



Showcase for Hopkins Inquiry and Nursing Excellence

# SHINE

Conference

## Initiation of a Comprehensive Carotid Endarterectomy Care Pathway is Associated with Lower ICU Admission Rates and a Significant Reduction in Hospital Charges

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This presentation will not discuss the off-label or investigational use of a drug, biological product, or medical device name.

# Objectives

*I hope that this presentation will make you feel more confident with...*

- ***Utilizing*** the evidence in the literature and in your work setting to guide the creation of a standardized care pathway.
- ***Applying*** core concepts to clinical patient groups that may benefit from a standardized care pathway.
- ***Contrasting*** patient characteristics with system structures to formulate a plan to make system change.

# Nurses thinking like a detective:



Who?

What?

When?

Where?

Why?

*Set the scene.*

*What happens/ed from start to finish?*

*Look at the problem from all views.*

*Find out as much information as possible.*

*Look at all subjective and objective data.*

# Carotid Endarterectomy

What is it? Who needs this surgery?

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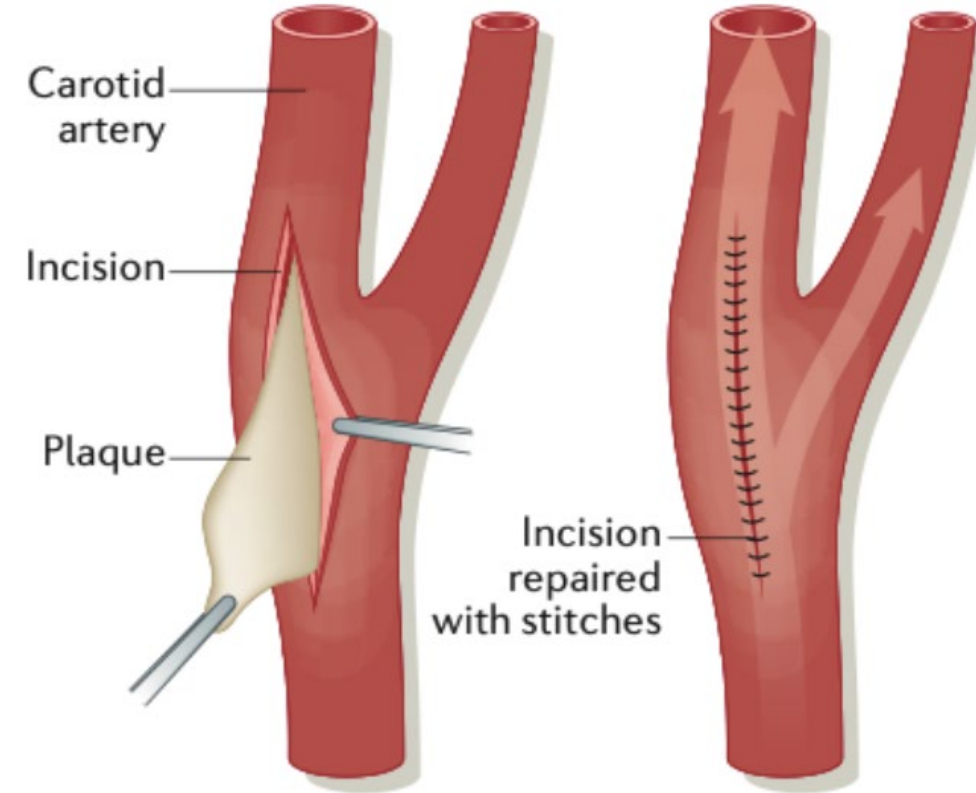
During a CEA, a vertical skin incision is made along the sternocleidomastoid border, down to the carotid sheath, which is opened longitudinally to expose the carotid arteries. The plaque is then removed, and the artery is closed using either sutures or a patch.

**Anesthesia:** General anesthesia

**Pre Procedure:** Carotid duplex ultrasound, CTA, MRA, or cerebral angiography for diagnosis

**Post Procedure:** No imaging required

**Medications:** Starting aspirin is recommended pre-procedure, and continued indefinitely afterwards.



# Intra-Operative & Post-Operative Care

*What can happen in the OR? What are recovery concerns?*

- Intra-Op:
  - **BP fluctuations:** Multifactorial
    - Prior history of HTN
    - Carotid Manipulation
    - Pain-induced sympathetic nervous system stimulation
    - Anesthesia induction
  - **Treatment:**
    - **Hypotension (hypovolemia):** Cautious volume expansion with isotonic crystalloid, colloid, or blood
    - **Hypotension (normovolemia):** IV phenylephrine, norepinephrine
    - **Hypertension:** IV labetalol, nitroglycerine
- Post-Op:
  - **Most Common Complications:**
    - Cranial nerve injury
    - Neck hematoma or bleeding
    - Hypotension
    - Hypertension
    - Cerebral hyperperfusion syndrome:
      - 0.4%-7.7% incidence
    - Stroke: 2.3%
    - Infection: <1%
    - Anesthesia-related complications

# Nursing Considerations

*What are care expectations? Things to look for?*

## Neuro Assessments

- **Neuro checks** will be done q 1 hour with VS X 2, q 2 hr. X 2, and then q 4 hr.
- **During Neuro checks assess** for mental orientation and level of consciousness.
- **Assess Cranial Nerves:**
  - **Hypoglossal**- Midline tongue, swallow
  - **Facial**- Smile and puff cheeks
  - **Vagus**- Ability to speak
  - **Spinal Accessory**- Raise arms and sustain for 3 seconds
- **Assess pupillary reaction** during neuro checks.
- **Assess** all four extremities for equal strength, movement, and sensation.

## Physical Assessments:

- Airway is intact
- Neck for edema, hematoma, tracheal deviation
- Respiratory distress (stridor)
- Drooling and/or problems swallowing.
- Assess heart & breath sounds.
- Incision – Approximation of edges, bleeding, drainage, or redness

**Assess Vital Signs:** Due to manipulation of baroreceptors close to the carotid artery, BP control is very important and must be within normal parameters.

**Evaluate** heart rhythm for any arrhythmias.

# Evidence

*What does the literature say? This is*



# Evidence

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*Questions?*

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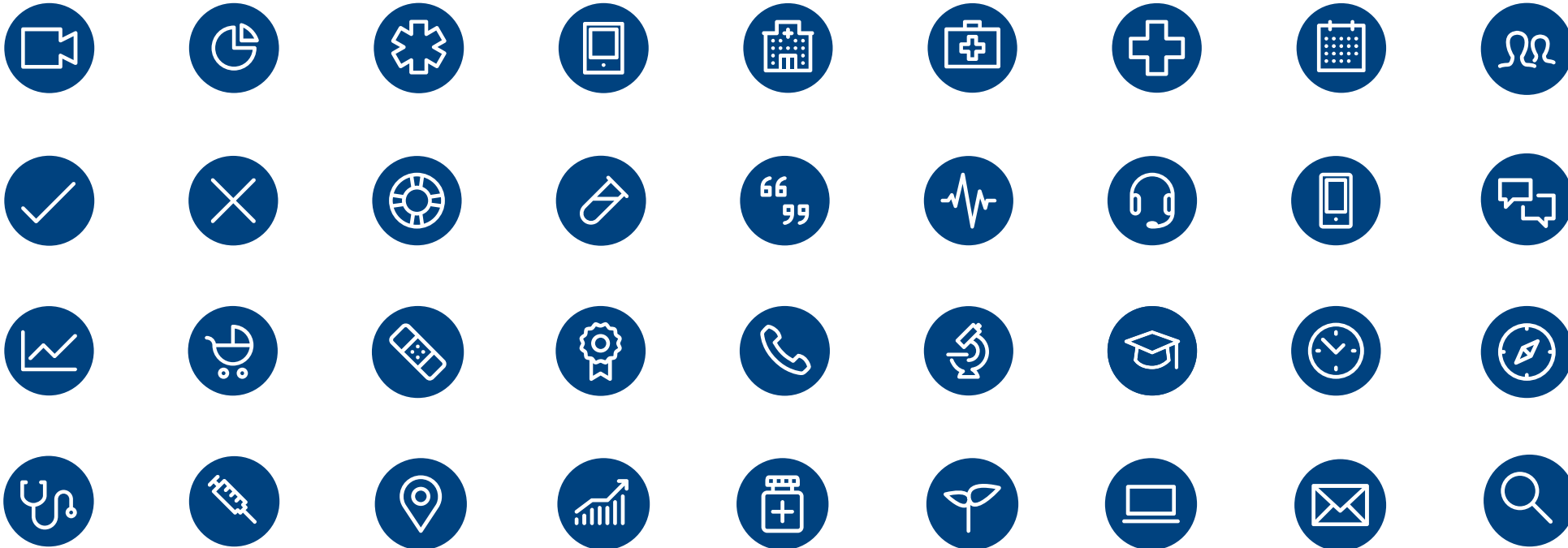
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<b>PMS</b>   288 C <b>CMYK</b>   100, 87, 27, 19 <b>RGB</b>   0, 45, 116 <b>HTML</b>   002d74	<b>PMS</b>   7406 C <b>CMYK</b>   6, 22, 100, 0 <b>RGB</b>   243, 195, 0 <b>HTML</b>   f3c300
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## Bright Colors

<b>PMS</b>   Yellow C <b>CMYK</b>   3, 9, 100, 0 <b>RGB</b>   255, 221, 0 <b>HTML</b>   ffd00	<b>PMS</b>   144 C <b>CMYK</b>   3, 54, 100, 0 <b>RGB</b>   241, 138, 0 <b>HTML</b>   f18a00	<b>PMS</b>   485 C <b>CMYK</b>   6, 98, 100, 1 <b>RGB</b>   225, 37, 27 <b>HTML</b>   e1251b
<b>PMS</b>   214 C <b>CMYK</b>   13, 100, 36, 0 <b>RGB</b>   212, 19, 103 <b>HTML</b>   d41367	<b>PMS</b>   361 C <b>CMYK</b>   76, 4, 100, 0 <b>RGB</b>   61, 174, 43 <b>HTML</b>   3dae2b	<b>PMS</b>   3125 C <b>CMYK</b>   95, 2, 22, 0 <b>RGB</b>   0, 171, 200 <b>HTML</b>   00abc8
<b>PMS</b>   299 C <b>CMYK</b>   81, 18, 0, 0 <b>RGB</b>   0, 160, 223 <b>HTML</b>   00a0df	<b>PMS</b>   2602 C <b>CMYK</b>   57, 99, 0, 0 <b>RGB</b>   138, 36, 155 <b>HTML</b>   8a1a9b	<b>PMS</b>   672 C <b>CMYK</b>   8, 44, 0, 0 <b>RGB</b>   225, 159, 201 <b>HTML</b>   e19fc9

## Sophisticated Colors

<b>PMS</b>   111 C <b>CMYK</b>   33, 40, 100, 7 <b>RGB</b>   171, 137, 0 <b>HTML</b>   ab8900	<b>PMS</b>   159 C <b>CMYK</b>   13, 75, 100, 3 <b>RGB</b>   209, 94, 20 <b>HTML</b>   d15e14	<b>PMS</b>   1815 C <b>CMYK</b>   31, 92, 81, 36 <b>RGB</b>   127, 38, 41 <b>HTML</b>   7f2629
<b>PMS</b>   370 C <b>CMYK</b>   66, 26, 100, 9 <b>RGB</b>   99, 140, 28 <b>HTML</b>   638c1c	<b>PMS</b>   322 C <b>CMYK</b>   100, 35, 50, 13 <b>RGB</b>   0, 112, 120 <b>HTML</b>   007078	<b>PMS</b>   525 C <b>CMYK</b>   72, 93, 33, 23 <b>RGB</b>   88, 44, 95 <b>HTML</b>   582c5f

## Neutral Colors

<b>PMS</b>   7535 C <b>CMYK</b>   30, 26, 38, 0 <b>RGB</b>   182, 176, 156 <b>HTML</b>   b6b09c	<b>PMS</b>   402 C <b>CMYK</b>   40, 37, 42, 2 <b>RGB</b>   157, 149, 140 <b>HTML</b>   9d958c	<b>PMS</b>   WG10 C <b>CMYK</b>   20, 29, 28, 56 <b>RGB</b>   110, 97, 93 <b>HTML</b>   6e615d
<b>PMS</b>   4535 C <b>CMYK</b>   20, 18, 48, 0 <b>RGB</b>   207, 195, 147 <b>HTML</b>   cfc393	<b>PMS</b>   7542 C <b>CMYK</b>   36, 18, 19, 0 <b>RGB</b>   163, 187, 195 <b>HTML</b>   a3bbc3	<b>PMS</b>   871 C <b>CMYK</b>   45, 45, 74, 17 <b>RGB</b>   133, 187, 80 <b>HTML</b>   857550