

JAMA Clinical Guidelines Synopsis

Guidelines for Adult Stroke Rehabilitation and Recovery

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GUIDELINE TITLE Guidelines for Adult Stroke Rehabilitation and Recovery

DEVELOPER American Heart Association (AHA)/American Stroke Association (ASA)

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PRIOR VERSION 2005

FUNDING SOURCE AHA

TARGET POPULATION Adults who have had a stroke

MAJOR RECOMMENDATIONS

- Patients should remain in an inpatient rehabilitation facility for care if possible rather than be transferred to a skilled nursing

facility/nursing home. Inpatient rehabilitation should be considered when there is a requirement for skilled nursing services, regular contact by a physician, or the need for multiple therapeutic interventions (class 1; level of evidence B).

- Patients should be screened for cognitive deficits and depression before discharge home (1B).
- Patients should receive activities of daily living training customized for individual needs and location to which they will be discharged (1A) and be assessed for early dysphagia (1B), balance (1C), and communication (1B) problems.
- Urinary catheters should be removed within 24 hours after hospital admission for patients with acute stroke. Urinary retention should be assessed using bladder scanning or postvoid urinary catheterization (1B).
- Fall prevention training should be provided during the initial hospitalization (1A) and after discharge (1B); after rehabilitation, home or community exercise is recommended (1A).

Summary of the Clinical Problem

Stroke affects more than 800 000 people each year in the United States. Between 2000 and 2010, stroke-related deaths declined by 35% in the United States, and 80% survive the acute event.¹ There is wide diversity in stroke patients and stroke severity,² but of those admitted to a hospital, about 65% of survivors receive rehabilitation services, and more than 30% have persistent deficits in autonomy, engagement, and fulfilling societal roles.³ Clinicians should be familiar with the levels of care of poststroke rehabilitation and services, which include the acute hospital stay and postacute continuum of care, with care delivery sites differentiated by intensity of care, location of care, and needs for skilled nursing. The AHA/ASA guideline weaves evidence and consensus to guide stroke rehabilitation management throughout the spectrum of care and promote return of patients to their communities.⁴

Characteristics of the Guideline Source

The guideline was developed by the AHA/ASA (Table). Members in the writing group were nominated based on prior work and exper-

tise in the relevant topic areas and systematically reviewed the adult stroke literature through 2014. Conflict of interest disclosures were completed by all writing group members and all reviewers.

Evidence Base

The 944 reviewed articles reflect the range of poststroke rehabilitation care, including secondary conditions and complications, medications, poststroke therapies, and community-based therapies. There were few large-scale, rigorous clinical trials (level 1A: strong evidence in multiple populations), although the benefit of inpatient therapy was supported by a large prospective cohort trial. At 6 months, after controlling for important variables such as age, functional status, and total hours of rehabilitation, patients who were treated in an inpatient rehabilitation facility (n = 66) had better functional scores in 2 of 3 functional domains compared with those (n = 156) who received home health/outpatient care.⁵

Benefits and Harms

The evidence- and consensus-based approach in this guideline is intended to facilitate organized, coordinated, and interdisciplinary care, avoid readmissions, and maximize functional recovery. In general, patients receive poststroke rehabilitation services largely based on discharge planner advice, primary care physician affiliation, and insurance coverage.⁶ However, the necessary posthospital care should be determined by objective criteria that assess needs for skilled nursing services, regular contact with a physician, and ongoing treatment.⁷ Recognition of secondary conditions and complications after a stroke can identify strategies to reduce risk of aspiration, falls, and decubiti. The guidelines recommend fall prevention training, a tailored post-stroke exercise prescription, and botulinum toxin for spasticity (all 1A); balance training, poststroke screening for depression, assessment of communication, and bowel and bladder impairment (all 1B); and

Table. Guideline Rating

Standard	Rating
Establishing transparency	Good
Management of conflict of interest in the guideline development group	Good
Guideline development group composition	Fair
Clinical practice guideline-systematic review intersection	Good
Establishing evidence foundations and rating strength for each of the guideline recommendations	Good
Articulation of recommendations	Good
External review	Fair
Updating	Fair
Implementation issues	Fair

assessment of swallowing ability, level of family/caregiver support, and ability to participate in rehabilitation (all 1C; weaker nonrandomized evidence in limited populations).

Discussion

The delivery of poststroke rehabilitation services is inconsistent in the United States. Causes include cost constraints and changes to the reimbursement strategies used by the Centers for Medicare & Medicaid Services (CMS).⁷ It is important to reduce stroke burden through risk factor control, atrial fibrillation prophylaxis, and early recognition and response to stroke symptoms. However, when stroke occurs, its consequences should be minimized by optimizing recovery and preventing potential complications.

The quality of evidence supporting specific stroke rehabilitation interventions is mostly class 2, meaning that the expert committee found it reasonable to perform them even with mixed or incomplete evidence. Examples include splinting, deep vein thrombosis prevention, evaluation and treatment of hemiplegic shoulder pain, treatment of central pain, interventions for improving upper extremity function, evaluation and treatment of post-stroke depression, nondrug and drug therapies for cognitive impairment, interventions for aphasia, and treatments for spasticity.

Poststroke rehabilitation care should include skilled nursing services for bowel and bladder impairments (1B), evaluation and avoidance of skin injuries, medication management, and nutritional assessment. Regular contact by a physician should occur when medical comorbidities such as diabetes, hypertension, or pain are not well controlled. Skilled nursing facilities have variable requirements of physician involvement for care; in general, there is a requirement for at least 1 physician visit per 30 days. Complex rehabilitation issues including spasticity, neurogenic bowel and bladder, and evaluation for orthoses are best managed by a physician with rehabilitation care experience.

Depression occurs in up to 33% of stroke survivors vs 13% of age-matched controls⁴ and is associated with increased mortality and poor functional outcomes,⁸ in part by limiting active participation in therapy. Administration of a structured depression screen such as the Patient Health Questionnaire 2 is recommended (1B). Bone mineral density declines after stroke by as much as 10% in the paretic lower limb. In the first 6 months following discharge from a re-

habilitation facility or a hospital, up to 70% of individuals have a fall.⁴ Thus, patients who have experienced a stroke should undergo fall prevention training during their hospitalization (1A).

Because no single functional assessment tool has utility throughout the entire clinical course,² functional assessment by a clinician with expertise in rehabilitation is recommended for patients with an acute stroke with residual functional deficits such as weakness, aphasia, neglect, cognitive changes, or participation restrictions (1C). Intensive, repetitive mobility task training is recommended for all patients who have mobility limitations after stroke. An ankle-foot orthosis is recommended for patients with spasticity to improve mobility affected by ankle and knee movement paresis and to reduce the energy expenditure of walking (both 1A).

The CMS defines community broadly as a home, board and care, transitional living, intermediate care, or assisted living facility; thus, 80% of US stroke survivors will return to the community, many with ongoing support needs. Physicians should be aware of driving fitness and reporting rules in their state and consider on-the-road driving tests (1C).

Areas in Need of Future Study

Little evidence exists to inform the optimal intensity, duration, and frequency of rehabilitative occupational therapy, physical therapy, or speech-language pathology therapy during various phases of stroke recovery. More research is needed to better understand the benefits of multimodal interventions. Emerging care models are exploring the utility of treating stroke as a chronic condition using case management and coordinated risk factor control.⁹ Computer adapted assessments, virtual reality, brain stimulation, and robotic devices may eventually facilitate stroke recovery, but their clinical value and economic feasibility are not yet established.¹⁰

Related resources

[World Health Organization International Classification of Functioning, Disability and Health](#)
[Brief Screen for Depression \(PHQ-2\)](#)
[Life After Stroke—AHA and ASA \(patient, caregiver, and clinician resources\)](#)

ARTICLE INFORMATION

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