

# Stroke Rehabilitation: Current American Stroke Association Guidelines, Care, and Implications for Practice

by Joseph E. Burris, MD

**Post stroke care should be initiated in the early rehabilitative phase and also continue in the chronic restorative phase of life for patients living with stroke.**



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## Abstract

Stroke attacked approximately 795,000 Americans last year, and it was the fifth leading cause of death in the United States. In 2016, the American Stroke Association published updated guidelines for stroke rehabilitation, with recommendations intended to improve systems of care and functional outcomes for people who suffer stroke and important recommendations regarding specific aspects of care. This article summarizes some of these recommendations with implications for those who treat stroke patients in their practices.

## Introduction

Stroke attacked nearly 800,000 Americans this past year, and it was the fifth leading cause of death in the United States.<sup>1</sup> Despite these profound numbers, the relative rate of stroke deaths dropped by 35.1% from 2001-2011. Procedures such as chemical and mechanical thrombolytic therapies, improved general medical care, and guideline-driven acute hospitalization care such as the American Stroke Association's Get With the Guidelines (GWTG) have improved stroke survival.<sup>2</sup> However, many patients do not receive full benefits of this care or otherwise still suffer from significant residual functional impairments. At least

two-thirds of stroke survivors undergo stroke rehabilitation interventions after acute hospitalization. With more than six million stroke survivors in the United States, nearly \$18 billion was spent on stroke rehabilitation in 2011. Despite this expenditure, stroke remains a leading cause of severe disability.

## Guidelines for Adult Stroke Recovery and Rehabilitation

In May 2016, the "Guidelines for Adult Stroke Recovery and Rehabilitation" were released from the American Heart Association/American Stroke Association (AHA/ASA). These guidelines represented both updated and new information from the AHA/ASA stroke rehabilitation care guidelines initially established in 2005 and the Veterans Affairs/Department of Defense stroke rehabilitation guidelines established in 2010.<sup>3,4</sup> These guidelines included critical information, and the reader is encouraged to seek and review this material. The following results are summarized from the 2016 guidelines:

"Stroke rehabilitation requires a sustained and coordinated effort from a large team, including the patient and his or her goals, family and friends, other caregivers (e.g. personal care attendants), physicians, nurses, physical and occupational therapists, speech-language pathologists, recreation therapists, psychologists, nutritionists, social workers, and

others. Communication and coordination among these team members are paramount in maximizing the effectiveness and efficiency of rehabilitation and underlie this entire guideline. Without communication and coordination, isolated efforts to rehabilitate the stroke survivor are unlikely to achieve their full potential.”<sup>5</sup>

## Consultation with PM&R or Rehabilitation Neurologist

The AHA/ASA multidisciplinary group strongly recommended physician consultation and follow-up care with specialists in Physical Medicine and Rehabilitation (PM&R)/physiatry or a neurologist with specialized training or board certification in rehabilitation to specifically address a patient’s ongoing needs. In an environment that, in reflection of current U.S. systems of care, is largely fragmented in nature, with rules and regulations that do not align with coordinated, patient-centered care this can be challenging for all caregivers. The provision of rehabilitation physician consultation should ideally begin, if possible, during the acute stroke hospitalization (See Table 1). In part due to the success of the ASA’s GWTG campaign, the evaluation and treatment plan in the acute hospital setting for a stroke patient is often efficiently performed, and acute length of stay may be as short as four days for uncomplicated stroke.<sup>6</sup> Subsequently, direct patient care involvement of the rehabilitation physician should continue during post-acute inpatient and outpatient care.

The AHA/ASA 2016 guidelines summarize the types of post acute care that stroke patients typically receive. Patients are referred to a variety of settings, and each setting has different funding, eligibility, and continuation requirements. Per the guidelines, most patients are referred to a first post acute care setting of a skilled nursing facility (SNF), followed by an inpatient rehabilitation facility (IRF) for institutionalized care, and those first discharged to a community setting receive home health care agency (HHCA) services. Stroke patients may also discharge to a long term acute care hospital (LTAC) if their medical needs are sufficiently substantial and require a more intense post hospital medical care than that provided at an IRF or SNF. Medically stable patients performing well enough, especially from a mobility/self care status may be referred directly to outpatient physical therapy (PT), occupational therapy (OT), and speech therapy (ST) services (See Table 2).

The consensus AHA/ASA guidelines team made the strongest recommendations yet regarding the type of care recommended for stroke patients following acute

**Table 1**

Physiatry/rehabilitation physician consultation during acute hospitalization for patients with stroke rehabilitation needs, evaluation and management planning

- NIHSS review
  - Categorize recovery estimation
    - <7 anticipate good recovery
    - 7-16 variable recovery
    - > 16 anticipate poor recovery
- Stroke recurrence risk factors
- Secondary stroke prophylaxis
- Medical comorbidities and effects on post acute care needs
- DVT prophylaxis
- Cognition/communication
- Dysphagia
- Nutrition
- Mobility/self care
- Bowel/bladder function
- Skin integrity
- Caregiver availability
- Patient/caregiver education
- Depression/mental health screen
- Spasticity
- Durable medical equipment/orthotic needs
- Recommendation regarding transition to appropriate level of post acute care and follow up with physiatry/rehabilitation physician for future stroke rehabilitation needs

stroke hospitalization: “It is recommended that stroke patients who are candidates for post acute rehabilitation receive organized, coordinated, interprofessional care. It is recommended that stroke survivors who qualify for and have access to IRF care receive treatment in an IRF in preference to a SNF.”<sup>5</sup>

The ASA/AHA 2016 guidelines elaborate on the nature of this IRF care with the following statements: “IRFs provide hospital-level care to stroke survivors who need intensive, 24-hour-a-day, interdisciplinary rehabilitation care that is provided under the direct supervision of a physician. Medicare (Centers for Medicare & Medicaid Services) regulations specify that admission to IRF’s should be limited to patients for whom significant improvement is expected within a reasonable length of time and who are likely to return to a community setting (rather than being transferred to another setting such as a SNF or long-term care facility). Medicare regulations also generally dictate that IRF’s provide at least three hours of rehabilitation therapy (defined as PT, OT, and SLT) per day for at least five days per week. Physicians are expected to have training or experience in rehabilitation, and daily physician visits are typical. Registered nurses are present on a continuous basis and commonly have specialty certification in rehabilitation nursing.”<sup>5</sup>

The ASA/AHA 2016 guidelines purported an extension of stroke rehabilitation care beyond the typical paradigm

**Table 2**

Features of various levels of post acute care for stroke rehabilitation care.

**Inpatient Rehabilitation Facility (IRF)**

- Coordinated, interdisciplinary rehabilitation team with expertise in stroke rehabilitation, including: physiatrist/rehabilitation physician; physical, occupational, and speech therapy; psychology; rehabilitation nursing; case manager/social worker. May also include recreational therapy, vocational rehabilitation, neuropsychology
- Requires at least 2 of 3: PT/OT/ST
- Sufficient medical stability to perform at least 3 hours of therapy at least 5 days per week or 15 hours of therapy over 7 days per week under special circumstances (e.g. dialysis)
- Physiatrist/rehabilitation physician oversight 3-7 days per week for evaluation/intervention of medical/rehabilitation management issues

**Skilled Nursing Facility (SNF)**

- Multidisciplinary rehabilitation team, should/may include: physical, occupational, speech, recreational therapy, psychology, nursing, case manager/social worker
- Ability to perform at least 1-3 hours of therapy 5 days per week
- Psychiatry/rehabilitation physician consultant for recommendations specific to stroke rehabilitation needs

**Long Term Acute Care Hospital (LTAC)**

- Medical treatment issues supersede rehabilitation needs at another level of post acute care
- Three-day ICU stay during acute hospitalization required
- Psychiatry/rehabilitation physician consultant for recommendations specific to stroke rehabilitation needs

**Outpatient Therapy**

- Physical, occupational, and speech therapy as indicated
- Interdisciplinary outpatient programs, as available/indicated
- (Rehabilitation) Psychology, as indicated
- Neuropsychologic testing, as indicated
- Vocational rehabilitation, as indicated
- Driving evaluation, as indicated

**Home Health Care Agency (HHCA)**

- Patient will be considered "homebound"
- Patient/family will benefit from interventions specific to their home environment
- Inability to arrange logistics for attendance in an outpatient treatment program due to patient tolerance or program availability
- Physical, occupational, and speech therapy, social worker, as indicated
- Nursing/aide, as indicated

from acute hospitalization through three to six months of formal rehabilitation, recognizing stroke as a chronic condition, for which many individuals have ongoing needs. For mobility, patients may be evaluated for declines in function which may require further therapy interventions, establishment and adjustment for home or community-based exercise programs for maintenance, improvement of function, or general health. Further durable medical equipment (DME) needs may arise, or equipment may require repair or replacement. The stroke patient may have these same needs for assistive devices such as walkers or

orthotic devices such as ankle foot orthoses (AFOs). For self-care, equipment such as commodes, tub and transfer tub benches, and grab bars, and evaluations for home health aides may be helpful in allowing someone to remain in the home versus a return to institutionalized care. Ultimately, these items require physician orders for therapy evaluations and device recommendations, and may require medical documentation to assist in the establishment of medical necessity for financial coverage of these items.

**Cognitive Impairment**

Cognitive impairment may demonstrate early improvement with therapy interventions but the contribution of dementia may require further medical workups and treatments. Cognitive testing such as neuropsychologic evaluation may be important for return to employment, return to driving, or for living more independently. Communication impairment such as aphasia is generally initially improved with therapy interventions, but assistive technology such as augmentative communication devices also requires evaluations by therapy and medical equipment suppliers with physician oversight for medical necessity to oversee the process. Nutritional needs in early stroke recovery, especially with the common finding of dysphagia, are generally focused on obtaining sufficient caloric intake. It is critical to meet protein needs and to avoid the complication of aspiration pneumonia during this acute phase. In the chronic phase of stroke, nutrition should be focused to address risk factors for stroke recurrence, such as addressing optimal nutrition for obesity, diabetes mellitus, hypertension, and hyperlipidemia.

While the stroke rehabilitation physician may not be directly involved in the medical care of patients for these issues, education and direction of care towards primary care physicians and other specialists is an important aspect of rehabilitative care. Social services consultation during the various acute and post acute aspects of stroke recovery are helpful to aide in the determination of coverage benefits and resources in the community such as services for independent living, transportation assistance, and other community based programs. Support groups or stroke associations may provide resources and input on community based living. Adjustment, depression, and anxiety are often undertreated, and this may require a combination of psychology treatments, medication interventions, and family/caregiver advisement to optimally manage these common complications.

## Bladder and Bowel Incontinence

Bladder and bowel incontinence improves in the first several months of stroke recovery, aided by various pharmacologic and nonpharmacologic interventions, but remains a persistent factor in reducing independent living, increasing risk for mood disorders, and exacerbating isolation in the home even for community dwelling stroke patients. The presence of spasticity, unfortunately still held as an inevitable rather than treatable consequence of stroke, is both under-recognized and undertreated. Hemiplegic shoulder pain predominates in stroke patients, and requires careful evaluations in the determination of pain generator factor(s). Neuropathic pain may contribute to depression, and osteoporosis may increase risk for fractures, particularly on the hemiplegic side of the stroke patient, with patients at known increased risk for falls.

## Activity & Exercise

Activity, and specifically exercise, is noted to be lacking in the overwhelming majority of stroke patients once they have transitioned from the rehabilitation phase with therapy interventions, noted over the course of the first several months, to the chronic, restorative phase, over the ensuing months to years. As reported in the ASA/AHA 2016 Guidelines, the relentless cycle of reduced physical activity leading to reduced functional capacity and heightened risk of secondary complications must be broken to improve the quality of life of the stroke patient, especially the chronic stroke patient. Numerous complications mentioned in this article may be addressed simply by the application of regular exercise, with varying results noted by aerobic versus non-aerobic activities, and for various intensities, and no consensus but rather the recommendation that stroke patients receive interventions based on their abilities despite certain impairments, and that these patients perform these activities on a regular basis. Community resources for exercise vary widely, and funding for stroke patients to attend these types of programs is generally private pay or through philanthropy.

## Conclusion

Communication and coordination of care for stroke patients by a wide variety of professional and non-professional members may benefit from the oversight of a stroke rehabilitation physician specialist, whether physiatrist or other rehabilitation focused physician. The recommendations of the most recent American Heart Association/American Stroke Association Guidelines for Adult Stroke Rehabilitation and Recovery in 2016 recognize

and endorse the need for stroke patients to receive an early, organized, interdisciplinary approach to their initial stroke rehabilitation, with preference to inpatient rehabilitation facilities to provide this level of intensity of care for patients who have sustained stroke related impairments and have a prognosis sufficient to warrant this type of treatment plan.

Additionally, this organized treatment should continue in the home and community settings not only for the next few to several months but even in the following years and by a variety of professional and non-professional caregivers. This care should be initiated in the early rehabilitative phase but also continue in the chronic restorative phase of life for patients living with stroke. With the future of bundled payment models and value based care envisioned, maximizing functional outcome and reducing re-hospitalizations will likely further drive the care recommended by these consensus guidelines.

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## Disclosure

None reported.

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