beds

- 3 step down Special Care Unit Beds

- Telehealth (SPC)

- Amazing Health Care Professionals

http://www.horizonleadership.ca/blog/category/embracing-the-elephant-in-the-room
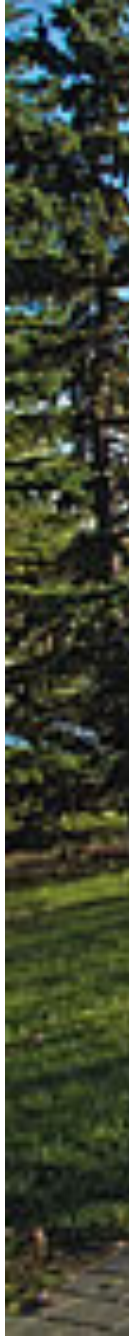
LLOYDMINSTER AND ALBERTA STROKE PROGRAM

2007 APSS
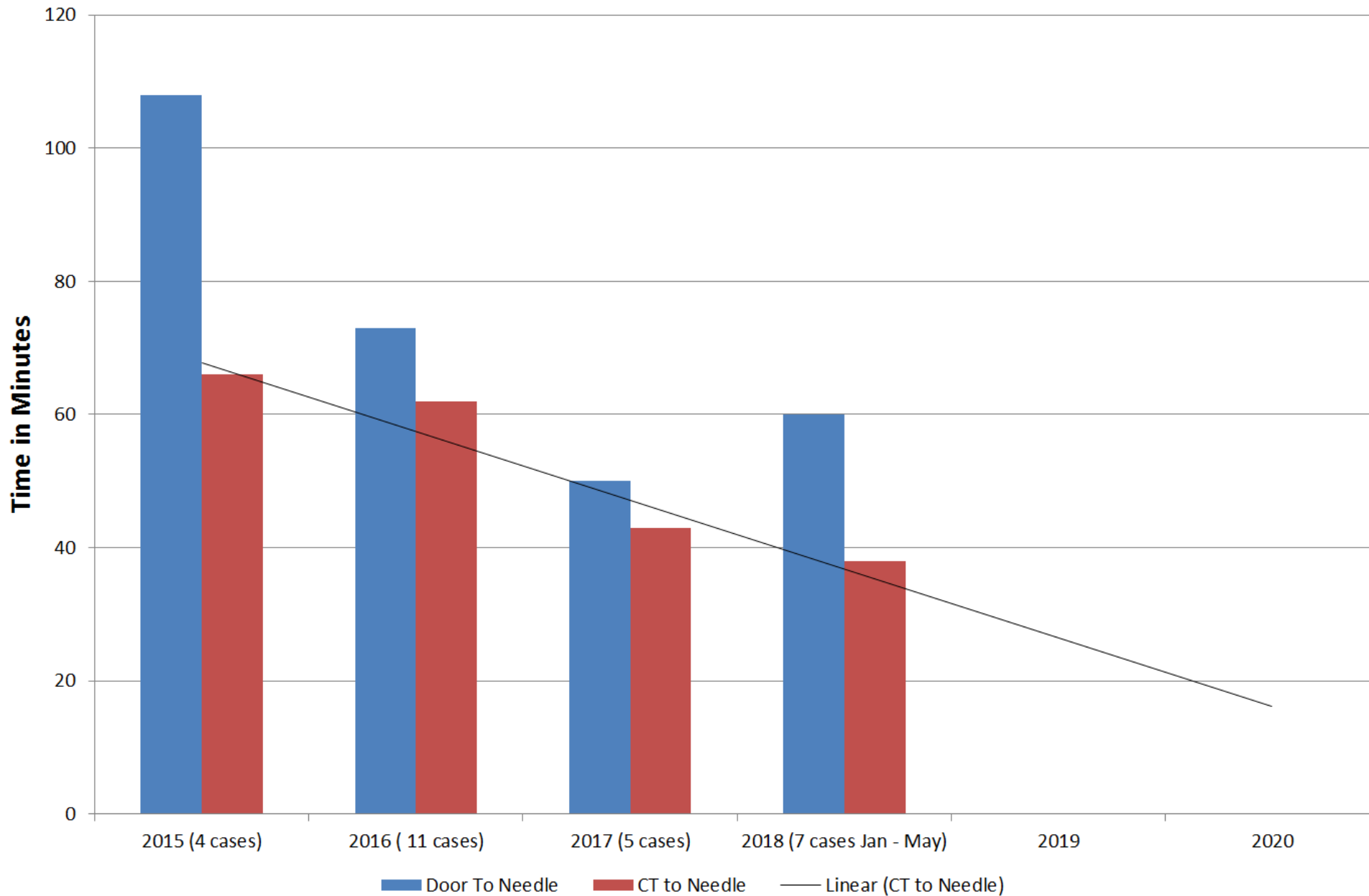
2013 SAP/SUEC

2015 QuICR

IMPROVING DTN GOAL

"Every patient deserves the possibility of tPA therapy because the process worked the way it should."

"Avoid Regret."

LH - Stroke Door to Needle Data
4 year Analysis

Chart — Time in Minutes (y-axis: 0 to 120)

Categories: 2015 (4 cases), 2016 (11 cases), 2017 (5 cases), 2018 (7 cases Jan - May), 2019, 2020

Legend: Door To Needle, CT to Needle, Linear (CT to Needle)

2018
Fastest DTN – 22 min
Longest DTN-114min

2017
Fastest DTN -28min
Longest DTN-68min

2016
Fastest DTN- 32min
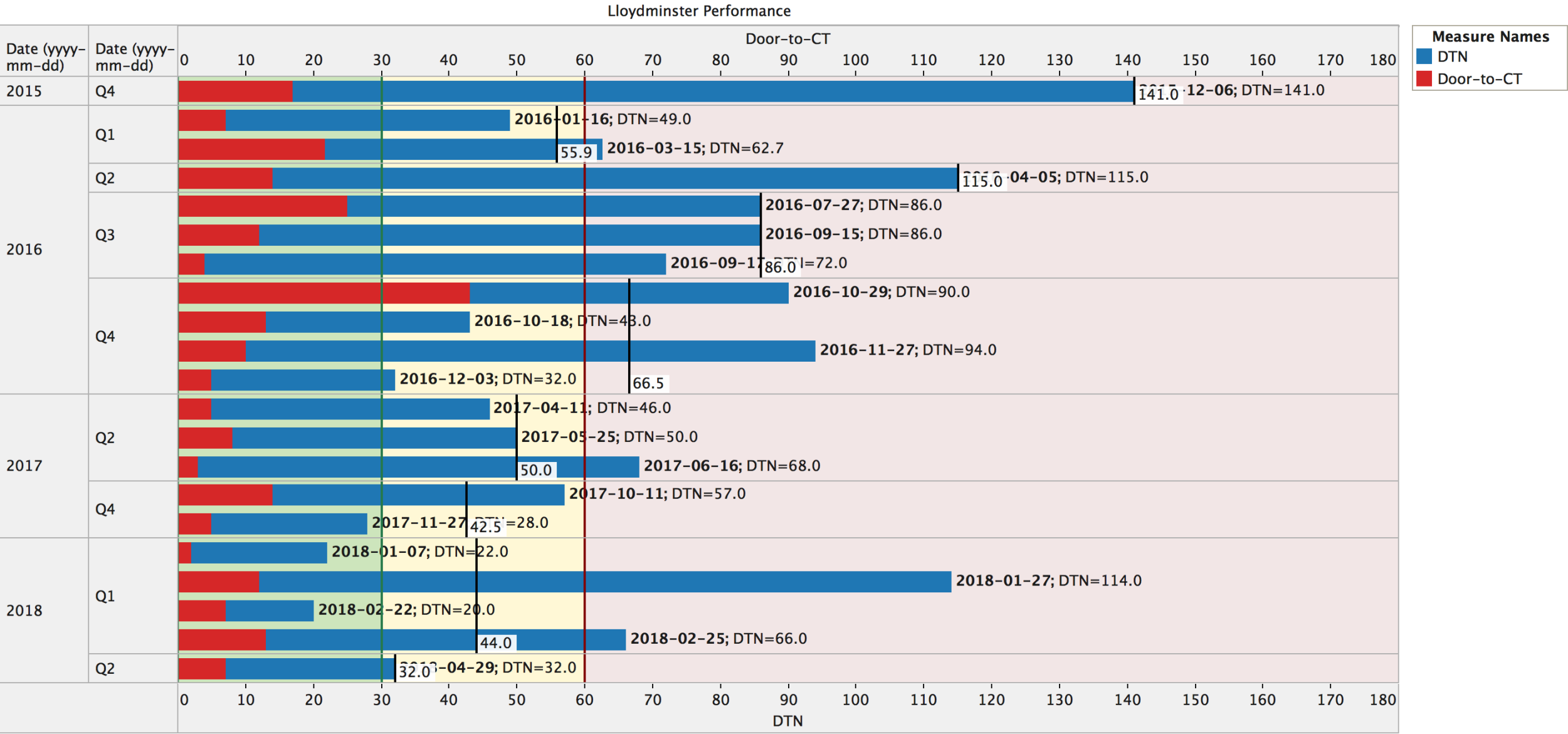Longest DTN-126min

2015
Fastest DTN- 92 min
Longest DTN -151min

2014
Fastest DTN- 83min
Longest DTN-125min

Lloydminster Performance

Date (yyyy-mm-dd)	Date (yyyy-mm-dd)	Data
2015	Q4	2015-12-06; DTN=141.0
2016	Q1	2016-01-16; DTN=49.0
		2016-03-15; DTN=62.7 (55.9)
	Q2	2016-04-05; DTN=115.0
	Q3	2016-07-27; DTN=86.0
		2016-09-15; DTN=86.0
		2016-09-17; DTN=72.0 (86.0)
	Q4	2016-10-29; DTN=90.0
		2016-10-18; DTN=43.0
		2016-11-27; DTN=94.0
		2016-12-03; DTN=32.0 (66.5)
2017	Q2	2017-04-11; DTN=46.0
		2017-05-25; DTN=50.0
		2017-06-16; DTN=68.0 (50.0)
	Q4	2017-10-11; DTN=57.0
		2017-11-27; DTN=28.0 (42.5)
2018	Q1	2018-01-07; DTN=22.0
		2018-01-27; DTN=114.0
		2018-02-22; DTN=20.0
		2018-02-25; DTN=66.0 (44.0)
	Q2	2018-04-29; DTN=32.0 (32.0)

Measure Names: DTN, Door-to-CT

"PEOPLE DON'T BUY WHAT YOU DO; THEY BUY WHY YOU DO IT. AND WHAT YOU DO SIMPLY PROVES WHAT YOU BELIEVE."
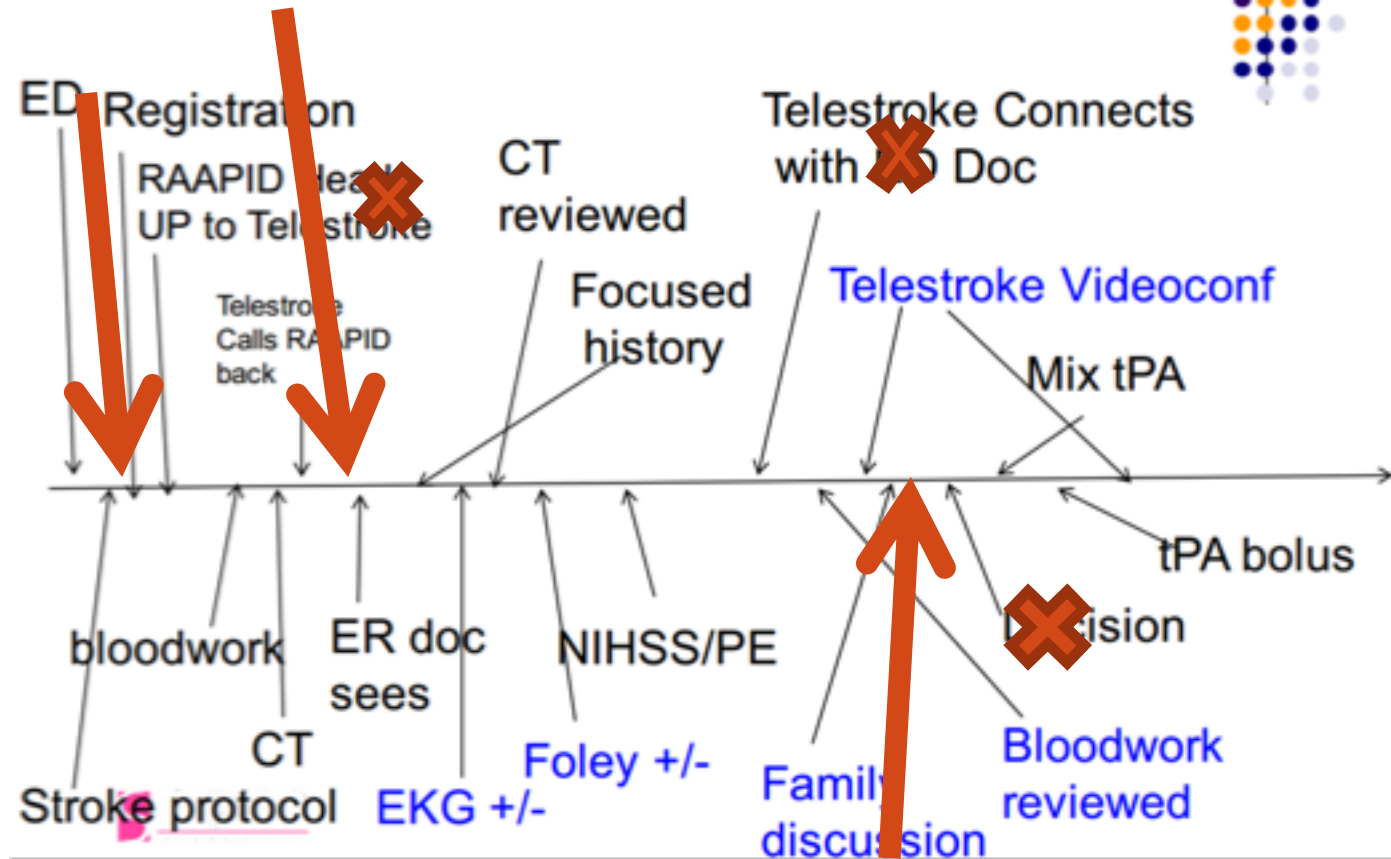
SIMON SINEK

VALUE STREAM MAP – DTN PROCESS
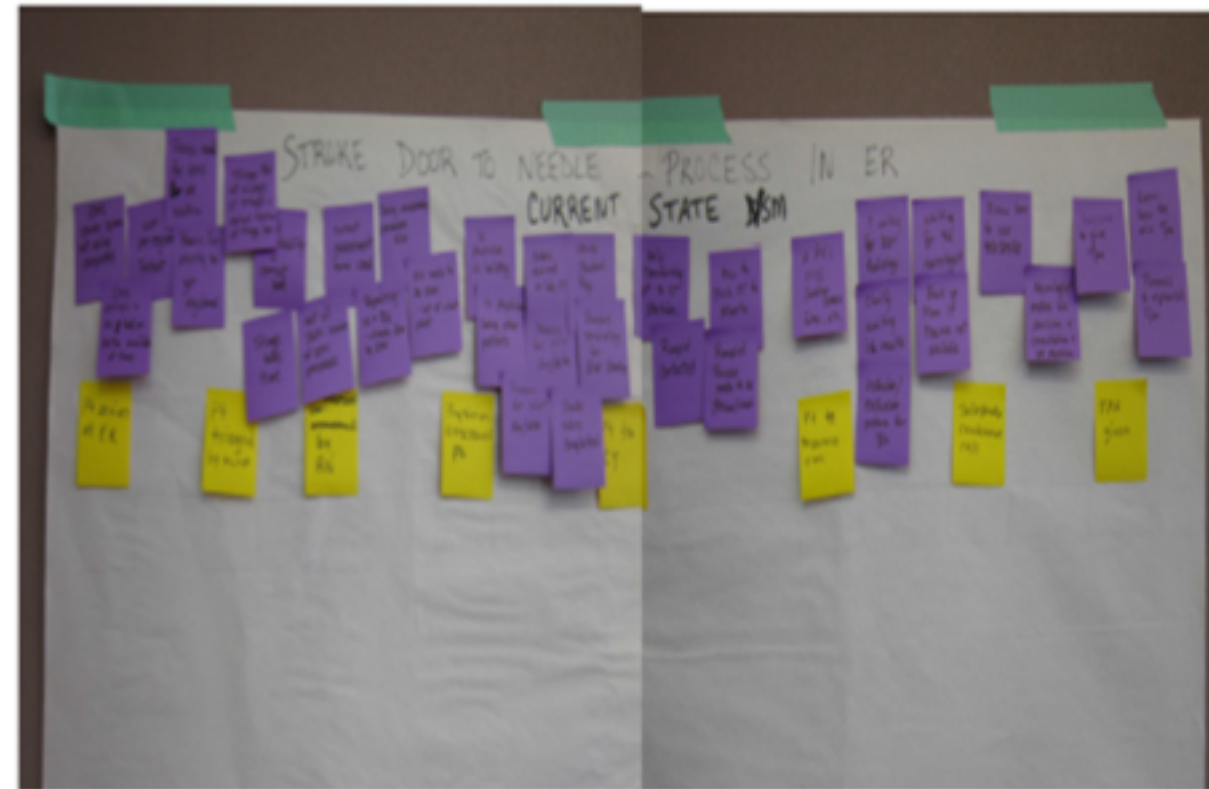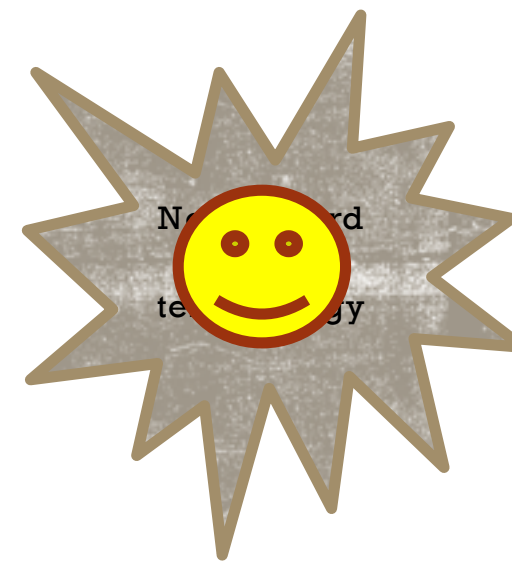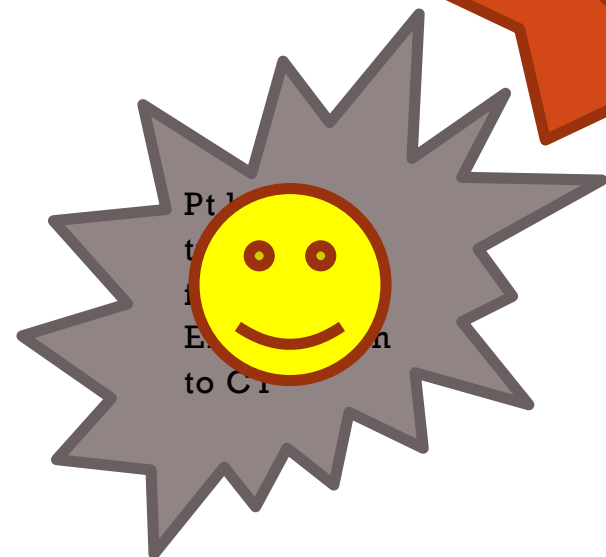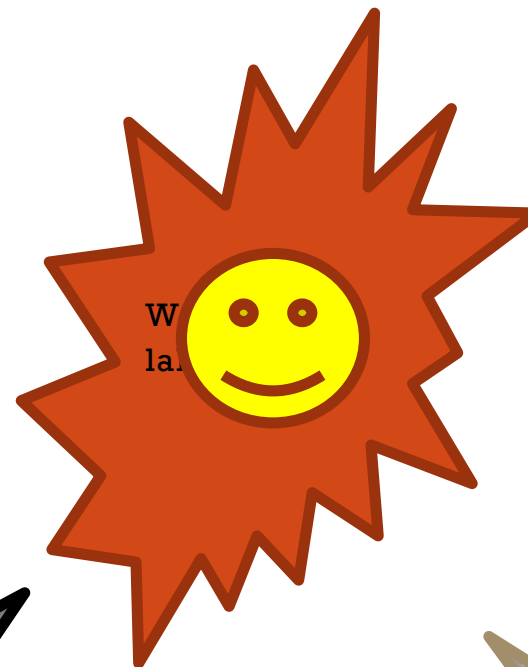

…un-reliable steps or the reliably slow steps?
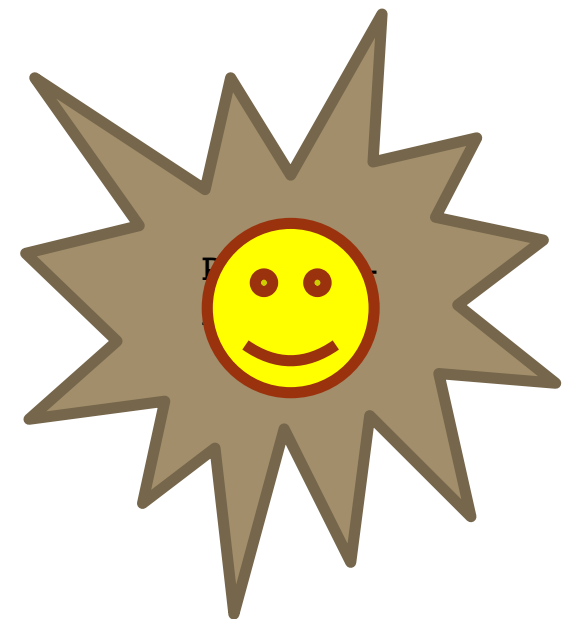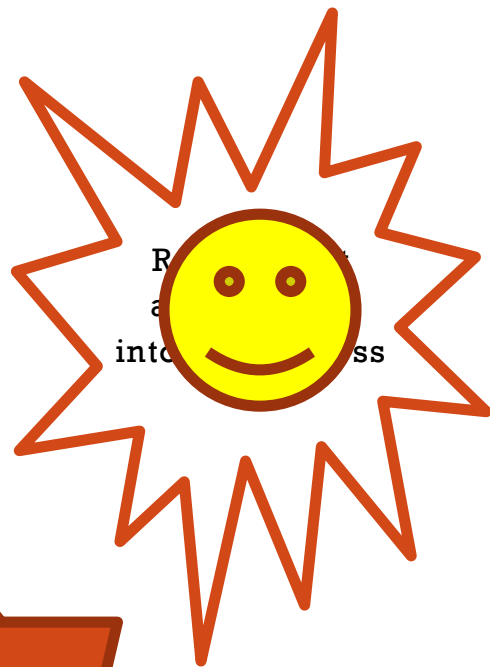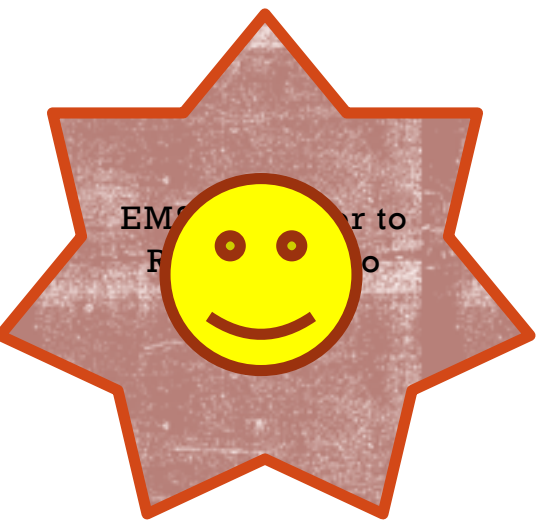
Timelines in tPA use – Rural/Small urban
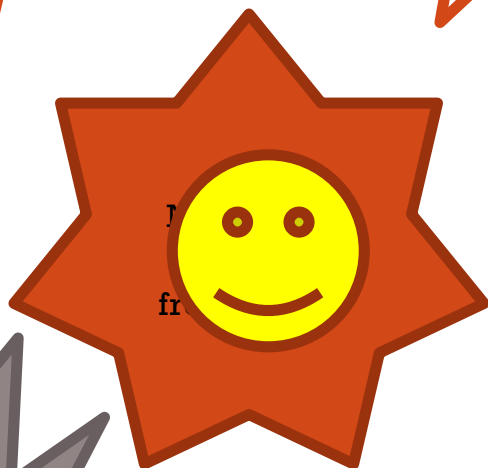
ACUTE STROKE NEUROLOGY CONSULT

1. Ems calls with **STAT Stroke or Stroke on Awakening** and provides at least two identifiers for pre registration, Last seen normal time(LSN) and red findings on EMS Stroke Screen or a walk-in stroke
   - NAME:_____
   - BIRTH DATE:_____
   - HEALTH CARE NUMBER:_____
   - LSN:
2. ER nurse notifies team, registration, CT, Lab of incoming Stat stroke
3. Pt. arrives at hospital:
   A. Physician/Nurse swarm patient to assess readiness for CT
   B. Complete LAMS/neurological assessment and verify patient name and ULI
   C. Blood draw if known (should not delay CT scan)
   D. Patient to Ct scan

LOS ANGELES MOTOR SCALE (LAMS)

	Normal	Right	Left	Total
Facial smile/grimace	▶ (0)	▶ Droop (1)	▶ Droop (1)	
Grip	▶ (0)	▶ Weak grip (1) ▶ No grip (2)	▶ Weak grip (1) ▶ No grip (2)	
Arm strength	▶ (0)	▶ Drifts down (1) ▶ Falls rapidly (2)	▶ Drifts down (1) ▶ Falls rapidly (2)	
			TOTAL Score	

4. NURSE then calls **RAPPID** 1-800-282-9911 and states:
   - "This is _____ (YOUR NAME) _____ calling from Lloydminster Emergency Department with a **HEADS UP CALL** for a "STAT STROKE ALERT "
   - Provide ER Physicians NAME_____
   - Lloydminster Call back Number: 306-820-6033
   - Patient health care number
   - If the LAMs >=4 state that this is a RED REFERRAL with a LAMS Score _____(4 or 5)

IF TROUBLE VIEWING IMAGES:
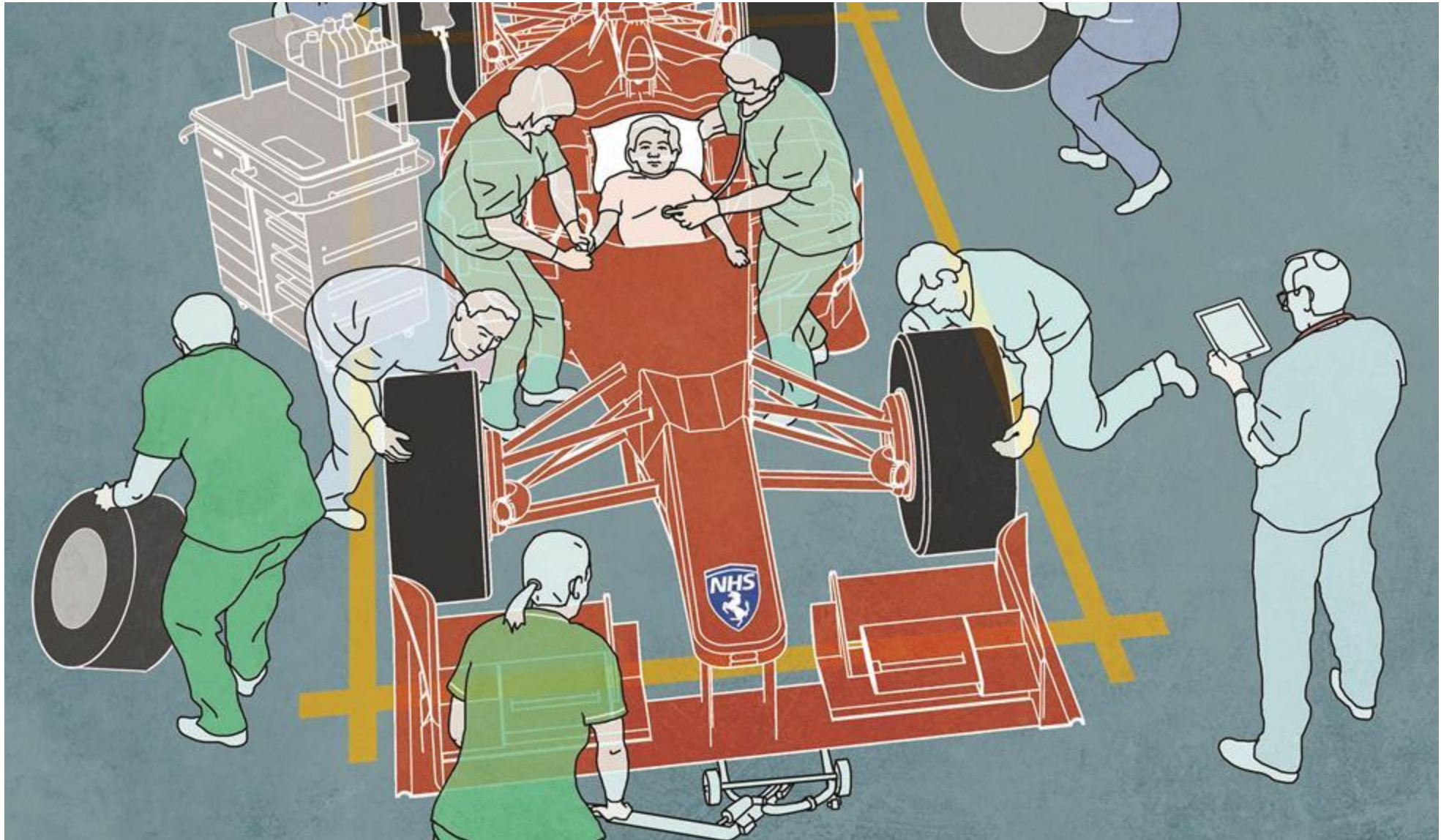
Edmonton 24hr PACS Support

780-407-1223

780-735-4865

*Stroke neurologists need to log into University of Alberta PACS to search images we've sent

- They will appear as "failed verification"
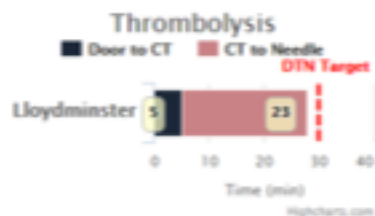
*pager (780) 445-2610 for urgent requests only

Prairie North Health Region

Initial Evaluation of Possible Acute Stroke
Lloydminster Acute Stroke Pathway Protocols

	ACTION	INITIAL

Mode of Arrival: ☐ EMS stroke alert ☐ EMS non-stroke alert ☐ Self ☐ In-patient

In-Hospital Screen (optional if transported by EMS)

Last seen by (witness name): _____ Witness phone: _____

Date/Time of arrival: _____ Airway Clear? ☐ Yes ☐ No

CTAS: ☐ 1 ☐ 2

PATIENT HAS ONE OR MORE OF THE FOLLOWING NON-RESOLVING SYMPTOMS:

If YES to any of the FAST assessment questions and LSN within 6 hours – call STAT STROKE

F - Unilateral facial droop – asymmetrical facial movement, ptosis
☐ Normal ☐ Obvious asymmetry: ☐ LEFT ☐ RIGHT ☐ Facial droop: ☐ LEFT ☐ RIGHT

A – Unilateral arm/leg weakness or drift
Arm strength ☐ Normal ☐ Weak ☐ LEFT ☐ RIGHT
Leg strength ☐ Normal ☐ Weak ☐ LEFT ☐ RIGHT

S – Speech ☐ Normal ☐ Slurred ☐ Aphasic

T – Time patient was last seen "normal" (LSN): _____ (hour) _____ (date)

LAMS Scoring	Normal	Right	Left	Total
Facial smile/grimace	0	Droop (1)	Droop (1)	
Grip	0	Weak grip (1) No Grip (2)	Weak grip (1) No Grip (2)	
Arm Strength	0	Drifts Down (1) Falls rapidly (2)	Drifts Down (1) Falls rapidly (2)	
			Total Score:	

LAMS score identifies ischemic Stroke patient harboring persisting large arterial occlusions (score of 4 or greater highly predictive of large artery occlusion)

Stroke Severity and Focal Deficits

☒ NIH Stroke Scale on arrival. Baseline Score: _____ Date/Time: _____

Consider brainstem stroke if:

☐ Coma/impaired LOC ☐ Abnormal eye movements/diplopia ☐ Vertigo

Vital Signs

☐ BP: _____ ☐ Temp: _____
☐ P: _____ ☐ O₂Sat: _____
☐ Weight: _____ ☐ Random blood glucose: _____

Consults

Extreme blood pressure elevation (e.g. systolic BP greater than 220 mmHg or diastolic BP greater than 120 mmHg) may be treated to reduce the blood pressure by around 15%, and not more than 25%, over the first 24 hours with gradual reduction thereafter. Labetalol is the usual treatment for this situation

☒ CBC ☒ Urea ☒ Creatinine ☒ Electrolytes ☒ Glucose ☒ PT/PTT
☒ Troponin ☒ ALT ☒ AST ☒ ALP ☒ Bilirubin
☐ Serum BHCG if female of child bearing age (qualitative)
☐ Additional Lab: _____

Practitioner Name_____ Signature_____ Date_____ Time_____

04-17/v3

Stroke SCN

Alteplase (tPA)

Thrombolysis
■ Door to CT   ■ CT to Needle   DTN Target

Lloydminster 5 23

0   10   20   30   40
Time (min)
Highcharts.com

Lloydminster Hospital (Lloydminster)

Door to CT (Target = 10 min)	5 min	✔
CT to Needle (Target = 20 min)	23 min	Not Met
Door to Needle (Target = 30 min)	28 min	✔

Lloydminster

Arrived: (27-Nov-2017 09:15)
Discharged: (27-Nov-2017 10:55)

Imaging
First Slice

CT
27-Nov-2017 09:20

CTA
27-Nov-2017 09:25

Treatment

Alteplase (tPA)
27-Nov-2017 09:43
Physician: Best, James
Location: Emergency Bay
Telemedicine: ●
Processes:

Team Pre-notified by EMS	●
Direct to CT	●
Patient Registered as Unknown	UTD

Quality Measures
- Dysphagia Swallowing Screen: ●
- DVT Prophylaxis: UTD

Clinical Trials
- No Clinical Trials

cru   Alberta Health Services

- ✓ Right side weakness/slurring of speech: 8:25
- ✓ Arrived via EMS: 9:15
- ✓ CT/CTA: 9:20
- ✓ Consult Alberta Neurology
- ✓ tPA: 9:43
- ✓ Consult Saskatchewan Neurology
- ✓ Transferred care to STARS: 10:55
- ✓ Angio suite: 14:15
- ✓ Discharged Home: 2 months later
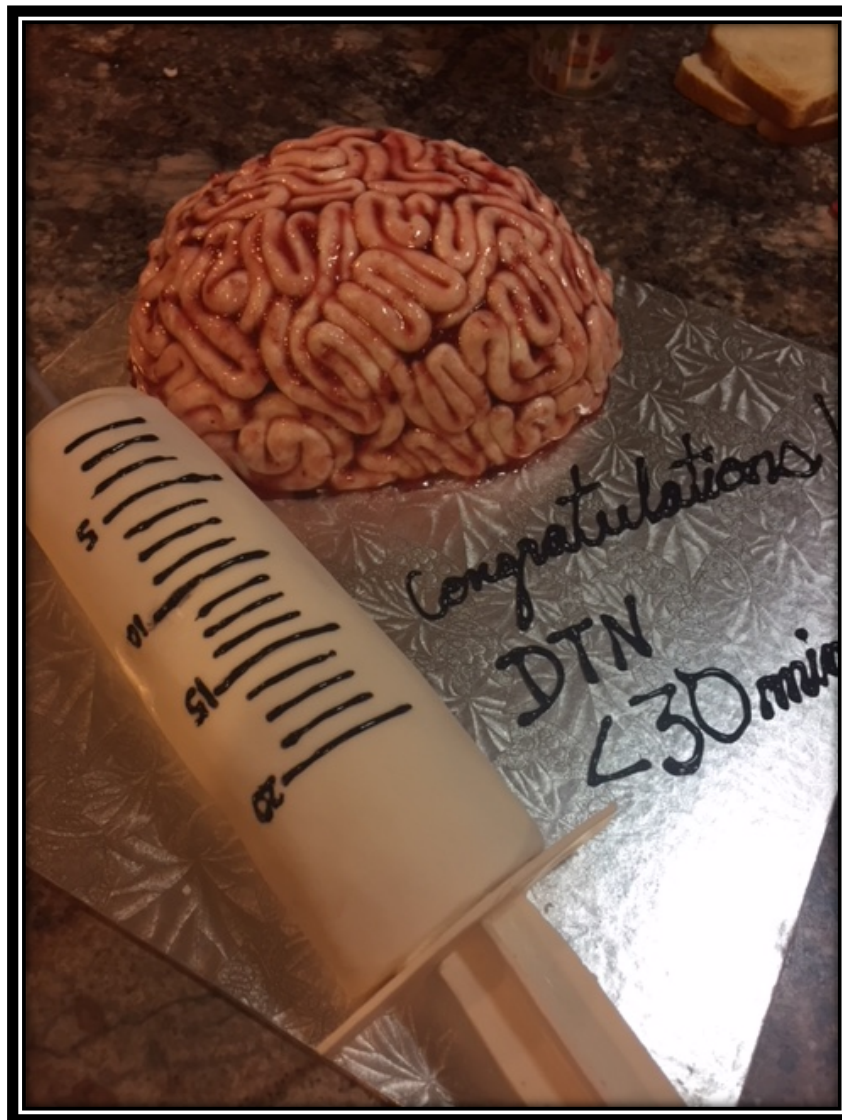
QUALITY BY **DESIGN** RATHER THAN QUALITY BY ACCIDENT

INPATIENT STROKE

"Sometimes the emergencies we are least prepared for are the ones right in front of us"

Improving in-hospital Stroke through QI Intervention Webinar

–Dr. Ethan Cumbler

IN-HOSPITAL STROKE – 46MIN, 28MINS

INPATIENT STROKE FLOW MAP AND ASSESSMENT

≤60 Minutes

```
INPATIENT WITH ACUTE STROKE SYMPTOMS
        ↓
CALL RAPID RESPONSE
        ↓
CT/CTA IMAGING
        ↓
TREATMENT
        ↓
TRANSFER
```

Patient last seen normal less than 6 hours ago or awoke with stroke symptoms
- **Sudden** loss of strength or sudden numbness in face, arm or leg
- **Sudden** difficulty with speech
- **Sudden** trouble with vision
- **Sudden** severe headache
- **Sudden** loss of balance, especially with other signs

Unit Nursing Staff
- Pt NPO
- Identify last seen normal time
- Blood Sugar
- Vital Signs
- Notify Charge RN and MRP
- Obtain chart and old notes
- Accompany patient emergently until treatment/disposition decision is made, and assist with inclusion/exclusion criteria

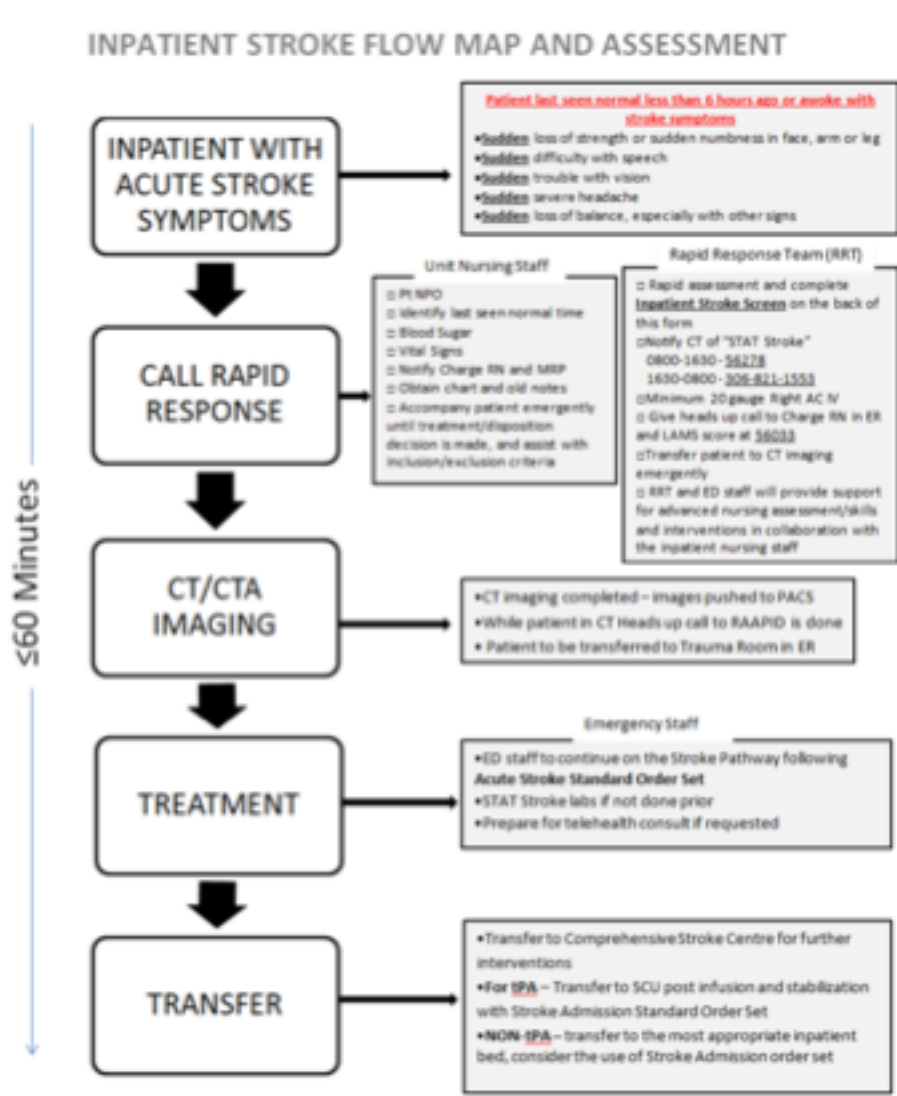### Rapid Response Team (RRT)
- Rapid assessment and complete **Inpatient Stroke Screen** on the back of this form
- Notify CT of "STAT Stroke"
  0800-1630- 56278
  1630-0800- 306-821-1553
- Minimum 20 gauge Right AC IV
- Give heads up call to Charge RN in ER and LAMS score at 56033
- Transfer patient to CT imaging emergently
- RRT and ED staff will provide support for advanced nursing assessment/skills and interventions in collaboration with the inpatient nursing staff

CT/CTA IMAGING
- CT imaging completed – images pushed to PACS
- While patient in CT Heads up call to RAAPID is done
- Patient to be transferred to Trauma Room in ER

Emergency Staff
- ED staff to continue on the Stroke Pathway following **Acute Stroke Standard Order Set**
- STAT Stroke labs if not done prior
- Prepare for telehealth consult if requested

TRANSFER
- Transfer to Comprehensive Stroke Centre for further interventions
- **For tPA** – Transfer to SCU post infusion and stabilization with Stroke Admission Standard Order Set
- **NON-tPA** – transfer to the most appropriate inpatient bed, consider the use of Stroke Admission order set

SEE OVER ⟶

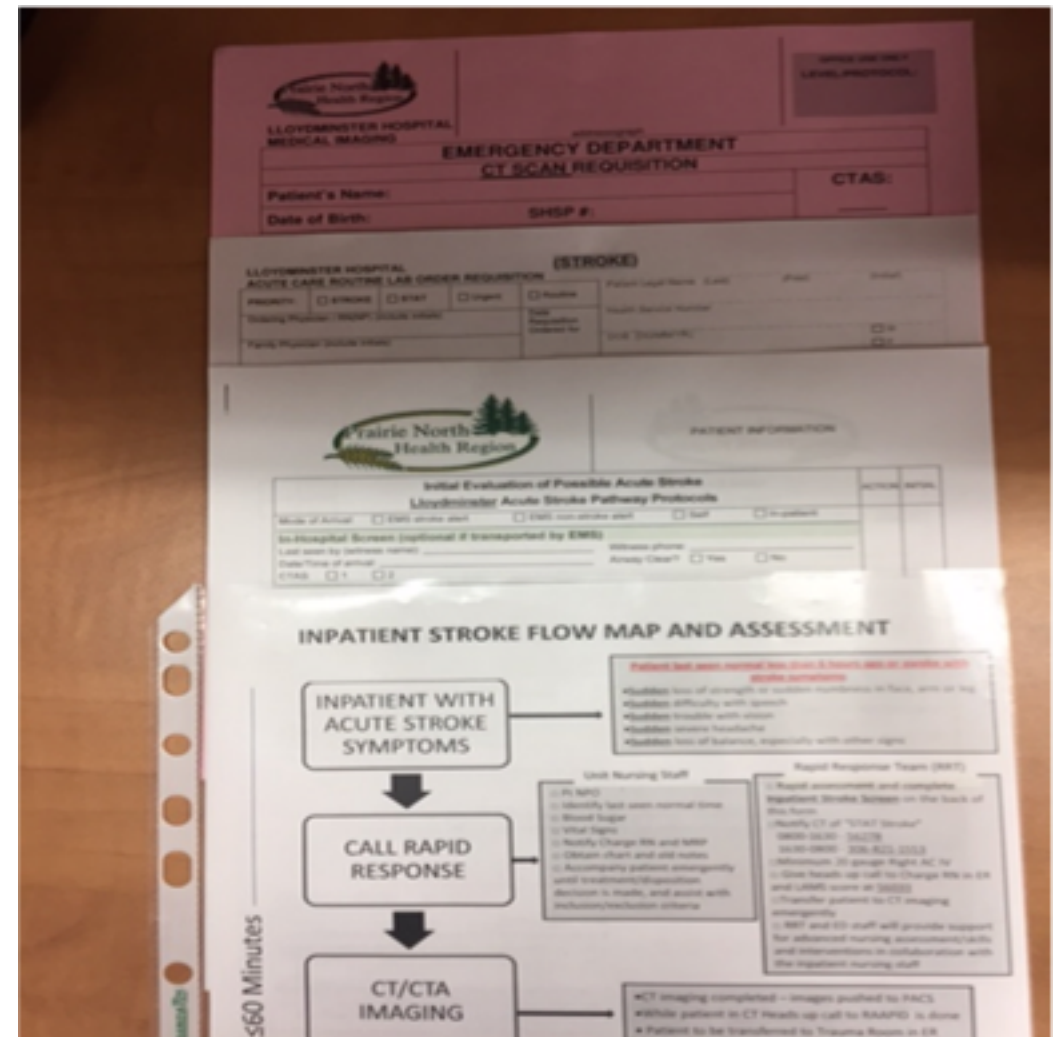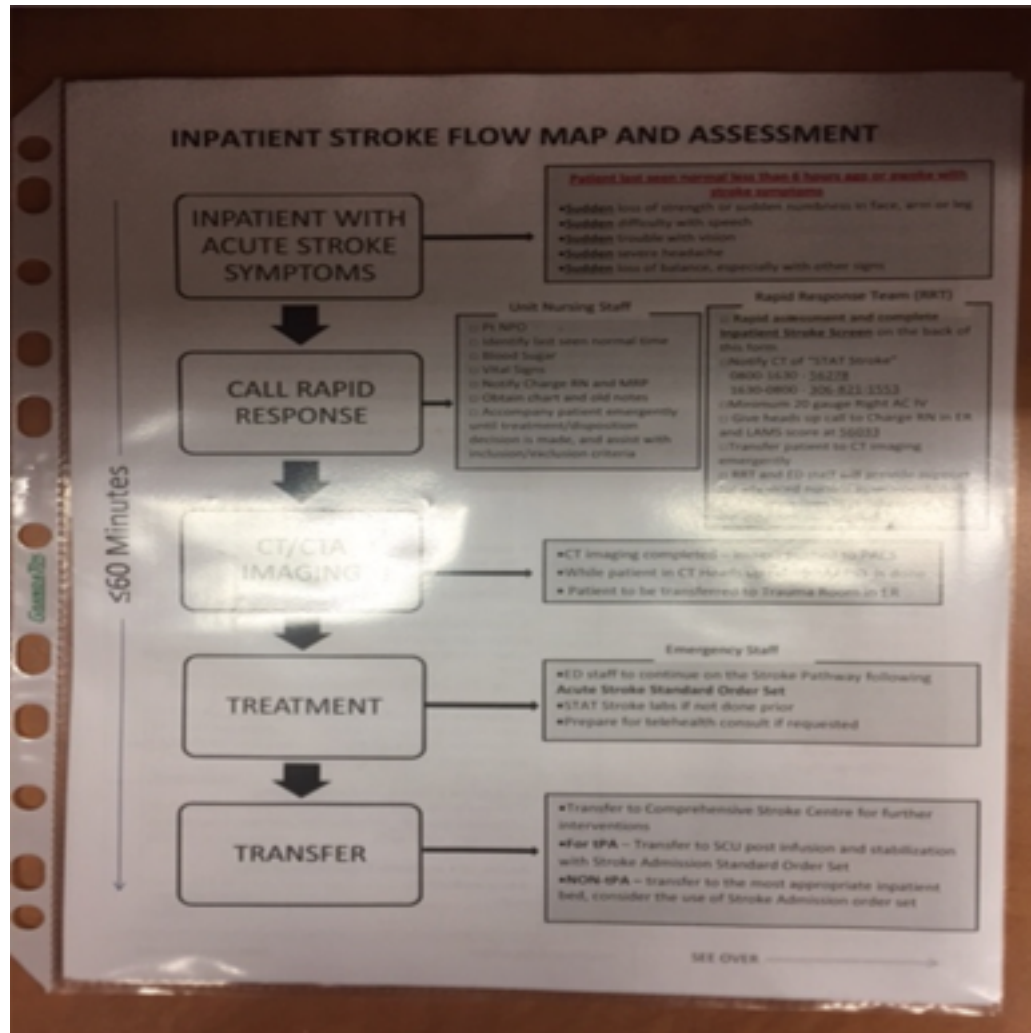---

Time Last Seen Normal: _____

Vital Signs: _____

Blood Glucose: _____

PATIENT LABEL

INPATIENT STROKE SCREEN - Complete Physical Examination Findings and LAMS scoring
-GOAL OF ≤60 MINUTES FROM DISCOVERY OF SYMPTOMS TO TPA ADMINISTRATION-

Level of Consciousness		Speech		
□ Alert		□ Normal		
□ Responds to Verbal		□ Slurred		
□ Responds to Pain only		□ Incomprehensible or mute		
□ Unresponsive				

Leg Strength		Screening Process
□ Normal		1. Is blood glucose level greater than 3.0 mmol/L?
□ Right-Drifts down		□ No → Treat and continue screening process
□ Left-Drifts down		□ Yes → Continue screening process
□ Right-Falls rapidly		
□ Left-Falls rapidly		3. Current use of an anticoagulant (Coumadin/Warfarin)

Facial Smile	LAMS	□ No → Continue Screening process
Smile, show teeth, raise eyebrows and squeeze eyes shut		□ Yes → Obtain STAT Acute Stroke Blood work and continue screening process
□ Normal (0)		
□ Right-Droop (1)		2. Patient last seen normal less than 6 hours ago or awoke with stroke symptom?
□ Left-Droop (1)		
Arm Strength		□ No → Not an alteplse (tPA) or EVT candidate. Consult MRP.
Elevate with palm down and hold for 10 second count (45 degrees if laying down, 90 degrees if sitting)		□ Yes → Continue Screening process
□ Normal (0)		
□ Right-Drifts down (1)		3. Is one or more red physical findings checked?
□ Left-Drifts down (1)		□ No → May not be a stroke. Consult MRP.
□ Right-Falls rapidly (2)		□ Yes → Patient is a potential Aleteplase (tPA) candidate move directly CT imaging once stable
□ Left-Falls rapidly (2)		

Grip Strength		Los Angeles Motor Scale (LAMS) Scoring
Have patient try to grasp examiners fingers		1. Score the affected side using the values provided
□ Normal (0)		2. Score Facial smile, Arm strength and Grip strength
□ Right-Weak grip (1)		3. Calculate Score (0-5)
□ Left-Weak grip (1)		
□ Right-No grip (2)		A score of 4 or greater is predictive of large artery occlusion
□ Left-No grip (2)		
LAMS SCORE		

Practitioner Name (print)	Practitioner Signature	Date (yyyy-Mon-dd)

IN-HOSPTIAL STROKE PACKAGE

BUILD RELIABLE PROCESSES AND RESILIENT TEAMS

THANK YOU

- Albert Stroke Program and QuICR

- Lloydminster Hospital Staff: Nurses, Physicians, Diagnostics, Lab

- EMS

- RAAPID/ACAL