COI Disclosure

No relevant financial relationships to disclose
Objectives

1. Describe post stroke care and the role of the provider
2. Identify methods of secondary stroke prevention
3. Define additional follow up that is needed following stroke
4. Identify barriers to stroke recovery
5. Explain the need for continued care to maximize stroke recovery
Current Stroke Statistics:

- 5th leading cause of death in US (130,000 die each year)
- **STILL leading cause of serious, long-term disability in United States**
  - Approximately 800,000 per year
  - $33 billion in annual cost (CDC 2015)
  - 4-15% have recurrent stroke within 1 year
    - 25% within 5 years
  - 20% of strokes return to hospital within 30 days
Role of Stroke Provider

- Educate patient and family regarding stroke
- Identify modifiable risk factors to decrease risk of another stroke
- Provide resource guides for stroke recovery
- Complete a comprehensive stroke workup and provide future follow up care
Stroke Follow Up Visit

- 4-6 weeks post hospital or rehab center discharge
- 45 minutes to 1 hour
- PCP follow up should be done 1-2 weeks after hospital discharge and prior to stroke clinic visit
- Template assists in obtaining all necessary data that describes the patient’s hospital/rehab course
• Past and current living situation
• Current ADL/iADL functions
• Ambulation
  – Therapy: PT/OT/ST
• STM/LTM/sleep, behavioral or mood changes
• Medication reconciliation
• New signs and symptoms of stroke
  – Deficits from stroke
  – Blood sugar
  – Blood pressure
<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms at all</td>
</tr>
<tr>
<td>1</td>
<td>No significant disability despite symptoms; able to carry out all usual duties and activities</td>
</tr>
<tr>
<td>2</td>
<td>Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance</td>
</tr>
<tr>
<td>3</td>
<td>Moderate disability; requiring some help, but able to walk without assistance</td>
</tr>
<tr>
<td>4</td>
<td>Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance</td>
</tr>
<tr>
<td>5</td>
<td>Severe disability; bedridden, incontinent and requiring constant nursing care and attention</td>
</tr>
<tr>
<td>6</td>
<td>Dead</td>
</tr>
</tbody>
</table>

TOTAL (0–6): ___

References:
- Rankin J. “Cerebral vascular accidents in patients over the age of 60.” Scott Med J1957;2:200-15
Frequently Asked Questions

• Why did I have a stroke?
• What kind of stroke did I have?
• How can I prevent another stroke?
• What are the signs and symptoms of stroke?
• When can I drive and return to work?
• Can you complete my disability paperwork?
• When will I recover from my stroke?
How do I know that I had a stroke?

**FACE**
Does one side of the face droop? Ask the person to smile.

**ARMS**
Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?

**SPEECH**
Is speech slurred? Ask the person to repeat a simple sentence. Is the sentence repeated correctly?

**TIME**
If the person shows any of these symptoms, Call 911 or get to the hospital immediately.
Stroke Subtypes

- Cryptogenic: 25%
- Cardioembolic: 15%
- Small Vessel Disease: 20%
- Atherosclerosis: 15%
- Hemorrhagic: 25%
# Stroke Risk Factors

## MODIFIABLE
- High blood pressure
- High cholesterol
- Diabetes
- CV disease
- Lack of exercise
- Overweight
- Smoking
- Heavy alcohol/drug use
- Sleep apnea

## NON-MODIFIABLE
- Age-advanced
- Gender-male
- Race-African America/Asian/Hispanic
- Family history
- History of previous stroke
- Genetics: blood clotting disorders
# Stroke Risk Scorecard

Each box that applies to you equals 1 point. Total your score at the bottom of each column and compare with the stroke risk levels on the back.

<table>
<thead>
<tr>
<th>RISK FACTOR</th>
<th>HIGH RISK</th>
<th>CAUTION</th>
<th>LOW RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td>&gt;140/90 or unknown</td>
<td>120-139/80-89</td>
<td>&lt;120/80</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>Irregular heartbeat</td>
<td>I don’t know</td>
<td>Regular heartbeat</td>
</tr>
<tr>
<td>Smoking</td>
<td>Smoker</td>
<td>Trying to quit</td>
<td>Nonsmoker</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>&gt;240 or unknown</td>
<td>200-239</td>
<td>&lt;200</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>Borderline</td>
<td>No</td>
</tr>
<tr>
<td>Exercise</td>
<td>Couch potato</td>
<td>Some exercise</td>
<td>Regular exercise</td>
</tr>
<tr>
<td>Diet</td>
<td>Overweight</td>
<td>Slightly overweight</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>Stroke in Family</td>
<td>Yes</td>
<td>Not sure</td>
<td>No</td>
</tr>
<tr>
<td>TOTAL SCORE</td>
<td>High Risk</td>
<td>Caution</td>
<td>Low Risk</td>
</tr>
</tbody>
</table>

## Risk Scorecard Results

- **High Risk ≥3**: Ask about stroke prevention right away.
- **Caution 4-6**: A good start. Work on reducing risk.
- **Low Risk 6-8**: You’re doing very well at controlling stroke risk!
Secondary Stroke Prevention

• **Hypertension**- Goal BP $<140/90$

• **Smoking Cessation**- Risk of stroke “disappears” within 5 years of quitting!!
Secondary Stroke Prevention

• **Diabetes Mellitus** – goal is A1c goal of < 7.0
  – Elevated A1C shows increased risk of developing atherosclerosis especially in the carotid arteries
  – PCP manages but will consult for diabetic/endocrine and nutritional specialist to help with diet management

• **Dyslipidemia** – looking at LDL goal of <70-100
“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
• **Physical inactivity** – 40 minutes of exercise daily
• **Healthy diet** – Mediterranean diet been shown to help decrease CV risk.
• **Alcohol intake**
• **Sleep Apnea** – linked to atrial fibrillation and hypertension
  - Initiate screening referral to Pulmonary or outpatient sleep study
Secondary Stroke Prevention

- **Antithrombotic Therapy**
  - **Main Antiplatelet:** ASA 81 mg daily
  - Some evidence combination of both ASA and Plavix first 21 days to 3 months after stroke
  - **Anti-coagulants:** Coumadin, NOACs
    - Typically used for blood clotting disorders and CV r/t strokes
  - **Arterial Dissections:** ASA typically unless thrombus seen than AC 3 months
  - **Cerebral venous infarct:** 3-6 months AC
Additional Stroke Follow Up

- Cryptogenic – looking for atrial fibrillation
- Hypercoagulable work up
- Carotid stenosis
- Cardiac disease
- PFO
Recovery Period

- **Physical challenges** – paralysis, seizures, muscle tightness and stiffness (spasticity) and fatigue
- **Communication** – reading, writing, speaking
- **Sensory deficit** – vision
- **Emotional and behavioral challenges**
- **Memory problems**
Recovery Resources

• Resources especially for patient/caregiver
• Support groups
• Multi-disciplinary care teams (PT/OT/ST/Optho)
• Nutrition
• Behavioral Health
• PMR (physiatrist)
• Driving referral – formal testing
• Return to work – fit testing with OT
Barriers to Recovery

• Non-compliance
• Lack of Family support
• Cognitive dysfunction
• Lack of communication among providers
• Lack of resources (i.e. financial)
• Medication reconciliation
• Decreased length of stay (LOS)
• Re-admission to acute care due to related issues
Potential Enhancements to Stroke Recovery

- Checklist for hospital discharge
- Virtual stroke support portals via tele-medicine
- Increased focus on psychological recovery/support
- Multidisciplinary approach to stroke follow up in the clinic setting
- Social worker on site at clinic visit to assist with barriers (similar to what transplant community has adopted)
Stroke follow up and collaboration of care with primary physician is the number one way to help prevent repeated stroke events!!

80% of Strokes are Preventable!!
QUESTIONS
The National Stroke Association: http://www.stroke.org/

National Institute of Neurological Disorders and Stroke: https://www.ninds.nih.gov/

US Centers for Disease Control and prevention: https://www.cdc.gov/

AGS foundation of Health in Aging: http://www.healthinagingfoundation.org/

Elder Care: http://strokeconnection.strokeassociation.org/For-Caregivers/Online

American Stroke Association: http://www.strokeassociation.org/STROKEORG/

Medlineplus Nursing home Information: https://medlineplus.gov/nursinghomes.html


