Prehospital Stroke and STEMI

Stroke and LVO screens, last known well, destination, 12-lead, STEMI times, and aspirin and nitro cautions for EMT and paramedic

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STROKE: SCREEN AND TIME IT

LAMS and RACE flag large vessel occlusion (LVO). No screen diagnoses stroke or tells clot from bleed; adult scales do poorly in children.

TOOL	CHECKS	POSITIVE
Cincinnati (CPSS)	Face droop, arm drift, speech	Any 1 abnormal
BE-FAST	FAST plus balance and eyes (vision)	Any new deficit
LAMS (0-5)	Face 0-1, arm drift 0-2, grip 0-2	≥4: LVO likely
RACE (0-9)	Face, arm, leg, gaze, aphasia or agnosia	≥5: LVO likely

- LVO clues: gaze deviation, aphasia, neglect, dense one-sided weakness
- Bleed clues (none specific): severe headache, vomiting, falling LOC, very high BP
- Last known well (LKW): last time seen normal (and by whom), not when found or woke up
- Glucose on every suspected stroke; treat if <60 mg/dL, then rescreen
- Mimics: hypoglycemia, seizure with postictal weakness, sepsis, migraine, intoxication
- Ask: anticoagulants, recent trauma, surgery, bleeding, seizure

EXAM TIP Exams test LKW: in bed at 10 PM, wakes with deficits at 8 AM, so LKW is 10 PM (or 3 AM if seen normal then). Treatment windows run from LKW.

STROKE: DESTINATION AND FIELD CARE

Any stroke center beats a non-stroke hospital. Some patients qualify later with advanced imaging.

FROM LKW	TREATMENT	EMS DESTINATION
≤4.5 h, no LVO signs	IV thrombolysis	Closest stroke-capable hospital
≤24 h, LVO likely	Thrombectomy, plus lytic if eligible	Thrombectomy-capable center (TSC or CSC)

- LVO signs: direct to a TSC per plan, if the extra time will not cost lytic eligibility
- Going to a distant (45-60 min) TSC did not beat a well-run local stroke center
- Stroke alert early: LKW, scale and score, glucose, anticoagulants, ETA
- Scene time ≤15 min; IV line, but avoid multiple attempts
- Oxygen only if hypoxemic (SpO_2 94-98%); NPO until a swallow screen
- Head of stretcher 15-30° if SBP >100, neck neutral; protect weak limbs
- Cardiac monitor; 12-lead if it does not delay transport

SAFETY Do not treat high BP in the field: an SBP target of 130-140 did not help, and nitro patches may harm. Correct hypotension. No aspirin until imaging rules out bleeding. Hospitals lower BP to <185/110 before lytics.

STEMI: 12-LEAD AND DESTINATION

- 12-lead within 10 min of first medical contact (FMC); transmit or read it
- Nondiagnostic with ongoing symptoms: repeat 12-leads (some occlusions lack ST elevation)
- STEMI: new J-point ST elevation in 2 contiguous leads, ≥1 mm (V2-V3: ≥2 mm men 40+, ≥2.5 mm men <40, ≥1.5 mm women), without LBBB or LVH
- Inferior STEMI: add right-sided leads (V4R) to look for RV infarct
- ST depression in V1-V3: think posterior MI; check V7-V9 for ST elevation
- Early STEMI alert, short scene time, pads on high-risk patients



ST elevation on a monitor lead means get a 12-lead; it does not diagnose STEMI.

SITUATION	GOAL (ACC/AHA 2025)
Direct to PCI center	FMC to device ≤90 min
Transfer for PCI	FMC to device ≤120 min
PCI not possible within 120 min, onset <12 h	Lytic within 30 min of arrival if no contraindication, then transfer
Cardiogenic shock	Emergency PCI or CABG, any time from onset

EXAM TIP Remember 10-90-120: 12-lead by 10 min, device by 90, or by 120 with a transfer. Bypass non-PCI hospitals when the plan allows.

ASPIRIN, NITRO AND OXYGEN

Typical adult doses for exam study. Follow your agency's protocols.

DRUG	TYPICAL DOSE	HOLD IF
Aspirin	162-325 mg chewed, not enteric-coated	True allergy, active bleeding, possible stroke
Nitroglycerin	0.4 mg SL every 5 min, up to 3	SBP <90-100, PDE5 inhibitor, possible stroke, RV infarct (per protocol)
Oxygen	If SpO_2 <90%, dyspnea or heart failure	Not routine if SpO_2 ≥90%

SAFETY No nitrates within 24 h of sildenafil or vardenafil, 48 h of tadalafil, or 12 h of avanafil (ACC/AHA 2025); NASEMSO and many protocols use 48 h for any PDE5 inhibitor. Pulmonary hypertension drugs count too: daily Revatio or Adcirca, riociguat, IV epoprostenol or treprostinil.

SAFETY Inferior STEMI with hypotension, JVD and clear lungs, or ST elevation in V4R: suspect RV infarct (preload dependent). Classic exam answer: no nitro, cautious fluid bolus. NASEMSO allows nitro with close monitoring; follow your protocol.

EMT VS PARAMEDIC

National EMS Scope of Practice Model 2019; states and agencies set the final scope.

TASK	EMT	PARAMEDIC
Stroke scale, LKW, glucose	Yes	Yes
Low glucose	Oral glucose if alert and can swallow	IV dextrose
12-lead	Acquire and transmit	Also interpret
Aspirin	Yes	Yes
Nitroglycerin	Assist with patient's own	Give SL per protocol
IV access, opioid analgesia	No	Yes
Fibrinolytics	No	Only where the medical director approves

Sources (14) are listed with links at medicbasics.com/sheets/prehospital-stroke-stemi.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. Medic Basics is an independent study aid not affiliated with any certifying body.