Provincial Stroke Rounds

Wednesday March 6th, 2024

Toronto Stroke Networks

Evaluation

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)

Toronto Stroke Networks

- 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.

Federico Carpani, MD
Neurologist, UHN Stroke Fellow

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

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

Toronto Stroke Networks
•Leadership •Innovation •Collaboration

UHN Toronto Western Hospital

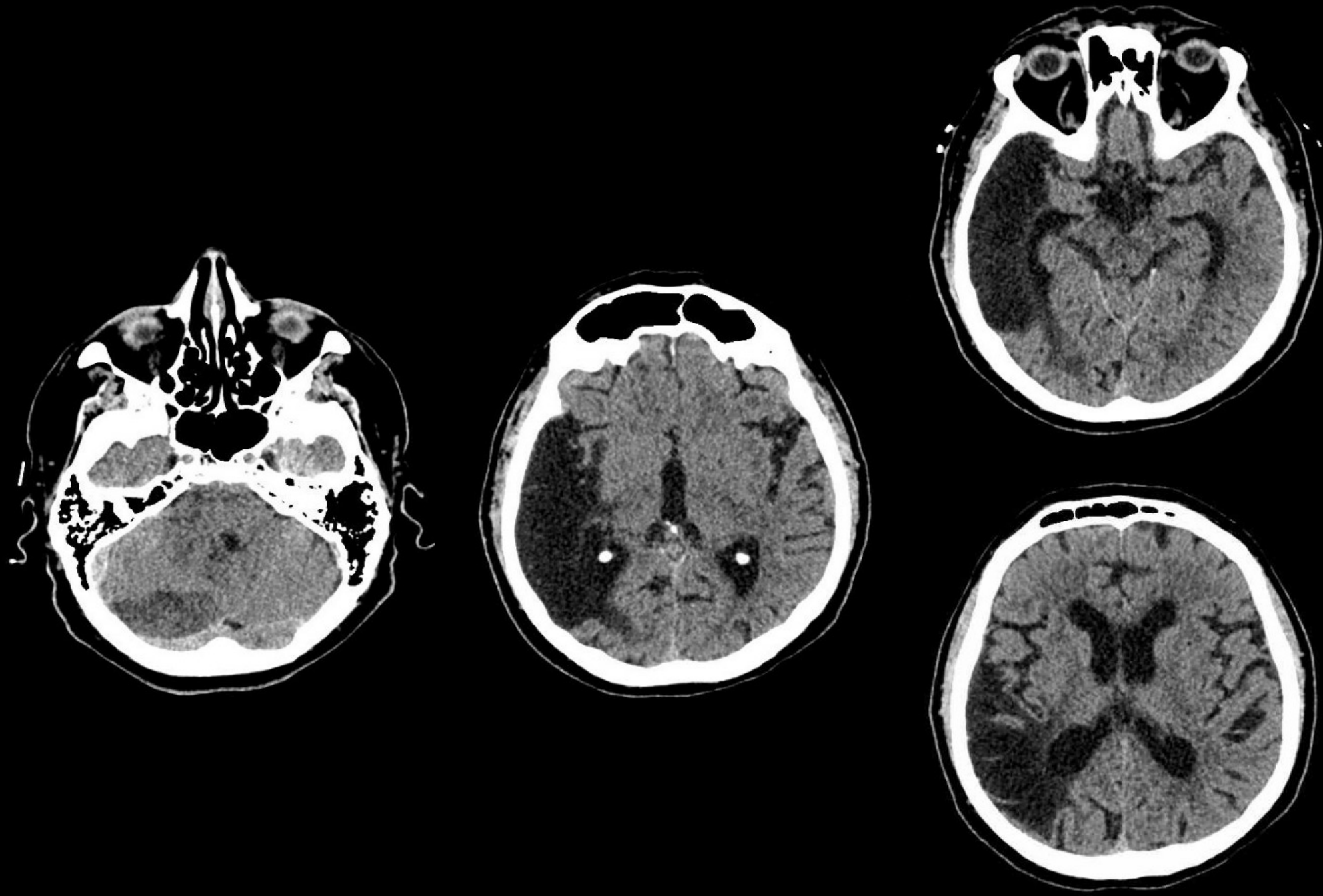
OBJECTIVES

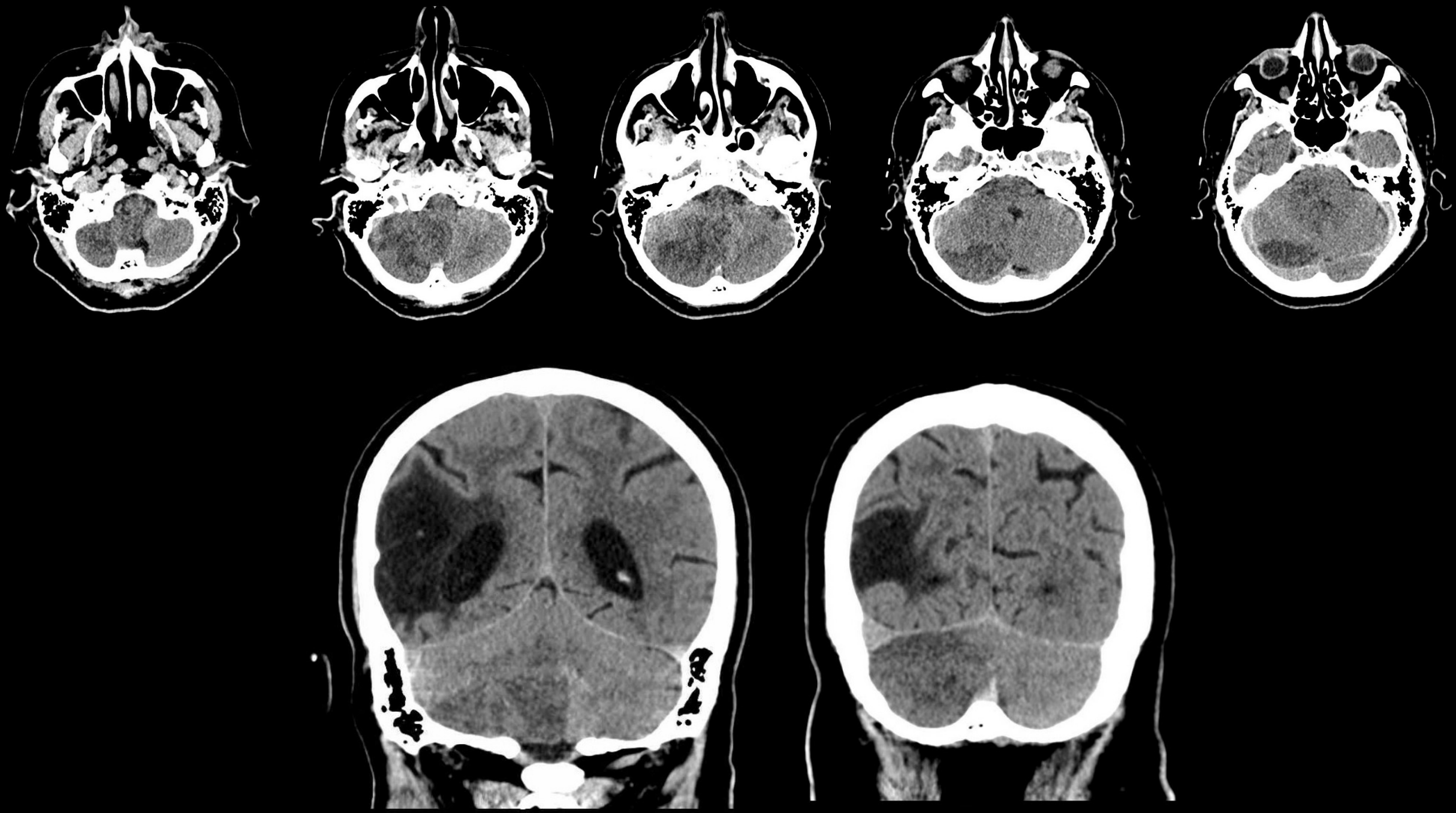
UHN Toronto Western Hospital

To describe the QI process

To showcase the benefits of interprofessional collaboration

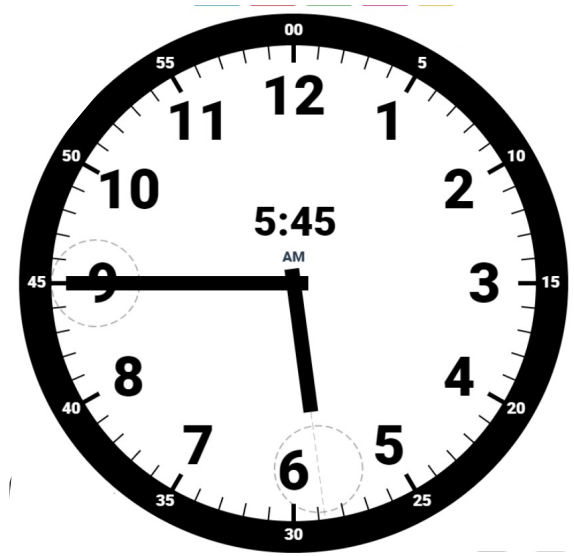

HOSPITAL






EMERGENCY
61


292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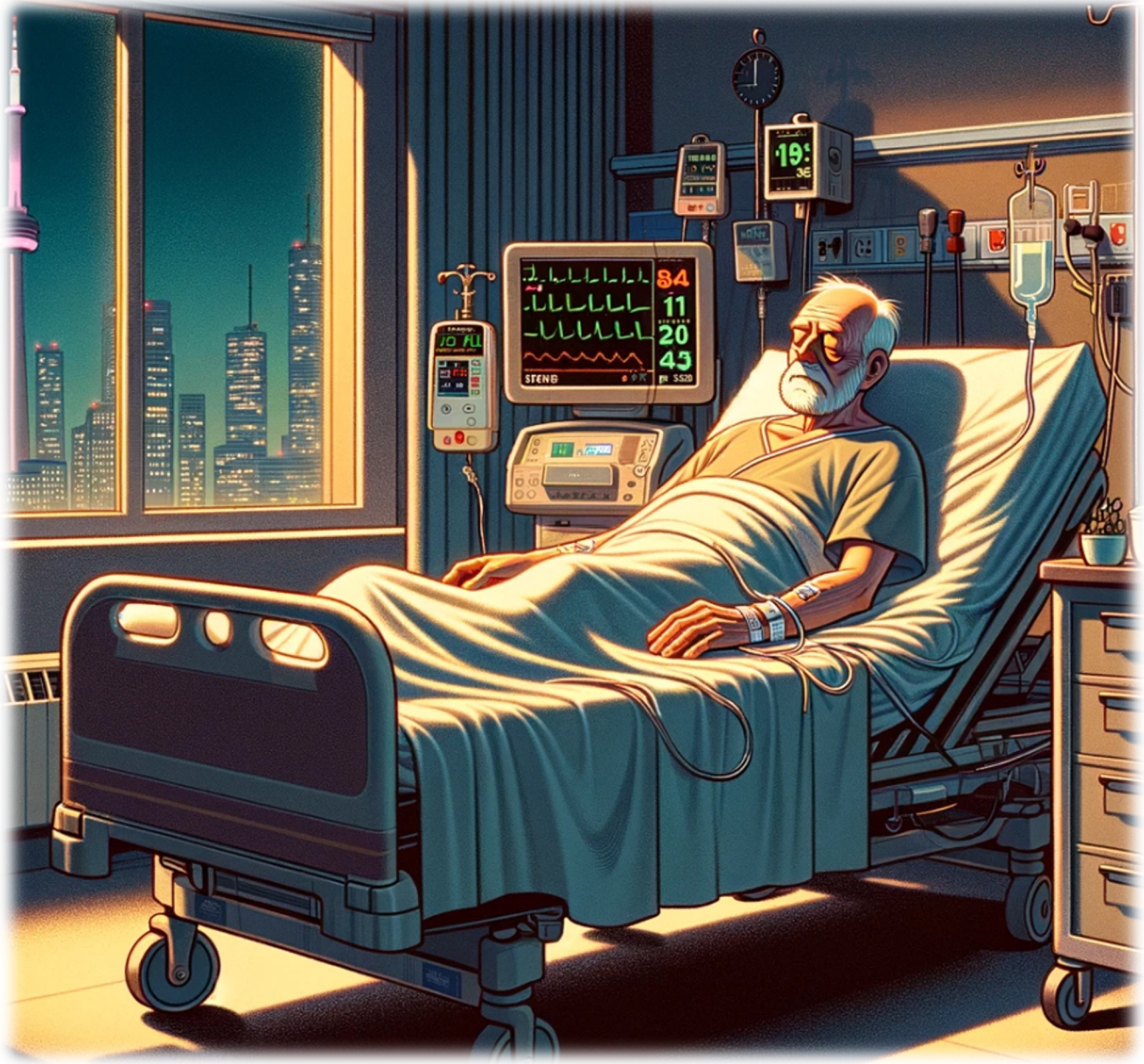
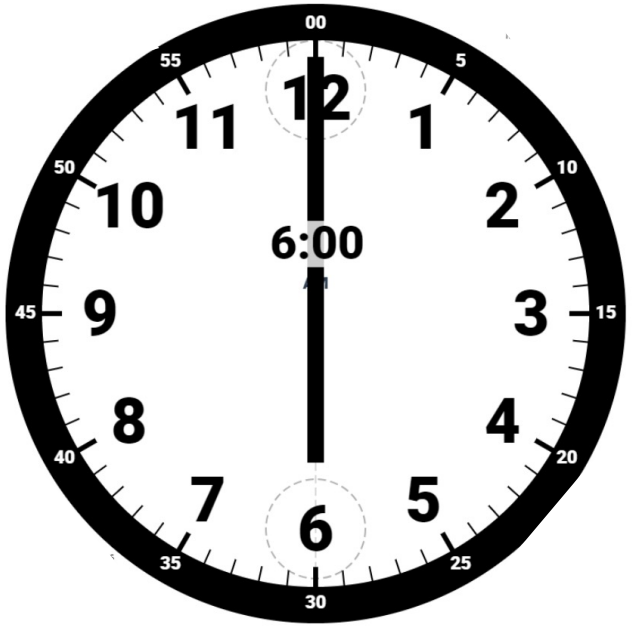




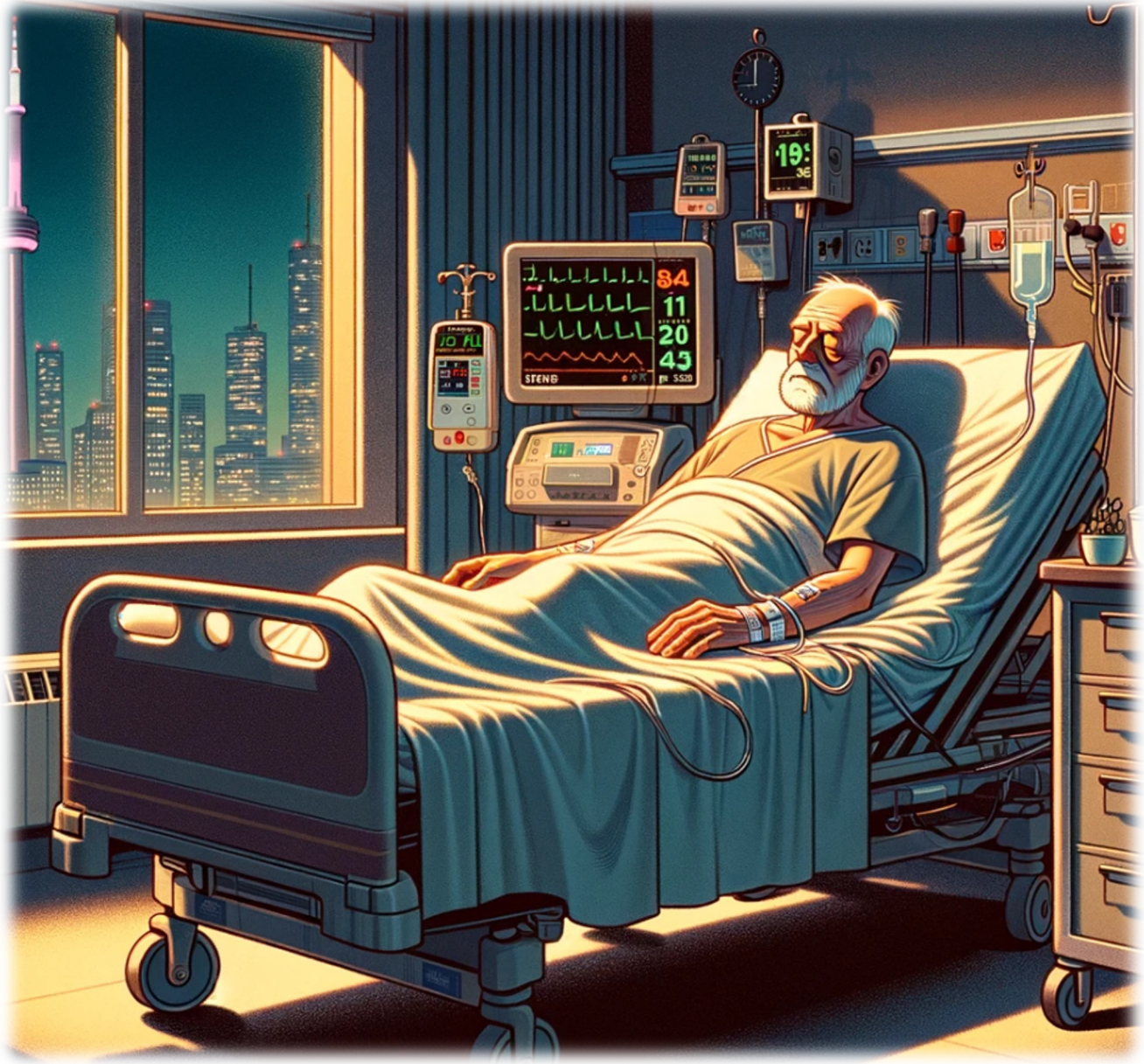
Pupils are equal and reactive.

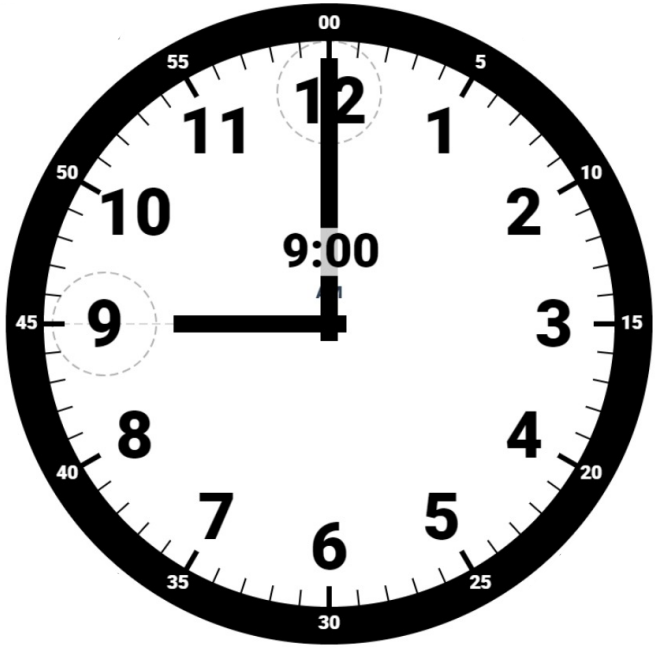
NIHSS 7

GCS 14 (E4 – V4 – M6)

BP 130 / 75 – No Meds

HR 60 – 120 Afib





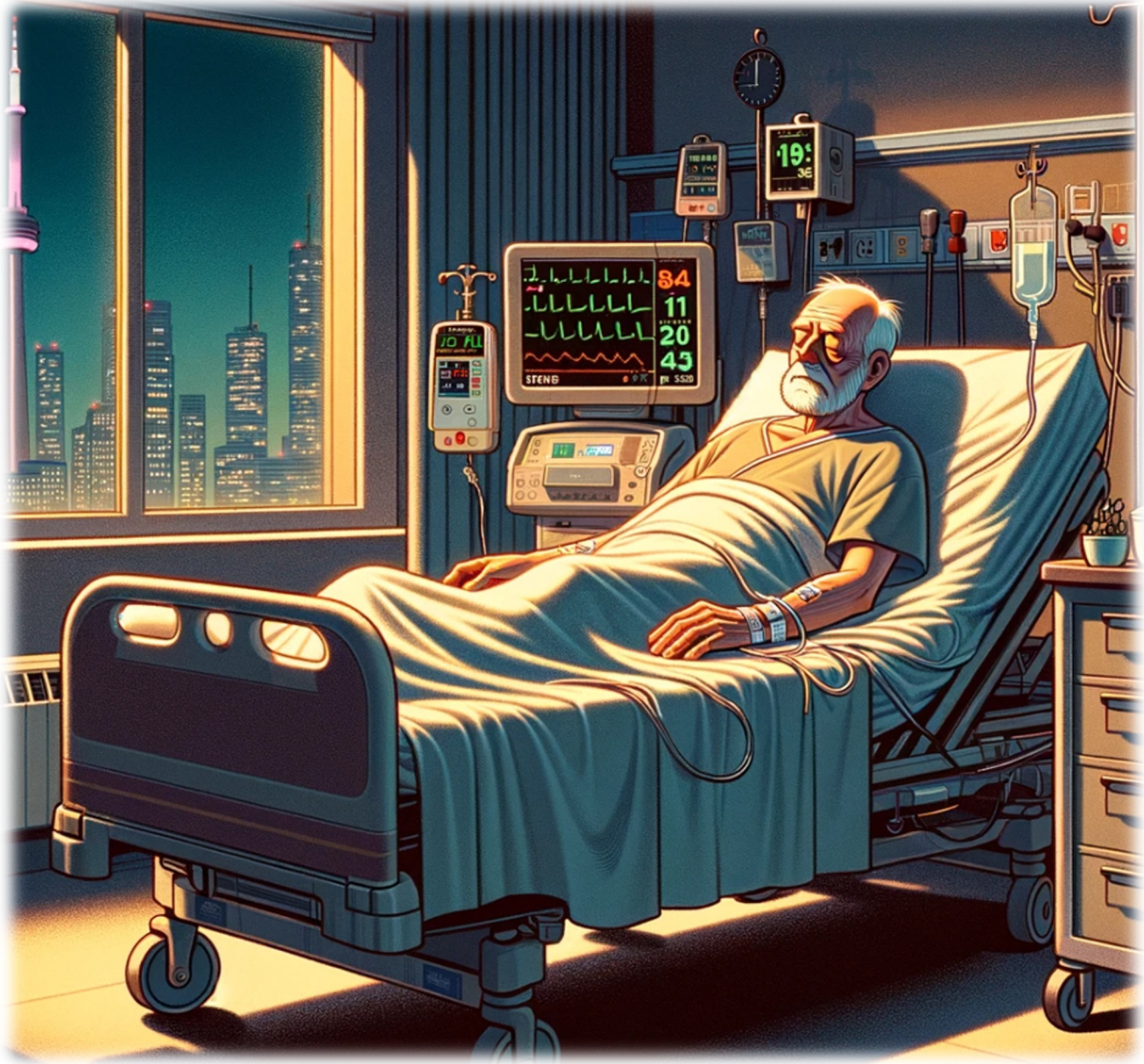
Pupils are equal and reactive.

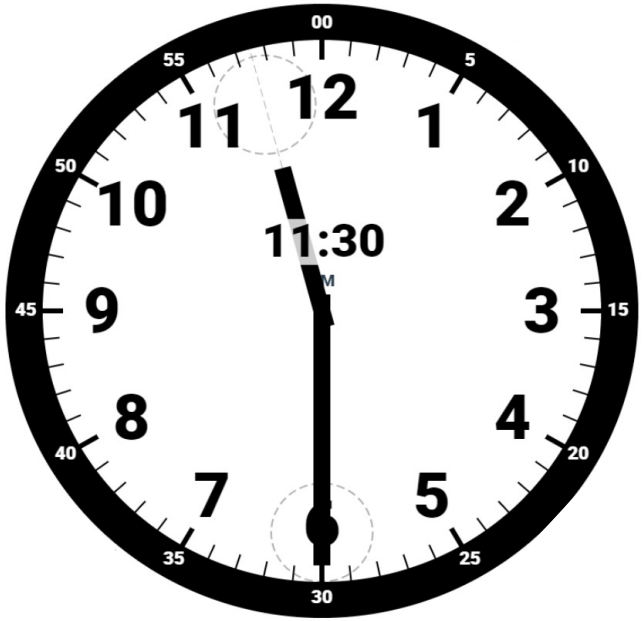
NIHSS 7

GCS 13 (E4 – V3 – M6)

BP 130 / 75 – No Meds

HR 60 – 90 SR





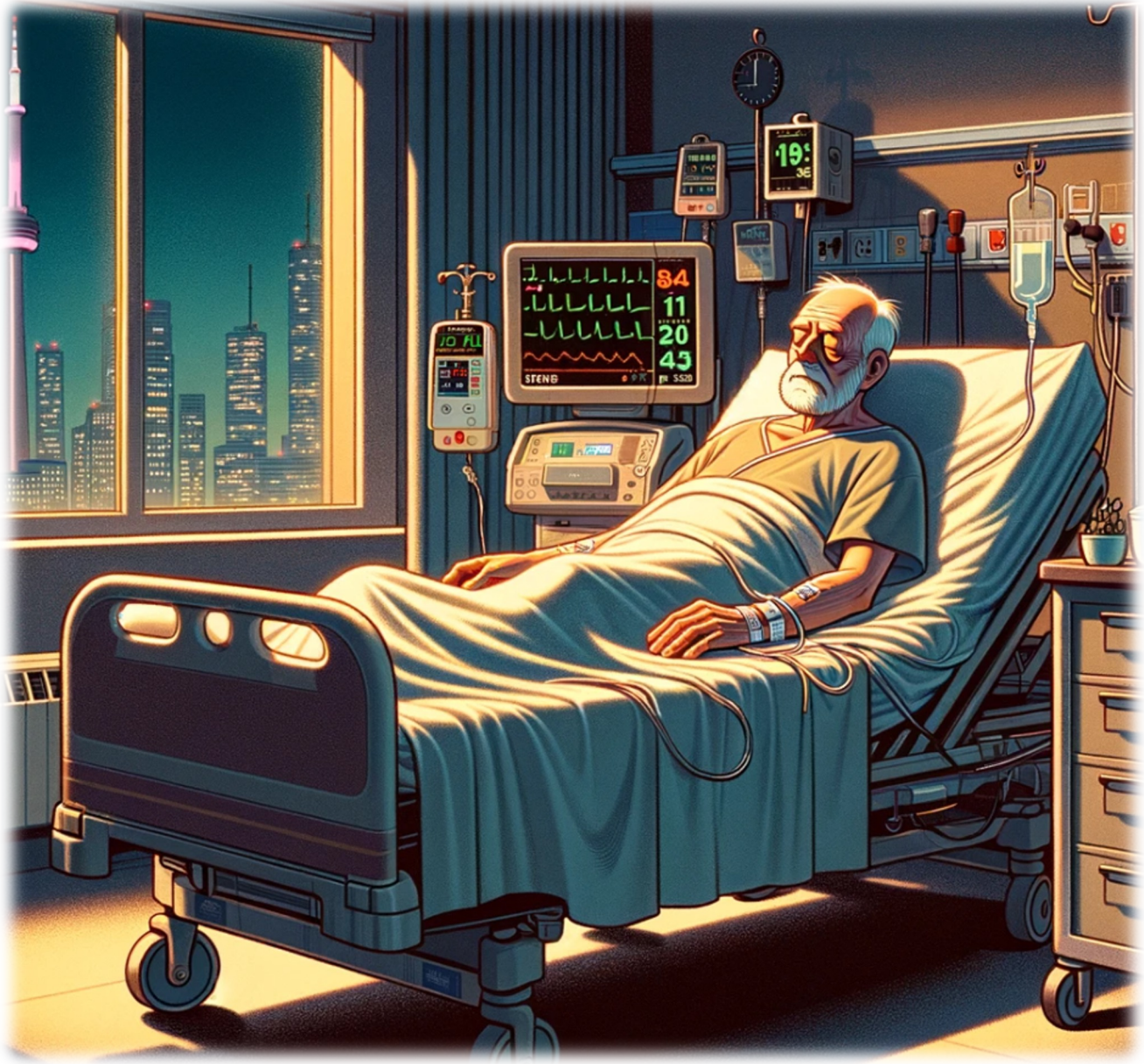
Pupils are equal and reactive.

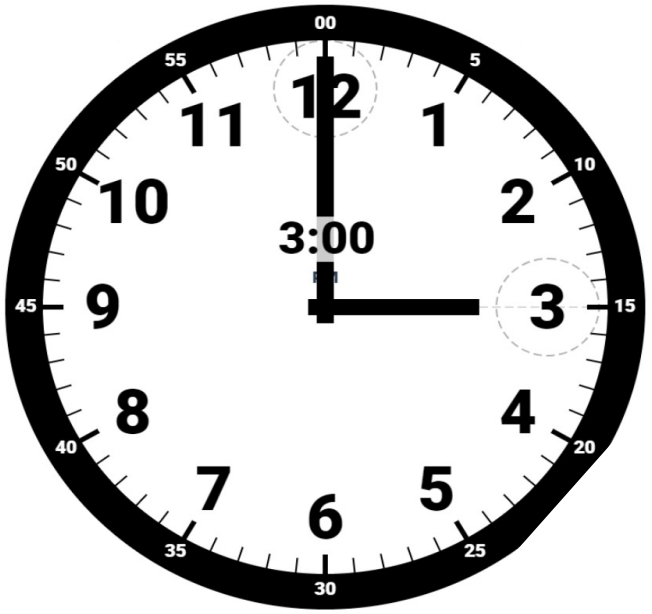
NIHSS 8

GCS 12 (E3 – V3 – M6)

BP 150 / 100 – permissive hypertension

HR 50 – 70 SR





Pupils are equal and reactive.

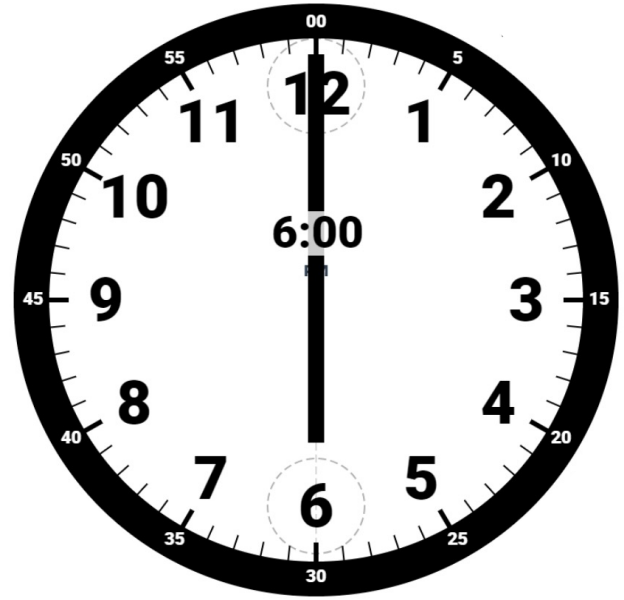
NIHSS 8

GCS 12 (E3 – V3 – M6)

BP 170 / 100 – hydralazine PRN

HR 50 - 60 SR

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



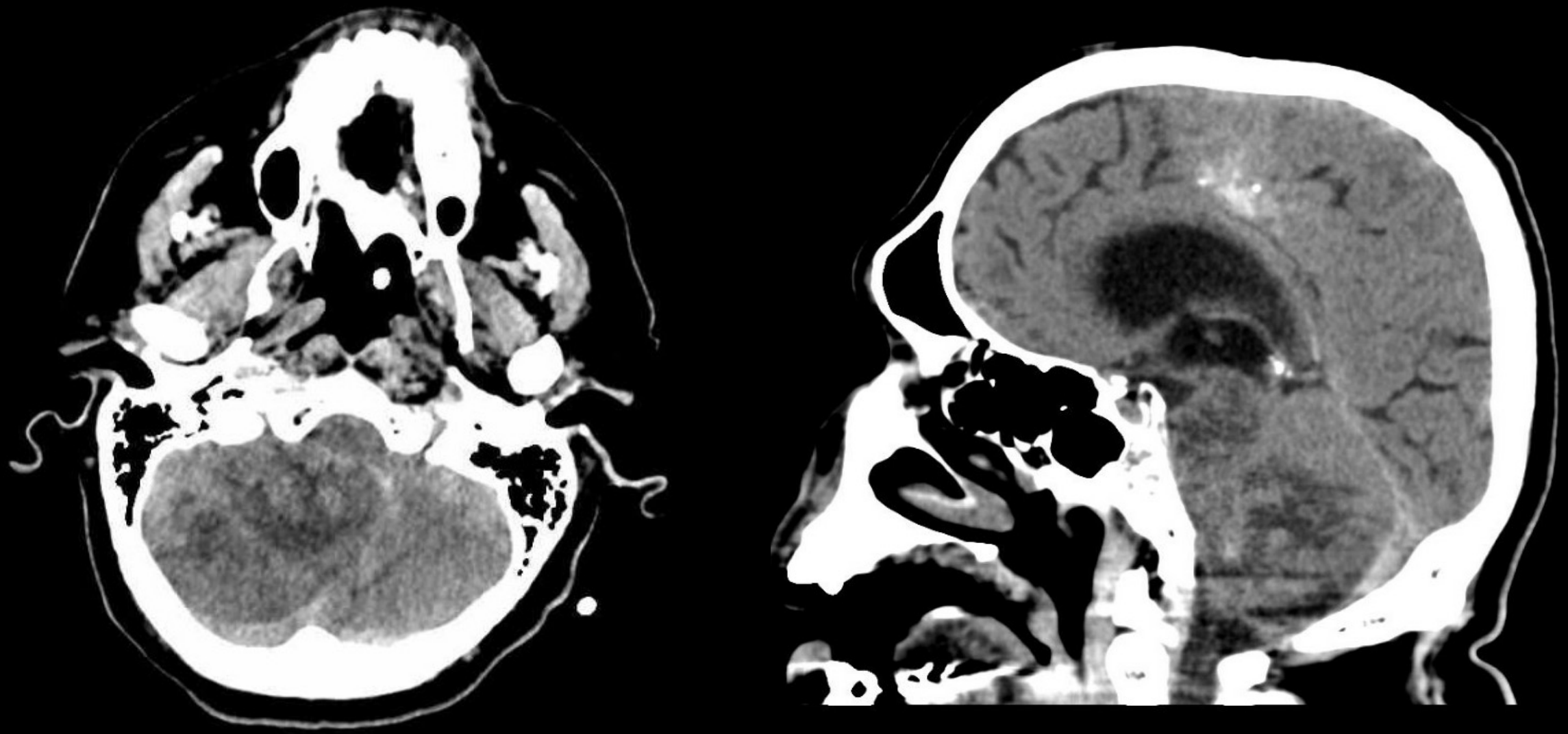
Patient unstable

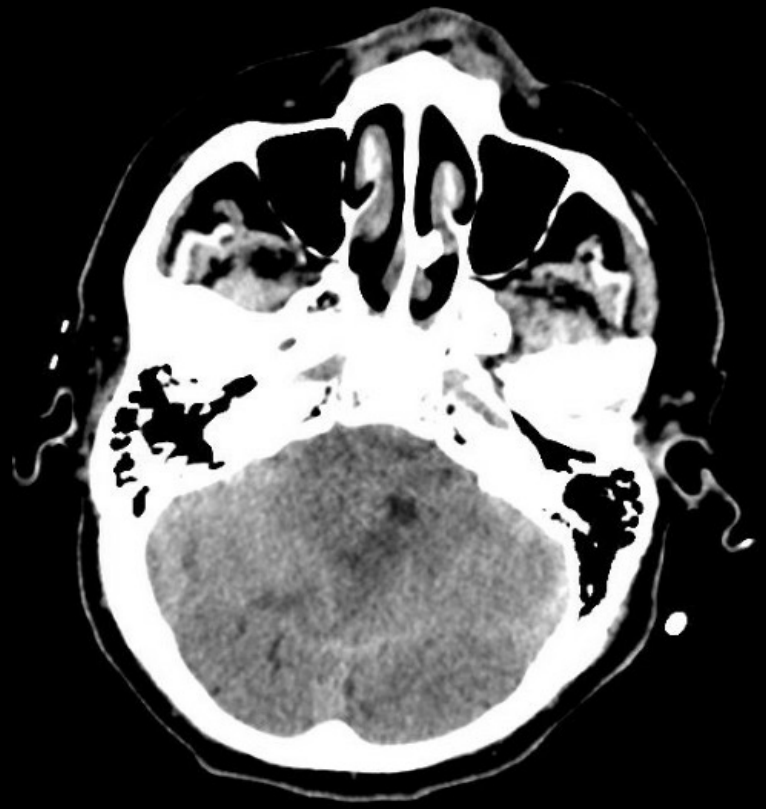
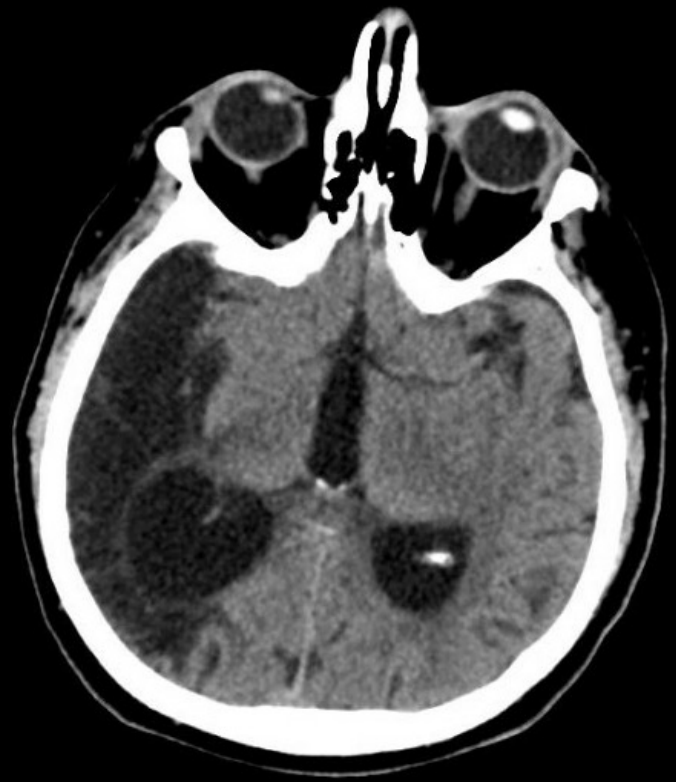
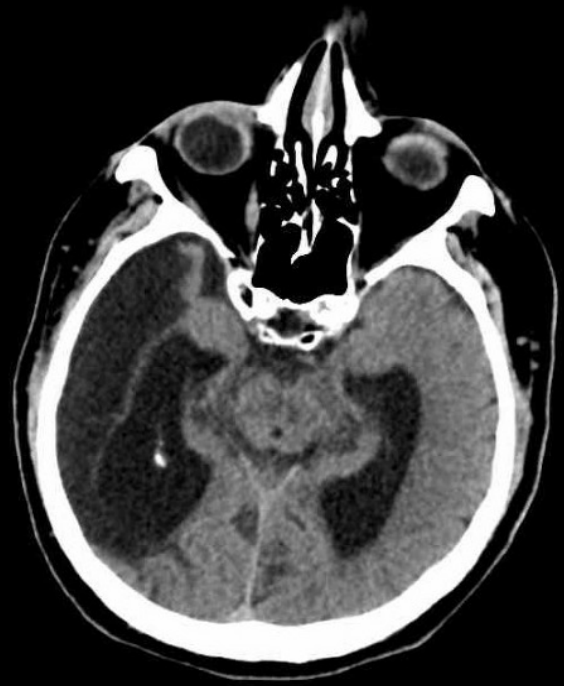
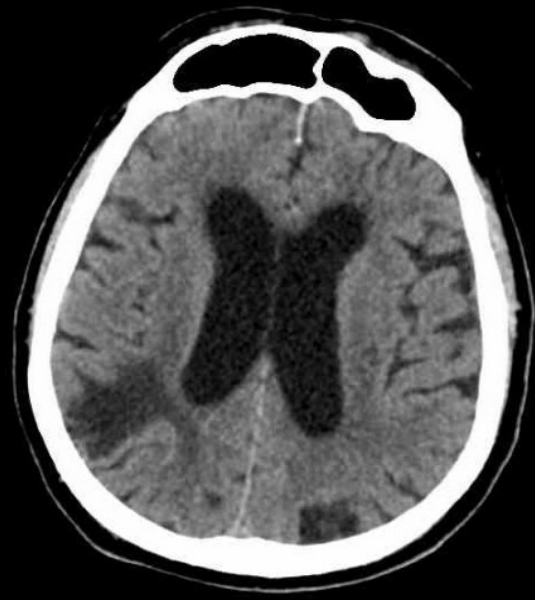
Right pupils is sluggish.

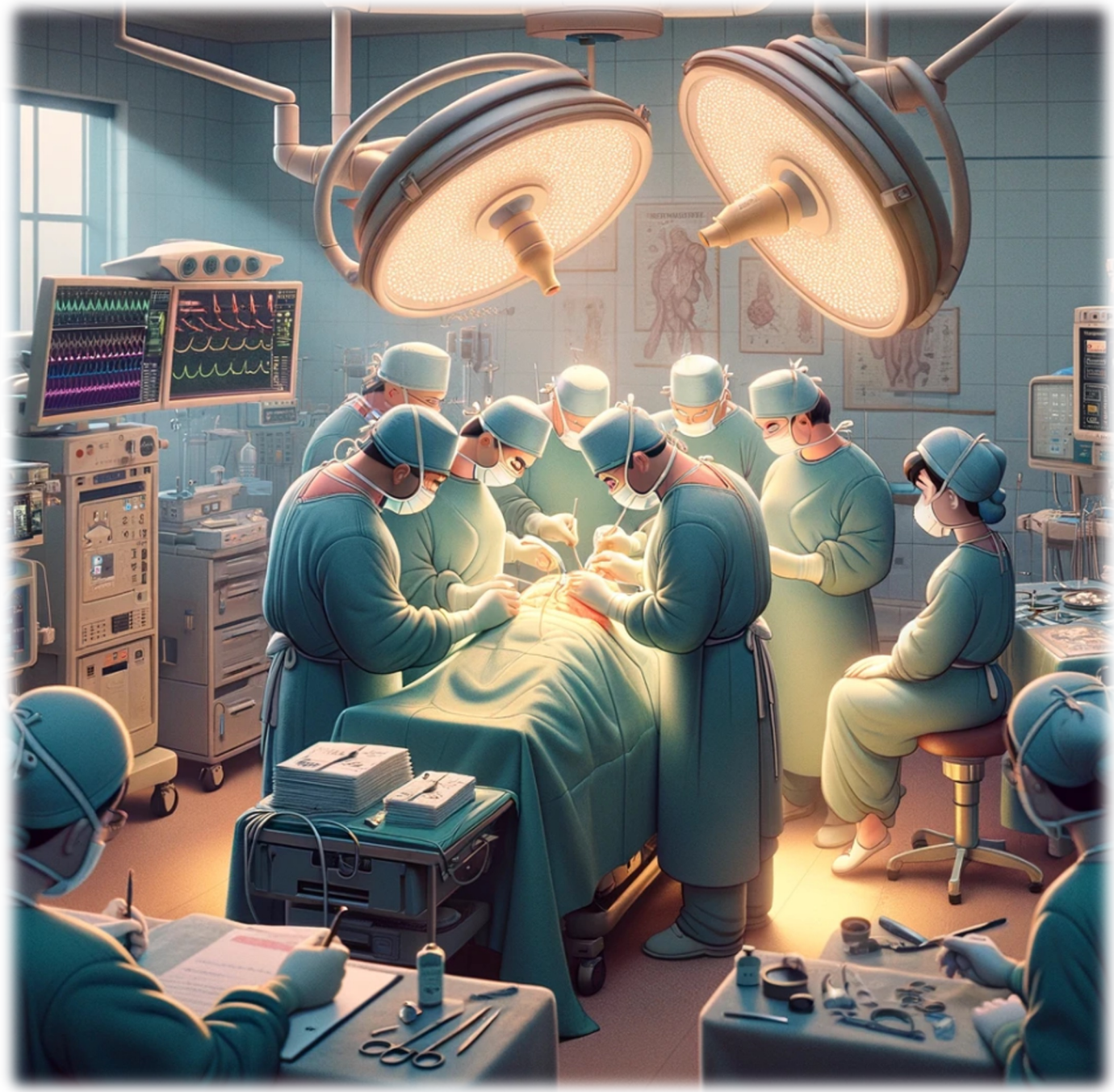
GCS 9 (E2 – V3 – M4)

BP 230 / 130 – hydralazine PRN

HR 40 - 50 SR





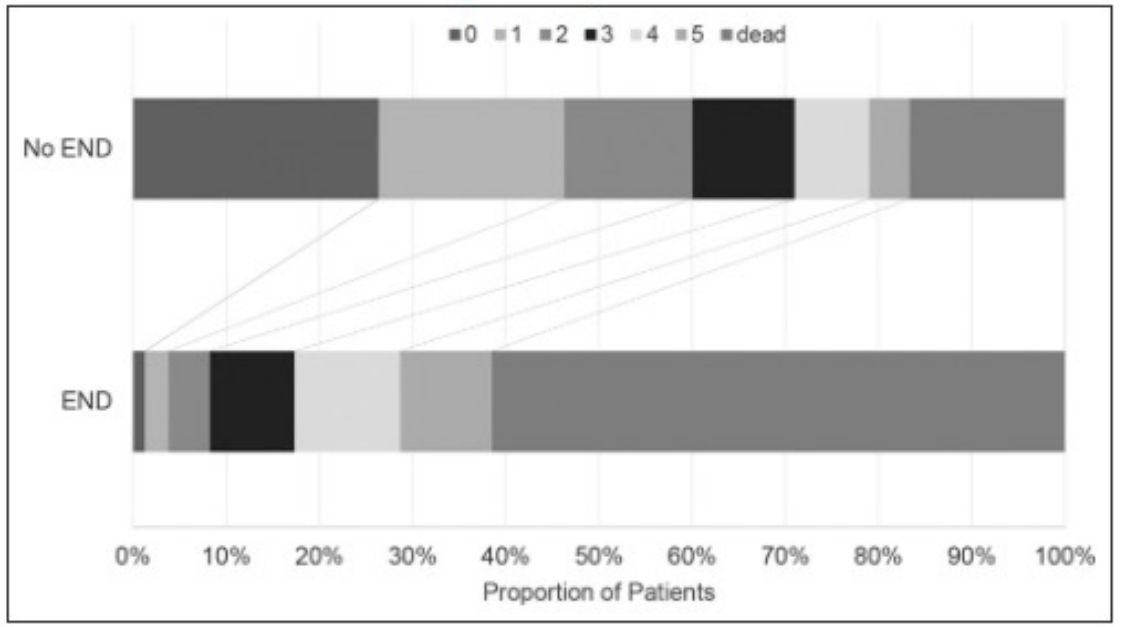
EARLY NEUROLOGICAL DETERIORATION (END)

Stroke

CLINICAL AND POPULATION SCIENCES

The Incidence and Associated Factors of Early Neurological Deterioration After Thrombolysis

Results From SITS Registry



BMC Anesthesiology

76 % ICH vs 23 % ischemic stroke

80 % required intubation

64.5% died

RESEARCH Open Access

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

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

Stroke

TOPICAL REVIEW

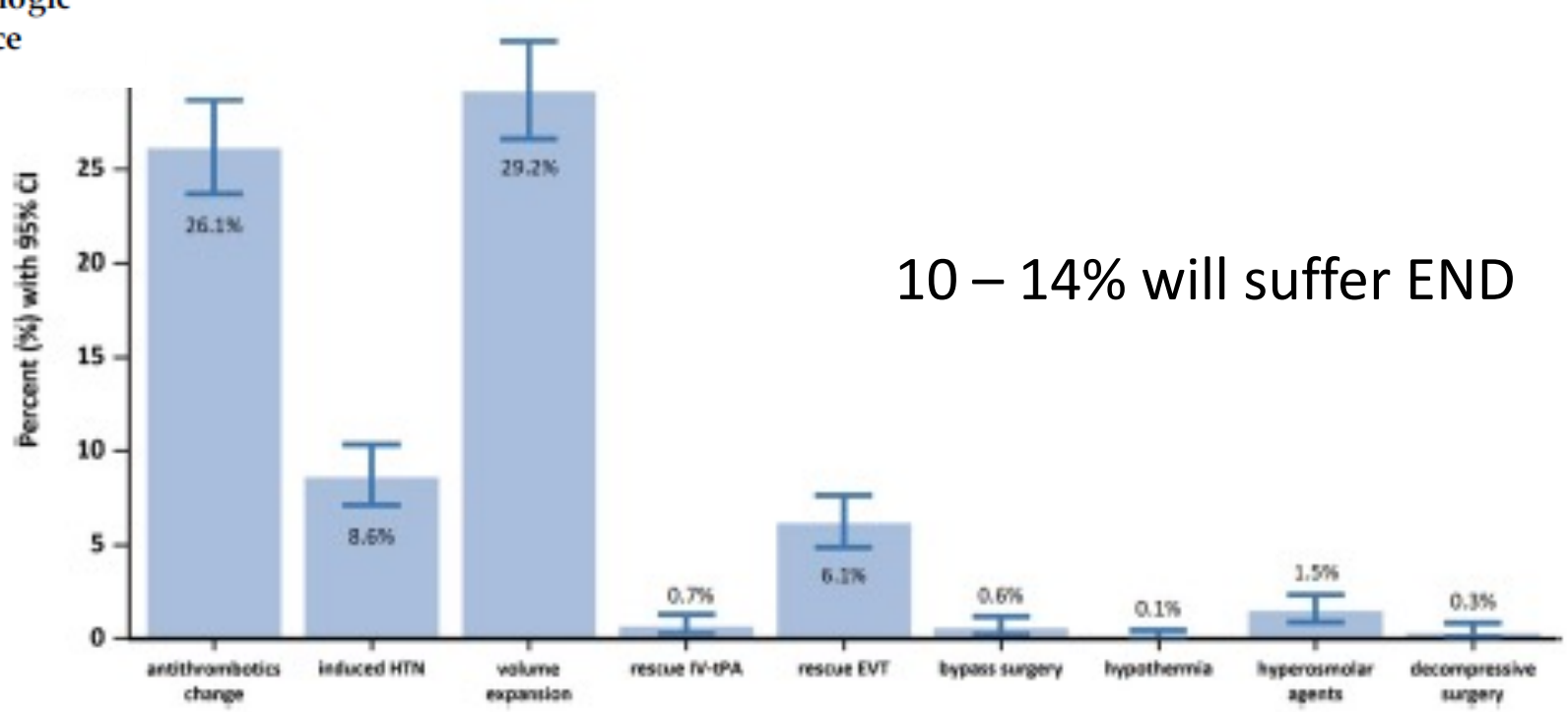
Decompressive Hemicraniectomy for Large Hemispheric Strokes

10% of large MCA Strokes

40 – 80% Mortality

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

Journal of Stroke & Cerebrovascular Diseases



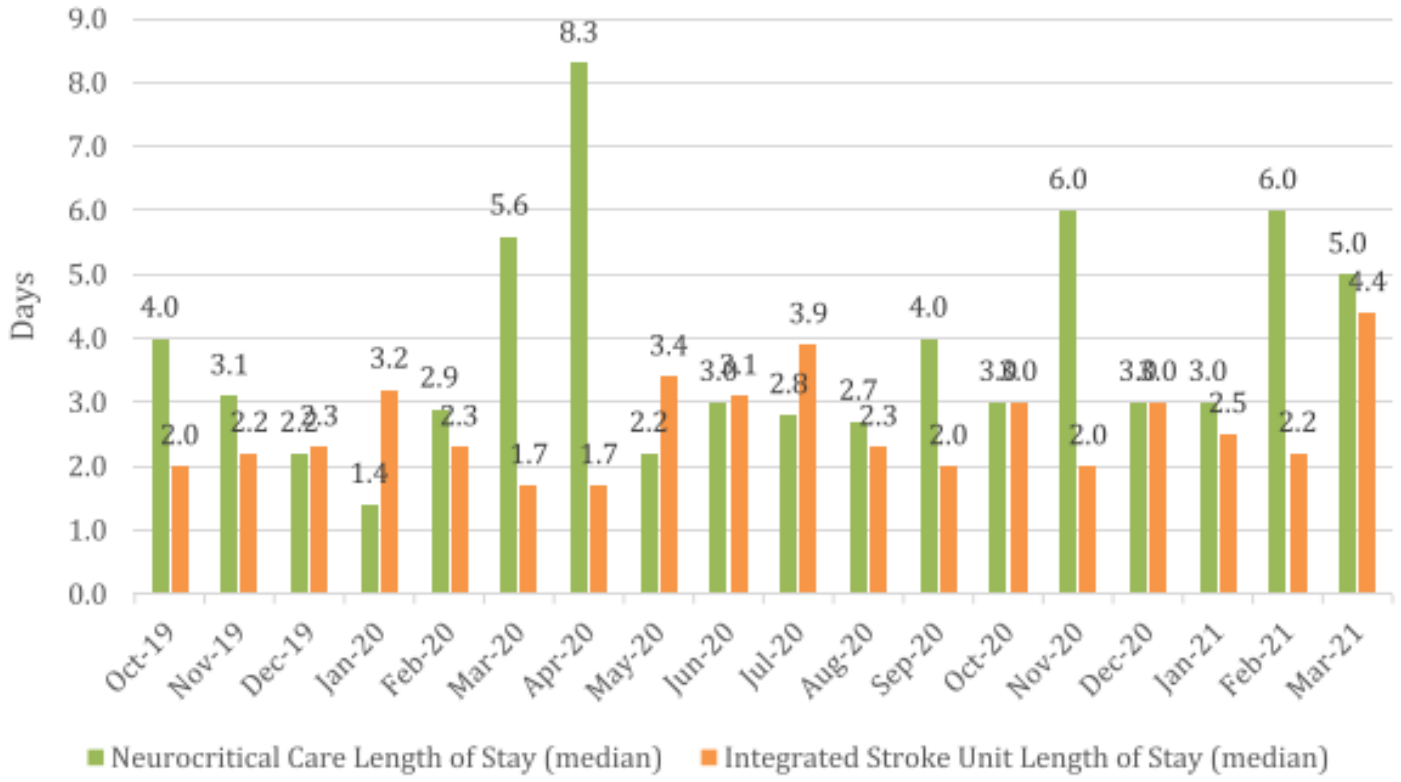
10 – 14% will suffer END

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

TWH-NVU 20 beds

Nurse patient ratio ½

Nursing monitoring Q1

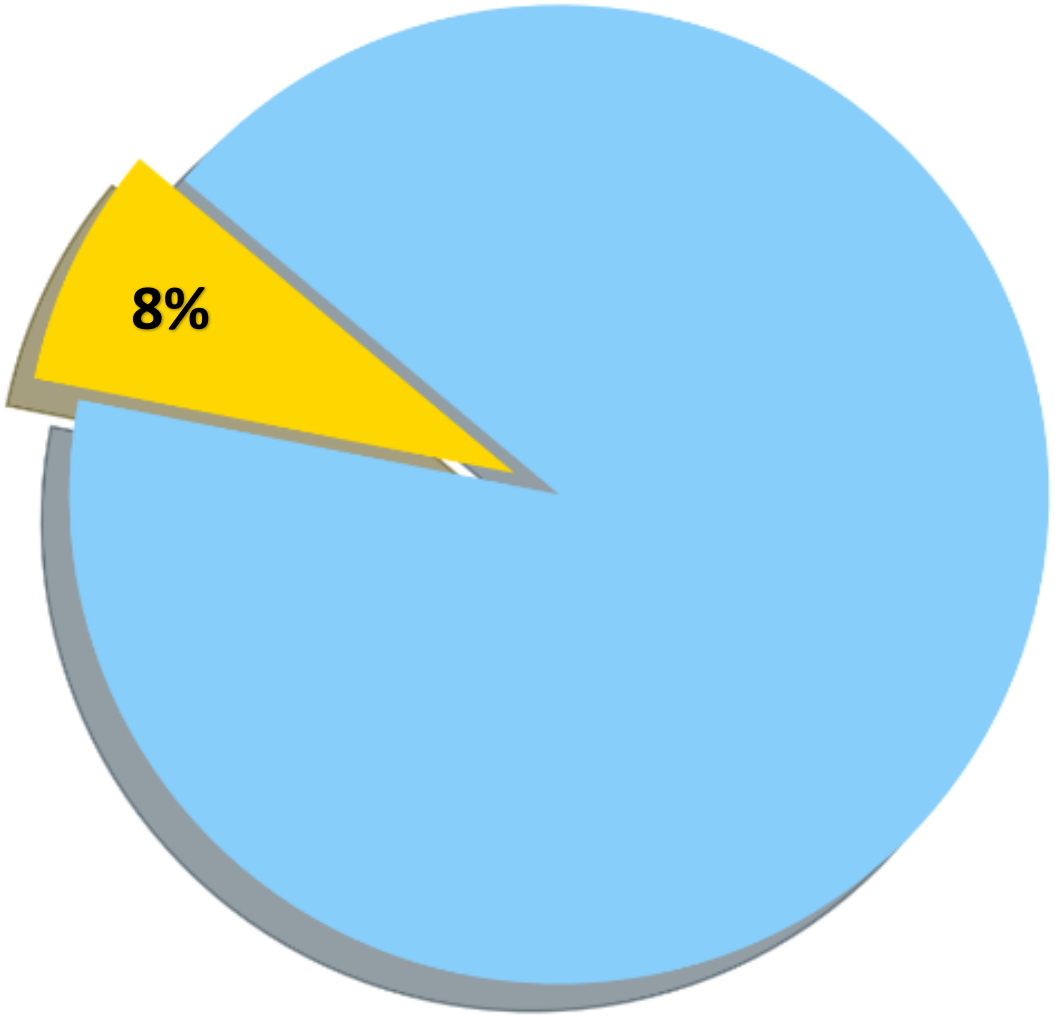
Vasoactive drugs

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)

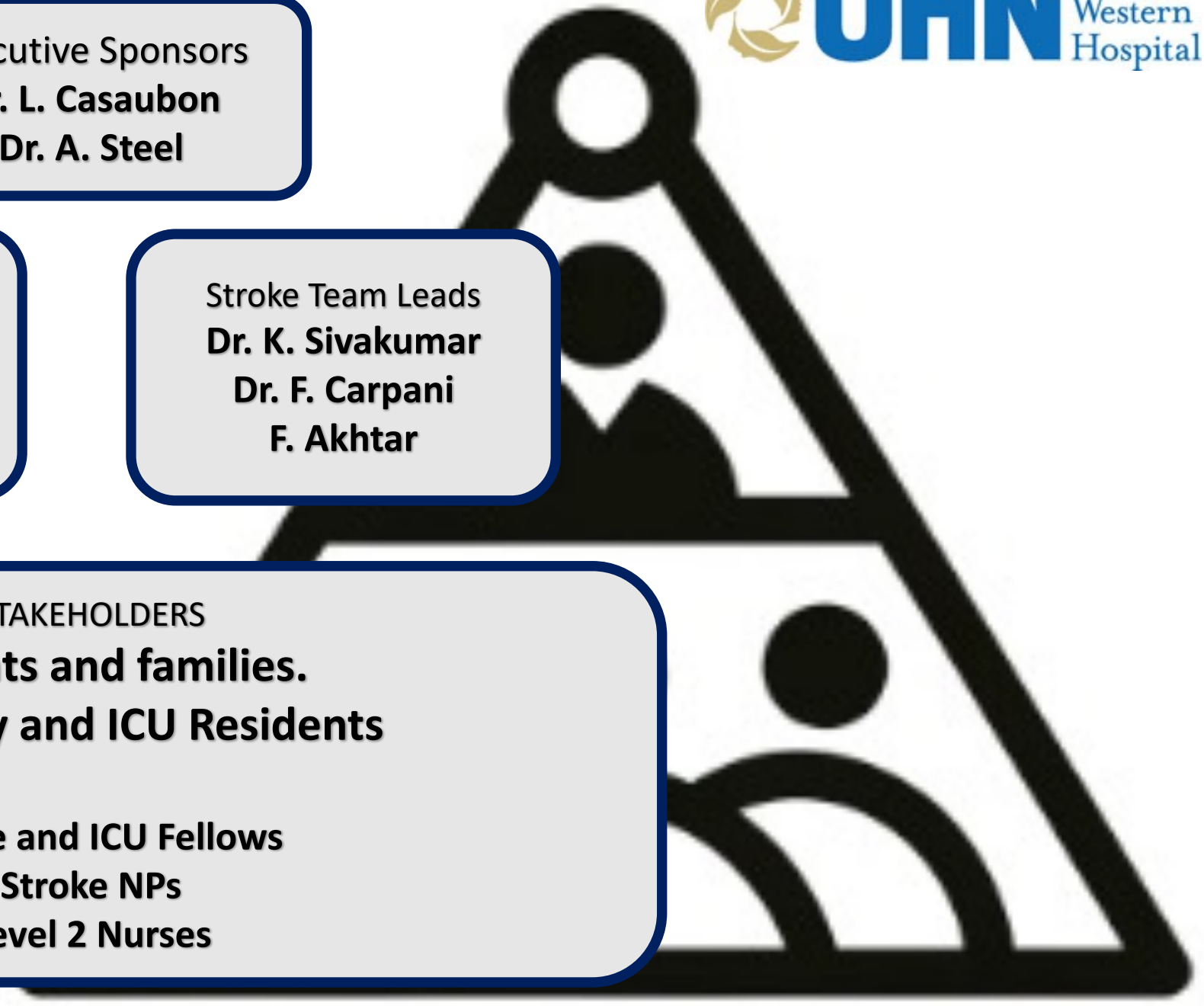
1. Build a multidisciplinary team
2. Follow evidence based guidelines
3. Audit outcomes and processes
4. Work in Quality Improvement cycles

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

ICU Lead

Dr. I. Randall

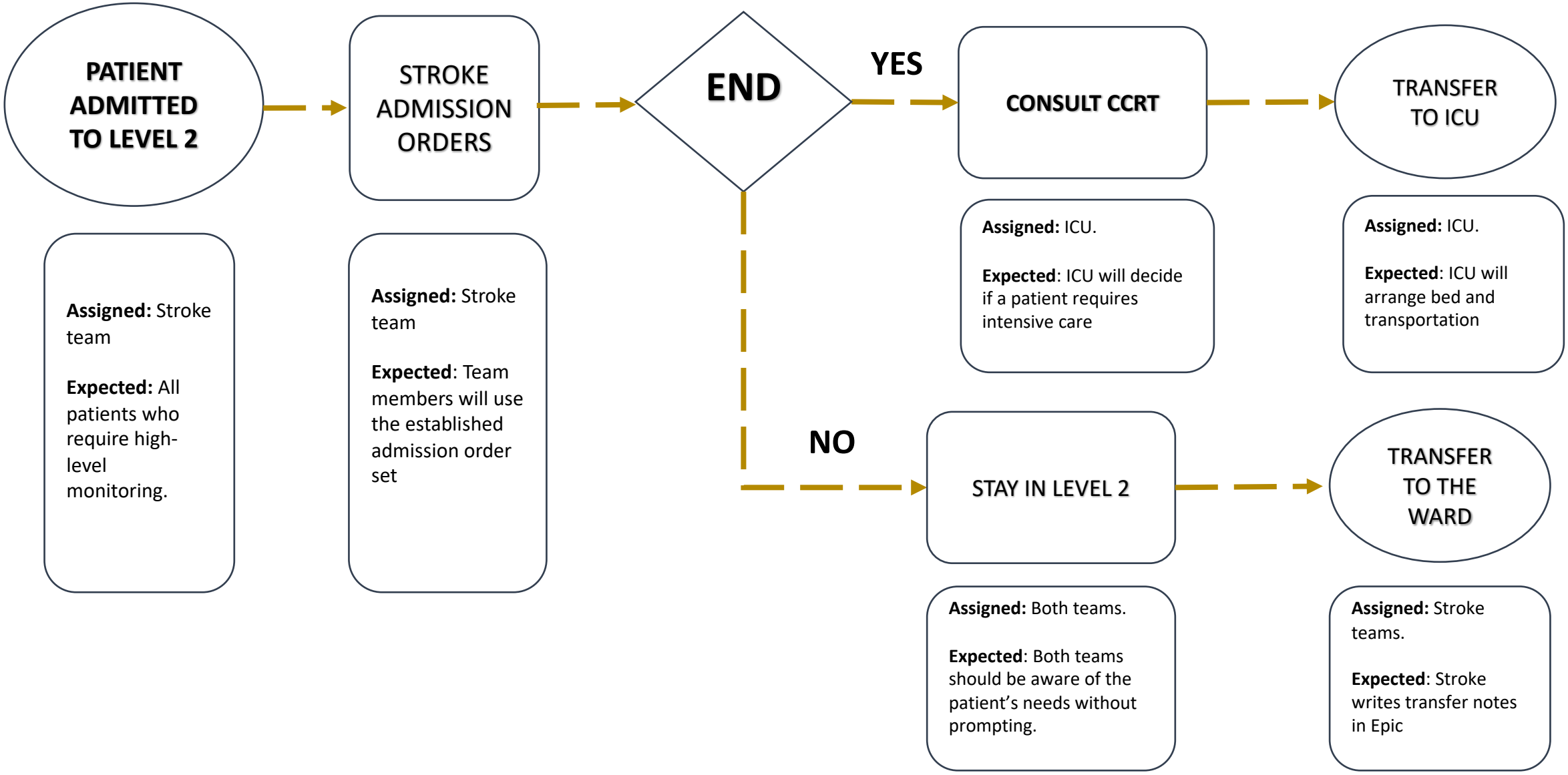
Stroke Team Leads
Dr. K. Sivakumar
Dr. F. Carpani
F. Akhtar

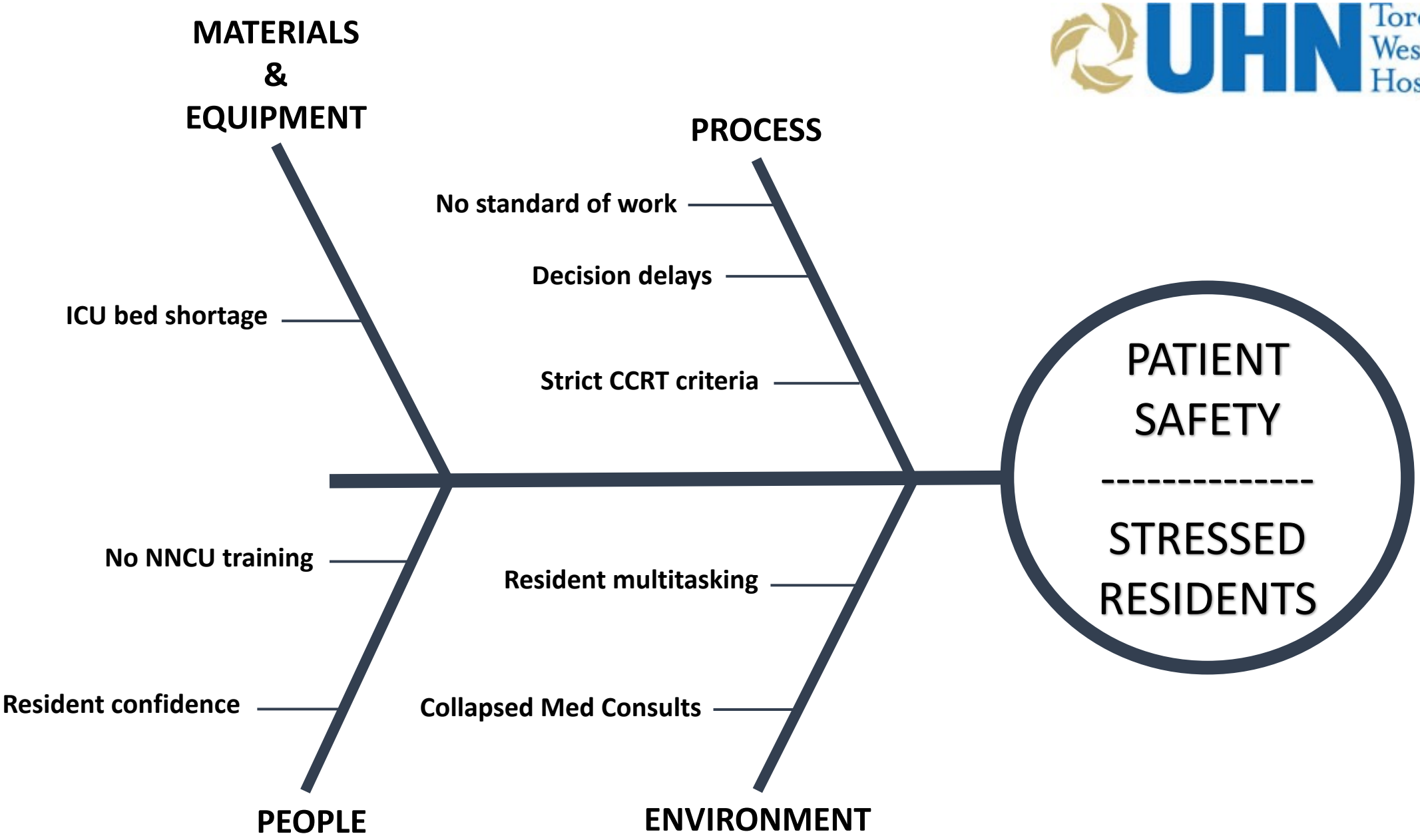


STAKEHOLDERS
Patients and families.
Neurology and ICU Residents

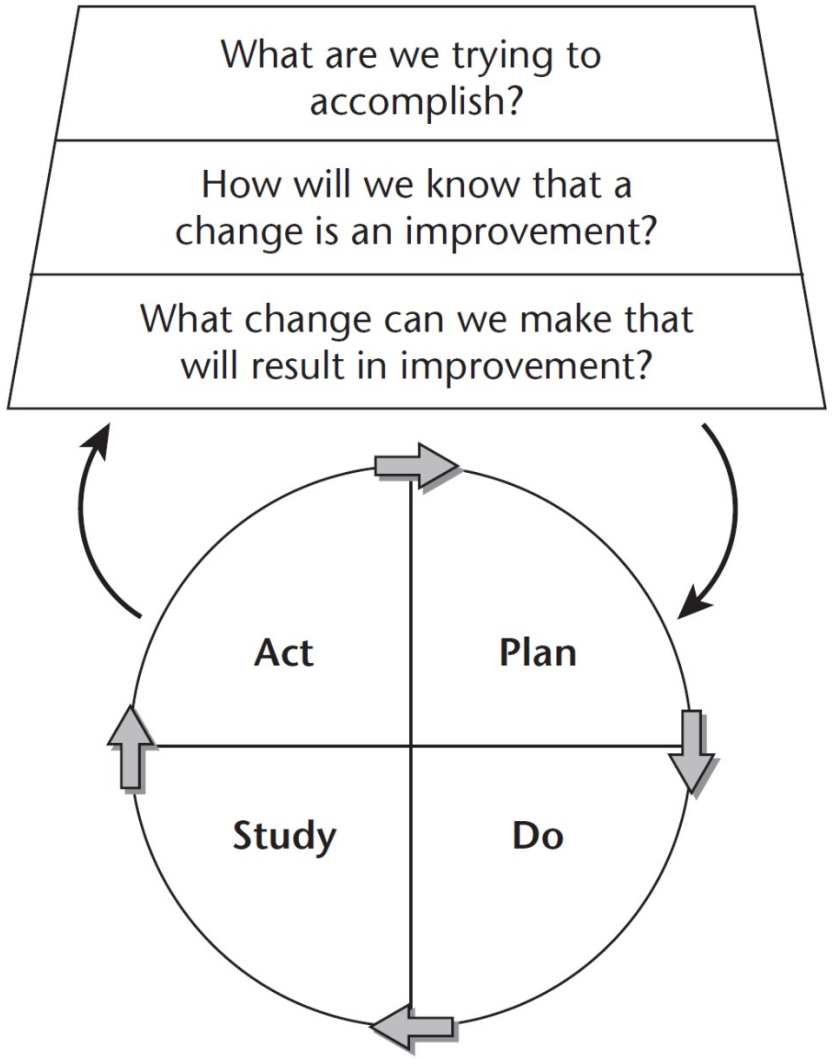
Stroke and ICU Fellows
Stroke NPs
Level 2 Nurses

OLD PROCESS: ADMISSION




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

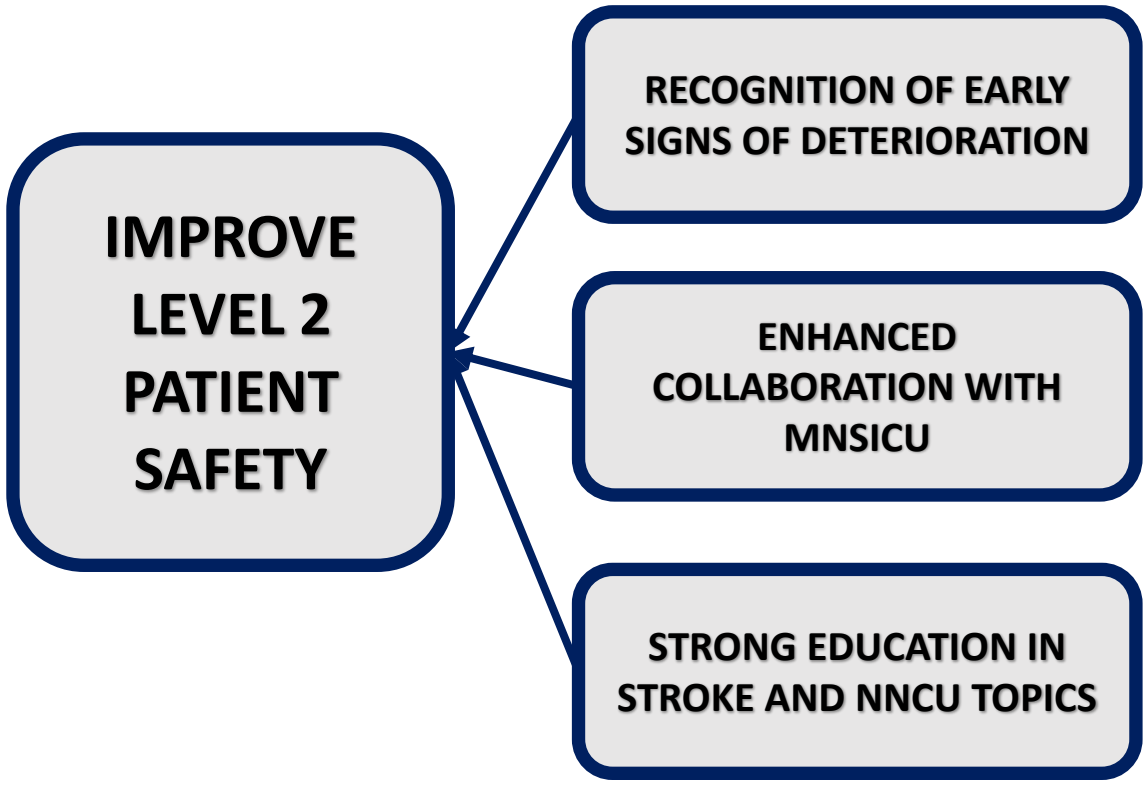
IHI MODEL FOR IMPROVEMENT



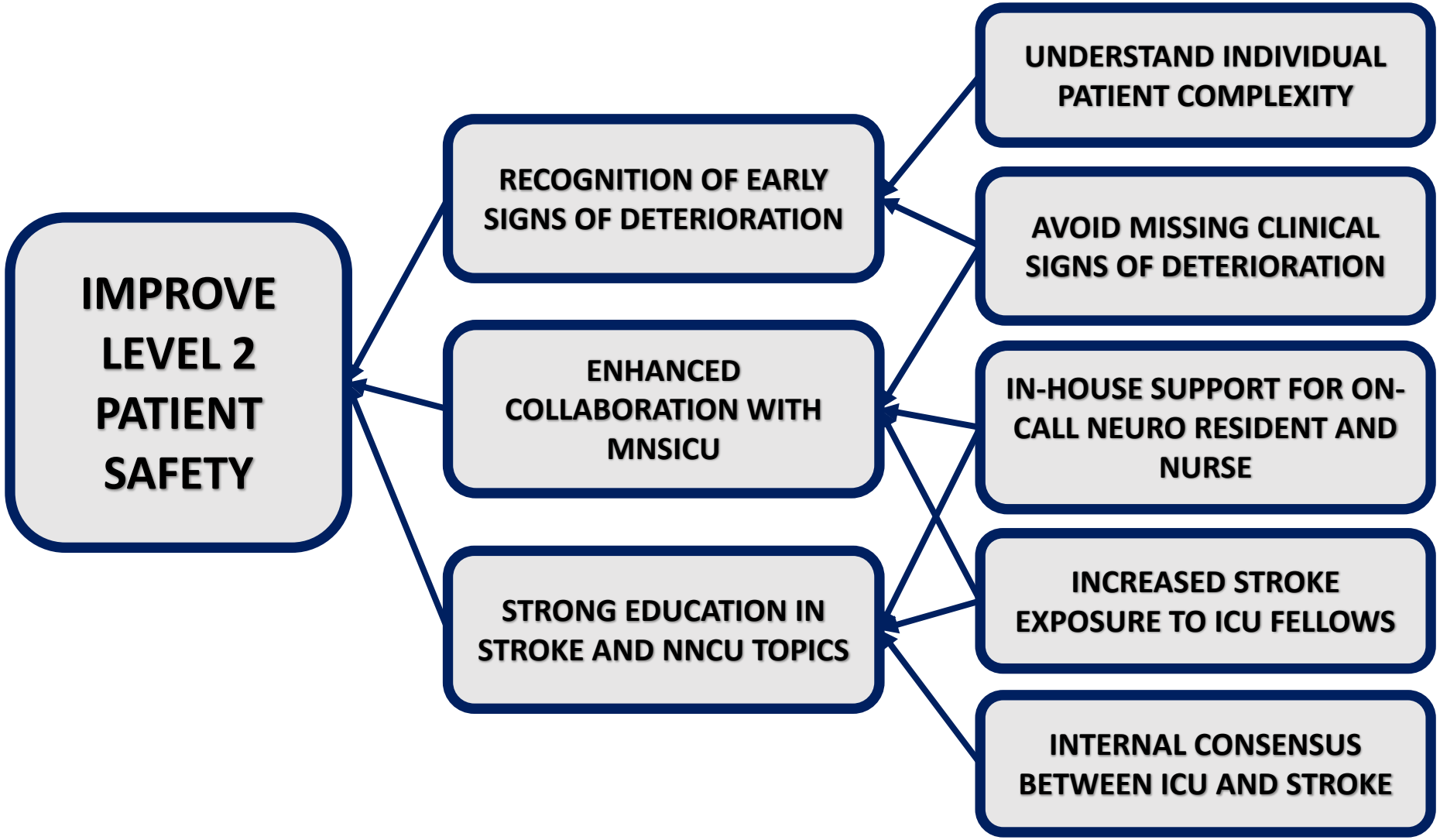
What are we trying to accomplish?

IMPROVE LEVEL 2 PATIENT SAFETY

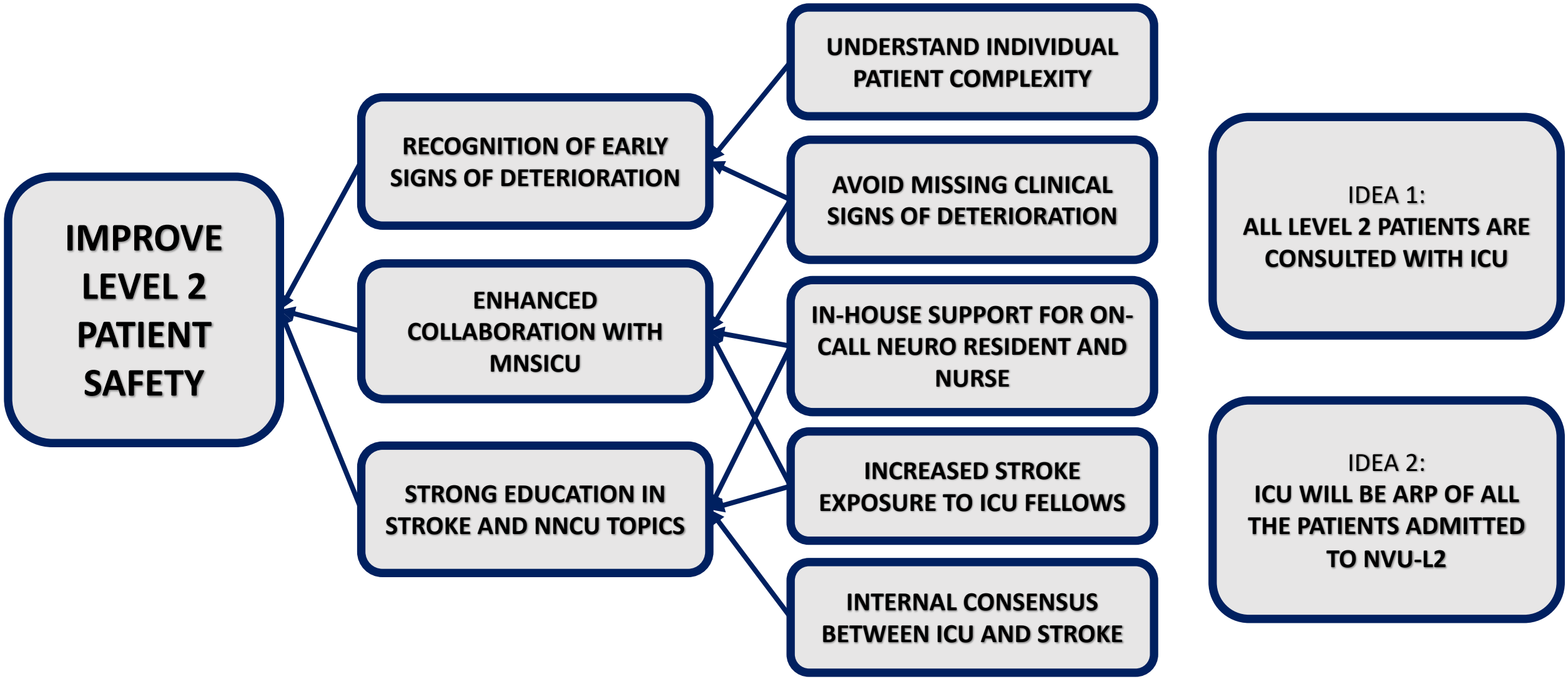
What are we trying to accomplish?



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):

Consultations for stroke patients in ICU - Level 2.

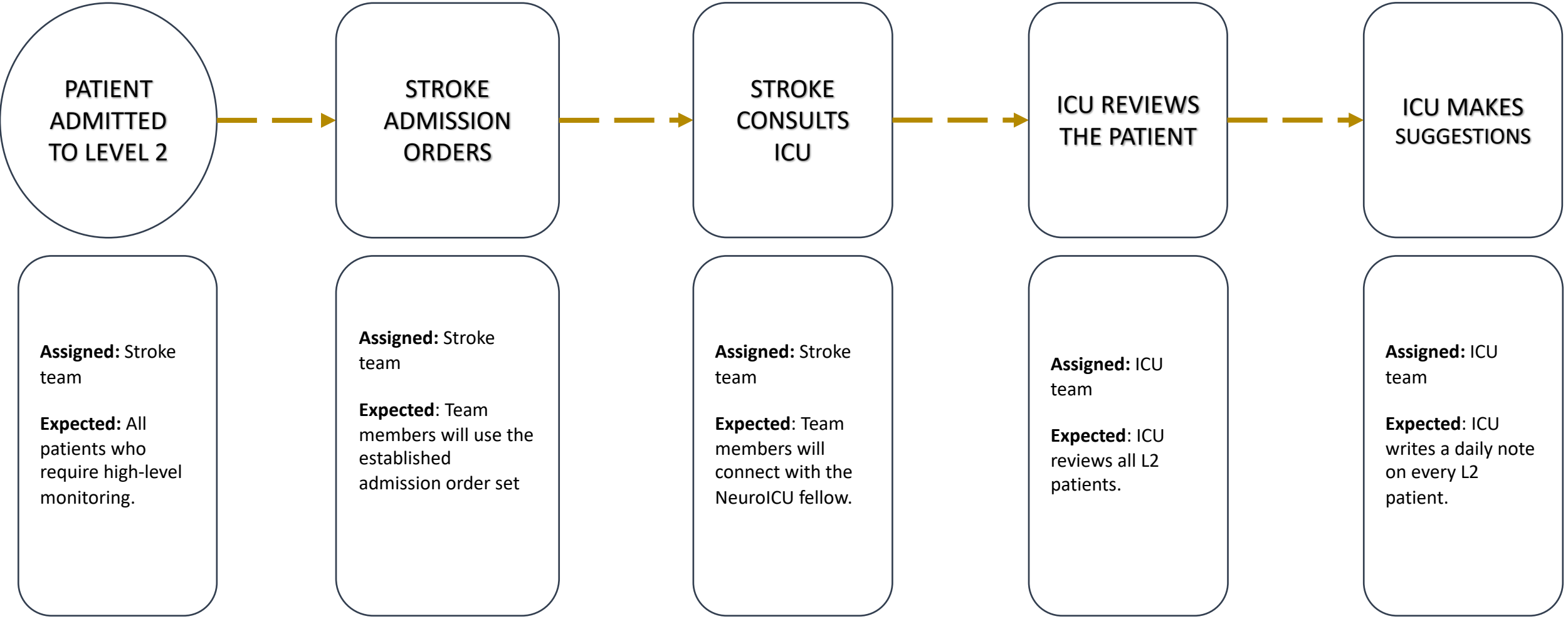
Goals:

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

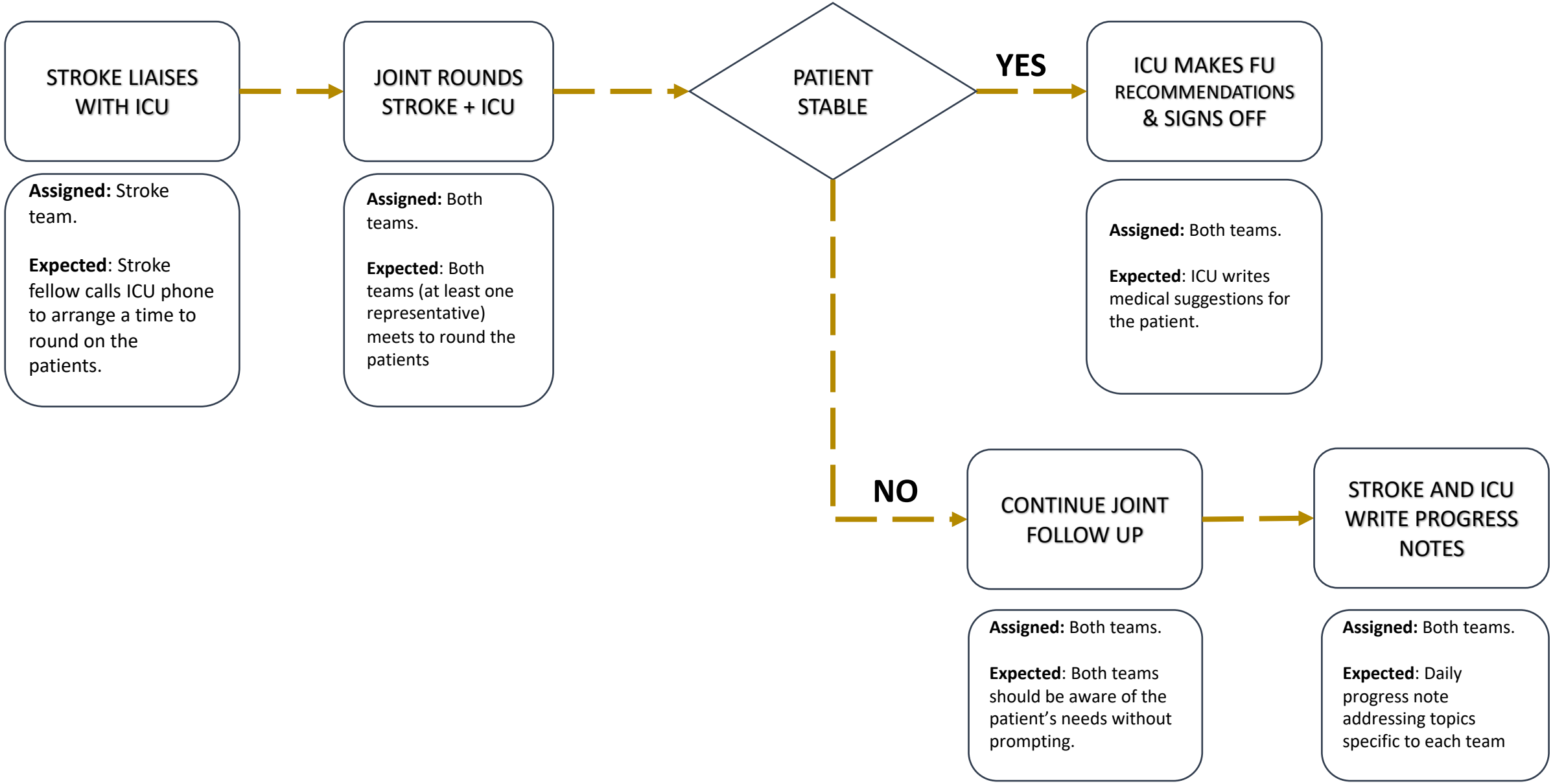
b) **Increased collaboration and communication between the Stroke Team and ICU**

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

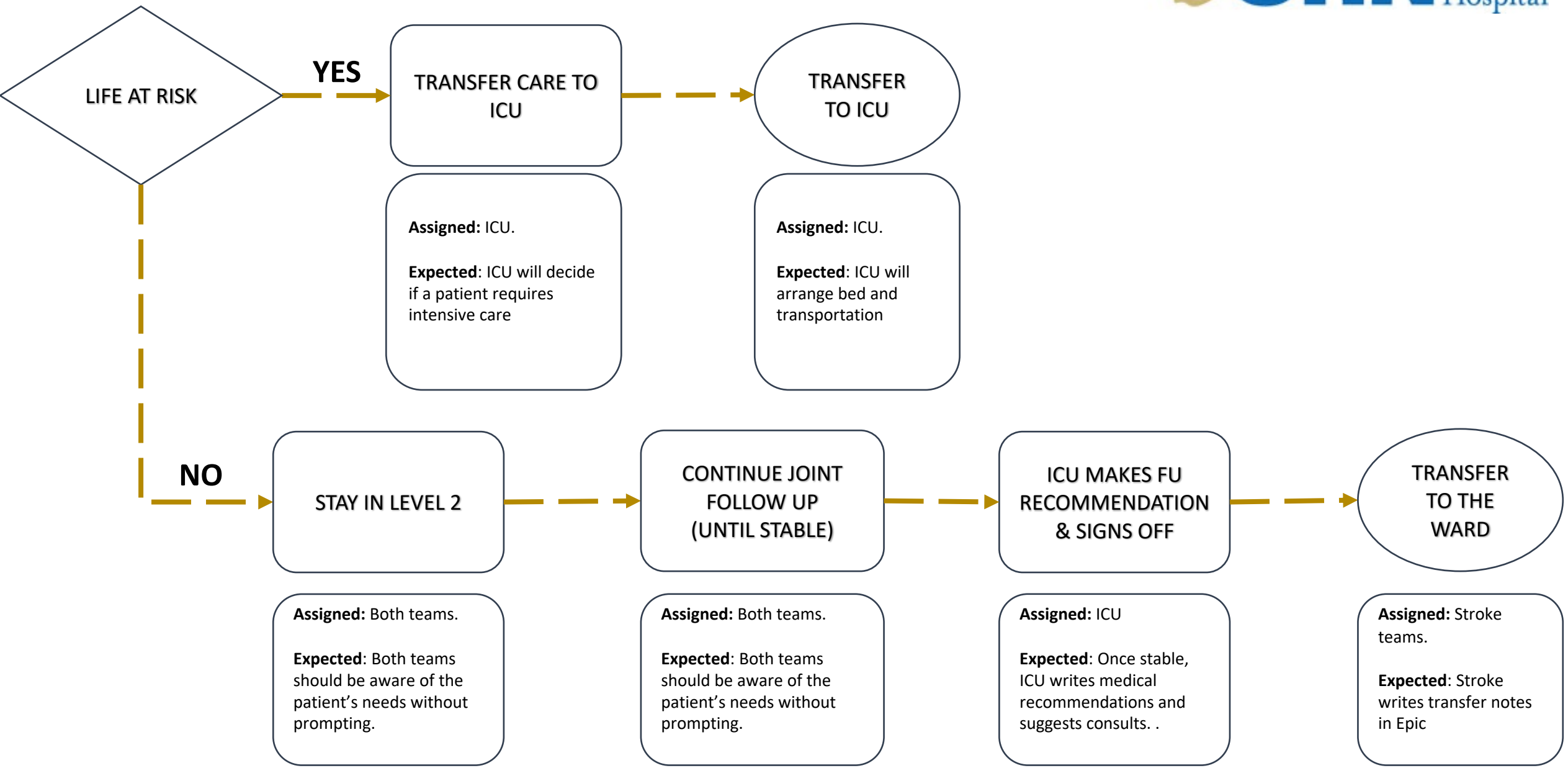
NEW PROCESS: ADMISSION



NEW PROCESS: DAY ONE



NEW PROCESS: DETERIORATION



BASELINE: March – June 2023

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

PDSA 1: June – December 2023

Pager communication

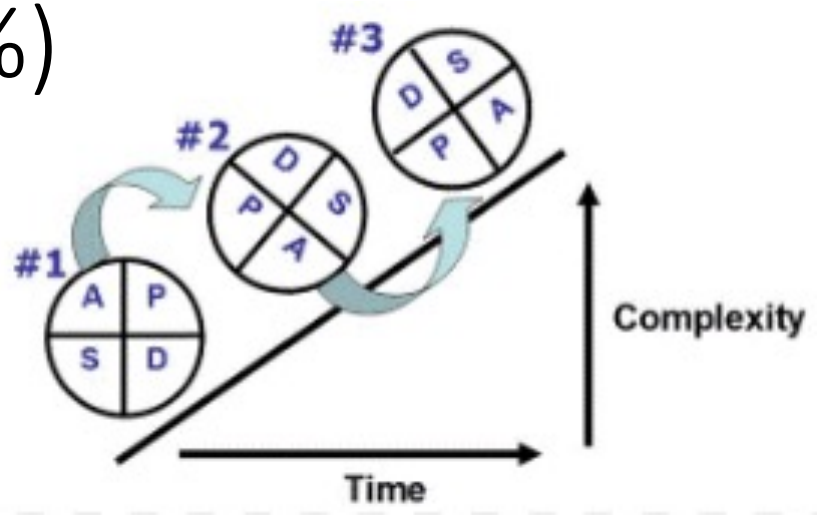
5 PM Huddle

131 patients

91 Consults to ICU (70%)

68 > 1 note (52%)

11 transfers to ICU (4.5%)



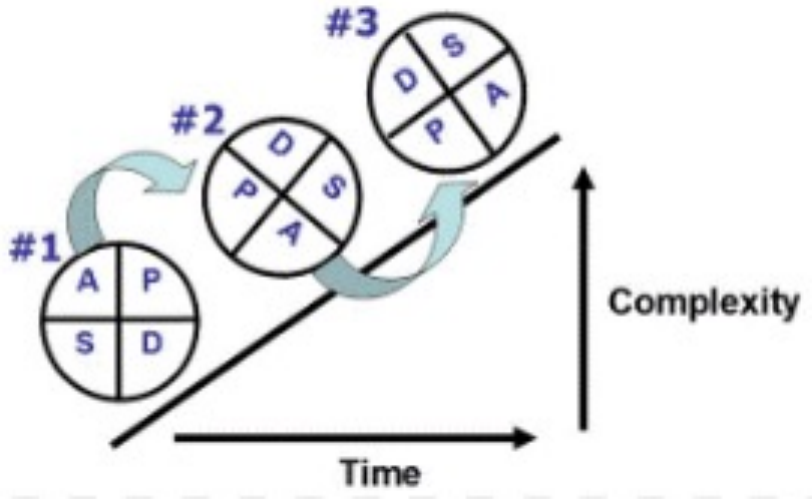
PDSA 1: Issues

Pager communication

5 PM Huddle

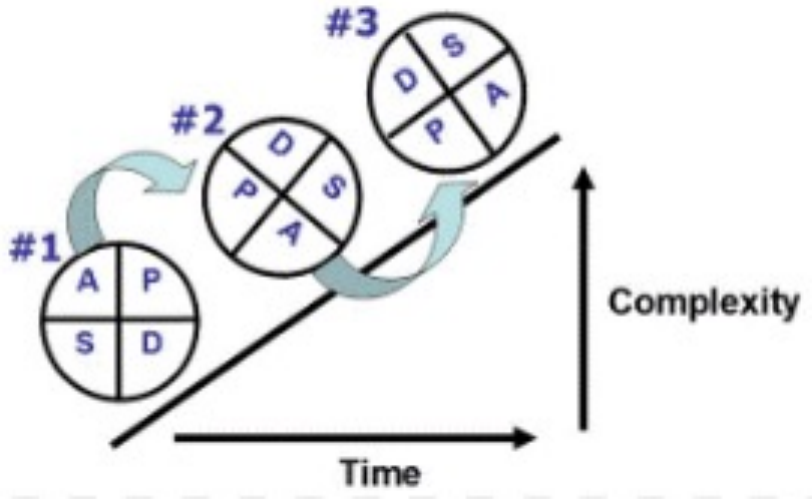
Process/SOW not properly shared

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%)



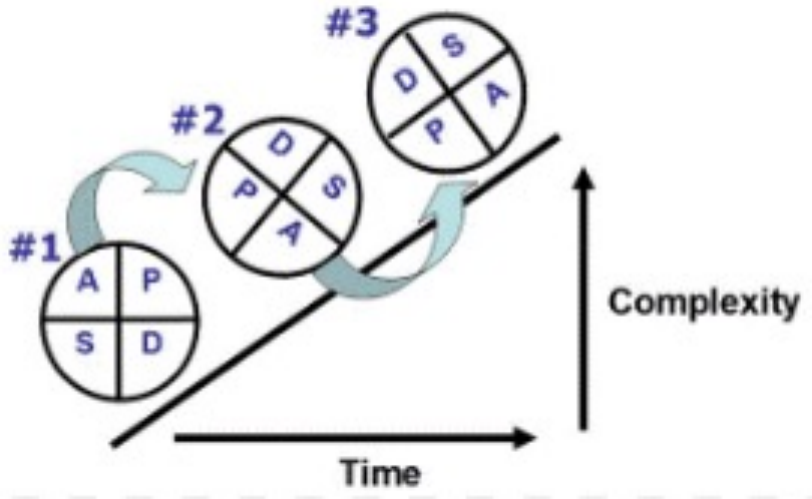
PDSA 2: Issues

Dedicated Telephone Morning call

Increased texting without patient info

Fear of interruption

Loss of momentum.



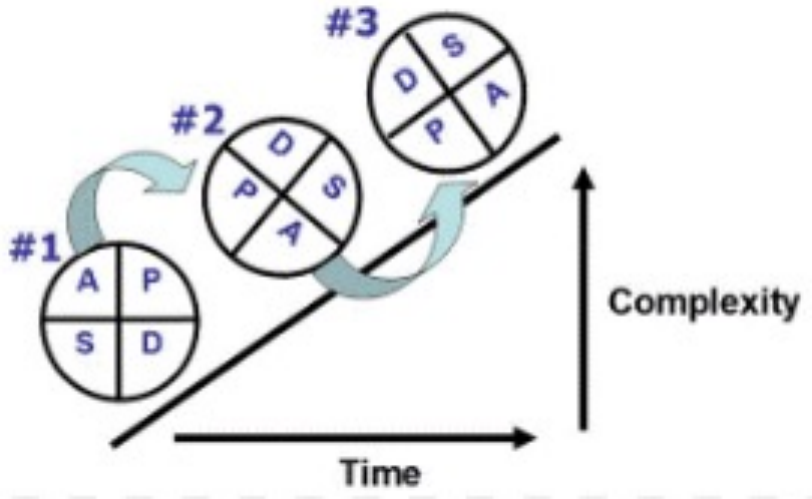
PDSA 3: Future

Regular reminders
Morning call

Consults

Inpatient Consult to Intensive Care

Override Reason: Comments:



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

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Neurologist, UHN Stroke Fellow
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Keith Sivakumar, MD, MBA
Neurologist, UHN Stroke Staff,
Education Lead
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THANK YOU!

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