



# Cerebrovascular accident (CVA)

ICD-10-CM

Clinical overview

## Definition

A cerebrovascular accident, 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.

## Types

- **Ischemic:** This type is usually caused by a blood clot that blocks a blood vessel (artery) 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 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 (i.e., carotid arteries), all of which decrease blood flow to the brain.
- **Hemorrhagic:** A blood vessel within the brain weakens and bursts, 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 thin tissues that cover the brain.

## Some causes of ischemic CVA

Conditions that can cause blood clots:

- Atherosclerosis (fatty substances in the blood collect on the walls of the arteries, causing narrowing of the vessel and slowing of blood flow, which can result in blood clot formation)
- Irregular heart rhythms, such as atrial fibrillation
- Certain drugs/medications
- Heart valve problems
- Congenital heart defects
- Blood-clotting disorders
- Inflammation or other disorders of blood vessels
- Injuries or surgeries involving blood vessels of the head or neck
- Cancer radiation treatments to the neck or brain

## Some causes of hemorrhagic CVA

- Untreated or uncontrolled high blood pressure
- Traumatic head and neck injuries
- Surgeries involving blood vessels of head and neck
- Blood-thinning medications
- Brain aneurysms (weak spots in walls of blood vessels in the brain) and other abnormalities of blood vessels in and around the brain
- Bleeding disorders
- Brain tumors
- Liver disease, which is associated with increased bleeding in general

## Risk factors

- High blood pressure/hypertension
- Diabetes
- Obesity
- High cholesterol
- Cardiovascular disease
- Alcoholism
- Smoking
- Age (older than 55)
- Male gender
- Personal history of stroke
- Family history of stroke

## Signs and symptoms

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

- Confusion, memory loss or impaired consciousness
- Change in personality, mood or emotions
- Headache
- Difficulty speaking or swallowing
- Loss of bowel or bladder function
- Loss of coordination or balance
- Difficulty walking
- Disturbances in vision, hearing or taste
- Unilateral paralysis, weakness or numbness

## Complications

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.



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## Diagnostic tools

- Medical history and physical exam
- Laboratory blood testing (to check clotting factors, blood sugar and other blood chemicals)
- Electrocardiogram, echocardiogram and other cardiac monitoring to check for heart problems
- Ultrasound of the carotid arteries
- Computed tomography (CT) scan
- Magnetic resonance imaging (MRI)
- Magnetic resonance angiography (MRA) or CT angiography (CTA)

## Treatment options

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 three 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, occupational and speech therapy for residual conditions



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Best documentation practices for physicians

## Subjective

In the subjective section of the office note, document the presence or absence of current symptoms or patient complaints related to cerebrovascular accident or current residual deficits that are due to a past CVA.

## Objective

The objective section should include positive physical exam findings of current CVA or current residual deficits that are due to a past CVA. Include results of related diagnostic testing.

## Assessment

**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 nondominant) or type (e.g., dysphagia oral phase, dysphagia pharyngeal phase, neurogenic dysphagia, etc.).

**Abbreviations:** A good rule of thumb for any medical record is to limit – or avoid altogether – the use of abbreviations. While CVA is a commonly accepted medical abbreviation for cerebrovascular accident, best practice is as follows:

- The initial notation of an abbreviation or acronym should be spelled out in full with the abbreviation in parentheses: “Cerebrovascular accident (CVA).” Subsequent mention of the condition can then be made using the abbreviation.
- The diagnosis should be spelled out in full in the final assessment/impression.

## 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.

## Treatment 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 ABC provider for physical therapy evaluation and treatment of residual right-sided hemiparesis, due to past CVA.



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Best documentation practices for physicians

## Electronic health record (EHR) issues

### Other and unspecified codes with descriptions:

Some electronic health records (EHRs) insert ICD-10-CM codes with corresponding descriptions into the assessment section of the office note in place of a provider-stated final diagnosis. For example:

“I63.89 Other cerebral infarction”

“I63.9 Cerebral infarction, unspecified”

These are vague descriptions and incomplete diagnoses.

- Codes titled “other” or “other specified” are for use when the medical record provides a specific diagnosis description for which a specific diagnosis code does not exist.
- The “other” ICD-10-CM code with description should not be used, by itself, as a final diagnosis without clear documentation that specifies the particular “other” cerebral infarction.
- Unspecified diagnosis descriptions should be used only when sufficient clinical information is not known or available to the provider at the time of the encounter.

### Mismatch between final diagnostic statement and EHR-inserted diagnosis code with description:

Another scenario that causes confusion is one in which the assessment section documents a provider-stated diagnosis *PLUS* an EHR-inserted diagnosis code with description that does not match – or may even contradict – the stated diagnosis. Example:

#### Assessment: Cerebral infarction

**I63.131 Cerebral infarction due to embolism of right carotid artery**

Here the final diagnosis **in bold** is simply “Cerebral infarction,” which codes to **I63.9**. The EHR-inserted diagnosis code with description that follows – **I63.131 Cerebral infarction due to embolism of right carotid artery** – does not match the stated diagnosis in bold. No information was found elsewhere in the record that supports this specificity. This leads to confusion regarding which diagnostic statement is correct and which code should be reported.

To avoid confusion and ensure accurate diagnosis code assignment, the provider-stated final diagnosis must either

- a) match the code with description; OR
- b) it must classify in ICD-10-CM to the EHR-inserted diagnosis code with description.

**Note:** ICD-10-CM is a statistical classification; it is not a substitute for a provider’s final diagnostic statement. It is the provider’s responsibility to provide legible, clear, concise, and complete documentation of each final diagnosis described to the highest level of specificity, which is then translated to a code for reporting purposes. It is not appropriate for providers to simply list a code number or select a code number from a list of codes in place of a written final diagnosis.



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Tips and resources for coders

## Coding basics

For accurate and specific diagnosis code assignment, review the entire medical record to verify CVA or residual late effect or sequelae of past CVA is current. Next, note the exact description of CVA or residual late effect of past CVA documented in the medical record. Then, in accordance with ICD-10-CM official coding conventions and guidelines:

- Search the alphabetic index main terms and subterms for that specific description.
- Verify the code in the tabular list, carefully following all instructional notes.

## Coding CVA and associated residual effects/sequelae

Categories	Description	Additional characters specify
I60 – I62	Nontraumatic intracranial hemorrhage	<ul style="list-style-type: none"> <li>▪ Location</li> <li>▪ Affected artery</li> <li>▪ Laterality (right vs. left)</li> </ul>
I63	Ischemic CVA due to thrombosis or embolus	<ul style="list-style-type: none"> <li>▪ Cause (thrombosis, embolus or unspecified)</li> <li>▪ Location/affected artery</li> <li>▪ Laterality (right vs. left)</li> </ul>
I69	Sequelae of CVA	<ul style="list-style-type: none"> <li>▪ Type of CVA that caused the sequela</li> <li>▪ Specific sequela (residual late effect)</li> <li>▪ Laterality (right vs. left) with dominance or nondominance</li> </ul>

## Relevant terms

When coding from category I63 for ischemic CVA, the medical coder should be familiar with the following terms and definitions:

- Stenosis = narrowing
- Occlusion = complete or partial blockage
- Thrombus = blood clot that develops inside a blood vessel and stays in place
- Embolus = blood clot that develops inside a blood vessel but dislodges and travels to another location
- Cerebral arteries = arteries located inside the cerebrum of the brain. Examples: Anterior cerebral artery, middle cerebral artery, posterior cerebral artery
- Precerebral arteries = arteries that lead to the cerebrum of the brain but are not located within the brain. Examples: Vertebral artery, basilar artery, carotid artery

## 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.
- An acute CVA represents a medical emergency that requires prompt medical treatment. 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 physician 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.

## Sequelae of CVA (formerly referred to as “late effects”)

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.
- Fourth characters specify the causal conditions as Sequelae of:
  - 169.0- nontraumatic subarachnoid hemorrhage
  - 169.1- nontraumatic intracerebral hemorrhage
  - 169.2- other nontraumatic intracranial hemorrhage
  - 169.3- cerebral infarction



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Tips and resources for coders

## Sequelae of CVA – continued

- Fifth characters specify the particular neurological deficits as follows:

∅	Unspecified sequelae
1	Cognitive deficits
2	Speech and language deficits
3	Monoplegia of upper limb
4	Monoplegia of lower limb
5	Hemiplegia/hemiparesis
6	Other paralytic syndrome
9	Other sequelae

Some codes have sixth characters for additional specificity, such as laterality, type, etc.

- 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 nondominant side is affected. If 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 is dominant.
  - If the left side is affected, the default is nondominant.
  - If the right side is affected, the default is dominant.
- When a neurological deficit related to past CVA is described as “history of” or “status post” (as in “history of CVA with right hemiparesis”), it should not be coded as current if there is no documentation to support the residual deficit as still present. Consider and contrast these two final diagnostic statements:
  - **“History of CVA with right hemiparesis”**  
This description supports both CVA and right hemiparesis as historical – code as Z86.73, Personal history of transient ischemic attack (TIA), and cerebral infarction without residual deficits.
  - **“Residual right hemiparesis due to past CVA”**  
This description supports right hemiparesis as current and due to past CVA – code as I69.351, Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side.
- Codes for sequelae/residual late effects cannot be assigned based on the status of the condition in the past; rather, codes are assigned based on the current status.
  - Look for documentation in the medical record that clearly shows the residual neurological deficit that is a late effect or sequela of a past CVA is still present and current.
  - For example, if the final diagnosis is “left hemiparesis due to past CVA,” the physical exam should document left hemiparesis – or at the least, the physical exam should not contradict the final diagnosis (detailed musculoskeletal and neurologic exams with all normal findings would contradict the final diagnosis).
- 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.



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Tips and resources for coders

## Coding examples

Example 1	
Final diagnosis	Embolic stroke involving left vertebral artery with dysphasia
Plan	Admit and request stat neurology consult
ICD-10-CM code(s)	<b>I63.112</b> Cerebral infarction due to embolism of left vertebral artery <b>R47.02</b> Dysphasia
Comments	The plan supports the condition as an acute event. Dysphasia is not coded as a residual effect (sequela) during the initial admission for active care. If dysphasia persists after discharge from the initial admission, it will then be coded as a sequela.

Example 2	
Final diagnosis	CVA
Plan	Continue current medications and return in six months for annual exam
ICD-10-CM code(s)	Query the physician for clarification
Comments	Documentation suggests the CVA is historical.

Example 3	
Final diagnosis	Admit for acute CVA in patient with old right hemiparesis from past stroke
ICD-10-CM code(s)	<b>I63.9</b> Cerebral infarction, unspecified <b>I69.351</b> Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side

Example 4	
Final diagnosis	Receiving home health speech therapy services related to oropharyngeal dysphagia caused by cerebrovascular accident one month ago
ICD-10-CM code(s)	<b>I69.391</b> Dysphagia following cerebral infarction <b>R13.12</b> Dysphagia, oropharyngeal phase
Comments	<ul style="list-style-type: none"> <li>Oropharyngeal dysphagia is clearly linked to past CVA as the cause.</li> <li>The provider documented a timeline for the CVA (one month ago) but did not specify the type of CVA.</li> <li>The provider appropriately specified the type of dysphagia.</li> </ul>

Example 5	
Final diagnosis	Status post CVA with residual left hemiplegia <ul style="list-style-type: none"> <li>There is no mention of left hemiplegia in the physical exam or elsewhere in the medical record.</li> <li>The detailed neurological exam is documented as completely normal.</li> </ul>
ICD-10-CM code(s)	Query the physician for clarification
Comments	<ul style="list-style-type: none"> <li>The above statement suggests a historical condition.</li> <li>It is not clear that left hemiplegia due to past CVA is still present, as the neurology exam contradicts the final diagnosis.</li> </ul>

Example 6	
Final diagnosis	Residual facial droop from past CVA
ICD-10-CM code(s)	<b>I69.392</b> Facial weakness following cerebral infarction
Comments	Facial droop is documented as a current condition caused by a past CVA.

**References:** American Hospital Association Coding Clinic; ICD-10-CM Official Guidelines for Coding and Reporting; Mayo Clinic; MedlinePlus; Merck Manual; WebMD