Critical Care Emergencies in the Acute Stroke Patient

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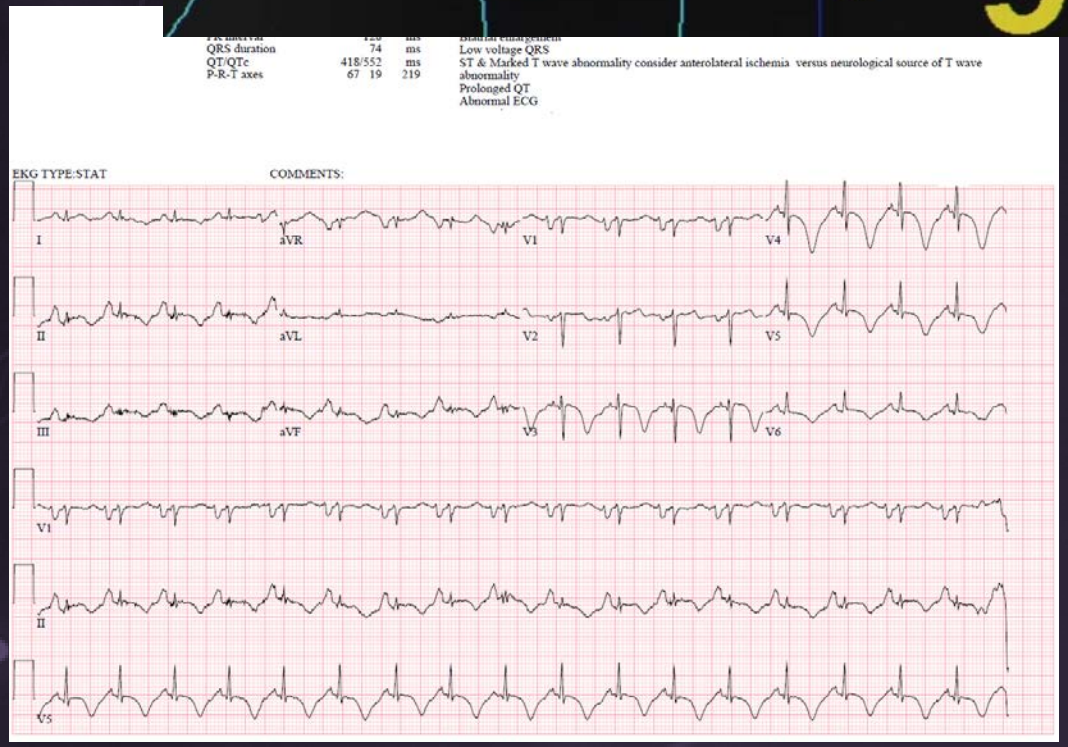
Disclosures: No Disclosures

Outline

- Describe early findings on imaging
- Acute management of malignant MCA Syndrome
- Other critical issues to address
- Neurosurgical consultation
- Difficult discussions with family

Case Study: “Nancy” ED Presentation

- **77 yo RH female**
  - pmhx: HTN, HLD, DM2, previous smoker (50 pack years, quit 10+ years ago)
- **ED Triage:**
  - Found down at home by son; LKW 1-2 days ago
  - L gaze preference, R facial droop, R hemiplegia, global aphasia
  - FSBS 96, BP 104/72, HR 112 ST, O_2 96% 2L NC
  - Stroke Alert called
  - Intubated after initial stroke assessment



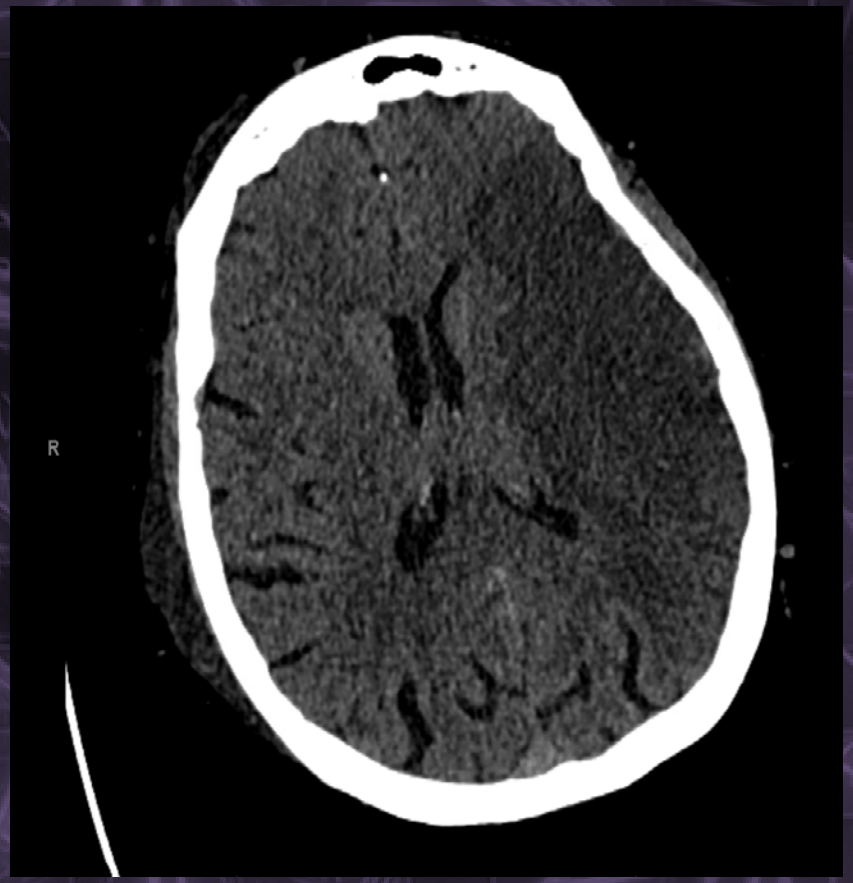
Initial Stroke Assessment: NIHSS

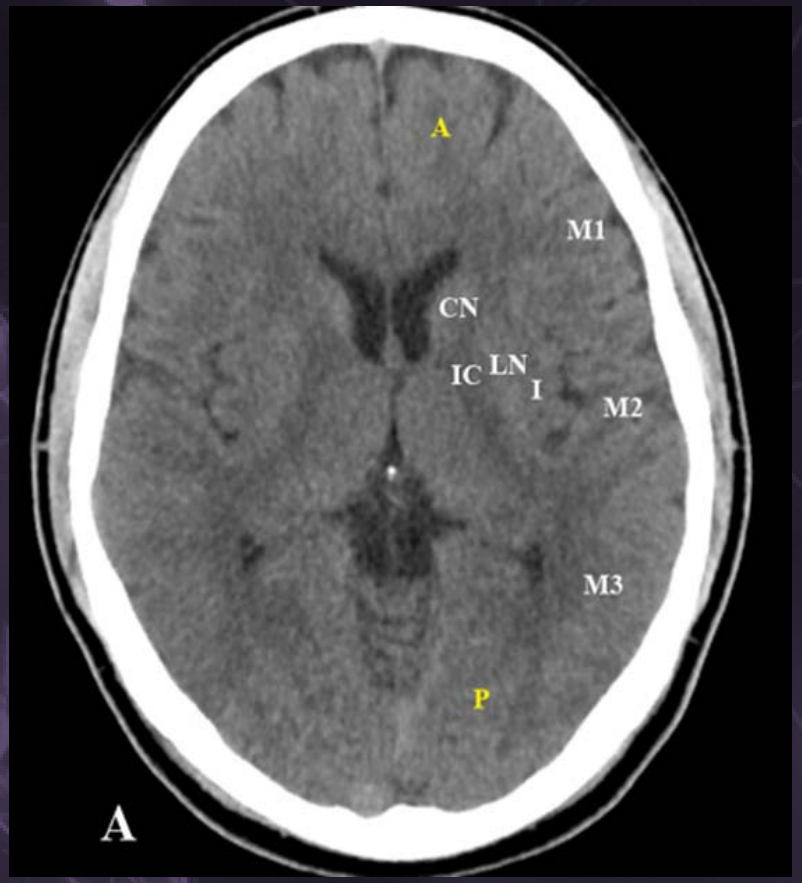
NIH Stroke Scale Score	Stroke Severity
0	No stroke symptoms
1-4	Minor stroke
5-15	Moderate stroke
16-20	Moderate to severe stroke
21-42	Severe stroke

NIHSS
24

LOC	+1
LOC-Q	+2
LOC-C	+2
Gaze	+2
VF	+2
Face	+2
Arm-R	+4
Leg-R	+4
Language	+3
Speech	+2

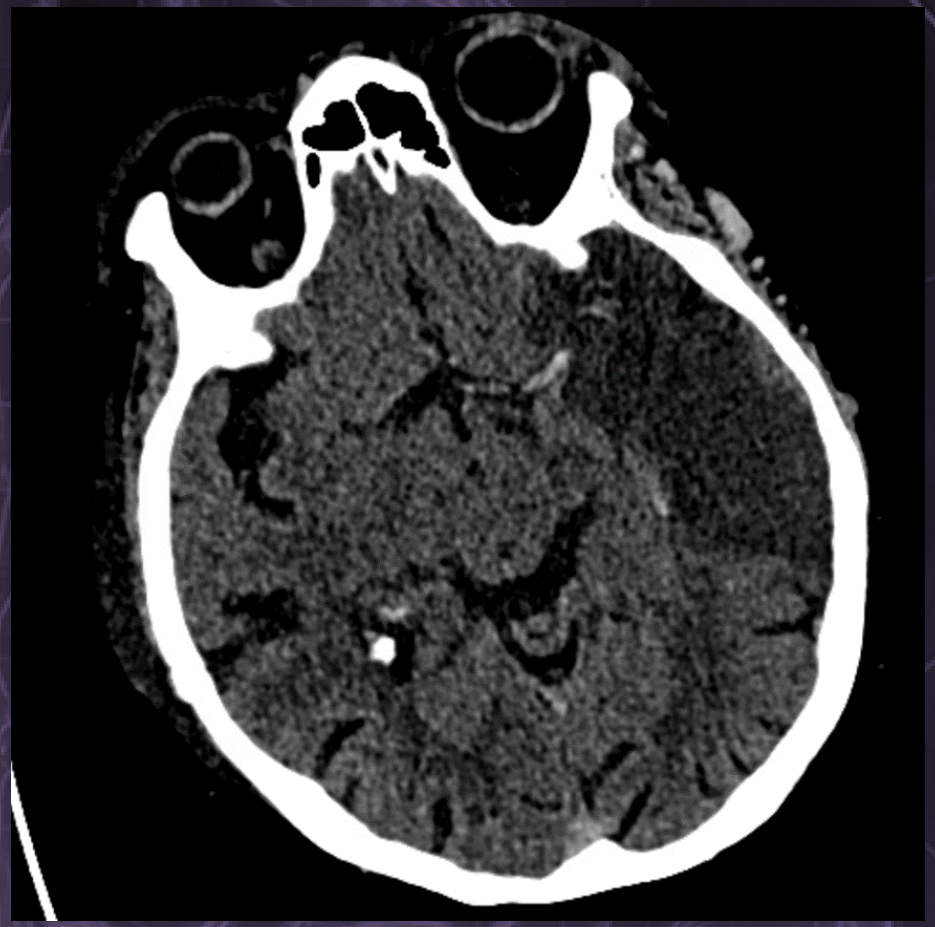
NCHCT in ED: ASPECTS Score

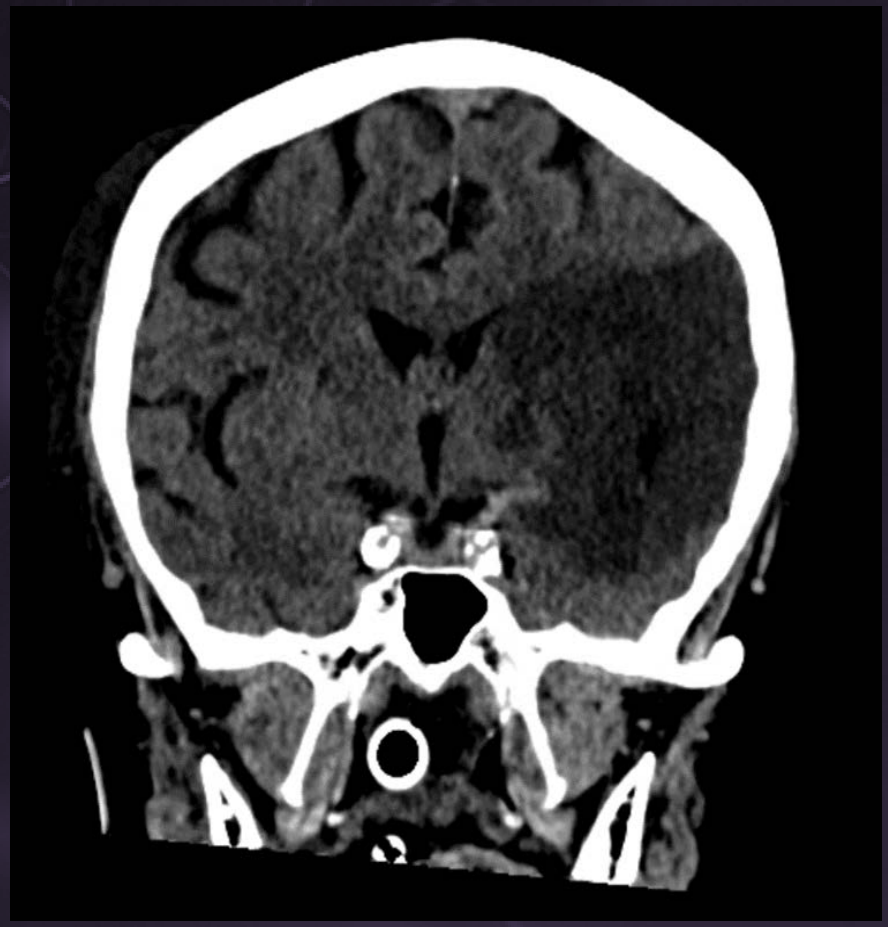




- ASPECTS Score: 4-5
- Estimated infarcted tissue > 70cc

NCHCT in ED: Hyperdense MCA

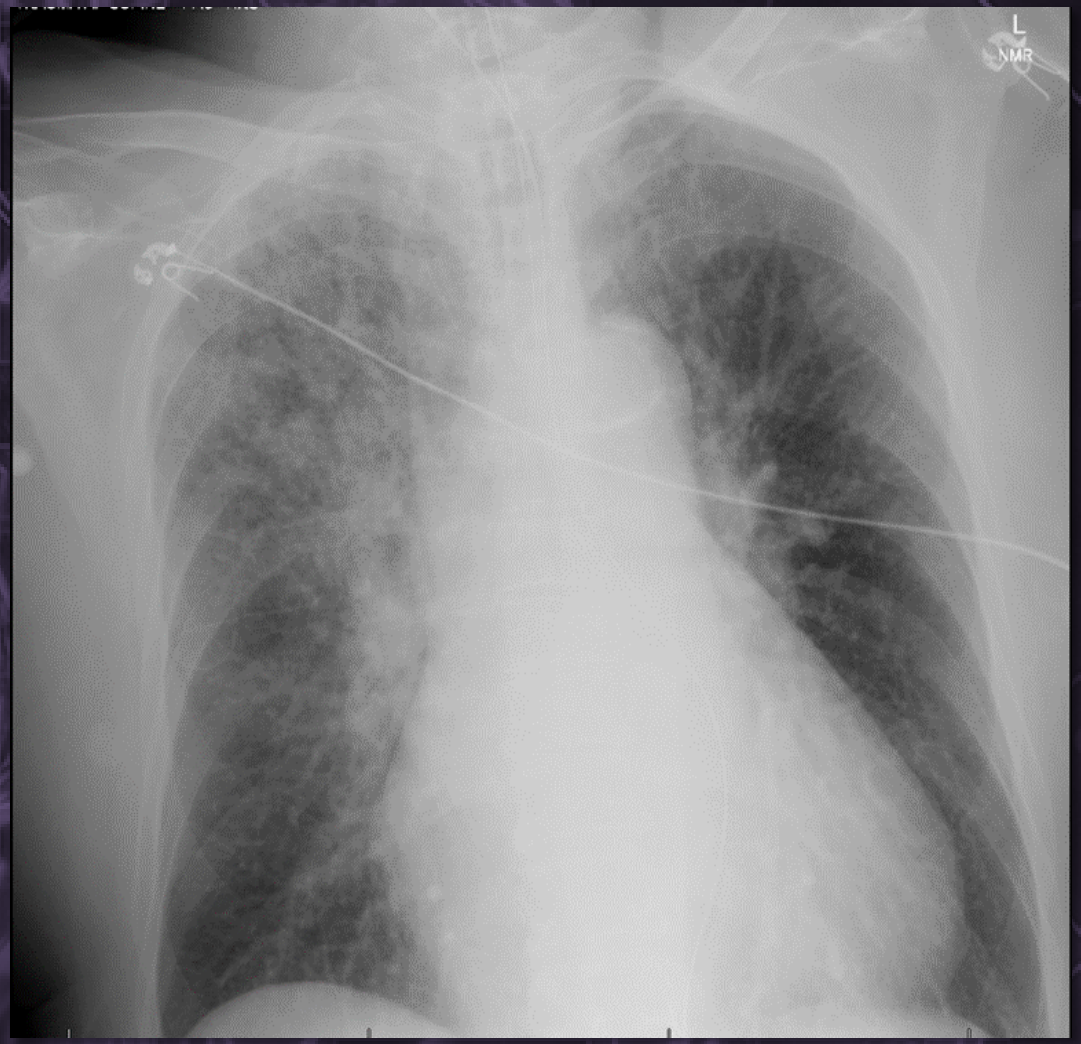




Next Steps in Management

- Admit to Neuro ICU
- Consult Neurosurgery for evaluation for possible DHC
- Hyperosmolar therapy
- Family meeting ASAP

But, wait. Why is she hypotensive?



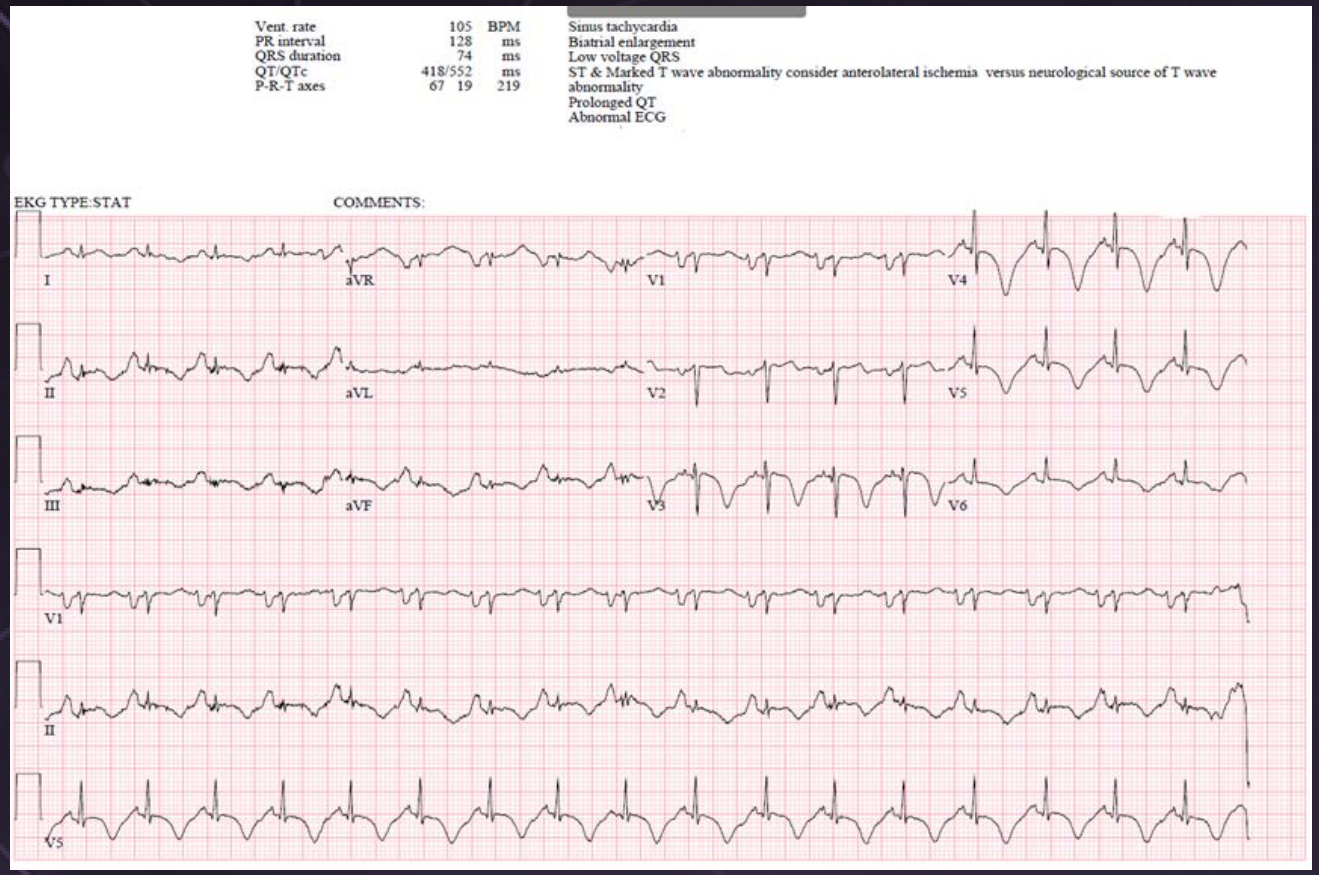
Differential #1: Septic Shock

- ABG: 7.23/40/120/16.5
- CXR: large RUL infiltrate
- Lactate 5.4
- IVF: 30cc/kg crystalloid (NS)
- Arterial line and TLC placed
- BP not responsive to IVF →
  - Norepinephrine gtt started
- Broad spectrum antibiotics started for concern of aspiration pneumonia

But wait. Why is she STILL hypotensive?

Differential #2: AMI

- EKG shows ST abnormalities in antero-lateral leads
- Troponin: 0.24 → 1.53
- CK 895
- POCUS: diffuse LV wall motion abnormalities
- Cardiology consulted



Neurosurgical Consultation

- Recommendations from NSGY:
  - If consistent with family and/or patient's GOC, will be available for DHC
  - Maximize medical therapy
  - Surgery would be life-saving intervention

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ORIGINAL ARTICLE

Factors Associated with the Outcome of Very Elderly Patients with Large Hemispheric Infarction Treated with Medical Management Only

Sudhir Datar[1] · Christopher McLouth[2] · Patrick Reynolds[3]

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Abstract
Background Large ischemic stroke in the very elderly population is presumed to invariably carry a poor prognosis and clinicians may refrain from continuing intensive care. Many elderly patients are not surgical candidates, and there is a paucity of data outlining the real-world outcomes of continued medical management. Our objective is to identify the factors associated with the outcome of very elderly patients with large hemispheric infarction (LHI) treated with medical management alone.
Methods We performed a retrospective review of all consecutive adults ≥ 70 years of age with LHI identified from a single center stroke registry between 2012 and 2016. Mean volume of infarction was calculated using the ABC/2 method.
Results Of a total of 2335 patients, 71 (mean age 81 ± 7 years,) met inclusion criteria. Forty-one were women (58%). Mean admission National Institute of Health Stroke Score (NIHSS) was 21 ± 6. Intravenous tPA was administered in 30 (42%) and 9 (13%) patients underwent thrombectomy. Mean infarct volume was 175 ± 75 cc. Twenty-seven patients (38%) survived to hospital discharge; 6 (9%) eventually went home (albeit with mRS 4) and one (1%) went to assisted living. Multivariate logistic regression analysis found that admission NIHSS ≥ 20 ($p = 0.0007$) and mechanical ventilation within 48 h of admission ($p = 0.0396$) were independently associated with poor outcome.
Conclusion Ten percent of medically managed patients (≥ 70 years of age) with LHI can go home or to assisted living, but with a mRS of 4. Whether this is an acceptable outcome must be individualized on a case-by-case basis; however, poor prognosis should not be automatically presumed solely based on the combination of older age and a large stroke.

Hemicraniectomy in Older Patients with Extensive Middle-Cerebral-Artery Stroke

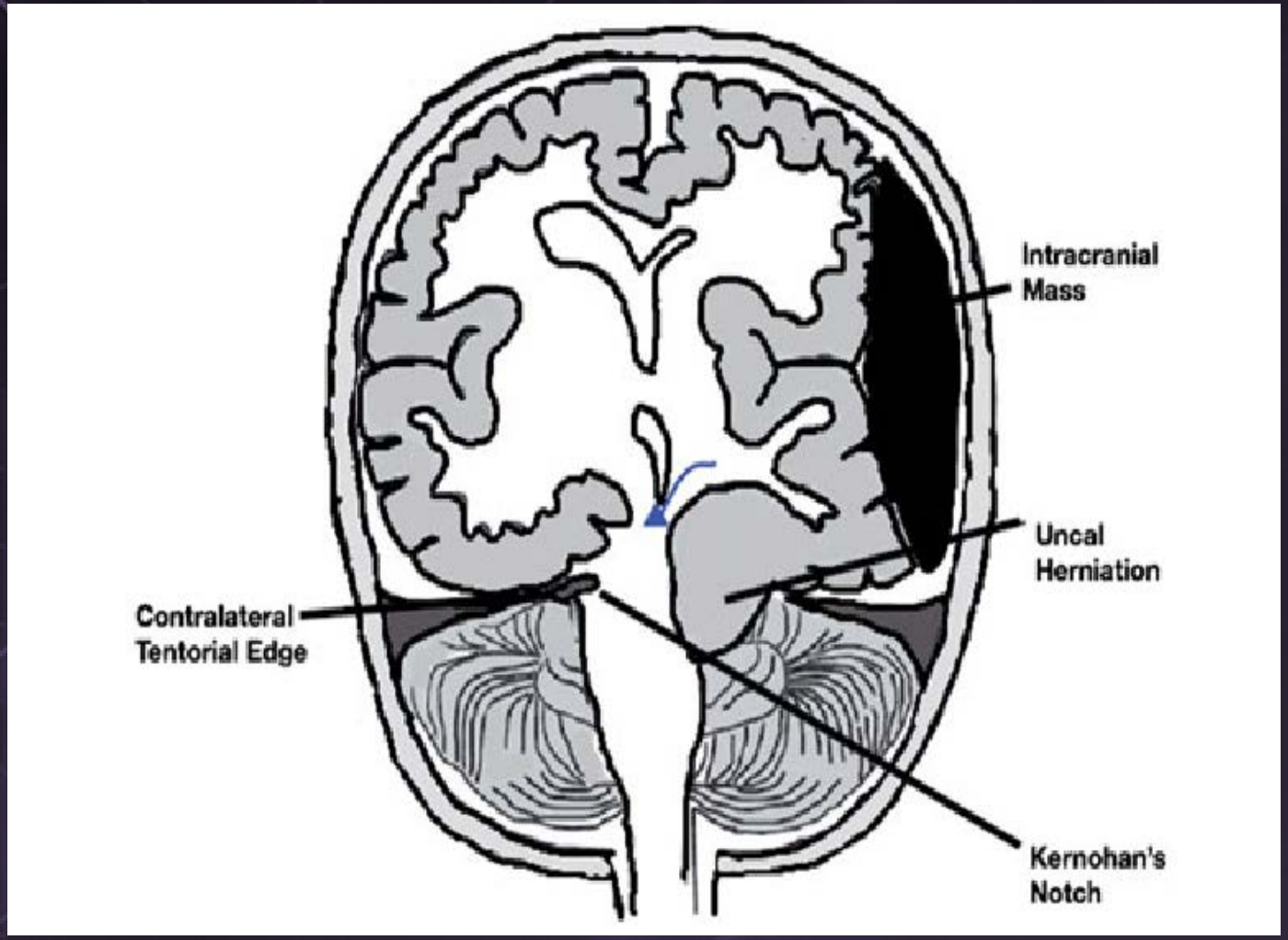
Eric Jüttler, M.D., Ph.D., Andreas Unterberg, M.D., Ph.D., Johannes Woitzik, M.D., Ph.D., Julian Bösel, M.D., Hemasse Amiri, M.D., Oliver W. Sakowitz, M.D., Ph.D., Matthias Gondan, Ph.D., Petra Schiller, Ph.D., Ronald Limprecht, Steffen Luntz, M.D., Hauke Schneider, M.D., Ph.D., Thomas Pinzer, M.D., Ph.D., Carsten Hobohm, M.D., Jürgen Meixensberger, M.D., Ph.D., and Werner Hacke, M.D., Ph.D., for the DESTINY II Investigators*

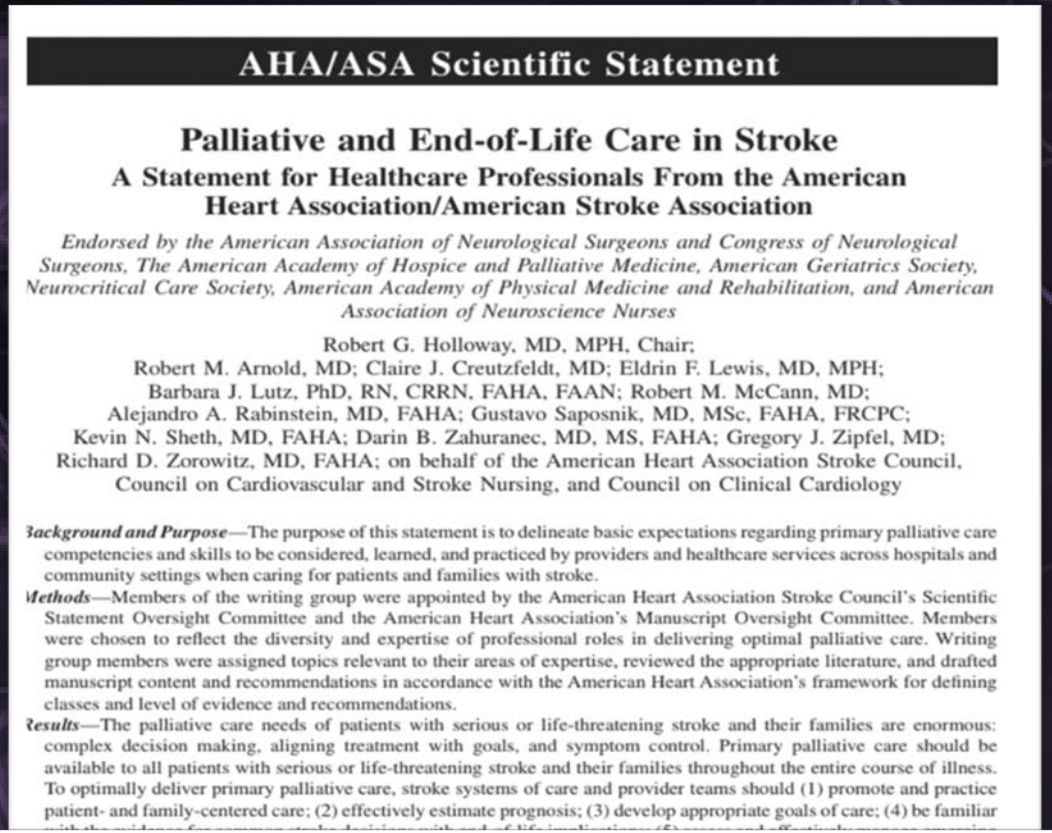
ABSTRACT

moderate disability and very significantly reduced (by more than half) the mortality rate compared with that after medical therapy. (*Stroke*. 2007;38:2506-2517.)

Exam Change: Are you sure it’s the left pupil?!

- RN notifies team that pt has a LEFT blown pupil
- Provider Exam:
  - Left pupil fixed, dilated
  - BLE plegia
  - Left upgoing toe (previously down)
- Interventions:
  - 23.4% HTS IV over 5 minutes
  - STAT NCHCT





AHA/ASA Scientific Statement

Palliative and End-of-Life Care in Stroke

A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

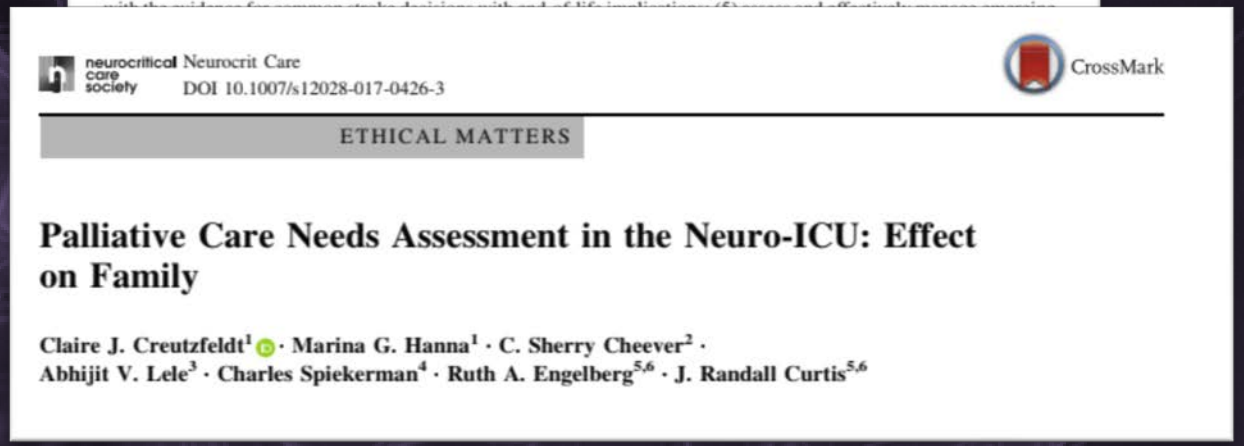
Endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons, The American Academy of Hospice and Palliative Medicine, American Geriatrics Society, Neurocritical Care Society, American Academy of Physical Medicine and Rehabilitation, and American Association of Neuroscience Nurses

Robert G. Holloway, MD, MPH, Chair; Robert M. Arnold, MD; Claire J. Creutzfeldt, MD; Eldrin F. Lewis, MD, MPH; Barbara J. Lutz, PhD, RN, CRRN, FAHA, FAAN; Robert M. McCann, MD; Alejandro A. Rabinstein, MD, FAHA; Gustavo Saposnik, MD, MSc, FAHA, FRCPC; Kevin N. Sheth, MD, FAHA; Darin B. Zahuranec, MD, MS, FAHA; Gregory J. Zipfel, MD; Richard D. Zorowitz, MD, FAHA; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, and Council on Clinical Cardiology

Background and Purpose—The purpose of this statement is to delineate basic expectations regarding primary palliative care competencies and skills to be considered, learned, and practiced by providers and healthcare services across hospitals and community settings when caring for patients and families with stroke.

Methods—Members of the writing group were appointed by the American Heart Association Stroke Council's Scientific Statement Oversight Committee and the American Heart Association's Manuscript Oversight Committee. Members were chosen to reflect the diversity and expertise of professional roles in delivering optimal palliative care. Writing group members were assigned topics relevant to their areas of expertise, reviewed the appropriate literature, and drafted manuscript content and recommendations in accordance with the American Heart Association's framework for defining classes and level of evidence and recommendations.

Results—The palliative care needs of patients with serious or life-threatening stroke and their families are enormous: complex decision making, aligning treatment with goals, and symptom control. Primary palliative care should be available to all patients with serious or life-threatening stroke and their families throughout the entire course of illness. To optimally deliver primary palliative care, stroke systems of care and provider teams should (1) promote and practice patient- and family-centered care; (2) effectively estimate prognosis; (3) develop appropriate goals of care; (4) be familiar



neurocritical care society Neurocrit Care

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ETHICAL MATTERS

Palliative Care Needs Assessment in the Neuro-ICU: Effect on Family

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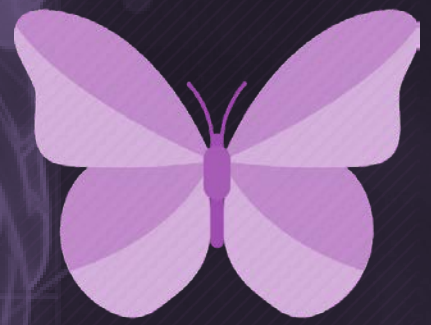
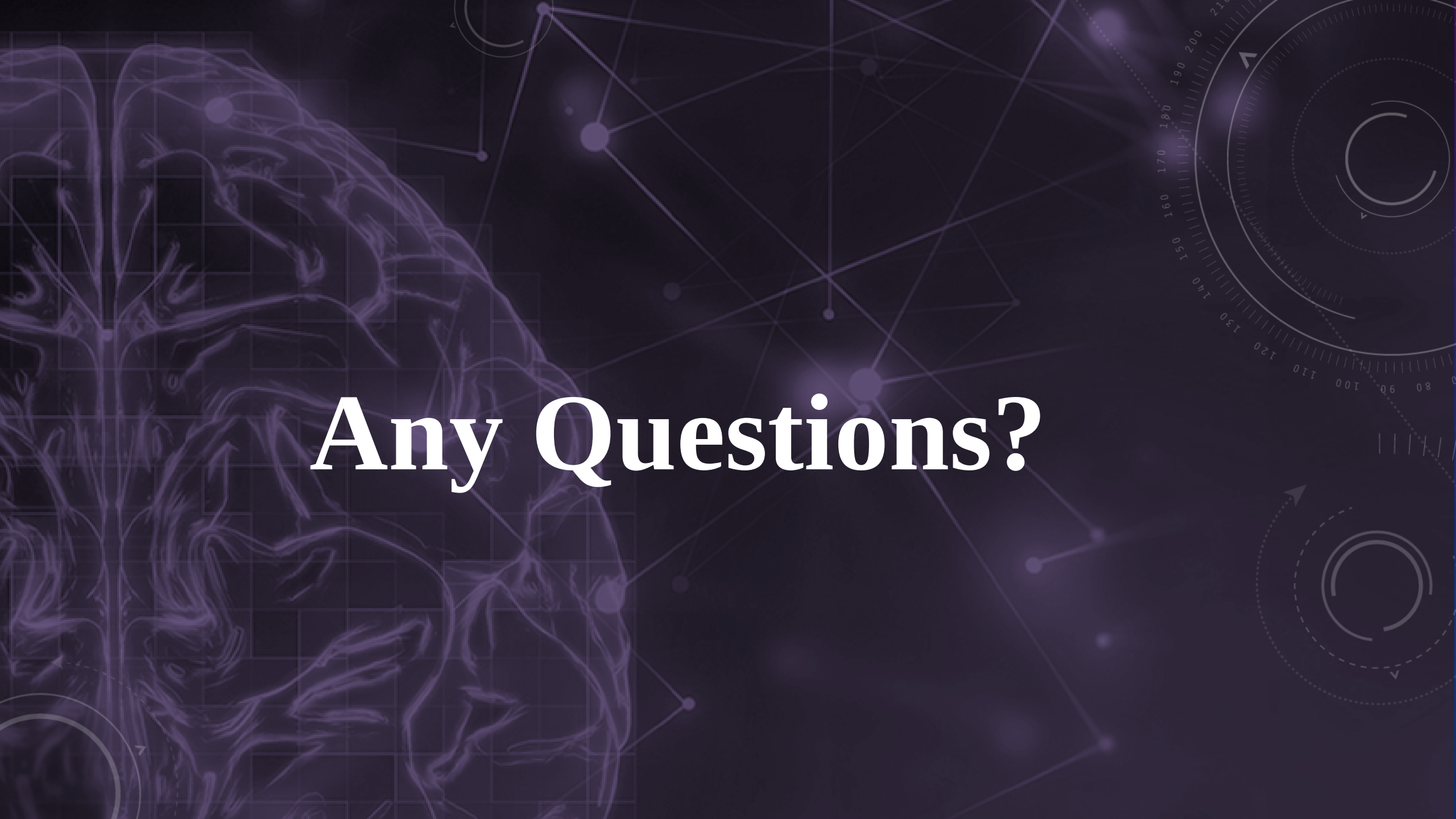
Early Family Meeting

- Clinical Points to Address:
  - Extent of neurologic damage sustained thus far
  - Risks of secondary brain injury
  - Other body systems involved
- Patient's wishes:
  - If no living will or documentation, what would they deem important in their daily life
  - Would this neurologic injury be consistent with their wishes?
- Options going forward:
  - Further medical/surgical treatment
  - Transition in goals of care to a focus on comfort

Back to “Nancy”

- Family meeting as soon as they arrived from out of state
- Decided to transition to comfort care
- Extubated and transitioned to hospice with Palliative Care team
- Passed away peacefully with her family at her bedside




Any Questions?