PRIMARY CARE OF ADULT PATIENTS AFTER STROKE

A Scientific Statement for Healthcare Professionals from the American Heart Association/ American Stroke Association

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Slide set developed by members of the
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INTRODUCTION

INTRODUCTION

- Care of stroke pt begins in hospital and continues in the community

- Primary care provides most of this long-term care

- Needs of these pts can be complex
  - 50-80% with HTN
  - 20-30% with DM
  - 10-30% with comorbid heart disease or afib

- Care of pts with chronic illness and multiple co-existing conditions is a special expertise of primary care

- Vast clinical science to guide primary care in caring for stroke pts, but dispersed across several publications and guidelines

- *Purpose of this statement is to summarize this literature and provide a practical system of goal-directed care for the whole pt over the duration of life*

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INTRODUCTION

EVIDENCE-PRACTICE GAP IN GUIDELINE-RECOMMENDED CARE

- One year after stroke:
  - 97% on antiplatelet
  - 50-70% with BP <140/90
  - 79% on statin
  - 84% non-smoking status
  - 48% exercise according to recommendations

- Unmet needs for rehab, ADLs, mobility, pain control, and communication

- *This statement recognizes challenges to optimal care and the central role of primary care in improving health on a population level*

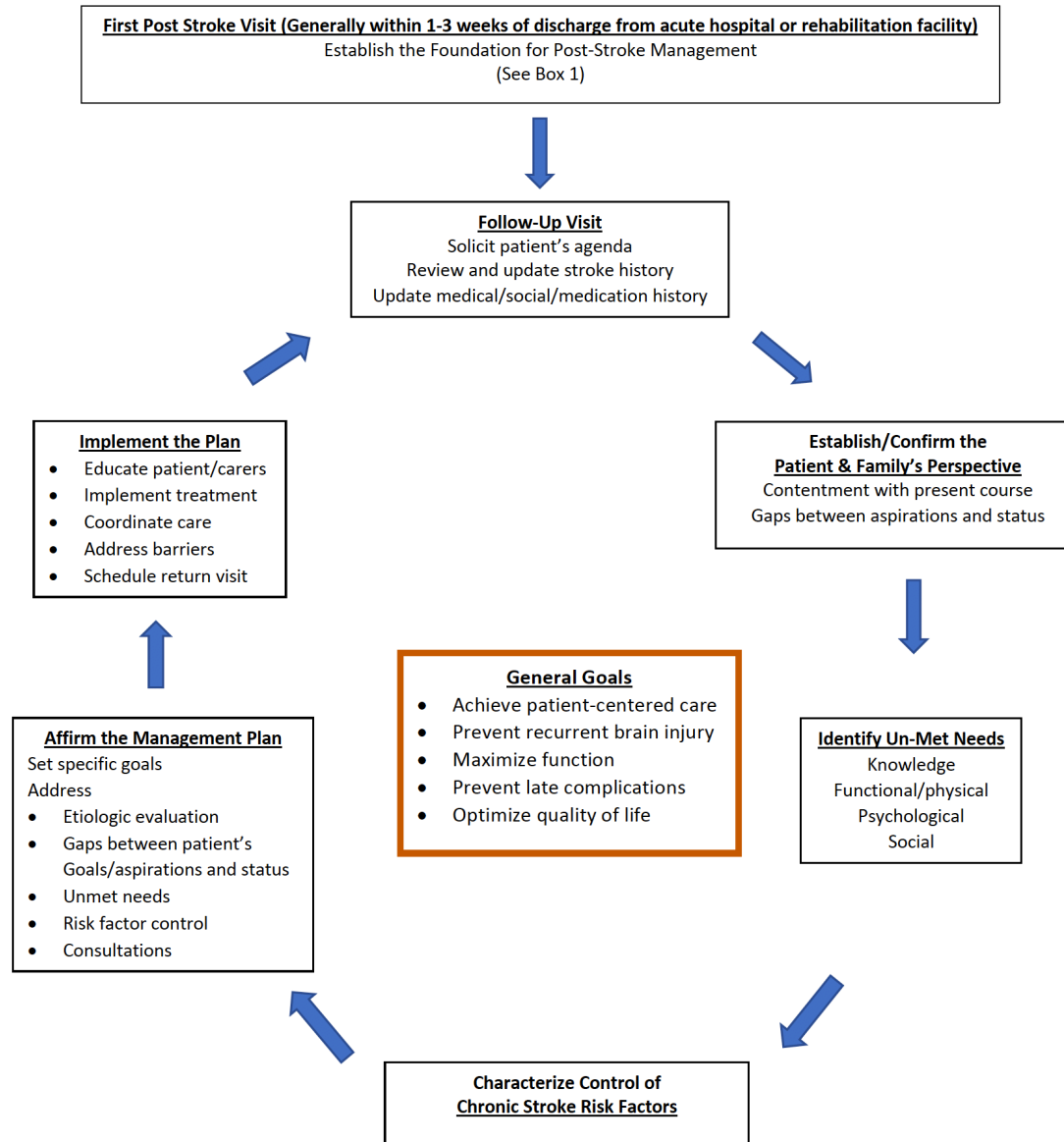American Heart Association®

METHODS

METHODS

OVERALL CARE STRATEGY

- Post-stroke care is an iterative process of assessment, management, and feedback

- General goals for post-stroke care
  - Provide pt-centered care
  - Prevent recurrent brain injury
  - Maximize function
  - Prevent late complications
  - Optimize quality of life

- First post-stroke visit should be 1-3 weeks after discharge from hospital or rehab
  Early visit may reduce readmission address inadvertent gaps in care

Figure 1. Cycle of Patient-Centered Primary Care After Stroke

Version 1.1.2021

First Post Stroke Visit (Generally within 1-3 weeks of discharge from acute hospital or rehabilitation facility)
Establish the Foundation for Post-Stroke Management
(See Box 1)

Follow-Up Visit
Solicit patient's agenda
Review and update stroke history
Update medical/social/medication history

Implement the Plan
- Educate patient/carers
- Implement treatment
- Coordinate care
- Address barriers
- Schedule return visit

Establish/Confirm the Patient & Family's Perspective
Contentment with present course
Gaps between aspirations and status

Affirm the Management Plan
Set specific goals
Address
- Etiologic evaluation
- Gaps between patient's Goals/aspirations and status
- Unmet needs
- Risk factor control
- Consultations

General Goals
- Achieve patient-centered care
- Prevent recurrent brain injury
- Maximize function
- Prevent late complications
- Optimize quality of life

Identify Un-Met Needs
Knowledge
Functional/physical
Psychological
Social

Characterize Control of Chronic Stroke Risk Factors

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OVERALL CARE STRATEGY

1. Establish the Foundation for Care
   - What happened?
     Pt's experience, understanding of event, and concerns

   - Why did this happen?
     Mechanism of stroke identified if able

   - What else to do?
     Additional/remaining testing, secondary stroke preventive meds (including antithrombotic strategy)

     Several decisions to make early after a stroke: when primary care and neurology may want to collaborate most closely

Table 1. Special Priorities for First Post-Stroke Visit

- Obtain & Review Hospital Records
- Solicit the patient's experience
  - Technical understanding of the acute event
  - Early questions
  - Fears
  - Psychological consequences
- Classify the stroke etiology
  - Confirm the etiologic evaluation is complete
  - Confirm specific treatment for the etiology is in place, if applicable
- Implement time-sensitive management if indicated
  - Carotid revascularization
  - Antiplatelet therapy
  - Statin therapy
- Check if the patient is a candidate for DAPT*
  - If yes, are they taking?
  - If yes, discontinue at 21 days if appropriate
- Identify and remediate precursors of the stroke
  - Why did it happen?

*DAPT=Dual antiplatelet therapy. See text for eligibility. Extending DAPT to 90 days is reasonable for stroke related to severe stenosis of an intracerebral artery.

METHODS

OVERALL CARE STRATEGY

2. Establish/Confirm the Patient and Family's Perspective
- Pt-centered care fostered by a welcoming space where pts can express values, aspirations, questions, fears, and needs

- With pt consent, caregivers can help identify pt's needs, family's needs, and opportunities to improve satisfaction

- Family and caregiver collaboration improves risk factor management and outcomes

METHODS

OVERALL CARE STRATEGY

3. Screen for Complications and Un-Met Needs
- Some complications are preventable; others are manageable

- Depression is highly prevalent and screening important

- Unmet needs can often be identified by asking
Would this pt benefit from referral for any services to improve their functional impairments and promote their health and wellbeing?

Table 2. Post-Stroke Complications
Anxiety
Cognitive impairment
Communication difficulty
Contractures
Depression
Dysphagia
Falling
Fatigue
Fracture
Hemiplegic shoulder pain
Mobility impairment
Osteoporosis
Pressure ulcers
Seizure (early and late)
Skin breakdown
Spasticity
Thromboembolism
Urinary or bowel incontinence

Table 3. Common Unmet Needs After Stroke
Communication assistance
Cognitive impairment screening
Depression
Fear of falling
Follow-up primary care
Independence in activities of daily living
Mobility impairment
Pain
Physical rehabilitation
Returning to work
Sexual performance
Spasticity
Urinary or bowel Incontinence

METHODS

OVERALL CARE STRATEGY

4. Characterize Control of Chronic Stroke Risk Factors
  - Treatment of proven benefit (AHA 1A recommendations):
    - HTN
    - Afib
    - Carotid stenosis
    - Dyslipidemia
  - Treatment with lower evidence of effect (AHA 1BR recommendations):
    - DM
    - Intracranial atherosclerotic stenosis

  - Active adherence monitoring is important

METHODS

OVERALL CARE STRATEGY

4. Characterize Control of Chronic Stroke Risk Factors *(continued)*
  - Socioeconomic factors associated with poor outcome
    - Poverty
    - Food insecurity
    - Low educational attainment
    - Lack of access to care
    - Lack of transportation
    - Other social determinants of health
  - Black race and Hispanic ethnicity also associated with inferior quality of post-stroke care

  - Potential inequity mitigation strategies include a team-based approach with a practice culture that values health equity, identification of community resources and connecting pts to them, employment of a social worker on the team, and training of team members to redress implicit bias

METHODS

OVERALL CARE STRATEGY

5. Set the Plan
  - Best plans arise from collaboration between pt and clinician and are based on a list of problems

  - Pt-identified problems may surprise clinicians

  - Plans should include <u>tailoring</u> to the goals of the pt and <u>prioritizing</u> certain clinical care

  - Setting realistic goals

  - Typical office visit concludes with plans to:
    - Reinforce successful behavior
    - Address unmet needs
    - Close gaps between goals and achievements

METHODS

OVERALL CARE STRATEGY

6. Implement the Plan and Schedule the Return Visit
- Self-management support is a foundation of chronic disease management
  - Starts from problems, goals, and plans
  - Continues with pt and caregiver education for knowledge and skills in monitoring, problem solving, and decision-making

- Self-monitoring important for control of BP, diabetes, and weight

- Self-monitoring combined with self-management can achieve better risk control

- Return visit should be scheduled at an interval that accounts for the pt's condition, risk factor stability, and risk for failure to achieve goals

METHODS

PREVENTING RECURRENT STROKE

- High risk of stroke recurrence
  - ~8% in the first year
  - ~2% annual risk after that

- Determining stroke etiology important as cause guides therapy
  - Cardioembolism
  - Large vessel disease
  - Small vessel disease
  - Other (e.g. dissection, sickle cell, moyamoya)
  - Uncertain (30% of cases, even after careful search)

- AHA/ASA Class 1 treatment recommendations on the next two slides
  - HTN management especially important as 50-80% have HTN and treatment highly effective
  - 2021 AHA/ASA guidelines: goal <130/80 after ischemic stroke

SUMMARY OF 2021 CLASS 1 RECOMMENDATIONS FOR SECONDARY STROKE PREVENTION FROM THE AMERICAN HEART ASSOCIATION RELEVANT TO OFFICE –BASED PRIMARY CARE PRACTICE

Diagnostic Evaluation
Image the carotid artery for anterior circulation stroke events
ECG to screen for atrial fibrillation
Image the brain with CT or MRI to confirm the diagnosis
Perform CBC, PT, PTT, glucose, HbA1c, creatinine, lipid profile for insight into risk factors and therapy
Vascular Risk Factor Management
Recommend and facilitate optimal lifestyle practices†
Treat hypertension to a goal of less than 130/80 for most patients
Prescribe atorvastatin 80 mg/day if no major-risk cardiac course of embolism, no other indication for statin therapy, and LDL-C > 100 mg/dL‡
Target HbA1c ≤7% for most patient with diabetes
Select glucose-lowering medications with proven cardiovascular benefit in addition to metformin for patients with diabetes
Offer multidimensional care (lifestyle, nutrition counseling, self-management, medications) to achieve glycemic control and improve risk factors for patients with diabetes
Facilitate weight management for patients with overweight or obesity
Additional Recommendations for the Management of Large-Artery Atherosclerosis
Prescribe 325 mg/day aspirin for patients with stroke related to 50-99% intracranial stenosis
Refer patients with 70%-99% ipsilateral extracranial carotid stenosis for endarterectomy within 6 months of the index event
Refer selected patients with 50%-69% ipsilateral extracranial carotid stenosis for endarterectomy
Provide intensive medical therapy§ regardless of carotid surgery

SUMMARY OF 2021 CLASS 1 RECOMMENDATIONS FOR SECONDARY STROKE PREVENTION FROM THE AMERICAN HEART ASSOCIATION RELEVANT TO OFFICE –BASED PRIMARY CARE PRACTICE

Cardioembolism
Prescribe an oral anticoagulant for atrial fibrillation or flutter unless contraindicated
Select apixaban, dabigatran, edoxaban or rivaroxaban in preference to warfarin for patients with atrial fibrillation or flutter except for patients with moderate-severe mitral stenosis or a mechanical heart valve
Warfarin is recommended over NOACs for patients with atrial fibrillation associated with moderate-severe mitral stenosis or mechanical valves
Patient Behavior
Facilitate behavior change to improve stroke literacy, lifestyle, and medication adherence
Health Equity
Address social determinants of health (such as literacy level, language proficiency, medication affordability, food insecurity, housing, transportation) when managing stroke risk factors
Monitor health care performance measures on a population level to identify and reduce disparities
Use the AHRQ Universal Precautions Toolkit for Health Literacy to assure that oral instructions to patients are understandable and sensitive to health literacy.
Antithrombotic Medications
For non-cardioembolic ischemic stroke or TIA, aspirin 50-325 mg, clopidogrel 75 mg, or combination aspirin 25/dipyridamole 200mg twice daily is recommended
For patients with recent minor (NIHSS ≤3) non-cardioembolic ischemic stroke or high-risk TIA (ABCD^2 score ≥4), dual antiplatelet therapy (aspirin plus clopidogrel) should be initiated early (ideally within 12-24 hours of symptoms onset) and continued for 21-90 days, followed by single anti-platelet therapy.‖ (see legend in full GL for this table)

METHODS

MAXIMIZING FUNCTION AND INDEPENDENCE

- Epidemiology
  - By 90 days after a stroke:
    - New disability in 10% of younger adults and 30% of adults >65
    - Cumulative burden of premorbid and new disability: >10% in younger adults and 50% in older

- Recovery
  - Begins early after stroke and can take years to achieve maximum restoration in function
  - Restoration of ability to engage in physical activities due to
    - Brain remodeling
    - Adaptation of compensating strategies
    - Restoration of confidence
    - Use of adaptive equipment
  - Effective rehab for multiple domains (motor, cognition, communication, incontinence, etc)
  - Some fluctuation of recovery over time (acute events, access to assistive devices, joint flexibility, etc)

METHODS

MAXIMIZING FUNCTION AND INDEPENDENCE

- Assessment of capacity *(algorithm on next slide)*
  - What could the pt do before the stroke that they cannot do now?
  - What does the pt want to be able to do?
  - Has the pt reached full potential?

  - Potentially helpful structured instruments
  - Berg Balance Scale and Morse Scale (fall risk)
  - Timed up and go test (TUG) and 10-meter walk test (mobility)
  - MMSE/MOCA
  - PHQ-9 (depression)

- Linking pt with rehab and specialist resources *(summarized next two slides)*

- Education about stroke (class 1 recommendation)
- Advice and support for individually-tailored recreational exercise program (class 1 recommendation)
- Advice to participate in balance training to reduce falls (class 1 recommendation)

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ASSESSMENT OF FUNCTIONAL IMPAIRMENTS (Class I or IIa Recommendations)

ADL capability	Driving	Swallowing
IADL capability	Hemiagnosia/Neglect	Urination
Balance & ataxia	Mobility	Vision, hearing & sensory
Cognition & memory	Sexuality	
Communication	Spasticity	

↓

YES ← **Rehabilitation potential has been achieved** → NO

Periodic Reassessment (YES)

Refer for therapy to address specific needs (NO)

Class 1 Recommendations for patients with indications*
- Speech therapy
- Communication devices
- Enriched environments for cognitive needs
- Botulinum injection for spasticity
- Individualize pain pharmacotherapy
- Balance training
- Assistive devices for balance
- Mobility training
- AFO for foot drop, ankle instability
- Task practice
- ADL and IADL training
- Cane, walker, wheelchair
- Adaptive devices
- Eye exercises
- Audiovisual special exploration training
- Hearing amplification and training

Class 2a Recommendations for patients with indications*
- Include caregivers in training and education related to home therapy
- Cognitive rehabilitation
- Botulinum for shoulder hypertonicity
- Adaptive treatment for neglect
- Group therapy with circuit training
- Robotic therapy
- Constraint-induced movement therapy
- Neuromuscular electrical stimulation
- Mental practice
- Strength training
- Virtual reality
- Alternative communication methods
- Self-management skills
- Vocationally-targeted therapy
- Driving rehabilitation

Figure 2. An algorithm for screening and management of post-stroke physical rehabilitation needs in primary care.

*Class or Recommendations from the 2016 AHA post-stroke rehabilitation guidelines.
AFO: ankle-foot orthosis. ADL: activities of daily living. IADL: Instrumental activities of daily living

Table 1S: Specialty and Community Resources for Patients after Acute Stroke by Indication

INDICATION	SPECIALTY RESOURCE
Emotional Optimization*	Masters in Clinical Social Work
	Clinical psychologist
	Psychiatrist
	Spiritual communities
Fall Prevention	Physical therapy for strength, endurance, mobility, balance
	Occupational Therapy for home hazard removal
Functional Restoration	Physiatry
	Physical therapy
	Speech therapy
	Occupational therapy
Medical Care/Pain Control	Cardiology
	Community Nursing
	Endocrinology
	Neurology
	Ophthalmology
	Pharmacy
	Primary Care
	Vascular surgery
Social Integration	Family
	Friends
	Caregivers
	Co-workers

*Alleviation of anxiety, depression, emotional lability, fear, anger

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METHODS

MAXIMIZING FUNCTION AND INDEPENDENCE

- Aerobic exercise
  - Improves functional ability, walking endurance, balance, cardiovascular health, and secondary stroke prevention

  - Primary care can improve exercise participation via structured assessment, counseling, and referral
    - Simple tool for assessment: Exercise Vital Sign
    - 2 questions: how many days and how many minutes per week of moderate to vigorous activity?
    - Can incorporate into office workflow and responses flagged to prompt further discussion

  - Minimal amount of physical activity required to achieve a meaningful health benefit after stroke has not been defined

  - If able, 150 min/week of moderate activity (e.g. walking briskly) or 75 min/week of vigorous activity (e.g. jogging, running, etc) would be reasonable (AHA/US Govt recommendation)

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METHODS

PRACTICE QUALITY IMPROVEMENT

- QI begins when clinicians identify an aspect of care to upgrade

- Key features of QI
  - Iterative process of planning, implementing change, study, testing, and re-design
  - Agreed methodology (e.g. Lean, Six Sigma)
  - Empowerment of front-line workers and service users
  - Data to inform and monitor the process

- Effective interventions relevant to stroke care
  - Employment of pharmacists to improve med adherence and improve HTN and DM control
  - Pt self-monitoring to improve BP control

- Collaborative care and case management can help stroke pts improve risk factor control

CONCLUSION

CONCLUSION

- Stroke is a complex disease with many causes, consequences, and treatments

- All stroke pts need high-quality primary care
  - Manage new needs
  - Prevent recurrence
  - Remediate complications
  - Optimize quality of life
  - Facilitate prompt access to specialists as needed

- Primary care is different around the world, but pt needs are universal