

# CEREBROVASCULAR ACCIDENT (CVA)/STROKE

*Cerebrovascular disease* refers to any functional or structural abnormality of the brain caused by a pathological condition of the cerebral vessels or of the entire cerebrovascular system. This pathology either causes hemorrhage from a tear in the vessel wall or impairs the cerebral circulation by a partial or complete occlusion of the vessel lumen with transient or permanent effects. Over 700,000 Americans are affected by a CVA annually. CVA is the third leading cause of death after heart disease and cancer and is the leading cause of disability cost to the nation (approximately \$30–\$40 billion/year.)

Thrombosis, embolism, and hemorrhage are the primary causes for CVA, with thrombosis being the main cause of both CVAs and transient ischemic attacks (TIAs). The most common vessels involved are the carotid arteries and those of the vertebrobasilar system at the base of the brain. A thrombotic CVA causes a slow evolution of symptoms, usually over several hours, and is “completed” when the condition stabilizes. An embolic CVA occurs when a clot is carried into cerebral circulation and causes a localized cerebral infarct. Hemorrhagic CVA is caused by other conditions such as a ruptured aneurysm, hypertension, arteriovenous (AV) malformations, or other bleeding disorders. Symptoms depend on distribution of the cerebral vessel(s) involved. Ischemia may be (1) transient and resolve within 24 hours, (2) reversible with resolution of symptoms over a period of 1 week (reversible ischemic neurological deficit [RIND]), or (3) progress to cerebral infarction with variable effects and degrees of recovery.

## CARE SETTING

Although the patient may initially be cared for in the intensive care unit (ICU), this phase of care focuses on the step-down or medical unit and subacute/rehabilitation units to community level.

## RELATED CONCERNS

Hypertension: severe  
Craniocerebral trauma (acute rehabilitative phase)  
Psychosocial aspects of care  
Seizure disorders  
Total nutritional support: parenteral/enteral feeding

## Patient Assessment Database

Collected data are determined by location, severity, and duration of pathology.

### ACTIVITY/REST

**May report:** Difficulties with activity due to weakness, loss of sensation, or paralysis (hemiplegia) tires easily; difficulty resting (pain or muscle twitching)  
**May exhibit:** Altered muscle tone (flaccid or spastic); paralysis (hemiplegia); generalized weakness  
Visual disturbances  
Altered level of consciousness

### CIRCULATORY

**May report:** History of postural hypotension, cardiac disease (e.g., myocardial infarction [MI], rheumatic/valvular heart disease, HF, bacterial endocarditis), polycythemia  
**May exhibit:** Arterial hypertension (common unless CVA is due to embolism or vascular malformation)  
Pulse rate may vary (preexisting heart conditions, medications, effect of stroke on vasomotor center)  
Dysrhythmias, electrocardiogram (ECG) changes  
Bruit in carotid, femoral, or iliac arteries, or abdominal aorta

### EGO INTEGRITY

**May report:** Feelings of helplessness, hopelessness  
**May exhibit:** Emotional lability and inappropriate response to anger, sadness, happiness  
Difficulty expressing self

### ELIMINATION

**May exhibit:** Change in voiding patterns, e.g., incontinence, anuria  
Distended abdomen (overdistended bladder); absent bowel sounds (paralytic ileus)

#### FOOD/FLUID

**May report:** Lack of appetite  
Nausea/vomiting during acute event (increased ICP)  
Loss of sensation in tongue, cheek, and throat; dysphagia  
History of diabetes, elevated serum lipids

**May exhibit:** Mastication/swallowing problems (palatal and pharyngeal reflex involvement)  
Obesity (risk factor)

#### NEUROSENSORY

**May report:** Dizziness/syncope (before CVA/transient during TIA)  
Severe headache (intracerebral or subarachnoid hemorrhage)  
Tingling/numbness/weakness (commonly reported during TIAs, found in varying degrees in other types of stroke); involved side seems “dead”  
Visual deficits, e.g., blurred vision, partial loss of vision (monocular blindness), double vision (diplopia), or other disturbances in visual fields  
Touch: Sensory loss on contralateral side (opposite side) in extremities and sometimes in ipsilateral side (same side) of face  
Disturbance in senses of taste, smell  
History of TIA, RIND (predisposing factor for subsequent infarction)

**May exhibit:** Mental status/LOC: Coma usually present in the initial stages of hemorrhagic disturbances; consciousness is usually preserved when the etiology is thrombotic in nature; altered behavior (e.g., lethargy, apathy, combativeness); altered cognitive function (e.g., memory, problem-solving, sequencing)  
Extremities: Weakness/paralysis (contralateral with all kinds of stroke), unequal hand grasp; diminished deep tendon reflexes (contralateral)  
Facial paralysis or paresis (ipsilateral)  
Aphasia: Defect or loss of language function may be expressive (difficulty producing speech); receptive (difficulty comprehending speech); or global (combination of the two)  
Loss of ability to recognize or appreciate import of visual, auditory, tactile stimuli (agnosia), e.g., altered body image awareness, neglect or denial of contralateral side of body, disturbances in perception  
Loss of ability to execute purposeful motor acts despite physical ability and willingness to do so (apraxis)  
Pupil size/reaction: Inequality; dilated and fixed pupil on the ipsilateral side (hemorrhage/herniation)  
Nuchal rigidity (common in hemorrhagic etiology); seizures (common in hemorrhagic etiology)

#### PAIN/DISCOMFORT

**May report:** Headache of varying intensity (carotid artery involvement)

**May exhibit:** Guarding/distraction behaviors, restlessness, muscle/facial tension

#### RESPIRATION

**May report:** Smoking (risk factor)

**May exhibit:** Inability to swallow/cough/protect airway  
Labored and/or irregular respirations  
Noisy respirations/rhonchi (aspiration of secretions)

#### SAFETY

**May exhibit:** Motor/sensory: Problems with vision  
Changes in perception of body spatial orientation (right CVA)  
Difficulty seeing objects on left side (right CVA)  
Being unaware of affected side

Inability to recognize familiar objects, colors, words, faces  
Diminished response to heat and cold/altered body temperature regulation  
Swallowing difficulty, inability to meet own nutritional needs  
Impaired judgment, little concern for safety, impatience, lack of insight (right CVA)

## SOCIAL INTERACTION

**May exhibit:** Speech problems, inability to communicate

## TEACHING/LEARNING

**May report:** Family history of hypertension, strokes; African heritage (risk factor)  
Use of oral contraceptives, alcohol abuse (risk factors)

**Discharge plan considerations:** **DRG projected mean length of inpatient stay: 6.4 days**  
May require medication regimen/therapeutic treatments  
Assistance with transportation, shopping, food preparation, self-care, and homemaker/maintenance tasks  
Changes in physical layout of home; transition placement before return to home setting  
**Refer to section at end of plan for postdischarge considerations.**

## DIAGNOSTIC STUDIES

**CT scan (with/without enhancement):** Demonstrates structural abnormalities, edema, hematomas, ischemia, and infarctions. *Note:* May not immediately reveal all changes, e.g., ischemic infarcts are not evident on CT for 8–12 hr; however, intracerebral hemorrhage is immediately apparent; therefore, emergency CT is always done before administering tissue plasminogen activator (t-PA). In addition, patients with TIA commonly have a normal CT scan.

**PET scan:** Provides data on cerebral metabolism and blood flow changes, especially in ischemic stroke.

**MRI:** Shows areas of infarction, hemorrhage, AV malformations; and areas of ischemia.

**Cerebral angiography:** Helps determine specific cause of stroke, e.g., hemorrhage or obstructed artery, pinpoints site of occlusion or rupture. Digital subtraction angiography evaluates patency of cerebral vessels, identifies their position in head and neck, and detects/evaluates lesions and vascular abnormalities.

**Lumbar puncture (LP):** Pressure is usually normal and CSF is clear in cerebral thrombosis, embolism, and TIA. Pressure elevation and grossly bloody fluid suggest subarachnoid and intracerebral hemorrhage. CSF total protein level may be elevated in cases of thrombosis because of inflammatory process. LP should be performed if septic embolism from bacterial endocarditis is suspected.

**Transcranial Doppler ultrasonography:** Evaluates the velocity of blood flow through major intracranial vessels; identifies AV disease, e.g., problems with carotid system (blood flow/presence of atherosclerotic plaques).

**EEG:** Identifies problems based on reduced electrical activity in specific areas of infarction; and can differentiate seizure activity from CVA damage.

**X-rays (skull):** May show shift of pineal gland to the opposite side from an expanding mass; calcifications of the internal carotid may be visible in cerebral thrombosis; partial calcification of walls of an aneurysm may be noted in subarachnoid hemorrhage.

**Laboratory studies to rule out systemic causes:** CBC, platelet and clotting studies, VDRL/RPR, erythrocyte sedimentation rate (ESR), chemistries (glucose, sodium).

**ECG, chest x-ray, and echocardiography:** To rule out cardiac origin as source of embolus (20% of strokes are the result of blood or vegetative emboli associated with valvular disease, dysrhythmias, or endocarditis).

## NURSING PRIORITIES

1. Promote adequate cerebral perfusion and oxygenation.
2. Prevent/minimize complications and permanent disabilities.
3. Assist patient to gain independence in ADLs.
4. Support coping process and integration of changes into self-concept.
5. Provide information about disease process/prognosis and treatment/rehabilitation needs.

## DISCHARGE GOALS

1. Cerebral function improved, neurological deficits resolving/stabilized.
2. Complications prevented or minimized.
3. ADL needs met by self or with assistance of other(s).
4. Coping with situation in positive manner, planning for the future.
5. Disease process/prognosis and therapeutic regimen understood.

6. Plan in place to meet needs after discharge.

<p><b>NURSING DIAGNOSIS: Tissue Perfusion, ineffective cerebral</b></p> <p><b>May be related to</b>            Interruption of blood flow: occlusive disorder, hemorrhage; cerebral vasospasm, cerebral edema</p> <p><b>Possibly evidenced by</b>            Altered level of consciousness; memory loss            Changes in motor/sensory responses; restlessness            Sensory, language, intellectual, and emotional deficits            Changes in vital signs</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Neurological Status (NOC)</b>            Maintain usual/improved level of consciousness, cognition, and motor/sensory function.            Demonstrate stable vital signs and absence of signs of increased ICP.            Display no further deterioration/recurrence of deficits</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Cerebral Perfusion Promotion (NIC)</b></p> <p><b>Independent</b></p> <p>Determine factors related to individual situation/cause for coma/decreased cerebral perfusion and potential for increased ICP.</p> <p>Monitor/document neurological status frequently and compare with baseline. (Refer to CP: Craniocerebral Trauma [Acute Rehabilitative Phase], ND: Tissue Perfusion, ineffective cerebral for complete neurological evaluation.)</p> <p>Monitor vital signs, i.e., note:            Hypertension/hypotension, compare BP readings in both arms;</p>	<p>Influences choice of interventions. Deterioration in neurological signs/symptoms or failure to improve after initial insult may reflect decreased intracranial adaptive capacity requiring patient be transferred to critical care area for monitoring of ICP, other therapies. If the stroke is evolving, patient can deteriorate quickly and require repeated assessment and progressive treatment. If the stroke is “completed,” the neurological deficit is nonprogressive, and treatment is geared toward rehabilitation and preventing recurrence.</p> <p>Assesses trends in level of consciousness (LOC) and potential for increased ICP and is useful in determining location, extent, and progression/resolution of CNS damage. May also reveal presence of TIA, which may warn of impending thrombotic CVA.</p> <p>Fluctuations in pressure may occur because of cerebral pressure/injury in vasomotor area of the brain. Hypertension or postural hypotension may have been a precipitating factor. Hypotension may occur because of shock (circulatory collapse). Increased ICP may occur because of tissue edema or clot formation. Subclavian artery blockage may be revealed by difference in pressure readings between arms.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Cerebral Perfusion Promotion (NIC)</b></p> <p><b>Independent</b></p> <p>Heart rate and rhythm; auscultate for murmurs;</p> <p>Respirations, noting patterns and rhythm, e.g., periods of apnea after hyperventilation, Cheyne-Stokes respiration.</p> <p>Evaluate pupils, noting size, shape, equality, light reactivity.</p> <p>Document changes in vision, e.g., reports of blurred vision, alterations in visual field/depth perception.</p> <p>Assess higher functions, including speech, if patient is alert. (Refer to ND: Communication, impaired verbal[and/or written].)</p> <p>Position with head slightly elevated and in neutral position.</p> <p>Maintain bedrest; provide quiet environment; restrict visitors/activities as indicated. Provide rest periods between care activities, limit duration of procedures.</p> <p>Prevent straining at stool, holding breath.</p> <p>Assess for nuchal rigidity, twitching, increased restlessness, irritability, onset of seizure activity.</p>	<p>Changes in rate, especially bradycardia, can occur because of the brain damage. Dysrhythmias and murmurs may reflect cardiac disease, which may have precipitated CVA (e.g., stroke after MI or from valve dysfunction).</p> <p>Irregularities can suggest location of cerebral insult/increasing ICP and need for further intervention, including possible respiratory support. (Refer to CP: Craniocerebral Trauma [Acute Rehabilitative Phase], ND: Breathing Pattern, risk for ineffective)</p> <p>Pupil reactions are regulated by the oculomotor (III) cranial nerve and are useful in determining whether the brainstem is intact. Pupil size/equality is determined by balance between parasympathetic and sympathetic innervation. Response to light reflects combined function of the optic (II) and oculomotor (III) cranial nerves.</p> <p>Specific visual alterations reflect area of brain involved, indicate safety concerns, and influence choice of interventions.</p> <p>Changes in cognition and speech content are an indicator of location/degree of cerebral involvement and may indicate deterioration/increased ICP.</p> <p>Reduces arterial pressure by promoting venous drainage and may improve cerebral circulation/perfusion.</p> <p>Continual stimulation/activity can increase ICP. Absolute rest and quiet may be needed to prevent rebleeding in the case of hemorrhage.</p> <p>Valsalva maneuver increases ICP and potentiates risk of rebleeding.</p> <p>Indicative of meningeal irritation, especially in hemorrhage disorders. Seizures may reflect increased ICP/cerebral injury, requiring further evaluation and intervention.</p>
<p><b>Collaborative</b></p> <p>Administer supplemental oxygen as indicated.</p>	<p>Reduces hypoxemia, which can cause cerebral vasodilation and increase pressure/edema formation.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Cerebral Perfusion Promotion (NIC)</b></p> <p><b>Collaborative</b></p> <p>Administer medications as indicated:  Alteplase (Activase), t-PA;</p> <p>Anticoagulants, e.g., warfarin sodium (Coumadin), low-molecular-weight heparin (Lovenox); antiplatelet agents, e.g., aspirin (ASA), dipyridamole (Persantine), ticlopidine (Ticlid);</p> <p>Antifibrotics, e.g., aminocaproic acid (Amicar);</p> <p>Antihypertensives;</p> <p>Peripheral vasodilators, e.g., cyclandelate (Cyclospasmol), papaverine (Pavabid), isoxsuprine (Vasodilan);</p> <p>Steroids, e.g., dexamethasone (Decadron);</p> <p>Neuroprotective agents, e.g., calcium channel blockers, excitatory amino acid inhibitors, gangliosides;</p> <p>Phenytoin (Dilantin), phenobarbital;</p> <p>Stool softeners.</p> <p>Prepare for surgery, as appropriate, e.g., endarterectomy, microvascular bypass, cerebral angioplasty.</p> <p>Monitor laboratory studies as indicated, e.g., prothrombin time (PT)/activated partial thromboplastin time (aPTT) time, Dilantin level.</p>	<p>Thrombolytic agents are useful in dissolving clot when started within 3 hr of initial symptoms. Thirty percent are likely to recover with little or no disability. Treatment is based on trying to limit the size of the infarct, and use requires close monitoring for signs of intracranial hemorrhage. <i>Note:</i> These agents are contraindicated in cranial hemorrhage as diagnosed by CT scan.</p> <p>May be used to improve cerebral blood flow and prevent further clotting when embolus/thrombosis is the problem. Contraindicated in hypertensive patients because of increased risk of hemorrhage.</p> <p>Used with caution in hemorrhagic disorder to prevent lysis of formed clots and subsequent rebleeding.</p> <p>Preexisting/chronic hypertension requires cautious treatment because aggressive management increases the risk of extension of tissue damage. Transient hypertension often occurs during acute stroke and resolves often without therapeutic intervention.</p> <p>Used to improve collateral circulation or decrease vasospasm.</p> <p>Use is controversial in control of cerebral edema.</p> <p>These agents are being researched as a means to protect the brain by interrupting the destructive cascade of biochemical events (e.g., influx of calcium into cells, release of excitatory neurotransmitters, buildup of lactic acid) to limit ischemic injury.</p> <p>May be used to control seizures and/or for sedative action. <i>Note:</i> Phenobarbital enhances action of antiepileptics.</p> <p>Prevents straining during bowel movement and corresponding increase of ICP.</p> <p>May be necessary to resolve situation, reduce neurological symptoms/risk of recurrent stroke.</p> <p>Provides information about drug effectiveness/therapeutic level.</p>

**NURSING DIAGNOSIS: Mobility, impaired physical**

**May be related to**

Neuromuscular involvement: weakness, paresthesia; flaccid/hypotonic paralysis (initially); spastic paralysis  
Perceptual/cognitive impairment

**Possibly evidenced by**

Inability to purposefully move within the physical environment; impaired coordination; limited range of motion;  
decreased muscle strength/control

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Immobility Consequences: Physiological (NOC)**

Maintain/increase strength and function of affected or compensatory body part.  
Maintain optimal position of function as evidenced by absence of contractures, footdrop.

**Mobility Level (NOC)**

Demonstrate techniques/behaviors that enable resumption of activities.  
Maintain skin integrity.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Positioning (NIC)</b></p> <p><b>Independent</b></p> <p>Assess functional ability/extent of impairment initially and on a regular basis. Classify according to 0–4 scale. (Refer to CP: Craniocerebral Trauma [Acute Rehabilitative Phase], ND: Mobility, impaired physical.)</p> <p>Change positions at least every 2 hr (supine, sidelying) and possibly more often if placed on affected side.</p> <p>Position in prone position once or twice a day if patient can tolerate.</p> <p>Prop extremities in functional position; use footboard during the period of flaccid paralysis. Maintain neutral position of head.</p> <p>Use arm sling when patient is in upright position, as indicated.</p> <p>Evaluate use of/need for positional aids and/or splints during spastic paralysis: Place pillow under axilla to abduct arm;  Elevate arm and hand;</p>	<p>Identifies strengths/deficiencies and may provide information regarding recovery. Assists in choice of interventions, because different techniques are used for flaccid and spastic paralysis.</p> <p>Reduces risk of tissue ischemia/injury. Affected side has poorer circulation and reduced sensation and is more predisposed to skin breakdown/decubitus.</p> <p>Helps maintain functional hip extension; however, may increase anxiety, especially about ability to breathe.</p> <p>Prevents contractures/footdrop and facilitates use when/if function returns. Flaccid paralysis may interfere with ability to support head, whereas spastic paralysis may lead to deviation of head to one side.</p> <p>During flaccid paralysis, use of sling may reduce risk of shoulder subluxation and shoulder-hand syndrome.</p> <p>Flexion contractures occur because flexor muscles are stronger than extensors. Prevents adduction of shoulder and flexion of elbow.</p> <p>Promotes venous return and helps prevent edema formation.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Positioning (NIC)</b></p> <p><b>Independent</b></p> <p>Place hard hand-rolls in the palm with fingers and thumb opposed;</p> <p>Place knee and hip in extended position;</p> <p>Maintain leg in neutral position with a trochanter roll;</p> <p>Discontinue use of footboard, when appropriate.</p> <p>Observe affected side for color, edema, or other signs of compromised circulation.</p> <p>Inspect skin regularly, particularly over bony prominences. Gently massage any reddened areas and provide aids such as sheepskin pads as necessary.</p>	<p>Hard cones decrease the stimulation of finger flexion, maintaining finger and thumb in a functional position.</p> <p>Maintains functional position.</p> <p>Prevents external hip rotation.</p> <p>Continued use (after change from flaccid to spastic paralysis) can cause excessive pressure on the ball of the foot, enhance spasticity, and actually increase plantar flexion.</p> <p>Edematous tissue is more easily traumatized and heals more slowly.</p> <p>Pressure points over bony prominences are most at risk for decreased perfusion/ischemia. Circulatory stimulation and padding help prevent skin breakdown and decubitus development.</p>
<p><b>Exercise Therapy: Muscle Control (NIC)</b></p> <p>Begin active/passive ROM to all extremities (including splinted) on admission. Encourage exercises such as quadriceps/gluteal exercise, squeezing rubber ball, extension of fingers and legs/feet.</p> <p>Assist to develop sitting balance (e.g., raise head of bed; assist to sit on edge of bed, having patient use the strong arm to support body weight and strong leg to move affected leg; increase sitting time) and standing balance (e.g., put flat walking shoes on patient, support patient's lower back with hands while positioning own knees outside patient's knees, assist in using parallel bars/walkers).</p> <p>Get patient up in chair as soon as vital signs are stable, except following cerebral hemorrhage.</p> <p>Pad chair seat with foam or water-filled cushion, and assist patient to shift weight at frequent intervals.</p>	<p>Minimizes muscle atrophy, promotes circulation, helps prevent contractures. Reduces risk of hypercalcemia and osteoporosis if underlying problem is hemorrhage. <i>Note:</i> Excessive/imprudent stimulation can predispose to rebleeding.</p> <p>Aids in retraining neuronal pathways, enhancing proprioception and motor response.</p> <p>Helps stabilize BP (restores vasomotor tone), promotes maintenance of extremities in a functional position and emptying of bladder/kidneys, reducing risk of urinary stones and infections from stasis. <i>Note:</i> If stroke is not completed, activity increases risk of additional bleed/infarction.</p> <p>Prevents/reduces pressure on the coccyx/skin breakdown.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Exercise Therapy: Muscle Control (NIC)</b></p> <p><b>Independent</b></p> <p>Set goals with patient/SO for participation in activities/exercise and position changes.</p> <p>Encourage patient to assist with movement and exercises using unaffected extremity to support/move weaker side.</p>	<p>Promotes sense of expectation of progress/improvement, and provides some sense of control/independence.</p> <p>May respond as if affected side is no longer part of body and needs encouragement and active training to “reincorporate” it as a part of own body.</p>
<p><b>Positioning (NIC)</b></p> <p><b>Collaborative</b></p> <p>Provide egg-crate mattress, water bed, flotation device, or specialized beds (e.g., kinetic), as indicated.</p>	<p>Promotes even weight distribution, decreasing pressure on bony points and helping to prevent skin breakdown/decubitus formation. Specialized beds help with positioning, enhance circulation, and reduce venous stasis to decrease risk of tissue injury and complications such as orthostatic pneumonia.</p>
<p><b>Exercise Therapy: Muscle Control (NIC)</b></p> <p>Consult with physical therapist regarding active, resistive exercises and patient ambulation.</p> <p>Assist with electrical stimulation, e.g., transcutaneous electrical nerve stimulator (TENS) unit, as indicated.</p> <p>Administer muscle relaxants, antispasmodics as indicated, e.g., baclofen (Lioresal), dantrolene (Dantrium).</p>	<p>Individualized program can be developed to meet particular needs/deal with deficits in balance, coordination, strength.</p> <p>May assist with muscle strengthening and increase voluntary muscle control.</p> <p>May be required to relieve spasticity in affected extremities.</p>

<p><b>NURSING DIAGNOSIS: Communication, impaired verbal [and/or written]</b></p> <p><b>May be related to</b></p> <p>Impaired cerebral circulation; neuromuscular impairment, loss of facial/oral muscle tone/control; generalized weakness/fatigue</p> <p><b>Possibly evidenced by</b></p> <p>Impaired articulation; does not/cannot speak (dysarthria)</p> <p>Inability to modulate speech, find and name words, identify objects; inability to comprehend written/spoken language</p> <p>Inability to produce written communication</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Communication Ability (NOC)</b></p> <p>Indicate an understanding of the communication problems.</p> <p>Establish method of communication in which needs can be expressed.</p> <p>Use resources appropriately.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Communication Enhancement: Speech Deficit (NIC)</b></p> <p><b>Independent</b></p> <p>Assess type/degree of dysfunction: e.g., patient does not seem to understand words or has trouble speaking or making self understood.</p> <p>Differentiate aphasia from dysarthria;</p> <p>Listen for errors in conversation and provide feedback;</p> <p>Ask patient to follow simple commands (e.g., “Shut your eyes,” “Point to the door”); repeat simple words/ sentences;</p> <p>Point to objects and ask patient to name them;</p> <p>Have patient produce simple sounds, e.g., “Sh,” “Cat”.</p> <p>Ask patient to write name and/or a short sentence. If unable to write, have patient read a short sentence.</p> <p>Post notice at nurses’ station and patient’s room about speech impairment. Provide special call bell if necessary.</p> <p>Provide alternative methods of communication, e.g., writing or felt board, pictures. Provide visual clues gestures, pictures, “needs” list, demonstration).</p> <p>Anticipate and provide for patient’s needs.</p>	<p>Helps determine area and degree of brain involvement and difficulty patient has with any or all steps of the communication process. Patient may have trouble understanding spoken words (receptive aphasia/damage to Wernicke’s speech area), speaking words correctly (expressive aphasia/damage to Broca’s speech areas), or may experience damage to both areas.</p> <p>Choice of interventions depends on type of impairment. Aphasia is a defect in using and interpreting symbols of language and may involve sensory and/or motor components, e.g., inability to comprehend written/spoken words or to write, make signs, speak. A dysarthric person can understand, read, and write language but has difficulty forming/pronouncing words because of weakness and paralysis of oral musculature.</p> <p>Patient may lose ability to monitor verbal output and be unaware that communication is not sensible. Feedback helps patient realize why caregivers are not understanding/responding appropriately and provides opportunity to clarify content/meaning.</p> <p>Tests for receptive aphasia.</p> <p>Tests for expressive aphasia; e.g., patient may recognize item but not be able to name it.</p> <p>Identifies dysarthria, because motor components of speech (tongue, lip movement, breath control) can affect articulation and may/may not be accompanied by expressive aphasia.</p> <p>Tests for writing disability (agraphia) and deficits in reading comprehension (alexia), which are also part of receptive and expressive aphasia.</p> <p>Allays anxiety related to inability to communicate and fear that needs will not be met promptly. Call bell that is activated by minimal pressure is useful when patient is unable to use regular call system.</p> <p>Provides for communication of needs/desires based on individual situation/underlying deficit.</p> <p>Helpful in decreasing frustration when dependent on others and unable to communication desires.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Communication Enhancement: Speech Deficit (NIC)</b></p> <p><b>Independent</b></p> <p>Talk directly to patient, speaking slowly and distinctly. Use yes/no questions to begin with, progressing in complexity as patient responds.</p> <p>Speak in normal tones and avoid talking too fast. Give patient ample time to respond. Talk without pressing for a response.</p> <p>Encourage SO/visitors to persist in efforts to communicate with patient, e.g., reading mail, discussing family happenings even if patient is unable to respond appropriately.</p> <p>Discuss familiar topics, e.g., job, family, hobbies.</p> <p>Respect patient's preinjury capabilities; avoid "speaking down" to patient or making patronizing remarks.</p> <p><b>Collaborative</b></p> <p>Consult with/refer to speech therapist.</p>	<p>Reduces confusion/anxiety at having to process and respond to large amount of information at one time. As retraining progresses, advancing complexity of communication stimulates memory and further enhances word/idea association.</p> <p>Patient is not necessarily hearing impaired, and raising voice may irritate or anger patient. Forcing responses can result in frustration and may cause patient to resort to "automatic" speech, e.g., garbled speech, obscenities.</p> <p>It is important for family members to continue talking to patient to reduce patient's isolation, promote establishment of effective communication, and maintain sense of connectedness with family.</p> <p>Promotes meaningful conversation and provides opportunity to practice skills.</p> <p>Enables patient to feel esteemed, because intellectual abilities often remain intact.</p> <p>Assesses individual verbal capabilities and sensory, motor, and cognitive functioning to identify deficits/therapy needs.</p>

**NURSING DIAGNOSIS: Sensory Perception, disturbed (specify)**

**May be related to**

Altered sensory reception, transmission, integration (neurological trauma or deficit)  
Psychological stress (narrowed perceptual fields caused by anxiety)

**Possibly evidenced by**

Disorientation to time, place, person  
Change in behavior pattern/usual response to stimuli; exaggerated emotional responses  
Poor concentration, altered thought processes/bizarre thinking  
Reported/measured change in sensory acuity: hypoparesthesia; altered sense of taste/smell  
Inability to tell position of body parts (proprioception)  
Inability to recognize/attach meaning to objects (visual agnosia)  
Altered communication patterns  
Motor incoordination

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Cognitive Ability (NOC)**

Regain/maintain usual level of consciousness and perceptual functioning.  
Acknowledge changes in ability and presence of residual involvement.  
Demonstrate behaviors to compensate for/overcome deficits.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Environmental Management (NIC)</b></p> <p><b>Independent</b></p> <p>Review pathology of individual condition.</p> <p>Observe behavioral responses, e.g., hostility, crying, inappropriate affect, agitation, hallucination. (Refer to CP: Craniocerebral Trauma [Acute Rehabilitative Phase], ND: Thought Processes, disturbed).</p> <p>Eliminate extraneous noise/stimuli as necessary.</p> <p>Speak in calm, quiet voice, using short sentences. Maintain eye contact.</p> <p>Ascertain/validate patient's perceptions. Reorient patient frequently to environment, staff, procedures.</p> <p>Evaluate for visual deficits. Note loss of visual field, changes in depth perception (horizontal/vertical planes), presence of diplopia (double vision).</p> <p>Approach patient from visually intact side. Leave light on; position objects to take advantage of intact visual fields. Patch affected eye if indicated.</p>	<p>Awareness of type/area of involvement aids in assessing for/anticipating specific deficits and planning care.</p> <p>Individual responses are variable, but commonalities such as emotional lability, lowered frustration threshold, apathy, and impulsiveness may complicate care.</p> <p>Reduces anxiety and exaggerated emotional responses/confusion associated with sensory overload.</p> <p>Patient may have limited attention span or problems with comprehension. These measures can help patient attend to communication.</p> <p>Assists patient to identify inconsistencies in reception and integration of stimuli and may reduce perceptual distortion of reality.</p> <p>Presence of visual disorders can negatively affect patient's ability to perceive environment and relearn motor skills and increases risk of accident/injury.</p> <p>Provides for recognition of the presence of persons/objects; may help with depth perception problems; prevents patient from being startled. Patching may decrease the sensory confusion of double vision.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Peripheral Sensation Management (NIC)</b></p> <p><b>Independent</b></p> <p>Assess sensory awareness, e.g., differentiation of hot/cold, dull/sharp; position of body parts/muscle, joint sense.</p> <p>Stimulate sense of touch; e.g., give patient objects to touch, grasp. Have patient practice touching walls/other boundaries.</p> <p>Protect from temperature extremes; assess environment for hazards. Recommend testing warm water with unaffected hand.</p> <p>Note inattention to body parts, segments of environment; lack of recognition of familiar objects/persons.</p> <p>Encourage patient to watch feet when appropriate and consciously position body parts. Make patient aware of all neglected body parts, e.g., sensory stimulation to affected side, exercises that bring affected side across midline, reminding person to dress/care for affected (“blind”) side.</p>	<p>Diminished sensory awareness and impairment of kinesthetic sense negatively affects balance/positioning and appropriateness of movement, which interferes with ambulation, increasing risk of trauma.</p> <p>Aids in retraining sensory pathways to integrate reception and interpretation of stimuli. Helps patient orient self spatially and strengthens use of affected side.</p> <p>Promotes patient safety, reducing risk of injury.</p> <p>Presence of agnosia (loss of comprehension of auditory, visual, or other sensations, although sensory sphere is intact) may lead to/result in unilateral neglect, inability to recognize environmental cues/meaning of commonplace objects, considerable self-care deficits, and disorientation or bizarre behavior.</p> <p>Use of visual and tactile stimuli assists in reintegration of affected side and allows patient to experience forgotten sensations of normal movement patterns.</p>

<p><b>NURSING DIAGNOSIS: Self-Care deficit (specify)</b></p> <p><b>May be related to</b></p> <p>Neuromuscular impairment, decreased strength and endurance, loss of muscle control/coordination</p> <p>Perceptual/cognitive impairment</p> <p>Pain/discomfort</p> <p>Depression</p> <p><b>Possibly evidenced by</b></p> <p>Impaired ability to perform ADLs, e.g., inability to bring food from receptacle to mouth; inability to wash body part(s), regulate temperature of water; impaired ability to put on/take off clothing; difficulty completing toileting tasks</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Self-Care: Activities of Daily Living (ADLs) (NOC)</b></p> <p>Demonstrate techniques/lifestyle changes to meet self-care needs.</p> <p>Perform self-care activities within level of own ability.</p> <p>Identify personal/community resources that can provide assistance as needed.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Self-Care Assistance (NIC)</b></p> <p><b>Independent</b></p> <p>Assess abilities and level of deficit (0–4 scale) for performing ADLs.</p> <p>Avoid doing things for patient that patient can do for self, but provide assistance as necessary.</p> <p>Be aware of impulsive behavior/actions suggestive of impaired judgment.</p> <p>Maintain a supportive, firm attitude. Allow patient sufficient time to accomplish tasks.</p> <p>Provide positive feedback for efforts and accomplishments.</p> <p>Create plan for visual deficits that are present, e.g.:  Place food and utensils on the tray related to patient’s unaffected side;</p> <p>Situate the bed so that patient’s unaffected side is facing the room with the affected side to the wall;</p> <p>Position furniture against wall/out of travel path.</p> <p>Provide self-help devices, e.g., button/zipper hook, knife-fork combinations, long-handled brushes, extensions for picking things up from floor; toilet riser, leg bag for catheter; shower chair. Assist and encourage good grooming and makeup habits.</p> <p>Encourage SO to allow patient to do as much as possible for self.</p> <p>Assess patient’s ability to communicate the need to void and/or ability to use urinal, bedpan. Take patient to the bathroom at frequent/periodic intervals for voiding if appropriate.</p> <p>Identify previous bowel habits and reestablish normal regimen. Increase bulk in diet; encourage fluid intake, increased activity.</p>	<p>Aids in anticipating/planning for meeting individual needs.</p> <p>These patients may become fearful and dependent, and although assistance is helpful in preventing frustration, it is important for patient to do as much as possible for self to maintain self-esteem and promote recovery.</p> <p>May indicate need for additional interventions and supervision to promote patient safety.</p> <p>Patients need empathy and to know caregivers will be consistent in their assistance.</p> <p>Enhances sense of self-worth, promotes independence, and encourages patient to continue endeavors.</p> <p>Patient will be able to see to eat the food.</p> <p>Will be able to see when getting in/out of bed and observe anyone who comes into the room.</p> <p>Provides for safety when patient is able to move around the room, reducing risk of tripping/falling over furniture.</p> <p>Enables patient to manage for self, enhancing independence and self-esteem; reduces reliance on others for meeting own needs; and enables patient to be more socially active.</p> <p>Reestablishes sense of independence and fosters self-worth and enhances rehabilitation process. <i>Note:</i> This may be very difficult and frustrating for the SO/caregiver, depending on degree of disability and time required for patient to complete activity.</p> <p>Patient may have neurogenic bladder, be inattentive, or be unable to communicate needs in acute recovery phase, but usually is able to regain independent control of this function as recovery progresses.</p> <p>Assists in development of retraining program (independence) and aids in preventing constipation and impaction (long-term effects).</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Self-Care Assistance (NIC)</b></p> <p><b>Collaborative</b></p> <p>Administer suppositories and stool softeners.</p> <p>Consult with physical/occupational therapists.</p>	<p>May be necessary at first to aid in establishing regular bowel function.</p> <p>Provides expert assistance for developing a therapy plan and identifying special equipment needs.</p>

<p><b>NURSING DIAGNOSIS: Coping, ineffective</b></p> <p><b>May be related to</b> Situational crises, vulnerability, cognitive perceptual changes</p> <p><b>Possibly evidenced by</b> Inappropriate use of defense mechanisms Inability to cope/difficulty asking for help Change in usual communication patterns Inability to meet basic needs/role expectations Difficulty problem solving</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Coping (NOC)</b> Verbalize acceptance of self in situation. Talk/communicate with SO about situation and changes that have occurred. Verbalize awareness of own coping abilities. Meet psychological needs as evidenced by appropriate expression of feelings, identification of options, and use of resources.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Coping Enhancement (NIC)</b></p> <p><b>Independent</b></p> <p>Assess extent of altered perception and related degree of disability. Determine Functional Independence Measure score.</p> <p>Identify meaning of the loss/dysfunction/change to patient. Note ability to understand events, provide realistic appraisal of situation.</p>	<p>Determination of individual factors aids in developing plan of care/choice of interventions and discharge expectations.</p> <p>Independence/ability is highly valued in American society but is not as significant in some other cultures. Some patients accept and manage altered function effectively with little adjustment, whereas others have considerable difficulty recognizing and adjusting to deficits. In order to provide meaningful support and appropriate problem-solving, healthcare providers need to understand the meaning of the stroke/limitations to patient.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Coping Enhancement (NIC)</b></p> <p><b>Independent</b></p> <p>Determine outside stressors, e.g., family, work, social, future nursing/healthcare needs.</p> <p>Encourage patient to express feelings, including hostility or anger, denial, depression, sense of disconnectedness.</p> <p>Note whether patient refers to affected side as “it” or denies affected side and says it is “dead.”</p> <p>Acknowledge statement of feelings about betrayal of body; remain matter-of-fact about reality that patient can still use unaffected side and learn to control affected side. Use words (e.g., weak, affected, right-left) that incorporate that side as part of the whole body.</p> <p>Identify previous methods of dealing with life problems. Determine presence/quality of support systems.</p> <p>Emphasize small gains either in recovery of function or independence.</p> <p>Support behaviors/efforts such as increased interest/participation in rehabilitation activities.</p> <p>Monitor for sleep disturbance, increased difficulty concentrating, statements of inability to cope, lethargy, withdrawal.</p>	<p>Helps identify specific needs, provides opportunity to offer information/support and begin problem-solving. Consideration of social factors, in addition to functional status, is important in determining appropriate discharge destination.</p> <p>Demonstrates acceptance of/assists patient in recognizing and beginning to deal with these feelings.</p> <p>Suggests rejection of body part/negative feelings about body image and abilities, indicating need for intervention and emotional support.</p> <p>Helps patient see that the nurse accepts both sides as part of the whole individual. Allows patient to feel hopeful and begin to accept current situation.</p> <p>Provides opportunity to use behaviors previously effective, build on past successes, and mobilize resources.</p> <p>Consolidates gains, helps reduce feelings of anger and helplessness, and conveys sense of progress.</p> <p>Suggest possible adaptation to changes and understanding about own role in future lifestyle.</p> <p>May indicate onset of depression (common after effect of stroke), which may require further evaluation and intervention.</p>
<p><b>Collaborative</b></p> <p>Refer for neuropsychological evaluation and/or counseling if indicated.</p>	<p>May facilitate adaptation to role changes that are necessary for a sense of feeling/being a productive person. <i>Note:</i> Depression is common in stroke survivors and may be a direct result of the brain damage and/or an emotional reaction to sudden-onset disability.</p>

**NURSING DIAGNOSIS: Swallowing, risk for impaired**

**Risk factors may include**

Neuromuscular/perceptual impairment

**Possibly evidenced by**

[Not applicable; presence of signs and symptoms establishes an *actual* diagnosis.]

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Swallowing Status (NOC)**

Demonstrate feeding methods appropriate to individual situation with aspiration prevented.

Maintain desired body weight.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Swallowing Therapy (NIC)</b></p> <p><b>Independent</b></p> <p>Review individual pathology/ability to swallow, noting extent of paralysis; clarity of speech; facial, tongue involvement; ability to protect airway/episodes of coughing or choking; presence of adventitious breath sounds; amount/character of oral secretions. Weigh periodically as indicated.</p> <p>Have suction equipment available at bedside, especially during early feeding efforts.</p> <p>Promote effective swallowing, e.g.:</p> <ul style="list-style-type: none"><li>Schedule activities/medications to provide a minimum of 30 min rest before eating;</li><li>Provide pleasant environment free of distractions (e.g., TV);</li><li>Assist patient with head control/support, and position based on specific dysfunction;</li><li>Place patient in upright position during/after feeding as appropriate;</li><li>Provide oral care based on individual need prior to meal;</li></ul>	<p>Nutritional interventions/choice of feeding route is determined by these factors.</p> <p>Timely intervention may limit amount/untoward effect of aspiration.</p> <p>Promotes optimal muscle function, helps to limit fatigue.</p> <p>Promotes relaxation and allows patient to focus on task of eating/swallowing.</p> <p>Counteracts hyperextension, aiding in prevention of aspiration and enhancing ability to swallow. Optimal positioning can facilitate intake/reduce risk of aspiration, e.g., head back for decreased posterior propulsion of tongue, head turned to weak side for unilateral pharyngeal paralysis, lying down on either side for reduced pharyngeal contraction.</p> <p>Uses gravity to facilitate swallowing and reduces risk of aspiration.</p> <p>Patients with dry mouth require a moisturizing agent (e.g., alcohol-free mouthwash) before and after eating; patients with excess saliva will benefit from use of a drying agent (e.g., lemon or glycerin swabs) before meal and a moisturizing agent afterward.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Swallowing Therapy (NIC)</b></p>	
<p><b>Independent</b></p>	
<p>Season food with herbs, spices, lemon juice, etc. according to patient's preference, within dietary restrictions;</p>	<p>Increases salivation, improving bolus formation and swallowing effort.</p>
<p>Serve foods at customary temperature and water always chilled;</p>	<p>Lukewarm temperatures are less likely to stimulate salivation so foods/fluids should be served cold or warm as appropriate. <i>Note:</i> Water is the most difficult to swallow.</p>
<p>Stimulate lips to close or manually open mouth by light pressure on lips/under chin, if needed;</p>	<p>Aids in sensory retraining and promotes muscular control.</p>
<p>Place food of appropriate consistency in unaffected side of mouth;</p>	<p>Provides sensory stimulation (including taste), which may increase salivation and trigger swallowing efforts, enhancing intake. Food consistency is determined by individual deficit. <i>For example:</i> Patients with decreased range of tongue motion require thick liquids initially, progressing to thin liquids, whereas patients with delayed pharyngeal swallow will handle thick liquids and thicker foods better. <i>Note:</i> Pureed food is not recommended because patient may not be able to recognize what is being eaten; and most milk products, peanut butter, syrup, and bananas are avoided because they produce mucus/are sticky.</p>
<p>Touch parts of the cheek with tongue blade/apply ice to weak tongue;</p>	<p>Can improve tongue movement and control (necessary for swallowing), and inhibits tongue protrusion.</p>
<p>Feed slowly, allowing 30–45 min for meals;</p>	<p>Feeling rushed can increase stress/level of frustration, may increase risk of aspiration, and may result in patient's terminating meal early.</p>
<p>Offer solid foods and liquids at different times;</p>	<p>Prevents patient from swallowing food before it is thoroughly chewed. In general, liquids should be offered only after patient has finished eating foods.</p>
<p>Limit/avoid use of drinking straw for liquids;</p>	<p>Although use may strengthen facial and swallowing muscles, if patient lacks tight lip closure to accommodate straw or if liquid is deposited too far back in mouth, risk of aspiration may be increased.</p>
<p>Encourage SO to bring favorite foods.</p>	<p>Provides familiar tastes and preferences. Stimulates feeding efforts and may enhance swallowing/intake.</p>
<p>Maintain upright position for 45–60 min after eating.</p>	<p>Helps patient manage oral secretions and reduces risk of regurgitation.</p>
<p>Maintain accurate I&amp;O; record calorie count.</p>	<p>If swallowing efforts are not sufficient to meet fluid/nutrition needs, alternative methods of feeding must be pursued.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Swallowing Therapy (NIC)</b></p> <p><b>Independent</b></p> <p>Encourage participation in exercise/activity program.</p> <p><b>Collaborative</b></p> <p>Review results of radiographic studies, e.g., video fluoroscopy.</p> <p>Administer IV fluids and/or tube feedings.</p> <p>Coordinate multidisciplinary approach to develop treatment plan that meets individual needs.</p>	<p>May increase release of endorphins in the brain, promoting a sense of general well-being and increasing appetite.</p> <p>Aids in determining phase of swallowing difficulties (i.e., oral preparatory, oral, pharyngeal, or esophageal phase).</p> <p>May be necessary for fluid replacement and nutrition if patient is unable to take anything orally.</p> <p>Inclusion of dietitian, speech and occupational therapists can increase effectiveness of long-term plan and significantly reduce risk of silent aspiration.</p>

<p><b>NURSING DIAGNOSIS: Knowledge, deficient [Learning Need] regarding condition, prognosis, treatment, self-care, and discharge needs</b></p> <p><b>May be related to</b></p> <p>Lack of exposure; unfamiliarity with information resources Cognitive limitation, information misinterpretation, lack of recall</p> <p><b>Possibly evidenced by</b></p> <p>Request for information Statement of misconception Inaccurate follow-through of instructions Development of preventable complications</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT/SO WILL:</b></p> <p><b>Knowledge: Disease Process (NOC)</b></p> <p>Participate in learning process. Verbalize understanding of condition/prognosis and potential complications.</p> <p><b>Knowledge: Treatment Regimen (NOC)</b></p> <p>Verbalize understanding of therapeutic regimen and rationale for actions. Initiate necessary lifestyle changes.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Teaching: Disease Process (NIC)</b></p> <p><b>Independent</b></p> <p>Evaluate type/degree of sensory-perceptual involvement.</p> <p>Include SO/family in discussions and teaching.</p> <p>Discuss specific pathology and individual potentials.</p> <p>Identify signs/symptoms requiring further follow-up, e.g., changes/decline in visual, motor, sensory functions; alteration in mentation or behavioral responses; severe headache.</p> <p>Review current restrictions/limitations and discuss planned/potential resumption of activities (including sexual relations).</p> <p>Review/reinforce current therapeutic regimen, including use of medications to control hypertension, hypercholesterolemia, diabetes, as indicated; aspirin or similar-acting drugs, e.g., ticlopidine (Ticlid), warfarin sodium (Coumadin). Identify ways of continuing program after discharge.</p> <p>Provide written instructions and schedules for activity, medication, important facts.</p> <p>Encourage patient to refer to lists/written communications or notes instead of depending on memory.</p> <p>Discuss plans for meeting self-care needs.</p> <p>Refer to discharge planner/home care supervisor, visiting nurse.</p> <p>Identify community resources, e.g., National Stroke Association, American Heart Associations' Stroke Connection, stroke support clubs, senior services, Meals on Wheels, adult day care/respice program, and visiting nurse.</p>	<p>Deficits affect the choice of teaching methods and content/complexity of instruction.</p> <p>These individuals will be providing support/care and have great impact on patient's quality of life.</p> <p>Aids in establishing realistic expectations and promotes understanding of current situation and needs.</p> <p>Prompt evaluation and intervention reduces risk of complications/further loss of function.</p> <p>Promotes understanding, provides hope for future, and creates expectation of resumption of more "normal" life.</p> <p>Recommended activities, limitations, and medication/therapy needs are established on the basis of a coordinated interdisciplinary approach. Follow-through is essential to progression of recovery/prevention of complications. <i>Note:</i> Long-term anticoagulation may be beneficial for patients older than 45 years of age who are prone to clot formation; however, use of these drugs is not effective for CVA resulting from vascular aneurysm/vessel rupture.</p> <p>Provides visual reinforcement and reference source after discharge.</p> <p>Provides aids to support memory and promotes improvement in cognitive skills.</p> <p>Varying levels of assistance may be required/need to be planned for based on individual situation.</p> <p>Home environment may require evaluation and modifications to meet individual needs.</p> <p>Enhances coping abilities and promotes home management and adjustment to impairments for both stroke survivors and caregivers. <i>Note:</i> Recent innovations include such programs as Menu-Direct, which provides fully prepared meal programs with nutrition-rich foods. Some entrees have soufflélike consistency to help trigger swallowing response.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Teaching: Disease Process (NIC)</b></p> <p><b>Independent</b></p> <p>Suggest patient reduce/limit environmental stimuli, especially during cognitive activities.</p> <p>Recommend patient seek assistance in problem-solving process and validate decisions, as indicated.</p> <p>Identify individual risk factors (e.g., hypertension, cardiac dysrhythmias, obesity, smoking, heavy alcohol use, atherosclerosis, poor control of diabetes, use of oral contraceptives) and discuss necessary lifestyle changes.</p> <p>Review importance of balanced diet, low in cholesterol and sodium if indicated. Discuss role of vitamins and other supplements.</p> <p>Refer to/reinforce importance of follow-up care by rehabilitation team, e.g., physical/occupational/speech/vocational therapists.</p>	<p>Multiple/concomitant stimuli may aggravate confusion and impair mental abilities.</p> <p>Some patients (especially those with right CVA) may display impaired judgment and impulsive behavior, compromising ability to make sound decisions.</p> <p>Promotes general well-being and may reduce risk of recurrence. <i>Note:</i> Obesity in women has been found to have a high correlation with ischemic stroke.</p> <p>Improves general health and well-being and provides energy for life activities.</p> <p>Diligent work may eventually overcome/minimize residual deficits.</p>

**POTENTIAL CONSIDERATIONS following acute hospitalization (dependent on patient's age, physical condition/presence of complications, personal resources, and life responsibilities)**

- Injury, risk for—general weakness, visual deficits, balancing difficulties, reduced large/small muscle or hand-eye coordination, cognitive impairment.
- Nutrition: imbalanced, less than body requirements—inability to prepare/ingest food, cognitive limitations, limited financial resources.
- Self-care deficit—decreased strength/endurance, perceptual/cognitive impairment, neuromuscular impairment, muscular pain, depression.
- Home Maintenance, impaired—individual physical limitations, inadequate support systems, insufficient finances, unfamiliarity with neighborhood resources.
- Self-Esteem, situational low—cognitive/perceptual impairment, perceived loss of control in some aspect of life, loss of independent functioning.
- Caregiver Role Strain, risk for—severity of illness/deficits of care receiver, duration of caregiving required, complexity/ amount of caregiving task, caregiver isolation/lack of respite.