Dysphagia: Validating Tool
The importance of a nursing dysphagia screening

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Disclosures

- We have no relevant financial or conflicts of interest to disclose.

We will discuss…

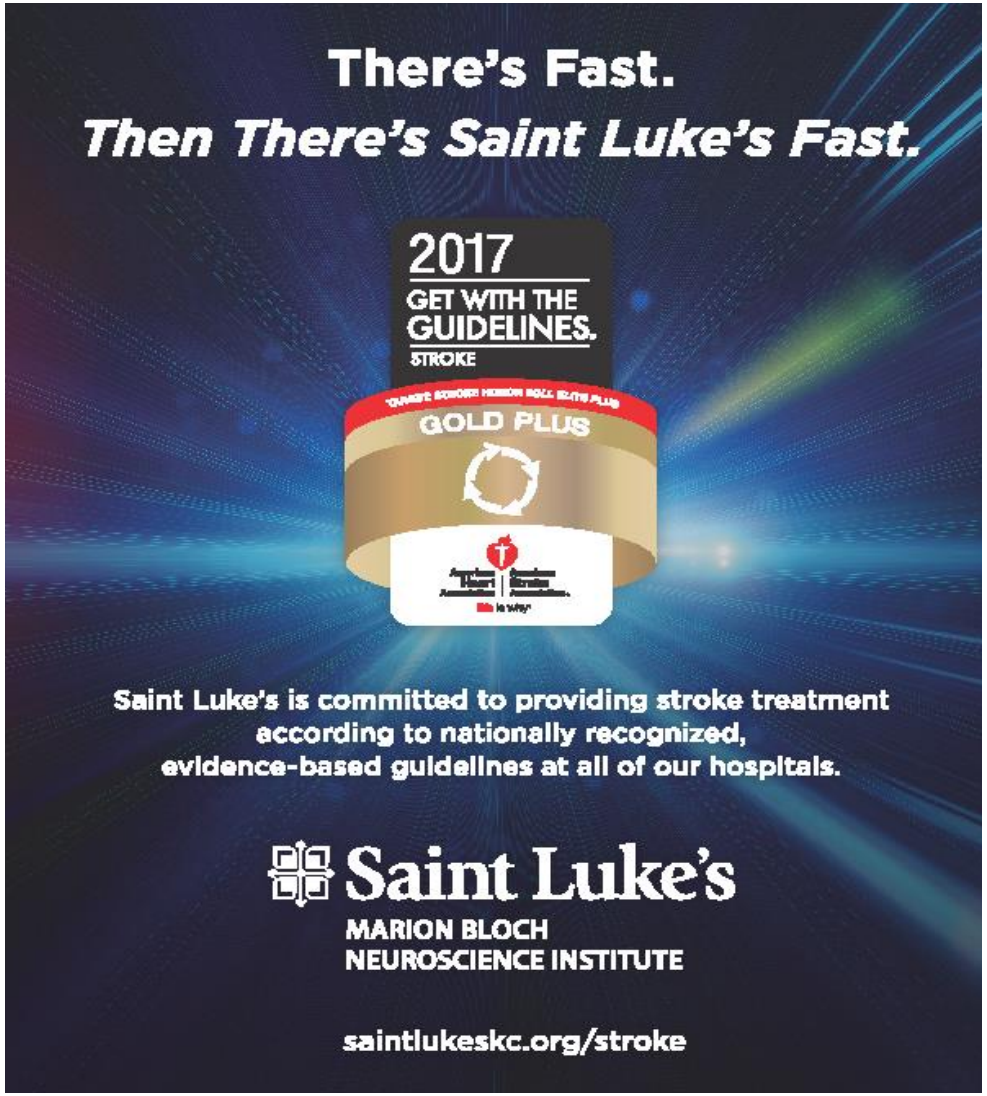
- Current recommendations re: dysphagia screening.
- A brief review of dysphagia & aspiration including statistics, burdens, & complications.
- Importance of early utilization of bedside dysphagia screening.
- Challenges of validating a dysphagia screening tool.

Primary goal…

- Understanding the importance of utilizing a ***quality*** dysphagia screening tool to provide superior nursing care.

Saint Luke's Marion Bloch Neuroscience Institute

- 2017 Gold Plus
- Commitment to quality patient care and excellence



Validation Study at St. Luke's

- Dysphagia screening tool validation study at Saint Luke's Hospital - Kansas City (Plaza campus).
  - IRB approved, study in process.
  - Based on the most up-to-date literature, created previously by a team in-house by dedicated staff.
  - Validating in larger sample size in acute stroke population with limited time between testing.
  - Validating against gold standard video fluoroscopy.
  - Goal: good specificity and sensitivity with ease of use, reliable.

Stroke Facts

- Every 40 seconds someone has a stroke.
- Every 4 minutes someone dies of a stroke.
- 795,000 strokes per year in America, with 140,000 deaths.
- Cost of stroke: estimated at 34 billion each year.
- Stroke is a leading cause of long-term disability.

(Stroke Facts CDC.gov)

Brief History of Nursing Dysphagia Screen

- Late 1990's – early 2000's
  - Growing research into the feasibility of swallowing screening completed by RNs/physicians
  - Research of important factors for identifying dysphagia and risk of aspiration.
- 2005
  - Increasing need reiterated for valid and reliable dysphagia screenings
- 2007
  - AHA/ASA Guidelines indicate swallowing should be screened prior to oral intake for CVA patients.
- 2010
  - The Joint Commission and "Get with the Guidelines" retired the dysphagia screen performance standards.
- 2012
  - AHA/ASA Symposium reviewed the characteristics of valid and reliable screening and assessment tools.

Donovan, et al. (2013)

- 2014
  - AHA/ASA Current Recommendations.

2012: AHA/ASA Conference Proceedings

Dysphagia Screening: State of the Art
Invitational Conference Proceeding From the State-of-the-Art Nursing Symposium, International Stroke Conference 2012

- Identified need for valid and reliable dysphagia screenings
- What Constitutes a good screening instrument?
  - Easily administered, valid, reliable, high sensitivity, high specific, evidence based, minimal training, easily documented.
- "Absence of consensus on the best screening instrument does not mean no screening should be performed."
- Advance research initiatives

2014: AHA/ASA Clinical Performance Measures

- Dysphagia screening guidelines
  - (**2014 Guidelines for Early Management of Patients with Acute Ischemic Stroke AHA/ASA**) *"dysphagia screening with an evidence-based bedside testing protocol approved by the hospital before being given any food, fluids, or medications by mouth".*

  - *"Dysphagia screening may consist of a structured bedside swallow screen administered by nursing staff, bedside swallow evaluation by a speech-language pathologist, video fluoroscopic swallow evaluation, fiber optic endoscopic evaluation of swallowing, or other method approved by local institutional protocol."*

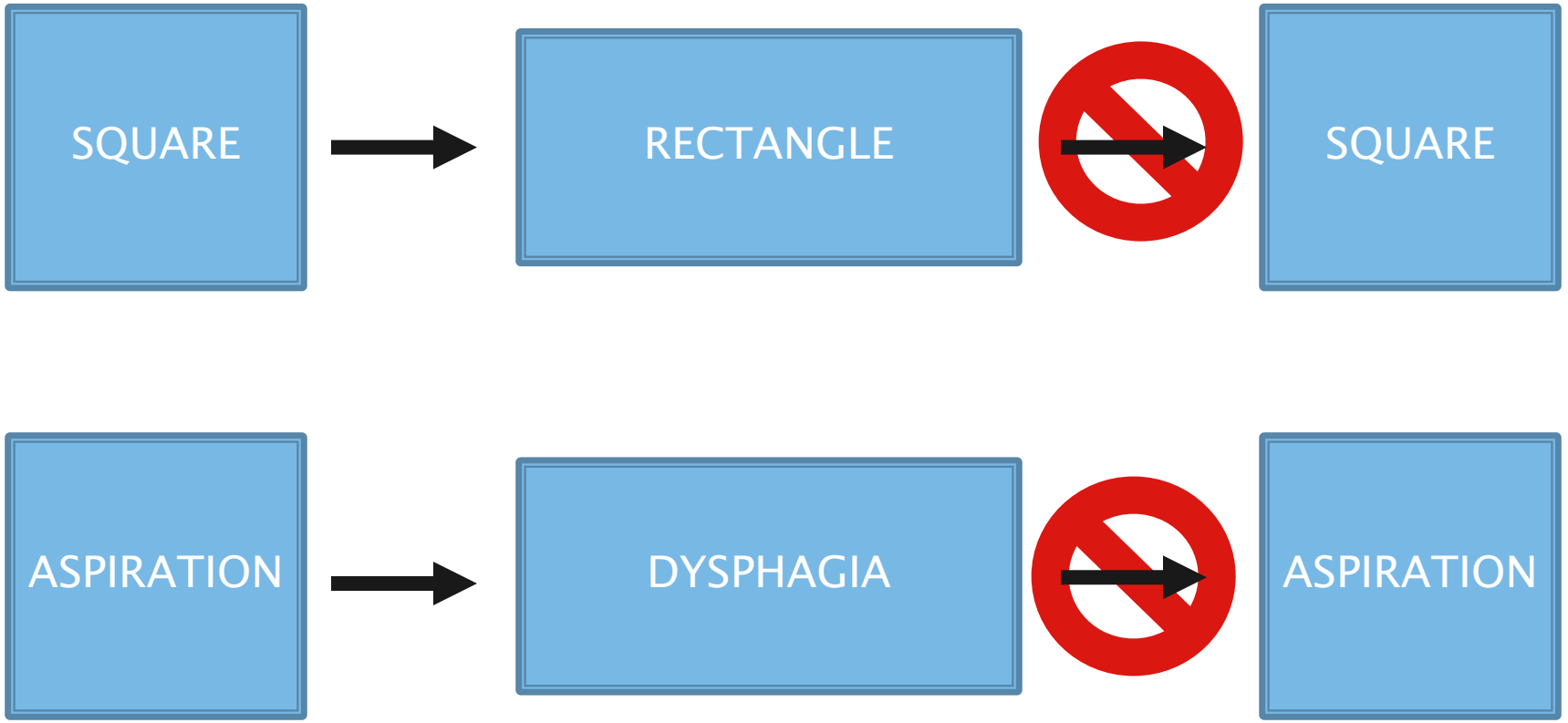
2014: AHA/ASA Clinical Performance Measures (con't)

- *"Several studies have demonstrated a reduction in pneumonia after institutional implementation of dysphagia screening protocols, but without randomized control groups. Several swallow screening methods have been published in the literature, each with benefits and limitations,* ***without sufficient evidence to recommend a single consensus method****."*

Current Dysphagia Screens

- Numerous dysphagia screens in existence:
  - Toronto Bedside Swallowing Screening Test
  - 3-oz Water Swallow Test (WST)
  - Bedside Swallowing Assessment
  - Standardized Swallowing Assessment
  - Guggling Swallow Screen (GUSS)
  - Acute Stroke Dysphagia Screening (Barnes Jewish)
  - Modified Mann Assessment of Swallowing (MANN)
  - Emergency Physician Swallow Screening
  - And so on and so forth!

Dysphagia V. Aspiration



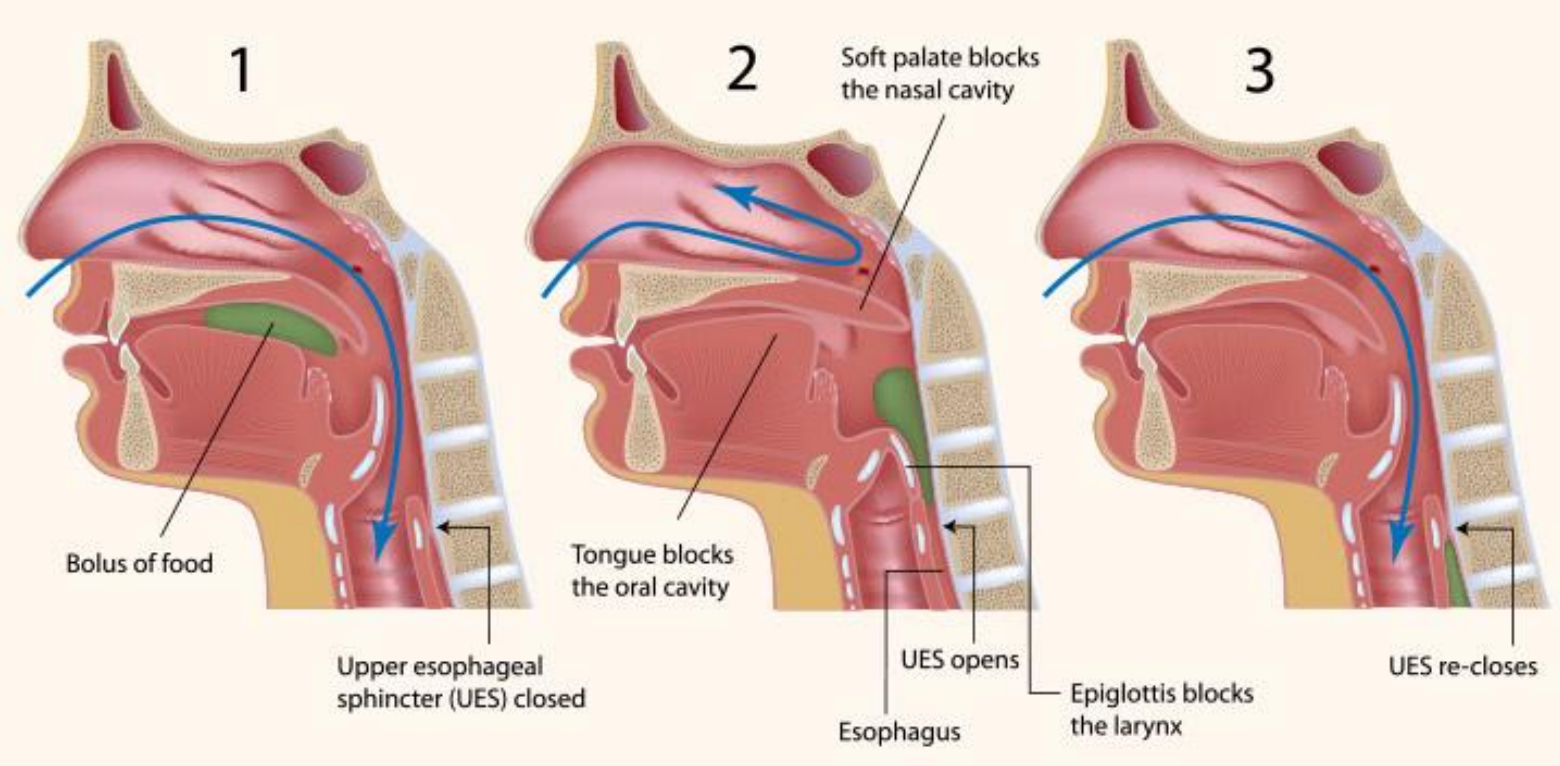
What *exactly* is dysphagia?

- More than just – “difficulty swallowing” or aspiration.

Oral Dysphagia

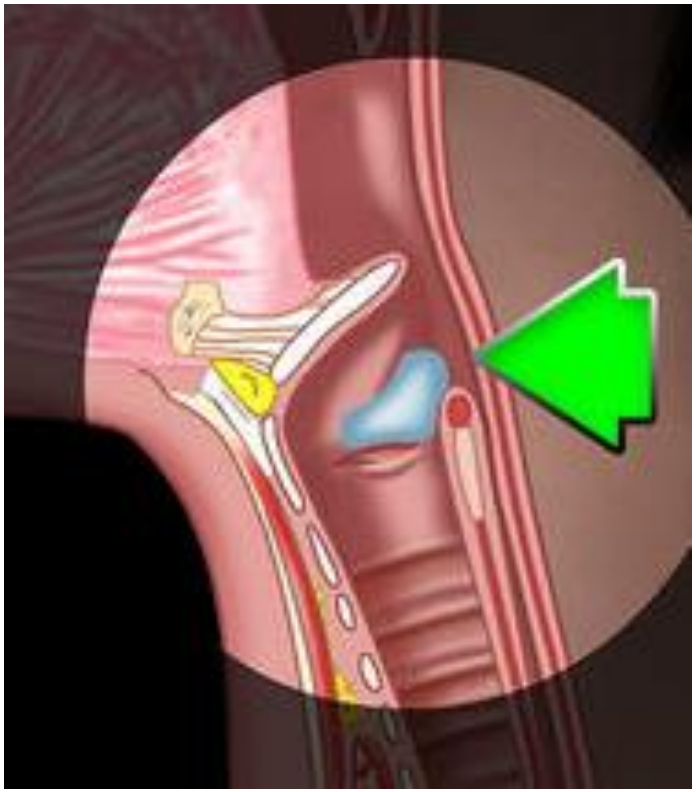
Pharyngeal Dysphagia

Esophageal Dysphagia



What *exactly* is aspiration?

- Penetration
- Aspiration



- Clinical signs/symptoms of aspiration

Dysphagia in Acute Stroke

- Statistics
  - Incidence: 37% to 78% (Guyomard, 2009)
  - 50% of those with dysphagia will aspirate (Hinchey, 2005)
  - 33% of those who aspirate will develop pneumonia (Hinchey, 2005)
  - Dysphagia is associated with increased mortality (3 fold) (Donovan et al. 2013)
  - Increased predicted risk of death at 3 months with pneumonia diagnosis (Finlayson, 2011)
  - 50% of stroke patients will have persisting dysphagia at 6 months (Mann, 1999)

Dysphagia in Acute Stroke

- Burden & Complications
  - Increased length of stay (LOS rose 217%) (Campbell, 2016)
  - Incidence of mortality associated with aspiration pneumonia among patients with ischemic stroke is approximately 35% (Hitchney, 2005)
  - Dehydration and malnutrition (Clave, 2012)
  - Cost of aspiration pneumonia $13,000 to $16,000 per episode (Titsworth, 2013)
    - Similar study citing $23,338 (Cohen, 2016).
  - Reduced quality of life

Dysphagia in Acute Stroke

- Burden & Complications (con't)
  - The one year attributable cost of post-stroke dysphagia
    (Bonilha et al. Dysphagia, 2014)
    - "Unique, preliminary assessment of dysphagia related costs post-stroke"
    - Determined cost of dysphagia 1 year post-stroke: $9,297 (*based on Medicare cost*)
      - Multiple variables to account for cost / Limitations noted
      - 2004 database collection

Dysphagia in Acute Stroke

- Early detection of dysphagia
  - Early detection may reduce length of stay, improved outcomes, decrease risk of pneumonia, decrease medical costs, improve allocation of resources, allow for early mobilization of treatments and/or therapy (O'Horo, 2015)
- Variables that may decrease likelihood of pneumonia
  - Stroke unit care associated with significant reductions (Govan, 2007)
  - Timing of dysphagia screen (Hinchey, 2005)
  - Early diet modifications (Hinchey, 2005)
  - Early mobilization (Ingeman, 2011)

Dysphagia in Acute Stroke

- Further need for *early* dysphagia screen intervention
  - Keeping patient's NPO until complete dysphagia assessment is completed may present other health risks
  - SLP not present 24/7
  - Every stroke patient does not need SLP dysphagia assessment

(Donovan et al, 2013)

Evaluation of Dysphagia

- *What* and *how* exactly are we evaluating?
- Dysphagia Screening
- Dysphagia Assessment
  - SLP Clinical/Bedside Swallow Evaluation
  - Instrumental Dysphagia Evaluation
    - Modified Barium Swallow Study (MBSS)/ Videofluoroscopic Swallow Study (VFSS)
    - Fiberoptic Endoscopic Evaluation of Swallow (FEES)

Evaluation of Dysphagia

- Dysphagia Screening
  - Identify dysphagia and aspiration risk
  - “Pass” or “Fail”
- 5 Main Categories of Screening Items
  - Demographics
  - History
  - Functional Assessment
  - Oral Mechanism Assessment
  - Swallowing Test

(Daniels et al, 2012)

Evaluation of Dysphagia

- Aspiration in Patients With Acute Stroke
  - Determine whether specific clinical features of the oropharyngeal mechanism predict aspiration within 5 days of acute stroke.

- 55 patients
- Oral motor exam, clinical swallow evaluation, & VFSS

- Dysphagia in 65% of patients (confirmed using VFSS)
- Aspiration in 38% of patients
  - Of the patients that aspirated –
    - 33% of patients aspirated overtly
    - 67% of patients aspirated silently

(Daniels et al, 1998)

Evaluation of Dysphagia

- 6 clinical indicators that significantly predict aspiration include:
  - Dysphonia
  - Dysarthria
  - Abnormal gag reflex
  - Abnormal volitional cough
  - Cough after swallow
  - Voice changes after swallow
- Predictors of silent aspiration
- Sensitivity = 69.6%, Specificity = 84.4%
- All patients who aspirated presented with at least 1 clinical indicator, 90% presented with 2 or more.
- Bedside swallow testing without the clinical features identified on oral motor exam, failed to identify 24% of aspirating patients.

(Daniels et al, 1998)

Evaluation of Dysphagia

- Water Swallow Tests (WST)
  - Determine diagnostic accuracy for identifying patients who are aspirating.
  - Observe airway response with or without voice changes following water trial(s).

  - Single sip volume (1-5mL)
  - Consecutive sips (90 – 100mL)
  - Progressively increasing volumes

(Brodsky et al, 2016)

Evaluation of Dysphagia

- Water Swallow Tests (WST) Results
  - Consecutive sips from large volumes offers the best characteristics to rule out overt aspiration
  - Single sips volumes appropriately ruled in aspiration when clinical signs were present, though negative results may be indicative of false negatives.
    - Omission of silent aspiration data
  - Combining single sips with consecutive sips from large volumes warrants further research.

(Brodsky et al, 2016)

Evaluation of Dysphagia

- Why do *both…*

oral mechanism assessment *and* **swallowing test?**

Predictors and Outcomes of Dysphagia Screening After Acute Ischemic Stroke

- *Data analysis of Ontario Stroke Registry 2010 to 2013 of 7,171 patients* *(Raed A. Joundi, et al. Stroke, 2017)*
  - *80% received dysphagia screening*
  - *Higher risk of pneumonia (13.1% vs 1.9%)*
  - *Severe disability defined as Modified Rankin Score 4-5 (52.4% vs 18.0%)*
  - *Discharge to long term care facility (14.0% vs 4.3%)*
  - *Decubitus ulcer (1.9% vs 0.1%)*
  - *Percutaneous feeding tube (9.0% vs 0.1%)*
  - *All cause mortality at one year (36.2% vs 10.2%)*

**Limitations*

Validating a Dysphagia Screening Tool

- Does it measure what it is supposed to measure & perform as its supposed to perform?
  - Sensitivity / Specificity / Reliability
- Validation: works consisting of research using processes by which the reliability and relevance of a procedure for a specific purpose are established
- Validity, derived from Latin meaning “strong”
- Numerous statistical tests may be utilized
- Validation against “gold standard” instrumental testing (video fluoroscopy / FEES) (Daniels, 1998).

Challenges of Validation

- Limited financial and human resources
- Change in patient condition between tests
- Prolonged time interval between tests
- Sample size
- Study design
- Inter-rater reliability
- Grant requests

Challenges of Validation

- Lack of consensus on a single dysphagia screening tool as “gold standard”
- Literature review:
  - Majority with small sample size, marginal sensitivity and or specificity, extended time between tests, some not validated against instrumental examination (gold standard).
  - Further prospective studies are needed

(Donovan, 2012)

Conclusions

- Dysphagia and aspiration are common occurrences in patients with acute stroke.
- Failing to identify dysphagia and aspiration in a timely manner increases healthcare costs, medical co-morbidities, likelihood of death and decreases patient satisfaction and quality of life.
- Efficient implementation of a quality dysphagia screening tool can reduce the burdens and complications associated with dysphagia and aspiration.
- Dysphagia screening is not a “one size fits all” process.
- Though no single dysphagia screening tool is currently recommended by the AHA/ASA, dysphagia screening is a necessary component to comprehensive stroke care.

Questions?

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