

Subject: Scope of Practice/Procedure – ALS LOCAL OPTIONAL SCOPE  
**Monitoring Intravenous Nitroglycerin Infusions**

Associated Policies:

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- I. Actions
    - A. Vasodilator and vascular smooth muscle relaxant.
    - B. Reduces myocardial oxygen consumption, preload, and afterload.
    - C. Metabolized by the liver; excreted in urine; half-life of 1-4 minutes.
    - D. IV onset of action immediate; duration variable.
  
  - II. Indications
    - A. Unstable angina pectoris.
    - B. Relief of persistent chest pain that does not respond to first-line medications.
    - C. Congestive heart failure.
    - D. Hypertensive emergencies.
  
  - III. Contraindications
    - A. Sensitivity to nitrates.
    - B. Increased intracranial pressure (ICP), e.g., from head trauma, hemorrhagic CVA or other cerebral hemorrhage.
    - C. Hypotension.
    - D. Uncorrected hypovolemia.
    - E. Use of sildenafil citrate (Viagra) within 24 hours.
  
  - IV. Adverse effects
    - A. Hypotension, especially postural hypotension (from vasodilation).
    - B. Dizziness, syncope (from hypotension).
    - C. Pallor, sweating (from hypotension).
    - D. Temporary pulsating headache (from vasodilation).
    - E. Nausea/vomiting.
    - F. Tachycardia (in response to hypotension).
    - G. In rare instances may cause paradoxical bradycardia.
    - H. Rash or anaphylaxis, if hypersensitive to drug.
  
  - V. Administration
    - A. Infusions containing nitroglycerin may only be monitored by specifically trained EMT-Ps. Patients with nitroglycerin infusion monitored by EMT-Ps may only be transported by ALS providers approved by North Coast EMS.
    - B. Nitroglycerin may not be started or added to an IV solution. Patient must have pre-existing nitroglycerin infusion in a peripheral or central IV line. (Infusion was initiated by physician or medical staff.)
    - C. **EXCEPTION:** If nitroglycerin administration is interrupted (IV infiltration, accidental disconnection, etc.), the paramedic may restart the IV line and resume infusion as per transfer orders.
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- D. Patient does not have more than two (2) medicated infusions running, exclusive of potassium chloride (KCl).
  - E. Rate of administration is titrated to patient pain relief response, typically starting at 10 mcg/minute and increasing in 5 mcg increments every 3-5 minutes until response is noted. ***Be alert for developing hypotension.***
  - F. Once pain relief response is noted or blood pressure response observed, any change in infusion rate should be made at 5-10-minute intervals.
  - G. Document pain level, blood pressure, and other vital signs both before and after any change in infusion rate or every 10 minutes through out transport.
  - H. Patient's receiving nitroglycerin infusion will be maintained on a 12 Lead monitor with reassessment for ECG changes every 5-10 minutes.
  - I. Must use infusion pump for accuracy.
  - J. Discuss with physician concomitant use of analgesics during transport, e.g., IV morphine sulfate or Fentanyl.
  - K. Maximum infusion of nitroglycerin not to exceed 100mcg/min.
  - L. Should hypotension develop, decrease drip rate in 5mcg increments every 3-5 minutes until blood pressure stabilizes. If critical hypotension occurs or fails to respond to rate reduction, stop the nitroglycerin infusion and notify receiving facility as soon as possible.
  - M. Fluid bolus can be considered at 250cc increments.
- VI. Precautions
- A. Use with caution in patients with the following conditions:
    - 1. Pregnant or lactating.
    - 2. Hepatic or renal disease.
    - 3. Pericarditis.
    - 4. Postural hypotension.
  - B. Glass infusion bottles and non-polyvinyl tubing must be used as plastics will absorb nitroglycerin.
  - C. Do not use in-line filters.
  - D. Do not mix with any other medication.
- VII. North Coast EMS retrospective evaluation of paramedic interfacility transports of patients on Nitroglycerin infusions:
- A. Nitroglycerin infusion approved ALS provider agencies must include an evaluation of each Nitroglycerin infusion transport in their Quarterly QIP report.
  - B. North Coast EMS will quarterly review Nitroglycerin infusion transports for:
    - 1. Number of Nitroglycerin infusion transports.
    - 2. Compliance with documentation/signature/written order requirements.

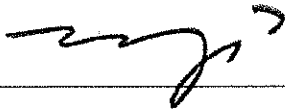
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3. Compliance with administration protocol.
  - a. Vitals monitored and documented appropriately.
  - b. Patient monitored for adverse effects.
  - c. Changes to dosing and patient response.
  - d. Patient origins and destinations.
4. Other significant findings, including transfer delays.

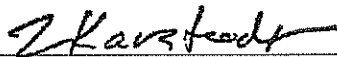
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