Recognize the Signs, Change the Outcome: Improving Postpartum Stroke Assessment Through Nursing Education

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Presenter Background

Clinical Educator supporting postpartum nursing practice at St. Elizabeth Healthcare

Experienced in Labor & Delivery, Postpartum, Pediatrics, and Newborn Care

Certified Inpatient Obstetric Nurse (RNC-OB)

Dedicated to advancing maternal safety, improving outcomes, and empowering nurses through education

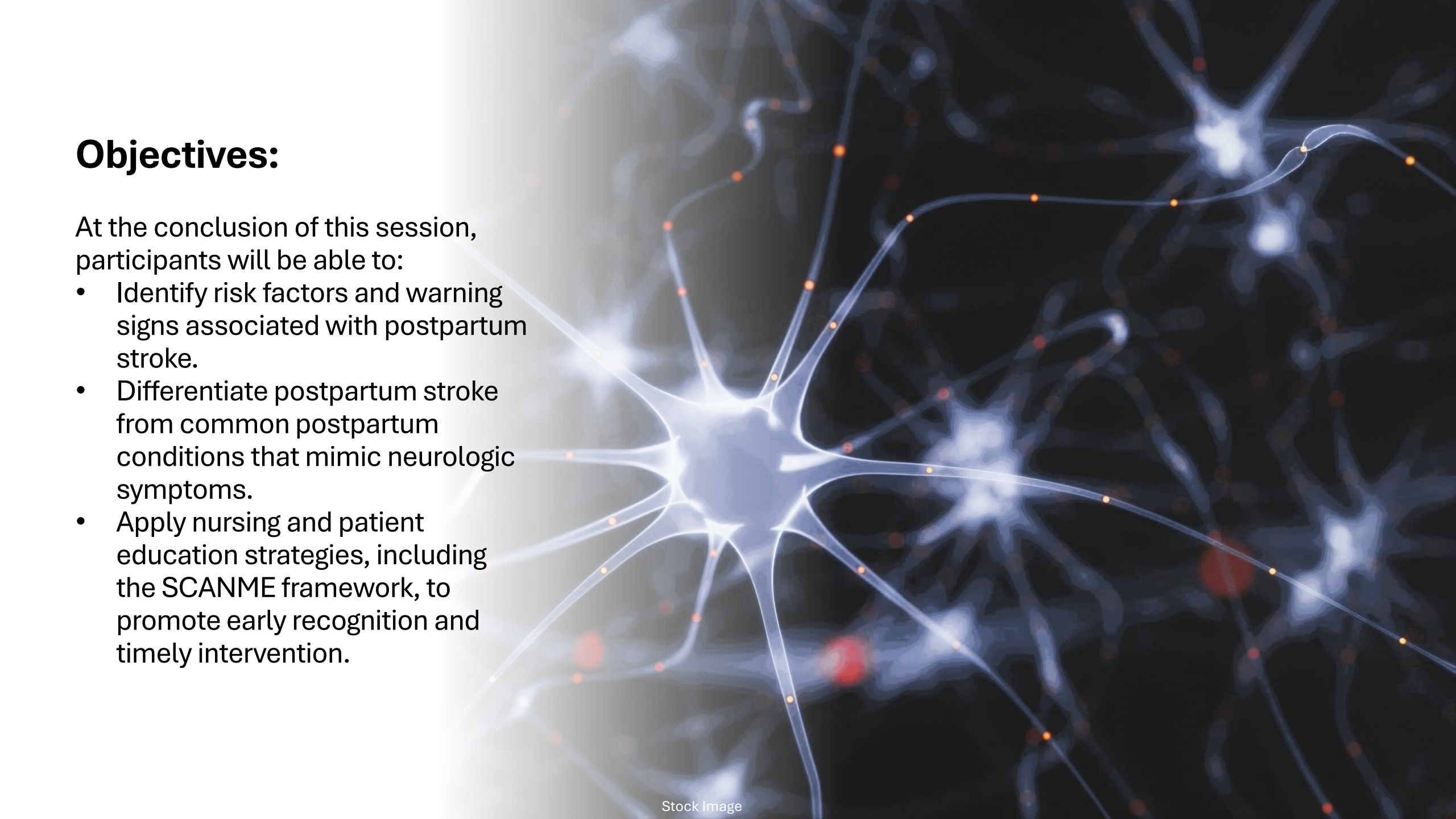
My first day on the St. Elizabeth Postpartum unit



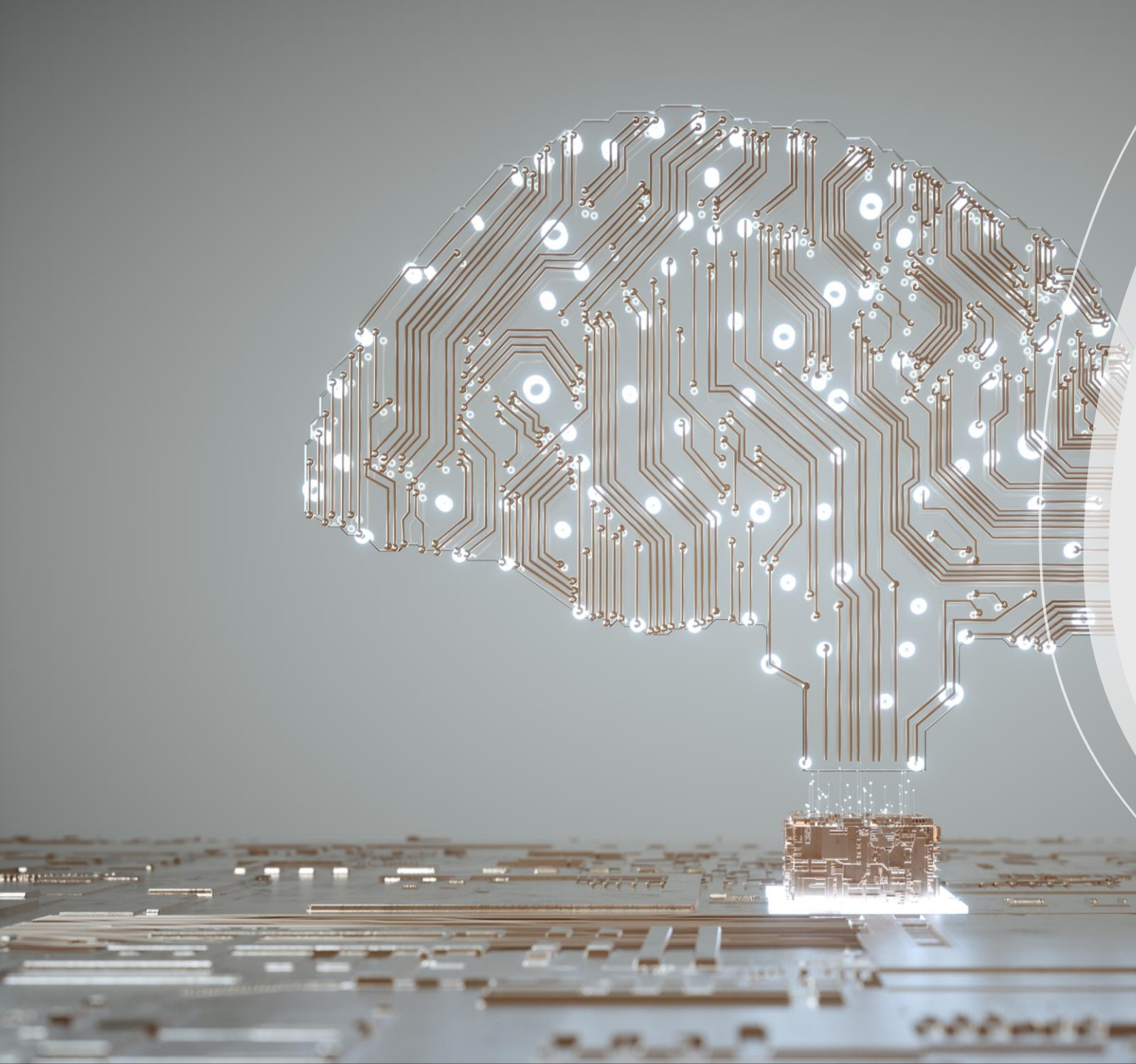
Objectives:

At the conclusion of this session, participants will be able to:

- Identify risk factors and warning signs associated with postpartum stroke.
- Differentiate postpartum stroke from common postpartum conditions that mimic neurologic symptoms.
- Apply nursing and patient education strategies, including the SCANME framework, to promote early recognition and timely intervention.



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A Rare Event with Catastrophic Consequences

- How confident would you be identifying one in the first five minutes?
- Would you recognize symptoms if they looked like a headache, anxiety, or exhaustion?

Because postpartum stroke is rare, awareness is often low. Yet delayed recognition can lead to:

- Permanent neurologic disability
- Loss of independence
- Maternal mortality

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Maternal Stroke: Prevalence

Maternal stroke remains rare but life-threatening

Approximately 20-40 per 100,000 pregnancies

According to the latest American Heart Association scientific statement released in 2026, stroke accounts for approximately 4-6% of pregnancy-related deaths in the United States.

Maternal Stroke on the Rise

Pregnancy-associated stroke rates in the United States have risen substantially over the past three decades.

National data demonstrated a 61.5% increase between 1994-1995 and 2010-2011

Maternal stroke causes persistent disability in 30-50% of survivors, and is associated with approximately 7.4% mortality



Postpartum Risk

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Why Postpartum Risk Matters

Stroke risk peaks during the postpartum period, especially:

- First 6 weeks postpartum
- Highest risk during the first days following delivery

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Hypertensive disorders of pregnancy
Preeclampsia/ eclampsia
Chronic hypertension
Diabetes
Obesity
Age, Race
Thrombophilia
Tobacco use
Cardiac disease
Cesarean birth
History of stroke/TIA



Maternal Impact

Stroke remains a significant contributor to maternal morbidity and mortality.

The challenge isn't just that postpartum stroke happens. The challenge is that it often looks like something else.

Why Stroke is Missed: Common Mimics

Preeclampsia/Eclampsia

- Headache
- Visual disturbances
- Altered mental status

PRES (Posterior Reversible Encephalopathy Syndrome)

- Visual changes
- Seizures
- Confusion
- Severe headache

Post-Dural Puncture Headache

- Severe headache
- Dizziness
- Nausea
- Fatigue

Migraine

- Visual aura
- Sensory disturbances
- Speech changes
- Sleep Deprivation/Anxiety

Migraine: An Important Risk Factor

A history of migraine is an independent risk factor for:

- Preeclampsia
- Maternal stroke
- Other vascular complications of pregnancy

Shared mechanisms may include:

- Endothelial dysfunction
- Neuroinflammation
- Abnormal vascular reactivity
- Blood-brain barrier dysfunction

Hypertension

Nearly half of pregnancy-associated stroke hospitalizations occur in patients with hypertensive disorders of pregnancy.



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Rare does not mean impossible

Symptoms are often initially attributed to:

- Exhaustion
- Medication effects
- Typical postpartum recovery



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The Recognition Gap

- More than 1 in 4 women with pregnancy-associated stroke sought care before receiving a stroke diagnosis.
- Nearly half were evaluated in obstetric settings.
- Severe headache, neck pain, and confusion were frequently overlooked.
- Education may help close this gap and accelerate treatment.



Red Flags

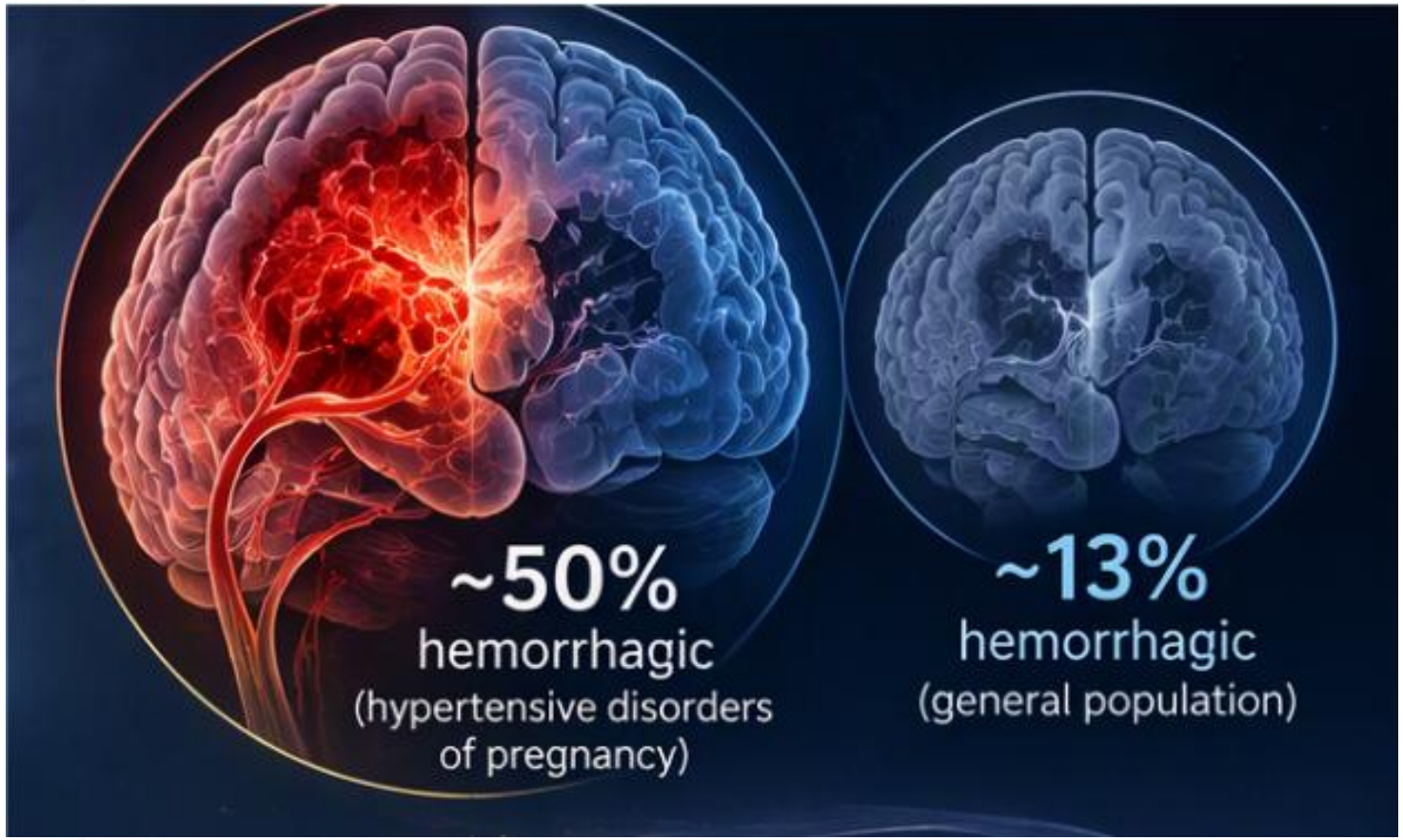
- Worst headache of life
- New visual changes
- Unilateral weakness
- Speech difficulty
- Seizure
- Altered mental status
- Sudden severe hypertension

Maternal stroke remains under-recognized and under-treated.

The highest risk period for maternal stroke is postpartum

Women with preeclampsia have an increased lifetime risk of:

- Stroke
- Cardiovascular disease
- Cognitive impairment

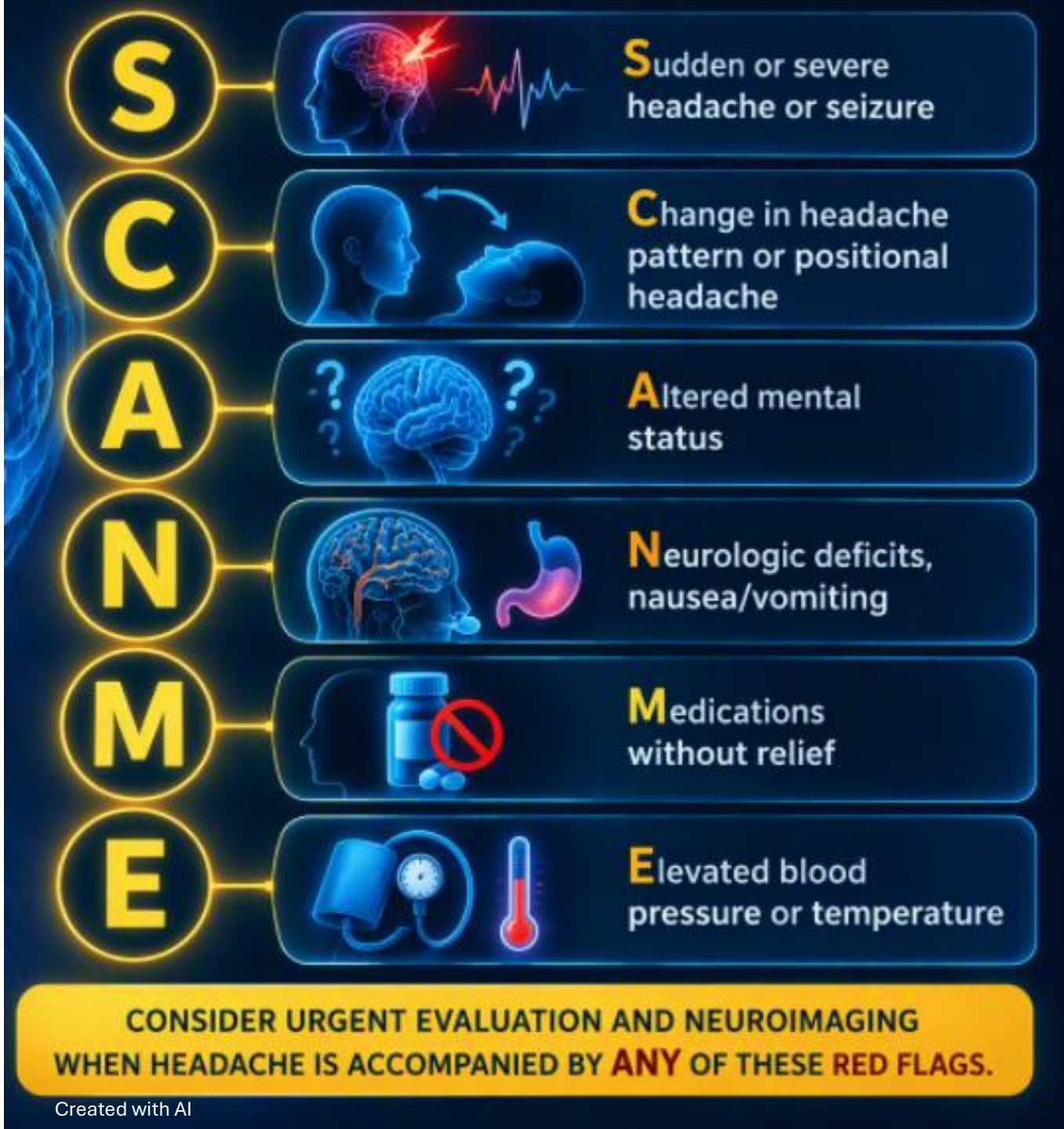


The Unique Burden of Hemorrhagic Stroke in Pregnancy

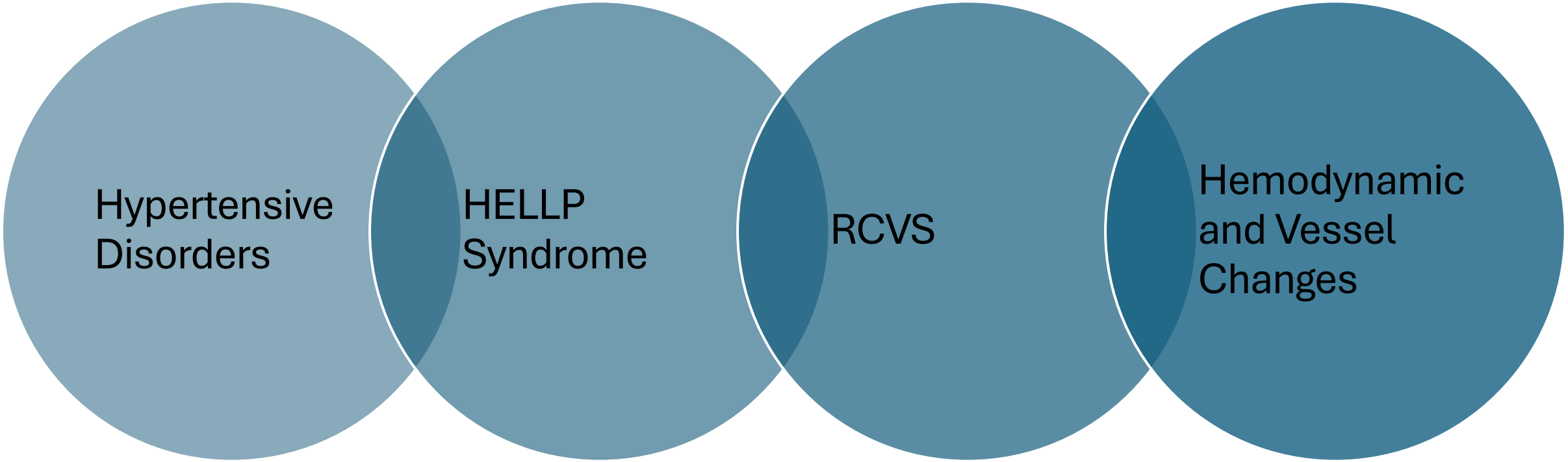
The elevated rate and proportion of hemorrhagic stroke in obstetric patients are driven by unique physiological and pathological conditions

About 50% of maternal strokes are hemorrhagic compared to about 13% in the general population.

SCANME: Empowering Patients and Staff



The Unique Hemorrhagic Stroke Risk of Pregnancy and Postpartum





Hypertensive Disorders of Pregnancy

Severe hypertension in preeclampsia and eclampsia can damage cerebral vessels, disrupt the blood-brain barrier, and precipitate intracerebral hemorrhage. This risk persists into the postpartum period, making ongoing vigilance essential.

HELLP Syndrome

- Severe form of preeclampsia associated with significant maternal morbidity
- Low platelets impair clotting, increasing bleeding risk
- Endothelial injury weakens cerebral vessels
- Increased risk of intracranial hemorrhage and maternal mortality

Reversible Cerebral Vasoconstriction Syndrome

- Leading cause of postpartum hemorrhagic stroke
- Cerebral arteries suddenly constrict and dilate
- Triggered by postpartum hormonal and vascular changes
- Can cause intracerebral or subarachnoid hemorrhage
- Presents with a sudden “thunderclap” headache
- Requires urgent evaluation and neuroimaging

Vascular Changes

Hemodynamic and vascular changes increase stress on cerebral vessels

Heightened risk of aneurysm or AVM rupture and contributing to hemorrhagic stroke, particularly during the postpartum period.

Building Awareness Through Education

- Identified gaps
- Goals
- Staff Education Strategies: Review
- Unit-Based Education
- Skills days
- Unit based education strategies
- Staff meetings



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Awareness Campaigns- Educating the Frontline

- SCANME posters
- Skills day simulation
- Education presentation on staff meeting by staff nurses
- Educational Newsletter
- Nurse Residency Education

Why Patient Education Matters

Many mothers:

Expect discomfort after birth

Normalize symptoms

Delay seeking care

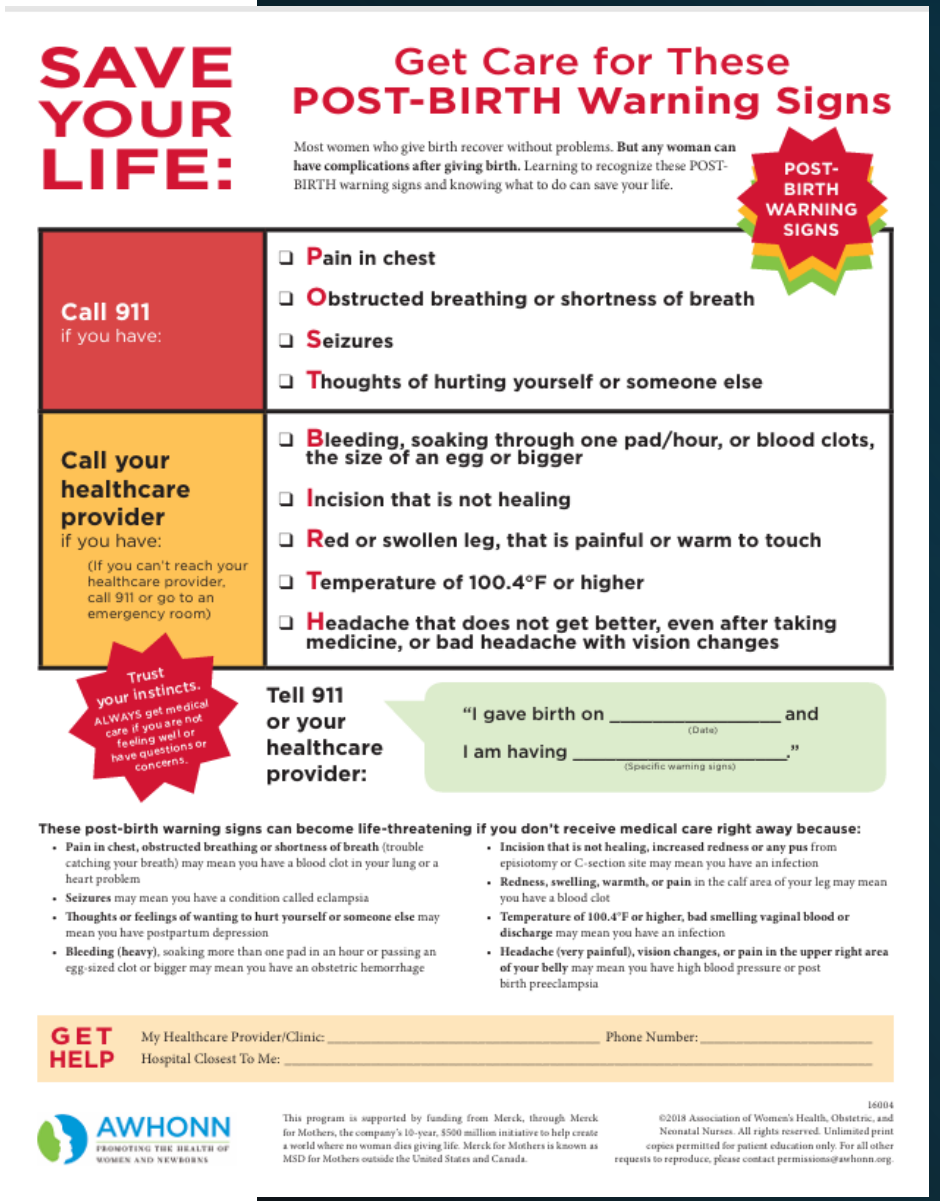
Prioritize infant needs over their own



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POSTBIRTH Education: Taking Awareness Home

Implementation of the AWHONN POST-BIRTH Warning Signs program doubled postpartum patient knowledge of warning signs associated with severe maternal morbidity (30% vs. 60%)



SAVE YOUR LIFE:

Get Care for These POST-BIRTH Warning Signs

Most women who give birth recover without problems. **But any woman can have complications after giving birth.** Learning to recognize these POST-BIRTH warning signs and knowing what to do can save your life.

POST-BIRTH WARNING SIGNS

Call 911 if you have:

- ❑ **P**ain in chest
- ❑ **O**bstructed breathing or shortness of breath
- ❑ **S**eizures
- ❑ **T**houghts of hurting yourself or someone else

Call your healthcare provider if you have:

(If you can't reach your healthcare provider, call 911 or go to an emergency room)

- ❑ **B**leeding, soaking through one pad/hour, or blood clots, the size of an egg or bigger
- ❑ **I**ncision that is not healing
- ❑ **R**ed or swollen leg, that is painful or warm to touch
- ❑ **T**emperature of 100.4°F or higher
- ❑ **H**eadache that does not get better, even after taking medicine, or bad headache with vision changes

Trust your instincts. ALWAYS get medical care if you are not feeling well or have questions or concerns.

Tell 911 or your healthcare provider:

"I gave birth on _____ (Date) and I am having _____ (Specific warning signs)."

These post-birth warning signs can become life-threatening if you don't receive medical care right away because:

- **Pain in chest, obstructed breathing or shortness of breath** (trouble catching your breath) may mean you have a blood clot in your lung or a heart problem
- **Seizures** may mean you have a condition called eclampsia
- **Thoughts or feelings of wanting to hurt yourself or someone else** may mean you have postpartum depression
- **Bleeding (heavy)**, soaking more than one pad in an hour or passing an egg-sized clot or bigger may mean you have an obstetric hemorrhage
- **Incision that is not healing, increased redness or any pus** from episiotomy or C-section site may mean you have an infection
- **Redness, swelling, warmth, or pain** in the calf area of your leg may mean you have a blood clot
- **Temperature of 100.4°F or higher, bad smelling vaginal blood or discharge** may mean you have an infection
- **Headache (very painful), vision changes, or pain in the upper right area of your belly** may mean you have high blood pressure or post birth preeclampsia

GET HELP

My Healthcare Provider/Clinic: _____ Phone Number: _____

Hospital Closest To Me: _____

AWHONN
PROMOTING THE HEALTH OF WOMEN AND NEWBORNS

This program is supported by funding from Merck, through Merck for Mothers, the company's 10-year, $500 million initiative to help create a world where no woman dies giving life. Merck for Mothers is known as MSD for Mothers outside the United States and Canada.

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Looking Ahead: The Evolving Field of Neuro-Obstetrics

What Is Neuro-Obstetrics?

- A collaborative approach to reducing maternal neurologic morbidity and mortality through earlier recognition and coordinated care.

Key Priorities

- Recognize neurologic warning signs sooner
- Strengthen OB-neurology collaboration
- Better understand pregnancy-related cerebrovascular disease
- Identify high-risk patients earlier



Maternal Mortality Is Rising.



9.9 → 17.9

maternal deaths per 100,000 births

1999 2024

Increasing

pregnancy-associated stroke

1 in 4

maternal stroke patients sought care before diagnosis

LET'S BE THE CHANGE.

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