Indiana Perinatal Transport Guidelines

Developed by the Indiana Perinatal Quality Improvement Collaborative, Perinatal Transport Task Force

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STANDARD	TITLE
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DEFINITIONS

- A **debrief** is a discussion among all coordinated responders, medical directors and physicians to conduct a root cause analysis.
- The **dispatch time** is defined as the time from acceptance of the transport to notification of the transport service.
- The **enroute time** is defined as the time from notification of transport service to the time when entire crew is on board the vehicle and starting to travel.
- **Just Culture** is defined as an error analysis tool that recognizes that individual practitioners should not be held accountable for system failings over which they have no control. A just culture also recognizes many individual or "active" errors represent predictable interactions between human operators and the systems in which they work. However, in contrast to a culture that touts "no blame" as its governing principle, a just culture does not tolerate conscious disregard of clear risks to patients or gross misconduct . (From the AHRQ Glossary)
- A **perinatal transport team** may take three forms:
    - Hospital-based: the vehicle (air or ground) is owned by the hospital and all staffing is provided by the hospital;
    - Contracted: the vehicle (air or ground) and staffing are external to the hospital
    - Combination: the vehicle (air or ground) is contracted and staff inside the passenger compartment are hospital based.
- A **pre-transport briefing** is a discussion of the status of the patient and all issues identified on the pre-transport checklist provided by the state prior to the departure.
- **Root Cause Analysis** is defined as an error analysis tool in health care. A central tenet of Root Cause Analysis is to identify underlying problems that increase the likelihood of errors while avoiding the trap of focusing on mistakes by individuals. (From the AHRQ Glossary)
- A **sentinel event** is an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function. The phrase, 'or the risk thereof" includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome.

Standard I: Certification

All contracted or center-based perinatal transport teams that conduct inter-facility transfers of high risk maternal-fetal or neonatal patients shall be certified by the commission as an ambulance provider organization. ("Commission" means the Indiana Emergency Medical Services Commission (836 IAC 1-1-1 (15)). The following standards reflect the additional standards necessary for Maternal-Fetal and Neonatal Transport.

Standard II: Perinatal Transport Safety Measures

2.1 All contracted or center-based perinatal transport teams must ensure the following safety measures are in place:

A. Criteria for emergent vs. non-emergent status - protocol driven;
   i. track percentage of emergent transports as portion of QI process;
   ii. protocol driven; and
   iii. can be overridden by any member of the team;
B. Document pre-transport check of ground ambulance or aircraft by operator/driver or pilot on Transport records;
C. Return by ground transport with lights and sirens reviewed for appropriateness;
D. Record of safety meetings and minutes should be maintained;
E. Training for driver or pilot to recognize aircraft or ambulance tampering;
F. Security policy in place to address aircraft or ambulance if left unattended on a helipad, hospital ramp, or unsecured parking lot.
G. The medical transfer service must provide direct communication capabilities for obstetric and neonatal teams. During ground transports between referring and receiving facilities, communication between ambulance and dispatch must not exceed 45 minutes unless continuous tracking software is used on the ambulance.
H. All transport team members provided by the hospital must be knowledgeable of current concepts and provide evidence of annual education in:
   i. Human factors;
   ii. Infection control
   iii. Just culture: Highly reliable standards of patient safety;
   iv. Sleep deprivation;

v. Stress recognition and management;
vi. Safety and risk management;
vii. Quality management; and
viii. Knowledge of national, regional and local standards of clinical practice, aviation and ground regulations as appropriate.

2.2 When a sentinel event occurs, the perinatal transport team, medical director, and medical control physician must have a debrief that is initiated within 72 hours and the root cause analysis completed within 5 working days.

2.3 Teams are required to have a pre-transport briefing regarding the patient(s) condition prior to assuming care of the patient(s).

2.4 Each hospital with a perinatal transport team shall implement a routine schedule of Quality Improvement meetings and a record of minutes maintained.

2.5 The perinatal transport team conducts a quarterly review of the following elements and maintain documentation of the reviews in compliance with 836 IAC 1-1-1-5(c):

A. Reason for transport;
B. Primary Diagnosis;
C. Medical intervention performed or maintained;
D. Intervention will be consistently documented in regard to:
    i. Assessment delineating the need for the intervention
    ii. Response to interventions; and
    iii. Reason deferred;
E. Patient outcome at arrival of destination;
F. Patient's change in condition during transport;
G. Timeliness and coordination of the transport from reception of request to lift off or ambulance enroute time;
H. Pre-transport check of ambulance by operator/driver or pilot on Transport records;
I. Operational criteria to include, at a minimum, the following quality indicators:
    i. number of completed transports;
    ii. number of aborted or canceled flights/transports due to weather;
    iii. number of aborted or canceled flights/transports due to maintenance;
    iv. number of aborted or canceled flights/transports due to patient condition and alternative modes of transport;

J. Communications Center of organization must monitor and track:
   i. Instrument Flight Rules (IFR)/Visual Flight Rules (VFR)
   ii. Weather at time of request and during transport if changes occur; and
   iii. All aborted and canceled transport requests - times, reasons and disposition of patients as applicable.

Standard III: Perinatal Policies and Protocols
3.1 Each hospital with an in-house perinatal transport team must have written documentation for the following: A. Standardized departure protocol; B. Protocol for communication with referring facility: i. receiving facility should provide update to staff and physicians within 24 hours of admission; ii. Follow-up should include outcome of transport, therapies initiated at admission and current status of infant; C. If possible, referring physician and delivering physician should be notified of maternal-fetal or infant status.
3.2 Each perinatal transport team shall have written internal quality review procedures/protocols.

Standard IV: Perinatal Transport Personnel Licensure, Certification and Education
4.1 All perinatal transport personnel must be certified/licensed in the state appropriate for their job title (i.e. RN, RT, EMT, MD, APN, PA).
4.2 All perinatal transport personnel must have demonstrated competencies for air and ground transport safety, transport protocols and clinical skills commensurate with their role and the population served.
4.3 The maternal-fetal transport team must have a minimum staff of: A. maternal-fetal transport nurse; and B. one of the following: i. Paramedic; ii. Nurse; C. Additional crew members may be added from the following list when determined by the medical director: iii. Respiratory Therapist; iv. Nurse Practitioner;

Standard IV: Perinatal Transport Personnel Licensure, Certification and Education
v. Physician.; or vi. Physician Assistant
4.4 All maternal-fetal transport staff in the patient compartment shall have the following current education: A. Basic Life Support Health Care Provider (BLS) B. Neonatal Resuscitation Program (NRP); C. The Learner STABLE Program (EMT/Paramedic optional); D. Maternal Fetal Physiology; and E. Advanced Cardiovascular Life Support or Obstetric Advanced Life Support (ACLS, OB-ACLS) F. Competency testing of academic knowledge and clinical decision-making skill, which may include but is not limited to: i. written examinations; ii. Transport and clinical case presentations and reviews; iii. oral examinations conducted by the coordinator or medical director of the transport team; iv. Medical record review; v. Current national certification specific to the patient population served; and vi. intranet or internet modules. If there is an obstetric physician, advance practice provider with obstetric expertise or PA with obstetrical expertise-on the transport, this requirement will be encouraged but not required. Otherwise National Certification Corporation (NCC) credential in Inpatient Obstetrics for the maternal fetal transport RN is expected within two years of hire as a transport nurse. (source 2018 Arizona dept of health maternal and newborn transport services page 6.7.7) APNs or PAs with expertise in maternal fetal assessment must maintain certification specific to APN and or PA licensure and accreditation. A. For all maternal–fetal transport team members, a certificate of added credentials in topics such as Electronic Fetal Monitoring is encouraged but optional. B. All maternal-fetal transport team members shall complete 24 hours of area specific didactic and/or continuing education on an annual basis. The 24 hours include the maintenance of competencies above.

Standard IV: Perinatal Transport Personnel Licensure, Certification and Education
4.5 The neonatal transport team must have a minimum staff of two qualified neonatal providers. The neonatal transport team must have a minimum staff of: A. Neonatal nurse; and B. one of the following: i. Respiratory Therapist; ii. Neonatal Nurse Practitioner; or iii. Paramedic C. Additional crew members may be added from the following list when determined by the medical director: i. Physician.; or ii. Physician Assistant
4.6 All neonatal transport staff in the patient compartment shall have the following current education or documentation of successful completion: A. Basic Life Support Health Care Provider (BLS) B. Neonatal Resuscitation Program (NRP); and C. The Learner STABLE Program.
4.7 Neonatal transport team nurses present in the patient compartment shall have one or more of the following certifications: A. National Certification Corporation (NCC) credential in Neonatal Intensive Care Nursing (RNC); B. Neonatal certificate of added qualification in neonatal-pediatric transport, C. Certified Emergency Nurse (CEN) D. Certified Flight Registered Nurse (CFRN), E. National Certification Corporation (NCC) credential in Critical Care Adult, Neonatal and Pediatric Nursing (CCRN). Certification is expected within two years of hire unless NNP/PA status is current. Certification shall be maintained during tenure as a transport team member. RN certification type is a decision left to the transport leadership team APNs or PAs with expertise in neonatal assessment must maintain certification specific to APN and or PA licensure and accreditation.

Standard IV: Perinatal Transport Personnel Licensure, Certification and Education
RTs: Respiratory Therapists are required to be registry-eligible and obtain RRT within one year of hire. They are also required to obtain one of the following certifications: NPS or C-NPT within two years of hire. Where available for the role and patient population transported, a transport specific certification is strongly recommended. If these requirements cannot be met, a neonatologist or NNP-BC, or a PA with training in neonatology and neonatal transport medicine adequate for independent decision making and administration of procedures must be in the patient compartment.
4.8 In the case of back transport (maternal-fetal or neonatal) the staffing for the patient compartment is up to the discretion of the transferring hospital based on the patient's presenting condition.

Standard V: Perinatal Quality Assurance
5.1 In addition to complying with all reports and records rules in 836 IAC 1-1-5, the certified provider of the Maternal Fetal Transport Program shall track the following benchmarks: A. Delivery ≤60 minutes from arrival at receiving hospital; B. Diversion of transport due to maternal and or fetal status change in route; C. Delivery in route; D. Incidence of sentinel-events E. Transport crew member injury during transport; F. Any reason for transport delay: G. Maternal fetal injury during transport; and H. Maternal and or fetal status deemed unstable for transport at sending facility.

Standard V: Perinatal Quality Assurance
5.2 In addition to complying with all reports and records rules in 836 IAC 1-1-5, the Certified Provider of the Neonatal Transport Program shall track the following benchmarks and should share this data with the transport team on a regular basis: A. Average mobilization time of transport team; B. Unplanned dislodgement of therapeutic devices; C. Radiograph verification of tracheal tube placement; D. GAMUT Definition - First attempt tracheal tube placement success: First attempt is defined as when the blade passes the lip. (It does not matter if it is just to look or suction. As soon as the blade passes the lip it is an attempt) E. Rate of transport-related patient injuries; F. Rate of CPR performed during transport; G. Rate of medication administration errors; H. Incidence of sentinel events; I. Unintended neonatal hypothermia upon arrival to destination; J. Transport crew injury during transport; and K. Standardized patient care hand-off performed (site specific protocol used).

Standard VI: Maternal-Fetal Competencies
6.1 Nursing: In addition to compliance with IC 25-23 and IAC 848, Maternal-Fetal transport nurses shall adhere to the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) *Basic, High Risk and Critical Care Intrapartum Nursing: Clinical Competencies and Education Guide*. The documentation of compliance with the standards must be maintained in the employee personnel files.
6.2 Emergency Medical Technician and/or Paramedic: Must meet or exceed the requirements established in 836 IAC Article 4-4-1, 4-7-2, 4-7.1-3 and 4-9-3.
6.3 Maternal-Fetal Transport Medical Director: A. Must be Board-certified and is responsible and accountable for supervising and evaluating the quality of medical care provided during a MF transport.

Standard VI: Maternal-Fetal Competencies
B. Must be licensed and authorized to practice in the location where the medical transport service is based, be fellowship trained in: Maternal Fetal Medicine; Obstetrics with high risk obstetric experience; or Emergency Medicine utilizing maternal fetal medicine as a consultant. C. Must have knowledge of current concepts of appropriate use of transport assets - annually must include but is not limited to the following: i. "Just Culture": Highly reliable standards of patient safety; ii. Patient care capabilities and limitations; iii. Continuing education in transport; iv. Crew resources management; v. Stress recognition and management; and vi. Infection control; D. Must have an understanding of risk management and safety training.
6.4 Program Manager/Clinical Care Supervisor: A. Responsible for the management and oversight of the maternal fetal transport program. B. Responsible for supervision of patient care provided by the members of the team directly employed by the transport program and works collaboratively with the medical director; C. Oversees quality initiatives of the program; D. Must hire, train, and provide continuing education for the service; E. Responsible for the evaluation of the crew members; F. Responsible for budget management; G. Responsible for equipment selection and maintenance; H. Must maintain documentation of competencies for self and team: i. Human factors; ii. Just culture: Highly reliable standards of patient safety; iii. Sleep deprivation; iv. Stress recognition and management; v. Safety and risk management;

Standard VI: Maternal-Fetal Competencies
vi. Quality management; and vii. Knowledge of national, regional and local standards of clinical practice, aviation and ground regulations as appropriate. I. Competencies must be demonstrated on an annual basis
6.5 A record of competency training for all transport team members must be maintained in each employee's personnel file.

Standard VII: Maternal Fetal Transport Equipment and Medication
7.1 The ambulance used for maternal-fetal transport must have emergency care equipment as identified in 836 IAC 1-3-5, 836 IAC 1-3-4and 836 IAC 1-4-2. Which level of transport is used depends on patient acuity as determined by ISDH established algorithms . In addition, each hospital with a maternal-fetal transport team must have the following equipment or its equivalent: A. Neonatal Resuscitation and Thermo-regulation; B. Vaginal Exam kit; C. Equipment to assess maternal and fetal status during transport; and D. Point of care testing.
7.2 The ambulance used for maternal-fetal transport must have medication as identified in 836 IAC 1-3-5, 836 IAC 1-3-4 and 836 IAC 1-4-2. as determined by ISDH established algorithms. In addition, the following medications, or an alternative as determined by the maternal-fetal medical director, must be carried by the maternal-fetal transport team: A. Antiemetics; B. Antihypertensive medications; C. Tocolytics; D. Uterotonics; and E. Magnesium sulfate/calcium gluconate.

Standard VIII: Neonatal Competencies
8.1 Nursing: In addition to compliance with IC 25-23 and IAC 848, Neonatal transport nurses shall adhere to the national neonatal standards as set forth by AAP and AWHONN in *Neonatal Nursing: Clinical Competencies and Education Guide*. The documentation of compliance with the standards must be maintained in the employee personnel files.
8.2 Emergency Medical Technician and/or Paramedic: Must meet or exceed the requirements established in 836 IAC Article 4-4-1, 4-7-2, 4-7.1-3 and 4-9-3.
8.3 Neonatal Transport Medical Director: A. Must be Board-certified and is responsible and accountable for supervising and evaluating the quality of medical care provided during a neonatal transport. B. Must be licensed and authorized to practice in the location where the medical transport service is based, be fellowship trained in: Neonatology or Emergency Medicine utilizing neonatal medicine as a consultant. C. Must be knowledgeable of current concepts of appropriate use of transport assets - annually must include but is not limited to the following: i. "Just Culture": Highly reliable standards of patient safety; ii. Patient care capabilities and limitations; iii. Continuing education in transport; iv. Crew resources management; v. Stress recognition and management; and vi. Infection control D. Must have an understanding of risk management and safety training
8.4 Program Manager/Clinical Care Supervisor: I. Responsible for the management and oversight of the neonatal transport program. J. Responsible for supervision of patient care provided by the members of the team directly employed by the transport program and works collaboratively with the medical director; K. Oversees quality initiatives of the program; L. Must hire, train, and provide continuing education for the service; M. Responsible for the evaluation of the crew members; N. Responsible for budget management;

Standard VIII: Neonatal Competencies
O. Responsible for equipment selection and maintenance; P. Must maintain documentation of competencies for self and team: i. Human factors; ii. Just culture: Highly reliable standards of patient safety; iii. Sleep deprivation; iv. Stress recognition and management; v. Safety and risk management; vi. Quality management; and vii. Knowledge of national, regional and local standards of clinical practice, aviation and ground regulations as appropriate. Q. Competencies must be demonstrated on an annual basis
8.5 Members of the neonatal transport team that are in the patient compartment must demonstrate the following competencies at a minimum on an annual basis. It is strongly encouraged that smaller programs demonstrate these competencies more frequently. The demonstrated competencies must use patient-based or simulation as a component in their training. A. Arterial Access; B. Glucometer and/or Point of Care Blood Gas analyzer; C. Nasogastric/Orogastric tube insertion; D. Bag/valve/mask ventilation/capnography and/or end tidal CO2; E. Radial sticks; F. Oxygen delivery methods; G. Laryngeal Mask Airway; H. Oral/nasal airways; I. Use and ability to troubleshoot equipment such as transport incubator, med infusion pumps, ventilators, Cardiac/Apnea monitor; J. Suctioning of patients; K. Medication administration;

Standard VIII: Neonatal Competencies
L. Surfactant administration; M. Umbilical line insertion and management; N. Transport ventilator management (RT); O. High frequency (HF) ventilator management (if hospital uses HF transport) P. Needle decompression and chest tube management; and Q. Urinary catheter placement.
8.6 The following competencies are recommended but not required: A. Advanced vascular access devices; B. Tracheotomy management (required if center transports/manages tracheotomy patients); C. Nitric oxide administration (required if center uses in transport); and D. Cooling blanket, cooling cap (required if center uses in transport).
8.7 A record of competency training for all transport team members must be maintained.
8.8 In addition to the competencies, a component of each of the following topics should be included in the following neonatal educational modules completed annually unless Quality Assurance dictates more training is needed: A. Information pertaining to maternal physiologic/pharmacologic issues related to the neonate; B. Neonatal assessment to include modules on all systems; C. Assessment of gestational age; D. Interpretation of diagnostic data to include: a. lab values; and b. radiograph basics (pneumothorax, diaphragmatic hernia, pneumoperitoneum, Endotracheal tube positioning); E. Thermoregulation; F. Arterial blood gas interpretation and ventilator management basics; G. Fluids and Electrolyte Balance; H. Ambulance/Aircraft safety and orientation and use of equipment within ambulance/aircraft; I. Ambulance/Aircraft physiology; J. Family-centered care; and

Standard VIII: Neonatal Competencies
K. Professionalism and Teamwork.

Standard IX: Neonatal Equipment and Medication
9.1. The ambulance used for neonatal transport must be at a minimum ALS and have emergency care equipment as identified in 836 IAC 1-3-5, 836 IAC 1-3-4 and 836 IAC 1-4-2. In addition, the neonatal transport team may carry the following equipment based on medical direction and scope: A. Cardiopulmonary monitor; B. Pulse oximetry; C. End tidal CO2 detector or capnography D. Portable transilluminators; E. Heimlich valves; F. Suction, including stand-alone battery-powered device with adjustable pressure; G. Chest tubes; H. Umbilical catheter supplies; I. Transport ventilator; J. Transport incubator: K. Airway management tools: i. Self-inflating/flow-inflating bag/T-piece resuscitator; ii. Laryngoscope; iii. Endotracheal tubes; iv. Laryngeal Mask Airway (LMA); and v. Oxygen blender L. Oxygen and air cylinders with volume capable of delivery for two times the anticipated duration of the transport; M. Inhaled nitric oxide (optional but considered standard); N. Temperature monitoring; O. Infusion pumps capable of delivering neonatal volumes;

Standard IX: Neonatal Equipment and Medication
P. Defibrillator (neonatal pads); and Q. Point of care testing: i. glucometer or device capable of providing glucose measure; and blood gas analyzer.
9.2 The ambulance used for neonatal transport must be at a minimum ALS and have medication as identified in 836 IAC 1-3-5, 836 IAC 1-3-4 and 836 IAC 1-4-2. In addition, the following neonatal medications, or an alternative as determined by the neonatal medical director, must be available and carried by the neonatal transport team: A. Weight dose tables for code drugs, drips and antibiotics should be available to facilitate administration; B. Drug cards should be made by each team to assist in mixing and administration of medications; C. IV Fluid: Maintenance and Bolus; D. Ionotropic agents E. Epinephrine; F. Naloxone; G. Sodium Bicarbonate; H. Adenosine; I. Atropine; J. Paralytic - short half-life; K. Furosemide; L. Broad Spectrum Antibiotics; M. Prostaglandin (as indicated); N. Sedation O. Opiate Pain Medication: P. Surfactant; and Q. Anticonvulsant.