2020 AHA/ASA Measurement Set Specifications for Adult Stroke Rehabilitation and Recovery

Clinical Performance Measures for Healthcare Professionals From the American Heart Association/American Stroke Association

Public Comment Period

Friday May 8 – Friday June 5, 2020

Draft Measurement Set Specifications
1. Activities of Daily Living (ADLs)

All individuals with stroke should receive ADL and mobility training tailored to individual needs and eventual discharge setting.	
Numerator	Persons who receive ADL and mobility training tailored to individual needs and eventual discharge.
Denominator	**Included populations:** Persons who have experienced a stroke **Excluded populations:** Persons found to be without ADL or mobility deficits after appropriate evaluation Persons who died during inpatient care Persons with altered level of consciousness or cognitive impairments that preclude caring for oneself
Period of Assessment	Acute Hospitalization Post-acute rehabilitation (IRF, SNF, LTACH) Home Care Outpatient (within 3 months post-return home)
Sources of Data	Electronic Medical Record (EMR), Electronic Health Record (EHR), Person, family or care-giver report, Administrative records (Medicare, Medicaid), Health insurance data.

Rationale

- After stroke, a large proportion of people are unable to manage their activities of daily living independently and have reduced functional mobility. Improving independence in ADLs and mobility can lessen disability and caregiver burden and potentially reduce institutionalization.
- Providing ADL and mobility training tailored to individual needs implies that assessment and intervention is interdisciplinary and requires providers representing various levels of knowledge and professional expertise.
- Accurate assessment provides prognostic information and guides the selection and tailoring of interventions to each individual.
- Assessment and interventions must include integrated theoretical and practical approaches supported by evidence-based literature and guided by consumer and stakeholder feedback.

Clinical Recommendation(s)

1. Early assessment is important to identify limitations in ADLs and mobility and establish a baseline to monitor change (positive or negative).
2. Early assessment is essential to identify appropriate individualized intervention.
3. Clear plans for (repeated) data collection, analyses and interpretation are necessary to monitor and document changes in patient progress and environment.
4. Coordinated team planning for transfers and discharge is required to maintain consistent intervention and monitor patient change.
   Provide patient, family and stakeholders with detailed information regarding continued intervention and resources for home and community support, including a clear plan for follow-up contact and data collection.

Method of Reporting

Per Patient: Document patient status in ADL and mobility and plans to remediate ADL and mobility limitations.
Per Population: Percentage of patients with ADL and/or mobility limitations who receive ADL and mobility retraining/therapy.

Challenges to Implementation

- Availability of accredited rehabilitation facilities and supply of qualified rehabilitation professionals.
- Inconsistency and contradictions in provider recommendations included in medical records and reports.
- Inadequate communication and coordination among team members.
- Inadequate communication and coordination across facilities/institutions in transfers and discharges.
- Insufficient or inconsistent follow-up and documentation after discharge.
- Failure to obtain appropriate and adequate information regarding patient preferences and stakeholder input.

Draft Measurement Set Specifications
2. Aphasia – Speech and Language Therapy

All individuals with stroke with residual aphasia should receive speech and language therapy.	
Numerator	Patients with aphasia after stroke who receive speech and language therapy (SLT) during inpatient and/or outpatient care.
Denominator	**Included populations:** Patients with aphasia after stroke. **Excluded populations:** Patients with altered level of consciousness or other impairments that preclude interaction with a speech language therapist. Patients who died during inpatient care. Patients who are unable to participate in therapy because of medical instability or other limitation.
Period of Assessment	During acute hospitalization During post-acute rehabilitation (IRF, SNF, LTACH) During outpatient rehabilitation (outpatient rehabilitation facility) During home care
Sources of Data	Acute hospital, inpatient rehabilitation facility, outpatient rehabilitation, facility, home care, physician notes (primary care or specialty stroke care) in electronic medical/health record; retrospective record review.

Rationale

- Winstein et al 2016: Guidelines for Adult Stroke Rehabilitation and Recovery, p e27 Table: "Speech and language therapy is recommended for individuals with aphasia." (Recommendation Class 1, Level of Evidence A). Several studies were cited supporting that aphasia therapy improved communication outcome in patients with aphasia after stroke treated acutely, in chronic stages after 6 months and with no significant relationship of response to treatment with time after onset. Intensive treatment is favored but there is no consensus regarding the amount, distribution and duration that is most beneficial.
- Treatment for aphasia should include communication partner training. Computerized treatment may be considered to supplement treatment provided by a speech-language pathologist. Group treatment may be useful. (Winstein et al 2016)
- Brady et al 2016: The Cochrane Library: Speech and language therapy for aphasia following stroke. Conclusions, p3: "Our review provides evidence of the effectiveness of SLT for people with aphasia following stroke in terms of improved functional communication, reading, writing, and expressive language, compared to no therapy". (Reviewed 57 RCTs).

Clinical Recommendation(s)

1. Speech language therapy should be provided to patients with aphasia after stroke.

Method of Reporting

Per Patient: Documentation of whether a patient with aphasia after stroke received SLT during inpatient and/or outpatient care.
Per Program: The proportion of people with stroke and aphasia who received SLT during inpatient and/or outpatient care.

Challenges to Implementation

- Variations in the types, frequencies, amounts, and durations of SLT.
- Difficulty in monitoring outpatients and limited availability of EMRs for outpatient rehabilitation facilities, home care and physician offices.
- Challenge of determining if patient is aphasic from the acute record if no adequate language assessment by a physician or speech pathologist.

Draft Measurement Set Specifications
3. Assessment of Urinary Retention

Individuals with stroke and urinary symptoms should have an assessment of urinary retention through bladder scanning or intermittent catheterizations after voiding while recording volumes.	
Numerator	Stroke patients with urinary incontinence or retention who received assessment for urinary retention through repeated bladder scans and/or intermittent catheterizations.
Denominator	**Included populations:** Patients admitted to any facility for inpatient care who are incontinent or retaining urine (acute hospital for stroke management, inpatient rehabilitation facility, skilled nursing facility, long-term acute care hospital). **Excluded populations:** Patients with indwelling Foley catheters or other forms of non-physiological bladder drainage. Patients with normal spontaneous voiding without incontinence or retention
Period of Assessment	During acute hospitalization During post-acute rehabilitation unit stay or skilled nursing facility
Sources of Data	Prospective flow sheet, retrospective medical record review, electronic medical record.

Rationale

From the 2016 Winstein *et al.,* Guidelines for Adult Stroke Rehabilitation and Recovery:

- Assessment of bladder function in acutely hospitalized stroke patients is recommended.
- A history of urological issues before stroke should be obtained. (Class I, Level of Evidence B)
- Assessment of urinary retention through bladder scanning or intermittent catheterizations after voiding while recording volumes is recommended for patients (Class I, Level of Evidence B) with urinary incontinence or retention.

Clinical Recommendation(s)

1. Stroke patients should be observed for voiding after presentation to the hospital.
2. Those who are retaining urine or experiencing incontinence should undergo screening for urinary retention via bladder scan or straight catheterization.
3. Those found to have urinary retention should generally be treated with intermittent catheterization for initial management.

Method of Reporting

Per Patient: Documentation of whether bladder emptying, as described above, was assessed upon admission for patients with incontinence or possible retention among patients with stroke admitted with urinary incontinence.
Per Facility: Percentage of patients who had bladder emptying assessed, as described above, among included patients with stroke admitted with incontinence or retention.

Challenges to Implementation

- Extraction of data from electronic medical records, including both numerator and denominator, may prove challenging.

Draft Measurement Set Specifications
4. Deep Vein Thrombosis (DVT) Prophylaxis

Individuals with stroke who have impaired mobility who receive DVT prophylaxis during post-acute inpatient rehabilitation.	
Numerator	Stroke patients with impaired mobility (unable to ambulate), without contraindications, who received DVT prophylaxis (either intermittent pneumatic compression [IPC] or subcutaneous prophylactic doses of heparin [e.g. LMWH or UFH]) during post-acute inpatient rehabilitation, until ambulation is regained, or until discharged from the hospital (including rehabilitation hospital).
Denominator	**Included populations:** Stroke patients with impaired mobility cared for in a post-acute rehabilitation facility (IRF, LTACH) **Excluded populations:** Contraindication to both IPC and heparins (LMWH or UFH): - Contraindication to IPC (including, but not limited to dermatitis, gangrene, severe edema, venous stasis, severe peripheral vascular disease, postoperative vein ligation, or grafting, as well as existing swelling or other signs of an existing DVT) - Contraindications to heparins (including, but not limited to, a history of heparin induced thrombocytopenia, bleeding diathesis)
Period of Assessment	Throughout the entire post-acute inpatient rehabilitation stay.
Sources of Data	Electronic medical record; retrospective record review.

Rationale

- DVT and PE are sources of morbidity and mortality after stroke and occur in an increased frequency in immobile stroke patients. Based on the most recent meta-analysis, the use of IPC is supported but the use of heparins for DVT prophylaxis is no longer supported with a high level of evidence. As such, there no longer needs to be any differentiation of this measure by stroke subtype, ischemic vs. hemorrhagic.

The knowledge bytes on this topic from the 2018 Guidelines for AIS state the following in favor of IPC over routine heparin:

- The Clots in Legs Or sTockings after Stroke (CLOTS) 3 was a multicenter trial enrolling 2867 patients in 94 centers in the United Kingdom and comparing the use of IPC with routine care to no IPC with routine care in immobile stroke patients for venous thromboembolism prophylaxis. Eligible patients were enrolled within 3 days of the acute stroke and could not mobilize to the toilet without the help of another person. Routine care was defined as the use of aspirin for non-hemorrhagic stroke, hydration, and possible compression stockings. A total of 31% of the patients received prophylactic or full-dose heparin or LMWH, but these patients were evenly distributed between both groups. After the exclusion of 323 patients who died before any primary outcome and 41 who had no screening, the primary outcome of DVT occurred in 122 of 1267 IPC participants (9.6%) compared with 174 of 1245 no-IPC participants (14.0%), giving an adjusted OR of 0.65 (95% CI, 0.51–0.84; P=0.001). Among patients treated with IPC, there was a statistically significant improvement in survival to 6 months (HR, 0.86; 95% CI, 0.73–0.99; P=0.042) but no improvement in disability. Skin breaks were more common in the IPC group (3.1% versus 1.4%; P =0.002).
- The most recent and comprehensive meta-analysis of pharmacological interventions for venous thromboembolism prophylaxis in AIS included 1 very large trial (n=14 578) and 4 small trials of UFH, 8 small trials of LMWHs or heparinoids, and 1 trial of a heparinoid. Prophylactic anticoagulants were not associated with any significant effect on mortality or functional status at final follow-up. There were statistically significant reductions in symptomatic pulmonary embolisms (OR, 0.69; 95% CI, 0.49–0.98) and in DVTs, most of which were asymptomatic (OR, 0.21; 95% CI, 0.15–0.29). There were statistically significant increases in symptomatic intracranial hemorrhage (OR, 1.68; 95% CI, 1.11–2.55) and symptomatic extracranial hemorrhages (OR, 1.65; 95% CI, 1.0–2.75). There may be a subgroup of patients in whom the benefits of reducing the risk of

venous thromboembolism are high enough to offset the increased risks of intracranial and extracranial bleeding; however, no prediction tool to identify such a subgroup has been derived.

- The most recent and comprehensive meta-analysis comparing LMWH or heparinoid with UFH for venous thromboembolism prophylaxis in AIS included 1 large trial (n=1762) and 2 smaller trials comparing LMWH with UFH and 4 small trials comparing heparinoids with UFH. There were no significant effects on death or disability for LMWH/heparinoids compared with UFH. The use of LMWH/heparinoid was associated with a statistically significant reduction in DVTs (OR, 0.55; 95% CI, 0.44–0.70), which were mostly asymptomatic, at the expense of a greater risk of major extracranial hemorrhages (OR, 3.79; 95% CI, 1.30–11.03). LMWH can be administered once a day and thus is more convenient for nurses and comfortable for patients. Higher cost and increased bleeding risk in elderly patients with renal impairment are disadvantages of LMWH that should be kept in mind.

Clinical Recommendation(s)

From the 2018 AHA/ASA "Guidelines for the Early Management of Patients With Acute Ischemic Stroke"

1. 4.8.1 - In immobile stroke patients without contraindications, intermittent pneumatic compression (IPC) in addition to routine care (aspirin and hydration) is recommended over routine care to reduce the risk of deep vein thrombosis (DVT). (COR I, LOE B-R); Recommendation revised from 2016 Rehab Guidelines.
2. 4.8.2 - The benefit of prophylactic-dose subcutaneous heparin (unfractionated heparin [UFH] or LMWH) in immobile patients with AIS is not well established. (COR IIb, LOE A).
3. 4.8.3 - When prophylactic anticoagulation is used, the benefit of prophylactic-dose LMWH over prophylactic-dose UFH is uncertain. (COR IIb, LOE B-R)

From the 2015 AHA/ASA "Guidelines for the Management of Spontaneous Intracerebral Hemorrhage"

4. Patients with ICH should have intermittent pneumatic compression for prevention of VTE beginning the day of hospital admission (Class I; Level of Evidence A).
5. Graduated compression stockings are not beneficial to reduce DVT or improve outcome (Class III; Level of Evidence A).

Method of Reporting

[Would be assessed for each patient after discharge from the inpatient stay. Each patient would only be counted once, and documentation of DVT prophylaxis use for each day where immobility was present would be required to meet this performance measure.]

Per Patient: Documentation of whether patient at risk, without contraindication, was ordered to receive DVT prophylaxis for each day of post-acute inpatient rehabilitation care they were at risk of DVT, until mobility is regained.

Per Patient Population: proportion of patients in post-acute inpatient rehabilitation at risk for DVT prior to regaining mobility without contraindication, who were administered DVT prophylaxis for all the days they were at risk.

Challenges to Implementation

- Lack of clear and consistent documentation of mobility status and IPC or heparin use.
- No clear standards for regained mobility are established. (e.g., ambulation of specified minimal distances and frequencies during a day.)
- The studies on DVT prophylaxis mainly looked at acute populations. Further studies are needed to clarify the optimal approach to DVT prophylaxis

Draft Measurement Set Specifications
5. Education About Impact of Stroke

Individuals with stroke should be provided with education about stroke, including information about secondary prevention, rehabilitation, and the opportunity to talk about the impact on their lives.	
Numerator	Patients with stroke who receive education about stroke, including information, advice and the opportunity to talk about the impact of the illness on their lives
Denominator	**Included populations:** All patients with stroke. For individuals lacking communication or cognitive ability to participate, family and/or caregivers should be provided this education. **Excluded populations:** Patients who are unable to communicate due to cognitive or communication limitations, and who lack family or other caregivers.
Period of Assessment	During acute care stay During post-acute rehabilitation (IRF, SNF, LTACH) During home care During outpatient appointment
Sources of Data	Documentation in the electronic medical record that patient education about stroke and the opportunity to talk about impact occurred in the clinical setting of record. Survey of patients and/or caregivers.

Rationale

- Patient knowledge regarding stroke and its causes and consequences is often quite low, and this represents an opportunity to improve compliance with secondary prevention, as well as participation in rehabilitation efforts.
- Depression and anxiety are common after stroke and are associated with increased mortality and poor functional outcomes.
- Depression has been reported in up to 33% of stroke survivors, but reliable estimates of the incidence and prevalence of depression in a stroke cohort are limited
- The Cochrane Collaboration found that information improved the patient's and caregiver's knowledge while also slightly decreasing patient depression.

Clinical Recommendation(s)

1. Education about stroke is recommended for patients to improve compliance, increase engagement in rehabilitation and reduce depression.
2. All patients with stroke should be provided with information, advice, and the opportunity to talk about the impact of the illness on their lives.

Method of Reporting

Per Patient: Patients with stroke able to engage in patient education who were provided with information, advice, and the opportunity to talk about the impact of the illness on their lives as documented in the medical record or by direct survey of patients and/or families.
Per Provider (hospital/facility/clinic): Percent of patients (family) with stroke able to engage in patient education who were provided with information, advice, resources and the opportunity to talk about the impact of the illness on their lives as documented in the medical record

Challenges to Implementation

- The ideal source for this type of measure is the patient. However, collection of patient-reported data can be challenging in institutional and outpatient settings. Reporting of this data by clinicians may be more feasible.
- The amount and quality of information provided to patients may vary because no standard materials or resources are available.
- Pro-forma education (e.g. providing the patient with a pamphlet or handout) instead of meaningful interactive education is a concern, as this likely provides little clinical benefit and does not assure the patient has the opportunity to interact with the clinician and express their concerns.
- Patients' limited health literacy and language barriers may limit the ability of patients and their families to fully understand the information and communicate their feelings and concerns.
- It is a challenge to assure that clinicians recognize and accommodate patients' learning needs.

Draft Measurement Set Specifications
6. Enteral Feeding

Individuals with stroke who cannot safely swallow should have enteral feeding initiated within 7 days after stroke.	
Numerator	Acute stroke patients unable to safely swallow who have had enteral feeding initiated within 7 days post-stroke.
Denominator	**Included populations:** Patients who are unable to swallow, have other impairments that prevent adequate oral intake or who present significant risk of aspiration precluding oral feeding. **Excluded populations:** Patients placed on end of life care during the first 7 days post stroke. Patients expired or transferred during the first 7 days post stroke.
Period of Assessment	Day 7 after presentation at acute care
Sources of Data	Electronic Medical Record; retrospective record review.

Rationale

- Early enteral feeding (started within 7 days) may increase the survival of dysphagic patients who cannot safely eat by mouth; however, this may keep patients alive 'in a severely disabled state when they otherwise would have died" (407) Therefore to reduce case fatality, providers should initiate early tube feeds; however they can wait up to 7 days after a stroke …especially when conversations about the goals of care are needed." Winstein et al p.21

Clinical Recommendation(s)

1. Enteral feedings should be initiated within 7 days after stroke for patients who cannot safely swallow.

Method of Reporting

Per Patient: documentation of whether a patient who could not safely swallow received an enteral feeding tube within 7 days of admission.
Per Patient Population: percentage of patients who could not safely swallow who received enteral feeding tube within 7 days of admission.

Challenges to Implementation

- Difficulty locating documentation of swallowing difficulty or initiation of enteral feeding in the medical record.

Draft Measurement Set Specifications
7. Tailored Exercise Program

Individuals with stroke should be provided with an individually tailored exercise program.	
Numerator	Persons who received an individually-tailored exercise program to enhance cardiorespiratory fitness.
Denominator	**Included populations:** Persons with stroke residing in the community. **Excluded populations:** Hospitalized patients, or those undergoing active post-acute rehabilitation Persons with severe cardiovascular, pulmonary or other co-morbidities that precludes safe exercise. Receiving comfort/palliative/hospice care. Persons whose cognitive, communication, or physical impairments preclude participation in an exercise program.
Period of Assessment	1 year after return to community post-stroke.
Sources of Data	Electronic medical record.

Rationale

- Persons with stroke are at high risk for recurrent stroke and are typically deconditioned. Improving cardiorespiratory fitness has the potential to reduce secondary stroke risk, increase mobility, lessen disability, and improve overall health and well-being.
- Exercise programs are safe and feasible should be individually-tailored for persons with stroke.

Source: 2016 AHA/ASA "Guidelines for Adult Stroke Recovery and Rehabilitation"

Clinical Recommendation(s)

1. Cardiorespiratory training programs can increase cardiorespiratory fitness, reduce risk of stroke and other cardiovascular conditions, and improve overall health and well-being.

Method of Reporting

Per Patient: Documentation of whether the person was assessed for, and/or received, an individually-tailored exercise program to enhance cardiorespiratory fitness.
Per Patient Population: Percentage of persons who were assessed for, or received, an individually-tailored exercise program to enhance cardiorespiratory fitness.

Challenges to Implementation

- Initial compliance is expected to be quite low.
- Difficult to measure and unclear who is responsible to refer patients for this type of program. Is this the responsibility of the primary care physician? Neurologist? Physiatrist?
- Providing an exercise program does not ensure that a person with stroke will comply with the program.

Draft Measurement Set Specifications
8. Balance Training Program

Individuals with stroke who have impaired balance, low balance confidence, and/or fear of falls should be provided with a balance training program.	
Numerator	Stroke patients at risk for falls who received evaluation and training.
Denominator	**Included populations:** All stroke patients should undergo screening for fall risk. Individuals with stroke found to have increased risk of falls should undergo balance training. **Excluded populations:** Non-ambulatory individuals
Period of Assessment	During acute hospitalization During post-acute care (SNF, IRF or LTACH) During home health care During outpatient rehabilitation, physical or occupational therapy Annually by primary care or specialist physician
Sources of Data	Electronic medical records; therapist notes; stroke survivor or care partner observations, outpatient medical records.

Rationale

- Persons with stroke who demonstrate/indicate a fear of falling are at a high risk for falls and consequent injuries with possible hospitalization and further disability.
- Evaluating these individuals for fall risk and introducing and assessing fall management and risk reduction interventions can help in delaying the onset of falls and improving quality of life.

Source: 2016 AHA/ASA "Guidelines for Adult Stroke Recovery and Rehabilitation"

Clinical Recommendation(s)

1. Assess risk of falling as well as fear of falling as part of a fall evaluation and prevention program during the acute stroke rehabilitation phase based upon inclusion/exclusion criteria.

Method of Reporting

Per Patient: Document whether stroke survivor was evaluated for postural stability/falls risk and provided with treatment/ training including dosing provided.
Per Patient Population: Determine percent of stroke survivors treated in an institution (e.g. hospital) who received fall assessment and balance training.

Challenges to Implementation

- Provision of time to undertake assessment and training within a comprehensive rehabilitation program could be problematic.
- Monitoring compliance with program within hospital or other environments may be difficult.
- Accurate report of fall events may be difficult.
- Fostering care partner assistance in implementation and monitoring of the falls' prevention training implementation may be met with resistance or non-compliance.

Draft Measurement Set Specifications
9. Follow-Up Post-Discharge

Follow-up is recommended to ensure that the patient and family receive the necessary rehabilitation services post-discharge.	
Numerator	Patients with recent stroke who have recently returned to the community who undergo formal assessment of mobility, ADLs and communication/cognition by a clinician skilled in such assessment (e.g., physician, nurse, rehabilitation therapists) to determine rehabilitation treatment needs.
Denominator	**Included populations:** Patients with a recent stroke after discharge home **Excluded populations:** Patients without residual symptoms post-stroke Patients who die prior to discharge Patients transferred to another acute hospital or rehabilitation facility Patients receiving long-term custodial care in a nursing home
Period of Assessment	Within 3 months after discharge home from acute hospital, post-acute facility (SNF, IRF or LTACH).
Sources of Data	Electronic medical record, patient report

Rationale

From the 2016 Winstein *et al.,* Guidelines for Adult Stroke Rehabilitation and Recovery:

- It is reasonable that individuals with stroke discharged from acute and post-acute hospitals/centers receive formal follow-up on their ADL and IADL status, communication abilities, and functional mobility within 30 days of discharge.
- Those patients who require ongoing rehabilitation after discharge should continue to be followed up by a care team with expertise in stroke rehabilitation whenever possible.
- Ongoing support for the caregiver favorably affects the stroke survivor and caregiver.
- Functional outcomes (including motor, cognitive, and psychosocial function) can be improved or at least maintained in chronic stroke with community interventions.
- There is substantial evidence that rehabilitation services, particularly exercise-based programs, provided in the community after discharge from acute or institutional care can improve cardiovascular health and decrease the risk of cardiovascular events, leading to increased short-term survival rates for individuals who have experienced a stroke.

Clinical Recommendation(s)

1. Arrangements should be provided to patients and caregiver/family members for proper stroke-related follow-up care when the patient is being discharged home from an acute stroke ward, an inpatient rehabilitation facility, long-term acute care hospital or a skilled nursing facility.
2. Follow-up care may include physician stroke specialist, physical, occupational and/or speech therapy as clinically indicated.

Method of Reporting

Per Patient: Documentation of whether proper follow-up has been (a) arranged and (b) communicated to the patient and/or caregiver at time of discharge.
Per Stroke Population: The percentage of persons with stroke who, at the time of discharge, have evidence of receiving proper follow-up.

Challenges to Implementation

- Difficulty in accurately extracting that services have been arranged and discussed.

Draft Measurement Set Specifications
10. Inpatient Rehabilitation Facility (IRF)

Patients with stroke who qualify for, would benefit from and have geographic access to Inpatient Rehabilitation Facility (IRF) care should receive acute inpatient rehabilitation in an IRF.	
Numerator	Patients who are transferred to IRF for acute inpatient rehabilitation after acute hospital care
Denominator	**Included populations:** All hospitalized patients with acute stroke who are eligible for, have access to and would benefit from IRF level of post-acute rehabilitation, specifically those who: - Require active ongoing intervention of multiple rehabilitation therapy disciplines - Can participate in and benefit from 3 hours or more of rehabilitation therapy per day - Require physician supervision during rehabilitation - Require coordinated interdisciplinary team approach for rehabilitative care **Excluded populations:** Patients who die before hospital discharge Patients whose rehabilitation potential is limited or cannot tolerate an intensive rehabilitation program because of frailty or comorbidities, or those who do not require an intensive hospital-level rehabilitation program because of mild stroke-related disability or whose medical needs are relatively straightforward Patients who do not have geographic access to an IRF Patients, families or health care proxy who decline IRF admission
Period of Assessment	Discharge from acute hospital stay after stroke
Sources of Data	Discharge destination from acute hospital records, eligibility and appropriateness for IRF level rehabilitation based on rehabilitation therapy notes, rehabilitation physician consultation report, case management notes or other discharge disposition assessments.

Rationale

Assessment of functional needs is a standard of care in the acute management of patients with stroke. Functional assessment and rehabilitation needs are determined by rehabilitation professionals including physical therapists, occupational therapists, speech pathologists, rehabilitation nurses and rehabilitation physicians. Assessment of rehabilitation needs includes determination of disciplines needed, tolerance of therapy and need for medical oversight. IRFs provide an intensity of therapy often not provided in other facilities and has been shown to result in better outcomes than rehabilitative care in SNF's. As discussed in Winstein et al., 2017: "It is unknown which aspects of IRF care result in the better outcomes observed in studies comparing these 2 levels of care. Possible contributors include the amount of physical, occupational, and speech therapy provided; the number of hours of care provided by a registered nurse per day; the frequency and type of physician visits; the background and skills of the clinicians; the regularly occurring interdisciplinary team conferences; or other factors." Nevertheless, some patients with stroke will not need, do not qualify and/or may not benefit from the level of care provided in an IRF. Some may not have geographic access to IRFs. Further, there is considerable variation in the level of services provided at SNFs that may affect the choice of facility; some SNF's provide rehabilitative care at a level well below most IRFs and some may provide care at a level that overlaps with what may be available in an IRF.

Clinical Recommendation(s)

1. It is recommended that persons with stroke who qualify for, would benefit from and have access to IRF care receive treatment in an IRF.

Method of Reporting

Per Patient: Documentation on whether patient was transferred to IRF following clinical recommendation for acute inpatient rehabilitation at an IRF level (for those who qualify and have geographic access to an IRF)
Per Population: Percentage of patients with clinical recommendation for acute inpatient rehabilitation who were transferred to an IRF for post-acute care (who qualify and have geographic access to an IRF).

Challenges to Implementation

- Clinical recommendation for acute inpatient rehabilitation may be documented in patients who do not meet all the clinical criteria for acute inpatient rehabilitation.
- Therapy and physician records may contain contradictory clinical recommendations for post-acute care.
- Availability of IRF may not be well documented in medical record.
- Difficulty determining from medical record if a patient would be able to participate and tolerate 3 hours per day of therapy.
- Difficulty determining from medical record and ambiguity of criterion for and accurate prediction of ability to "benefit" from IRF level of care.
- Difficulty determining from medical record and ambiguity of criteria for "requirement" for physician supervision.

Draft Measurement Set Specifications
11. Post-Acute (PAC) Rehabilitation

Stroke patients receiving post-acute rehabilitation in an inpatient setting should receive organized, coordinated, interprofessional care.	
Numerator	Patients with stroke who receive organized, coordinated, inter-professional rehabilitation care. - Organized and coordinated requires documentation and execution of a plan of care that includes regular periodic structured communication among disciplines to establish, prioritize, and achieve treatment goals. - Inter-professional indicates regular involvement of all clinically appropriate disciplines (e.g. physicians, therapists, nurses) with all clinicians participating in the structured communication described above.
Denominator	**Included populations:** All patients with stroke treated in the following care settings: • Post-Acute rehabilitation (SNF, IRF or LTACH) **Excluded populations:** Patients who after assessment for rehabilitation needs are determined to only have needs for one therapeutic area (e.g., only Physical Therapy [PT], Occupational Therapy [OT], or Speech-Language Pathology [SLP]) Patients receiving acute hospital comfort care or hospice care Patients unable to participate in a rehabilitation program due to severe cognitive or communication impairments
Period of Assessment	Post-acute care stay (IRF, SNF or LTACH)
Sources of Data	Electronic Medical records; retrospective review.

Rationale

- As reviewed in Winstein et al., 2016, there is strong evidence that organized, inter-professional stroke care reduces mortality rates, the likelihood of institutional care and long-term disability, and enhances recovery and independence in ADLs.
- Although organized, coordinated and inter-professional rehabilitation care is routine in IRF's due to regulatory requirements, it can also be provided for patients receiving rehabilitation in SNF's and LTACH's, as well as during outpatient rehabilitation treatment.
- IRF patients observed higher rates of return to community living and greater functional recovery may be due in part to this organized and coordinated care.

Clinical Recommendation(s)

1. It is recommended that patients who are candidates for post-acute rehabilitation after stroke receive organized, coordinated, inter-professional care.

Method of Reporting

Per Patient: Documentation of whether a patient receiving post-acute rehabilitation in an inpatient or outpatient setting are receiving care in a manner that is considered organized, coordinated and inter-professional (as defined above)
Per Patient Population: Percentage of patients receiving post-acute rehabilitative care in a SNF, IRF, LTACH, outpatient rehabilitation facility or home care who are receiving organized, coordinated and inter-professional post-acute rehabilitation care (as defined above).

Challenges to Implementation

- Determination of adherence to this performance measure may require a detailed record review, or an attestation that is subject to inaccurate reporting.
- Difficulty defining care that is organized, coordinated and inter-professional.
- The criteria for organized and coordinated rehabilitation may vary in different settings and with differing patient needs.

Draft Measurement Set Specifications
12. Post-Stroke Depression

Individuals with stroke should be screened for depression using a structured depression inventory. Individuals diagnosed with depression should receive appropriate evidence-based treatment.	
Numerator	Stroke survivors in whom a structured inventory for depression is administered, e.g., the PHQ-2. Stroke survivors diagnosed with depression who receive treatment with evidence-based psychotherapy and/or anti-depressant medications
Denominator	**Included populations (screening):** Patients with ischemic or hemorrhagic stroke who are: - Hospitalized in an acute hospital - Receiving post-acute care in an Inpatient Rehabilitation Facility, Skilled Nursing Facility, Long-term Acute Care Hospital - Home care - Patients receiving outpatient medical care after stroke **Excluded populations (screening):** Individuals with severe cognitive or communication impairments in whom depression cannot be adequately screened for or diagnosed **Included populations (treatment):** Post-stroke individuals diagnosed with depression **Excluded populations (treatment):** None
Period of Assessment	During hospital or post-acute stay For outpatients, annually
Sources of Data	Electronic Medical Record, retrospective medical record review.

Rationale

From the 2016 Winstein *et al.,* Guidelines for Adult Stroke Rehabilitation and Recovery.

- Administration of a structured depression inventory, such as the Patient Health Questionnaire-2 is recommended to routinely screen for post-stroke depression (Class I, Level of Evidence B)
- Patients diagnosed with poststroke depression should be treated with antidepressants in the absence of contraindications and closely monitored to verify effectiveness (Class I, Level of Evidence B)

Clinical Recommendation(s)

1. During the course of hospitalization or post-acute care, each stroke survivor should be administered a structured depression inventory by a qualified healthcare provider to determine if further assessment is needed.
2. For those with positive screens, a more comprehensive assessment for a diagnosis of post-stroke depression should be undertaken.
3. Those diagnosed with post-stroke depression should receive treatment with an antidepressant and/or with evidence—based psychotherapy unless contraindicated.
4. Outpatients should be screened by their physician or other health care provider at least annually.

Method of Reporting

Per Patient: Documentation of whether post-stroke depression screening was performed. If post-stroke depression diagnosed, documentation of treatment with an anti-depressant and/or evidence-based psychotherapy.
Per Patient Population: The percentage of stroke patients receiving depression screening; the percentage of those diagnosed with depression receiving anti-depressant therapy and/or evidence-based psychotherapy.

Challenges to Implementation

- Short length of stay in the acute hospital may make this challenging.
- Difficulty in coordination of care and assignment of responsibility for conducting screening in the outpatient population presents a challenge.