AAVBC
AMERICAN ACADEMY OF VALUE BASED CARE

Hemiplegia

Quick Reference Guide

2026

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1 CLINICAL SNAPSHOT

Definition: Hemiplegia is **complete paralysis of one side of the body**; hemiparesis is **partial weakness of one side**. Both are clinical diagnoses based on neurological examination demonstrating a unilateral motor deficit, and **both are coded within the same ICD-10 subcategories and carry the same HCC weight**. In Medicare populations the vast majority of cases represent sequelae of prior cerebrovascular events — the **I69 family** is the appropriate code, not the acute stroke codes (**I63.x**) or the non-specific G81 family. Document at every visit: **laterality** (right vs left), **dominance** (dominant vs non-dominant), **tone** (flaccid vs spastic), **etiology** (post-stroke vs other), and **functional status** (FIM or equivalent).[1]

ICD-10 Codes:

ICD-10 code selection for hemiplegia and hemiparesis depends primarily on timing and underlying etiology. For post-acute or chronic stroke sequelae, the **I69.x** family is preferred: report **I69.351–I69.354** for cerebral infarction (avoiding the unspecified **I69.359**), **I69.15x** for intracerebral hemorrhage, **I69.85x** for other cerebrovascular disease (CVD), and **I69.95x** for unspecified CVD, applying the official coding default of **Right = Dominant** and **Left = Non-Dominant** if documentation lacks lateral dominance. Conversely, assign the **G81.x** family during acute stroke encounters (coded alongside **I63.x**) or for non-stroke etiologies like tumors, demyelinating disease, congenital conditions, or trauma (coded alongside **S06.x**), selecting from flaccid (**G81.01–G81.04**) or spastic (**G81.11–G81.14**) categories while reserving **G81.90** as a last resort. **Z86.73** indicates a personal history of TIA or CVA *without* residual deficits and is strictly inappropriate if any residual weakness, gait abnormality, or functional limitation persists.[1]

Prevalence and Burden: Stroke is the leading cause of long-term disability in the US, with approximately **795,000 strokes annually** and ~87% ischemic.[2] In a population-based cohort of **29,673 community-dwelling older adults with prior stroke**, 74.9% had ≥3 comorbid conditions and average PCP visits exceeded 13/year. **Spasticity affects 25–80%** of stroke survivors (≈ 1.8–5.6 million individuals); **cost of care is 4× higher** when spasticity is present.[3] **Post-stroke depression** affects **26–50%** of survivors, doubles long-term disability risk (OR 2.16), and raises medical expenses by **54%**. MA enrollment is associated with a **7.1% relative increase in 30-day stroke mortality** and **8.9 percentage points fewer discharges to inpatient rehabilitation facilities** compared with traditional Medicare.[4]

HCC/RAF V28 Mapping

ICD-10 CODE[1]	HCC CATEGORY	RAF WEIGHT	DOCUMENTATION REQUIREMENT
I69.35x (Post-Cerebral Infarction Hemiplegia and Hemiparesis)	HCC 253 — Hemiplegia/ Hemiparesis	0.387	Hemiplegia/hemiparesis following **cerebral infarction** with **laterality + dominance**. Preferred for any **residual motor deficit** after a prior ischemic stroke. Documentation must include side, dominance, and explicit causal link to prior stroke ("sequela of," "due to," or "following") 1 = Right dominant | 2 = Left dominant | 3 = Right non-dominant | 4 = Left non-dominant

ICD-10 CODE[1]	HCC CATEGORY	RAF WEIGHT	DOCUMENTATION REQUIREMENT
I69.359 (unspecified side)	HCC 253 — Hemiplegia/ Hemiparesis	0.387	**Avoid when possible** — unspecified side. Ask the patient which side is affected and whether it is the dominant side before defaulting to .359
I69.15x/ I69.85x/ I69.95x (Other Sequelae Ranges)	HCC 253 — Hemiplegia/ Hemiparesis	0.387	Hemiplegia following **intracerebral hemorrhage** (.15x), other CVD (.85x), or unspecified CVD (.95x). Use when etiology is cerebrovascular but specific subtype is documented
G81.01–G81.04 (flaccid) G81.11–G81.14 (spastic)	HCC 253 — Hemiplegia/ Hemiparesis	0.387	**Non-stroke etiology** only (**tumor, trauma, demyelinating disease, congenital).** Document tone quality (flaccid vs spastic), side, and dominance. Confirm cerebrovascular cause has been excluded
G81.90 (unspecified)	HCC 253 — Hemiplegia/ Hemiparesis	0.387	**Avoid, last resort.** Unspecified hemiplegia, unspecified side. Maps to HCC but lacks every documentation element a clinician already knows; defaults to **G81.90** are the second-most-common coding gap after using acute **I63.x** at follow-up
Z86.73 (history)	No HCC documentation	—	Personal history of **TIA/cerebral infarction without residual deficits**. **Inappropriate** when any persistent weakness, gait change, or functional limitation exists — use **I69.35x** instead

ABBREVIATIONS: CVD = cerebrovascular disease; HCC = hierarchical condition category; ICD-10 = International Classification of Diseases, 10th Revision; RAF = risk adjustment factor; TIA = transient ischemic attack. RAF coefficients, HCC mapping, and base rate per CMS CY2026 sources

The impact of this condition varies across patient populations, particularly in individuals with disability, dual eligibility, or those receiving care in institutional settings

Note on standard ICD-10 breakdown: The 6th digit (1–9) follows the same pattern as above across these categories: 1 = Right dominant | 2 = Left dominant | 3 = Right non-dominant | 4 = Left non-dominant | 9 = Unspecified side[7]

RAF values represent the Community Non-Dual Eligible Aged (CNA) coefficient from the 2026 CMS-HCC model; values vary across patient populations based on eligibility and care setting

Risk-Adjusted Care Resources per Patient/Year

Risk-adjusted care resource allocation — MA base rate × RAF coefficient for HCC 253 (Hemiplegia/Hemiparesis): 0.321 (CNA segment, CY2026). Patients in higher-acuity living situations (institutional, dual eligible) shift to different CMS segments with different coefficients; the CNA value shown reflects community-dwelling MA enrollees

HEMIPLEGIA/HEMIPARESIS
~$4K

HCC 253 · RAF 0.387 · per active patient/year

2 RECOGNITION AND DIAGNOSIS

Medicare Screenings/Diagnostic Workups (older adults, at-risk population)

As an overt clinical sign, hemiplegia is diagnosed upon presentation rather than through population-level screening. Clinical priorities instead center on systematic post-stroke surveillance, which encompasses two distinct but overlapping domains: screening for stroke- and immobility-related complications, and monitoring modifiable risk factors to prevent secondary vascular events. Both require routine evaluation at every post-stroke clinical encounter.

Post-Stroke Complication Screening

CONDITION	SCREENING TOOL/ METHOD	FREQUENCY	NOTES
Depression[5]	**PHQ-9**	Every visit during first year; at AWV thereafter	Affects up to **25%** at 2 years; all major guidelines recommend screening provided treatment resources are available
Cognitive impairment[6]	**MoCA** (preferred) or MMSE	Before discharge, during first year, and when suspected	Formal neuropsychological testing rarely needed at PCP level
Falls[7]	Berg Balance Scale (BBS), Timed Up and Go (TUG)	Every visit	**73%** of severely disabled in year 1; most common complication during inpatient rehab (20%)
Spasticity and contractures[8]	Modified Ashworth Scale (MAS)	Every follow-up visit	Affects **25–80%**; contractures in **60%** of severely disabled within year 1 if untreated; care **costs 4×** higher when present
Hemiplegic shoulder pain[9]	Clinical assessment — ROM, subluxation check	Every visit	Affects **24–52%**; impedes upper extremity rehabilitation
Dysphagia/ aspiration risk[10]	SLP evaluation (clinical bedside or videofluoroscopy)	When swallowing concerns present; at any new symptom	Aspiration pneumonia is a **leading cause of post-stroke mortality**

CONDITION	SCREENING TOOL/ METHOD	FREQUENCY	NOTES
Osteoporosis (hemiplegic side)[10]	DEXA	Post-stroke baseline; per T-score thereafter	Accelerated BMD loss from disuse; **calcium** 1200 mg + **vitamin D** 800–1000 IU daily; **bisphosphonate** per T-score
Unmet rehabilitation needs[7]	Ask: "Would this patient benefit from referral for any services to improve functional impairments?"	Every post-stroke visit	Unmet needs persist in **20–75%** of survivors months to years after discharge

ABBREVIATIONS: AHA = American Heart Association; ASA = American Stroke Association; AWV = Annual Wellness Visit; HR = hazard ratio; LDL = low-density lipoprotein; OR = odds ratio; PCSK9 = proprotein convertase subtilisin/kexin type 9; PHQ-9 = Patient Health Questionnaire 9-item; PSD = post-stroke depression; RR = relative risk; SPARCL = Stroke Prevention by Aggressive Reduction in Cholesterol Levels; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant; TST = Treat Stroke to Target

Screening for Recurrent Vascular Event Risk Factors

RISK FACTOR	SCREENING TOOL/ METHOD	TARGET/ THRESHOLD	NOTES
Hypertension	BP measurement (including standing BP)	<130/80 mmHg (Class I)	BP lowering **reduces recurrence 30–40%** (NNT 52.6); balance against orthostatic hypotension and fall risk
Atrial fibrillation[11]	ECG at baseline; prolonged cardiac monitoring (30-day event monitor or implantable loop recorder) if cryptogenic	Detect and anticoagulate	**~9–16%** of cryptogenic strokes reveal paroxysmal AF on extended monitoring; DOACs preferred
Dyslipidemia[2,12]	Fasting lipid panel	LDL <70 mg/dL; high-intensity statin if LDL >100	**19% RR** reduction in recurrent stroke with high-intensity statin
Diabetes[13]	HbA1c	≤7%	Metformin plus GLP-1 agonist or SGLT2 inhibitor as appropriate; part of AAN post-acute stroke bundle

RISK FACTOR	SCREENING TOOL/ METHOD	TARGET/ THRESHOLD	NOTES
Carotid stenosis[13,14]	Carotid duplex ultrasound, CTA, or MRA	Symptomatic ≥50% → revascularization evaluation	Especially for anterior circulation strokes
Tobacco use[2]	Document status at every visit (5 A's framework)	Cessation	Cessation doubles risk reduction; USPSTF Grade A; AHA/ASA Class I
Alcohol use[2]	AUDIT-C	≥4 (men)/≥3 (women) = positive	Heavy consumption (>60 g/ day) RR 1.69 for ischemic stroke
Cardiac embolic source[2]	Echocardiography (TTE ± TEE)	Identify PFO, thrombus, valvular disease	TEE changes management in **14%** of embolic strokes of uncertain source
Hypercoagulable states[15]	Prothrombin gene, factor V Leiden, protein C/S, antithrombin	Positive → targeted therapy	Consider in cryptogenic stroke, especially younger patients
Obstructive sleep apnea[16]	Screening questionnaire (STOP-BANG); polysomnography if positive	Diagnose and treat with CPAP	**Independent risk factor** for recurrent stroke
Baseline labs[2]	CBC, PT/PTT, glucose, HbA1c, creatinine, lipid panel	Identify treatable risk factors	Inform therapeutic goals and medication safety

ABBREVIATIONS: AF = atrial fibrillation; AUDIT-C = Alcohol Use Disorders Identification Test-Concise; BP = blood pressure; CBC = complete blood count; CPAP = continuous positive airway pressure; CTA = computed tomography angiography; DOAC = direct oral anticoagulant; ECG = electrocardiogram; GLP-1 = glucagon-like peptide-1; HbA1c = hemoglobin A1c; LDL = low-density lipoprotein; MRA = magnetic resonance angiography; NNT = number needed to treat; PFO = patent foramen ovale; PT/PTT = prothrombin time/partial thromboplastin time; RR = relative risk; SGLT2 = sodium-glucose cotransporter-2; STOP-BANG = Snoring, Tiredness, Observed apnea, Pressure, BMI, Age, Neck circumference, Gender; TEE = transesophageal echocardiography; TTE = transthoracic echocardiography; USPSTF = United States Preventive Services Task Force

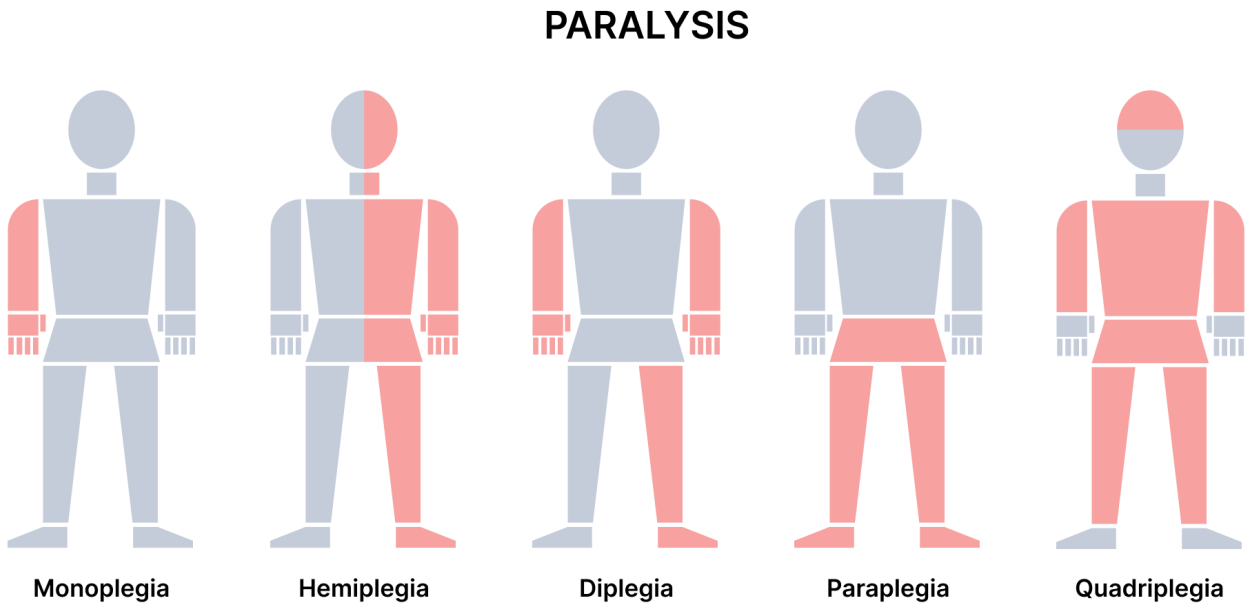
Distinguishing Hemiplegia from Other Paralysis Patterns[17]

Hemiplegia/hemiparesis is defined by **unilateral motor deficit** — weakness or paralysis of the arm and leg on the same side of the body, typically contralateral to the brain lesion. The hallmark localizing feature is that it reflects a supratentorial or unilateral brainstem lesion (most commonly stroke), with contralateral hemiplegia and hemianesthesia as characteristic findings of hemispheric infarcts. Associated cortical signs — aphasia (dominant hemisphere), neglect (nondominant hemisphere), hemianopia, and gaze deviation — help lateralize and localize the lesion. ICD-10 coding (**G81.x**) requires documentation of side, dominance, and tone (flaccid vs. spastic).

Tetraplegia/quadriplegia involves impairment of all four extremities and typically results from cervical spinal cord injury (C1–C5 complete lesions) or, rarely, bilateral midline brainstem stroke.

The ASIA Impairment Scale classifies severity (A = complete through E = normal), and the term "tetraplegia" is preferred over "quadriplegia" per international standards. Cardinal features of spinal cord compression include relatively symmetric limb paralysis, a sensory level, and urinary retention/incontinence — features absent in hemispheric stroke.

Paraplegia involves both lower limbs with spared upper extremity function, resulting from thoracic, lumbar, or sacral spinal cord damage (T2–L2 = paraplegia; L3–S1 = paraparesis).



Differentiate UMN vs. LMN

The fundamental distinction between **upper motor neuron (UMN)** and **lower motor neuron (LMN)** conditions lies in the anatomical location of the lesion: UMN lesions affect the corticospinal tract from the motor cortex to the anterior horn cell, while LMN lesions affect the anterior horn cell, nerve root, or peripheral nerve itself.

UMN lesions result from damage anywhere along the corticospinal tract — cortex, internal capsule, brainstem, or spinal cord. The UMN syndrome produces both "positive" phenomena (spasticity, hyperreflexia, clonus) and "negative" phenomena (weakness, loss of dexterity, impaired motor control).[18,19]

LMN syndromes arise from pathology affecting the anterior horn cell, nerve root, plexus, or peripheral nerve, and present with weakness, atrophy, fasciculations, and hyporeflexia.

FEATURE	UPPER MOTOR NEURON LESION	LOWER MOTOR NEURON LESION
Site of the lesion	Cerebral hemispheres, cerebellum, brainstem, spinal cord	Anterior horn cell, nerve roots, peripheral nerves, neuromuscular junction, muscles
Muscle weakness	**Quadriplegia, hemiplegia, diplegia, paraplegia**	• Proximal (myopathy) • Distal (neuropathy)

FEATURE	UPPER MOTOR NEURON LESION	LOWER MOTOR NEURON LESION
Muscle tone	Spasticity, rigidity	Hypotonia
Fasciculations	Absent	Present (particularly tongue)
Tendon reflexes	Hyperreflexia	Hypo/areflexia
Abdominal reflexes	Absent (depending on the involved spinal level)	Present
Sensory loss	Cortical sensations	Peripheral sensations
Electromyography (EMG)	• Normal nerve conduction • Decreased interference pattern and firing rate	• Abnormal nerve conduction • Large motor units • Fasciculations and fibrillations

Subtle Early Signs

SIGN/SYMPTOM	CLINICAL SIGNIFICANCE
Subtle pronator drift or unilateral grip weakness on routine exam[20]	**Hemiparesis with the same coding/HCC weight as hemiplegia** is the most commonly under-coded presentation — clinicians dismiss the deficit as "less severe" and default to history-only documentation. If weakness is present, document side, dominance, and link to prior stroke
Asymmetric gait, foot drop, or circumduction noted on the way to the exam room[21]	A persistent gait abnormality after prior cerebrovascular event means **residual deficit exists** — **Z86.73** is no longer appropriate; the patient should be coded with the matching **I69.35x** sequela code
New or worsening focal deficit (sudden weakness, speech difficulty, visual field loss)	**Recurrent stroke or hemorrhagic transformation** — up to 2 million neurons are lost per minute during large vessel occlusion. Activate EMS and transfer to ED immediately
Hemiplegic shoulder pain (24–52% prevalence)[10]	Caused by glenohumeral subluxation, rotator cuff injury, spasticity, or adhesive capsulitis. Impedes upper extremity rehabilitation; underrecognized in routine PCP visits
New dysphagia, coughing with meals, or unexplained weight loss[10]	Aspiration pneumonia is a leading cause of post-stroke mortality. SLP swallow evaluation and diet modification indicated; urgent if acute change

SIGN/SYMPTOM	CLINICAL SIGNIFICANCE
Developing spasticity, early hyperreflexia, or persistent hand fisting[8]	Patients with severe motor paresis, early hyperreflexia, or capsular/brainstem lesions are at **highest risk for clinically significant spasticity** — early passive mobilization within 24–72 hours and early botulinum toxin (<3 months post-stroke) reduce eventual MAS scores
Unilateral leg swelling, warmth, or pain in the paretic limb[10]	**DVT in the immobilized hemiplegic patient** — urgent duplex ultrasonography; immobility from hemiplegia is itself a major VTE risk factor

ABBREVIATIONS: DVT = deep vein thrombosis; EMS = emergency medical services; MAS = Modified Ashworth Scale; PCP = primary care provider; SLP = speech-language pathology; VTE = venous thromboembolism

Geriatric Risk Factors

FACTOR	RISK SIGNAL	NOTES
Premorbid frailty and sarcopenia[22]	Coexistence of premorbid sarcopenia, frailty, and disability is independently associated with poor post-stroke outcomes in dose-dependent fashion: one condition OR **3.20**, two OR **6.57**, three OR **12.70**	Document grip strength and gait speed at baseline; integrate Clinical Frailty Scale; tailor rehabilitation intensity to frailty rather than chronological age
Multimorbidity (HTN, hyperlipidemia, AFib, diabetes)[23]	**74.9% of older adults with prior stroke have ≥3 comorbidities**; hypertension prevalence 89–90%, hyperlipidemia ~70%, ischemic heart disease 38%, diabetes 20–30%	Manage the comorbidity cluster at every visit — recurrent vascular event reduction up to **80%** with combined antihypertensive, statin, diet, exercise, and aspirin strategies
Polypharmacy and sedation risk in elderly[10]	Oral antispasmodics (baclofen, tizanidine) carry dose-limiting sedation and fall risk; gabapentin requires renal adjustment	Start low, titrate slowly; reassess sedation and gait at each visit; favor focal botulinum toxin over high-dose oral agents when spasticity is regional
MA structural barriers to rehabilitation access[24]	MA enrollment associated with **8.9 percentage points fewer IRF discharges**, lower likelihood of high-quality SNF (OR 0.82) or HHA (OR 0.71), and **7.1% relative 30-day mortality increase** vs traditional Medicare	At every post-stroke visit, document functional status and explicitly evaluate whether rehabilitation needs are being met; if an MA patient was denied IRF transfer, document the discussion and clinical rationale in the chart

FACTOR	RISK SIGNAL	NOTES
Cognitive impairment limiting rehabilitation participation[25]	Pre-existing dementia/cognitive impairment 21%; PSCI affects up to **60% in first year**; PSCI associated with **33% increased stroke recurrence (HR 1.33)** and **68% higher poor functional outcome (HR 1.68)**	MoCA at AWV and at any cognitive change; integrate OT/SLP for cognitive rehabilitation; involve caregivers in rehab tasks
Bone mineral density loss on the hemiplegic side[26]	**Accelerated BMD loss from disuse**; fracture and osteoporosis cluster with dementia and cerebrovascular disease in superelderly cohorts	DEXA post-stroke; calcium 1200 mg + vitamin D 800–1000 IU daily; bisphosphonates per T-score; falls prevention is paramount
Atherosclerosis (carotid and intracranial)[14,27]	**Extracranial carotid atherosclerosis accounts for 15–20% of all ischemic strokes**; ipsilateral stroke risk increases linearly with stenosis severity — OR 2.1 for 70–99% vs. 50–69% stenosis, OR 2.5 for 80–99% vs. 50–79%; patients with atherosclerotic stenosis ipsilateral to the ischemic field have nearly 3× higher risk of major vascular events than those without atherosclerosis	Carotid duplex ultrasound for patients with carotid bruit, prior TIA, or known atherosclerotic disease; manage modifiable risk factors (BP, LDL, glucose, smoking); high-intensity statin and antiplatelet therapy; refer for revascularization evaluation if symptomatic ≥50% or asymptomatic ≥70% steno
Family history of cerebrovascular disease[28,29]	**Family history of stroke increases risk approximately 2–3×**; Framingham data show paternal history RR 2.4, maternal history RR 1.4; monozygotic twin concordance 17.7% vs. dizygotic 3.6% (~5× higher); large artery atherosclerosis and small vessel subtypes are more heritable than cardioembolic stroke; heritability estimates from genome-wide data: **40% for large-vessel, 33% for cardioembolic, 16% for small-vessel ischemic stroke**	Non-modifiable but essential for risk stratification; **document family history of stroke, MI, and early-onset dementia** at AWV; family history of stroke contains substantial modifiable nongenetic risk (shared lifestyle/environmental factors) — intensify vascular risk factor management in patients with positive family history
Smoking (active and passive)[30,31]	**Cigarette smoking approximately doubles ischemic stroke risk** (RR 2.17, 95% CI 2.06–2.28); strongest association with large-vessel atherosclerotic stroke (OR 2.16)	Document tobacco status at every visit (HEDIS TSC-E); **smoking cessation reduces stroke risk rapidly** — former smokers approach (but do not reach) never-smoker risk; pharmacotherapy (varenicline, bupropion, NRT) combined with behavioral counseling is superior to counseling alone; AHA/ASA 2024 Class I recommendation; USPSTF Grade A

FACTOR	RISK SIGNAL	NOTES
Hypertension[12,32]	**Dominant modifiable risk factor for stroke; RR ~3× vs. normotensive; ~80% of stroke patients have antecedent hypertension**; stroke mortality doubles for each 20 mmHg increase in SBP above 115 mmHg	**Target <130/80 mmHg for secondary prevention** (AHA/ASA 2021 Class I); **every 10 mmHg SBP reduction lowers stroke risk ~41%**; thiazide, ACEi, or ARB; balance against orthostatic hypotension and fall risk in hemiplegic patients — **measure standing BP at every visit**
Atrial fibrillation[31,33]	**4–5× increased risk of ischemic stroke** (RR 2.42, 95% CI 2.17–2.71 in meta-analysis); PAR 3–17% by region (highest in Western populations); **AF-related strokes are larger, more disabling, and carry higher in-hospital mortality** (HR 1.7); **~25% of strokes in adults ≥80 are attributable to AF**	**Anticoagulation reduces stroke risk ~60% vs. no therapy**; DOACs preferred over warfarin (20% fewer stroke/SE events, 43% fewer ICH in diabetic subgroups); CHA_2DS_2-VASc guides therapy; do not withhold anticoagulation based on fall risk alone
Diabetes mellitus[34,35]	HR 2.3 (95% CI 2.0–2.7) for ischemic stroke vs. non-diabetic; PAR ~12% (**one in 8–9 strokes attributable to diabetes**); **risk is dose-dependent — duration ≥15 years** HR 1.81, HbA1c ≥8% HR 1.78, combined HR 3.21; risk higher in women (HR 2.8) than men (HR 2.2)	**HbA1c ≤7% target; diabetes duration >3 years independently predicts stroke in AF patients** (HR 1.74); manage as part of the vascular risk cluster; metformin plus GLP-1 agonist or SGLT2 inhibitor as appropriate
Anticoagulant use with fall risk[36]	**Patients who fall on anticoagulants have higher major bleeding** (HR 2.41), ICH (HR 1.69), and mortality (HR 3.91) vs. non-fallers; however, a patient would need to fall ~295 times/year for bleeding risk to outweigh stroke prevention benefit of anticoagulation	**Do NOT withhold anticoagulation based on fall risk alone** (AHA 2022 Scientific Statement); **DOACs preferred — associated with 47–58% lower ICH risk vs. warfarin in fall-risk patients** (HR 0.42–0.53); fall-risk patients derive greater absolute benefit from DOACs than non-fallers; prioritize multifactorial fall prevention (PT, medication review, home safety, AFO for foot drop) alongside anticoagulation

FACTOR	RISK SIGNAL	NOTES

ABBREVIATIONS: ACEi = angiotensin-converting enzyme inhibitor; AF/AFib = atrial fibrillation; AFO = ankle-foot orthosis; AHA/ASA = American Heart Association/American Stroke Association; ARB = angiotensin receptor blocker; AWV = Annual Wellness Visit; BMD = bone mineral density; BP = blood pressure; CHA_2DS_2-VASc = Congestive heart failure, Hypertension, Age ≥75, Diabetes, Stroke/TIA, Vascular disease, Age 65–74, Sex category; DEXA = dual-energy X-ray absorptiometry; DOAC = direct oral anticoagulant; HbA1c = hemoglobin A1c; HEDIS = Healthcare Effectiveness Data and Information Set; HHA = home health agency; HR = hazard ratio; HTN = hypertension; ICH = intracranial hemorrhage; IRF = inpatient rehabilitation facility; IU = international unit; LDL = low-density lipoprotein; MA = Medicare Advantage; MI = myocardial infarction; MoCA = Montreal Cognitive Assessment; NRT = nicotine replacement therapy; OR = odds ratio; OT = occupational therapy; PAR = population-attributable risk; PSCI = post-stroke cognitive impairment; PT = physical therapy; RR = relative risk; SBP = systolic blood pressure; SE = systemic embolism; SLP = speech-language pathology; SNF = skilled nursing facility; TIA = transient ischemic attack; TSC-E = Tobacco Use Screening and Cessation Intervention; USPSTF = United States Preventive Services Task Force

Diagnostic Thresholds

TEST/MARKER	DIAGNOSIS CRITERION	NOTES
Neurological examination — laterality, dominance, tone, etiology[17]	Unilateral motor deficit confirmed; document side, dominance, tone (flaccid vs spastic), and explicit causal link to prior stroke or non-vascular etiology	Diagnosis is clinical. Document all four elements in the assessment to support **I69.35x** or **G81.x** specificity
NIHSS (National Institutes of Health Stroke Scale)[37]	**0–42** scale; higher = more severe; strong predictor of short- and long-term morbidity/mortality	15 items; widely used in acute care. Underestimates posterior circulation stroke severity; insensitive to depression, hand motor deficits, swallowing, and memory
Modified Rankin Scale (mRS)[38]	**0–6** ordinal scale (0 = no symptoms; 6 = death); **mRS 0–2 = favorable outcome**	Global measure of disability/dependence; primary endpoint in stroke trials. Limited responsiveness for change over longer recovery periods
Functional Independence Measure (FIM)[10]	**18–126** scale across motor and cognitive domains; preferred longitudinal tool in VBC settings	FIM detects significant functional changes up to **18–24 months** post-onset in severe ischemic stroke; **Modified Barthel Index loses sensitivity after 6 months**. Patients ≥85 still achieve significant FIM improvements with intensive rehabilitation (β=0.290–0.371, P <0.001)
Modified Ashworth Scale (MAS)[8]	**0–4** spasticity grading (0 = no increase in tone; 4 = rigid)	Most commonly used outcome measure in spasticity treatment trials; guides botulinum toxin dosing and monitors response

TEST/MARKER	DIAGNOSIS CRITERION	NOTES
Brunnstrom Recovery Stages (BRS)[39]	**Six stages** of motor recovery (I flaccid → VI near-normal coordination); Rasch reliability 0.91–0.92	**Guides rehabilitation approach** at each stage; no traditional physiotherapeutic approach has been shown superior in head-to-head comparisons
Fugl-Meyer Assessment — Upper Extremity (FMA-UE)[40]	**33-item motor subscale**; each item scored 0 (cannot perform), 1 (partial), 2 (full); maximum 66 points. Assesses shoulder/arm, wrist, hand, and coordination. Higher score = less impairment	The FMA-UE is the recommended **primary clinical outcome measure of motor function in stroke rehabilitation**, with excellent interrater reliability (ICC ≥0.96–0.99)
Fugl-Meyer Assessment — Lower Extremity (FMA-LE)[40]	**17-item motor subscale**; maximum 34 points; scored identically to UE (0–2 per item). Assesses hip, knee, ankle movement and coordination	Proportional recovery (~70–74% of available improvement) occurs within 3–6 months regardless of therapy dose, age, sex, or stroke type
Full FMA Motor Scale (UE + LE)[40]	50 items total; maximum **100 points** (66 UE + 34 LE). Also includes non-motor domains: sensation (0–12), joint pain (0–24), passive ROM (0–24)	The full 100-point motor domain is the most extensively validated component. Document both UE and LE subscores separately to capture differential recovery patterns

ABBREVIATIONS: BRS = Brunnstrom Recovery Stages; FIM = Functional Independence Measure; FMA = Fugl-Meyer Assessment; FMA-LE = Fugl-Meyer Assessment – Lower Extremity; FMA-UE = Fugl-Meyer Assessment – Upper Extremity; ICC = intraclass correlation coefficient; LE = lower extremity; MAS = Modified Ashworth Scale; mRS = Modified Rankin Scale; NIHSS = National Institutes of Health Stroke Scale; ROM = range of motion; UE = upper extremity; VBC = value-based care

CLINICAL PEARL — CLUES TO DIG DEEPER[10,15,20]

- Subtle pronator drift or grip asymmetry in a patient with prior stroke → **the deficit is hemiparesis, codes to I69.35x, and carries the same HCC weight as hemiplegia**
- Persistent gait abnormality, foot drop, or circumduction → **Z86.73 is no longer appropriate**; the patient has a residual deficit and the I69.35x sequela code is required
- **Sudden new focal deficit (weakness, speech change, visual field loss) → activate EMS immediately** for suspected recurrent stroke or hemorrhagic transformation; do not wait for outpatient workup
- New dysphagia, coughing with meals, or unexplained weight loss → **urgent SLP evaluation and swallow study**; aspiration pneumonia is a leading cause of post-stroke mortality
- Stable patient with hemiparesis on no rehabilitation referral → **ask at every visit: "Would this patient benefit from referral for any services to improve functional impairments?"** Unmet rehabilitation needs persist in 20–75% of survivors

Common Oversights

The following patterns represent the most frequently missed or under-documented findings in primary care encounters with hemiplegic patients.[10,15]

OVERSIGHT	WHY IT MATTERS — WHAT TO DO INSTEAD
Treating hemiplegia as a static outcome of a past event	**Functional gains continue for at least three years after rehabilitation discharge**; even patients ≥85 achieve meaningful improvements with intensive rehabilitation. Shift from symptom monitoring to active, long-term rehabilitation advocacy
Treating hemiparesis as functionally less important than hemiplegia	**Persistent unilateral weakness produces comparable disability** when functional impact is significant. Severity label does not drive rehabilitation need — documented functional limitation does. Side, dominance, and link to the prior cerebrovascular event matter regardless of the word used
Missing the post-stroke depression, cognitive impairment, and malnutrition triad	**Post-stroke depression** affects up to **30%**, **cognitive impairment** up to **60%**, and undernutrition develops in many hemiplegic patients. Each independently impairs rehabilitation participation and recovery. Screen at every visit (PHQ-9, MoCA, weight trajectory)
Stopping rehabilitation too early	**Guidelines support continued PT/OT/SLP whenever measurable functional gains are documented**. Discharge from formal rehabilitation should not mean discharge from continued movement-based therapy at home or in community settings

OVERSIGHT	WHY IT MATTERS — WHAT TO DO INSTEAD
Skipping bedside assessment of spasticity, contracture, neglect, and skin integrity	These complications progress silently and limit functional recovery. Brief assessment of tone, range of motion, pressure points, and visual or spatial attention belongs in every routine follow-up
Missing secondary stroke prevention adjustments	**BP control, statin therapy, antiplatelet or anticoagulation per AFib status, glycemic management, and smoking cessation reduce recurrence risk substantially.** Recurrent stroke is the most common cause of further functional loss
Missing swallowing evaluation and aspiration risk	**Silent aspiration** is common after stroke. Bedside swallow screen, dietary texture review, and SLP involvement when concerns arise reduce aspiration pneumonia — a leading cause of post-stroke mortality
Underrecognizing fall risk and home safety needs	Patients with hemiplegia have **substantially elevated fall risk**; falls often cause hip fracture and further functional decline. Annual home safety review, assistive device fit, and orthostatic check belong in routine care

ABBREVIATIONS: AFib = atrial fibrillation; BP = blood pressure; OT = occupational therapy; PHQ-9 = Patient Health Questionnaire-9; MoCA = Montreal Cognitive Assessment; PT = physical therapy; SLP = speech-language pathology

Key Differentials in Elderly

Not every unilateral motor deficit in an elderly patient is a stable sequela of prior stroke — the following presentations require distinct diagnostic pathways and carry different levels of care.[41,42]

PRESENTATION	DIFFERENTIAL	KEY TESTS
Sudden new unilateral weakness (any setting)	**Acute stroke (ischemic vs hemorrhagic), recurrent stroke, hemorrhagic transformation**, complicated migraine, post-ictal Todd paralysis, hypoglycemia	**Activate EMS immediately**; non-contrast CT head; glucose; FAST exam. **Do not delay for outpatient workup.** Up to 2 million neurons are lost per minute during LVO
Subacute progressive hemiparesis over days–weeks	**Subdural hematoma, brain tumor, brain abscess, demyelinating disease (MS), chronic subdural** in elderly on anticoagulation	**MRI brain with and without contrast**; CBC, CMP, coagulation panel; neurology referral within 1–2 weeks
Stable chronic hemiparesis with new functional decline	**Recurrent stroke, evolving spasticity, contracture**, hemiplegic shoulder pain, post-stroke depression, deconditioning, medication side effect	Re-examination; PHQ-9; medication review; PT/OT reassessment; consider MRI if new neurological signs

PRESENTATION	DIFFERENTIAL	KEY TESTS
Hemiplegia with no prior stroke history	**Non-stroke etiology — tumor, trauma/subdural, demyelinating disease, vasculitis, CNS infection, cerebral venous thrombosis**	**MRI brain with contrast**; neurology referral. Code **G81.x (not I69.x)** when cerebrovascular cause is excluded
Acute focal deficit in patient with active infection	**Infection-triggered ischemic stroke** — UTI within 7 days OR 5.32 (95% CI 3.69–7.68); chronic infectious burden linked to atherosclerosis	**Treat infection**; obtain stroke workup if focal deficit; document precipitant

ABBREVIATIONS: CBC = complete blood count; CMP = comprehensive metabolic panel; CT = computed tomography; FAST = Face Arm Speech Time; LVO = large vessel occlusion; MRI = magnetic resonance imaging; MS = multiple sclerosis; OT = occupational therapy; PHQ-9 = Patient Health Questionnaire 9-item; PT = physical therapy; UTI = urinary tract infection

Comorbidity Screening

CONDITION	PREVALENCE IN THIS POPULATION	SCREENING APPROACH
Post-stroke depression (PSD)[43]	**26–50% in first year**; 30% at 1 month; doubles long-term disability (OR 2.16); raises medical costs 54%; ~1/3 untreated	PHQ-9 at every visit during the first year and at AWV thereafter. SSRIs first-line (citalopram, escitalopram, sertraline, vortioxetine generally well tolerated); avoid TCAs in elderly
Post-stroke cognitive impairment (PSCI)[6]	**Up to 60% in first year**; ~10% develop new dementia after first stroke; >1/3 after recurrent stroke; PSCI HR 1.33 for recurrence, HR 1.68 for poor functional outcome	MoCA or MMSE at AWV and at any cognitive change; neuropsychological testing if indicated; OT/SLP for cognitive rehabilitation
Falls[36]	**73% of severely disabled stroke survivors** in first year; falls are most common complication during inpatient rehab (20%)	Berg Balance Scale and Timed Up and Go to classify risk; PT for balance training; home safety evaluation; medication review for sedating agents
Spasticity and contractures[8]	**Spasticity 25–80%**; **contractures 60% of severely disabled** within first year; care costs 4× higher when spasticity present	MAS at follow-up; early passive mobilization (24–72 h); botulinum toxin <3 months post-stroke shows lowest MAS at 4 and 12 weeks; daily stretching and positioning

CONDITION	PREVALENCE IN THIS POPULATION	SCREENING APPROACH
Hemiplegic shoulder pain[10]	**24–52% post-stroke**; glenohumeral subluxation, rotator cuff injury, spasticity, adhesive capsulitis	Proper positioning, sling when upright, PT/OT; radiography to rule out subluxation; suprascapular nerve block or botulinum toxin for refractory cases
Venous thromboembolism (DVT/PE)[44]	**Immobility from hemiplegia is a major VTE risk factor**; DVT in ~2/3 of VTE cases, PE in 1/3, mortality up to 30%	Pharmacologic prophylaxis (LMWH or UFH) during acute hospitalization; early mobilization; compression stockings; urgent duplex if unilateral leg swelling
Dysphagia and aspiration[10]	Aspiration pneumonia is a leading cause of post-stroke mortality	SLP evaluation (clinical bedside or videofluoroscopy); diet modification; ongoing monitoring at every visit
Osteoporosis on the hemiplegic side[10]	**Accelerated BMD loss from disuse**; fracture/osteoporosis cluster with cerebrovascular disease in superelderly	DEXA screen; calcium 1200 mg + vitamin D 800–1000 IU daily; bisphosphonate per T-score; falls prevention
Hyperlipidemia[2]	~70% prevalence in stroke survivors ≥65; LDL >100 mg/dL present in majority at time of index stroke	**Fasting lipid panel at baseline and annually; AHA/ASA 2021 recommends high-intensity statin (atorvastatin 40–80 mg or rosuvastatin 20–40 mg) for atherosclerotic ischemic stroke (Class I)**

ABBREVIATIONS: AHA = American Heart Association; ASA = American Stroke Association; AWV = Annual Wellness Visit; BMD = bone mineral density; DEXA = dual-energy X-ray absorptiometry; DVT = deep vein thrombosis; HR = hazard ratio; LDL = low-density lipoprotein; LMWH = low-molecular-weight heparin; MAS = Modified Ashworth Scale; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; OR = odds ratio; OT = occupational therapy; PCSK9 = proprotein convertase subtilisin/kexin type 9; PE = pulmonary embolism; PHQ-9 = Patient Health Questionnaire 9-item; PSCI = post-stroke cognitive impairment; PSD = post-stroke depression; PT = physical therapy; RR = relative risk; SLP = speech-language pathology; SPARCL = Stroke Prevention by Aggressive Reduction in Cholesterol Levels; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant; TST = Treat Stroke to Target; UFH = unfractionated heparin; VTE = venous thromboembolism

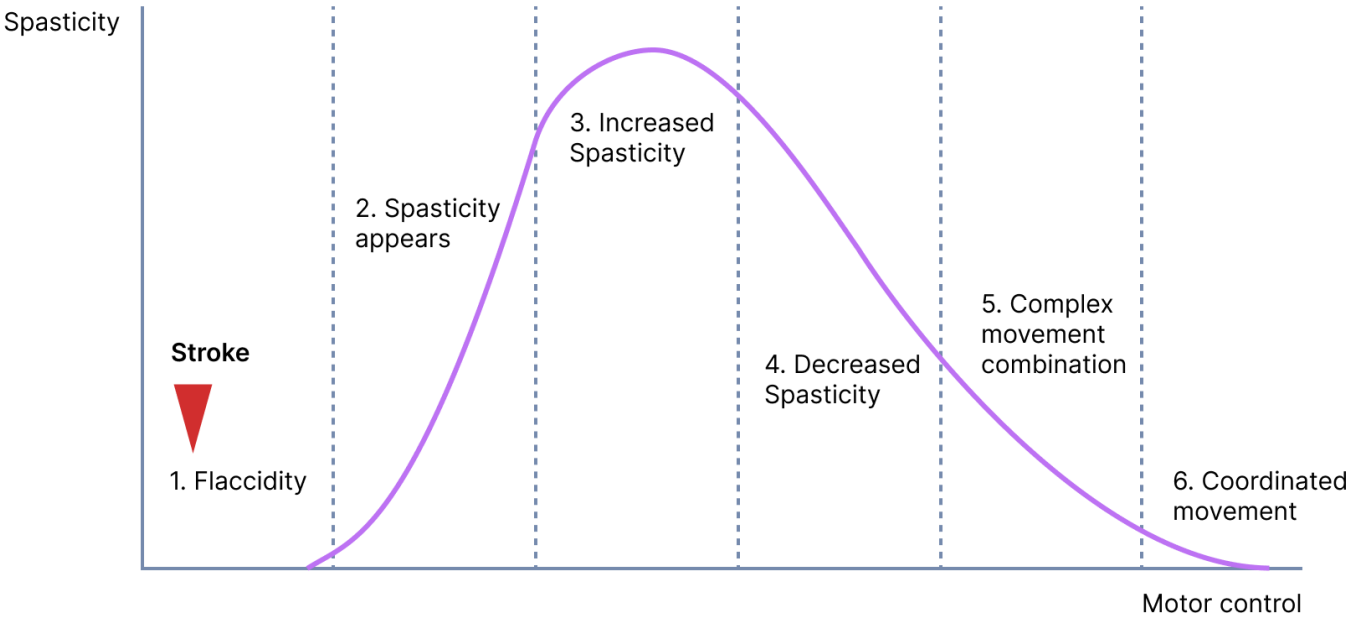
Staging/Severity Matrix

SEVERITY[8,39]	DEFINING CRITERIA	ACTION REQUIRED
Brunnstrom I — Flaccid	**No voluntary movement**; **flaccid** paralysis; areflexia or hyporeflexia	Early **passive mobilization** within 24–72 h; positioning; caregiver education on ROM. Pre-empt contracture risk
Brunnstrom II–III — Spasticity emerging/ synergistic movement	**Spasticity develops**; minimal to moderate voluntary movement in synergy patterns; spasticity peaks at stage III	PT/OT intensification; MAS at follow-up; consider focal botulinum toxin for emerging functional or care barriers; aerobic exercise integrated. **Still passive mobilization**

SEVERITY[8,39]	DEFINING CRITERIA	ACTION REQUIRED
Brunnstrom IV–V — Movements deviating from synergy	**Spasticity decreasing**; some **isolated voluntary movements**; independent movements outside synergy emerge	**Task-specific practice** (strongest evidence-based motor therapy per VA/DoD 2024); aerobic exercise; OT for ADL retraining; caregiver involvement
Brunnstrom VI — Near-normal coordination	**Isolated voluntary joint movement**s with near-normal coordination; minimal spasticity	**Maintenance rehabilitation**; community exercise programs; falls prevention; FIM trajectory tracking to detect plateau or decline
Severe/Refractory generalized spasticity	**Diffuse spastic hypertonia** unresponsive to oral and focal agents; functional or care impairment	Physiatry/neurosurgery referral for intrathecal baclofen evaluation; consider as early as 3–6 months post-stroke in refractory cases

ABBREVIATIONS: ADL = activities of daily living; FIM = Functional Independence Measure; MAS = Modified Ashworth Scale; OT = occupational therapy; PT = physical therapy; ROM = range of motion.

Brunnstrom Stages of Stroke Recovery



⚠ RED FLAG — URGENT ACTION[15]

- **New or worsening focal neurological deficit** (sudden weakness, new speech difficulty, visual field loss) → suggests **recurrent stroke or hemorrhagic transformation**; up to 2 million neurons lost per minute during LVO — **activate EMS/ED transfer**
- **Decreasing level of consciousness, ipsilateral pupillary dilation, or extensor posturing → cerebral edema with herniation** in large hemispheric or cerebellar infarct — **ED transfer**
- **Sudden severe headache with neurological deterioration** → suspected intracerebral hemorrhage (case fatality 30–40%) — **ED transfer**. **Acute dyspnea, pleuritic chest pain, tachycardia, or hypoxia in an immobilized patient → suspected pulmonary embolism — ED transfer**
- **New-onset seizure activity** (occurs in ~1.5% of stroke rehabilitation patients) — **ED transfer**
- **Acute suicidal ideation with intent in post-stroke depression → psychiatric emergency evaluation**

⚠ RED FLAG — RAPID DECLINE[8,10]

- **Rapidly progressive spasticity** with pain, functional decline, or inability to perform hygiene → urgent physiatry/neurology referral for botulinum toxin evaluation
- **Acute shoulder pain with new subluxation** → radiography and urgent PM&R or orthopedic evaluation
- **New dysphagia or aspiration event** → urgent SLP evaluation and swallow study; aspiration pneumonia is a leading cause of post-stroke mortality
- **Signs of DVT** (unilateral leg swelling, warmth, pain in paretic limb) → urgent duplex ultrasonography
- **Functional plateau or decline despite ongoing rehabilitation** → physiatrist reassessment; consider advanced modalities (NMES, robotic-assisted therapy, intrathecal baclofen evaluation)
- **New cognitive decline or behavioral changes** → neuropsychological evaluation; screen for PSCI and medication side effects (especially oral antispasmodics)
- **Pressure injury development** or **progressive contracture** despite stretching → wound care or OT/PT reassessment; consider serial casting or surgical consultation

AAVBC PERSPECTIVE

In value-based primary care, hemiplegia management for patients ≥65 is anchored to a single behavior change: **shift from symptom monitoring to active, long-term rehabilitation advocacy.** Hemiplegia is a dynamic, recoverable condition — not a static deficit from a past event. First-time stroke survivors continue to improve during the first 3 years after rehabilitation discharge, with decline not beginning until approximately 30 months post-stroke; in patients ≤65, gains were sustained through 5 years. Even patients ≥85 achieve significant FIM improvements with intensive rehabilitation. At every visit, ask these pointed questions — adapted from the AHA/ASA 2021 Scientific Statement on Primary Care After Stroke:[7]

- "What could you do before the stroke that you cannot do now?"
- "What would you most like to be able to do again?"
- "Have you reached your full potential — or are there things you're still working toward?"
- "Would you benefit from referral for any services to improve your functional impairments and promote your health and wellbeing?"
- "Are you having any trouble with mood, memory, or thinking clearly?"
- "Have you fallen or felt unsteady since your last visit?"
- "Are you eating well? Have you lost weight without trying?"
- "Is anyone helping you at home — and how are they doing?"

Track FIM longitudinally — functional gains continue well beyond the traditional 3–6 month window, and the FIM detects significant functional changes up to 18–24 months post-onset even in severe ischemic stroke. **Screen actively for the three hidden barriers that derail recovery:**

- Post-stroke depression — PHQ-9 at every visit
- Post-stroke cognitive impairment — MoCA at AWV and at any cognitive change;
- Malnutrition and weight loss — dysphagia and hypermetabolism drive rapid weight loss

Prevent the next stroke — the highest-leverage activity. Combining antihypertensive therapy, statin, dietary modification, exercise, and **antiplatelet/anticoagulant therapy can achieve up to an 80% cumulative relative risk reduction in recurrent vascular events.**[2,13,45,46] **Concrete targets:**

- **BP <130/80 mmHg** — thiazide, ACEi, or ARB; balance against orthostatic hypotension and fall risk; measure standing BP at every visit
- **LDL <70 mg/dL (AHA/ASA 2026 Class I)**; emerging evidence supports **LDL <55 mg/dL for very high-risk patients**. High-intensity statin first (atorvastatin 80 mg or rosuvastatin 20 mg); add ezetimibe if LDL remains ≥70 mg/dL; then PCSK9 inhibitor if still above
- **HbA1c ≤7%** — metformin plus GLP-1 agonist or SGLT2 inhibitor as appropriate
- **Anticoagulation** — DOACs preferred for atrial fibrillation; do not withhold based on fall risk alone
- **Lifestyle** — Mediterranean-style or DASH diet, sodium <2.3 g/day, smoking cessation (doubles risk if continued), alcohol ≤2 drinks/day (men)/≤1 (women), moderate-intensity exercise ≥10 min × 4/week or vigorous ≥20 min × 2/week

3 MEAT DOCUMENTATION ESSENTIALS

*Documentation for hemiplegia should reflect **laterality, dominance, tone, etiology, and functional status** at every annual visit. This section translates the bedside encounter into structured language that supports HCC 253 documentation, anchors the rehabilitation plan, and tracks functional trajectory year over year.*

A 74-year-old right-hand-dominant retired teacher presents for annual review three years after a left middle cerebral artery territory ischemic stroke. He has residual right-sided weakness, mild spastic tone in the right upper extremity, and an antalgic gait with right foot drop managed by an AFO. He completes outpatient PT twice monthly and lives at home with his spouse who provides supervision for transfers and bathing. Today he reports a recent fall without injury and increasing right shoulder pain over the last 6 weeks.

MONITOR: "Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction. Functional status: ambulates with single-point cane and right AFO; independent for grooming and feeding; supervision for transfers and bathing per spouse. **FIM total 96** (motor 64, cognitive 32) — 12-MAY-2026; trend stable since 11/2025 (FIM 95). One fall in last 6 weeks (no injury, witnessed, while turning); no prior falls in last 6 months. Right shoulder pain 4/10 with overhead reach, new over last 6 weeks. PHQ-9 **6** (mild; previously 4); MoCA **24/30** (stable; mild cognitive impairment). BP 132/78, HR 70, weight stable 82 kg. Medications: aspirin 81 mg daily, atorvastatin 40 mg daily, lisinopril 10 mg daily, baclofen 10 mg TID, gabapentin 300 mg HS. Adherence reported as full."

EVALUATE: "Exam: alert, oriented ×3. Cranial nerves intact. **Right upper extremity** — proximal strength 4/5, distal 3/5, MAS 2 at elbow flexors and wrist flexors; subluxation absent on examination but right shoulder tender at glenohumeral joint with limited abduction (90°) and external rotation. **Right lower extremity** — proximal 4/5, distal 3+/5, MAS 1+ at gastrocnemius; AFO in place. Gait antalgic with right circumduction and reduced step length on right. Reflexes 3+ right biceps and patellar; Babinski present right. Sensation intact to light touch; mild astereognosis right hand. Berg Balance Scale **42/56** (moderate fall risk). Timed Up and Go **18 seconds** (impaired). Labs (12-MAY-2026): A1c 6.4%, LDL 78, eGFR 62, basic chemistries within normal limits. Last DEXA 03-MAR-2025: T-score −1.8 lumbar, −2.1 right femoral neck (osteopenia, **M85.80**). Last MoCA 24/30; last PHQ-9 6."

ASSESS: "**Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction — I69.351**, with spastic tone in right upper and lower extremities (MAS 2 elbow/wrist, 1+ gastrocnemius); functional status stable on FIM 96; **active condition requiring ongoing rehabilitation and management**. **Hemiplegic shoulder pain, right — M25.511** with reduced glenohumeral ROM and tenderness, new over 6 weeks. **Fall, recent, without injury — Z91.81 (history of falling)** and increased falls risk per BBS 42/56 and TUG 18 s. **Mild post-stroke cognitive impairment — F06.70**, MoCA 24/30 stable. **Mild depressive symptoms — Z13.31 (screening) with PHQ-9 6**, watchful waiting. **Steroid-naïve osteopenia, right femoral neck — M85.80**. **Essential hypertension — I10**, controlled. **Type 2 diabetes — E11.9**, A1c 6.4% controlled. Comorbidity cluster managed per AHA/ASA secondary prevention guideline."

TREAT: "Continue **I69.351** active documentation; outpatient PT 2×/month and add **outpatient OT × 4 weeks** for right shoulder rehabilitation (subluxation prevention, scapular stabilization, positioning). Right shoulder — proper positioning, sling when upright; physiatry referral if no improvement at 4 weeks for **suprascapular nerve block or focal botulinum toxin** consideration. Fall — home safety evaluation order placed; review medications for sedating agents (baclofen, gabapentin); reinforce cane and AFO use; OT for transfer training. Continue secondary prevention: aspirin 81 mg, atorvastatin 40 mg (LDL 48, on target), lisinopril 10 mg (BP 127/78, on target), A1c 6.4% on metformin. Continue baclofen 10 mg TID for spasticity at current dose;

counsel re: sedation and fall risk; reassess at next visit; consider taper if symptoms allow.Repeat **PHQ-9 and MoCA at 3-month follow-up**; PHQ-9 trend warrants close monitoring; refer for behavioral health if PHQ-9 ≥10 or functional decline. Continue calcium 1200 mg + vitamin D 1000 + Vitamin K-2 200 mcg/day daily; **repeat DEXA in 1 year** given T-score −2.1 femoral neck and steroid-naïve osteopenia; falls prevention paramount. Annual flu vaccination 09/2026; pneumococcal up to date. Follow-up 3 months with PT and OT progress notes; sooner for new neurological symptoms, recurrent fall, or worsening shoulder pain."

Clinical Documentation Elements

- **Document laterality, dominance, tone, and etiology:** Every note for hemiplegia/hemiparesis must include **side** (right or left), **dominance** (dominant or non-dominant), **tone** (flaccid or spastic), and **explicit causal link** to prior stroke ("sequela of," "due to," or "following"). All four elements support precise **I69.35x** or **G81.x** subcode selection
- **Use I69.35x for post-stroke residual deficits: I63.x** is **acute-encounter only**. Any subsequent visit with residual weakness requires the I69 sequelae code. **G81.x** is reserved for non-stroke etiologies; **G81.90** is a last resort that lacks information clinicians already have
- **Hemiparesis is coded with the same weight as hemiplegia:** Both map to HCC 253 with RAF 0.387. Never leave hemiparesis uncoded because the deficit appears "less severe" — this is the most common under-coding gap in primary care
- **Document functional status with a validated tool: FIM** is the preferred longitudinal measure in VBC settings (detects change up to 18–24 months in severe stroke; Modified Barthel Index loses sensitivity after 6 months). Document FIM, Berg Balance Scale, Timed Up and Go, or 10-meter walk test at each major encounter
- **Screen for the hidden-barrier triad at every visit: PHQ-9 for post-stroke depression**, **MoCA for post-stroke cognitive impairment**, and a **nutrition screen** for malnutrition — these are the three barriers most likely to derail recovery and are commonly missed in compressed visits
- **Document MA rehabilitation access advocacy:** If an MA patient was denied IRF, SNF, or HHA transfer, **document the discussion and the clinical rationale for the intensity recommended**. The 8.9 pp IRF discharge gap and 7.1% mortality signal make explicit advocacy part of care

Reframing Common Documentation Shortcuts

INSTEAD OF…	DOCUMENT…
"History of stroke"	"**Right dominant hemiparesis (I69.351), sequela of 2023 left MCA cerebral infarction**, spastic tone in right upper and lower extremities, FIM 96 stable" — name the residual deficit, laterality, dominance, tone, and etiology

INSTEAD OF…	DOCUMENT…
"Z86.73 — history of CVA"	When **any persistent weakness, gait abnormality, spasticity, or functional limitation** is present: "**I69.35x — hemiplegia/hemiparesis following cerebral infarction**" with laterality and dominance. Z86.73 means "without residual deficits" and is inappropriate
"Weakness on one side"	"**Right** (non-dominant) **hemiparesis**, spastic tone, sequela of 2022 left thalamic infarction, **FIM 102**, ambulates with cane" — every element is knowable at the visit
"On baclofen for spasticity"	"Baclofen 10 mg TID for spasticity (MAS 2 right elbow/wrist); counseled re: sedation and fall risk; reassess at 3 months" — drug, dose, indication, current MAS, and safety counseling
"Stable hemiplegia"	"**FIM total 96** (motor 64, cognitive 32); trend stable since 11/2025; **PHQ-9 6; MoCA 24/30**; BBS 42/56" — anchor "stable" to specific validated measures with dates
"Patient declines rehab"	"Patient declines additional PT referral at this visit; **functional status reassessed (FIM 96, BBS 42), unmet rehabilitation potential identified for right shoulder**; will revisit at next visit; documented education on functional benefit and AHA/ASA recommendation"
"Acute stroke" (years later)	"**I69.351** (not **I63.x**). **I63.x** is for the acute encounter only; this visit is a follow-up for residual hemiparesis following 2023 ischemic stroke."

ABBREVIATIONS: BBS = Berg Balance Scale; CVA = cerebrovascular accident; FIM = Functional Independence Measure; MAS = Modified Ashworth Scale; MCA = middle cerebral artery; MoCA = Montreal Cognitive Assessment; PHQ-9 = Patient Health Questionnaire 9-item; PT = physical therapy
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

DOCUMENTATION REMINDER IS COMPREHENSIVE CODING

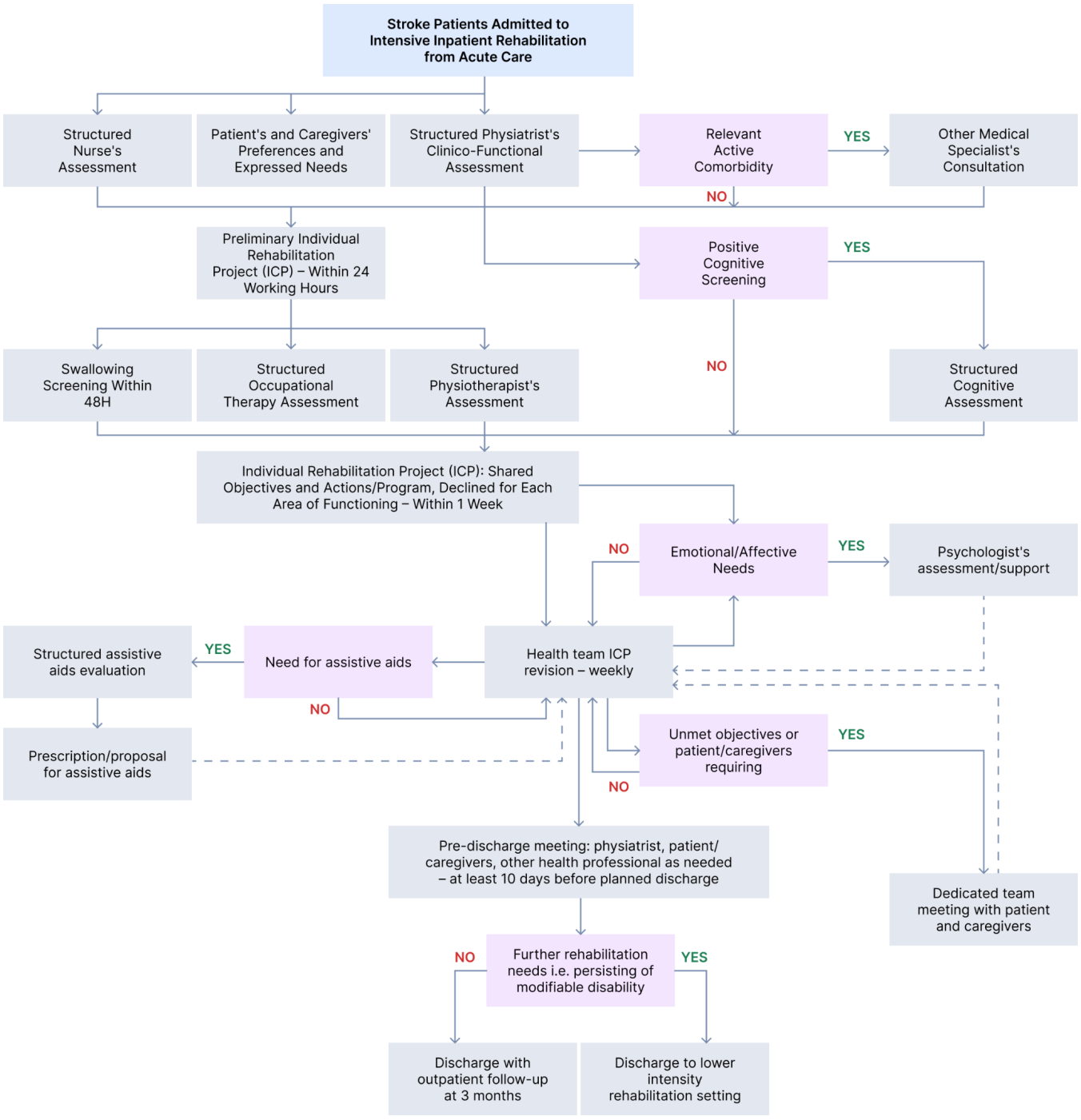
In CMS-HCC V28, hemiplegia and hemiparesis share **HCC 253 — RAF 0.387**. Documentation requires the named diagnosis with **laterality + dominance + tone + etiology**, the appropriate I69.35x or G81.x subcode, and MEAT documentation in the visit note. **Hemiparesis is coded with the same weight as hemiplegia** — never leave hemiparesis uncoded because the deficit "seems less severe."

4 TREATMENT AND REFERRAL QUICK GUIDE

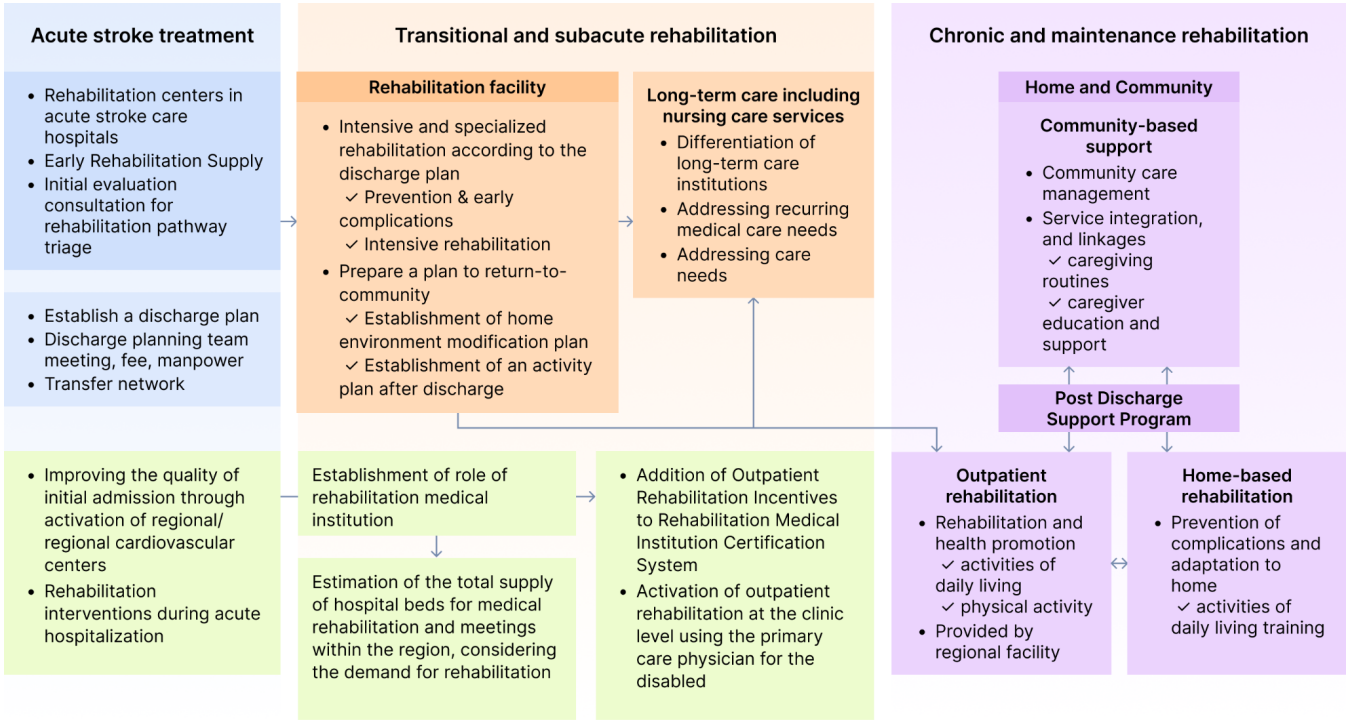
TRIGGER	ACTION
Any patient with residual hemiparesis at any visit[7]	Ask: *"Would this patient benefit from referral for any services to improve their functional impairments?"* Order PT/OT/SLP evaluation if unmet rehabilitation potential is identified. Unmet needs persist in **20–75% of survivors**
Brunnstrom stage I — flaccid paralysis[8]	**Early passive mobilization within 24–72 h** post-stroke to preserve muscle length, reduce neural hyperexcitability, and maintain ROM. Caregiver education on positioning and daily stretching
Emerging spasticity (Brunnstrom II–III; MAS ≥2 interfering with function or care)[8]	PT/OT intensification; consider **early focal botulinum toxin (<3 months post-stroke)** for greatest reduction in MAS at 4 and 12 weeks. Combine with motor training
Moderate–severe focal spasticity interfering with function, care, or causing pain[8]	**OnabotulinumtoxinA (J0585)** muscle-specific dosing (typically 100–300 IU upper limb); significant MAS improvement up to 6 weeks; effect wanes 7–12 weeks; repeat q12 weeks. FDA-approved
Diffuse spasticity not controlled by oral or focal agents (severe, refractory)[47]	**Intrathecal baclofen pump** — physiatry/neurosurgery referral; potentially as early as 3–6 months post-stroke in refractory cases
Functional plateau or decline despite ongoing rehabilitation[48]	Physiatrist reassessment; consider **advanced modalities** (NMES, peripheral magnetic stimulation, non-invasive brain stimulation, robotic-assisted therapy). FIM gains continue for at least 3 years after rehabilitation discharge
Acute new focal deficit, decreasing LOC, severe headache, seizure, suspected PE[48]	**Activate EMS/ED transfer immediately.** Up to 2 million neurons lost per minute during large vessel occlusion; cerebral edema with herniation in large hemispheric or cerebellar infarct requires urgent surgical evaluation

ABBREVIATIONS: ED = emergency department; EMS = emergency medical services; FIM = Functional Independence Measure; LOC = level of consciousness; MAS = Modified Ashworth Scale; NMES = neuromuscular electrical stimulation; OT = occupational therapy; PE = pulmonary embolism; PT = physical therapy; ROM = range of motion; SLP = speech-language pathology

Acute Stroke Care Pathway



Acute to Chronic Stroke Transition Care Pathway



AHA/ASA + VA/DoD Aligned Recommendations

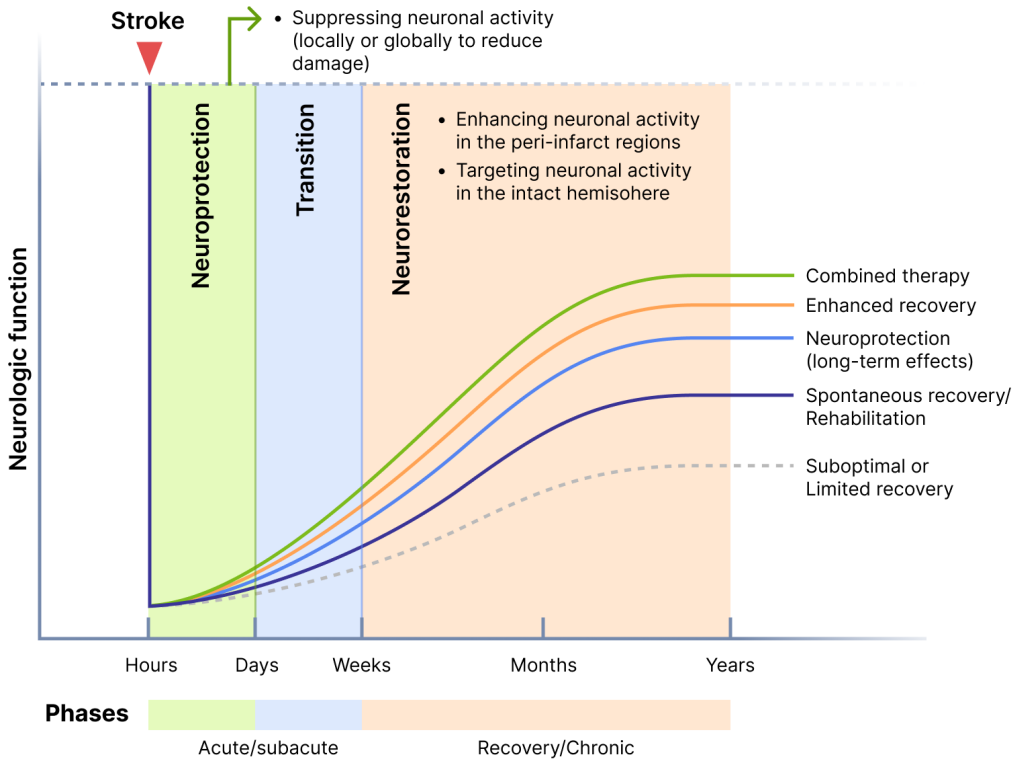
CATEGORY	RECOMMENDED AGENT/ APPROACH	NOTES
Physical therapy (PT)	**Order at every post-stroke visit** with unmet rehabilitation potential; intensity tailored to tolerance, not age	Class I (AHA/ASA 2016). Patients ≥85 achieve significant FIM improvements (β=0.290–0.371, P <0.001). Age alone is not a reason to limit PT intensity[10]
Occupational therapy (OT)	**ADL retraining**, upper extremity rehabilitation, adaptive equipment, cognitive rehabilitation	Class I (AHA/ASA 2016). Unmet OT needs affect 20–75% of survivors months to years after discharge[7,10]
Speech-language pathology (SLP)	**Dysphagia, aphasia, and cognitive-communication rehabilitation**; **swallow evaluation** if any swallowing concern	Class I (AHA/ASA 2016). Swallow evaluation mandatory when swallowing concerns present; aspiration pneumonia is a leading cause of post-stroke mortality[7,10]
Aerobic exercise	**Moderate-intensity aerobic exercise** integrated with comprehensive care; community exercise programs when outpatient rehab ends	**Class I — all stroke survivors** (AHA/ASA 2014). Improves functional ability, walking endurance, balance, cardiovascular health, and secondary stroke prevention[7,10]

CATEGORY	RECOMMENDED AGENT/ APPROACH	NOTES
Task-specific practice	**Repetitive, whole-task or pre-task movements** tailored to patient-defined functional goals; teach to caregivers for home practice	**Strongest evidence-based motor therapy** (VA/DoD 2024). Gains maintained for ≥6 months; can be performed in any environment[48]
Oral antispasmodics	**Baclofen** start 5 mg TID, titrate (max 80 mg/d divided QID); **tizanidine** start 2 mg, titrate (max 36 mg/d, LFTs at baseline/1/3/6 mo); **dantrolene** 25 mg start (max 400 mg/d, monitor LFTs); **gabapentin** renally dose-adjusted in elderly[49,50]	**Marginal effect** with dose-limiting sedation in elderly. Start low, titrate slowly; monitor for sedation, gait change, and fall risk at each visit
Focal botulinum toxin (Step 3 of spasticity management)	**OnabotulinumtoxinA (Botox, J0585)**, **incobotulinumtoxinA (Xeomin, J0588)**, **abobotulinumtoxinA (Dysport, J0586)** — muscle-specific dosing; units NOT interchangeable between products; repeat q12 weeks[51]	FDA-approved for spasticity. Most evidence for upper limb; significant improvement in MAS up to 6 weeks. **Combining with early motor training is the most beneficial strategy** for tone modulation and motor recovery
Intrathecal baclofen (Step 4 — severe refractory generalized spasticity)	**Physiatry/neurosurgery referral for pump placement**; consensus supports potential use as early as 3–6 months post-stroke in refractory cases[52]	Medicare Part B (device + implant with prior authorization). For diffuse refractory spastic hypertonia unresponsive to oral and focal agents
Modified cardiac rehabilitation	**Refer eligible post-stroke patients to cardiac-rehab-style outpatient programs** when locally available	Associated with **4× reduction in 1-year post-stroke mortality** and significant improvement in all AM-PAC domains in observational analyses[53]

ABBREVIATIONS: ADL = activities of daily living; AHA = American Heart Association; AM-PAC = Activity Measure for Post-Acute Care; ASA = American Stroke Association; FDA = Food and Drug Administration; FIM = Functional Independence Measure; LFTs = liver function tests; MAS = Modified Ashworth Scale; OT = occupational therapy; PT = physical therapy; QID = four times daily; SLP = speech-language pathology; TID = three times daily; VA/DoD = U.S. Department of Veterans Affairs/Department of Defense
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

Stroke Recovery Timeline Diagram

Stroke recovery is highly individualized but generally follows a standard timeline. The **most rapid functional improvements occur within the first 1 to 3 months** due to the brain's peak neuroplasticity. Rehabilitation continues at a slower pace from 3 to 6 months, and improvements can continue for 1 to 1.5 years or longer with consistent therapy.[51]



CLINICAL PEARL: POST-STROKE HEMIPLEGIA IS A DYNAMIC, RECOVERABLE CONDITION

Sensorimotor impairment remains responsive to intervention well beyond the traditional 3–6 month "critical window." A large cohort study (n = 7,730 first-time stroke survivors) found **motor function continued to improve through 12–18 months post-stroke**, with decline not beginning until ~30 months; in patients ≤65, gains were sustained through 5 years. Chronic-phase rehabilitation produces clinically meaningful FMA-UE gains of 9–10 points (above MCID), and a systematic review of 35 RCTs confirmed functional improvements from therapeutic exercise, robotic therapy, and electrotherapy in chronic stroke.[54,55]
Ballester et al. (2019) confirmed that improvement was possible even at late chronic stages, concluding the recovery window is a gradient, not a cliff.[56]

Non-Pharmacologic Treatment and Lifestyle Modification

Beyond clinic-based treatment, sustained functional gains depend on structured caregiver involvement, daily home-based interventions, and community reintegration — the following outlines evidence-based strategies across each of these domains.[10,48]

INTERVENTION	TARGET/RECOMMENDATION	NOTES
Caregiver education and dyad interventions	Identify primary caregiver at first post-stroke PCP visit; teach **stretching, positioning, transfers, and red-flag recognition**	Smooths transitions and improves outcomes; community- and home-based rehabilitation reduces costs, decreases institutional length of stay, and increases patient satisfaction

INTERVENTION	TARGET/RECOMMENDATION	NOTES
Daily stretching, positioning, ROM	**Daily stretching** of affected limbs with proper positioning; positional orthoses (AFO, resting hand splint) per OT/PT	**GRADE A evidence** supports stretching exercises and static stretching with positional orthoses for spasticity prevention and management. **Prevents contractures (60% of severely disabled at 1 year if untreated)**[57]
NMES/TENS	**Neuromuscular electrical stimulation** and transcutaneous electrical nerve stimulation for post-stroke spasticity and motor relearning	Moderate-quality evidence supports use; integrate with PT/OT plan when locally available
Home exercise program (FIM-based)	Individualized exercise program with caregiver participation; **track adherence** in PT/OT notes	**FIM-based home exercise** programs have shown significant improvements in MAS, Barthel Index, and MMSE in elderly stroke patients
Community exercise programs	Refer to l**ocal community center**, YMCA stroke recovery class, adaptive exercise programs after outpatient PT ends	Sustains functional gains in the chronic phase; supports cardiovascular health and secondary prevention; **reduces social isolation**
Driver assessment/ return-to-driving evaluation	Refer to **occupational therapy driver assessment program** when patient inquires about driving	Allows objective return-to-driving determination; supports independence and quality of life
Orthotist referral (AFO, resting hand splint, sling)	**Refer when foot drop, wrist flexor spasticity, or glenohumeral subluxation** is documented	**Improves gait safety, reduces fall risk, prevents contracture**, and supports upper-extremity positioning

ABBREVIATIONS: AFO = ankle-foot orthosis; FIM = Functional Independence Measure; MAS = Modified Ashworth Scale; MMSE = Mini-Mental State Examination; NMES = neuromuscular electrical stimulation; OT = occupational therapy; PT = physical therapy; ROM = range of motion; TENS = transcutaneous electrical nerve stimulation

Non-Pharmaceutical Prevention Strategies

STRATEGY	TARGET/RECOMMENDATION	EVIDENCE
Mediterranean diet	High intake of olive oil, fruits, nuts, vegetables, whole grains, fish; low in red/processed meat	Class I (AHA/ASA 2024); **~35%** stroke risk reduction in meta-analysis of RCTs; PREDIMED: **HR 0.58** for stroke vs. control diet; highest vs. lowest quintile adherence: HR **0.26** for total stroke

STRATEGY	TARGET/RECOMMENDATION	EVIDENCE
Sodium reduction/salt substitution	Sodium **<1,500 mg/day** optimal; potassium-enriched salt substitute (75% NaCl/25% KCl) for adults ≥60 with uncontrolled HTN	Class IIa (AHA/ASA 2024); Salt Substitute and Stroke Study (n = 20,995): **14%** stroke reduction (RR 0.86, p = 0.006); 22% reduction in those without prior stroke; each 1,000 mg sodium reduction lowers SBP ~3 mmHg
Physical activity	**≥150 min/week** moderate-intensity or ≥75 min/week vigorous-intensity; strength training ≥2 days/week; avoid prolonged sedentary behavior (>6.5 h/day)	Class I (AHA/ASA 2024); walking pace >3 mph: **HR 0.47** for stroke in adults ≥75; stroke risk increases **6%** per hour of sedentary time above 6.5 h/day; benefits apparent even with light activity
Healthy sleep	**7–9 hours/night;** screen for and treat obstructive sleep apnea (OSA)	New in 2024 guideline; short sleep (**<5 h**): **OR 3.15** for stroke; long sleep (**>9 h**): **OR 2.67**; moderate-severe **OSA**: **HR 2.02** for stroke; U-shaped relationship confirmed in meta-analysis of 43 studies
Smoking cessation	**Complete cessation**; pharmacotherapy (varenicline, bupropion, NRT) + behavioral counseling	Class I (AHA/ASA 2024); smoking doubles ischemic stroke risk (**RR 2.17**); former smokers approach never-smoker risk; USPSTF Grade A
Weight management	BMI 18.5–24.9 kg/m^2; GLP-1 RAs for T2DM with high CVD risk (new 2024 recommendation)	Class I for GLP-1 RAs in T2DM with high CVD risk; 24% relative stroke reduction; counseling and caloric restriction for overweight/obesity
Alcohol moderation	≤2 drinks/day (men), ≤1 drink/day (women); heavy consumption (>60 g/day) increases ischemic stroke risk (RR 1.69)	AHA/ASA 2021 Class IIa for limiting alcohol in secondary prevention; no safe threshold established for primary prevention
Stress and psychosocial health	Screen for depression, social isolation, and adverse SDOH at care visits	adverse SDOH screening recommended in care settings where at-risk patients are evaluated; depression and social isolation are independent stroke risk factors
Folic acid/B-complex vitamins	B-complex supplementation (folic acid + B6 + B12)	Pooled **RR 0.90** (95% CI 0.81–1.00, p = 0.04) for stroke in meta-analysis of 12 RCTs; benefit most consistent in populations with low baseline folate intake

STRATEGY	TARGET/RECOMMENDATION	EVIDENCE

ABBREVIATIONS: ACC = American College of Cardiology; AHA = American Heart Association; ASA = American Stroke Association; BMI = body mass index; BP = blood pressure; CVD = cardiovascular disease; DASH = Dietary Approaches to Stop Hypertension; DOAC = direct oral anticoagulant; GLP-1 RA = glucagon-like peptide-1 receptor agonist; HR = hazard ratio; HTN = hypertension; ICH = intracerebral hemorrhage; KCl = potassium chloride; NaCl = sodium chloride; NRT = nicotine replacement therapy; OR = odds ratio; OSA = obstructive sleep apnea; PAR = population attributable risk; RCT = randomized controlled trial; RR = relative risk; SBP = systolic blood pressure; SDOH = social determinants of health; SGLT2 = sodium-glucose cotransporter-2; SSaSS = Salt Substitute and Stroke Study; T2DM = type 2 diabetes mellitus; USPSTF = United States Preventive Services Task Force

Medication Safety and Dose Adjustments

DRUG/CLASS	INTERACTION/ CONTRAINDICATION	CLINICAL ACTION
Baclofen + elderly[49]	**Dose-limiting sedation, dizziness, withdrawal risk** — fall risk compounded by gait impairment	**Start 5 mg TID**; titrate slowly; assess sedation and gait at each visit; **never discontinue abruptly** (withdrawal seizure, hallucinations); taper over weeks if discontinuing
Tizanidine + elderly[58]	**Hepatotoxicity, dry mouth, sedation, hypotension**	**Start 2 mg**; LFTs at baseline, 1, 3, and 6 months; titrate slowly; monitor BP and sedation; avoid with strong CYP1A2 inhibitors (fluvoxamine, ciprofloxacin)
Dantrolene + elderly[59]	**Hepatotoxicity, generalized weakness** (may worsen function on paretic side)	**Second-line**; monitor LFTs; reserve for patients failing baclofen/tizanidine; reassess functional impact frequently
Gabapentin + chronic kidney disease[60]	**Renal dose adjustment required**; sedation, ataxia, fall risk in elderly	Adjust dose by eGFR; titrate slowly; assess fall risk and sedation at each visit
Botulinum toxin products (units not interchangeable)[51]	**OnabotulinumtoxinA, incobotulinumtoxinA, and abobotulinumtoxinA dosing units are NOT interchangeable** between products	Specify product by brand and HCPCS (J0585/J0588/J0586); document target muscles, units, and functional goal; physiatry administered
SSRIs (citalopram, escitalopram, sertraline, vortioxetine) + elderly post-stroke[61]	Generally well tolerated for PSD; **avoid TCAs** (anticholinergic burden in elderly); monitor sodium (SIADH)	**First-line for post-stroke depression**; check serum sodium 2 weeks after initiation in older adults; reassess PHQ-9 at 4–6 weeks

DRUG/CLASS	INTERACTION/ CONTRAINDICATION	CLINICAL ACTION
DOAC + atrial fibrillation post-stroke[11]	Cardioembolic stroke recurrence prevention; balance against bleeding risk	**DOACs preferred over warfarin** in most cases; assess bleeding risk, renal function, and fall risk; coordinate with cardiology/ neurology
Antihypertensives + hemiplegia with impaired balance[36]	**Orthostatic hypotension compounds fall risk**	**Target BP <130/80 mmHg** balanced against orthostatic symptoms; check orthostatic vitals; titrate slowly; favor agents without strong orthostatic effect when feasible

ABBREVIATIONS: BP = blood pressure; CYP1A2 = cytochrome P450 1A2; DOAC = direct oral anticoagulant; eGFR = estimated glomerular filtration rate; HCPCS = Healthcare Common Procedure Coding System; LFTs = liver function tests; PHQ-9 = Patient Health Questionnaire 9-item; PSD = post-stroke depression; SIADH = syndrome of inappropriate antidiuretic hormone; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant
***Consult FDA labels for the most up-to-date dosage information, contraindications, and drug-drug interactions**

When to Refer

The following referral triggers ensure that complications are routed to the appropriate specialist.[10]

CRITERION	SPECIALIST	URGENCY
Acute new focal deficit, decreasing LOC, severe headache with neurological change, seizure, suspected PE	Emergency Department/ EMS	**Immediate**
New dysphagia or aspiration event	Speech-language pathology + swallow study	**Urgent (same day or next day)**
Acute shoulder pain with new subluxation	PM&R or orthopedics + radiography	**Urgent (same week)**
Rapidly progressive spasticity with pain, functional decline, or hygiene compromise	Physiatry/neurology for botulinum toxin evaluation	**Urgent (same week)**
Acute suicidal ideation with intent in post-stroke depression	Psychiatric emergency evaluation	**Immediate**
Signs of DVT (unilateral leg swelling, warmth, pain in paretic limb)	Vascular/urgent duplex ultrasonography	**Urgent (same day)**
Functional plateau or decline despite ongoing rehabilitation	Physiatrist for treatment plan reassessment	**Expedited (within days–1 week)**

CRITERION	SPECIALIST	URGENCY
New cognitive decline or behavioral change	Neuropsychological evaluation	**Routine (2–4 weeks)**
Severe refractory generalized spasticity (failed oral and focal therapy)	Physiatry + neurosurgery for intrathecal baclofen evaluation	**Routine (2–6 weeks)**
Chronic hemiplegia with new pathology, complications, or quality-of-life concerns	Neurology (vascular or general)	**Routine**
Vehicle, return-to-driving question	OT driver assessment program	**Routine**

ABBREVIATIONS: DVT = deep vein thrombosis; ED = emergency department; EMS = emergency medical services; LOC = level of consciousness; OT = occupational therapy; PE = pulmonary embolism; PM&R = physical medicine and rehabilitation

Follow-Up Timing

Structured **follow-up anchored to recovery phase** ensures that secondary prevention targets, rehabilitation progress, and emerging complications are dealt with early.[7,13,48,48]

STAGE/CATEGORY	FREQUENCY	LABS TO MONITOR
First 90 days post-stroke discharge	**Within 7–14 days of discharge, then monthly × first 90 days**	BP, HR, weight, neurological exam, FIM/Barthel, PHQ-9, MoCA, medication reconciliation (MRP), rehabilitation progress, falls assessment
Active rehabilitation phase (months 3–12)	**Every 1–3 months**	FIM, BBS, TUG, MAS, PHQ-9, MoCA, weight/nutrition, secondary prevention targets (BP, LDL, A1c, anticoagulation if AFib)
Chronic stable phase (year 1+)	**Quarterly to semi-annually; annually at minimum with AWV**	FIM trajectory, BBS, PHQ-9, MoCA, falls history, spasticity (MAS), shoulder/hand assessment, secondary prevention, vaccination status, DEXA per result
On botulinum toxin therapy	**Q12 weeks (timed to injection cycle)**	MAS at target muscles, functional goal review, side-effect assessment, repeat injection planning
On oral antispasmodic (baclofen, tizanidine, gabapentin)	**q1–3 months**	Sedation and gait assessment, falls history, LFTs (tizanidine baseline/1/3/6 months), renal function (gabapentin), MAS trend

STAGE/CATEGORY	FREQUENCY	LABS TO MONITOR
Post-stroke depression on SSRI	**2 weeks after initiation, then 4–6 weeks**, then **quarterly**	PHQ-9, serum sodium (SIADH check at 2 weeks), suicidality screen
MA patient with rehabilitation access barrier	Document at **every visit;** escalate to plan-level appeal when clinically warranted	Functional status, rehabilitation need, advocacy discussion, clinical rationale for intensity recommended

ABBREVIATIONS: AFib = atrial fibrillation; AWV = Annual Wellness Visit; BBS = Berg Balance Scale; BP = blood pressure; DEXA = dual-energy X-ray absorptiometry; FIM = Functional Independence Measure; HR = heart rate; LDL = low-density lipoprotein; LFTs = liver function tests; MA = Medicare Advantage; MAS = Modified Ashworth Scale; MoCA = Montreal Cognitive Assessment; MRP = medication reconciliation post-discharge; PHQ-9 = Patient Health Questionnaire 9-item; SIADH = syndrome of inappropriate antidiuretic hormone; SSRI = selective serotonin reuptake inhibitor; TUG = Timed Up and Go

Comorbidity Management

COMORBIDITY	APPROACH	CAUTION
Hypertension (89–90% prevalence in stroke survivors ≥65)[62]	Target **<130/80 mmHg**; thiazide, ACEi, or ARB; BP lowering reduces recurrence 30–40% (NNT 52.6)[63]	Balance against orthostatic hypotension and fall risk in hemiplegic patients with impaired balance; check orthostatic vitals; titrate slowly
Atrial fibrillation[64]	**Anticoagulation (DOACs preferred)**; heart-rhythm monitoring if cryptogenic stroke and no other cause found	**Most common cause of cardioembolic stroke in elderly**; balance bleeding risk and fall risk; coordinate with cardiology/ neurology
Post-stroke depression (26–50% prevalence)[43]	PHQ-9 at every visit during first year; **SSRI first-line** (citalopram, escitalopram, sertraline, vortioxetine); CBT or behavioral activation as adjunct	Doubles long-term disability (OR 2.16); raises medical costs **54%**; ~1/3 untreated. Avoid TCAs; monitor sodium on SSRI[10]
Post-stroke cognitive impairment (up to 60% in first year)[6]	MoCA at AWV and at any cognitive change; OT/SLP for cognitive rehabilitation; neuropsychological testing when indicated	Affects rehabilitation participation and institutional care need

COMORBIDITY	APPROACH	CAUTION
Falls (73% of severely disabled in year 1)[10]	**BBS and TUG to classify risk**; PT for balance training; home safety eval; medication review for sedating agents; orthotist for AFO if foot drop	**Falls are the most common complication during inpatient rehab (20%)**; compounded by hemiplegic gait, spasticity, and antispasmodic sedation[65]
Spasticity (25–80%)[8]	**Step 1**: passive mobilization, stretching, positioning **Step 2**: oral antispasmodics (start low) **Step 3**: focal botulinum toxin **Step 4**: intrathecal baclofen referral	**Cost of care is 4× higher when spasticity is present**; contractures develop in 60% of severely disabled within year 1 if untreated[10]
Hyperlipidemia (~70%)[12,13]	**High-intensity statin (atorvastatin 80 mg)** if LDL >50; 19% RR reduction in recurrent stroke; ezetimibe or PCSK9i if needed	Secondary prevention target; document statin adherence (Star measure)
Diabetes mellitus (20–30%)[13]	**HbA1c ≤7%**; metformin plus GLP-1 agonist or SGLT2 inhibitor as appropriate	Diabetes/CKD/PAD cluster is strongest multimorbidity predictor of post-stroke disability
Osteoporosis on hemiplegic side[10]	**DEXA post-stroke**; calcium 1200 mg + vitamin D 800–1000 IU daily; bisphosphonate per T-score; falls prevention paramount	Accelerated BMD loss from disuse; fragility fracture risk compounds existing functional impairment
Dysphagia/ aspiration risk[66]	**SLP swallow evaluation** (clinical bedside or videofluoroscopy); diet modification; monitor at every visit	Aspiration pneumonia is a leading cause of post-stroke mortality
INFORMATIONAL — Hemiplegic shoulder pain (24–52%)[10]	Proper positioning, sling when upright, PT/OT; radiography to rule out subluxation; suprascapular nerve block or botulinum toxin for refractory cases	Impedes upper extremity rehabilitation; commonly underrecognized in routine PCP visits

ABBREVIATIONS: ACEi = angiotensin-converting enzyme inhibitor; AFO = ankle-foot orthosis; ARB = angiotensin receptor blocker; AWV = Annual Wellness Visit; BBS = Berg Balance Scale; BMD = bone mineral density; CBT = cognitive behavioral therapy; CKD = chronic kidney disease; DEXA = dual-energy X-ray absorptiometry; DOAC = direct oral anticoagulant; GLP-1 = glucagon-like peptide-1; HR = hazard ratio; LDL = low-density lipoprotein; MoCA = Montreal Cognitive Assessment; NNT = number needed to treat; OR = odds ratio; OT = occupational therapy; PAD = peripheral artery disease; PCP = primary care provider; PCSK9i = proprotein convertase subtilisin/kexin type 9 inhibitor; PHQ-9 = Patient Health Questionnaire 9-item; PT = physical therapy; RR = relative risk; SGLT2 = sodium-glucose cotransporter-2; SLP = speech-language pathology; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant; TUG = Timed Up and Go

Patient Education and Adherence

AAVBC PERSPECTIVE

Patients with hemiplegia benefit most when **rehabilitation is framed as a long-term, recoverable process** — not the static outcome of a past event. Recovery continues for at least 3 years after rehabilitation discharge, and FIM gains are achievable at any age with sufficient therapy intensity. Anchor every visit to one question: "What functional goal matters most to you right now?" and **align the rehabilitation plan to that goal** — driving a car, climbing the stairs at home, cooking a meal, holding a grandchild. Caregivers should be taught daily stretching, positioning, and red-flag recognition; community- and home-based rehabilitation programs reduce costs and improve patient satisfaction. Reinforce **secondary stroke prevention** (BP, statin, A1c, anticoagulation if AFib, smoking cessation, Mediterranean-style diet, exercise) as the single highest-leverage prevention activity.

DOCUMENTATION REMINDER — PATIENT EDUCATION

At every visit, document the patient-defined functional goal, the rehabilitation services currently in place, any unmet rehabilitation potential, and the action taken (referral, home program update, caregiver education, or documented patient declination with rationale). This makes rehabilitation advocacy visible in the chart and supports continuity of care across the post-acute–to–chronic transition.

Quality Metrics Tie-In

MEASURE (MY2026)[67]	STANDARD	APPLICABILITY TO HEMIPLEGIA/ POST-STROKE CARE
HEDIS COA: Care for Older Adults — Medication Review	**Denominator:** MA/SNP enrollees ≥66, continuously enrolled **Numerator:** 2 sub-measures documented annually: (1) functional status assessment, (2) medication review **Exclusions:** hospice, ESRD	**Polypharmacy is universal in elderly hemiplegia patients** (antihypertensives, statins, antithrombotics, antispasmodics, antidepressants). Medication review should reconcile: oral antispasmodics (baclofen, tizanidine — dose-limiting sedation and fall risk), NSAIDs (avoid in patients on anticoagulation), anticholinergic burden (Beers Criteria), and secondary prevention agents. Beers review is high-yield: benzodiazepines worsen fall risk in patients with impaired balance; gabapentin requires renal dose adjustment[68]
HEDIS COA: Care for Older Adults — Functional Status Assessment	**Denominator:** MA/SNP enrollees ≥66 **Numerator:** functional status assessment documented annually **Exclusions:** hospice, ESRD	FIM, Modified Barthel Index, Berg Balance Scale, or Timed Up and Go directly satisfy this sub-measure. **Document at every visit to track functional trajectory and guide rehabilitation intensity decisions**. AHA/ASA performance measures recommend periodic mobility, balance, and ADL assessments longitudinally through the continuum of recovery[7]

MEASURE (MY2026)[67]	STANDARD	APPLICABILITY TO HEMIPLEGIA/ POST-STROKE CARE
HEDIS COA: Care for Older Adults — Pain Assessment	**Denominator:** MA/SNP enrollees ≥66 **Numerator:** pain assessment documented annually **Exclusions:** hospice, ESRD	**Hemiplegic shoulder pain affects 24–52% of stroke survivors**; spasticity-related pain, central post-stroke pain, and musculoskeletal pain from compensatory movement patterns are common. Document pain type, location, severity, and functional impact at every visit[9]
HEDIS COA: Care for Older Adults — Advance Care Planning	**Denominator:** enrollees ≥66 **Numerator:** advance care planning documented annually; CPT 99497/99498	Initiate while decisional capacity is intact — **post-stroke cognitive impairment affects up to 60% in the first year and may complicate future decision-making**. Document goals of care, code status, surrogate designation, and rehabilitation intensity preferences. Billable during AWV with no copay[6]
HEDIS TSC-E: Tobacco Use Screening and Cessation Intervention	**Denominator 1:** enrollees ≥12 **Denominator 2:** positive tobacco users **Numerator 1:** screened with documented tobacco status **Numerator 2:** received cessation counseling or pharmacotherapy **Exclusions:** death, hospice	**Tobacco use is an independent risk factor for recurrent stroke and accelerates atherosclerosis**. Document tobacco status at every visit using 5 A's framework. AHA/ASA 2021 recommends counseling and pharmacotherapy for all stroke survivors who use tobacco (Class I). USPSTF Grade A recommendation[2]
HEDIS ASF: Unhealthy Alcohol Use Screening and Follow-Up	**Rate 1 Denominator:** enrollees ≥18 **Numerator:** screened with validated instrument (AUDIT-C, SASQ) **Rate 2 Denominator:** positive screens **Numerator:** brief intervention or referral within 2 months. ECDS measure — requires structured data capture	**Heavy alcohol consumption (>4 drinks/day men, >3 women) is associated with increased stroke recurrence** (RR 1.69 for ischemic stroke at >60 g/day). AUDIT-C ≥4 (men) / ≥3 (women) = positive. AHA/ASA 2021 recommends limiting alcohol intake for secondary stroke prevention (Class IIa). Screen at every visit; document structured data for ECDS compliance[2]

MEASURE (MY2026)[67]	STANDARD	APPLICABILITY TO HEMIPLEGIA/ POST-STROKE CARE
HEDIS TRC: Transitions of Care	**Denominator:** enrollees ≥18 with inpatient discharge **Numerator:** 4 sub-measures within 30 days: (1) notification of inpatient admission, (2) receipt of discharge information, (3) patient engagement after discharge, (4) medication reconciliation post-discharge **Exclusions:** hospice	**Stroke patients have high readmission rates**; post-discharge medication reconciliation is critical for antithrombotic continuity, antispasmodic titration, secondary prevention medication management, and fall-risk agent review. AHA/ASA recommends clinic visit within 7–14 days of discharge with medication reconciliation[7]
HEDIS MRP: Medication Reconciliation Post-Discharge	**Denominator:** enrollees ≥18 discharged from inpatient facility **Numerator:** medication reconciliation conducted by prescribing practitioner, clinical pharmacist, or RN within 30 days of discharge	**Post-discharge medication reconciliation should specifically address:** antispasmodic titration (baclofen, tizanidine), secondary prevention agents (statin, antihypertensive, antithrombotic), nephrotoxin removal, fall-risk medication review, and new rehabilitation-related prescriptions (e.g., botulinum toxin scheduling)[69]
HEDIS DMS-E: Utilization of the PHQ-9 to Monitor Depression Symptoms	**Denominator:** enrollees ≥12 with diagnosis of major depression or dysthymia **AND** elevated PHQ-9 ≥10 **Numerator:** follow-up PHQ-9 documented within 4–8 months of index elevated score **Exclusions:** hospice	**Post-stroke depression affects 26–50% of survivors** and doubles long-term disability risk (OR 2.16).[5,70,71] PHQ-9 at every visit during first year and at AWV thereafter; follow-up PHQ-9 within 4–8 months if ≥10. AHA/ASA performance measures include depression screening as a core process measure across all post-stroke settings
HEDIS DAE: Use of High-Risk Medications in Older Adults	**Denominator:** enrollees ≥67 **Numerator:** received ≥1 high-risk medication per Beers Criteria; Lower rate = better performance	**High-yield in hemiplegia:** benzodiazepines compound fall risk in patients with impaired balance and gait; anticholinergics worsen post-stroke cognitive impairment; first-generation antipsychotics increase EPS risk. Oral antispasmodics (baclofen, tizanidine) carry dose-limiting sedation — start low, titrate slowly, and document Beers review at each visit[68]
CMS Star: Controlling Blood Pressure (CBP)	**Denominator:** enrollees 18–85 with HTN diagnosis **Numerator:** most recent BP <140/90 mmHg	**Hypertension prevalence is 89–90% in stroke survivors ≥65.** AHA/ASA 2021 recommends target <130/80 mmHg for secondary stroke prevention (Class I). Balance against orthostatic hypotension and fall risk in hemiplegic patients with impaired balance — measure standing BP at every visit[72]

MEASURE (MY2026)[67]	STANDARD	APPLICABILITY TO HEMIPLEGIA/ POST-STROKE CARE
CMS Star: Statin Therapy for Patients with Cardiovascular Disease (SPC)	**Denominator:** enrollees with clinical ASCVD **Numerator:** received statin therapy of any intensity during measurement year	**AHA/ASA 2021 recommends high-intensity statin (atorvastatin 80 mg or rosuvastatin 20 mg) for patients with atherosclerotic ischemic stroke and LDL >100 mg/dL (Class I)**. 19% RR reduction in recurrent stroke. Document clinical rationale if statin is held or dose-reduced[13]
CMS Star: Diabetes Care — HbA1c Control (<8%)	**Denominator:** enrollees 18–75 with diabetes **Numerator:** most recent HbA1c <8.0%	**Diabetes is present in 20–30% of stroke survivors and is an independent risk factor for recurrent stroke.** AHA/ASA 2021 recommends HbA1c ≤7% for most patients. AAN/AHA post-acute stroke bundle includes diabetes screening as a core component[13]
CMS Star: Plan All-Cause Readmissions (PCR)	30-day readmission rate; lower is better; risk-adjusted	**Stroke patients have high 30-day readmission rates driven by recurrent stroke, infection (aspiration pneumonia, UTI), falls, medication non-adherence, and unmanaged spasticity**. Targeted interventions: post-discharge clinic within 7–14 days, medication reconciliation, depression screening, rehabilitation continuity, and secondary prevention optimization[13]
HEDIS AIS: Adult Immunization Status	Pneumococcal, influenza, Td/Tdap, HZV per age-based schedule	**Stroke survivors with hemiplegia have reduced mobility and increased infection susceptibility**. Influenza and pneumococcal vaccines reduce infection-related complications and readmissions. Pneumococcal (PCV20/21) and influenza annually; HZV ≥50; document vaccination status at AWV[73]
MIPS #134: Preventive Care and Screening — Screening for Depression and Follow-Up Plan	**Denominator:** patients ≥12 seen for qualifying visit **Numerator:** screened for depression using standardized tool (PHQ-9) with documented follow-up plan if positive **Exclusions:** active depression diagnosis with documented treatment	**Post-stroke depression is underdiagnosed;** PHQ-9 ≥10 triggers follow-up plan (pharmacotherapy, referral, or additional evaluation). Satisfies MIPS quality reporting and aligns with HEDIS DMS-E. AHA/ASA performance measures recommend depression screening across all post-stroke care settings[43,71]

MEASURE (MY2026)[67]	STANDARD	APPLICABILITY TO HEMIPLEGIA/ POST-STROKE CARE

ABBREVIATIONS: AAN = American Academy of Neurology; ACEi = angiotensin-converting enzyme inhibitor; ACP = Advance Care Planning; ADL = activities of daily living; AHA/ASA = American Heart Association/American Stroke Association; ASCVD = atherosclerotic cardiovascular disease; AUDIT-C = Alcohol Use Disorders Identification Test-Concise; AWV = Annual Wellness Visit; BBS = Berg Balance Scale; BP = blood pressure; CBP = Controlling Blood Pressure; CMS = Centers for Medicare & Medicaid Services; COA = Care for Older Adults; CPT = Current Procedural Terminology; DAE = Use of High-Risk Medications in Older Adults; DMS-E = Utilization of the PHQ-9 to Monitor Depression Symptoms; ECDS = Electronic Clinical Data Systems; EPS = extrapyramidal symptoms; ESRD = end-stage renal disease; FIM = Functional Independence Measure; HbA1c = glycated hemoglobin; HEDIS = Healthcare Effectiveness Data and Information Set; HTN = hypertension; HZV = herpes zoster vaccine; LDL = low-density lipoprotein; MA = Medicare Advantage; MIPS = Merit-based Incentive Payment System; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; MRP = Medication Reconciliation Post-Discharge; MY = measurement year; NSAID = nonsteroidal anti-inflammatory drug; OT = occupational therapy; PCR = Plan All-Cause Readmissions; PCV = pneumococcal conjugate vaccine; PHQ-9 = Patient Health Questionnaire 9-item; PT = physical therapy; RN = registered nurse; RR = relative risk; SASQ = Single Alcohol Screening Question; SLP = speech-language pathology; SPC = Statin Therapy for Patients with Cardiovascular Disease; Td/Tdap = tetanus-diphtheria/tetanus-diphtheria-acellular pertussis; TRC = Transitions of Care; TSC-E = Tobacco Use Screening and Cessation Intervention; TUG = Timed Up and Go; USPSTF = United States Preventive Services Task Force; UTI = urinary tract infection

QUALITY OUTCOME

No HEDIS or CMS Star Rating performance measure directly targets hemiplegia or outpatient stroke rehabilitation. Instead, cross-cutting Medicare Advantage measures—such as Controlling High Blood Pressure (CBP), Diabetes Care (HBD), Medication Reconciliation Post-Discharge (MRP), Fall Risk Management (FRM), and Statin Therapy for Cardiovascular Disease (SPC)—follow the comorbidity cluster compounding hemiplegic disability. While acute stroke episodes are included in bundled payment models, CMS has not yet established dedicated value-based payment programs for chronic stroke rehabilitation, largely due to complex case-mix adjustment challenges regarding functional impairment. Clinicians should align documentation with AHA/ASA stroke rehabilitation performance measures to demonstrate quality, optimize functional tracking, and support accurate risk adjustment, even when not directly linked to plan revenue.

DOCUMENTATION REMINDER

Document the named diagnosis with **laterality, dominance, tone, and explicit causal link** to prior stroke (e.g., "**right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction (I69.351), spastic tone, FIM 96 stable**"). Hemiparesis is coded with the same HCC weight as hemiplegia — never leave it uncoded because it appears less severe. For MA patients denied rehabilitation transfer or intensity, document the discussion and the clinical rationale for the level of care recommended.

5 CODING REMINDERS AND CASE EXAMPLES

Documentation Specificity

- **Code family — I69 vs G81 vs I63: I69.x** (preferred for any residual deficit from a prior cerebrovascular event); **G81.x** (non-stroke etiology only — tumor, trauma, demyelinating disease, congenital); **I63.x** (acute encounter only — never at follow-up visits). The most common coding error in primary care is **using I63.x at follow-up visits** for ongoing post-stroke deficits
- **Laterality + dominance for every I69.35x: I69.351** right dominant **I69.352** left dominant **I69.353** right non-dominant **I69.354** left non-dominant. Ask the patient which side is affected and whether it is the dominant side — both elements are knowable at every visit and support the specific subcode rather than .359 (unspecified)
- **Tone (flaccid vs spastic) for G81.x:** When **G81.x** applies (non-stroke etiology), document tone: **G81.01–G81.04** flaccid (by side and dominance), **G81.11–G81.14** spastic (by side and dominance). **G81.90** (unspecified, unspecified side) is a last resort
- **Hemiparesis = hemiplegia for coding: Both map to HCC 253 (RAF 0.387 CNA)**. Never leave hemiparesis uncoded because the deficit appears "less severe" — this is the most commonly documented coding gap in primary care
- **Explicit causal language is required for I69 documentation:** The note must state that the deficit is "**sequela of**," "**due to**," or "**following**" a prior cerebrovascular event. Without this language, coders cannot assign I69 codes and often default to **G81.90** or **Z86.73**
- **Z86.73 only when truly without residual deficits: Z86.73** means "personal history of TIA/cerebral infarction **without residual deficits**." Any persistent weakness, gait change, spasticity, or functional limitation makes **Z86.73** inappropriate — use the **I69.35x** sequela code
- **Model documentation statement:** "**Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction. Spastic tone in right upper and lower extremities. Patient is right-hand dominant.**" → Code **I69.351**. Single sentence contains all four required documentation elements: laterality, dominance, etiology, and tone
- **Annual reconfirmation:** HCC 253 expires every calendar year. Annual visit note must document **active condition with current management** (rehabilitation services, spasticity management, comorbidity co-management, surveillance). Carrying forward last year's problem-list code without an active-management note does not satisfy MEAT

Annual Clinical Review and Confirmation

- **Annual review and reconfirmation:** Hemiplegia must be reassessed once per calendar year via face-to-face or synchronous audio-video encounter. The note must reconfirm side, dominance, tone, etiology, current functional status, and the active rehabilitation/ management plan. Telephone-only encounters do not satisfy MEAT for HCC 253
- **Visit modality:** In-person or video telehealth qualify. Physical exam findings critical to hemiplegia (tone, MAS, gait, shoulder, contracture screen, skin integrity) require in-person assessment at least annually for active disease
- **HCC context:** Hemiplegia and hemiparesis share **HCC 253 — RAF 0.387** (CNA segment). Documentation is not completed if: (a) the diagnosis is not recorded on the encounter, (b) the note defaults to **Z86.73** despite residual deficit, or (c) the note uses an acute **I63.x** code instead of an I69 sequela code
- **Subcode reconfirmation:** Tone, functional status, and complications may change year to year. If a flaccid hemiparesis evolves to spastic, the **G81.0x → G81.1x** update should be made; if dominance was previously omitted (.359), the specific subcode (. 351/.352/.353/.354) should be used at the next visit when documented
- **Validated severity measures:** Document **FIM** (preferred longitudinal tool — detects change up to 18–24 months in severe stroke and beyond), or **Berg Balance Scale**, **Timed Up and Go**, **10-meter walk test**, **MoCA**, and **PHQ-9** at every encounter. Generic "stable" or "improving" without numeric values does not satisfy MEAT
- **Document MA rehabilitation advocacy:** If an MA patient was denied IRF, SNF, or HHA transfer or rehabilitation intensity, **document the discussion and the clinical rationale for the level of care recommended** in the chart. This makes advocacy visible and supports clinical decision-making across the post-acute continuum

Good Documentation is Comprehensive Coding

EHR SHORTCUT/ RISK	PREFERRED DOCUMENTATION LANGUAGE
"History of stroke"	"**Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction (I69.351)**, spastic tone in right upper and lower extremities, FIM 96 stable since 11/2025, ongoing outpatient PT/OT"
"Z86.73 — history of CVA"	When residual deficit is present: "**I69.351 — right dominant hemiparesis following cerebral infarction**, spastic tone, ambulates with cane and right AFO" — Z86.73 forfeits HCC 253 when deficits exist
"Weakness on one side"	"**Right (non-dominant) hemiparesis** (**69.353I**), spastic tone, sequela of 2022 left thalamic infarction, FIM 102, completed outpatient PT 03/2026, on baclofen 5 mg TID"

EHR SHORTCUT/ RISK	PREFERRED DOCUMENTATION LANGUAGE
"On baclofen"	"Baclofen 10 mg TID for spasticity (MAS 2 right elbow/wrist); counseled re: sedation and fall risk; no orthostasis; reassess at 3 months; will consider taper if function tolerates"
"Stable hemiparesis"	"**FIM total 96** (motor 64, cognitive 32); trend stable since 11/2025; BBS 42/56 (moderate fall risk); TUG 18 s; PHQ-9 6; MoCA 24/30"
"Hemiplegia, no specifics"	"**Right dominant flaccid hemiplegia (G81.04)** following 2024 right MCA glioblastoma resection, FIM 72, AFO and right wrist splint in place, OT 2×/wk" — when etiology is non-stroke, name the cause and select **G81.x** with tone and side
"Patient declines rehab"	"Patient declines additional PT referral at this visit; **functional status reassessed (FIM 96, BBS 42); unmet rehabilitation potential identified for right shoulder pain (24–52% post-stroke prevalence); will revisit at next visit**; documented education on functional benefit and AHA/ASA recommendation"

ABBREVIATIONS: AFO = ankle-foot orthosis; BBS = Berg Balance Scale; CVA = cerebrovascular accident; FIM = Functional Independence Measure; MAS = Modified Ashworth Scale; MCA = middle cerebral artery; MoCA = Montreal Cognitive Assessment; OT = occupational therapy; PHQ-9 = Patient Health Questionnaire 9-item; PT = physical therapy; TID = three times daily; TUG = Timed Up and Go

EHR Workflow Tips

- **[EHR TIP — Smartphrase]** .HEMIPLEGIA_VISIT — Full annual visit template: side, dominance, tone, etiology with causal language, FIM total (motor + cognitive), BBS, TUG, MAS at target muscles, PHQ-9, MoCA, falls history, current rehabilitation services, secondary prevention targets (BP, LDL, A1c, anticoagulation), spasticity management plan, caregiver involvement, and active **I69.35x** or **G81.x** reminder
- **[EHR TIP — Smartphrase]** .HEMIPLEGIA_MEAT — MEAT documentation block: Monitor (FIM trajectory, vitals, weight, PHQ-9/MoCA trend, falls); Evaluate (neurological exam with tone/ MAS, BBS, TUG, gait, shoulder, skin); Assess (**I69.35x** with laterality + dominance + tone + etiology, comorbidities, trajectory, unmet rehabilitation potential); Treat (rehabilitation services with frequency, antispasmodic dose with safety counseling, secondary prevention plan, MA advocacy if applicable, follow-up timing)
- **[EHR TIP — Smartphrase]** .HEMIPLEGIA_ESCALATE — Escalation template: current rehabilitation plan, escalation trigger (specific clinical value — e.g., "MAS 2 right elbow flexors with new functional decline"), new intervention (e.g., "physiatry referral for focal botulinum toxin evaluation"), guideline alignment (AHA/ASA spasticity 2026), and red-flag review

- **[EHR TIP — Alert]** Annual K-code reconfirmation reminder — BPA fires at AWV if the patient's last active **I69.35x** or **G81.x** is >330 days old; prompts MEAT documentation to retain HCC 253 and prevents drift to **Z86.73**
- **[EHR TIP — Alert]** Hidden-barrier triad screen — BPA prompts PHQ-9, MoCA, and nutrition screen at every post-stroke visit during first year and at AWV thereafter; flags PHQ-9 ≥10 or MoCA <26 for follow-up plan
- **[EHR TIP — Order Set]** Post-stroke PCP visit — PHQ-9, MoCA, BBS, TUG, weight, BP (with orthostatic), MAS at relevant muscles, medication reconciliation, vaccination status check, rehabilitation referral order, DEXA if indicated, falls assessment, caregiver education flag
- **[EHR TIP — Referral]** Rehabilitation referral template — Includes current diagnosis with laterality/dominance/tone/etiology, current FIM and BBS, specific functional goal, medications, spasticity status (MAS), comorbidities, caregiver availability, and prior rehabilitation history

Brief Case Examples

✓ SUCCESS — FULL I69.351 DOCUMENTATION WITH ACTIVE REHABILITATION ADVOCACY

SCENARIO: A 74-year-old right-hand-dominant retired teacher, three years post left MCA ischemic stroke, with residual right-sided hemiparesis, spastic tone in the right upper extremity, and an antalgic gait managed by a right AFO. Lives at home with his spouse who provides supervision for transfers and bathing.

Documentation: "**Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction (I69.351)**, spastic tone in right upper and lower extremities (MAS 2 elbow/wrist, 1+ gastrocnemius); FIM total 96 (motor 64, cognitive 32), stable since 11/2025; BBS 42/56 (moderate fall risk); TUG 18 s. **Hemiplegic shoulder pain, right (M25.511)** new over 6 weeks; OT × 4 weeks ordered and physiatry referral if no improvement. **Mild post-stroke cognitive impairment (F06.70)**, MoCA 24/30 stable. **Z91.81 history of falling**; home safety eval ordered; medication review for sedating agents. Active rehabilitation plan: outpatient PT 2×/month, adding OT × 4 weeks. Secondary prevention: aspirin 81 mg, atorvastatin 40 mg (LDL 78), lisinopril 10 mg (BP 132/78), A1c 6.4%. Baclofen 10 mg TID for spasticity with sedation/fall-risk counseling. PHQ-9 6 monitored. Follow-up 3 months."

Outcome: HCC 253 documented. RAF 0.387 × $10,402.34 = ~$4025.57/year of risk-adjusted care resources for this patient. Satisfies MEAT: side, dominance, tone, and causal etiology coded; functional status anchored to FIM/BBS/TUG with dates; rehabilitation plan named with services and frequency; hidden-barrier triad (PHQ-9, MoCA, nutrition) addressed; comorbidities documented and managed; safety counseling for antispasmodic recorded. Aligns with AHA/ASA Primary Care of Adult Patients After Stroke statement (2021) — every visit asks: *"Would this patient benefit from referral for any services to improve functional impairments?"*

⚠ PITFALL — Z86.73 DEFAULT DESPITE RESIDUAL DEFICIT

SCENARIO

Same 74-year-old patient with persistent right-sided weakness, AFO use, and supervision for transfers — but the clinician documents the visit as "history of stroke, asymptomatic, on aspirin" and codes **Z86.73**.

Documentation: "History of CVA, no acute issues. On aspirin and statin. Patient walks with cane. RTC 1 year. **Z86.73**."

Consequence: Flagged. HCC 253 forfeited entirely. **Z86.73** is defined as "history of TIA/cerebral infarction without residual deficits" — but this patient has documented hemiparesis, spastic tone, AFO use, and supervision for transfers. RAF loss ≈ $4025.57/year for this patient and repeats annually if not corrected. The rehabilitation plan is also absent — no FIM, no BBS, no PHQ-9, no MoCA, no unmet rehabilitation potential evaluation, no acknowledgment of the new shoulder pain.

Fix: "Right dominant hemiparesis, sequela of 2023 left MCA cerebral infarction (**I69.351**), spastic tone right upper/lower extremities, FIM 96, BBS 42, PHQ-9 6, MoCA 24/30; outpatient PT 2×/month; baclofen 10 mg TID with fall-risk counseling; OT × 4 weeks for new right shoulder pain; secondary prevention on target; follow-up 3 months." HCC 253 (RAF 0.387) restored — ≈ $3,339/year — and the chart now reflects the active rehabilitation and management plan that supports continuity of care.

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