AIR TREK

AIR AMBULANCE

MEDICAL

PROTOCOLS

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CERTIFICATION

The attached protocols, specific for the patient treatment during air transport, have been developed, and approved by the Medical Director of Air Trek, Inc.

The guidelines listed in the following textbooks are considered to have been developed through national protocols and are assumed as guidelines of the care in this system.

Advanced Cardiac Life Support

Pediatric Advanced Life Support

International Trauma Life Support

Air Trek does not transport Trauma Alert Patients

The attached protocols shall become effective at 0001 hours,_____ 2021

_____
Paige V. Kreegel, M.D.
Medical Director
Air Trek, Inc.

OVERVIEW

Air Trek's mission is to provide continuity of medical care for the sick and/or injured as these patients are transported over long distances. This ensures our patients will be cared for at all times by a specially trained medical professional (Aero medical Transport Specialist or ATS) and that adequate medications and medical supplies are made available for the duration of the flight. The ATS shall be either a Registered Nurse, Paramedic, and/or Licensed Physician who meets the standards set forth by local EMS regulations. The ATS shall provide patient care under the direction of the Medical Director, and will follow the acceptable standard of care when treating each patient.

Prior to each flight the ATS shall obtain a medical report on the patient's condition and, should the patient's condition warrant, notify the Medical Director per the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL.** The Medical Director must be notified of every flight specified in the Medical Protocols. Always remember the safe and efficient transport of the patient to their destination is our highest priority.

Upon completion of the Medical Director's approved training program, the ATS may complete all the advanced skill outlined in these protocols. Any procedure not specifically outlined in these protocols, or is not part of an acceptable scope of duty, must be pre-approved by the Medical Director.

MANAGEMENT TEAM

President/CEO	Wayne A. Carr, ATP, CMTE
Director of Operations/ CDO	Dana W. Carr, ATP, CMTE
Director of Maintenance	Lester Carr, A&P
Chief Pilot	Wayne A. Carr, ATP, CMTE
Medical Director	Paige V. Kreegel, M.D.

MISSION STATEMENT

Our mission is to provide the patient high quality, cost effective, domestic and international aeromedical transportation aboard advanced life support-equipped pressurized jet and twin engine aircraft.

VALUE STATEMENT

Our value is measured in the quality of our employees who support, assist, or provide The patient – on a daily basis- with highly skilled, respectful, and ethnically based aeromedical care and transport.

AIR TREK'S GOAL AND VISION STATEMENT

To maintain our position as the standard by which all other aeromedical transport organizations are measured!!

SCOPE OF CARE

The most visible link in the Air Trek chain is that of the medical flight team. Each medical flight team member shall be chosen on a case-by-case basis by the Medical Director or his designee. The teams shall consist of two Aeromedical Transport Specialist (ATS) who have received specifically approved training in Advanced Cardiac Life Support (ACLS), Aviation Physiology, and Flight Safety.

Specialty Teams shall include an Aeromedical Transport Specialist who has received additional, advanced training pertinent to the approved specialty. Currently the approved specialty teams are for the pediatric population, and any patient who is ventilator dependent.

The Pediatric Team members shall have received additional training in Pediatric Advanced Life Support (PALS), Advanced Pediatric Life Support (APLS), or an equivalent training course approved by the Medical Director. The Medical Director has defined pediatric patients as those from 31 days to 12 years of age. All pediatric teams will be chosen on a case-by-case basis after consultation with the Medical Director of his designee.

The Ventilator Team shall consist of a Registered Respiratory Therapist or Senior Aero medical Transport Specialist trained in ventilator management, as approved by the Medical Director.

All Transport Teams shall be readily available, around the clock, to meet our patient's individual aero-medical transportation needs

AEROMEDICAL TRANSPORT CONCEPT

Aeromedical transport involves physiological changes that must be acknowledged, anticipated, and respected to ensure the safe transport of our patients and their family members.

It is the responsibility of the Aero medical Transport Specialist (ATS) to read study and understand the Medical Protocols outlined in this manual, and to adhere to these protocols when administering patient care. Failure to adhere to these protocols will result in disciplinary action, suspension, and/or dismissal from active flight status.

The ATS should consider that as altitude increases, the partial pressure of atmospheric gases decreases due to the changes in barometric pressure. Therefore, the amount of inspired oxygen will decrease with any cabin altitude increase. Accordingly, any patient with potential problems related to hypoxia should routinely be administered supplemental oxygen. If the patient is currently receiving supplemental oxygen, the flow rate should be increased between 2-4 LPM to adjust for the oxygen deficit occurring at altitude. The ATS should suspect hypoxia if the patient becomes agitated or uncomfortable, if the patient's condition deteriorates, or if the patient develops a sentinel event during transport.

The atmospheric pressure decreases with altitude, this results in gas expansion. Remember this; a volume of gas expands approximately 20% with 5,000 foot cabin altitude. Therefore, all patients presenting with possible air trapped in a closed body cavity or tissue space, such as seen with pneumothorax, bowel air, blocked middle ear, sinusitis, air embolism, pneumocephalus, trapped tooth air may experience pain, as well as life threatening complications, as altitude (cabin pressure) increases. Likewise, any device using enclosed air, such as MAST, air splints, cuffed or balloon type ETT or Foley catheters, etc. can create complications at altitude. Therefore, MAST and air splints will be permitted only in special circumstances, after consultation with and approval from the Medical Director.

As atmospheric pressure decreases, so will humidity. Therefore, all patients with an ETT will require supplemental humidification, as pressurized oxygen cylinders allow for very little moisture. If the ATS should have concern about corneal drying in the comatose patient, the eyes should either be taped shut or artificial tears provided.

As atmospheric pressure and humidity decrease, temperature decreases. The ATS must be constantly aware of how cabin pressure and temperature affect the patient's overall homeostasis.

Changes in atmospheric pressure during flight may lead to considerable changes in IV fluid flow rates. Once at altitude, the IV flow rate may be slower, perhaps explained by the decrease in external force applied at altitude, for this reason, all IV fluids should be controlled with a flow regulator and with the administration rate closely monitored. Plastic IV bags (with pressure infusers or IV pumps) should be utilized as they expand and collapse with changes in cabin altitude. Should glass IV bottles be required, the ATS should follow appropriate safety precautions, watching for signs of breakage or leakage from the bottle.

The ATS will invariably encounter some form of turbulence during the course of most missions. To protect you, your patient, and the passengers from potential injury, the patient must be properly secured to the stretcher for the duration of the flight. Skeletal or Buck's traction weights should never be used. When the patient requires traction, a spring tension device such as the Hare or Sagar device should be used. Any other traction device must be pre-approved by the Medical Director on a case-by-case basis. Turbulence can cause clamps, fittings, screws, and bolts to loosen, so you must continuously check and recheck the status of your equipment throughout the course of the flight.

During take-off, the patient should be positioned to ensure the "G" force will be absorbed through the hip area. This can be accomplished by positioning the patient with their head elevated 30 degrees, facing the rear of the aircraft. This will also prevent caudal blood displacement and minimizing increases on intra-cranial pressure.

The patients, and family members accompanying the transport, are required to be briefed on the aircraft safety systems and flight itinerary prior to departure. This helps make everyone more comfortable, reduces the patient and passenger stressors, and leads to a more positive and productive flight experience. The safe and efficient transport of the patient must always be our highest priority.

Transport orders contained in the patient's Medication Administration Record (MAR) should be followed throughout the flight. Medications not normally stocked by Air Trek, shall be furnished by the transferring facility. Should the patient's condition warrant the ATS may also utilize these Medical Protocols. The ATS should follow the MAR and/or these Medical Protocols until the patient stabilizes, the protocol(s) end, or notifications of the Medical Director is required. The ATS will also be required to properly document all care provided in the patient's medical flight report. Any questions or concerns about the patient's care should be addressed to the Medical Director immediately.

NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL

The Senior Aeromedical Transport Specialist must notify the Medical Control Physician prior to the flight's departure in the following situations. This is mandatory and must be documented in the patient medical flight report.

1. Symptomatic blood pressure below 90mm/Hg or above 160/110
2. Symptomatic Pulse rate less than 60 BPM or more than 150 BPM
3. Respiratory rate below 10 per minute or above 30 per minute
4. Patient's receiving vasopressor medications, i.e.: Dopamine
5. Ventilator dependent patients
6. If the patient meets the pediatric transport age criteria of 31 days to 12 years of age
7. Any time the patient is leaving a medical facility AMA
8. If the patient has symptomatic cardiac related complaints, i.e. chest pain, symptomatic ventricular ectopi, etc. within the past 24 hours
9. Hemoglobin <8 grams or hematocrit <30 percent
10. If transporting more than 1 patient aboard the same aircraft
11. If the patient has any active and/or symptomatic bleeding
12. If the patient's PaO2 is <90 (without COPD hx.): PaO2 is <80 (with COPD hx.)
13. If the patient currently has a chest tube or if one has been removed in the past 24 hours
14. If the patient has had significant dyspnea with increasing respiratory failure in the past 24 hours
15. If the patient has any significant seizure activity within the past 24 hours prior to transport
16. If the ATS feels the pt.'s condition is unstable/may become unstable during flight

17. The patient is being transferred from any critical care setting

MEDICAL CONTROL NOTIFICATION (continued)

18. Any patient being transported from any international location to the United States. When notifying the Medical Director, provide the patients name and diagnosis, facility phone numbers and the contact physicians name. Notification is not required for patients being transported from the United States or its possessions, unless other protocol criteria exist. Rational: patients coming from foreign countries may be receiving medications not available in the United States, or listed by brand names not known in the United States. The ATS is to perform any necessary procedures or protocols to stabilize the international patient, when such actions are to a higher level of care, prior Medical Director Authorization is unnecessary.

19. If a physician is requested for the flight.

20. Any time the flight team feels the patient may be subjected to extreme temperature changes due to climatic changes during any aspect of the mission

21. Any time the patient meets the Basic Life Support Patient Care/ DNR Protocol. Note: The patient's condition must meet all of the criteria outlined in this protocol for single ATS staffing to be approved. Notification is not required if the patient is a DNR but does not meet all the criteria outlined in this protocol

22. A fellow crew/ team member requires any form of medical care during the course of a mission

23. If the flight team feels their safety cannot be secured during the mission

24. Prior to the flight crew refusing a patient transport

25. If the patient is transported via the MEDASSIST Program

26. If the patient expires while in our care. The Medical Director should be notified as soon as possible of the situation

27. If the aircraft cabin pressure is expected to exceed 8,000' or the patient condition requires any altitude restrictions

28. Any patient in excess of 300 pounds

29. If the patient had a craniotomy, skull fracture, or has been leaking CSF in the past fourteen (14) days

30. All maternal or Obstetric flights

MEDICATION ACCOUNTABILITY PROTOCOL

Introduction:

Controlled substances are defined as any substance named or described in Schedule I through V of F.S. 893.03. The Medical Director considers the following controlled substances:

Dilaudid Morphine Versed Xanax Ativan

STORAGE REQUIREMENTS:

Each medical kit shall assigned two lockable controlled substance containers (CSC) stored within the double –keyed safe located at the base. These lockable CSC shall have a maximum of six (6) with a minimum of two (2) doses of the following medications:

Dilaudid	Morphine	Versed	Xanax	Ativan
2mg	10mg	10mg	0.25mg	1mg

The Senior ATS will be responsible for the security and use of these medications.

NARCOTIC ACCOUNTABILITY REQUIREMENTS:

The purpose of this protocol is to meet all appropriate DEA Guidelines while increasing the security of the controlled substances.

All controlled substance containers will be stored in a double-keyed safe located at the base. The Senior ATS (SATS) will have one key and the Pilot in Command (PIC) will have the other. These keys will be assigned a unique number and must be secured to the key-holder's keychain. In no case are these keys to be left unattended, copied, or loaned to anyone.

Prior to the flight's departure, both the SATS and the PIC will meet and simultaneously unlock the safe. The controlled substance container shall be maintained in two separate numbered-sealed kits. Both key-holders will inspect the controlled substance containers for damage and verify the seal number as listed in the corresponding logbook. The key-holders will "sign-out" the controlled substance containers. The SATS will then verify the inventory matches that listed in the logbook. The logbook will be completed listing the flight date, incident number, SATS name (printed), and ATS name (printed). The patient's name will be added only in those situations when a controlled substance is administered. Any discrepancies must be reported to the Director of Operations or his designee immediately. These controlled substance containers shall then be maintained in the medication bag until needed.

Anytime the controlled substance container seal is broken, both the SATS and ATS will be required to complete the controlled substance logbook. A new seal will be applied prior to the completion of that patient mission, with the new seal number documented in the logbook. If no controlled substances are used, the logbook must contain an explanation as to why the seal was broken, with note signed by both the SATS and ATS.

Upon returning to the hangar, the SATS and PIC will return the controlled substance containers to the safe.

All restocking of the controlled substance kits will be coordinated by the Director of Operations or his designee per the **CONTROLLED SUBSTANCE RESTOCKING PROTOCOL.**

OVERNIGHT FLIGHTS:

On all overnight (RON) flights, the medication kit containing the controlled substance containers must be taken by the SATS to their overnight accommodations.

MEDICATION ACCOUNTABILITY (CONTINUED)

PROCEDURE TO FOLLOW SHOULD THE CONTROLLED SUBSTANCE BECOME LOST, STOLEN, BROKEN, OR EXPIRED:
Should the SATS find a controlled substance has been lost, stolen, broken, or expired; they should immediately notify the Director of Operations or designee and complete an Incident Report describing the situation. The incident should also be noted in the Controlled Substance Logbook. A copy of the Incident Report shall be forwarded to the Medical director. Any stolen medications should be immediately reported to local law enforcement with a copy of the police report attached to our Incident Report.

All expired or contaminated medications must be stored in a leak-proof container, separate from the usable medications. On a periodic basis, at the direction of the Director of Operations, all expired or contaminated medications will be destroyed in accordance with local legislative standards.

PROCEDURE FOR ADMINISTRATION & WASTING OF A CONTROLLED SUBSTANCE:
Both the SATS and ATS must work together when the patient requires the administration of a controlled substance. The SATS will break the seal, administer the medication, and then reseal the kit with a numbered seal. This information will be documented in the controlled substance logbook with both medical crew members witnessing the administration and wasting of all controlled substances.

PROCEDURE FOR THE REPLACEMENT OF A CONTROLLED SUBSTANCE:
It shall be the responsibility of the SATS to notify the Director of Operations or his designee when a controlled substance needs to be replaced. The Director of Operations or designee will ensure that the appropriate DEA forms are completed, obtain any needed controlled substance from the Medical Director, and restock the medication as needed.

MEDICATION ACCOUNTABILITY REQUIREMENTS:
In some situations the sending facility may send additional medications with the patient. The SATS must complete an itemized inventory of these medications and document this in the flight report. The sending facility staff member should check and sign the end of the list. Upon arrival at the destination facility, the receiving caregiver should verify the list and sign the report to accept the medications. All medications administered in flight will be documented per the MAR.

CONTROLLED SUBSTANCE RESTOCKING PROTOCOL

The SATS shall notify the Director of Operations or designee when the inventory of a controlled substance reaches the minimum quantity as outlined in the **CONTROLLED SUBSTANCE ACCOUNTABILITY PROTOCOL.**

The director of Operations or designee shall oversee the restocking of the controlled substances. All spare controlled substances shall be stored in accordance with State and Federal regulations at a location registered with the United States Department of Justice, Drug Enforcement Agency. The spare supply of controlled substances shall be maintained in a locked container in the corporate offices and shall be accessed by the Director of Operations, or designee approved by the Medical Director. The Director of Operations shall keep a log outlining how each controlled substance was used, wasted and restocked.

All outdated or damaged controlled substances shall be stored in a locked container in the corporate offices: separate from the current, in-date, supply of medications. Any damaged or outdated controlled substances will be disposed of at a regularly scheduled meeting of the Performance Improvement (PI) Committee. The medication name, amount wasted, and date will be documented in the Usage Accountability Log. All Controlled substances shall be wasted in the presence of two of the following: Director of Operations, Medical Director, or Inventory Control Manager.

When the spare supply of controlled substances needs replacing, that is, when we have a stocked minimum of ten (10) of each controlled substance, the Director of Operations will notify the Medical Director. It will then be the responsibility of the Medical Director to complete a DEA approved form and order the required medications.

Any questions pertaining to this protocol should be addressed to the Medical Director and/or Director of Operations immediately.

IV FLUIDS AND MEDICATION STORAGE AND REPLACEMENT PROTOCOL

The following is a list of the **minimum** intravenous medications required by regulation:

0.9% NSS or LR Solution	Atropine Sulfate
Dextrose 50% 25 Grams	Epinephrine 1:10,000 1mg
Epinephrine 1:1,000 1mg	Ventricular dysrhythmic
Narcan 2mg	Nitro tablets or Spray 0.4mg/dose
Valium 10mg/ or equivalent	Inhalant, Beta adrenergic

The Medical Director has also pre-approved the usage of the medications listed in the current Advanced Cardiac Life Support protocols, as well as any additional medications currently prescribed to the care of the patient's special medical needs, as listed on an individual patient's Medication Administration Record (MAR).

All intravenous fluids and medications shall be located in the medication bags found aboard each aircraft. This medication bag should be found fully stocked upon your arrival at the hangar. The SATS should immediately report any discrepancies or problems to the Director of Operations or designee. Upon returning from a flight, any used intravenous fluid or medications shall be restocked, ensuring the medication bag is ready for the next flight.

Glass IV containers should not be used during the flight. If possible, the medication should be changed to a regular IV bag or syringe-like pump. If this is not possible, the glass IV container should be secured in an approved safety device to prevent any breakage from occurring. The ATS must be aware of the effects of pressure changes on delivery rates of glass IV containers and the associated risk of air embolism due to the expansion of air within the container.

To ensure quality control, the Director of Operations or designee will randomly inventory the medication bags, on an unscheduled basis. The Medical Director will be notified immediately of any discrepancies or concerns identified. These supplies will be kept in the climate-controlled, dedicated medications supply area when not required for a flight.

PROCEDURE SHOULD INTRAVENOUS FLUID AND/OR MEDICATIONS BECOME LOST, STOLEN, BROKEN, OR EXPIRED:
Should the SATS determine an intravenous fluid and/or medication has been lost, stolen, broken, or expired, they should immediately notify the Director of Operations.

The ATS should try to restock the intravenous fluid and/or medication from the medical supply room. Should the ATS not be able to completely restock the medication bag, attach a written list of any discrepancies and notify the Director of Operations so the appropriate supplies and /or medications may be ordered.

Immediately notify local law enforcement if it is determined the medications were stolen, then attach a copy of the police report with your Incident Report. This situation will then be reviewed by the PI Committee.

All expired or contaminated IV fluids must be stored in a leak proof container, separate from any usable, in-date intravenous fluids or medications.

PROCEDURE FOR DISPOSAL OF INTRAVENOUS FLUID OR MEDICATION:

Any and all used needles, syringes, medications, intravenous fluids, and/or sharps should be Disposed in a puncture-proof bio hazardous container in accordance with the **BIOWASTE DISPOSAL POLICY.** All expired or contaminated intravenous fluids will be stored in a leak-proof container, separate from the usable intravenous fluids.

Any and all questions pertaining to this policy should be addressed to the Director of Operations and/or the Medical Director.

PROCEDURE FOR PROPER REPLACEMENT OF AN INTRAVENOUS FLUID AND/OR MEDICATION:

Immediately upon returning from a flight, it will be the responsibility of the SATS to restock all supplies used. Any intravenous fluid or medications used will be restocked from the inventory found in the medical supply area. Should you require an intravenous fluid or medication not in stock, make a note of this on the medication bag and notify the Director of Operations or designee immediately so the required medication can be ordered.

REFRIGERATED MEDICATIONS:

The SATS will ensure that the refrigerated medications are onboard the aircraft for each flight. The medications will be kept onboard in a lunch-mate cooler with a cold pack to ensure the shelf life of the medication. Upon returning from the mission the SATS will ensure that the medications are returned to the refrigerator.

Current refrigerated medications are:

Diltiazem (Cardizem)
Succinylcholine (Anectine)
Insulin R
Propofol

PRE-FLIGHT STANDARDS FOR SAFE AEROMEDICAL TRANSPORT PROTOCOL

As the safe and efficient transport of the patient is our highest priority, it is essential the patient's health and safety not be jeopardized by air transport. Despite the fact an air ambulance is equipped to handle a wide variety of medical complications, it is crucial the patient be stable for a minimum of 24 hours prior to transport. Please refer to the **Notification of the Medical director Protocol**. All patients we transport are required to have a patent intravenous site, oxygen applied when indicated, and continuous cardiac monitoring during the course of the flight. Should the patient's condition not require one of these measures, or the patient refuses this care, the ATS **must** document these specifics in the patient's medical flight report.

There are well defined vital sign criteria for aeromedical transport. Should the patient's condition warrant, notify the Medical Director per the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL.** A medical flight team consisting of a minimum two ATS personnel will care for all patients transported. Should there be a question or concern about a patient's stability for transport the ATS must notify the Medical Director per the **NOTIFICATION OF THE MEDICAL DIRECTOR PROTOCOL.** The exception to the medical flight crew staffing may occur if the patient has a documented DNR and meets all of the criteria as outlined in the **BLS PATIENT TRANSPORT/DNR PROTOCOL,** then one ATS may care for the patient.

Communications with the Pilots and Flight Coordinators is a must. Failure to communicate leads to confusion and promotes an unorganized transport. You must be familiar with the **COMMUNICATIONS POLICY** and adhere to this policy at all times.

The medical flight team is required to complete a bed to bed transport for each and every patient we care for. This ensures we provide the patient and the referral sources with the continuity of care that has allowed us to gain the market-share that has led to our success. Failure to complete the bed to bed transport will not be tolerated and will lead to disciplinary action. The ATS must ensure a bed to bed transport is completed, unless a variance is otherwise provided by the operations center staff. Should the operations center staff provide a variance to the bed to bed transport rule, the ATS is required to document the name and circumstances associated with this variance in the medical flight report.

Finally, the flight is not completed until the approved medical flight report has been completed. The SATS is required to ensure each of the medical flight reports and forms are properly completed for each patient we are entrusted to care for. The medical flight report and associated forms are to be completed prior to the end of the mission. Failure to properly complete the required medical flight report and associated forms may result in payroll delays.

Any questions or concerns should be directed to the Director of Operations and/or Medical director.

PRE-FLIGHT PROTOCOLS

Prior to every flight, with as much advanced notice as possible, the SATS shall make contact with the patient's nurse and/or physician to obtain a verbal report on the patient's medical condition. A medical history must be obtained as to why the patient was admitted to the facility, an overview of the care rendered, how the patient responded to this care, and the reason why the patient is being transferred to another facility. The following should be included and documented as applicable to the patient's condition and transport needs:

1. Baseline vital signs

2. The patient's medical condition(s) and diagnosis at the time of transport. (i.e.: HTN, diabetes, AMI, CHF, COPD, seizures, head injury, bowel obstruction, and psychiatric hx. Etc.)

3. A list of the patient's current medications with dosages. Which medications will be **required.** A Copy of the patient's Medication Administration Record (MAR) should be attached to the patient's medical flight report, if available.

4. The most recent lab values including but not limited to Hgb, Hct and ABG.

5. Lab reports as needed (i.e.: blood levels= Dilantin, digoxin, antiarrhythmics, etc.)

6. Results of the last EKG

7. Types of IV fluids being administered, along with the infusion rates.

8. NG/ OG tubes, G tube, etc.

9. The patient's input and output levels? Foley?

10. The patient's "code" status? Note notify the Medical director if the patient meets all of the criteria as outlined in the **BLS PATIENT TRANSPORT /DNR PROTOCOL**

11. Does the patient's personal physician have any specific orders for the flight? If so, share These orders with the Medical director per the **Notification of the Medical Director Protocol.**

12. Is the patient on oxygen? How supplied, LPM, etc.?

13. Current **COVID 19** test status

Once a medical report is obtained, the SATS should contact the Operations Center and provide the Flight Coordinator a brief overview of the patient's condition, outlining any ground transportation needs, specific concerns about the flight, etc. If the ATS has any concerns, or if

the patient's condition warrants, notify the Medical Director per the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL.**

GENERAL CARDIOPULMONARY ARREST PROTOCOL

1. Check Airway, Breathing, Circulation

1. Attach monitor with defibrillator capabilities, determine cardiac rhythm, proceed to the appropriate dysrhythmia protocol

2. Initiate CPR, check the effectiveness of compressions

3. Establish vascular access if not already established, flush all medications with 20ml NSS

4. Intubate and ventilate the patient with 100% oxygen, rate of 10 breaths per minute. Monitor and Record Capnography.

6. Check rhythm every two minutes.

7. Consider nasogastric tube in the intubated patient with abdominal distension

8. Periodically reassess effectiveness of resuscitation efforts

9. Declare an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

VENTRICULAR FIBRILLATION AND PULSELESS V-TACH PROTOCOL

1. Declare an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY. Intubate and ventilate with 100% oxygen**

2. **Immediately** defibrillate at **120** joules biphasic. Proceed to the appropriate protocol for any changes

3. Perform five (5) cycles of CPR. Reassess Rhythm V.F or Pulseless VT persists

4. Defibrillate **150** joules biphasic.

5. Perform five (5) cycles of CPR. Reassess Rhythm V.F. or Pulseless VT persists

6. Defibrillate **200** joules biphasic

7. Resume CPR.

8. Establish vascular access if not present, flush all medications with 20ml NSS

9. Epinephrine 1: 10,000 1mg bolus every three (3) to five (5) minutes.
   Note: if unable to establish vascular access, consider Epinephrine via the ET twice the IV dosage.

10. Intubate and Ventilate with 100% oxygen, monitor and record capnography.

11. Defibrillate **200** joules biphasic.

12. Resume CPR

13. Amiodarone 300 mg IVP, repeat at 150 mg in three (3) to five (5) minute if unsuccessful. If Amiodarone bolus is successful establish Amiodarone drip 150mg/100ml D5W and infuse at 1 mg/minute (45gtts minute)

ASYSTOLE/ PEA PROTOCOL

1. Declare an emergency per the **INFLIGHT MEDICAL EMERGENCY PROTOCOL**

2. Initiate CPR and confirm Asystole in two leads. Continue CPR for the duration of the Code.

3. Establish IV access, if not present.

4. Epinephrine 1:10,000 1mg every 3-5 minutes

5. Intubate and ventilate with 100% oxygen, Monitor and record capnography

6. Consider the causes of Asystole,

Hypovolemia	Tablets- drugs, OD accidental
Hypoxemia	Tamponade- cardiac
Hydrogen Ion (acidosis)	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis Coronary
Hypothermia	Thrombosis Pulmonary

7. Consider fluid challenge

8. Check blood glucose, if less than 60mg/dl administer Dextrose per the Altered Mental Status Protocol.

9. If the patient is taking any calcium channel blocker or has known renal failure, consider Calcium Chloride 10% 1 Gram IV

10. Proceed to the appropriate protocol for any changes.

11. If the patient stabilizes, the flight team may elect to continue to their scheduled destination.

UNSTABLE BROAD COMPLEX TACHYCARDIA

The patient with a wide complex tachycardia will be considered **unstable** if **ANY** of the following signs or symptoms is/are present

a) Chest pain

b) Dyspnea

c) Congestive Heart Failure

d) Hypotension- systolic BP below 100mmHg

e) Altered Mental Status

f) Heart rate greater than 150 beats per minute

1) Administer oxygen by most appropriate means to maintain SpO2 94 % or higher and ready resuscitative equipment.

2) Notify pilots prior to any Cardioversion

3) Sedate the patient with Versed 2-5 mg IV or Etomidate 0.15mg/kg to voice responsiveness. May repeat sedation with Versed every (5) minutes, or Etomidate once.

Consider Pain Management Protocol

4) Synchronized cardioversion at **75 joules biphasic,** increasing in stepwise at **120, 150, 200 joules** as needed .

5) If dysrhythmia persists, Amiodarone 150 mg/ 100 cc D5W over (10) ten minutes. If abolished, initiate Amiodarone infusion 150mg/100cc D5W at 1mg/minute.

6) If the dysrhythmia persist repeat synchronized cardioversion at 200 joules

7) If refractory to Cardioversion and Amiodarone administer Magnesium Sulfate 1-2 Grams IV over Two (2) minutes. If Magnesium Sulfate converts the rhythm, consider a Magnesium Sulfate infusion 1 Gram in 250cc D5W at 30-60 gtts./min.

8) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

9) Proceed to the appropriate protocol for any changes. If the patient stabilizes, the flight may continue on to the original destination.

STABLE BROAD COMPLEX TACHYCARDIA

The patient in a wide complex tachycardia will be considered **STABLE** if **ALL** the following signs or symptoms are absent

A) Chest Pain

B) Dyspnea

C) Congestive Heart Failure

D) Hypotension – systolic BP below 100mmHg

E) Altered mental status

F) Heart rate less than 150 beats per minute

1) Administer oxygen to maintain SpO2 at 94% or higher, **Perform** 12 lead ECG.

2) Amiodarone 150mg/100cc D5W over ten (10) minutes, may repeat every ten minutes. If the dysrhythmia is abolished establish Amiodarone infusion 150mg/ 100cc D5W at 1 mg/min.

3) If Torsades de Pointes, administer Magnesium Sulfate 1-2 Grams slow IV over two (2) minutes. If Magnesium converts the dysrhythmia establish a Magnesium Sulfate infusion 1 Gram in 250cc D5W At 30-60 gtts/min

4) If the dysrhythmia persists, proceed to the **Unstable Wide Complex Tachycardia Protocol.**

5) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

6) Proceed to the appropriate protocol for any changes. If the patient's condition stabilizes, the flight may continue on to the original destination.

UNSTABLE NARROW COMPLEX TACHYCARDIA

The patient with a narrow complex tachycardia will be considered **UNSTABLE** if **ANY** of the following Signs or symptoms are present.

A) Chest Pain
B) Dyspnea
C) Congestive Heart Failure
D) Hypotension- systolic BP below 100mmHg
E) Altered mental status
F) Heart rate greater than 150 beats per minute

1) Administer oxygen by appropriate means to maintain SpO2 94% or higher.

2) Ready resuscitation equipment

3) Notify pilots prior to any cardioversions

4) Sedate the patient with Versed 2-5 mg IV or Etomidate 0.15mg/kg to voice responsiveness.

   May repeat sedation with Versed every (5) minutes or Etomidate once

   Consider **PAIN CONTROL PROTOCOL** as needed

5) Synchronize Cardioversion 75 joules biphasic, repeat at 120, 150, 200 joules as needed

6) Consider Diltiazem 0.25 mg/kg **slow** IV while monitoring the patient's vital signs and cardiac rhythm

7) Synchronize cardioversion at 200 joules

8) If unsuccessful, repeat Diltiazem 0.35mg/kg **slow** IV while monitoring the patient's vital signs and cardiac monitor.

9) Consider Lopressor 5mg slow IV over 2 minutes

10) Synchronize cardioversion at 200 joules

11) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDIACL EMERGENCIES POLICY**

12) Proceed to the appropriate protocol for changes. If the patient stabilizes, the flight may continue on to the original destination

STABLE NARROW COMPLEX TACHYCARDIA

The patient with a narrow complex tachycardia will be considered **STABLE** if **ALL** of the following signs or symptoms are absent:

A) Chest Pain

B) Dyspnea

C) Congestive Heart Failure

D) Hypotension – systolic BP below 100mmHg

E) Altered mental status

F) Heart rate less than 150 beats per minute

1) Administer supplemental oxygen to maintain SpO2 94% or higher
2) Encourage the patient to perform a Valsalva maneuver, absence of recent chest or abdominal incisions
3) Administer Diltiazem 0.25 mg/kg **slow** IV while monitoring the patient's vital signs and cardiac rhythm.
4) Repeat Diltiazem at 0.35 mg/kg **slow** IV in (15) fifteen minutes
5) Consider Lopressor 5mg slow IV over 2 minutes, do not administer concurrent with Calcium Channel Blockers.
6) If the dysrhythmia persists, proceed to the **Unstable Narrow Complex Tachycardia Protocol**
7) If the patient's condition does not improve, consider an emergency per the **INFLIGHT MEDICAL EMERGENCIES POLICY**
8) Proceed to the appropriate protocol for any changes. If the patient stabilizes, the flight may continue to the original destination

BRADYCARDIA PROTOCOL- UNSTABLE

The patient with bradycardia will be considered **UNSTABLE** if they have a heart rate less than 60 beats per minute and **ANY ONE** of the following signs or symptoms:

A) Chest Pain

B) Dyspnea

C) Congestive Heart Failure

D) Escape ventricular ectopi

E) Hypotension – systolic BP below 100mmHg

F) Altered mental status

1) Administer oxygen by appropriate means to maintain SpO2 94% or higher,

   Perform 12 lead EKG

2) Atropine Sulfate 0.5 mg IV bolus. Repeat every three (3) to five (5) minutes to a maximum of 3 mg total

3) Initiate external cardiac pacing if Atropine is ineffective

4) Consider **Pain Control Protocol** for pacemaker induced discomfort

5) If pacemaker is ineffective consider Dopamine infusion at 2-20 mcg/kg/min

6) Consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

7) Proceed to the appropriate protocol for changes. If the patient stabilizes, the flight may continue on to the original destination

SUPPRESSIVE THERAPY FOR VENTRICULAR ECTOPICS PROTOCOL

There is no need to suppress any incidental PVC's. You should only suppress ectopi in patients with symptomatic angina, AMI, or following cardiopulmonary arrest.

Rule out electrolyte imbalances, consider digitalis toxicity or drug overdose, and watch for bradycardia (underlying atrial rates less than 60 beats per minute)

1) Administer oxygen to maintain a SpO2 of 94% or higher.

2) Initiate Amiodarone infusion 150mg/100cc D5W over ten (10) minutes. Repeat in ten (10) minutes if dysrhythmia persists. Should the condition persist proceed to the appropriate **Broad Complex Protocol**

3) If abolished initiate Amiodarone infusion 150mg/100cc D5W at 1mg/minute

4) Proceed to the appropriate protocol

5) If the arrhythmia is refractory, consider Magnesium Sulfate 2-4 Gram IV over two (2) minutes.

6) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMEERGENGY POLICY**

7) If the patient stabilizes, the flight may continue to the original destination

CHEST PAIN PROTOCOL (ACS)

The most common cause of chest pain during the flight is increases in the cabin altitude pressures, hypoxia, possible angina, and possible AMI.

1) Administer oxygen to maintain SpO2 of 94% or higher. **Perform** 12 lead EKG

2) Nitroglycerine 0.4mg SL or Spray, if the patient's systolic BP greater than 100mmHg. Withhold the nitroglycerine in patients who have taken medications for erectile dysfunction in the past 48 hours. Use nitroglycerine cautiously in patients with suspected **inferior** or **right ventricular infarction.**

3) Repeat nitroglycerine 0.4 mg every five (5) minutes as long as the systolic BP is above 100nnHg

4) If associated with ECG changes or strong indication of AMI, administer Aspirin 324mg in the absence GI bleeding, peptic ulcers, allergy

5) IF the patient develops significant ventricular ectopi, proceed to the **SUPPRESSIVE THERAPY FOR VENTRICULAR ECTOPY PROTOCOL**

6) If the patient's chest pain persists, establish a Nitro drip 50mg/250cc. Start infusion at 3cc/hr (10mcg). Monitor the patient's vital signs every five (5) minutes, or more frequently as indicated. Titrate nitro infusion to pain control while maintaining the systolic BP above 100mmHg

7) Persistent chest pain, consider Morphine Sulfate 2-4 mg IV. May repeat at 2mg every five (5) to Ten (10) minutes until pain is controlled, hypotension develops, patient shows signs of respiratory depression, overall patient condition deteriorates, or a maximum ten (10) mg administered

8) If sensitive to Morphine consider Dilaudid 0.5 – 1.0 mg IV, if nausea develops proceed to **INFLIGHT NAUSEA AND VOMITING PROTOCOL**

9) If patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCIES POLICY**

10) Proceed to the appropriate protocol for any rhythm changes. If the patient stabilizes, the flight may continue on to the original destination.

CONGESTIVE HEART FAILURE PROTOCOL

1) Apply supplemental oxygen by appropriate means to maintain SpO2 94% or higher.

2) Administer Nitroglycerine 0.4mg SL or Nitro Spray if the patient's systolic BP is above 100mmHg systolic, and with the absence of erectile dysfunction medications.

3) Repeat the nitroglycerine 0.4mg SL or Nitro spray every five (5) minutes as long as the systolic blood pressure in above 100mmHg.

4) Administer Lasix (furosemide) 1mg/kg slow IV, maximum 100mg

5) Evaluate the need for intubation. Consider the **CONSCIOUS SEDATION PROTOCOL**.

6) If the patient's dyspnea or pain persists, establish a Nitro drip 50mg/250cc at 3cc/hr (10mcg). Monitor vital signs every five (5) minutes, or more often as indicated. Titrate the nitro drip to PAIN relief while maintaining the systolic BP above 100mmHg.

7) Consider Morphine Sulfate 2mg IV bolus if dyspnea persists. Repeat the Morphine 2mg IV bolus every five (5) to ten (10) minutes until the patient's dyspnea subsides, hypotension develops, respiratory depression develops, the patient's condition deteriorates, or a total of 10mg is given.

8) Insert a Foley catheter and document urinary output.

9) Apply Continuous Positive Airway Pressure (CPAP) if available.

10) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**.

11) Proceed to the appropriate protocol for any changes. If the patient stabilizes, the flight may continue to the original destination.

PAIN MANAGEMENT PROTOCOL

Pain management should be addressed while obtaining the initial medical report form the facility. Most patients have some type of pain or anxiety medication listed in their Medications Administration Record (MAR). However, when this is not possible and it is anticipated the patient will require pain control during the flight, the ATS should consult the Medical Director for guidance. Should the patient develop pain during the flight, the following have been approved by the Medical Director.

Moderate to Severe pain: **DILAUDID or MORPHINE SULFATE**

1) Consider higher oxygen concentration per the **Oxygen Therapy Protocol**

2) Secure a patent intravenous site.

3) Assess the patient's pain level utilizing the Ten Severity Scale, both before and after administering any medical care. Note; 10 being the worse pain, 0 being pain free

4) Monitor and record the patient's ECG, Vital signs, and pulse oximetry

5) Cardiac related pain, pain associated with EKG changes, suspicion of AMI proceeds to the **CHEST PAIN PROTOCOL.**

6) Non cardiac pain persists consider any of the following in the Adult:

Dilaudid 0.5 mg IV/ IM, preferred in renal failure

Morphine Sulfate 2-4mg IV/IM

Pediatric patient: Morphine Sulfate 0.1mg/kg slowly, maximum 3mg. Broselow Tape for guidance.

Document the patient's respiratory effort, vital signs, and pulse oximetry values before and after administration of either medication. Document the patient's pain level before and after medication administration utilizing the Ten Severity Scale.

7) May repeat any of the above medications every ten (10) minutes until any **ONE** of the following occurs.

Patient is pain free, Heart rate <60/minute, BP <90 mmHg, respirations <12/minute, or O2 saturation <90%

8) The maximum dose for Dilaudid is 2mg/hour

9) If the patient's condition does not improve, consider declaring an emergency per the **Inflight Medical Emergencies Policy**

10) Proceed to the appropriate protocol for any changes notes. If the patient stabilizes, the flight may continue to the original destination.

ALTERED MENTAL STATUS/ AGITATED PATIENT PROTOCOL

When confronted with a patient who suddenly develops a change in mental function while in flight, consider the following:

1. Hypoxia: Administer supplemental oxygen per the **OXYGEN THERAPY PROTOCOL.**

2. Hypotension: Administer fluids/vasopressor medications per the **SHOCK PROTOCOL**

3. Hypoglycemia: Obtain the patient's blood glucose levels. If the patient is symptomatic with a blood glucose <60 mg/dl, **A)** administer D50W 50cc IV.

OR

B) Dextrose 10% 125-250 ml (12.5-25gm) IV titrated to return of

Normal mental status

4. If the patient is agitated or disruptive, despite having stable vital signs, adequate oxygenation, a normal blood glucose level, consider:

A. Versed1-2mg IV or Ativan 0.5-1.0 mg IV

B. Repeat Versed V 1-2mg IV once, if the patient remains agitated after thirty (30) minutes.

C**.** Repeat the Ativan 0.5-1.0mg IV every thirty (30) minutes to control agitation

D. Xanax 0.5mg PO

E. Haldol 5mg IM. May repeat in thirty (30) minutes if needed

5. If a narcotic induced decreased level of consciousness is suspected, incremental administration of

Narcan 0.4-2mg IV slow

6. If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMEGENCIES PROTOCOL**

7. Proceed to the appropriate protocol for any rhythm changes. If the patient stabilizes, the flight may continue to the original destination.

SHOCK PROTOCOL

1. Administer supplemental oxygen by most appropriate means to maintain SpO2 94% or higher.

2. If hypotensive due to volume depletion, administer a fluid bolus of Normal Saline 250cc

3. May repeat Normal Saline 250cc bolus as needed until the patient's vital signs stabilize or the patient develops signs or symptoms of pulmonary edema.

4. If hypotensive secondary to decreased cardiac output, administer Dopamine infusion, 200mg/250cc D5W, starting at 2-5mcg/kg/minute. Titrate this to the patient's blood pressure and monitor the patient's urine output

OR

Norepinephrine (Levophed) 4mg in 250ml D5W. Titrate to a **MAP** 65mmHg, maintain heart rate

below 130 beats minute.

5. If the patient's condition does not improve, consider declaring an emergency per the **INLFIGHT MEDICAL EMERGENCY PILICY.**

6. If the patient stabilizes, the flight may continue to the original destination.

SYMPTOMATIC HYPERTENSION PROTOCOL

Symptomatic hypertension shall be defined as a patient with a systolic blood pressure exceeding 220mmHg or a diastolic blood pressure exceeding 120mmHg, associated with organ malfunction generally requiring lowering of the blood pressure within thirty (30) minutes in patient who have developed dyspnea, pulmonary edema, or chest pain.

Hypertensive emergencies include, but are not limited to:

A. Hypertensive Encephalopathy

B. Malignant hypertension associated with:

AMI, Unstable Angina, acute onset intra-cranial bleed

C. Severe hypertension associated with:

Suspected Aortic Dissection, Acute Head Trauma

THIS PROTOCOL DOES NOT ADDRESS HYPERTENSION THAT IS:

A. Discovered incidentally during the patient assessment

B. Physiological hypertension seen with pain, stress, or anxiety

C. Hypertension associated with congestive heart failure.

1. If the patient presents with signs or symptoms suggestive of an acute CVA, provide supportive care only.

2. If the patient has a decreased or altered level of consciousness, proceed to the **ALTERED MENTAL STATUS PROTOCOL**

3. If the patient is symptomatically hypertensive, as outlined above, consider Labetolol 10mg IV slow over two (2) minutes. NOTE: Labetolol is contraindicated in patients with asthma, CHF, and any advanced heart block. Labetolol may be repeated at 10 minute intervals with 20-40mg as needed until the blood pressure is controlled or a maximum of 150mg is reached.

4. If the patient has hypertension associated with congestive heart failure, consider a Nitroglycerine infusion starting at 10mcg/minute, and proceed to the **CONGESTIVE HEART FAILURE PROTOCOL**

5. Monitor the patient's vital signs, mental status, and cardiac monitor every five (5) minutes, or more often as indicated. Document your care and the patient response to therapy in the flight records.

6. If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

7. If the patient stabilizes, the flight may continue to the original destination

VIOLENT PATIENT MANAGEMENT PROTOCOL

Complete the following should the patient present with violent or combative behavior:

1. Respect the dignity of the patient and communicate with the patient in a clam, nonthreatening manner.

2. Assure the safety of the patient and Flight Team

3. Obtain a complete medical history of the past behavior and any interventions used by the sending facility to care for the patient.

4. Complete a thorough physical examination of the patient.

5. If the patient remains combative, attempt non-threatening verbal approach to calm the patient. If unsuccessful, consider the use of soft restraints.

6. Once soft restraints have been utilized, they should be loosened every thirty (30) minutes, noting skin condition, distal circulation and motor response check, etc. This information shall be documented in the flight report and a **Use of Physical Restraint Form** shall be attached

7. If the patient remains combative, consider chemical restraint with Haldol 5mg IM only. The ATS and PIC must work together to determine if the patient and Flight Teams safety can be assured during flight. If the patient remains combative, consider the **ALTERED MENTAL STATUS/AGITATED PATIENT PROTOCOL**

8. The Flight Team may elect to refuse transport after completing **ALL** of the following:

A) The ATS and PIC determine the safety of the patient and staff cannot be assured
AND

B) The cancellation of the flight has been approved by the Medical Control Physician
AND

C. The cancellation of the flight is approved by the Director of Operations (or designee)

9. If the transport is considered, the patient will be transported following current guidelines.

10. The Flight Team is required to document all actions taken, calls made, etc. in the patient's Medical Flight Records. Should the transport be cancelled, the Flight Team must document the reasons why the flight was cancelled, time, the name and times of the individuals in the decision process, etc.

11. Consider declaring an emergency per the **INFLIGHTMEDICAL EMERGENCY PROTOCOL**

12. If the patient stabilizes, the flight may continue to the original destination

IN-FLIGHT NAUSEA AND VOMITING PROTOCOL

Several factors may lead to the development of nausea and/or vomiting during the course of the flight. These factors include hypoxia, anxiety, and airsickness secondary to turbulence. Should the patient experience nausea and /or vomiting, assess the patient for chest pain, back pain, dyspnea, arm pain, and numbness. The presence of any one of these symptoms should lead you to suspect coronary insufficiency.

1. Secure the patient's airway

2. Position the patient for suctioning if needed

3. Assess the patient for increased abdominal distension, and if present, place a nasogastric tube to high suction initially to empty the stomach, and then to low continuous suction

4. Administer supplemental oxygen via nasal cannula. NOTE: If the patient is currently on oxygen, increase this by 3 LPM.

5. Start an IV with NSS to be infused at 80-100cc/hour

6. If nausea and/or vomiting persist in the adult patient, consider Phenergan 6.25- 12.5 mg IV/IM or Zofran 4mg IV/IM. The medication utilized may be repeated once in fifteen (15) minutes for persistent nausea or vomiting. Patients without IV access may receive dissolvable Zofran 4mg tablet orally.

NOTE; those patients ranging from 2-12 years of age, administer Zofran 0.1mg/kg to a maximum of 4mg IV/IM. Do not repeat the dosage for this age group. Not approved for patients under 2 years of age, unless otherwise specified in the patient's Medication Administration Record (MAR)

NOTE: Phenergan should not be administered to the pediatric patient

7. May consider Dimenhydrinate 50mg PO (Dramamine) as tolerated. Use caution in patients with glaucoma, asthma, dysuria, or advanced cardiovascular disease. May repeat in thirty (30) minutes to a maximum of three dosages

8. Proceed to the appropriate protocol for any changes.

9. If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY PROTOCOL**

10. If the patient stabilizes, the flight may continue to the original destination

ALLERGIC REACTION PROTOCOL

1. General Supportive Care Measures

2. Administer oxygen as needed and assess the patient's condition

3. If **mild reaction**, with itching, stable vital signs and no dyspnea administer the following:

A. Adult: Benadryl 50 mg IV/IM

Pediatric: Benadryl 1mg/kg IV/IM

4. If **moderate reaction** with edema, hives, dyspnea, wheezing, and stable vital signs administer the following:

A. Adult: Benadryl 50mg IV/IM. If no improvement, continue below

Pediatric: Benadryl 1mg/kg IV/IM

B. Adult: Epinephrine 0.3mg 1:1,000 SQ. consider half dosage for patient's over 45 years or with a history of HTN, CAD/dysrhythmia. May repeat once in 10 minutes as needed.

Pediatric: Epinephrine 0.01ml/kg 1:1,000 SQ maximum 0.3ml

C. Atrovent and Albuterol nebulizer treatment if no significant improvement noted.

D. Adult: Solu-Medrol 125mg IV/IM

Pediatric: Solu-Medrol 2mg/kg IV/IM

5. If **severe reaction** with edema, hives, dyspnea with severe wheezing, unstable vital signs, cyanosis, and laryngeal edema administer the following:

A. Consider tracheal intubation, go to: **Conscious Sedation Rapid Sequence Induction for Intubation Protocol**

B. Adult: Epinephrine 0.3 mg IM

Pediatric: Epinephrine 0.01ml/kg **IM** maximum 0.3ml

C. Atrovent and Albuterol nebulizer treatment if no significant improvement noted.

D. Adult: Solu-Medrol 125mg IV

Pediatric: Solu-Medrol 2mg/kg

6. Proceed to the appropriate protocol for any changes

7. Consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCY POLICY**

8. If the patient stabilizes, the flight may continue to the original destination

SEIZURE PROTOCOL

Should the patient have a history of seizure disorders, check the MAR and determine if the patient is taking any anticonvulsant medications. All patients with a seizure disorder will be given supplemental oxygen and have a patent IV established prior to the flight.

1. Protect the patient from harming himself and others.

2. Secure the patient's airway and administer oxygen per the **OXYGEN THERAPY PROTOCOL**

3. Establish an IV of NSS; infuse at 80-100cc/hour

4. If a seizure occurs,

ADULT: Versed 1-2mg IV, may repeat as need for seizure activity

OR

Ativan 0.5-1mg IV, may repeat for seizure activity

PEDIATRIC: Versed 0.1mg/kg IV/IM

OR

Ativan 0.1mg/kg IV maximum 4 mg

5. Monitor blood glucose level; proceed to **ALTERED MENTAL STATUS PROTOCOL** if needed.

6. If seizures persist after the above therapy, contact the Medical Director per the **Notification of the Medical Director Protocol.** If the patient stabilizes, the patient may be transported to their destination.

7. Consider eclampsia in a pregnant female (even post-partum) and consider Magnesium Sulfate 4gm/100cc infused over 5-10 minutes

8. If the patient's condition does not improve, consider declaring an emergency per the **Inflight Medical Emergency Protocol**

9. If the patient stabilizes, the flight may continue to the original destination.

TREATMENT OF BAROTRAUMA PROTOCOL

The patient with head, nasal, and/or sinus congestion is very likely to experience pain and possible injury as a result of barotraumas. This complaint will most likely occur on descent from altitude, as the atmospheric pressures increase. Therefore, should the ATS suspect this prior to the flight, they should attempt to prevent it's occurrence with the administration of a decongestant.

If the patient has head, nasal, and/or sinus congestion prior to departure, the ATS should complete the following:

1. Encourage the use of Valsalva Maneuvers to equalize pressure in the upper respiratory tract.

2. Administer two (2) sprays of NeoSynephrine per nostril prior to the flight's departure

3. Repeat the NeoSynephrine two (2) sprays per nostril as needed during the flight while monitoring the patient's heart rate and vital signs.

4. Consider repeating two (2) more sprays NeoSynephrine per nostril 15 minutes prior to descent.

5. Inform the PIC of any serious sinus blocks with the crew or patient.

6. If the patient's condition does not improve, consider declaring an emergency per the **Inflight Medical Emergencies Protocol**

7. If the patient stabilizes, the flight may continue to the original destination.

OBSTRUCTIVE PULMONARY DISEASE PROTOCOL

For the purpose of this protocol, obstructive pulmonary disease shall be defined as any condition characterized by outflow obstruction such as asthma, chronic bronchitis, emphysema, bronchospasm associated with infection, toxic inhalation, and allergic reactions.

1. Place patient on cardiac monitor.

2. Place the patient in a position of comfort, preferably upright sitting position.

3. Administer nebulized mix of Albuterol and Atrovent per the nebulizer manufacturer's recommendation (i.e.: 5-6LPM O2)

4. May repeat above nebulizer every fifteen (15) minutes as needed.

5. If the patient is unable to hold the nebulizer, attach the nebulizer to a non-rebreather mask. Consider the need for tracheal intubation of the patient.

6. If the intubated patient becomes difficult to ventilate, administer the nebulized medications via the endotracheal tube and hyperventilate with 100% supplemental oxygen. Reassess lung sounds, check for evidence of pneumothorax or tension pneumothorax if present proceed to **Advanced Procedures Protocol**

7. If the patient is steroid-dependent/responsive, consider administering Solu-Medrol 125mg IV

8. If the patient's condition does not improve, consider declaring an emergency per the **Inflight Medical Emergencies Protocol**

9. If the patient stabilizes, the flight may continue on to the original destination.

OXYGEN THERAPY PROTOCOL

1. Supplemental oxygen should be administered by a delivery system appropriate to the clinical requirements for the patient. Explain to the patient there is approximately a 20% decrease in atmospheric oxygen pressures while at altitude. This is the reason that the patient will require the additional oxygen. Document in the medical flight report should the patient refuse the administration of oxygen.

2. Patients should receive the minimum flow of oxygen via nasal cannula during the flight to maintain a SpO2 of 94% or higher.

3. The following oxygen delivery devices have been approved by the Medical director:

A. Nasal Cannula B. Non-rebreather Facemask C. Venturi Masks D. Endotracheal tubes

E. Nasotracheal Tubes F. Tracheostomy Tubes G. Devices approved by the patient's physician

4. Patients who develop any of the following conditions in flight shall receive oxygen by the appropriate means to maintain a SpO2 94% or higher.

A. Cardiopulmonary Arrest B. Any increasing Dyspnea C. Shock/ Hypotension

D. Unresponsive patients E. Any patient with decreasing mental status

5. Responsive COPD patients should be given an additional 2-4LPM while at altitude while monitoring the patient's pulse oximetry, oxygen saturation levels, and respiratory rate.

6. The position of airway adjuncts, i.e. endotracheal tubes, tracheostomy tubes, oro/nasal pharyngeal airways, etc. shall be checked periodically by auscultating all lung fields, noting equal chest rise, observing for condensation in the ET tube, noting the patient's oxygen saturation levels, monitoring and recording waveforms on capnography etc. This information should be documented in the patient's medical flight report every thirty (30) minutes, or more often should the patient's condition deteriorate, or the patient requires moving, i.e. from the aircraft to the ambulance, from the stretcher to the hospital bed, etc.

7. Be alert for the development of pneumothorax at altitude and proceed to the **Advanced Procedures Protocol** as indicated.

8. Questions should be immediately addressed to the Medical Director.

ADVANCED PROCEEDURES PROTOCOL

Advanced Procedures, as defined and approved by the Medical Director, are as follows:

Decompression of a Tension Pneumothorax
Emergency Cricothyrotomy for Airway Control

All ATS medical flight personnel are permitted to perform these procedures only upon the successful completion of an Advanced Procedures Training Program as approved by the Medical Director.

The medical flight team must accompany the patient to the receiving facility should any advanced procedure be completed or attempted during flight.

DECOMPRESSION OF A TENSION PNEUMOTHORAX

The decompression of a tension pneumothorax is a true emergency in a controlled situation, much less in the confines of the aircraft at altitude. Proper assessment is the key to the treatment of a tension pneumothorax. Signs and symptoms of a tension pneumothorax include unequal chest rise, diminished breath sounds on the affected side, dyspnea, deteriorating oxygen saturation levels, hyperresonant to percussion, etc.

1. Should the patient develop a tension pneumothorax while in flight, have the pilots descend to make a sea-level cabin and consider declaring an emergency per the **Inflight Medical Emergencies Protocol**

2. Chest decompression should **NOT** be considered in the stable patient or the patient with a simple pneumothorax that can be managed with less conventional means.

3. The approved device for decompressing a tension pneumothorax is a large bore catheter attached to a one way Heimlich Valve, or utilizing the **assembled pneumothorax kit**

4. The approved location for the insertion of this catheter shall be in the second intercostal space, mid-clavicular on the anterior chest, and/or fifth mid-axillary space as outlined in the most current edition of the "**International Trauma Life Support"** manual.

5. The following must be documented in the patient's medical flight report before and after the chest decompression has been completed:

A. Respirations and Breath Sounds

B. Respiration Quality

C. Aircraft and Cabin Altitudes

D. All Vital Signs

6. Proceed to the appropriate protocol for any changes.

7. Notify the Medical Director as soon as possible of this situation.

EMERGENCY CRICOTHYROTOMY FOR AIRWAY CONTROL

The Medical Director has authorized the use of a Cricothyrotomy in a dire emergency situation, where the airway cannot be secured by less invasive means. The ATS may utilize this procedure only as a last resort, when other means of airway control, i.e.: positioning, bag-valve-mask ventilation, endotracheal intubation, has failed to secure the patient's airway. Notify the pilots you are declaring and emergency per the **INFLIGHT MEDICAL EMERGENCIES PROTOCOL**

1. Should the patient require a cricothyrotomy while in flight, you must declare an emergency per the **INFLIGHT MEDICAL EMERGENCIES POLICY.**

2. A cricothyrotomy should not be considered in the stable patient, the patient with an adequate airway, or when the airway can be secured by less invasive means.

3. The approved method of performing a Cricothyrotomy is the open technique as describes in the ATS orientation program utilizing the emergency cricothyrotomy kit.

4. You must document the following both before and after completing a cricothyrotomy procedure:

A. Failure to secure the airway by less invasive means

B. Presence/absence of breath sounds following the procedure

C. Proper tube positioning. Document this in the narrative

D. All Vital Signs

E. Aircraft and Cabin Altitudes

5. Proceed to the appropriate protocol for any changes

6. Notify the Medical director as soon as possible of this situation

BASIC LIFE SUPPORT PATIENT CARE PROTOCOL

This protocol has caused much confusion in the past and will be further clarified here. The State of Florida Air Ambulance Guidelines requires a two (2) person medical team be aboard the aircraft. However, under specific and defined situations, staffing can be changed based on the patient's condition, acuity level, and after consultation with the Medical Director.

Basic Life Support level patient transports will be defined as those patient scenarios where the pre-flight nursing report determines **all** of the following:

1. The patient is a documented No Code/DNR

AND

2. The patient is NOT currently receiving parenteral intravenous fluids or medications, and it is anticipated that the patient WILL NOT require any intravenous medications in flight

AND

3. The patient's condition DOES NOT meet any of the other parameters as outlined in the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL**

AND

4, You have received Medical Director approval per the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL.**

If the patient meets ALL of the above criteria, the patient may be transported with a medical staff consisting of one SATS who has met the requirements as outlined in local regulations.

If the patient does not meet all of the above criteria as outlined above, or should the updated nursing report or your initial hands-on assessment reveal any changes in the patient's condition whereby the patient does not meet ALL of the requirements of #1-3 above, then the patient will be considered Advanced Life Support (ALS) level and must be cared for by a minimum of two Aeromedical Transport Specialists (ATS) per the **AIR AMBULANCE STAFFING POLICY.**

Please refer to the Staffing Flow Sheet as needed.

Any questions or concerns should be addressed to the Director of Operations and/or Medical Director IMMEDIATELY.

SPECIALTY CARE TEAM TRANSPORT PROTOCOL

The Specialty Care Teams listed below are approved by the Medical Director and will be staffed as follows:

Pediatric Team

Members shall have received, at a minimum, additional training in Pediatric Advanced Life Support (PALS), Advanced Pediatric Life Support (APLS), or equivalent training as approved by the Medical Director. Pediatric is defined as those patients from 31 days to 12 years of age. The Pediatric Team will utilize the current issue of the Brosleow Tape for all medication dosages, tube sizes, and treatment protocols. Staffing for pediatric flights must be approved by the Medical Director prior to the flight's departure.

Ventilator Team

Team configurations shall consist of a Registered Respiratory Therapist (RRT) or Senior ATS as approved by the Medical Director, who has received additional training in portable transport ventilator care.

The utilization of any of the above teams require the Specialty Care Provider to follow the **NOTIFICATION OF THE MEDICAL CONTROL PHYSICIAN PROTOCOL**

BLOOD ADMINSTRATION PROTOCOL

The administration of blood and/or blood products will be completed under the direction of the SATS. The following steps must be completed and documented in the patient's medical flight report when administering blood and/or blood products.

1) The ATS personnel will check the blood and/or blood product for the patient's name, date, blood type, and transfusion record. Positive patient identification is required

2) The patient's vital signs must be obtained and monitored.

3) The patency of the intravenous site must be confirmed.

4) Blood and/or blood products must be administered through an intravenous site that is equal to or larger than a 20 guage catheter using "Y" IV tubing and Normal Saline fluids. This tubing, blood or blood product containers will be discarded after use per the **Biohazard Waste Disposal Policy.**

5) Under no circumstances will medications be administered in the same intravenous site that is receiving blood and/or blood products.

6) The blood or blood products will be infused per the sending physician's order. Normally, you should give 50cc over fifteen (15) minutes monitoring for transfusion reactions.

7) The patient's vital signs should be monitored every fifteen (15) minutes while receiving blood or blood products.

8) Should the patient develop a reaction to the blood or blood product. **STOP THE INFUSION IMMEDIATELY.** Save all blood and/or blood products and take these with the patient to the receiving facility for evaluation.

9) Once the infusion is complete, administer 50cc Normal Saline to flush all lines. The tubing and containers may then be disposed of per the **Biohazardous Waste Disposal Policy.**

10) Attach the copy of the blood bank requisition sheet with the patient's flight records.

11) If the patient's condition deteriorates, consider declaring and emergency per the **INFLIGHT MEDICAL EMERGENCIES PROTOCOL.**

12) If the patient stabilizes, the flight may continue to the original destination.

VENOUS ACCESS DEVICE FLUSHING PROTOCOLS

The ATS will encounter a wide variety of intravenous sites while providing care to our patients. Should The ATS encounter an intravenous port they are not familiar or comfortable with, the ATS should contact a Training Officer or ask the sending facility personnel to provide a quick in-service on the catheter.

UNDER NO CIRCUMSTANCES SHOULD AN ATS UTILIZE A PORT WITH WHICH THEY ARE NOT FAMILIAR OR COMFORTABLE WITH.

Short-term Peripheral Device (Angiocath)	Flush with 1-2cc of normal saline (NSS), or after each use
Midline Catheter	Flush with 5cc NSS followed by 1cc of Heparin solution 100units/ml after each use. After infusing blood, flush with 10cc NSS followed by 1cc Heparin solution 100units/ml
Percutaneous Central Venous Catheter	Flush with 3-5cc NSS followed by 2cc Heparin solution 100units/ml After (Triple Lumen) infusing of blood, flush with 10cc NSS followed by 2cc Heparin solution 100units/ml.
Hickman Catheter	Flush with 5cc NSS followed by 2.5cc Heparin solution 100units/ml after each use.
Implanted Port	Flush with 10cc NSS followed by 5cc Heparin solution 100units/ml after each use. After infusing blood, flush with 20cc NSS followed by 1cc Heparin solution 100units/ml.
Groshong Catheter	Flush with 5cc NSS after each use. **DO NOT USE HEPARIN.** After infusion of viscous fluids or blood, flush with 20cc NSS.
Peripherally Inserted Central Catheter	Flush with 2cc of NSS followed by 1cc Heparin solution 100units/ml after each use. After infusing blood, flush with 10cc NSS followed by 1cc Heparin solution 100units/ml
NOTE:	**If a patient requires frequent access of a device, the flushing regimen** may **need to be revised due to clinical condition.**

ALTITUDE RESTRICITON PROTOCOL

The purpose of this protocol is to outline the circumstances which altitude restrictions may be warranted.

1) Obtain pre-flight briefing per the **PRE-FLIGHT PROTOCOL**

2) If the pre-flight briefing determines the patient's condition requires in-flight altitude restrictions, notify the Operations Center and Director of Operations immediately. If altitude restrictions are determined during the bedside assessment, notify the Operations Center and Director of Operations before departing the sending facility

3) The SATS should discuss the expected aircraft cabin altitude with the PIC per the **Pre-Flight Briefing And Add-On Equipment Policy.** The cabin pressure for the flight should not exceed 8,000' or the manufacturer's recommended cabin pressure, whichever is lower.

4) Should the PIC determine the cruising cabin pressure will be greater than 8,000', the SATS must Notify the Medical Director per the **Notification Of The Medical Director Protocol.**

5) Should the Senior ATS determine the patient's condition warrants a cabin restriction (i.e. sea level cabin requirements as seen in some patients with recent closed head injury, recent abdominal and/or thoracic surgeries, decompression sickness, etc) the Medical Director must be notified per the **Notification Of The Medical Director Protocol.** The Medical Director, Director of Operations, PIC, and the SATS will then discuss the best cruising cabin pressure for that patient's specific medical condition.

6) Should the patient's condition deteriorate during flight, the SATS must notify the Medical Director immediately per the **Notification Of The Medical Director Protocol.** Should it be determined that the patient's condition warrants a change in the cruising cabin pressure, the SATS must notify the PIC as soon as possible. Changing the cruising cabin pressure and aircraft altitude takes time and could lead to a delay in the flight. It is imperative that the SATS and the PIC work together to improve the patient's condition.

7) Should the patient's condition require a change in the cruising cabin pressure, the Operations Center, Chief Pilot and Director of Operations should be notified as soon as possible. In Incident Report must be completed and attached to the patient's medical flight report.

CONSCIOUS SEDATION- RAPID SEQUENCE INDUCTION FOR INTUBATION PROTOCOL

The purpose of this protocol is to define the indications for conscious sedation to facilitate rapid sequence induction (RSI) for endotracheal intubation, the medications approved for this procedure, and the care of the patient currently ventilator dependent. The steps to RSI include equipment preparation, pre-oxygenation pre-medicate, sedate, paralyze, intubate, assess the airway, and then ventilate.

RSI is indicated to provide for additional muscle relaxation to aid intubation due to respiratory failure, obtunded patients, and/or loss of gag reflex resulting in the patient's inability to secure their airway; spinal cord injuries, major burns, etc.

RSI is contraindicated in the spontaneously breathing patient who demonstrates adequate ventilation, epiglottitis, de-nerving injury or disease, upper facial or laryngeal trauma, distorted facial/airway anatomy, penetrating trauma to the neck, etc.

The patient's airway must be properly maintained and controlled at all times during the course of the mission. Should the patient develop respiratory distress as a result in their failure to maintain an adequate airway, the ATS should consider the use of conscious sedation and RSI with intubation as outlined:

1) Maintain proper body substance isolation procedures. Monitor the patient's vital signs, including SpO2, EKG, BP, and heart rate.

2) Have suction and intubation equipment immediately available and at the bedside.

3) Apply 100% oxygen via non-rebreather mask. It is preferred the patient's O2 saturation be >90%. Patient's with COPD history, maintain a saturation >80%.

4) If the patient's saturation levels are below the above guidelines, gently ventilate the patient with a bag-valve-mask utilizing 100% supplemental O2. The goal is to maintain an adequate O2 saturation. OVER VENTILATING THE PATIENT CAN LEAD TO GASTRIC DISTENSION, NAUSEA, VOMITING, AND POSSIBLE ASPIRATION

5) Maintain spinal motion restriction precautions as required.

6) Apply cricoid pressure, only with known "full stomach".

7) In the patient with a head injury or associated signs of increased intracranial pressure, administer Lidocaine 1.5mg/kg IV.

8) In the pediatric patient consider Atropine Sulfate 0.02mg/kg IV to prevent bradycardia and excess salivation.

9) Sedate the patient with Etomidate (Amidate) 0.3-0.5mg/kg IV –typically 20-30mg IV. Onset of action, normally 20-30 seconds, duration of action 5-10 minutes. Contraindicated in Sepsis or known adrenal suppression utilize Versed 2-10 mg IV.

10) Succinylcholine (Anectine) 1.5mg/kg IV not to exceed 120mg. Watch for fasciculation and complete relaxation. Onset-30 seconds, duration 4-6 minutes. Succinylcholine is contraindicated in patients with end stage renal disease, crush injuries greater than seven (7) days, severe burns over 24 hours old, myasthenia gravis, ACH toxicity, organophosphate poisoning, eye injuries, hyperkalemia, and family history of malignant hyperthermia.

CONSCIOUS SEDATION – CONTINUED

11) The practitioner most experienced in airway management should typically be responsible for intubating the patient and securing the airway. Proper ETT placement must be verified using the following adjuncts and/or procedures. Each of these must be documented in the medical flight report.

    a. Visualize the ETT passing through the vocal cords

    b. Bilateral equal chest rise

    c. Auscultation of equal lung sounds

    d, Continuous waveform capnography,

    e. Positive O2 saturation levels

    f. Improvement in the patient's overall ventilator effort

    g. Chest x-ray if possible

12) Do not release cricoid pressure until the ETT placement has been clinically confirmed with capnography, and the ETT cuff are inflated.

13) Place the patient on the ventilator or manually ventilate to maintain adequate oxygenation.

14) If unable to intubate, maintain cricoid pressure and manually ventilate the patient for one (1) minute, and then reattempt intubation

15) If still unable to intubate, consider insertion of the Combitube or Supraglottic airway.

16) If still unable to intubate or adequately ventilate the patient, consider cricothyrotomy.

17) If successful with the Combitube or Supraglottic airway, verify tube placement as outlined in 11 a-g.

18) Secure the tube noting cm mark at the teeth.

19) Re-evaluate and document tube placement and airway prior to and following any movement of the patient, as outlined in 11a-g above; such as position change in bed, boarding, or deplaning the aircraft, moving to or from an ambulance stretcher, etc

20) If the patient's condition does not improve, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCIES PROTOCOL.**

21) Complete the required intubation verification form.

MECHANICAL AIRWAY CONTROL

The purpose of this protocol is for the long term airway management (duration of the flight), in the patient where prior advanced airway placement has not been established, where the patient needs airway control due to respiratory failure or compromise. Prior to implementing this protocol the ATS is required to utilize the Conscious Sedation- Rapid Sequence Intubation Protocol. This protocol uses the medication Propofol (brands: Diprivan, Propoven). Propofol is contraindicated in pediatrics 3 years of age or younger, and the pregnant patient, or those with known egg product and soybean allergies. Propofol is not without side effects, namely hypotension, bradycardia, and arrhythmias. Hypotension the greatest side effect (75%) is easily treated with IV NSS boluses, and Propofol reduction rate. Continuous Waveform Capnography is **Mandatory**. Recurrent vital sign measurement is paramount due to the effects of Propofol

1) Prime the infusion pump utilizing a 35-60 cc syringe and ½ set infusion tubing, the pump in the neonatal mode. All precautions to maintain an aseptic technique should be utilized while handling Propofol.

2) Infuse Propofol at 5-50mcg/kg/min. Remember to start lower then titrate up. Propofol is listed with a graph in the appendix section of these protocols (page54). Allow a minimum of 5 minutes between titration adjustments.

3) Propofol may be augmented with the following medications:
   Lorazepam (Ativan) 1mg at 20 minute intervals
   OR
   Midazolam (Versed) 1-3mg hourly

4) Pain management:
   Morphine Sulfate 2-5mg every 2 hours (contraindicated in renal impairment)
   OR
   Hydromorphone (dilaudid) 0.5-1mg every 2 hours.

Considerations: Notify the Flight Coordinators in the event ground transportation or the Receiving facility need to be adjusted.

Notify the Medical Director, post incident anytime this protocol is utilized.

PROPOFOL must be maintained with the "cold" medications.

CREW MEMBER MEDICAL CARE PROTOCOL

Caring for a fellow crew member or co-worker can be an emotional and stressful situation. The medical and aviation staff must work together to ensure our crew member is provided with prompt and efficient medical care.

The following steps must be completed should a fellow crew member require any medical attention during the course of a mission.

1) Determine if the crew member requires emergent medical care. If so, consider declaring an emergency per the **INFLIGHT MEDICAL EMERGENCIES POLICY.** If on the ground, immediately contact the local emergency services (ie.911). In emergent situations, prudent care may be established while awaiting EMS response. Document all care provided on a medical flight report.

2) If the medical situation is determined to be non-emergent, immediately inform the Operations Center of the situation. The crew member should then seek medical attention at an appropriate facility in proximity to your location.

3. Due to the variety of locales in which we operate, local medical care may not be immediately available. The ATS should seek the opinion of the medical control physician should any concerns arise. The medical flight team shall not provide any non-emergent medical care to a fellow crew member without first contacting medical control for guidance and patient care orders. Document all orders on the medical flight report. If unable to contact medical control, immediately inform the Operations Center and notify the local emergency services.

4) Complete a medical flight report documenting all care provided.

5) Pilot personnel should not be permitted to return to flight status until the situation has been discussed with both the Medical Director and Director of Operations or his designee. A variety of medications provided may not be permitted under current FAA regulations.

Our goal is to provide safe, efficient and prudent medical care to our patients, their family members, and our co-workers. Please remember this will have an effect on the remainder of the mission. The medical control physician must pre-authorize all medical care.

Please address any questions or concerns to the Medical Director of Director of Operations.

MATERNAL TRANSPORT PROTOCOL

The transport and care of the maternal patient is one that can become very challenging for the Aeromedical Transport Specialist (ATS). These "low-volume- higher acuity" scenarios present a unique challenge as the transport environment is not an ideal location for delivery to occur. The ATS must consider not only the needs of the mother, but also that of the fetus, further complicating the transport environment. Proper assessment, preparation, and pre-flight planning are keys to a good outcome with these patients.

1) Obtain a detailed report from the sending facility, ensuring the following are addressed:
   a. Is the patient having active labor pains? If so how often?
      We will not transport any patient in active labor
   b. Number of pregnancies? Stage of this pregnancy (weeks)?
   c. Any complications during the pregnancy?
   d. Patients current medical status: i.e. ruptured membranes, bleeding, history, etc.
   e. Is the patient hypertensive? Suspect pre-eclampsia
   f. Does the patient have any vaginal bleeding?
   g. Does the patient have pain? Suspect abruptio placenta

2) Once the medical report is obtained, brief the Operations Center staff on the patient's acuity and transport needs. If the ATS determines the patient is safe for travel and the operation's staff can complete the logistics for the mission, notify the Medical Director of the patient's condition per the **NOTIFICATION OF THE MEDICAL DIRECTOR PROTOCOL**

3) Ensure the maternal transport kit is checked and inventoried prior to departure.

4) During transport the mother must have fetal monitoring immediately upon our arrival at the bedside. Frequent fetal monitoring must be maintained throughout the flight and documented at fifteen minute intervals or more frequently if the condition warrants, including the ground transportation aspects.

5) If the patient develops symptomatic hypertension, defined as follows:
   a. Systolic BP greater than 220mmHg or a diastolic BP exceeding 120mmHg associated with organ malfunction, potential seizure activity, fluid retention, dyspnea, pulmonary edema or chest pain.
   b. Consider Labetalol 0.25mg/kg slow IV over two (2) minutes. May repeat at ten (10) minute intervals to a maximum of 300mg.

or

Labetalol infusion 200mg/100cc D5W at 2mg/minute (60gtts minute, mini drip set)

6) If the patient develops seizures consider any of the following:
   a. Versed 2mg IV or
   b. Ativan 0.5 – 1 mg IV
   c. Supplement the above with magnesium sulfate 4g/100cc over ten (10) minutes. Followed by a 2 gram/hour drip.

7) Patient develops hypotension, reposition to her left lateral side, and consider fluids.

8) If confusion develops, consider hypoglycemia and treat appropriately.

9) If the patient's condition does not improve, or if imminent delivery will occur, consider and emergency per the **Inflight Medical Emergencies Policy.**

INSULIN PROTOCOL

Every attempt shall be made to maintain a "normal range" blood glucose level for our patient's. Patients located in the ICU, receiving TPN, or with a history of diabetes, normally have a sliding scale insulin dosage listed in their **Medication Administration Record** (MAR). The ATS shall obtain from the sending facility nurse caring for the patient, the latest blood glucose reading and any insulin amount administered since the last reading, and the frequency of blood glucose checks.

It is not the intention for the ATS to diagnose or treat hyperglycemia found incidentally, this information should be relayed to the receiving facility for follow up care.

Insulin carried by the ATS is intended for scheduled coverage, or when the diabetic patient's insulin is not available to him or her during the transport.

MEDICATION FORMULARY

Albuterol (Ventolin) 2.5mg 0.083%
Alprazolam (Xanax) 0.25mg tablet
Amiodarone 150mg/3ml
Aspirin 325mg
Ativan (lorazepam)
Atropine Sulfate 0.1mg/ml 10ml syringe
Calcium Chloride 10%
Diltiazem (Cardizem) 5mg/ml 5ml vial
Dextrose 50% 25gm/50ml prefilled syringe
Epinephrine 1:1,000 1ml ampoule
Epinephrine 1:10,000 0.1mg/ml 10 ml syringe
Etomidate (Amidate)
Furosemide (Lasix) 100mg vial
Haloperidol (Haldol) 5mg vial
Heparin 100 units
Hydromorphone (Dilaudid)
Insulin R
Ipratropium Bromide (Atrovent) 0.5mg
Labetalol 5mg/ml
Lidocaine 100mg prefilled syringe
Magnesium Sulfate 1 gram vial
Metoprolol
Midazolam (Versed)
Morphine Sulfate
Narcan 2mg
NeoSynephrine
Nitroglycerine 0.4 mg spray bottle/ Tablets
Nitroglycerine for concentration
Norepinephrine (Levophed)
Odansetron Hydrochloride (Zofran)
Phenergan 25mg ampoule or carpuject syringe
Propofol (Diprivan)
Sodium Bicarbonate 1mEq/ml 50ml syringe
Succinylcholine (Anectine) 20mg/ml vial

DRUG NAME	**NITROGLYCERINE**
DRUG AMOUNT	**50** MG PREMIXED
FINAL VOLUME	**250** ML
FINAL CONCENTRATION	200 MCG/ML
USUAL DOSE	1-20 MCG/MIN
MAXIMUM DOSE	200 MCG/MIN
INSTRUCTIONS:	1) FIND THE COLUMN FOR THE DESIRED DOSAGE IN MG/HR 2) LOCATE THE RATE IN ML/HR IN THE ROW BELOW

DOSE (MCG/MIN)														
1	2	3	4	5	6	7	8	9	10	15	20	30	40	50
0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3	4.5	6	9	12	15
RATE (ML/HR)														

DOSE (MCG/MIN)														
60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
RATE (ML/HR)														

DRUG NAME	**NITROPRUSSIDE (NIPRIDE)**
DRUG AMOUNT	**100** MG
DILUENT	**250** ML
FINAL CONCENTRATION	400 MCG/ML
USUAL DOSE	0.5-3 MCG/KG/MIN, RARELY HIGHER THAN 4 MCG/KG/MIN
TITRATE	INCREASE BY 0.25-0.3 MCG/KG/MIN
MAXIUM DOSE	10 MCG/KG/MIN
INSTRUCTIONS	1) FIND THE ROW FOR THE PATIENT'S WEIGHT IN KILOGRAMS 2) FIND THE COLUMN FOR THE DESIRED DOSAGE IN MCG/KG/MIN 3) LOCATE THE RATE IN ML/HR WHERE THE ROW AND COLUMN MEET

WEIGHT (KG)	DOSE (MCG/KG/MIN) 0.25	0.5	0.6	0.7	0.8	0.9	1	1.5	2	2.5	3	3.5	4	4.5	5
40	1.5	3	3.6	4.2	4.8	5	6	9	12	15	18	21	24	27	30
45	1.7	3.4	4.1	4.7	5	6	7	10	14	17	20	24	27	30	34
50	1.9	3.8	4.5	5	6	7	8	11	15	19	23	26	30	34	38
55	2.1	4.1	5	6	7	7	8	12	17	21	25	29	33	37	41
60	2.3	4.5	5	6	7	8	9	14	18	23	27	32	36	41	45
65	2.4	4.9	6	7	8	9	10	15	20	24	29	34	39	44	49
70	2.6	5	6	7	8	9	11	16	21	26	32	37	42	47	53
75	2.8	6	7	8	9	10	11	17	23	28	34	39	45	51	56
80	3	6	7	8	10	11	12	18	24	30	36	42	48	54	60
85	3.2	6	8	9	10	11	13	19	26	32	38	45	51	57	64
90	3.4	7	8	9	11	12	14	20	27	34	41	47	54	61	68
95	3.6	7	9	10	11	13	14	21	29	36	43	50	57	64	71
100	3.8	8	9	11	12	14	15	23	30	38	45	53	60	68	75
105	3.9	8	9	11	13	14	16	24	32	39	47	55	63	71	79
110	4.1	8	10	12	13	15	17	25	33	41	50	58	66	74	83
115	4.3	9	10	12	14	16	17	26	35	43	52	60	69	78	86
120	4.5	9	11	13	14	16	18	27	36	45	54	63	72	81	90
125	4.7	9	11	13	15	17	19	28	38	47	56	66	75	84	94
130	4.9	10	12	14	16	18	20	29	39	49	59	68	78	88	98
135	5	10	12	14	16	18	20	30	41	51	61	71	81	91	101
	RATE (ML/HR)														

DRUG NAME **DILTIAZEM**
DRUG AMOUNT **125** MG
DILUENT **125** ML (100 ML NS BAG PLUS 25 ML OF 5 MG/ML DILTIAZEM INJECTION)

FINAL CONCENTRATION 1 MG/ML

INITIAL DOSE 0.25 MG/KG OVER 2 MINUTES

USUAL DOSE 5-15 MG/HOUR

CONTINOUS INFUSION

MG/HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ML/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

DRUG **PROPOFOL**
INDICATIONS INITIATION AND MAINTENANCE OF ICU SEDATION IN INTUBATED, MECHANICALLY VENTILATED
CONCENTRATION 10 MG/ML (10,000 MCG/ML)
USUAL DOSE 5-50 MCG/KG/MIN
CONTRAINDICATIONS SULFITE ALLERGIES

PATIENT WEIGHT (kg)	PATIENT WEIGHT (lbs)	DOSE (MCG/KG/MIN) 5	10	15	20	25	30	35	40	45	50
40	88	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
45	99	1.4	2.7	4.1	5.4	6.8	8.1	9.5	10.8	12.2	13.5
50	110	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0
55	121	1.7	3.3	5.0	6.6	8.3	9.9	11.6	13.2	14.9	16.5
60	132	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0
65	143	2.0	3.9	5.9	7.8	9.8	11.7	13.7	15.6	17.6	19.5
70	154	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0
75	165	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0	20.3	22.5
80	176	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
85	187	2.6	5.1	7.7	10.2	12.8	15.3	17.9	20.4	23.0	25.5
90	198	2.7	5.4	8.1	10.8	13.5	16.2	18.9	21.6	24.3	27.0
95	209	2.9	5.7	8.6	11.4	14.3	17.1	20.0	22.8	25.7	28.5
100	220	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
105	231	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5
110	242	3.3	6.6	9.9	13.2	16.5	19.8	23.1	26.4	29.7	33.0
115	253	3.5	6.9	10.4	13.8	17.3	20.7	24.2	27.6	31.1	34.5
120	264	3.6	7.2	10.8	14.4	18.0	21.6	25.2	28.8	32.4	36.0
125	275	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
130	286	3.9	7.8	11.7	15.6	19.5	23.4	27.3	31.2	35.1	39.0
135	297	4.1	8.1	12.2	16.2	20.3	24.3	28.4	32.4	36.5	40.5
140	308	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0
145	319	4.4	8.7	13.1	17.4	21.8	26.1	30.5	34.8	39.2	43.5
150	330	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	45.0
155	341	4.7	9.3	14.0	18.6	23.3	27.9	32.6	37.2	41.9	46.5
160	352	4.8	9.6	14.4	19.2	24.0	28.8	33.6	38.4	43.2	48.0
165	363	5.0	9.9	14.9	19.8	24.8	29.7	34.7	39.6	44.6	49.5
170	374	5.1	10.2	15.3	20.4	25.5	30.6	35.7	40.8	45.9	51.0
		RATE (ML/HOUR)									

dobutamine (mcg/kg/min) for patients of different weights are given in Table 1.

Table 1 Dobutamine Injection USP Infusion Rate (mL/h) for 500 mcg/mL concentration

Drug Delivery Rate				Patient Body Weight (kg)								
(mcg/kg/min)	5	10	20	30	40	50	60	70	80	90	100	110
0.5	0.3	0.6	1.2	1.8	2.4	3	3.6	4.2	4.8	5.4	6	6.6
1	0.6	1.2	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8	12	13.2
2.5	1.5	3	6	9	12	15	18	21	24	27	30	33
5	3	6	12	18	24	30	36	42	48	54	60	66
7.5	4.5	9	18	27	36	45	54	63	72	81	90	99
10	6	12	24	36	48	60	72	84	96	108	120	132
12.5	7.5	15	30	45	60	75	90	105	120	135	150	165
15	9	18	36	54	72	90	108	126	144	162	180	198
17.5	10.5	21	42	63	84	105	126	147	168	189	210	231
20	12	24	48	72	96	120	144	168	192	216	240	264

AMIODARONE INFUSIONS

LOADING INFUSION 150MG/10 MINUTES: ADD 150MG IN 100ML D5W
INFUSE 60gtt/set 600ml/hour

MAINTAINENCE 1MG MINUTE DRIP: ADD 150MG IN 100ML D5W
INFUSE 60 gtt/set 45ml/hour

Esmolol Infusion Chart

Esmolol 2.5gm in 250mL D5W/NS (Rate is mL/hr)

mcg/kg/min

	25	50	75	100	125	150	175	200	225	250	275	300
50 kg	6	15	23	30	38	45	53	60	68	75	83	90
55 kg	8	17	25	33	41	50	58	66	74	83	91	99
60 kg	9	18	27	36	45	54	63	72	81	90	99	108
65 kg	10	20	29	39	49	59	68	78	88	98	107	117
70 kg	11	21	32	42	53	63	74	84	95	105	116	126
75 kg	11	23	34	45	56	68	79	90	101	113	124	135
80 kg	12	24	36	48	60	72	84	96	108	120	132	144
85 kg	13	26	38	51	64	77	89	102	115	128	140	153
90 kg	14	27	41	54	68	81	95	108	122	135	149	162
95 kg	14	29	43	57	71	86	100	114	128	143	157	171
100 kg	15	30	45	60	75	90	105	120	135	150	165	180

Dopamine Infusion Chart

Dopamine 400mg in 250mL D5W (Rate is mL/hr)

mcg/kg/min

	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5	30
50 kg	5	9	14	19	23	28	33	38	42	47	52	56
55 kg	5	10	15	21	26	31	36	41	46	52	57	62
60 kg	6	11	17	23	28	34	39	45	51	56	62	68
65 kg	6	12	18	24	30	37	43	49	55	61	67	73
70 kg	7	13	20	26	33	39	46	53	59	66	72	79
75 kg	7	14	21	28	35	42	49	56	63	70	77	84
80 kg	8	15	23	30	38	45	53	60	68	75	83	90
85 kg	8	16	24	32	40	48	56	64	72	80	88	96
90 kg	8	17	25	34	42	51	59	68	76	84	93	101
95 kg	9	18	27	36	45	53	62	71	80	89	98	107
100 kg	9	19	28	38	47	56	66	75	84	94	103	113

MAGNESIUM SULFATE

LOADING INFUSION 4grams over 10 minutes: ADD 4 GRAM IN 100ML D5W
INFUSE 60gtt set 600ml/hour

MAINTENANCE 2gram hour: ADD 4GM IN 250 NL D5W
INFUSE 60gtt set 125ML/hour

LABETALOL

MAINTENANCE 2mg/minute ADD 200MG IN 100ML D5W
INFUSE 60gtt set 30ML/Hour

Norepinephrine (Levophed®)

Use: hypotension, shock
Dose: 2-40 mcg/min or 0.05-0.25 mcg/kg/min doses of greater than 75 mcg/min or 1mcg/kg/min have been used
Mix: 4 mg in 250 ml D5W
Mechanism: primary α-1 vasoconstriction effect (minor β-1 inotropic)
Elimination: hepatic **Half-life:** minutes
Adverse events: tachyarrhythmias, hypertension at high doses

Norepinephrine Infusion Chart

Norepinephrine 4 mg in 250 ml D5W (Rate is ml/hr)

mcg/kg/min	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.20	0.30
50 kg	1.9	3.8	5.7	7.6	9.5	11.4	13.3	15.2	17.1	19.0	38.0	57.0
55 kg	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0	42.0	63.0
60 kg	2.3	4.6	6.9	9.2	11.5	13.8	16.1	18.4	20.7	23.0	46.0	69.0
65 kg	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	48.0	72.0
70 kg	2.6	5.2	7.8	10.4	13.0	15.6	18.2	20.8	23.4	26.0	52.0	78.0
75 kg	2.8	5.6	8.4	11.2	14.0	16.8	19.6	22.4	25.2	28.0	56.0	84.0
80 kg	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	60.0	90.0
85 kg	3.2	6.4	9.6	12.8	16.0	19.2	22.4	25.6	28.8	32.0	64.0	96.0
90 kg	3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2	30.6	34.0	68.0	102
95 kg	3.6	7.2	10.8	14.4	18.0	21.6	25.2	28.8	32.4	36.0	72.0	108
100 kg	3.8	7.6	11.4	15.2	19.0	22.8	26.6	30.4	34.2	38.0	76.0	114

CORONOVIRUS/COVID19 STATEMENT

With the advent of Coronovirus/COVID19 into the U.S. and areas serviced by Air Trek, it is the policy not to provide aeromedical transport for persons with active/positive COVID19 infection.

In accordance with the Agency for Health Care Administration (AHCA) rules (*) hospitals are required to test all patients using a nucleic acid amplification (PCR) test prior to discharging/transferring patients to a long term facility.

The transferring facility shall provide to Air Trek Inc. written documentation of two consecutive **negative** COVID19 test results, separated by twenty four hours, when requesting transfer of any previously positive tested patient.

This protocol is subject to change with Center for Disease Control and Prevention and AHCA guidance modifications.

(*) Rule 59AER20-8, August 6, 2020