Provincial Stroke Rounds

Wednesday March 6th, 2024

Toronto Stroke Networks

Evaluation

Toronto Stroke Networks

For the **Provincial Stroke Rounds Planning Committee**:

- To plan future programs
- For quality assurance and improvement

- For **You**: Reflecting on what you've learned and how you plan to apply it can help you enact change as you return to your professional duties

- For **Speakers**: The responses help understand participant learning needs, teaching outcomes and opportunities for improvement.

https://forms.office.com/r/3EnLu1kc7u

Please take 2 minutes to fill the evaluation form out. Thank you!

Mitigating Potential Bias (Provincial Stroke Rounds Committee)

- The Provincial Stroke Rounds Committee mitigated bias by ensuring there was no Industry involvement in planning or education content.

- The Ontario Regional Education Group (OREG) host member, on behalf of the Provincial Stroke Rounds Committee, reviewed the initial presentation supplied by the speaker to ensure no evidence of bias.

Stroke / ICU Liaison :
A new collaborative model for the interdisciplinary care of stroke patients

Federico Carpani, MD
Neurologist, UHN Stroke Fellow

Keith Sivakumar, MD, MBA
Neurologist, UHN Stroke Staff,
Education Lead

Toronto Stroke Networks
• Leadership • Innovation • Collaboration

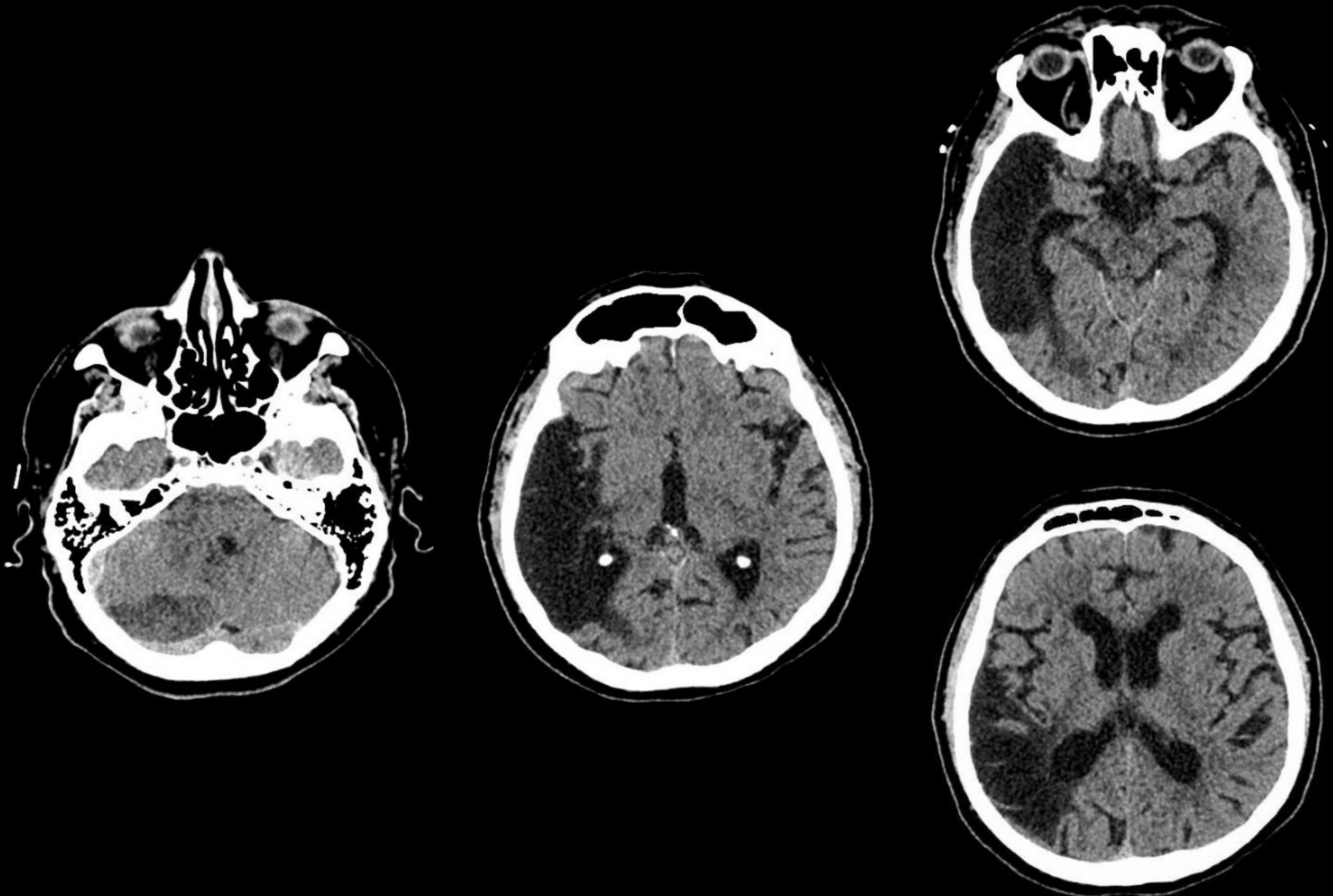
UHN Toronto Western Hospital

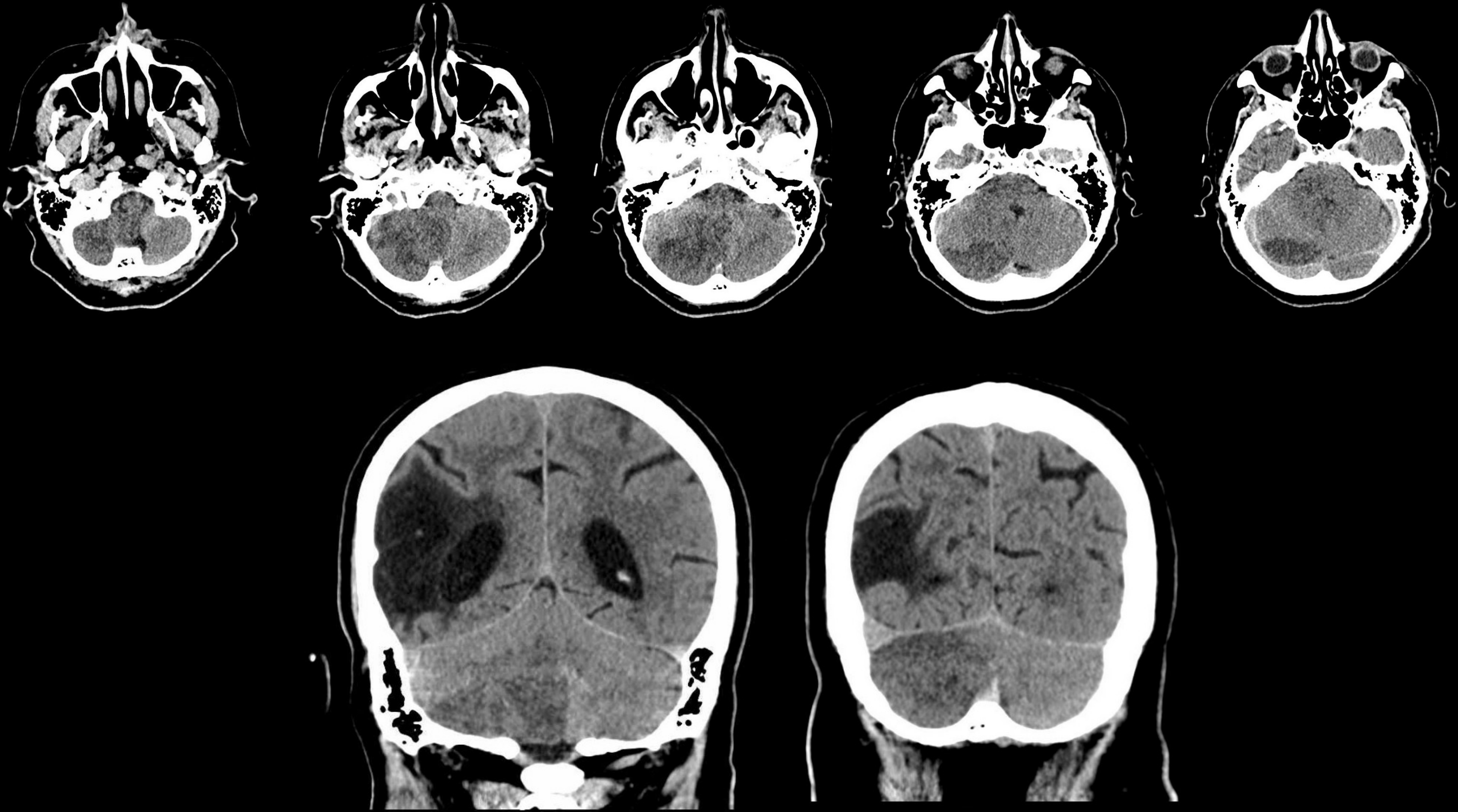
OBJECTIVES

To describe the QI process

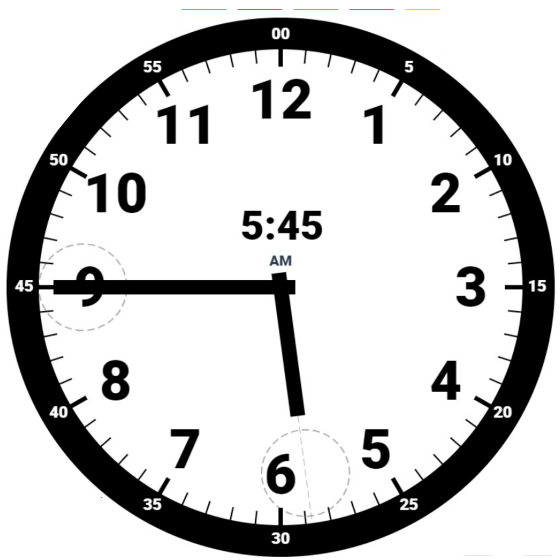
To showcase the benefits of interprofessional collaboration


HOSPITAL






EMERGENCY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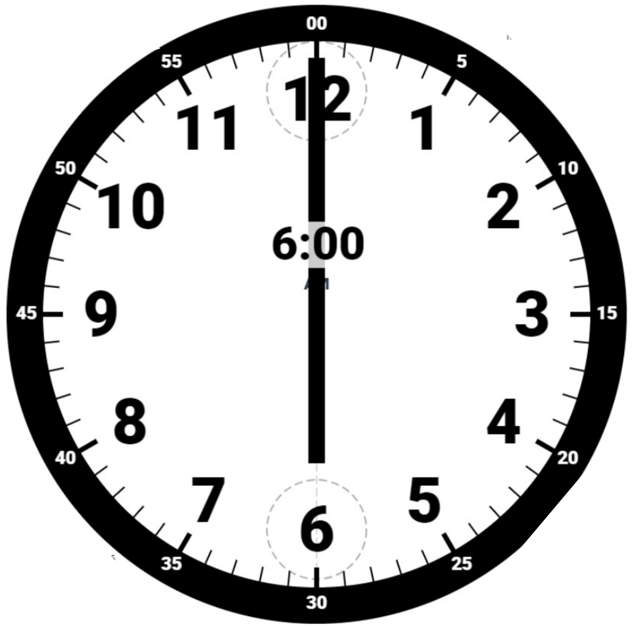
AM



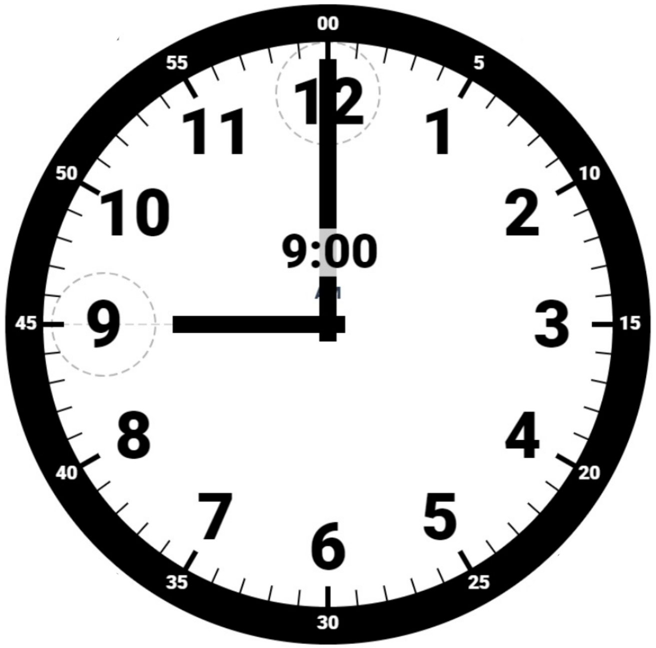
Pupils are equal and reactive.

NIHSS 7

GCS 14 (E4 – V4 – M6)

BP 130 / 75 – No Meds

HR 60 – 120 Afib



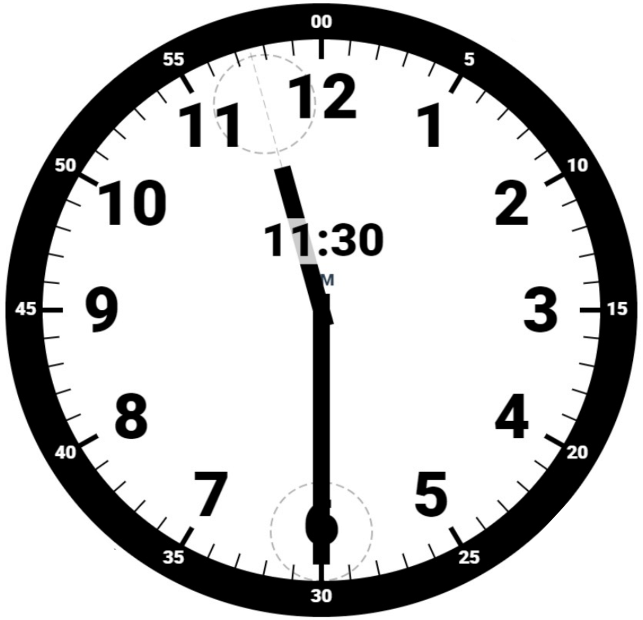
Pupils are equal and reactive.

NIHSS 7

GCS 13 (E4 – V3 – M6)

BP 130 / 75 – No Meds

HR 60 – 90 SR



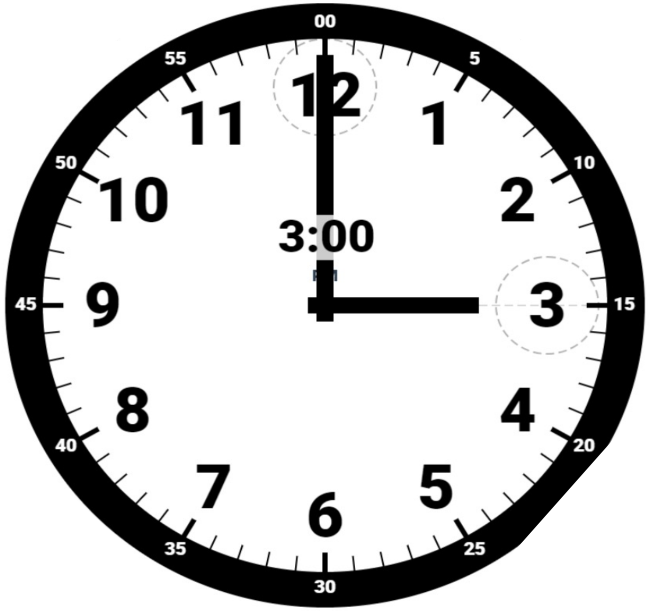
Pupils are equal and reactive.

NIHSS 8

GCS 12 (E3 – V3 – M6)

BP 150 / 100 – permissive hypertension

HR 50 – 70 SR



Pupils are equal and reactive.

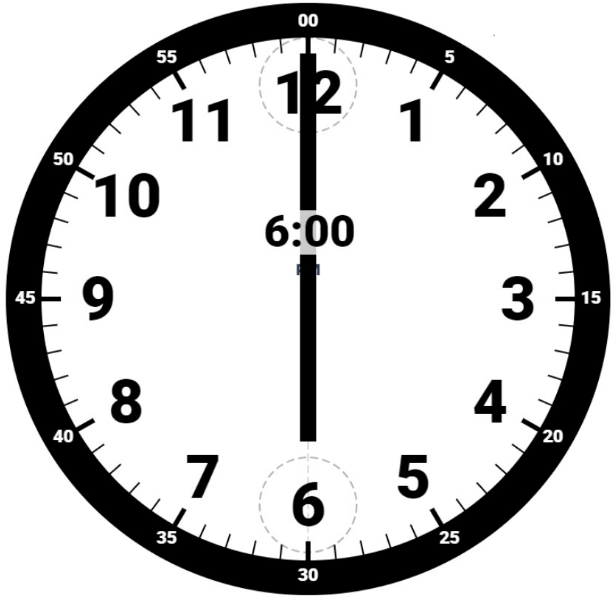
NIHSS 8

GCS 12 (E3 – V3 – M6)

BP 170 / 100 – hydralazine PRN

HR 50 - 60 SR

CCRT called – not meeting criteria
Neurosurgery called – no surgical criteria



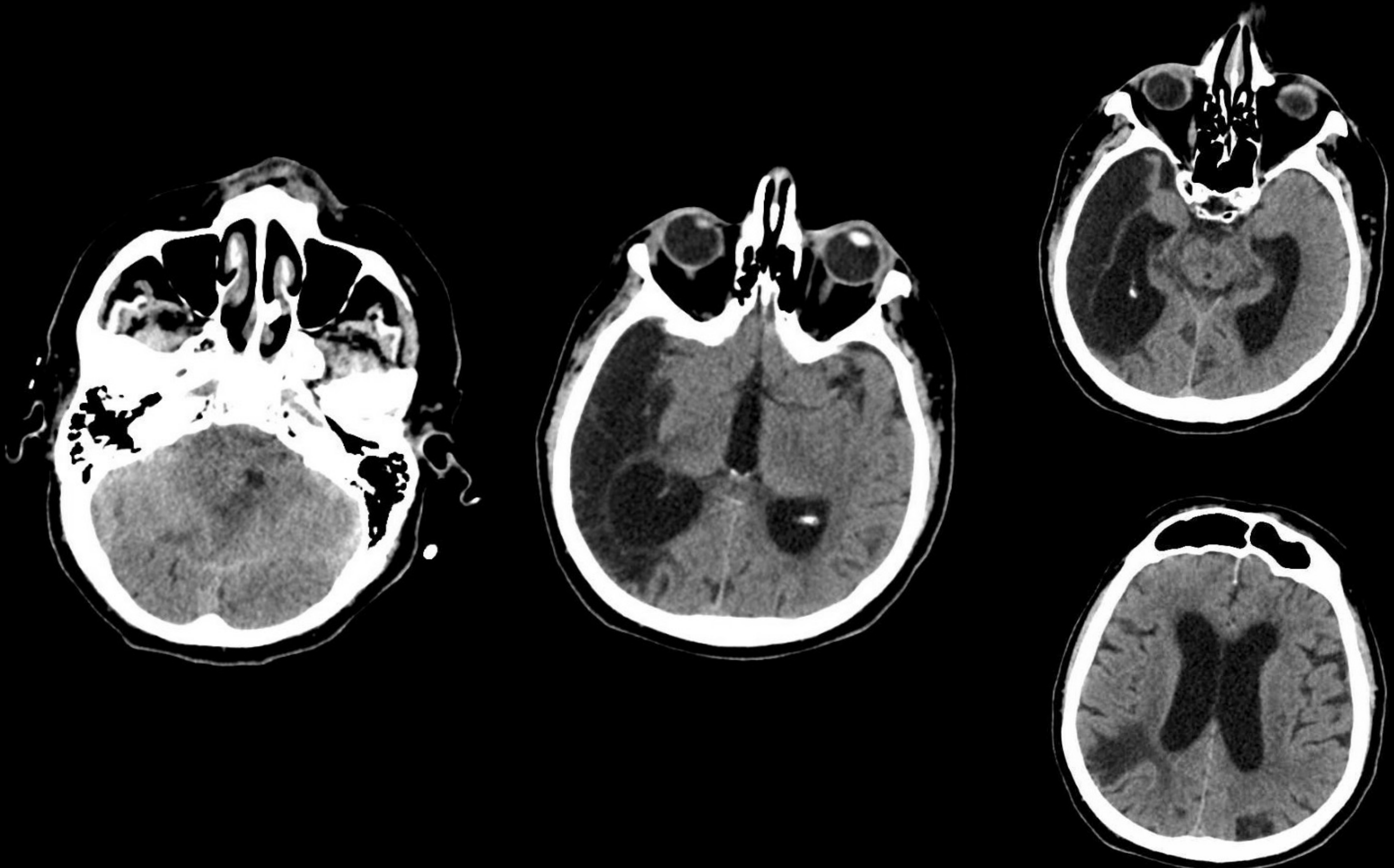
Patient unstable

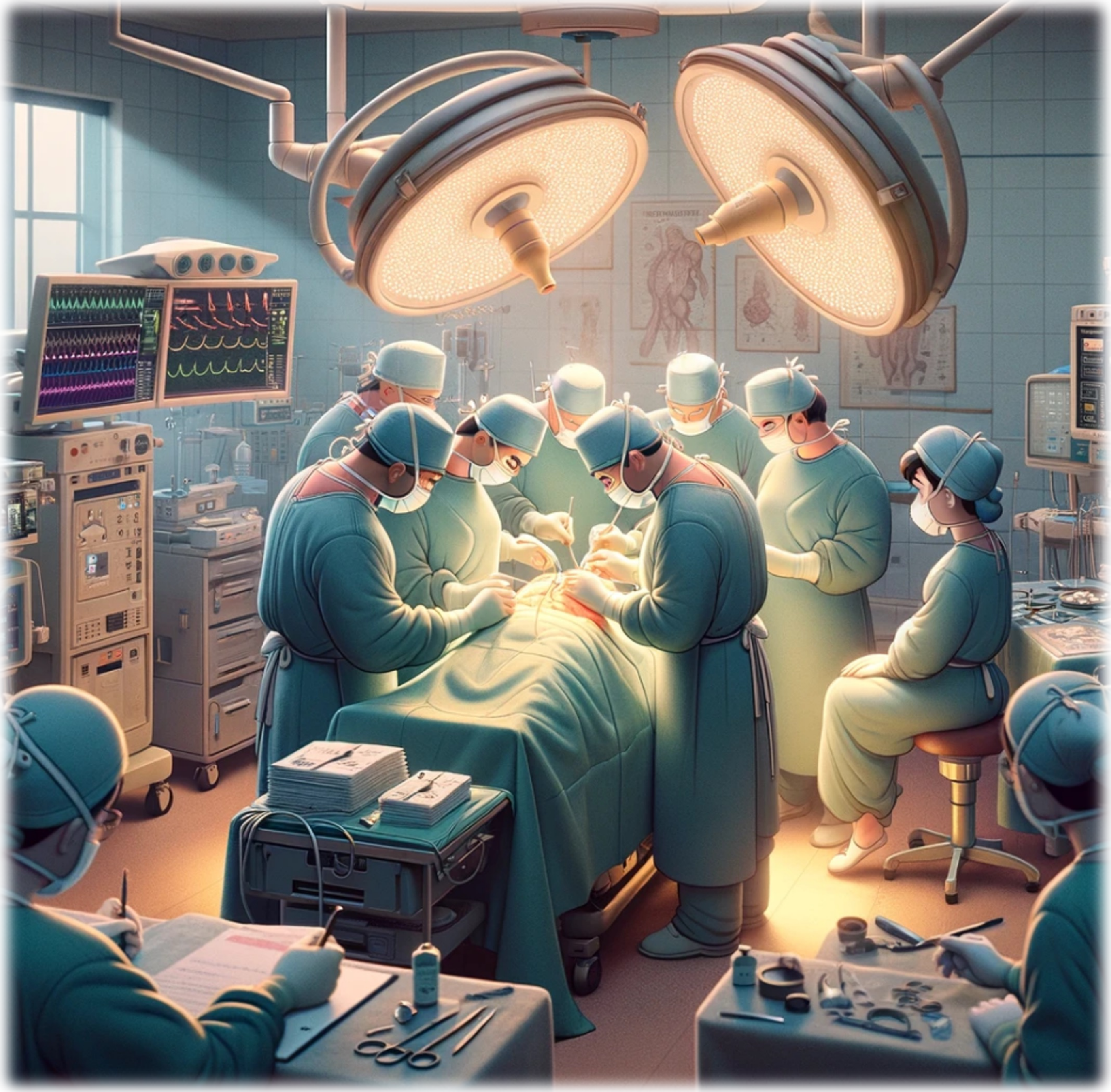
Right pupils is sluggish.

GCS 9 (E2 – V3 – M4)

BP 230 / 130 – hydralazine PRN

HR 40 - 50 SR





EARLY NEUROLOGICAL DETERIORATION (END)

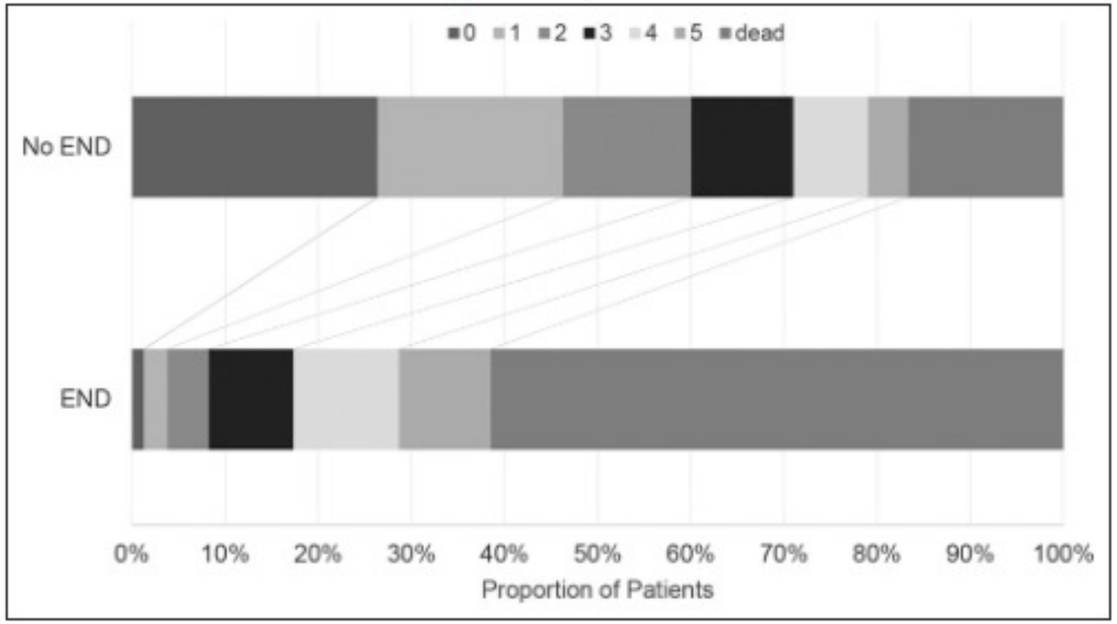
Toronto Western Hospital

Stroke

CLINICAL AND POPULATION SCIENCES

The Incidence and Associated Factors of Early Neurological Deterioration After Thrombolysis

Results From SITS Registry



76 % ICH vs 23 % ischemic stroke

80 % required intubation

64.5% died

BMC Anesthesiology

RESEARCH Open Access

Outcomes of patients admitted to the ICU for acute stroke: a retrospective cohort

Toronto Western Hospital

THERAPEUTIC ADVANCES in
Neurological Disorders

Early neurological deterioration in patients with acute ischemic stroke: a prospective multicenter cohort study

END happens in 14% of patients with ischemic stroke

62.5% occur in the first 24 hours

72.9% expansion in 24 hours

75% increase of Perihematomal Edema (PHE) in 24 hs (up to 12 days)

Stroke

TOPICAL REVIEWS

Surgical Evacuation of Intracerebral Hemorrhage

The Potential Importance of Timing

Toronto Western Hospital

Stroke

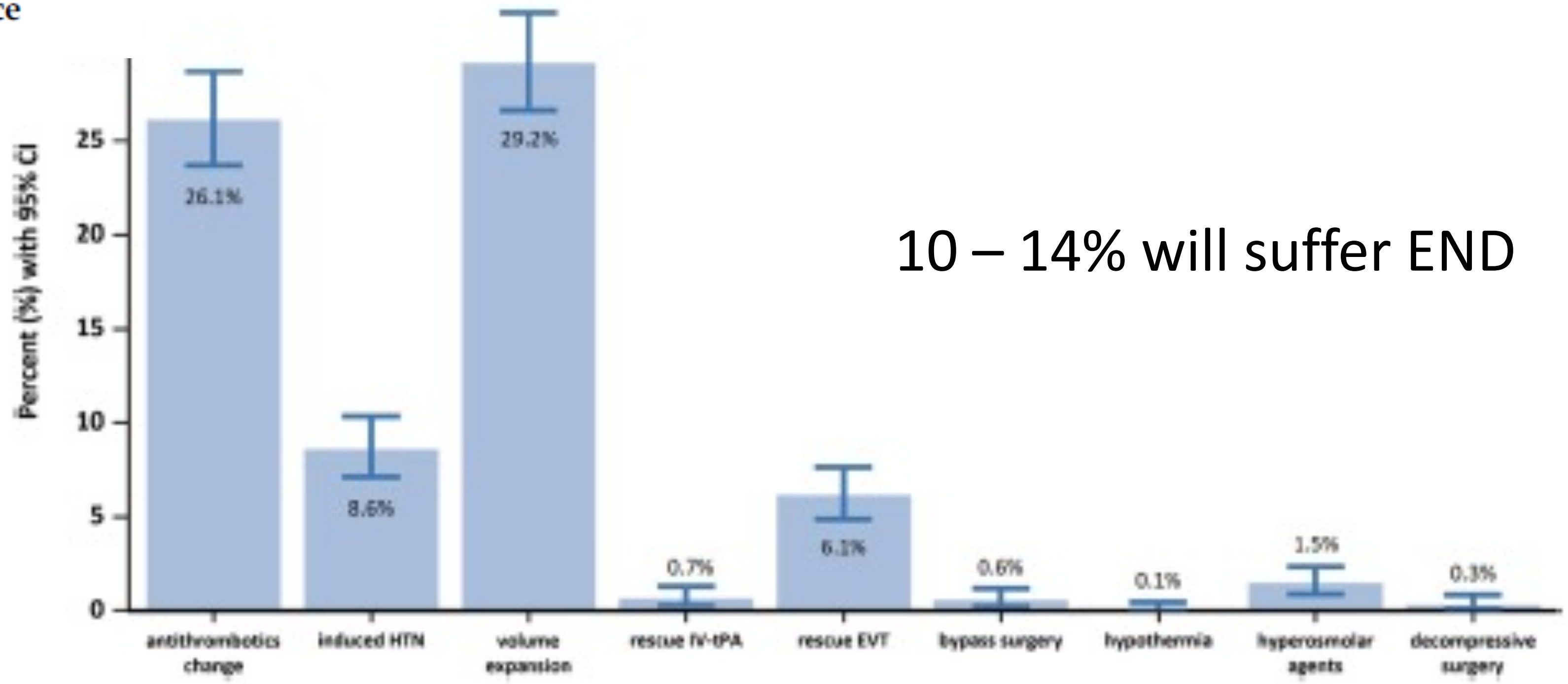
TOPICAL REVIEW

Decompressive Hemicraniectomy for Large Hemispheric Strokes

10% of large MCA Strokes

40 – 80% Mortality

Frequency, management, and outcomes of early neurologic deterioration due to stroke progression or recurrence



10 – 14% will suffer END

NEUROVASCULAR STEP-DOWN UNIT
(LEVEL 2)

PULMONARY PERSPECTIVE

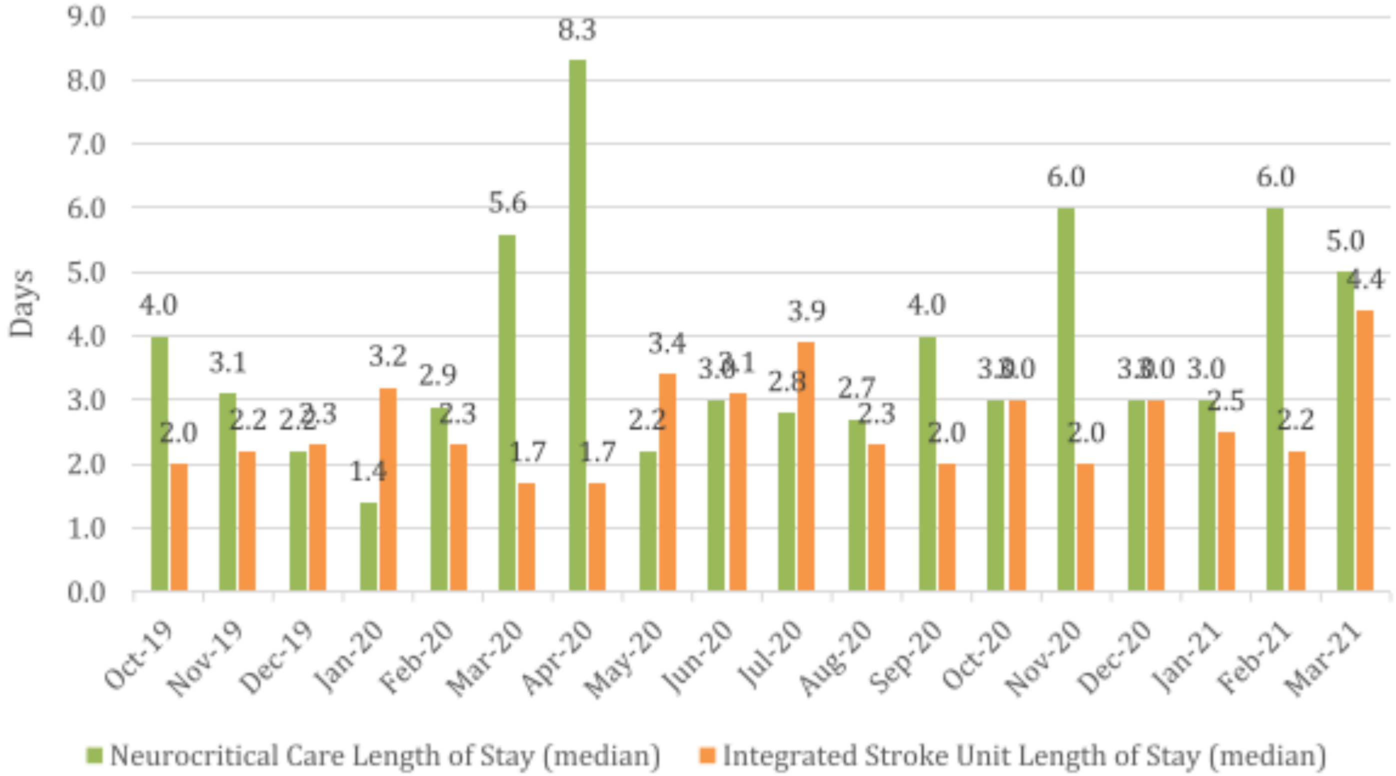
The Role of Stepdown Beds in Hospital Care

Meghan Prin[1] and Hannah Wunsch[1,2,3]

Intermediate level of care

Don’t require full intensive care

Not proper for the ward



Journal of Neuroscience Nursing

Post-Thrombolytic Care Steps Up the Step-Down Unit

Michelle Hill, Steve Potkrajac, Keesha Cunningham

Clinical Neurology and Neurosurgery

Neuroscience step-down unit admission criteria for patients with intracerebral hemorrhage

The institution's protocol for monitoring stroke patients.

Capabilities	Step-down stroke unit	Neuroscience ICU
Nurse/patients ratio	1/4	1/2
Advanced monitoring	None	Arterial line, CVP, and ICP
Nursing monitoring (including exam)	Every 2 h	Every 1 h
Vital Signs	Every 2 h	Every 1 h
Coverage	Stroke neurologists + Neurology residents	Neuro-intensivists + Neurocritical care fellows
Invasive Mechanical Ventilation	No	Yes
External Ventricular Drain (EVD) monitoring	No	Yes
Medications	No IV sedation or IV pressor therapy is used	IV sedation and IV pressor are available

LEVEL 2 – STEP DOWN UNIT

LEVEL 2 – STEP DOWN UNIT

UHN Toronto Western Hospital

TWH-NVU 20 beds

Nurse patient ratio ½

Nursing monitoring Q1

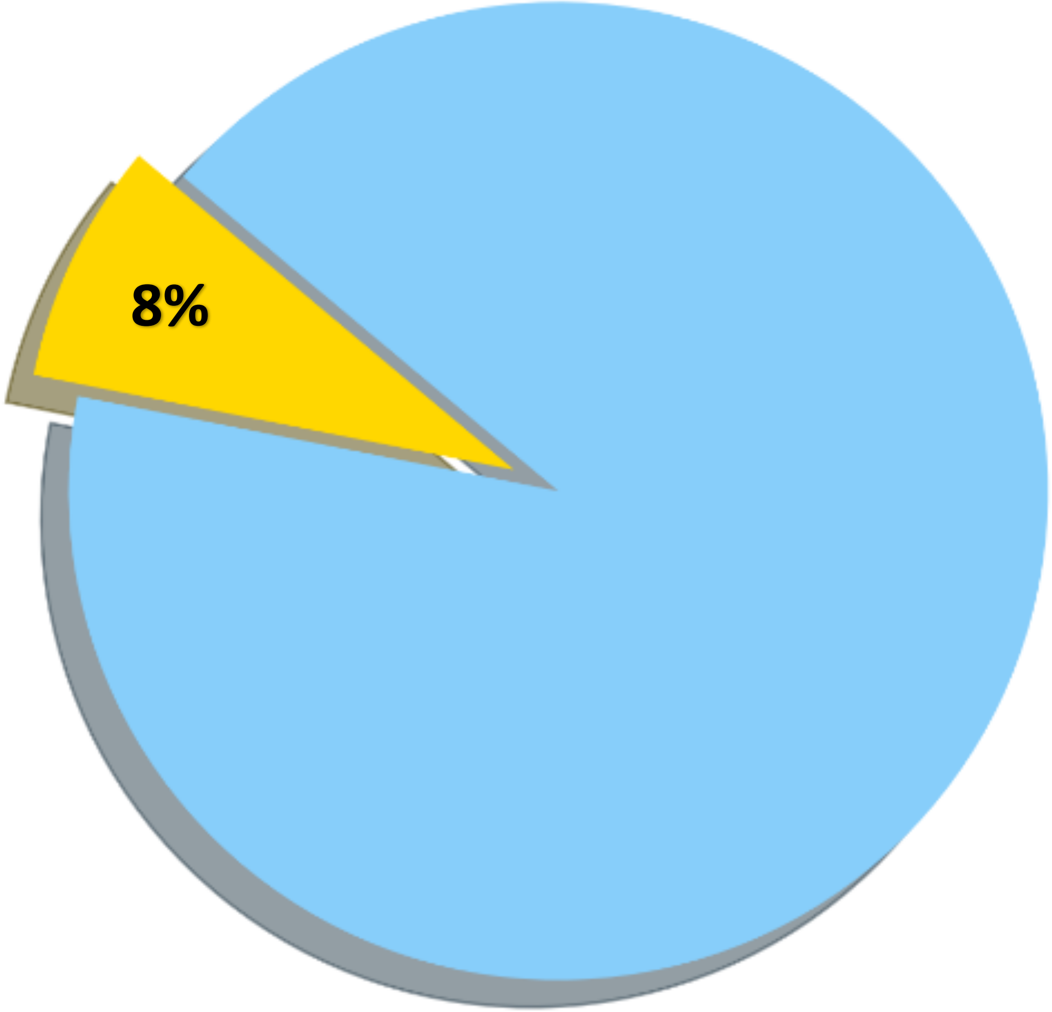
Vasoactive drugs

Specific neuro (CNS) trained

Code Stroke resource nurse

QUALITY IMPROVEMENT OPPORTUNITY

QI OPPORTUNITY



Level 2 transfers to MNSICU

“What if we could provide a safer care environment for those patients who are stable but have a high risk of deterioration?

Let’s say that they don’t have to be admitted to the ICU, increasing the efficiency in the use of healthcare resources.

And that is not all; we could also provide multidisciplinary education for residents, physicians and nurses. “

Revolutionizing Surgical Care: The Power of Enhanced Recovery After Surgery (ERAS)

1. Build a multidisciplinary team
2. Follow evidence based guidelines
3. Audit outcomes and processes
4. Work in Quality Improvement cycles

Executive Sponsors
Dr. L. Casaubon
Dr. A. Steel

ICU Lead

Dr. I. Randall

Stroke Team Leads
Dr. K. Sivakumar
Dr. F. Carpani
F. Akhtar

STAKEHOLDERS
Patients and families.
Neurology and ICU Residents

Stroke and ICU Fellows
Stroke NPs
Level 2 Nurses

OLD PROCESS: ADMISSION

Toronto Western Hospital

PATIENT ADMITTED TO LEVEL 2

Assigned: Stroke team

Expected: All patients who require high-level monitoring.

STROKE ADMISSION ORDERS

Assigned: Stroke team

Expected: Team members will use the established admission order set

END

YES

CONSULT CCRT

Assigned: ICU.

Expected: ICU will decide if a patient requires intensive care

TRANSFER TO ICU

Assigned: ICU.

Expected: ICU will arrange bed and transportation

NO

STAY IN LEVEL 2

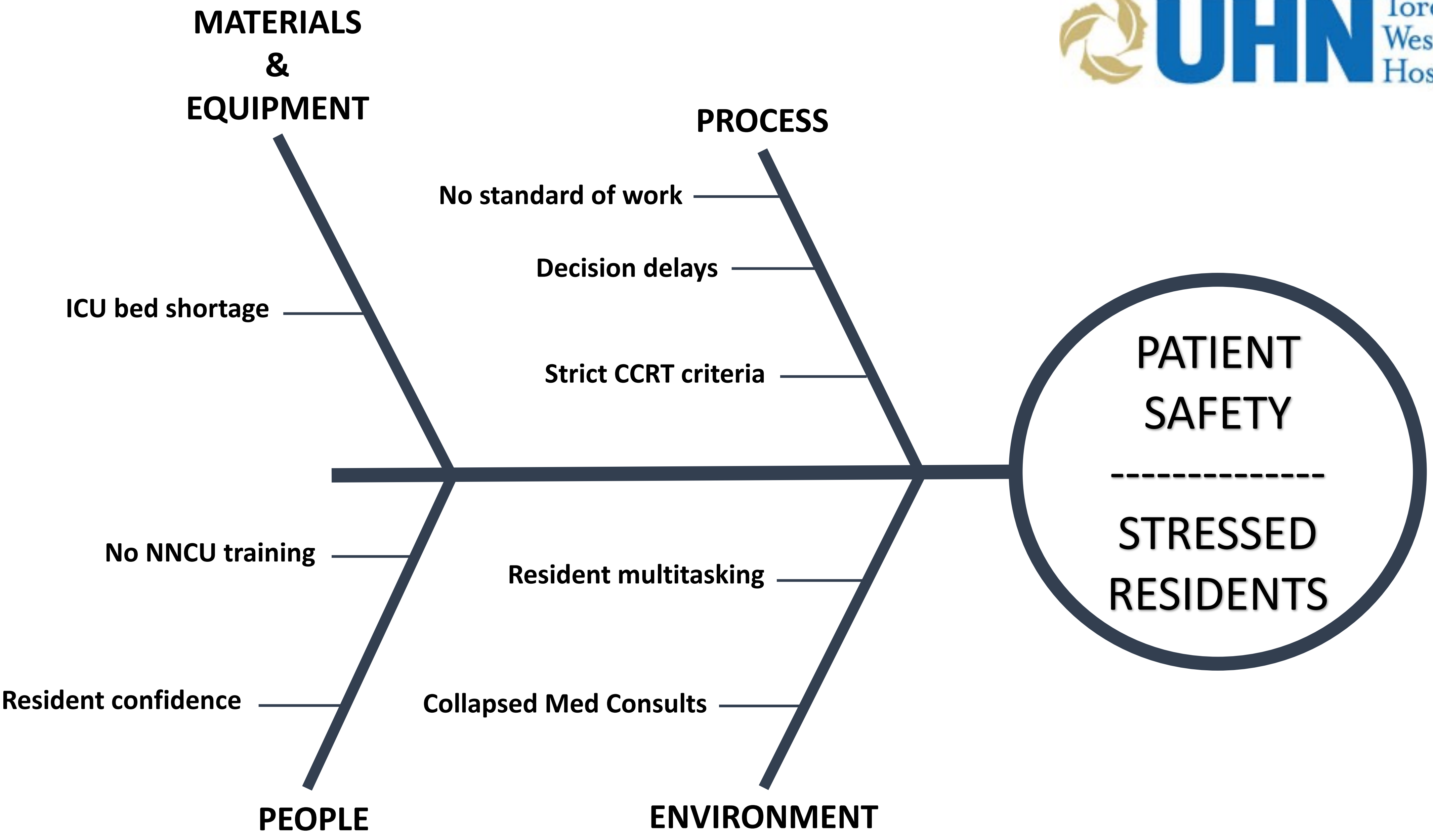
Assigned: Both teams.

Expected: Both teams should be aware of the patient's needs without prompting.

TRANSFER TO THE WARD

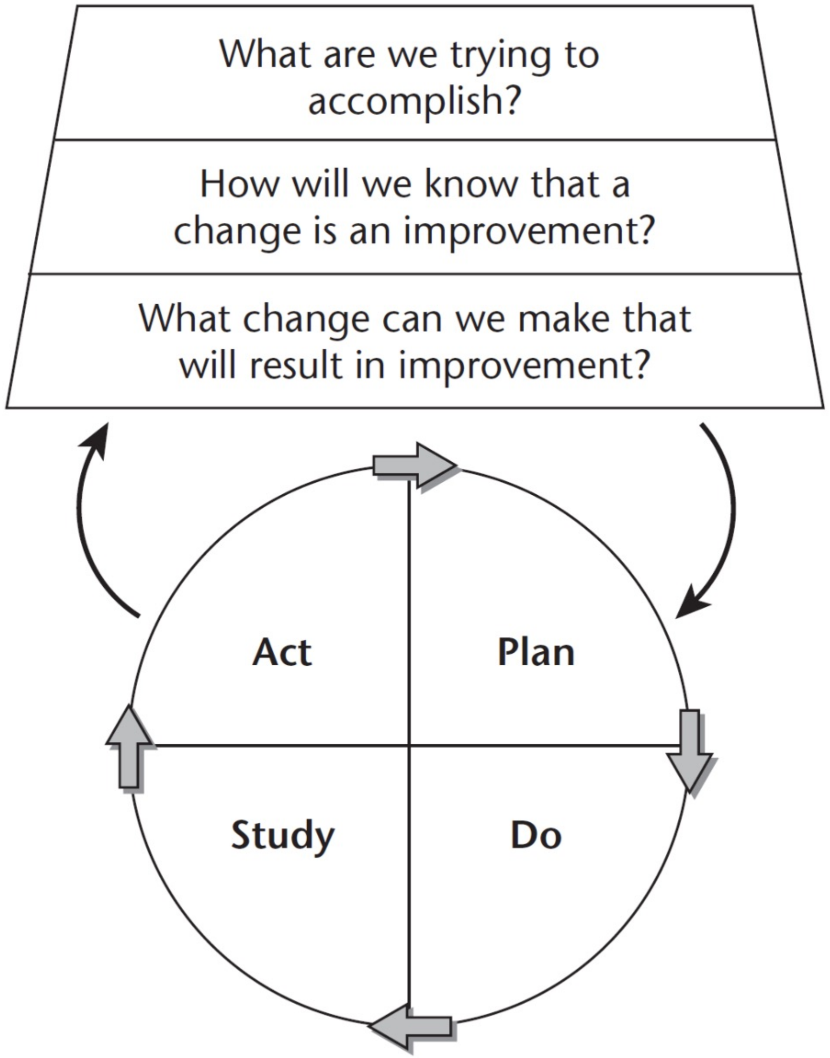
Assigned: Stroke teams.

Expected: Stroke writes transfer notes in Epic


MATERIALS
&
EQUIPMENT
PROCESS
No standard of work
Decision delays
ICU bed shortage
Strict CCRT criteria
PATIENT
SAFETY

STRESSED
RESIDENTS
No NNCU training
Resident multitasking
Resident confidence
Collapsed Med Consults
PEOPLE
ENVIRONMENT

IHI MODEL FOR IMPROVEMENT



What are we trying to accomplish?

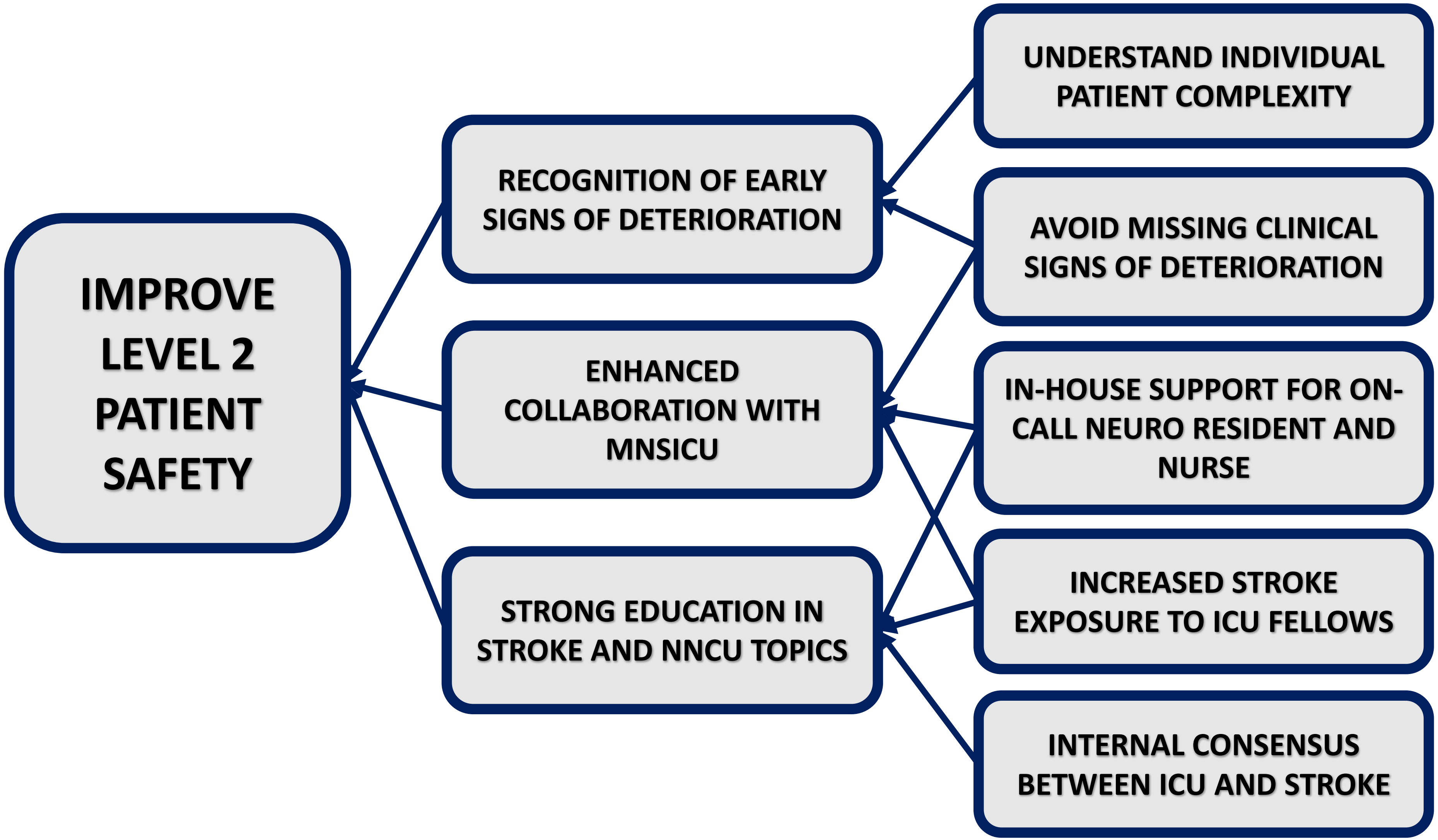
IMPROVE LEVEL 2 PATIENT SAFETY

What are we trying to accomplish?

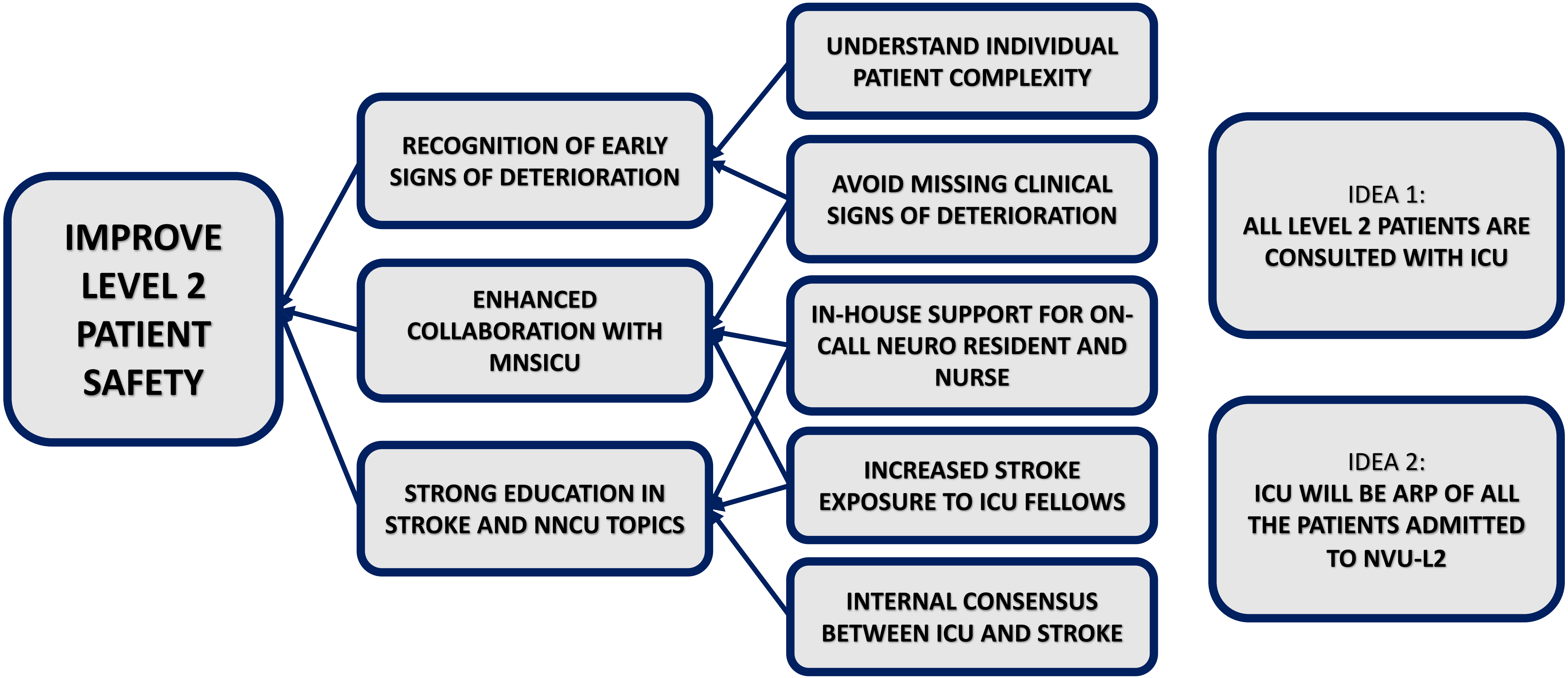
IMPROVE LEVEL 2 PATIENT SAFETY

- **RECOGNITION OF EARLY SIGNS OF DETERIORATION**
- **ENHANCED COLLABORATION WITH MNSICU**
- **STRONG EDUCATION IN STROKE AND NNCU TOPICS**

What are we trying to accomplish?



What changes will result in improvement?



What are we trying to accomplish?

Enhance stroke patient safety and resident's education at NVU-Level 2 by consulting the ICU team for all admissions, aiming 90% coverage by July 2024.

1.Standard Of Work (SOW):

<u>Consultations for stroke patients in ICU - Level 2.</u>

UHN Toronto Western Hospital

Goals:

a) **Increased patient safety for complex medical care of stroke patients**
    a. Predict and prevent decompensation from comorbidities and complications of stroke
    b. Provide early and coordinated response to improve outcomes after a stroke
    c. Improve patient and family experience and satisfaction by improved communication and updates from team members

b) **Increased collaboration and communication between the Stroke Team and ICU**

c) **Enhanced learner experience; with more significant support and education for Stroke and ICU teams (staff, fellows, NPs, Residents and RNs)**

NEW PROCESS: **ADMISSION**

PATIENT ADMITTED TO LEVEL 2

STROKE ADMISSION ORDERS

STROKE CONSULTS ICU

ICU REVIEWS THE PATIENT

ICU MAKES SUGGESTIONS

Assigned: Stroke team

Expected: All patients who require high-level monitoring.

Assigned: Stroke team

Expected: Team members will use the established admission order set

Assigned: Stroke team

Expected: Team members will connect with the NeuroICU fellow.

Assigned: ICU team

Expected: ICU reviews all L2 patients.

Assigned: ICU team

Expected: ICU writes a daily note on every L2 patient.

NEW PROCESS: **DAY ONE**

STROKE LIAISES WITH ICU

Assigned: Stroke team.

Expected: Stroke fellow calls ICU phone to arrange a time to round on the patients.

JOINT ROUNDS STROKE + ICU

Assigned: Both teams.

Expected: Both teams (at least one representative) meets to round the patients

PATIENT STABLE

YES

ICU MAKES FU RECOMMENDATIONS & SIGNS OFF

Assigned: Both teams.

Expected: ICU writes medical suggestions for the patient.

NO

CONTINUE JOINT FOLLOW UP

Assigned: Both teams.

Expected: Both teams should be aware of the patient's needs without prompting.

STROKE AND ICU WRITE PROGRESS NOTES

Assigned: Both teams.

Expected: Daily progress note addressing topics specific to each team

NEW PROCESS: **DETERIORATION**

LIFE AT RISK

YES

TRANSFER CARE TO ICU

Assigned: ICU.

Expected: ICU will decide if a patient requires intensive care

TRANSFER TO ICU

Assigned: ICU.

Expected: ICU will arrange bed and transportation

NO

STAY IN LEVEL 2

Assigned: Both teams.

Expected: Both teams should be aware of the patient's needs without prompting.

CONTINUE JOINT FOLLOW UP (UNTIL STABLE)

Assigned: Both teams.

Expected: Both teams should be aware of the patient's needs without prompting.

ICU MAKES FU RECOMMENDATION & SIGNS OFF

Assigned: ICU

Expected: Once stable, ICU writes medical recommendations and suggests consults. .

TRANSFER TO THE WARD

Assigned: Stroke teams.

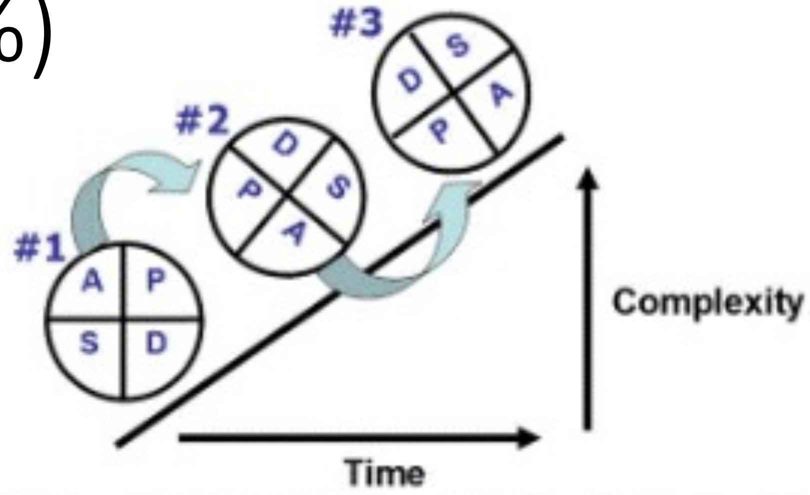
Expected: Stroke writes transfer notes in Epic

BASELINE: March – June 2023

77 patients
15 consults to CCRT (19%)
6 transfers to ICU (8%)

PDSA 1: June – December 2023
Pager communication
5 PM Huddle

131 patients
91 Consults to ICU (70%)
68 > 1 note (52%)
11 transfers to ICU (4.5%)

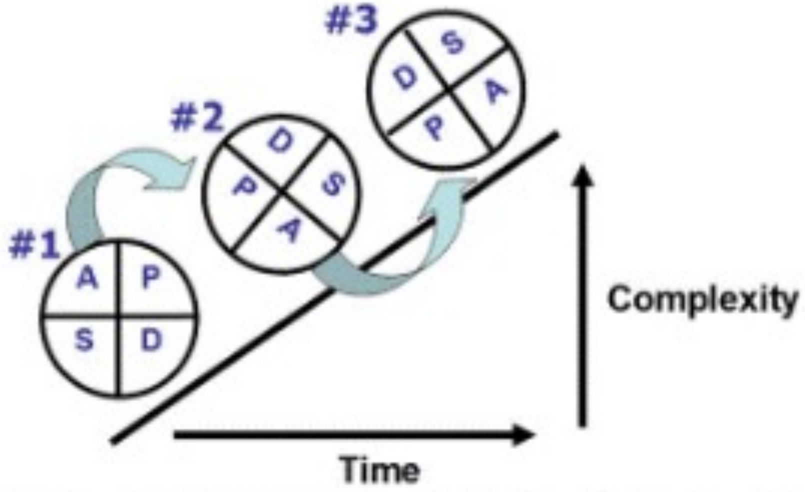


PDSA 1: Issues

Pager communication
5 PM Huddle

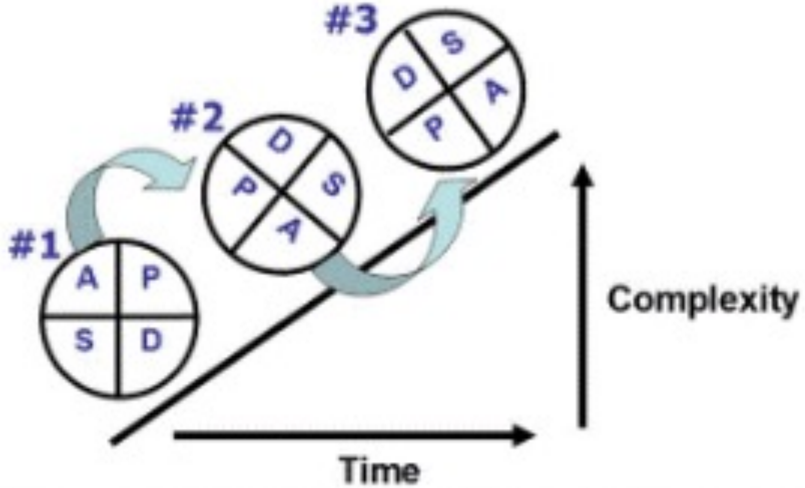
Process/SOW not properly shared

Difficulty gathering both teams



PDSA 2: Dec 2023 – Jan 2024
Dedicated Telephone

38 patients
30 Consults to ICU (79%)
18 > 1 note (47%)
3 transfers to ICU (8%)

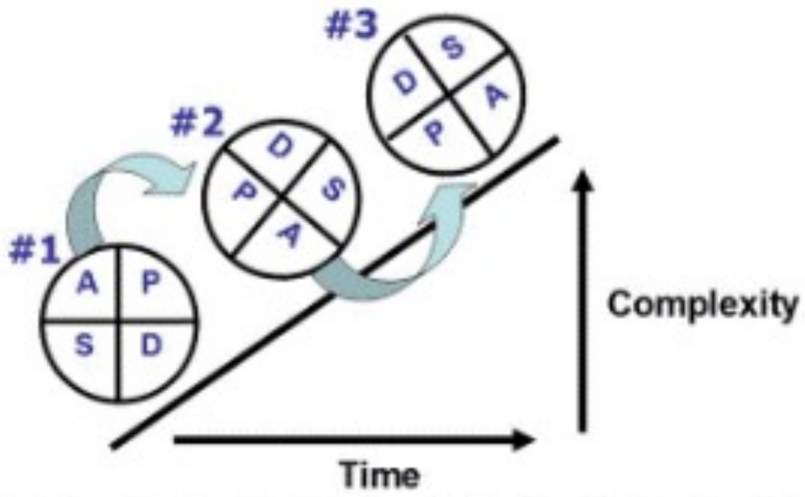


PDSA 2: Issues
Dedicated Telephone
Morning call

Increased texting without patient info

Fear of interruption

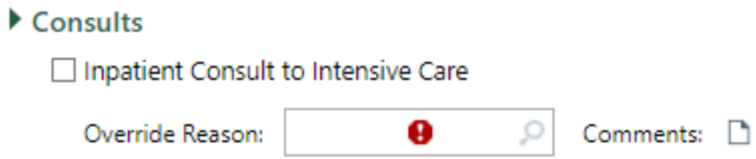
Loss of momentum.

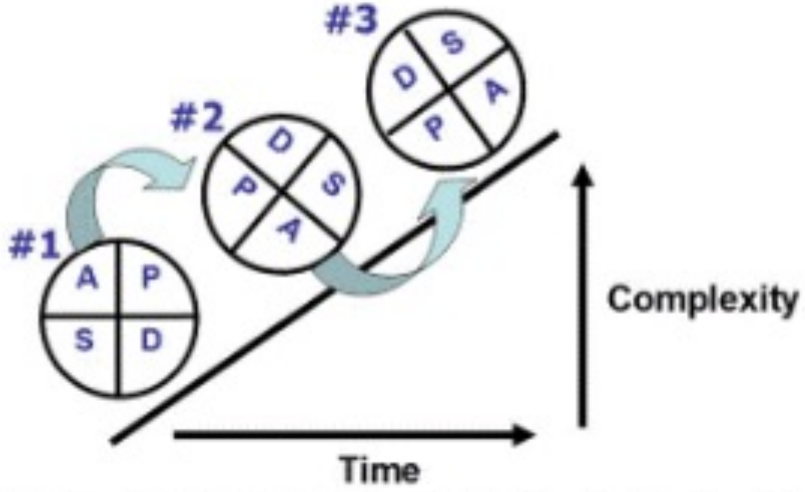


PDSA 3: Future

Regular reminders

Morning call





QUALITATIVE FEEDBACK

Increased collegiality between teams

80% for Top 2 box from anonymous learner feedback

NEXT STEPS

Joint education sessions

Increased collaboration

Optimization of implementation

UHN Toronto Western Hospital

Toronto Western Hospital

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THANK YOU!

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