



# Cerebrovascular accident (CVA)



## Clinical overview

### Definition

A cerebrovascular accident (CVA), also known as a stroke, is an interruption or disruption of blood flow to the brain. When blood flow to an area of the brain stops, oxygen and nutrients cannot get to that area of the brain, and brain cells begin to die, resulting in permanent damage.<sup>1</sup>

### Types<sup>2</sup>

- **Ischemic:** This type is usually caused by a blood clot that blocks an artery (or in rare instances a vein) that supplies oxygen-rich blood to the brain.
  - **Thrombotic stroke:** A blood clot forms inside an artery that supplies blood to the brain, blocking blood flow
  - **Embolic stroke:** A blood clot or plaque debris forms in a vessel in another part of the body and then travels to and blocks a blood vessel in the brain.
  - **Other types of ischemic stroke** include very low blood pressure or narrowing or tears in the lining of one of the blood vessels that carry blood to the brain (e.g., carotid arteries), all of which decrease blood flow to the brain.
- **Hemorrhagic:** A blood vessel within the brain weakens and ruptures, causing bleeding in the brain.
  - **Intracerebral hemorrhage:** Bleeding within the brain.
  - **Subarachnoid hemorrhage:** Bleeding into the subarachnoid space – the space between the brain and the membranes that cover the brain

### Some causes of ischemic CVA<sup>3</sup>

- Conditions that can cause blood clots
- Atherosclerosis, irregular heart rhythms (such as atrial fibrillation), heart valve problems, congenital heart defects or blood-clotting disorders
- Injuries or surgeries to the head and neck, cancer radiation treatments to the neck or brain, or inflammation or other disorders of blood vessels

### Some causes of hemorrhagic CVA<sup>3</sup>

- Untreated or uncontrolled high blood pressure
- Traumatic injuries or surgeries to the head and neck
- Brain aneurysms, other abnormalities of blood vessels in and around the brain, or brain tumors
- Blood-thinning medications, bleeding disorders or liver disease (associated with increased bleeding)

### Risk factors<sup>3</sup>

- Lifestyle risk factors (obesity, alcoholism, smoking)
- Chronic conditions (hypertension, diabetes, high cholesterol, cardiovascular disease)
- Age/Gender (males and people 55 or older)
- Personal or family history of stroke, heart attack or transient ischemic attack

### Signs and symptoms<sup>3</sup>

Sometimes there are no signs or symptoms. Signs or symptoms that may occur include, but are not limited to:

- Unilateral paralysis, weakness or numbness which may cause lack of coordination or balance
- Confusion, difficulty speaking or visual disturbance
- Headache

### Complications<sup>3</sup>

Complications depend on the type of stroke, degree of brain damage, the body systems affected and how quickly treatment is received. Complete recovery can occur or there may be permanent residual deficits.

### Diagnostic tools<sup>4</sup>

- Medical history, physical and neurological exam
- Laboratory tests (to check clotting factors, blood sugar and other blood chemicals)
- Imaging tests (e.g., CT, MRI, MRA and CTA, echocardiogram, ultrasound of the carotid arteries)

### Treatment options<sup>4</sup>

An acute stroke represents a medical emergency. Prompt evaluation and treatment are critical to save brain tissue and avoid or reduce complications, residual effects and disability. Treatment depends on the cause and type of stroke and can include:

- For ischemic CVA, clot-busting drugs (must be administered within 4.5 hours of the onset of symptoms), blood thinners and carotid artery surgery, if indicated
- For hemorrhagic CVA, surgical intervention, if indicated, to control bleeding
- Pain medications as indicated (e.g., for headache)
- Control and management of underlying causal conditions
- Physical (PT), occupational (OT) and speech therapy (SLP) for residual conditions



## Best documentation practices for healthcare providers

### Subjective

- The HPI sets the background for the patient's presenting problem, from when first diagnosed until this encounter.
- May include Review of Systems (ROS), Past, Family, and/or Social History (PFSH), Active Problems List.
- Document the presence of current symptoms or manifestations related to cerebrovascular accident (e.g., unilateral paralysis, weakness, numbness, lack of coordination or balance, confusion, difficulty speaking, visual disturbance or headache, etc.) or current residual deficits that are due to a past CVA (e.g., unilateral hemiparesis or hemiparalysis, impaired speech or swallowing, cognitive difficulties, or mood or behavior changes, etc.).

### Objective

Document any objective data to include positive physical exam findings of current CVA or current residual deficits that are due to a past CVA (motor, sensory and cranial nerve function, cognitive testing, results of PT/OT/SLP evaluations, etc.). Include results of related diagnostic testing.

## Assessment/Impression

**Specificity:** Describe each final diagnosis to the highest level of specificity. For example:

- Document the type of CVA (ischemic, hemorrhagic, postoperative, etc.), affected artery (e.g., intracerebral, intracranial, subarachnoid) and the cause, if known.
- For related neurologic deficits, specify laterality (right or left, dominant or non-dominant) or type (e.g., dysphagia oral phase, dysphagia pharyngeal phase, neurogenic dysphagia, etc.).
- Document the severity of deficit(s): mild, moderate, or severe

### Associated conditions and manifestations:

- Clearly link associated conditions or manifestations to cerebrovascular accident by using linking terms such as "with," "due to," "secondary to," "associated with," "related to," etc. Examples:
  - Acute ischemic cerebrovascular accident due to bilateral carotid artery atherosclerosis
  - Acute right ischemic cerebral infarction with associated left hemiplegia
  - Facial droop related to past hemorrhagic stroke that occurred six months ago

### Current versus historical:

- Do not document a past CVA as if it is current. An acute CVA represents a medical emergency that requires prompt medical treatment.
  - A final diagnosis stated as simply "CVA" indicates a current CVA, which would not correlate with a treatment plan to "follow up in one year."
  - Rather, this documentation suggests the CVA occurred in the past and should have been described as "history of CVA."
- On the other hand, do not use past-tense terms such as "status post," "history of," "recent," "past," "prior," etc., to describe current residual deficits of past CVA.
  - In diagnosis coding, a residual deficit of CVA described as "history of," "status post," etc., indicates a historical condition that no longer exists as a current problem.
  - Contrast these two examples:

#### **"History of CVA with facial weakness"**

This documentation supports a historical condition (At some time in the past, the patient had a CVA with associated facial weakness).

#### **"Residual facial weakness due to past CVA"**

This documentation supports current facial weakness due to past CVA.

- Codes for residual effects/late effects/sequelae cannot be assigned based on the status of the condition in the past. Rather, code assignment must be based on documentation that clearly shows the residual condition is current. For example:
  - A final diagnosis of "residual left hemiparesis due to CVA one year ago" should be supported by a notation of left hemiparesis in the neurological exam.
  - Documentation of a detailed and completely normal neurologic exam would contradict a diagnosis of current left hemiparesis.

## Plan

Document a clear and concise treatment plan for CVA or residual deficits or disability related to past CVA.

Examples:

- Admit from emergency department to intensive care unit for acute cerebrovascular accident.
- Referral to physical therapy for evaluation and treatment of residual right-sided hemiparesis, due to past CVA.
- Address any additional steps being taken to treat the patient.<sup>5</sup>

## ICD-10-CM coding tips

### Current acute CVA

- The terms “stroke,” “cerebral infarction” and “cerebrovascular accident” are often used interchangeably. These terms with no other specification or description are all indexed to the default code I63.9, Cerebral infarction, unspecified. Additional code(s) are assigned for any neurologic deficit associated with acute CVA, even when it has been resolved prior to discharge from the hospital.
- A final diagnosis of CVA with no supporting information and no related treatment plan does not support CVA as an acute event. Rather, this documentation suggests history of CVA. When there is no opportunity to query the provider for clarification, no diagnosis code can be assigned.
- Intraoperative or post-procedural CVA is coded when the medical record documentation clearly specifies cause-and-effect relationship between the medical intervention and the CVA. Proper code assignment depends on the specific descriptions documented in the record and the coding path in the ICD-10-CM coding manual.<sup>6</sup>

### Sequelae of CVA<sup>6</sup>

Codes from category I69, Sequelae of cerebrovascular disease, include neurologic deficits that persist after the initial episode of care for CVA.

- The neurologic deficits caused by CVA may be present from the onset or may arise at any time after the onset of the CVA.
- After the patient is discharged from the initial episode of care for an acute CVA – even if transferred to a rehabilitation facility – any remaining residual neurologic deficit is considered a sequela/late effect and should be coded from category I69.
- Documentation must clearly link the residual deficit, late effect or sequela to the past CVA as the cause.
- In some cases, a patient is admitted with a current acute CVA with associated neurologic deficits, while at the same time having current residual neurologic deficits that result from an old, past or healed CVA. In this scenario, codes may be assigned together from categories I60 – I63 and I69 as indicated by the specific documentation in the medical record.
- Unilateral weakness documented as related to past CVA is considered synonymous with hemiparesis and should be coded as such. Likewise, weakness of one extremity noted as related to past CVA is synonymous with monoplegia and should be coded as such.
- Residual weakness (without further description or specification of site) due to past CVA is coded I69.398, Other sequelae of cerebral infarction and R53.1, Weakness.
- Residual muscle weakness (without further description or site) related to a past CVA is coded as I69.398 and M62.81, Muscle weakness (generalized).
  - The codes under category I69 that specify hemiplegia, hemiparesis and monoplegia also identify whether the dominant or non-dominant side is affected. If the affected side is documented but not

specified as dominant or non-dominant, and the classification system does not indicate a default, code selection is as follows:<sup>7</sup>For ambidextrous patients, the default is dominant.

- If the left side is affected, the default is non-dominant.
  - If the right side is affected, the default is dominant.
- Hemiparesis or hemiplegia documented without further specification or stated to be old or longstanding but of unspecified cause – i.e., no documented link to past CVA as the cause – is coded to category G81. Review and follow all instructional notes under this category.

### History of CVA

History of CVA with no current associated residual deficits codes to Z86.73, Personal history of transient ischemic attack (TIA), and cerebral infarction without residual deficits.



## Coding examples

Example 1	
Medical record documentation	<p><b>HPI:</b> 68-year-old male presenting to the emergency department with sudden onset of right-sided weakness and difficulty speaking, beginning approximately 2 hours prior to arrival.</p> <p><b>Physical examination:</b> Vital Signs: BP 170/95 mmHg, HR 88 bpm, Temp 36.8°C, RR 18, SpO2 98% on room air Neurological: Alert, oriented to person and place, expressive aphasia, 2/5 strength in right upper and lower extremities, NIH Stroke Scale Score: 10</p> <p><b>Hospital course:</b> Patient was admitted to neurology service. Patient was started on aspirin. Physical and occupational therapy were consulted. Patient's neurological status remained stable during admission.</p> <p><b>Assessment &amp; plan:</b> Acute ischemic stroke, monitor for neurological changes, initiate rehabilitation services and educate family on stroke prevention.</p>
ICD-10-CM codes	<p><b>I63.9</b> Cerebral infarction, unspecified <b>R29.710</b> NIHSS score 10</p>
Rationale	When the diagnosis is stated as cerebrovascular accident (CVA) or stroke with no further information available, code I63.9, Cerebral infarction, unspecified, is assigned for the diagnosis of stroke or CVA to allow for improved uniformity in coding and statistical data. <sup>8</sup>

Example 2	
Medical record documentation	<p>65-year-old female with history of CVA with residual right hemiplegia</p> <p><b>Review of systems:</b> Musculoskeletal - no difficulty walking, muscle weakness, arthralgia <b>Physical exam:</b> Musculoskeletal- motor strength and tone: normal. Neuro- normal gait</p> <p><b>Assessment &amp; plan:</b> 1. History of cerebrovascular accident, no further stroke-like symptoms 2. Right sided hemiplegia - Patient is doing well and staying active, continue diet and exercise</p>
ICD-10-CM code	Query the provider for clarification
Rationale	<ul style="list-style-type: none"> <li>• There is no mention of hemiplegia in the review of systems or physical exam Query the provider for clarification regarding presence of hemiparesis.</li> <li>• It is not clear that right hemiplegia due to past CVA is still present, as the musculoskeletal sections contradict the final diagnosis.</li> </ul>

<b>Example 3</b>	
<b>Medical record documentation</b>	A 70-year-old-male admitted for further evaluation of acute CVA, confirmed on non-contrast CT imaging in the emergency department setting. He also has a known history of right hemiparesis from a previous CVA. <b>Past Medical History:</b> Previous CVA resulting in right hemiparesis <b>PE:</b> Neurological: pre-existing right hemiparesis, decreased sensation on left side <b>A/P:</b> Acute CVA in patient with previous left hemisphere CVA and right hemiparesis
<b>ICD-10-CM codes</b>	<b>I63.9</b> Cerebral infarction, unspecified <b>I69.351</b> Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side
<b>Rationale</b>	<ul style="list-style-type: none"> <li>• Unspecified code I63.9 is assigned since cerebral infarction is not further specified.</li> <li>• Old hemiparesis from a past stroke (I69.351) can be coded along with an acute CVA (I63.9) when the record shows both conditions coexist.</li> <li>• Right hemiparesis defaults to dominant side.<sup>7</sup></li> </ul>

<b>Example 4</b>	
<b>Medical record documentation</b>	72-year-old female presents with history of cerebral infarction with residual right-sided weakness. <b>ROS:</b> Positive for weakness <b>Exam:</b> Alert & oriented, abnormal gait, right sided weakness <b>A/P:</b> History of acute cerebral infarction with residual non-dominant right-sided weakness. Ordered evaluation by physical and occupational therapy.
<b>ICD-10-CM code</b>	<b>I69.353</b> Hemiplegia and hemiparesis following cerebral infarction affecting right non-dominant side
<b>Rationale</b>	When unilateral weakness is clearly documented as being associated with a stroke, it is considered synonymous with hemiparesis/hemiplegia. <sup>9</sup>

<b>Example 5</b>	
<b>Medical record documentation</b>	Pleasant 68-year-old male who presents for a 6-month follow-up for cerebrovascular disease with residual left hemiparesis. <b>ROS:</b> negative with exception of HPI <b>PE:</b> Neurologic - alert and oriented, ongoing left hemiparesis <b>A/P:</b> History of cerebrovascular disease, left hemiparesis - balance, strength and gait training instructions provided
<b>ICD-10-CM code</b>	<b>I69.954</b> Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left non-dominant side
<b>Rationale</b>	When the affected side is documented, but not specified as dominant or nondominant, and the classification system does not indicate a default, code selection is as follows: For ambidextrous patients, the default should be dominant. If the left side is affected, the default is nondominant. If the right side is affected, the default is dominant. <sup>7</sup>

## References

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