Summary of BLS ABCD Maneuvers for Infants, Children, and Adults (Newborn Information Not Included)

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Adult Lay rescuer: 8 years</th>
<th>Child Lay rescuers: 1 to 8 years</th>
<th>Infant Under 1 year of age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airway</strong></td>
<td>Head tilt-chin lift (HCP: suspected trauma, use jaw thrust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Breathing Initial</strong></td>
<td>2 breaths at 1 second/breath</td>
<td>2 effective breaths at 1 second/breath</td>
<td></td>
</tr>
<tr>
<td>HCP: Rescue breathing without chest compressions</td>
<td>10 to 12 breaths/min (approximate)</td>
<td>12 to 20 breaths/min (approximate)</td>
<td></td>
</tr>
<tr>
<td>HCP: Rescue breaths for CPR with advanced airway</td>
<td>8 to 10 breaths/min (approximately)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign-body airway obstruction</td>
<td>Abdominal thrusts</td>
<td></td>
<td>Back slaps and chest thrusts</td>
</tr>
<tr>
<td>Circulation HCP: Pulse check (≤10 sec)</td>
<td>Carotid</td>
<td>Lower half of sternum, between nipples</td>
<td>Brachial or femoral</td>
</tr>
<tr>
<td>Compression landmarks</td>
<td></td>
<td>Just below nipple line (lower half of sternum)</td>
<td></td>
</tr>
<tr>
<td>Compression method</td>
<td></td>
<td>2 or 3 fingers HCP (2 rescuers):</td>
<td></td>
</tr>
<tr>
<td>Push hard and fast Allow complete recoil</td>
<td>Heel of one hand, other hand on top</td>
<td>2 thumb–encircling hands</td>
<td></td>
</tr>
<tr>
<td>Compression depth</td>
<td>1½ to 2 inches</td>
<td>Approximately one third to one half the depth of the chest</td>
<td></td>
</tr>
<tr>
<td>Compression rate</td>
<td>Approximately 100/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression-ventilation ratio</td>
<td>30:2 (one or two rescuers)</td>
<td>30:2 (single rescuer) HCP: 15:2 (2 rescuers)</td>
<td></td>
</tr>
<tr>
<td>Defibrillation AED</td>
<td>Use adult pads, Do not use child pads</td>
<td>Use AED after 5 cycles of CPR (out of hospital), Use pediatric system for child 1 to 8 years, if available HCP: For sudden collapse (out of hospital) or in-hospital arrest use AED as soon as available</td>
<td>No recommendation for infants &lt;1 year of age</td>
</tr>
</tbody>
</table>

*Note: Maneuvers used by only Healthcare Providers are indicated by "HCP."*
Adult BLS Healthcare Provider Algorithm

1. No movement or response
2. PHONE 911 or emergency number
   Get AED
   or send second rescuer (if available) to do this
3. Open AIRWAY, check BREATHING
4. If not breathing, give 2 BREATHS that make chest rise
5. If no response, check pulse:
   Do you DEFINITELY feel pulse within 10 seconds?
   - Give 1 breath every 5 to 6 seconds
   - Recheck pulse every 2 minutes
6. No Pulse
   Give cycles of 30 COMPRESSIONS and 2 BREATHS
   until AED/defibrillator arrives, ALS providers take over, or
   victim starts to move
   Push hard and fast (100/min) and release completely
   Minimize interruptions in compressions
7. AED/defibrillator ARRIVES
8. Check Rhythm
   Shockable rhythm?
   - Give 1 shock
   - Resume CPR immediately for 5 cycles
9. Not Shockable
   Resume CPR immediately for 5 cycles
   Check rhythm every 5 cycles; continue until ALS providers take over or
   victim starts to move
**ACLS Pulseless Arrest**

**Part 7.2: Management of Cardiac Arrest**

**ACLS Pulseless Arrest Algorithm.**
ACLS Bradycardia Algorithm

1. BRADYCARDIA
   Heart rate < 60 bpm and inadequate for clinical condition

2. Maintain patent airway; assist breathing as needed
   - Give oxygen
   - Monitor ECG (identify rhythm), blood pressure, oximetry
   - Establish IV access

3. Signs or symptoms of poor perfusion caused by the bradycardia?
   (eg, acute altered mental status, ongoing chest pain, hypotension or other signs of shock)

4A. Observe/Monitor
   • Prepare for transcutaneous pacing; use without delay for high-degree block (type II second-degree block or third-degree AV block)
   • Consider atropine 0.5 mg IV while awaiting pacemaker. May repeat to a total dose of 3 mg. If ineffective, begin pacing
   • Consider epinephrine (2 to 10 μg/min) or dopamine (2 to 10 μg/kg per minute) infusion while awaiting pacemaker or if pacing ineffective

4. Prepare for transvenous pacing
   • Treat contributing causes
   • Consider expert consultation

Figure 1. Bradycardia Algorithm.
ACLS Tachycardia Algorithm

Figure 2. ACLS Tachycardia Algorithm.
**AHA ACLS PROTOCOLS**

**APPENDIX**

**ACLS A.C.S. Algorithm**

*Figure 1. Acute Coronary Syndromes Algorithm.*
CHEST PAIN CHECKLIST FOR STEMI FIBRINOLYTIC THERAPY

Step One:
Has patient experienced chest discomfort for greater than 15 minutes and less than 12 hours?

- YES
- NO

Does ECG show STEMI or new or presumably new LBBB?

- YES
- NO

STOP

Step Two:
Are there contraindications to fibrinolysis?
If ANY of the following is CHECKED YES, fibrinolysis MAY be contraindicated.

- Systolic BP greater than 180 mm Hg
- Diastolic BP greater than 110 mm Hg
- Right vs. left arm systolic BP difference greater than 15 mm Hg
- History of structural central nervous system disease
- Significant closed head/facial trauma within the previous 3 months
- Recent (within 8 wks) major trauma, surgery (including laser eye surgery), GI/GU bleed
- Bleeding or clotting problem or on blood thinners
- CPR greater than 10 minutes
- Pregnant female
- Serious systemic disease (eg, advanced/terminal cancer, severe liver or kidney disease)

Is patient at high risk?

If ANY of the following is CHECKED YES, CONSIDER Transport/Transfer to PCI Facility

- Heart rate greater than or equal to 100 bpm AND systolic BP less than 100 mm Hg
- Pulmonary edema (rales)
- Signs of shock (cool, clammy)
- Contraindications to fibrinolytic therapy

Figure 2. Fibrinolytic Checklist.
ACLS Goals For The Management Of Stroke

Goals for Management of Patients With Suspected Stroke Algorithm.

1. Identify signs of possible stroke
   - Critical EMS assessments and actions
     - Support ABCs; give oxygen if needed
     - Perform prehospital stroke assessment (Tables 1 and 2)
     - Establish time when patient last known normal (Note: therapies may be available beyond 3 hours from onset)
     - Transport; consider triage to a center with a stroke unit if appropriate; consider bringing a witness, family member, or caregiver
     - Alert hospital
     - Check glucose if possible

2. Immediate general assessment and stabilization
   - Assess ABCs, vital signs
   - Provide oxygen if hypoxemic
   - Obtain IV access and blood samples
   - Check glucose; treat if indicated
   - Perform neurologic screening assessment
   - Activate stroke team
   - Order emergent CT scan of brain
   - Obtain 12-lead ECG

3. Immediate neurologic assessment by stroke team or designee
   - Review patient history
   - Establish symptom onset
   - Perform neurologic examination (NIH Stroke Scale or Canadian Neurologic Scale)

4. Does CT scan show any hemorrhage?
   - No Hemorrhage
   - Probable acute ischemic stroke; consider fibrinolytic therapy
     - Check for fibrinolytic exclusions (Table 3)
     - Repeat neurologic exam; are deficits rapidly improving to normal?
   - Hemorrhage
     - Consult neurologist or neurosurgeon; consider transfer if not available

5. Patient remains candidate for fibrinolytic therapy?
   - Candidate
     - Begin stroke pathway
     - Admit to stroke unit if available
     - Monitor BP; treat if indicated (Table 4)
     - Monitor neurologic status; emergent CT if deterioration
     - Monitor blood glucose; treat if needed
     - Initiate supportive therapy; treat comorbidities
   - Not a Candidate
     - Administer aspirin
### TABLE 2. Los Angeles Prehospital Stroke Screen (LAPSS)

For evaluation of acute, noncomatose, nontraumatic neurologic complaint. If items 1 through 6 are all checked “Yes” (or “Unknown”), provide prearrival notification to hospital of potential stroke patient. If any item is checked “No,” return to appropriate treatment protocol.

Interpretation: 95% of patients with stroke will have a positive LAPSS score (sensitivity=93%), and 97% of those with a positive LAPSS score will have a stroke (specificity=97%). Note that the patient may still be experiencing a stroke if LAPSS criteria are not met.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>Unknown</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age &gt; 45 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. History of seizures or epilepsy absent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Symptom duration &lt; 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. At baseline, patient is not wheelchair bound or bedridden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Blood glucose between 60 and 400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Obvious asymmetry (right vs left) in any of the following 3 exam categories (must be unilateral):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facial smile/grinCESSE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grip</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arm strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Weak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. Weak</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One-sided motor weakness (right arm).
# ACLS Fibrolytic Checklist For Strokes

## TABLE 3. Fibrinolytic Checklist

**Use of tPA in Patients With Acute Ischemic Stroke**

All boxes must be checked before tPA can be given.

*Note: The following checklist includes FDA-approved indications and contraindications for tPA administration for acute ischemic stroke. A physician with expertise in acute stroke care may modify this list.*

**Inclusion Criteria (all Yes boxes in this section must be checked):**

<table>
<thead>
<tr>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 18 years or older?</td>
</tr>
<tr>
<td>Clinical diagnosis of ischemic stroke with a measurable neurologic deficit?</td>
</tr>
<tr>
<td>Time of symptom onset (when patient was last seen normal) well established as &lt;180 minutes (3 hours) before treatment would begin?</td>
</tr>
</tbody>
</table>

**Exclusion Criteria (all No boxes in “Contraindications” section must be checked):**

**Contraindications:**

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of intracranial hemorrhage on pretreatment noncontrast head CT?</td>
</tr>
<tr>
<td>Clinical presentation suggestive of subarachnoid hemorrhage even with normal CT?</td>
</tr>
<tr>
<td>CT shows multilobar infarction (hypodensity greater than one third cerebral hemisphere)?</td>
</tr>
<tr>
<td>History of intracranial hemorrhage?</td>
</tr>
<tr>
<td>Uncontrolled hypertension: At the time treatment should begin, systolic pressure remains &gt;185 mm Hg or diastolic pressure remains &gt;110 mm Hg despite repeated measurements?</td>
</tr>
<tr>
<td>Known arteriovenous malformation, neoplasm, or aneurysm?</td>
</tr>
<tr>
<td>Witnessed seizure at stroke onset?</td>
</tr>
<tr>
<td>Active internal bleeding or acute trauma (fracture)?</td>
</tr>
<tr>
<td>Acute bleeding diathesis, including but not limited to</td>
</tr>
<tr>
<td>---Platelet count &lt;100,000/mm³?</td>
</tr>
<tr>
<td>---Heparin received within 48 hours, resulting in an activated partial thromboplastin time (aPTT) that is greater than upper limit of normal for laboratory?</td>
</tr>
<tr>
<td>---Current use of anticoagulant (eg, warfarin sodium) that has produced an elevated international normalized ratio (INR) &gt;1.7 or prothrombin time (PT) &gt;15 seconds?</td>
</tr>
<tr>
<td>Within 3 months of intracranial or intraspinal surgery, serious head trauma, or previous stroke?</td>
</tr>
<tr>
<td>Arterial puncture at a noncompressible site within past 7 days?</td>
</tr>
</tbody>
</table>

**Relative Contraindications/Precautions:**

Recent experience suggests that under some circumstances—with careful consideration and weighing of risk-to-benefit ratio—patients may receive fibrinolytic therapy despite one or more relative contraindications. Consider the pros and cons of tPA administration carefully if any of these relative contraindications is present:

- Only minor or rapidly improving stroke symptoms (clearing spontaneously)
- Within 14 days of major surgery or serious trauma
- Recent gastrointestinal or urinary tract hemorrhage (within previous 21 days)
- Recent acute myocardial infarction (within previous 3 months)
- Postmyocardial infarction pericarditis
- Abnormal blood glucose level (<58 or >400 mg/dL, <2.8 or >22.2 mmol/L)

*In patients without recent use of oral anticoagulants or heparin, treatment with tPA can be initiated before availability of coagulation study results but should be discontinued if the INR is >1.7 or the partial thromboplastin time is elevated by local laboratory standards.*