

codes should not be used unless thoroughly understood by all parties.

4. **Telemetry**—Receiving hospitals and ambulances may have equipment designed for the transmission of electrocardiographic traces (telemetry). This equipment is seldom used, however, because well-trained paramedics have shown the ability to interpret unstable rhythms (eg, ventricular fibrillation, ventricular tachycardia, bradycardia, and asystole) with acceptable precision, and more complex rhythms (eg, supraventricular tachycardia) rarely require treatment that cannot be postponed until arrival at the hospital. As indicated above, the prehospital 12-lead ECG has shortened the door to drug time in patients with acute coronary syndromes.

1. Air Transport

1. **Indications**—As noted above, the benefits to the patient must outweigh the risks inherent in this mode of transport. Aeronautical transport is most advantageous when great distances must be covered rapidly, when ground transport is unavailable or impeded by geographic obstacles or dense traffic, or when specialized care (eg, trauma resuscitation) is needed at the scene or en route. Emergency medical helicopters serving rural areas often provide a higher level of care and more skilled procedures (eg, intubation, needle thoracostomy, cricothyrotomy) than are provided by localized services using basic EMTs. However, air transport is hazardous, and helicopters operating at night and in inclement weather have crashed.

2. **Requesting service**—Helicopters equipped for medical evacuation can be requested, through the EMS communications network, from an area hospital that offers such services or from a local military base that participates in the Military Assistance to Safety and Traffic program.

3. **Patient preparation**—Before departure, stabilize the patient on a spine board and immobilize the patient as clinically indicated. Secure airway tubes and intravenous catheters.

4. **Anticipated physiologic consequences of air transport**—

a. **Hypoxia**—Atmospheric pressure decreases with increasing altitude, as does the partial pressure of oxygen. Patients with existing heart or lung disease may suffer adverse consequences. Supplemental oxygen is required.

b. **Expansion of trapped gas**—The volume of trapped gas increases with decreasing barometric pressure. Thus, as altitude increases, air may expand in endotracheal tube cuffs, air splints, MAST garments, the

bowel lumen, the stomach, pneumothorax, abscess cavities, and the bottles and tubing of intravenous infusion apparatus. These compartments must be monitored frequently and vented as necessary. Intravenous flow rates should be adjusted accordingly.

c. **Motion, noise, and vibration**—These may cause patient discomfort. Forward acceleration with the patient's head forward may cause transient hypotension. This may be prevented by positioning the patient with feet forward.

5. Helicopter safety

a. **Site selection and lighting**—A helicopter landing site should be level, approximately 100 feet square, and free of obstacles (eg, trees, wires) to approach and departure. It should also be clear of loose debris. The site should be secure from bystanders. At night, the site should be well lighted (eg, with vehicle headlights), but lights should never be directed upward toward the approaching helicopter, because they might interfere with the pilot's vision.

b. **Approaching a helicopter**—While the rotor blades are turning, approach the aircraft only from the front and only after prompting by the pilot. Avoid the tail rotor. Approach in a crouched position. Do not run. Never approach from uphill.

Lower tail objects such as poles associated with intravenous infusion apparatus, secure sheets, hats, and loose clothing. Extinguish all smoking material.

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