Indiana Perinatal Transport Standards

Developed by the Indiana Perinatal Quality Improvement Collaborative, System Development Committee

Endorsed by the Indiana Perinatal Quality Improvement Collaborative Governing Council March 26, 2014

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<table>
<thead>
<tr>
<th>STANDARD</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Certification</td>
</tr>
<tr>
<td>II</td>
<td>Maternal-Fetal Quality Assurance</td>
</tr>
<tr>
<td>III</td>
<td>Maternal-Fetal Competencies</td>
</tr>
<tr>
<td>IV</td>
<td>Maternal Fetal Transport Equipment</td>
</tr>
<tr>
<td>V</td>
<td>Maternal-Fetal Medication</td>
</tr>
<tr>
<td>VI</td>
<td>Neonatal Quality Assurance</td>
</tr>
<tr>
<td>VII</td>
<td>Neonatal Competencies</td>
</tr>
<tr>
<td>VIII</td>
<td>Neonatal Transport Equipment</td>
</tr>
<tr>
<td>IX</td>
<td>Neonatal Medication</td>
</tr>
<tr>
<td>X</td>
<td>Perinatal Transport Personnel Licensure, Certification, and Education</td>
</tr>
<tr>
<td>XI</td>
<td>Perinatal Safety Measures</td>
</tr>
<tr>
<td>XII</td>
<td>Perinatal Policies and Protocols</td>
</tr>
</tbody>
</table>
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.
- 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.
- **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)
### 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: Maternal-Fetal Quality Assurance

2.1 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:

- Delivery ≤30 minutes from arrival at receiving hospital;
- Diversion of transport due to maternal and or fetal status change in route;
- Incidence of loss of communication with medical control for anything longer than 5 minutes;
- Change in transport asset (ground to air or vice versa);
- Delivery in route;
- Incidence of sentinel events;
- Transport crew member injury during transport;
- Any reason for transport delay:
  - Accident—Motor Vehicle Ambulance, flight;
  - Delay in unscheduled transport dispatch time is ≥ 15 minutes;
  - Delay in unscheduled transport enroute time is ≥ 15 minutes;
  - Mechanical failure of ambulance or aircraft that leads to a transport delay;
  - Equipment failure;
  - Weather or road related (constructions, accidents) issues;
  - Crew member;
- Maternal fetal injury during transport; and
- Maternal and or fetal status deemed unstable for transport at sending facility.

2.2 When a sentinel event occurs, the perinatal transport team, medical director, and medical control physician must have a
### Standard II: Maternal-Fetal Quality Assurance

- **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 perinatal transport team shall have written internal quality review procedures/protocols.

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

- **2.6** Transport teams must conduct quarterly reviews of the following elements and maintain documentation of the reviews in compliance with 836 IAC 1-1-5(c):
  - a) Transport indication(s);
  - b) Medical and/or nursing intervention performed or maintained;
  - c) Time of intervention:
    - a. patient response to interventions; and
    - b. appropriateness of intervention performed or omission of needed intervention
  - d) Patient outcome at arrival of destination;
  - e) Patient's change in condition during transport;
  - f) Timeliness and coordination of the transport from reception of request to lift off or ambulance enroute time;
  - g) Review of Pre-transport inspection documentation
  - h) Safety practices documented;
  - i) Operational criteria:
    - a. number of completed transports;
    - b. number of aborted or canceled flights/transport due to weather;
    - c. number of aborted or canceled flights/transport due to maintenance;
    - d. number of aborted or canceled flights/transport due to patient condition and alternative modes of transportation; and
    - e. number of aborted or canceled flights/transport due to unavailable team.
  - j) Communications center or organization must monitor and track:
    - a. Instrument Flight Rules (IFR)/Visual Flight Rules (VFR);
### Standard II: Maternal-Fetal Quality Assurance

- Weather at time of request of the referring and accepting facility and during transport if changes occur;
- Transport acceptance to lift off times or the road times; and
- All aborted and cancelled transport requests - times, reasons and disposition of patients as applicable.

### Standard III: Maternal-Fetal Competencies

**3.1 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.

**3.2 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.

**3.3 Maternal-Fetal Transport Medical Director:**

- **a)** Must be Board-certified or be an active candidate for Board certification in Obstetrics or Maternal-Fetal Medicine and is responsible and accountable for supervising and evaluating the quality of medical care provided during a MF transport.
- **b)** Must be licensed and authorized to practice in the location in which the medical transport service is based and have educational experience in the area of high risk obstetrics or utilize a maternal-fetal medicine specialist as a consultant when appropriate.
- **c)** Must have knowledge of current concepts of appropriate use of transport assets - annually must include but is not limited to the following:
  - “Just Culture”: Highly reliable standards of patient safety;
  - Patient care capabilities and limitations;
  - Continuing education in transport;
  - Crew resources management;
  - Stress recognition and management; and
  - Infection control;
Standard III: Maternal-Fetal Competencies

d) Must have an understanding of risk management and safety training.

3.4 Clinical Care Supervisor:
   a) 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;
   b) Oversees quality initiatives of the program;
   c) Must hire, train, and provide continuing education for the service;
   d) Responsible for the evaluation of the crew members
   e) Must maintain documentation of competencies in each employee's personnel file.

3.5 Program Manager:
   a) The program manager will be responsible for the management and oversight of the maternal-fetal transport program.
   b) Competencies:
      a. Human factors;
      b. Just culture: Highly reliable standards of patient safety;
      c. Sleep deprivation;
      d. Stress recognition and management;
      e. Safety and risk management;
      f. Quality management; and
      g. Knowledge of national, regional and local standards of clinical practice, aviation and ground regulations as appropriate.
   c) Documentation of competencies must be maintained in the employee's personnel file.

Standard IV: Maternal Fetal Transport Equipment

4.1 The ambulance used for maternal-fetal transport must have emergency care equipment as identified in 836 IAC 1 and/or 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) Filter needles;
<table>
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<th>Standard IV: Maternal Fetal Transport Equipment</th>
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<tr>
<td>b) Port caps;</td>
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<td>c) Syringes;</td>
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<td>d) Pump tubing;</td>
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<tr>
<td>e) Piggyback tubing;</td>
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<tr>
<td>f) Stopcocks;</td>
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<tr>
<td>g) Stopcock extension set;</td>
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<tr>
<td>h) Y ports with locks;</td>
</tr>
<tr>
<td>i) IV start kits;</td>
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<tr>
<td>j) 18 g angiocaths;</td>
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<td>k) Luerlocks;</td>
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<tr>
<td>l) Sterile Water flushes;</td>
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<td>m) Integrative Therapies (optional):</td>
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<tr>
<td>a. Music device;</td>
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<td>b. Ear buds;</td>
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<tr>
<td>c. Essential oils;</td>
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<tr>
<td>n) Minifan (optional);</td>
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<tr>
<td>o) Activated chemical infant thermal mattress;</td>
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<tr>
<td>p) Adult Stethoscope;</td>
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<tr>
<td>q) Sterile gloves (variety of sizes);</td>
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<tr>
<td>r) Neonatal Resuscitation Program pouch:</td>
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<tr>
<td>a. Infant/neonatal stethoscope;</td>
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<tr>
<td>b. Self-inflating bag;</td>
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<td>c. Regular newborn mask;</td>
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<tr>
<td>d. Preemie mask;</td>
</tr>
<tr>
<td>e. Infant pulse ox;</td>
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<tr>
<td>f. Polyethylene or plastic barrier;</td>
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<td>g. Blankets;</td>
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</table>
Standard IV: Maternal Fetal Transport Equipment

h. Syringe;
i. Cord clamps;
j. Hat;
k. Diaper;
s) Vaginal exam pouch:
   a. Sterile exam gloves;
   b. Peri-pads;
   c. Lubricating gel;
t) Fetal monitor:
   a. Monitor paper;
   b. Power cables;
   c. Tocodynamonitor;
   d. Fetal heart rate ultrasound monitor;
   e. Transducer Gel;
   f. Fetal monitor belts;
   g. Hand held Doppler device for detection of fetal heart rate; and
   h. IV pump;

Standard V: Maternal-Fetal Medication

5.1 The ambulance used for maternal-fetal transport must have medication as identified in 836 IAC 1 and/or 2 depending on patient acuity 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) Metabolic Agents;
   b) Antacid;
   c) Furosemide;
   d) Hydralazine;
### Standard V: Maternal-Fetal Medication

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<th>e)</th>
<th>Indomethacin;</th>
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<td>f)</td>
<td>Labetolol;</td>
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<td>g)</td>
<td>Misoprostol;</td>
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<td>h)</td>
<td>Morphine;</td>
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<td>i)</td>
<td>Nifedipine;</td>
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<td>j)</td>
<td>Ondansetron;</td>
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<td>k)</td>
<td>Oxytocin;</td>
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<td>l)</td>
<td>Terbutaline;</td>
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<td>m)</td>
<td>Magnesium;</td>
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<td>n)</td>
<td>Oxytocin pre-mix; and</td>
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<td>o)</td>
<td>Lactated Ringers.</td>
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### Standard VI: Neonatal Quality Assurance

6.1 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)    | Unplanned dislodgement of therapeutic devices; |
| b)    | Radiograph verification of tracheal tube placement; |
| c)    | Average mobilization time of transport team; |
| d)    | First attempt tracheal tube placement success: |
|       | a. visualizations;                       |
|       | b. attempts at placement;                |
| e)    | Rate of transport-related patient injuries; |
| f)    | Rate of medication administration errors; |
| g)    | Rate of CPR performed during transport;  |
| h)    | Incidence of sentinel events;            |
### Standard VI: Neonatal Quality Assurance

- **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).

#### 6.2 When a sentinel event occurs, the neonatal 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.

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

#### 6.4 Each perinatal transport team shall have written internal quality review procedures/protocols.

#### 6.5 Each hospital with a neonatal transport team shall implement a routine schedule of Quality Improvement meetings and a record of minutes maintained.

#### 6.6 The neonatal 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)** Time of intervention consistently documented for:
  - a. patient response to interventions; and
  - b. appropriateness of intervention performed or omission of needed intervention;
- **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 EMT on Transport records;
- **i)** Operational criteria to include, at a minimum, the following quality indicators:
  - a. number of completed transports;
  - b. number of aborted or canceled flights/transport due to weather;
  - c. number of aborted or canceled flights/transport due to maintenance;
  - d. number of aborted or canceled flights/transport due to patient condition and alternative modes of transport;
Standard VI: Neonatal Quality Assurance

j) Communications Center of organization must monitor and track:
   b. weather at time of request and during transport if changes occur; and
   c. all aborted and canceled transport requests - times, reasons and disposition of patients as applicable.

Standard VII: Neonatal Competencies

7.1 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.

7.2 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.

7.3 Neonatal Transport Medical Director:
   A. Must be Board-certified or be an active candidate for Board certification in Neonatology 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 in which the medical transport service is based.
   C. Must be knowledgeable of current concepts of appropriate use of transport assets - annually must include but is not limited to the following
      a. "Just Culture": Highly reliable standards of patient safety;
      b. Patient care capabilities and limitations;
      c. Continuing education in transport;
      d. Crew resources management;
      e. Stress recognition and management; and
      f. Infection control
   D. Must have an understanding of risk management and safety training

7.4 Clinical Care Supervisor:
   A. Responsible for supervision of patient care provided by the members of the team directly employed by the transport
Standard VII: Neonatal Competencies

- program and works collaboratively with the medical director;
- Oversees quality initiatives of the program;
- Responsible for hire, train, and provide continuing education for the service;
- Responsible for the evaluation of the crew members; and
- Must maintain documentation of competencies for each employee.

7.5 Program Manager:

- The program manager will be responsible for the management and oversight of the neonatal transport program.
  - Must demonstrate the following competencies:
    - Human factors;
    - Just culture: Highly reliable standards of patient safety;
    - Sleep deprivation;
    - Stress recognition and management;
    - Safety and risk management;
    - Quality management; and
    - Knowledge of national, regional and local standards of clinical practice, aviation and ground regulations as appropriate.
  - Must maintain documentation of competencies in each employee’s personnel file.

7.6 At least one member of the neonatal transport team that is in the patient compartment must demonstrate the following competencies at a minimum on a quarterly basis. If the skill is demonstrated in the quarter, documentation should be maintained in the log along with success rate. The demonstrated competencies must use patient-based simulation as a component in their training a minimum of every six months where appropriate.

- Arterial access;
- Glucometer and/or Point of Care Blood Gas analyzer;
- Nasogastric/Orogastric tube insertion;
- Bag/valve/mask ventilation/capnography and/or end tidal CO2;
- Radial sticks;
- Oxygen delivery methods;
### Standard VII: Neonatal Competencies

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<tr>
<td>G.</td>
<td>Laryngeal Mask Airway;</td>
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<td>H.</td>
<td>Oral/nasal airways;</td>
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<tr>
<td>I.</td>
<td>Use and ability to troubleshoot equipment such as transport isolette, med infusion pumps, ventilators, Cardiac/Apnea monitor;</td>
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<td>J.</td>
<td>Suctioning of patients;</td>
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<tr>
<td>K.</td>
<td>Medication administration;</td>
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<td>L.</td>
<td>Surfactant administration;</td>
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<tr>
<td>M.</td>
<td>Umbilical line insertion and management;</td>
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<tr>
<td>N.</td>
<td>Transport ventilator management (RT);</td>
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<tr>
<td>O.</td>
<td>High frequency (HF) ventilator management (if hospital uses HF transport)</td>
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<td>P.</td>
<td>Needle decompression and chest tube management; and</td>
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<tr>
<td>Q.</td>
<td>Urinary catheter placement.</td>
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7.7 The following competencies are recommended but not required:  
A. Central line insertion and management (Peripherally Inserted Central Catheter (PICC) or cut down);  
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).

7.8 A record of competency training for all transport team members must be maintained.

7.9 In addition to the competencies, a component of each of the following topics should be included in the following neonatal educational modules completed each quarter:  
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;
### Standard VI: Neonatal Competencies

- 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
- K. Professionalism and Teamwork.

### Standard VIII: Neonatal Equipment

8.1. The ambulance used for neonatal transport must be at a minimum ALS and have emergency care equipment as identified in 836 IAC Article 2. In addition, the neonatal transport team must carry the following equipment:

- 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. Ambu bag/Flow-inflated bag;
  - ii. Laryngoscope;
  - iii. Endotracheal tubes;
  - iv. Laryngeal Mask Airway (LMA); and
  - v. Oxygen blender
Standard VIII: Neonatal Equipment

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;
P. Defibrillator (neonatal pads); and
Q. Point of care testing:
   i. glucometer or device capable of providing glucose measure; and blood gas analyzer.

Standard IX: Neonatal Medications

9.1 The ambulance used for transport must have medication as identified in 836 IAC Article 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. IVF:
   i. D10W;
   ii. D5W;
   iii. NS and 1/2 NS;
D. Ionotropic agents:
   i. Epinephrine;
   ii. Dopamine;
   iii. Dobutamine; and
   iv. consider Norepinephrine and Milrinone;
E. Epinephrine;
F. Naloxone;
G. Sodium Bicarbonate;
Standard IX: Neonatal Medications

H. Adenosine;
I. Atropine;
J. Paralytic - short half-life;
K. Furosemide;
L. Antibiotics:
   i. Ampicillin;
   ii. Gentamicin;
   iii. Cefotaxime,
   iv. Cefazolin; and
   v. Acyclovir
M. Prostaglandin (as indicated);
N. Sedation: Midazolam;
O. Pain Medication:
   i. Morphine;
   ii. Fentanyl;
P. Surfactant; and
Q. Anticonvulsant.

Standard X: Perinatal Transport Personnel Licensure, Certification and Education

10.1 All transport personnel must be certified/licensed in the state appropriate for their job title (i.e. RN, RT, EMT, MD, APN, PA).

10.2 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;
Standard X: Perinatal Transport Personnel Licensure, Certification and Education

- iii. Nurse Practitioner; or
- iv. Physician.

10.3 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); and
- D. Advanced Cardiovascular Life Support or Obstetric Advanced Life Support (ACLS, OB-ACLS)
- E. Competency testing of academic knowledge and clinical decision-making skill, which may include but is not limited to:
  - a. written examinations;
  - b. Transport and clinical case presentations and reviews;
  - c. oral examinations conducted by the coordinator or medical director of the transport team;
  - d. Medical record review;
  - e. Current national certification specific to the patient population served; and
  - f. intranet or internet modules.

If there is a obstetric physician, midlevel 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 18 months of hire as a transport nurse.

APNs or PAs with an expertise in maternal fetal assessment with current national certification with consummate Indiana credentials and state licensure.
- A. 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.

10.4 The neonatal transport team must have a minimum staff of two qualified neonatal providers. The providers must be from the following categories:
- A. Respiratory Therapist;
- B. Neonatal Nurse;
Standard X: Perinatal Transport Personnel Licensure, Certification and Education

C. Neonatal Nurse Practitioner; and
D. Physician.

10.5 All neonatal transport staff in the patient compartment shall have the following current education or documentation of successful completion:
F. Basic Life Support Health Care Provider (BLS)
G. Neonatal Resuscitation Program (NRP); and
H. The Learner STABLE Program.

10.6 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 eighteen months of hire unless NNP/PA status is current. Certification shall be maintained during tenure as a transport team member.

APNs or PAs: Current national certification with consummated Indiana credentials and state licensure.

RTs: CRT/RRT credentials, Neonatal-Pediatric Specialist credential

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.

10.7 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 XI: Universal Safety Measures

### 11.1 Each hospital with an in-house transport team must ensure the following safety measures are in place:

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<th>A. Criteria for emergent vs. non-emergent status - protocol driven;</th>
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<tr>
<td>i. track percentage of emergent transports as portion of QI process;</td>
</tr>
<tr>
<td>ii. protocol driven; and</td>
</tr>
<tr>
<td>iii. can be overridden by any member of the team;</td>
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<tr>
<td>B. Document pre-transport check of ground ambulance or aircraft by EMT on Transport records;</td>
</tr>
<tr>
<td>C. Return by ground transport with lights and sirens reviewed for appropriateness;</td>
</tr>
<tr>
<td>D. Record of safety meetings and minutes should be maintained;</td>
</tr>
<tr>
<td>E. Training for driver or pilot to recognize aircraft or ambulance tampering; and</td>
</tr>
<tr>
<td>F. Security policy in place to address aircraft or ambulance if left unattended on a helipad, hospital ramp, or unsecured parking lot.</td>
</tr>
</tbody>
</table>

## Standard XII: Universal Policies and Protocols

### 12.1 Each hospital with an in-house 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. |
Maternal Fetal Transport Algorithm
≥ 23 Weeks with Viable Fetus

On Magnesium Sulfate
Y
N

Active Labor
Y
N

Other Maternal Co-morbidities
Y
N

Surgical Candidate
Y
N

Potential for Maternal and/or Neonatal complications at delivery
Y
N

Patient receiving intermittent Maternal Fetal Monitoring but not required during transport
Y
N

Consider Flight for:
• Maternal admission to an adult intensive care unit
• High risk of delivery before the ground unit would return with patient
• Maternal trauma
• Ground team unavailable

Post partum, fetal demise and/or <23 weeks, maternal status stable
Y

Consider Maternal Fetal ground, Advanced Life Support (ALS) or air transport depending on acuity and distance

Basic Life Support (BLS) or Advanced Life Support (ALS) Transport
Consider private car if mother and fetus are stable and require no immediate action

Y

Y

Y

Y

Y

Y

Y
Maternal Fetal Transport Go-no go algorithm

**Maternal stability may be defined as**
- Cervical dilatation ≤5 cm. If ≥5 cm and fetal presenting parts not through the cervix and pain ≤5 on 0-10 scale, not worsening and ctx ≥5 min apart
- Systolic BP ≤160 or diastolic BP ≤110 or ≥60
- Maternal pulse ≤120 and ≥40
- No active vaginal bleeding
- No acute psych episode
- No active seizure activity

Fetal stability may be defined as
- Category I tracing
- Category II tracing with moderate variability and intermittent decelerations and not worsening
- Fetuses < 32 weeks due to gestational age may display FHR tracing consistent with immature CNS. It's imperative to exclude other issues related to ↓variability and FHR decelerations prior to transport

At any point during this process the needs of the patient and her fetus(s) necessitate an individualized plan of care. This algorithm is meant as a guide only.
Neonatal Transport Algorithm

LEVEL I NURSERY

- Infant less than 35 weeks gestation
  - Requires supplemental oxygen and/or respiratory support
    - N
    - Y
  - Failed Cyanotic Congenital Heart Disease Screen
    - Y
    - N
  - Any clinical concerns that extend beyond 4 hours requires a consult with a neonatologist to discuss further treatment or transfer
    - N
    - Y
- Prepare infant for transfer to Level III or Level IV Institution

LEVEL II NURSERY

- Infant less than 32 weeks gestation or birth weight less than 1500 grams
  - Failed Cyanotic Congenital Heart Disease Screen without availability of Newborn Echocardiography
    - Y
    - N
  - Likely or Need for Prolonged Respiratory Support (greater than 24 hours)
    - Y
    - N
  - Other clinical concerns not supported by the Institution
    - Y
    - N
- Prepare transfer to Level IV Institution

LEVEL III NURSERY

- Cyanotic Congenital Heart Disease
- Severe Pulmonary Hypertension potentially requiring ECMO if iNO is not available or failing iNO
- Pediatric Surgery need not supported by Institution
- Other Medical or Surgical need not supported by the Institution
- Other clinical concerns not supported by the Institution
- Congenital anomaly requiring surgical intervention
- Y
- N
- Continue to Monitor Infant
- Y
- N
- Continue to Monitor Infant

Prepare transfer to Level IV Institution