

Pennsylvania AIR Ambulance Transport Educational Program: PHRN Bridge 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 St. • Room 606 • Harrisburg, PA 17120.

Note: The air ambulance transport bridge course is intended for PHRNs who also hold current specialty certification as a certified emergency nurse (CEN) or certified critical care nurse (CCRN). PHRNs who hold current certification as a certified flight registered nurse (CFRN) are not required to take a bridge course in order to comply with PADOH regulations. PHRNs who hold current certification as a certified transport registered nurse (CTRN) are only required to complete those bridge course topics directly related to air medical transport, e.g., flight physiology, laws of gases, etc.

Educational Objective Description	Course Material Reference
I. PREPARATORY Expands upon the PHRN'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: <input type="checkbox"/> History of critical care transport <input type="checkbox"/> Modes of critical care transport <input type="checkbox"/> Crew configurations <input type="checkbox"/> Prehospital v. interfacility transports <input type="checkbox"/> Ethical considerations	
Patient safety during transport: <input type="checkbox"/> Provider knowledge/experience <input type="checkbox"/> Available resources	
Medical director support: <input type="checkbox"/> Declination of transport for safety reasons <input type="checkbox"/> Education of facilities and physicians on safe transport practices	

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Flight operations and physiology: <ul style="list-style-type: none"> <input type="checkbox"/> Rotary-wing and fixed-wing aircraft <input type="checkbox"/> Crash and mishap avoidance <input type="checkbox"/> Safety considerations in air-medical operations 	
Atmosphere and gas laws: <ul style="list-style-type: none"> <input type="checkbox"/> Temperature <input type="checkbox"/> Pressure <input type="checkbox"/> Volume <input type="checkbox"/> Relative mass <input type="checkbox"/> Boyle's Law <input type="checkbox"/> Dalton's Law <input type="checkbox"/> Charles' Law <input type="checkbox"/> Gay-Lussac's Law <input type="checkbox"/> Henry's Law <input type="checkbox"/> Graham's Law of Gaseous Diffusion 	
Stresses of transport: <ul style="list-style-type: none"> <input type="checkbox"/> Hypoxia (review all types) <input type="checkbox"/> Barometric pressure changes <input type="checkbox"/> Thermal changes <input type="checkbox"/> Decreased humidity <input type="checkbox"/> Noise <input type="checkbox"/> Vibration <input type="checkbox"/> Fatigue <input type="checkbox"/> Gravitational force <input type="checkbox"/> Spatial disorientation <input type="checkbox"/> Flicker vertigo <input type="checkbox"/> Fuel vapors 	
Pressurized vs. non-pressurized aircraft: <ul style="list-style-type: none"> <input type="checkbox"/> Altitude-related disorders <input type="checkbox"/> Flight tolerance of the ill and injured 	
Documentation: <ul style="list-style-type: none"> <input type="checkbox"/> Documenting the critical care assessment <input type="checkbox"/> Supplemental documentation for reimbursement and operations 	

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EMS system communications: <ul style="list-style-type: none"> <input type="checkbox"/> Online medical direction <input type="checkbox"/> Flight following <input type="checkbox"/> Communicating with ground providers 	
Medical-legal issues and ethics: <ul style="list-style-type: none"> <input type="checkbox"/> End of life issues during interfacility transport 	
II. PHARMACOLOGY Review of medications commonly used encountered during a critical care transport, including, but not limited to, indications, contraindications, dosage and route of administration. Depth and breadth of this review may vary based on the experience level of the PHRNs attending the course.	
III. AIRWAY MANAGEMENT, RESPIRATION AND ARTIFICIAL VENTILATION Review and expand upon the comprehensive knowledge of airway management, respiration and artificial ventilation to include advanced airway management and ventilation modalities that are associated with the critical care patient management.	
<ul style="list-style-type: none"> <input type="checkbox"/> Drug facilitated airway control (RSI): 	
Airway control in special patient populations, including, but not limited to: <ul style="list-style-type: none"> <input type="checkbox"/> Neonates/infants <input type="checkbox"/> Pediatrics <input type="checkbox"/> Bariatric patients 	
Assessment and management of the difficult airway <ul style="list-style-type: none"> <input type="checkbox"/> Angioedema <input type="checkbox"/> Epiglottitis <input type="checkbox"/> Trauma related 	
Mechanical ventilation: <ul style="list-style-type: none"> <input type="checkbox"/> Principles of ventilation <input type="checkbox"/> Patient assessment for mechanical ventilation <input type="checkbox"/> Ventilator modes and parameters <input type="checkbox"/> Troubleshooting 	

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<p>IV. ASSESSMENT Expands upon the traditional nursing assessment to include those techniques and parameters associated with a critical care setting, including an expanded physical assessment, use of diagnostic instruments, and interpretation of laboratory values and medical imaging.</p>	
<p>Landing zone safety assessment:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Location <input type="checkbox"/> Size <input type="checkbox"/> Elevated obstructions <input type="checkbox"/> Ground-level hazards 	
<p>History taking:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Differentiate between essential information in the prehospital and interfacility transport setting 	
<p>Laboratory data:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of critical laboratory values <input type="checkbox"/> Using portable blood analysis devices 	
<p>Medical imaging:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Radiographs <input type="checkbox"/> CT scans <input type="checkbox"/> MRI <input type="checkbox"/> Ultrasound 	
<p>Invasive pressure monitoring:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Invasive vs. non-invasive pressure monitoring in prehospital environment <input type="checkbox"/> Arterial pressure monitoring <input type="checkbox"/> Venous pressure monitoring: <ul style="list-style-type: none"> <input type="checkbox"/> Triple lumen catheters <input type="checkbox"/> SCVO2 catheters <input type="checkbox"/> Pulmonary artery catheters <input type="checkbox"/> Invasive monitoring catheter/line management <input type="checkbox"/> Calibration and use of pressure transducers <input type="checkbox"/> Interpreting pressure measurements 	

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<p>V. MEDICAL</p> <p>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.</p>	
<p>Neurology:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of focused assessment and management <input type="checkbox"/> Use of NIH stroke assessment tool <input type="checkbox"/> Therapeutic hypothermia <input type="checkbox"/> Intra-cranial pressure monitoring 	
<p>Abdominal/GI disorders:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of assessment and management <input type="checkbox"/> Altitude considerations 	
<p>Infectious diseases:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review assessment, PPE/universal precautions and management <input type="checkbox"/> Review of infection control procedures in the transport environment 	
<p>Endocrinology:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of focused assessment and management <input type="checkbox"/> Adrenal insufficiency 	
<p>Psychiatric:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ground and air transport safety considerations <input type="checkbox"/> Use of physical and/or pharmacological restraint 	
<p>Cardiology:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of focused assessment and management. Reinforce the importance of prehospital STEMI recognition and the use of therapeutic hypothermia in post-resuscitation management. <input type="checkbox"/> Electrophysiology devices: <ul style="list-style-type: none"> <input type="checkbox"/> Pacemakers, including epicardial and transvenous <input type="checkbox"/> Cardiac assist devices: <ul style="list-style-type: none"> <input type="checkbox"/> LVAD and BiVAD <input type="checkbox"/> Intra-aortic balloon pump (IABP) <input type="checkbox"/> Extracorporeal membrane oxygenation (ECMO) <input type="checkbox"/> Management of mediastinal chest tubes 	

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<p>Toxicology:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review of focused assessment and management. Reinforce the importance of safety assessment, PPE and decontamination procedures prior to transport <input type="checkbox"/> Intentional vs. unintentional poisoning <input type="checkbox"/> General management principles: <ul style="list-style-type: none"> <input type="checkbox"/> Initial management <input type="checkbox"/> History taking and assessment <input type="checkbox"/> Symptoms of poisoning or toxic exposure (toxidromes) <input type="checkbox"/> Physical exam <input type="checkbox"/> Laboratory studies <input type="checkbox"/> Removal, elimination or disruption of toxins <input type="checkbox"/> Supportive and emotional care <input type="checkbox"/> Safety issues during transport <input type="checkbox"/> Pharmacologic properties of drugs <input type="checkbox"/> Toxicity and treatment of poisoning by specific drugs: <ul style="list-style-type: none"> <input type="checkbox"/> Acetylsalicylic acid <input type="checkbox"/> Acetaminophen <input type="checkbox"/> Antidepressants, e.g., tricyclics <input type="checkbox"/> Benzodiazepines <input type="checkbox"/> Cardiac drugs, i.e., beta-blockers, calcium channel blockers, digitalis, etc. <input type="checkbox"/> Cocaine and other illicit drugs <input type="checkbox"/> Cyanide <input type="checkbox"/> Hallucinogens <input type="checkbox"/> Alcohol <input type="checkbox"/> Ethylene glycol <input type="checkbox"/> Carbon monoxide <input type="checkbox"/> Snakebite: <ul style="list-style-type: none"> <input type="checkbox"/> Recognition of venomous snakes <input type="checkbox"/> Initial management <input type="checkbox"/> Advanced treatment during transport, including anti-venom 	

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Respiratory: <input type="checkbox"/> Review of focused assessment and management <input type="checkbox"/> Management of nitric oxide therapy in pulmonary hypertension <input type="checkbox"/> CPAP and BiPAP	
Genitourinary/renal: <input type="checkbox"/> Review focused assessment, and management	
Gynecology: <input type="checkbox"/> Review focused assessment, and management	
Non-traumatic musculoskeletal pain: <input type="checkbox"/> Review focused assessment, and management	
Eyes, ears, nose and throat: <input type="checkbox"/> Review focused assessment, and management <input type="checkbox"/> Epistaxis management	
Shock and resuscitation: <input type="checkbox"/> 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	
Bleeding: <input type="checkbox"/> Review management of bleeding, including hemostatic agents and commercial tourniquets	
Chest trauma: <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Needle thoracostomy	
Abdominal and genitourinary trauma: <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Understanding ultrasound images as part of the F.A.S.T exam	

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Orthopedic trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management use of commercial pelvic stabilization devices <input type="checkbox"/> Manual reduction of extremity fracture or dislocation with vascular compromise <input type="checkbox"/> Administration of antimicrobials in open fractures 	
Soft tissue trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Recognition and management of crush syndrome <input type="checkbox"/> Recognition and management of compartment syndrome <input type="checkbox"/> Burn management review <ul style="list-style-type: none"> <input type="checkbox"/> Thermal <input type="checkbox"/> Chemical <input type="checkbox"/> Electrical 	
Head, facial, neck and spine trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Advanced management of spinal cord injuries 	
Nervous system trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management 	
Special considerations in trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management of: <input type="checkbox"/> Pregnant patient <input type="checkbox"/> Pediatric patient <input type="checkbox"/> Geriatric patient <input type="checkbox"/> Cognitively impaired patient 	
Environmental emergencies: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Management of suspension trauma 	
Multi-system trauma: <ul style="list-style-type: none"> <input type="checkbox"/> Review focused assessment and management <input type="checkbox"/> Management of blast injuries 	

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<p>VII. SPECIAL PATIENT POPULATIONS</p> <p>Builds on PHRN assessment findings, pathophysiology and psychosocial needs in order to effectively manage special patient populations in the prehospital setting.</p> <p>Note: The depth and breadth of this section may be modified by the course sponsor as needed based on the level of experience and/or specialty certification held by the PHRN in this area, e.g., RNs with practice experience in OB, neonatal, etc.</p>	
<p>Obstetrics:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fetal assessment <input type="checkbox"/> Fetal monitoring data <input type="checkbox"/> Ultrasound images related to ectopic pregnancy <input type="checkbox"/> Fetal heart rate abnormalities: <ul style="list-style-type: none"> <input type="checkbox"/> Variability <input type="checkbox"/> Periodic changes <input type="checkbox"/> Acceleration (variable, early, late, sinusodal) <input type="checkbox"/> Bradycardia/tachycardia <input type="checkbox"/> Contributing factors to fetal distress <input type="checkbox"/> Pre-eclampsia/eclampsia <input type="checkbox"/> Administration of tocolytics <input type="checkbox"/> Transport considerations with respect to patients in active labor (safety and EMTALA) <input type="checkbox"/> Complications of pregnancy: <ul style="list-style-type: none"> <input type="checkbox"/> Amniotic fluid embolism <input type="checkbox"/> Breech presentation <input type="checkbox"/> Post-partum hemorrhage <input type="checkbox"/> Uterine inversion <input type="checkbox"/> Precipitous delivery <input type="checkbox"/> Retained placenta <input type="checkbox"/> Shoulder dystocia <input type="checkbox"/> Umbilical prolapse <input type="checkbox"/> Nuchal cord 	

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<ul style="list-style-type: none"> <input type="checkbox"/> Gestational diabetes <input type="checkbox"/> Placenta abruption <input type="checkbox"/> Placenta previa <input type="checkbox"/> Disseminated intravascular coagulation (DIC) <input type="checkbox"/> Multiple gestation <input type="checkbox"/> HELLP syndrome <input type="checkbox"/> Pre-term labor 	
<p>Neonatal Care:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Respiratory disorders, e.g., surfactant deficiency <input type="checkbox"/> Cardiac structural and flow abnormalities: <ul style="list-style-type: none"> <input type="checkbox"/> Patent ductus arteriosm (PDA) <input type="checkbox"/> Patent foramen ovale (PFO) <input type="checkbox"/> Ventricular septal defect (VSD) <input type="checkbox"/> Tetralogy of Fallot <input type="checkbox"/> Transposition of the great vessels <input type="checkbox"/> Sepsis <input type="checkbox"/> Thermoregulation using an isolette <input type="checkbox"/> Critical neonate laboratory values 	
<p>Pediatrics:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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 	
<p>Geriatrics:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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 	
<p>Patients with special challenges:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Air medical transport of the bariatric patient <ul style="list-style-type: none"> <input type="checkbox"/> Aircraft weight and balance issues <input type="checkbox"/> Patients requiring specialty equipment and staffing support during interfacility transport <input type="checkbox"/> Pre-transport briefing of non-EMS caregivers 	

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<p>VIII. PSYCHOMOTOR SKILLS REVIEW</p> <p>In addition to those skills authorized by the Pennsylvania Department of Health, the flight or ground critical care PHRN should be competent in the following psychomotor skills based on the depth/breadth previously described:</p>	
<p>Airway and breathing:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Drug facilitated airway control, i.e., RSI <input type="checkbox"/> Operation of mechanical transport ventilators <input type="checkbox"/> Needle thorocostomy 	
<p>Assessment and monitoring:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Maintenance and access to invasive pressure monitoring devices and interpretation of monitoring parameter information <input type="checkbox"/> Interpretation of medical imaging information <input type="checkbox"/> Fetal assessment and interpretation of monitoring data <input type="checkbox"/> Operation of portable blood analysis equipment 	
<p>Medical & cardiac care:</p> <ul style="list-style-type: none"> <input type="checkbox"/> IABP monitoring <input type="checkbox"/> ECMO monitoring <input type="checkbox"/> VAD monitoring <input type="checkbox"/> Pacemakers 	
<p>Trauma care:</p> <ul style="list-style-type: none"> <input type="checkbox"/> ICP monitoring 	
<p>Special patient populations:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Isolette operations 	

