Pennsylvania Air Ambulance Transport Educational Program: Course Sponsor Checklist

Course Name_____

Sponsor_____

Sponsor Address_____ Sponsor Phone#_____

Contact Person_____ Contact Email_____ Contact Phone#_____

Instructions: Please complete this checklist, including references to supporting documentation, e.g. textbook, handout, PowerPoint presentation, etc. Return the completed checklist and associated course materials to the Pennsylvania Department of Health, Bureau of Emergency Medical Services 625 Forster Street • Room 606 • Harrisburg, PA 17120.

Educational Objective Description	Course Material Reference
I. PREPARATORY Expands upon the paramedic's previous knowledge of EMS systems by integrating a comprehensive understanding of critical care transportation, which includes air and ground operations in both the prehospital and interfacility setting.	**Course sponsors please note:** When citing references, please provide the associated textbook name and page number(s); for PowerPoint presentations provide specific slide number(s). Sections not properly referenced may result in the checklist being returned to the sponsor for correction and resubmission.
EMS Systems: ❑ History of critical care transport ❑ Modes of critical care transport ❑ Crew configurations ❑ Prehospital v. Interfacility transports ❑ Ethical considerations	
Patient safety during transport: ❑ Provider knowledge/experience ❑ Available resources	
Medical Director support: ❑ Declination of transport for safety reasons ❑ Education of facilities and physicians on safe transport practices	
Flight Operations and Physiology: ❑ Rotary-wing and fixed-wing aircraft ❑ Crash and mishap avoidance ❑ Safety considerations in air-medical operations	

Pennsylvania Air Ambulance Transport Educational Program: Course Sponsor Checklist

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Atmosphere and gas laws: ❑ Temperature ❑ Pressure ❑ Volume ❑ Relative Mass ❑ Boyle's Law ❑ Dalton's Law ❑ Charles' Law ❑ Gay-Lussac's Law ❑ Henry's Law ❑ Graham's Law of Gaseous Diffusion	
Stresses of transport: ❑ Hypoxia (review all types) ❑ Barometric Pressure Changes ❑ Thermal Changes ❑ Decreased Humidity ❑ Noise ❑ Vibration ❑ Fatigue ❑ Gravitational Force ❑ Spatial disorientation ❑ Flicker vertigo ❑ Fuel vapors	
Pressurized vs. non-pressurized aircraft: ❑ Altitude related disorders ❑ Flight tolerance of the ill and injured	
Documentation: ❑ Documenting the critical care assessment ❑ Supplemental documentation for reimbursement and operations	
EMS System Communications: ❑ Online Medical Direction ❑ Flight Following ❑ Communicating with ground providers	

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Therapeutic Communications: ❑ Effective communications with family members	
Medical-Legal Issues and Ethics: ❑ End of life issues during interfacility transport	
II. PHARMACOLOGY Review and expand upon comprehensive knowledge of pharmacology at the paramedic level to include those medications commonly encountered during a critical care interfacility transport.	
Review of medications commonly used during transport, including but not limited to: ❑ Analgesics ❑ Sedatives ❑ Paralytics ❑ Induction agents ❑ Antiarrhythmics ❑ Antianginals ❑ Antihypertensives ❑ Vasopressors ❑ Thrombolytics ❑ Bronchodilators ❑ Antibiotics ❑ Corticosteriods ❑ Antiemetics ❑ Diuretics ❑ Insulin ❑ Anticonvulsants ❑ Anticoagulants ❑ Anti-Platlet agents ❑ Tocolytics ❑ Prostaglandins ❑ Parenteral nutrition	
❑ Pharmacodynamics	

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Medication Administration: ❑ Use of intravenous infusion pumps ❑ Infusion considerations for central vs. peripheral vein	
III. AIRWAY MANAGEMENT, RESPIRATION AND ARTIFICIAL VENTILATION Review and expand upon the comprehensive knowledge of airway management, respiration and artificial ventilation from the paramedic level to include advanced airway management and ventilation modalities that are associated with the critical care patient management.	
❑ Drug facilitated airway control (RSI)	
❑ Tracheostomy management	
Airway control in special patient populations, including but not limited to: ❑ Neonates/infants ❑ Pediatrics ❑ Bariatric patients	
❑ Assessment and management of the difficult airway	
❑ Arterial blood gas interpretation and monitoring	
Mechanical ventilation: ❑ Principles of ventilation ❑ Patient assessment for mechanical ventilation ❑ Ventilator modes and parameters ❑ Troubleshooting	
IV. ASSESSMENT Expands upon the traditional paramedic-level assessment to include those techniques and parameters associated with a critical care setting. The critical care assessment includes an expanded physical assessment, use of diagnostic instruments and fundamental depth/foundational breadth interpretation of laboratory values and medical imaging.	
Landing zone safety assessment: ❑ Location ❑ Size ❑ Elevated obstructions ❑ Ground-level hazards	

History taking: ❑ Differentiate between essential information in the prehospital and interfacility transport setting ❑ Effectively communicating with other healthcare professionals involved in the transfer of care process	
Laboratory data: ❑ Understanding of critical laboratory values ❑ Using portable blood analysis devices	
Medical imaging: ❑ Radiographs ❑ CT scans ❑ MRI ❑ Ultrasound	
Invasive pressure monitoring: ❑ Invasive vs. non-invasive pressure monitoring in prehospital environment ❑ Arterial pressure monitoring ❑ Venous pressure monitoring: ❑ Triple lumen catheters ❑ SCVO2 catheters ❑ Pulmonary artery catheters ❑ Invasive monitoring catheter/line management ❑ Calibration and use of pressure transducers ❑ Interpreting pressure measurements	
V. MEDICAL Builds upon the principles of pathophysiology and assessment findings used to formulate a field impression to understand the often complex medical problems encountered during the critical care interfacility transport.	
Neurology: ❑ Review of anatomy, physiology, pathophysiology, neurological focused assessment and management ❑ Use of NIH stroke assessment tool ❑ Thrombolytics ❑ Therapeutic hypothermia ❑ Intra-cranial pressure monitoring	

Abdominal/GI disorders: ❑ Review of anatomy, physiology, pathophysiology, GI focused assessment and management ❑ Management of enteral feeding devices ❑ Management of drains ❑ Management of vacuum closure devices ❑ Altitude considerations	
Infectious Diseases: ❑ Review of anatomy, physiology, pathophysiology, focused assessment, PPE/universal precautions and management ❑ Use of antibiotics, antiviral and antifungal medications ❑ Infections in special patient populations ❑ The immuno-suppressed patient ❑ Post exposure prophylaxis for the healthcare provider	
Endocrinology: ❑ Review of anatomy, physiology, pathophysiology, focused assessment and management ❑ Types of insulin and administration technique ❑ Correctable endocrine conditions, e.g. hypoglycemia, etc. ❑ Adrenal insufficiency	
Psychiatric: ❑ Ground and air transport safety considerations ❑ Use of physical and/or pharmacological restraint	
Cardiology: ❑ Review of anatomy, physiology, pathophysiology, cardiovascular focused assessment and management. Reinforce the importance of prehospital STEMI recognition through the use of 12-lead EKGs and the use of therapeutic hypothermia in post-resuscitation management. ❑ Electrophysiology devices: ❑ Pacemakers, including epicardial and transvenous ❑ Cardiac assist devices: ❑ LVAD and BiVAD ❑ Intra-aortic balloon pump (IABP) ❑ Extracorporeal membrane oxygenation (ECMO) ❑ Management of mediastinal chest tubes	

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Toxicology: ❑ Review of anatomy, physiology, pathophysiology, toxicology assessment and management. Reinforce the importance of safety assessment, PPE and decontamination procedures prior to transport ❑ Intentional vs. unintentional poisoning ❑ General management principles: ❑ Initial management ❑ History taking and assessment ❑ Symptoms of poisoning or toxic exposure ❑ Physical exam ❑ Laboratory studies ❑ Removal, elimination or disruption of toxins ❑ Supportive and emotional care ❑ Safety issues during transport ❑ Pharmacologic properties of drugs ❑ Toxicity and treatment of poisoning by specific drugs: ❑ Acetylsalicylic Acid ❑ Acetaminophen ❑ Antidepressants, e.g. Tricyclics ❑ Benzodiazepines ❑ Cardiac drugs, i.e. beta blockers, calcium channel blockers, digitalis, etc. ❑ Cocaine and other illicit drugs ❑ Cyanide ❑ Hallucinogens ❑ Alcohol ❑ Ethylene Glycol ❑ Carbon Monoxide ❑ Snakebite: ❑ Recognition of venomous snakes ❑ Initial management ❑ Advanced treatment during transport, including anti-venom	
Respiratory: ❑ Review of anatomy, physiology, pathophysiology, respiratory focused assessment and management ❑ CPAP and BiPAP	

Pennsylvania Air Ambulance Transport Educational Program: Course Sponsor Checklist

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Hematology: ❑ Administration of blood and blood products: ❑ Indications ❑ Whole blood, blood components, and substitutes ❑ Typing and compatibility ❑ Pre-transfusion, concurrent, and post-transfusion assessment ❑ Administration techniques ❑ Management of transfusion complications ❑ Documentation	
Genitourinary/Renal: ❑ Review anatomy, physiology, pathophysiology, focused assessment, and management ❑ Insertion and management of a foley catheter ❑ Management of: ❑ Renal replacement therapy ❑ Nephrostomy tubes ❑ Supra-pubic catheters	
Gynecology: ❑ Review anatomy, physiology, pathophysiology, focused assessment, and management	
Non-traumatic Musculoskeletal Pain: ❑ Review anatomy, physiology, pathophysiology, focused assessment, and management	
Eyes, Ears, Nose and Throat: ❑ Review anatomy, physiology, pathophysiology, focused assessment, and management	
Shock and Resuscitation: ❑ Review types of shock, assessment parameters and management principles	
VI. TRAUMA Review pathophysiology, assessment and management of the trauma patient. Review and discuss trauma patient destination decisions relative to ground vs. air transport both in the prehospital and interfacility transport setting	

Pennsylvania Air Ambulance Transport Educational Program: Course Sponsor Checklist

Bleeding: ❑ Review the pathophysiology and management of bleeding, including hemostatic agents and commercial tourniquets ❑ DIC/coagulopathy ❑ Assessment and laboratory studies associated with the anti-coagulated patient ❑ Management of the anti-coagulated patient: ❑ Fresh frozen plasma ❑ Vitamin K ❑ Clotting factors	
Chest Trauma: ❑ Review pathophysiology, assessment and management of chest trauma ❑ Management of chest tubes	
Abdominal and Genitourinary Trauma: ❑ Review pathophysiology, assessment and management of abdominal and genitourinary trauma ❑ Understanding ultrasound images as part of the F.A.S.T exam	
Orthopedic Trauma: ❑ Review pathophysiology, assessment and management of orthopedic trauma ❑ Use of commercial pelvic stabilization devices ❑ Manual reduction of extremity fracture or dislocation with vascular compromise	
Soft Tissue Trauma: ❑ Review pathophysiology, assessment and management of soft tissue trauma ❑ Recognition and management of crush syndrome ❑ Recognition and management of compartment syndrome ❑ Administration of tetanus immunization	
Head, Facial, Neck and Spine Trauma: ❑ Review pathophysiology, assessment and management of head, facial, neck and spine trauma ❑ Advanced management of spinal cord injuries	
Nervous System Trauma: ❑ Review pathophysiology, assessment and management	

Special Considerations in Trauma: ❑ Review pathophysiology, assessment and management of special patient population trauma: ❑ Pregnant patient ❑ Pediatric patient ❑ Geriatric patient ❑ Cognitively impaired patient	
Environmental Emergencies: ❑ Review pathophysiology, assessment and management of environmental emergencies ❑ Management of suspension trauma	
Multi-System Trauma: ❑ Review pathophysiology, assessment and management of multi-system trauma ❑ Management of blast injuries	
VII. SPECIAL PATIENT POPULATIONS Builds on paramedic level assessment findings, pathophysiology, and psychosocial needs to effectively manage special patient populations in the prehospital setting and during interfacility transport.	
Obstetrics: ❑ Fetal assessment ❑ Fetal monitoring data ❑ Ultrasound images related to ectopic pregnancy ❑ Fetal heart rate abnormalities: ❑ Variability ❑ Periodic Changes ❑ Acceleration (Variable, Early, Late, Sinusodal) ❑ Bradycardia/Tachycardia ❑ Contributing factors to fetal distress ❑ Pre-eclampsia/eclampsia ❑ Administration of tocolytics ❑ Complications of pregnancy: ❑ Amniotic fluid embolism ❑ Breech presentation ❑ Post-partum hemorrhage ❑ Uterine inversion	

❑ Precipitous delivery ❑ Retained placenta ❑ Shoulder dystocia ❑ Umbilical prolapse ❑ Gestational diabetes ❑ Placenta abruption ❑ Placenta privia ❑ Disseminated intravascular coagulation (DIC) ❑ Multiple gestation ❑ HELLP syndrome ❑ Pre-term labor	
Neonatal Care: ❑ Respiratory disorders, e.g. surfactant deficiency ❑ Cardiac structural and flow abnormalities: ❑ Patent ductus arteriosm (PDA) ❑ Patent foramen ovale (PFO) ❑ Ventricular septal defect (VSD) ❑ Tetrology of fallots ❑ Transposition of the great vessels ❑ Sepsis ❑ Thermoregulation using an isolette ❑ Critical neonate laboratory values	
Pediatrics: ❑ Review age-related assessment findings, anatomic and physiologic variations, developmental stage related assessment and treatment modifications of the pediatric-specific major or common diseases and/or emergencies	
Geriatrics: ❑ Review normal and abnormal changes associated with aging, pharmacokinetic changes, psychosocial and economic aspects of aging, polypharmacy, and age-related assessment and treatment modifications for the major or common geriatric diseases and/or emergencies	
Patients with Special Challenges: ❑ Air medical transport of the bariatric patient ❑ Aircraft weight and balance issues	

❑ Patients requiring specialty equipment and staffing support during interfacility transport ❑ Pre-transport briefing of non-EMS caregivers	
VIII. PSYCHOMOTOR SKILLS REVIEW In addition to those skills outlined in the National Scope of Practice Model and authorized by the Pennsylvania Department of Health for the paramedic, the flight or ground critical care paramedic should be competent in the following psychomotor skills based on the depth/breadth previously described:	
Airway and Breathing: ❑ Drug facilitated airway control, i.e. RSI ❑ Operation of mechanical transport ventilators ❑ Tracheostomy management	
Assessment and Monitoring: ❑ Maintenance and access to invasive pressure monitoring devices and interpretation of monitoring parameter information ❑ Interpretation of critical laboratory values ❑ Arterial blood gas interpretation ❑ Interpretation of medical imaging information ❑ Interpretation of fetal monitoring data ❑ Operation of portable blood analysis equipment	
Pharmacology: ❑ Expanded administration of enteral and parenteral prescription medications as ordered by a medical command physician or by approved protocol ❑ Infusion of blood, blood products or blood substitutes ❑ Initiation and/or maintenance of thrombolytics	

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Medical & Cardiac Care: ❑ IABP monitoring ❑ ECMO monitoring ❑ VAD monitoring ❑ Pacemakers ❑ Feeding tube management ❑ Foley catheter insertion/management	
Trauma Care: ❑ Chest tube management ❑ Drain management ❑ ICP monitoring	
Special Patient Populations: ❑ Isolette operations ❑ Fetal monitoring	

Notes: