

## Clinical Practice Guideline

### JTTS Clinical Practice Guideline for Intratheater Transfer and Transport of Level II and III Critical Care Trauma Patients

1. **Purpose:** The purpose of this Clinical Practice Guideline (CPG) is to establish guidance for the intratheater air transport of patients from a Level II Facility to a Level II or III (LII to LII/LIII) Facility and from a Level III Facility to a Level III Facility (LIII to LIII). The focus of these guidelines pertains to critical care patients who require a nurse or physician medical attendant during transport between two facilities. These recommendations are guidelines and not a substitute for clinical judgment.
2. **Applicability:** This CPG applies to medical personnel assigned or attached to medical facilities or units within the USCENTCOM Area of Responsibility (AOR).
3. **Background:**
  - a. The intra-theater transport system is a unique and significant part of the Force Health Protection concept for “clearing the battlefield.” Medical evacuation is the timely, efficient movement and enroute care of patients by medical personnel from the battlefield and/or medical facilities to a higher level of care during the full spectrum of military operations. The goal is to provide every patient who is injured on the battlefield or in the AOR the optimal opportunity for survival and the maximum potential for a functional recovery. Combatant commanders expect clinicians to provide expert care at medical facilities and during transport to a higher level of care. Positive patient outcomes depend on clinician expertise and available technology.
  - b. At the initial LII or LIII facility, clinicians assess the patient and provide nonsurgical and/or surgical interventions, many of which are life-, limb-, and eyesight-saving.
  - c. Due to limited bed capacity at LII facilities, injuries that require a medical specialist (e.g., neurologic trauma, ocular trauma) and/or plans to aerovac the patient out of the AOR, significant numbers of patients must be transferred by air from one LII or LIII facility to another LII or LIII facility.
  - d. The need to evacuate polytrauma patients requires special consideration due to the complexity of these patients. Polytrauma patients require a higher level of care than normally provided by personnel assigned to MEDEVAC/CASEVAC units; therefore, these operations require that clinicians at LII and LIII facilities play a greater role in the evacuation process.
  - e. The movement of severely injured patients is a critical event which requires appropriate timing and attention to minute details. To determine the optimal time of transfer, clinicians must balance the benefit of resources at the receiving facility against the risks inherent in moving a critical patient who requires ongoing resuscitative care.
  - f. The transferring physician determines the type of medical attendant who will accompany the patient. A LII or LIII nurse or physician with emergency and/or critical care experience may be required to provide care during air transport to the receiving facility. For example, in addition to the flight medic, a critical care or emergency nurse or, in some cases, a physician or certified registered nurse anesthetist (CRNA) should accompany patients who require mechanical

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ventilation, vasopressor or paralytic infusions, ongoing resuscitation, intracranial pressure or other advanced monitoring techniques, or critical care type interventions. The attendant should meet the qualifications described below and be selected based on the needs of the patient and the ability of the losing unit to maintain essential services.

- g. There are no nurses or physicians in the USCENTCOM AOR whose primary responsibility is to accompany critical care patients during intratheater air transport of patients between two facilities. As a result, qualified nurses and physicians accompany critical care patients during air transport. For purposes of this CPG, these individuals are referred to as flight nurse attendants and flight physician attendants; however, they are not considered aircrew members and are usually not on “flight status.” It is understood that deployed units have limited control over the personnel assigned to them and the formal predeployment training of these personnel.
4. **Recommended clinical parameters that should be met prior to transfer of the patient:**
- a. Heart rate < 120 beats/minute
  - b. Systolic blood pressure > 90 mmHg
  - c. Hematocrit > 24%
  - d. Platelet count > 50/mm<sup>3</sup>
  - e. INR < 2.0
  - f. pH > 7.3
  - g. Base deficit > 5 mEq/L
  - h. Temperature > 35° C

When any one or more of these criteria are not met, the treating physician should either continue treatment at the current facility or document the limitations at the current facility that compel an urgent, high-risk transfer.

5. **Qualifications of flight nurse attendants:**
- a. Licensed as a Registered Nurse in at least one of the 50 states and/or territories of the United States
  - b. **Attended the Joint En Route Care Course, Critical Care Air Transport Team (CCATT) Course, or Naval En Route Care Course; or completed the Joint En Route Care Distance Learning Course.** To access the distance learning course, go to <http://usasam.amedd.army.mil/index/ops.htm#>.
  - c. Current in Basic Life Support (BLS) [exception: nurse was previously BLS certified but certification expired following deployment]
  - d. Current in Advanced Cardiac Life Support (ACLS) [exception: nurse was previously ACLS certified but certification expired following deployment]
  - e. Current in Trauma Nurse Core Course (TNCC) or Advanced Trauma Care for Nurses (ATCN) [exception: nurse was previously TNCC or ATCN certified but certification expired following deployment]
  - f. Demonstrates excellent clinical performance, solid assessment and critical thinking skills, and a high degree of independent clinical ability in his/her Intensive Care Unit (ICU) and/or Emergency Treatment (EMT) department

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- g. Demonstrates the physical ability to manage responsibilities both on and off the aircraft
  - h. Current in Pediatric Advanced Life Support (if accompanying pediatric patients)
  - i. Current in Advanced Burn Life Support (desired)
  - j. Attended Course in Advanced Trauma Nursing and Transport Nurse Advanced Trauma Course (desired)
  - k. Demonstrates excellent communication abilities with other members of the healthcare team in the facility and field environments
  - l. Demonstrates strong knowledge of safety in the facility and field environments
  - m. Completed the Isolated Personnel Report (ISOPREP)
6. **Qualifications of flight physician attendants:**
- a. Licensed as a physician in at least one of the 50 states and/or territories of the United States
  - b. **Boarded in critical care medicine OR attended the Joint En Route Care Course, CCATT Course, Aerospace Medicine Primary Course, or Naval Flight Surgeon's Course; or completed the Joint En Route Care Distance Learning Course.** To access the distance learning course, go to <http://usasam.amedd.army.mil/index/ops.htm#>.
  - c. Current in Basic Life Support [exception: physician was previously BLS certified but certification expired following deployment]
  - d. Current in Advanced Cardiac Life Support [exception: physician was previously ACS certified but certification expired following deployment]
  - e. Current in Advanced Trauma Life Support (ATLS) [exception: physician was previously ATLS certified but certification expired following deployment]
  - f. Demonstrates excellent clinical performance in caring for critically ill patients
  - g. Possesses experience as a flight physician attendant (desired)
  - h. Demonstrates the physical ability to manage responsibilities both on and off the aircraft
  - i. Current in Pediatric Advanced Life Support (if accompanying pediatric patients)
  - j. Current in Advanced Burn Life Support; attended Joint Forces Combat Trauma Management Course (desired)
  - k. Demonstrates excellent communication abilities with other members of the healthcare team
  - l. Completed the Isolated Personnel Report (ISOPREP)
7. **Responsibilities:**
- a. Commander of LII and LIII facilities: assigns a physician medical director to direct and oversee all aspects of the facility's intratheater transfer and transport program.
  - b. LII and LIII intratheater transfer and transport medical director:
    - 1) Directs and oversees all medical aspects for all intratheater air transports from LII to LII/LIII facilities or from LIII to LIII facilities.
    - 2) Designates selected physicians as approved transferring physicians and educates them on their role.

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- 3) Uses facility-specific criteria to designate the desired number of physician attendants.
  - 4) Develops intratheater medical protocols standing orders.
  - 5) Reports clinical concerns to the Director of Clinical Care Services (DCCS) and the USCENTCOM Joint Theater Trauma System (JTTS) Director.
  - 6) Monitors outcome and performance improvement data and revises policies and procedures as indicated. Appendix A contains suggested process improvement data elements.
- c. All healthcare providers, critical care nurses, emergency nurses, and flight medics will:
- 1) Become familiar with the transfer and transport guidelines contained in this CPG.
  - 2) Provide feedback on these guidelines and, if indicated, contact the JTTS Director with suggested changes to this CPG.
- d. LII and LIII facility chief nurse executive/senior nurse (may delegate some responsibilities):
- 1) Uses above-mentioned qualifications and other facility-specific criteria to designate the desired number of flight nurse attendants.
  - 2) Prepares the on-call schedule for flight nurse attendants.
  - 3) Coordinates competency-based orientation program for flight nurse attendants. Provides or coordinates ongoing flight training for nurses.
  - 4) Collaborates with the transport medical director to develop, review, and approve in-flight protocols for care and standing orders.
  - 5) Reviews all after action reports (AAR) for each flight in which a flight nurse attendant accompanied a patient.
  - 6) Reports clinical concerns to the facility's medical director and/or DCCS.
  - 7) Responds to nursing-related issues that pertain to the provision of in-flight nursing care.
  - 8) Ensures that an adequate supply of flight-approved equipment is available to the facility. Ensures that attendants are issued Nomex uniform items (flight suits, ACUs, or equivalent).
  - 9) Monitors outcome and performance improvement data and revises policies and procedures as indicated. Appendix A contains suggested process improvement data elements.
- e. Transferring physician:
- 1) Determines whether a nurse or physician flight attendant will accompany the patient during transport.
  - 2) Arranges all medical aspects related to the transport:
    - a) Assesses patient pre-flight, to include ventilatory status and hemodynamic stability.

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- b) Writes enroute care (ERC) orders and/or activates ERC protocols, considering the unique and austere flight environment. Appendix B contains a sample standard order set.
  - c) Helps prepare and package the patient for transport.
  - d) Specifies which documentation, reports, and films will accompany the patient.
  - e) Determines the need for unique ERC requirements based on the patient's condition.
  - f) Attempts to contact the accepting physician at the receiving unit. At a minimum, documents essential patient care information and a discharge summary note in the Joint Patient Tracking Application (JPTA).
- 3) Communicates the plan of care with the physician or flight nurse attendant.
- f. LII and LIII anesthesiologist, CRNA, and/or respiratory therapy (RT) technician:
- 1) Evaluates all patients who will be intubated during flight.
  - 2) Verifies that there is adequate oxygen available for the expected transport time, plus some residual oxygen in case of a delay or diversion.
  - 3) Verifies that an ambu bag is present at the head of the patient.
  - 4) Communicates the ventilatory plan of care and ventilator settings with the flight nurse or physician attendant.
- g. MEDEVAC/CASEVAC flight medic:
- 1) Adheres to the policies and procedures of his/her MEDEVAC/CASEVAC company.
  - 2) Provides in-flight care to patients who do not require a flight nurse or physician attendant.
  - 3) Assists the flight nurse or physician attendant as requested (within scope of practice).
  - 4) Provides in-flight communication to the nurse or physician attendant.
- h. LII and LIII-based nurse and physician medical attendants:
- 1) Completes competency-based flight nurse/physician orientation to include:
    - a) Aircraft – equipment, patient placement on aircraft, communication strategies, routine safety measures, emergency landing and evacuation procedures
    - b) Equipment – (e.g., transport ventilator, Propaq, IV pump, portable suction, Codman monitor, ambIT infusion pump, etc.)
    - c) Standard supply kit
    - d) Routine and emergency in-flight care protocols to include advanced airway management, intravenous therapy, dysrhythmia interpretation and treatment, and basic/advanced life support in an austere environment
    - e) Documentation of ERC and the AAR

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- f) Hand-off procedure to the trauma team leader at the receiving facility or another transport team with flight nurse or physician attendant
  - g) Check ride(s) with preceptor
- 2) Assesses patient and reviews orders with transferring physician. Communicates the ventilatory plan of care and ventilator settings with the anesthesiologist, CRNA, and/or RT technician.
  - 3) Ensures that all required equipment has been approved for use during flight. Exchanges any non-approved equipment attached to the patient for approved equipment.
  - 4) Assembles documentation, reports, films, and patient's belongings that are to accompany the patient.
  - 5) Obtains and checks the facility's supply and medication bag. Appendix C contains a sample bag inventory. Given the condition of the patient who requires transport, considers whether additional supplies or medications are needed.
  - 6) Completes the facility-specific pre-flight checklist. Appendix D contains a sample checklist.
  - 7) Assists the aircrew to load the patient in a manner that allows access to the patient and visibility of monitors and equipment. When a carousel is used, loads the patient into the lower rack and does not position another patient in the upper rack.
  - 8) Provides ERC in accordance with physician orders and/or activated protocols.
  - 9) Documents ERC on the ERC form (Appendix E).
  - 10) Communicates changes in the patient's status with the flight crew – can direct crew to divert and directs crew to communicate updated patient information to the gaining facility.
  - 11) Gives a verbal report (pertinent history, vital signs, interventions and responses, care provided en route, recommendations for care) to the trauma team leader at the receiving facility. In some cases, gives report to another transport team's flight nurse or physician attendant who will transport the patient to the final destination (i.e., tail-to-tail transfer situation). Answers receiving personnel's questions.
  - 12) Delivers copies of documentation and/or radiologic films/CDs/DVDs during hand-off procedure to receiving clinicians.
  - 13) Collects equipment that must be returned to the "home unit" (e.g., ventilator, Propaq). Disposes single-use equipment/supplies (e.g., ventilator circuit, suction tubing, pulse oximeter probe).
  - 14) Coordinates with the flight crew and/or Patient Administration Division (PAD) to arrange an expedient return to the home unit.
  - 15) Returns equipment and the restocked supply bag to the appropriate location at the home unit.
  - 16) Completes the AAR; files the AAR and ERC documentation in accordance with facility policies.

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17) Labels any equipment that malfunctioned or failed enroute, annotating the nature of the failure. Follows facility procedures to ensure that the equipment is routed to medical maintenance personnel.

i. The JTTS Director:

- 1) As a subject matter expert for air transport of trauma patients, recommends transport guidelines for use within the AOR.
- 2) Monitors outcome and performance improvement data and revises policies and procedures as indicated.
- 3) Generating monthly reports to report outcome and performance improvement data.
- 4) Updates this CPG on an as-needed basis.

**8. General principles regarding ERC:**

- a. Transport patients on a litter with collapsible handles. Avoid using the Israeli litter. Pad the litter and use litter straps to snugly secure the patient.
- b. Prior to flight, ensure that the patient has a minimum of two peripheral intravenous lines or at least a double-lumen central line.
- c. Prior to flight, intubate patients with a Glasgow Coma Scale < 8, airway burns, or tracheal edema, and others at risk for respiratory compromise during flight.
- d. Prior to flight and if not contraindicated, insert a NG/OG tube.
- e. Prior to flight, secure all equipment (e.g., tubes, intravenous lines, drainage devices, and patient care devices) and place on one side of the patient facing towards the flight nurse or physician attendant. Use extreme caution not to dislodge devices as this may have disastrous consequences for the patient. In the case of endotracheal tube (ETT) dislodgement, remove the ETT and bag the patient with 100% oxygen via a bag-valve-mask device. Pre-position a bag-valve-mask device near the patient's head.
- f. Prior to flight, measure an arterial blood gas (ABG) to assess the adequacy of the ventilator settings. Adjust the ventilator settings based on the ventilatory goals for the patient.
- g. Prior to flight, sedate the patient to obtain a steady-state of somnolence for flight. The goal of sedation of the ventilated patient is complete somnolence with a Riker Sedation-Agitation Scale Score of 1-2 (Appendix F).
- h. Perform a pre-sedation neurologic examination for patients with a neurologic injury.
- i. Prior to flight, administer pain medications to promote patient comfort.
- j. Prior to flight, provide hearing and eye protection for the patient.
- k. Prior to flight, institute warming measures (e.g., HPMK, wool blanket, Blizzard blanket), covering the patient's body and head.
- l. Prior to flight, remove air from intravenous fluid bags and place all free flowing bags in a pressure bag because the ordered intravenous fluid rate may be unattainable by usual gravity flow.
- m. During transport, monitor all patients with a cardiac monitor, pulse oximeter, and automatic non-invasive blood pressure monitor. Consider carrying a Nonin Onyx mini pulse oximeter or a similar device as a back-up to the monitor. Monitor equipment visually for alarms as alarms are usually inaudible during flight.

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- n. During transport, maintain full cervical and spinal immobilization for trauma patients unless cleared by the physician. Consider the patient's condition and air frame to be used when deciding whether to position the patient flat or elevate the patient's head.
  - o. During transport, attempt to control new bleeding with direct pressure. If direct pressure does not control significant extremity bleeding, apply a tourniquet.
  - p. For patients with burns, document fluid resuscitation and clinical parameters on the JTTS Burn Resuscitation Flow Sheet and give the flow sheet to clinicians at the receiving facility.
  - q. Unless otherwise specified in the written orders, initiate BLS and ACLS protocols for patients who develop cardiopulmonary arrest during flight. Coordinate defibrillation with the aircraft crew as this activity may interfere with flight operations.
9. **Proponent:** The proponents for this CPG are personnel assigned to the JTTS.



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## Appendix A. Suggested Process Improvement Data Elements

1. Date and time of departure
2. Date and time of arrival at receiving facility
3. Date and time of return to sending facility
4. Name of flight nurse or physician medical attendant
5. SSN/trauma number
6. Affiliation (e.g., USA, USN, USAF, USMC, US contractor, ANA, ANP, Afghanistan civilian, IP, ISF, Iraqi civilian, combatant, other)
7. Mechanism of injury (e.g., IED, rocket, mortar, burn, MVC, GSW, RPG, blast, etc.)
8. Diagnosis/injury(ies)
9. Brand of ventilator used (e.g., Impact 754, Pulmonetics LTV 1000)
10. Brand of end tidal CO<sub>2</sub> monitor (if applicable)
11. Brand of IV pump (if applicable)
12. Use of the Special Medical Emergency Evacuation Device (SMEED)
13. Presence of central line
14. Presence of arterial line
15. Equipment failure (e.g., ventilator, Propaq monitor, loss of Wound Vac suction, etc.) and detailed description of problem
16. Continuous intravenous infusions administered during flight
17. Blood products administered during flight
18. Intermittent medications administered during flight
19. Patient clinical complications during flight (e.g., unplanned extubation, new/recurrent hemorrhage, hypoxia, dysrhythmia, cardiopulmonary arrest, seizure, hypothermia, hypotension/hypertension, loss of cervical spinal immobilization, change in neurologic or neurovascular assessment, aspiration, dislodgement of tube/drain [e.g., foley catheter, chest tube, nasogastric tube])
20. Unplanned flight diversion/landing
21. Death during flight
22. Vital signs on arrival
23. Glasgow Coma Scale on arrival
24. Blood gas (preferably arterial) results on arrival

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## Appendix B. Standard Order Set

Planned flight to \_\_\_\_\_ Sending attending physician \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Vitals: Q 5 min Q 10 min

Nursing:  Wound VAC dressing to 150 mm Hg suction  
 NGT to suction / clamp NGT  
 Chest tube to water seal / 20 cm H<sub>2</sub>O Suction

IV Fluids:  LR \_\_\_\_\_ cc/hr  NS \_\_\_\_\_ cc/hr  3% Saline \_\_\_\_\_ cc/hr

### Sedation and Analgesics:

- Versed 1-4 mg Q 20 minutes IVP PRN sedation to Riker Sedation-Agitation Scale of 1-2 (see Appendix F).
- Haldol 5-20 mg Q 20 minutes IVP PRN sedation to Riker 1-2
- Ativan 1-6 mg Q 20 minutes IVP PRN sedation to Riker 1-2
- Fentanyl 25-200 mcg Q 20 minutes IVP PRN pain
- Morphine 1-10 mg Q 20 minutes IVP PRN pain

Paralytics:  Vecuronium \_\_\_\_\_ mg IVP for paralysis for patient safety en-route

### Intracranial Hypertension:

- 3% Hypertonic Saline 250 cc bolus for any signs of herniation

### Vasoactive Drugs:

- Neosynephrine IV gtt at \_\_\_\_\_ mcg/min, titrate to MAP > \_\_\_\_\_ mm Hg
- Neosynephrine 40-300 mcg IVP Q5 minutes for MAP < \_\_\_\_\_ mm Hg
- Dopamine IV gtt at \_\_\_\_\_ mcg/kg/min, titrate to MAP > \_\_\_\_\_ mm Hg
- Dobutamine IV gtt at \_\_\_\_\_ mcg/kg/min, titrate to MAP > \_\_\_\_\_ mm Hg
- Levophed IV gtt at \_\_\_\_\_ mcg/min, titrate to MAP > \_\_\_\_\_ mm Hg
- Vasopressin 2.4 units per hour IV
- Other \_\_\_\_\_

### Labs:

- ABG 15 minutes prior to departing sending facility
- ABG on arrival at receiving facility

### Respiratory:

- Oxygen via nasal cannula or face mask to keep SpO<sub>2</sub> > 95%
- Ventilator settings: Mode SIMV/AC; Rate: \_\_\_\_\_ bpm; FiO<sub>2</sub> \_\_\_\_\_ %  
Tidal Volume \_\_\_\_\_ L/min; PEEP \_\_\_\_\_ cm H<sub>2</sub>O, PS \_\_\_\_\_ cm H<sub>2</sub>O

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## Appendix C. Standard Equipment and Medication List

### Minimum Flight Packing List

16" IV catheter – 2  
18" IV catheter – 2  
20" IV catheter – 2  
Intravenous fluids (either normal saline or lactated ringer's) – 1 liter bag  
Pressure bag – 1  
Gravity tubing – 1  
Kerlix – 1 roll  
Coban – 1 roll  
1" silk tape – 1 roll  
2 X 2 gauze – 4 pkg  
4 X 4 gauze – 4 pkg  
Tourniquet – 2  
Gloves – 2 pairs (non-latex if allergic)  
Trauma shears – 1  
Scalpel, #10 and 11 blades – 2  
Disposable SpO<sub>2</sub> probe – 2  
Miniature pulse oximetry device (e.g., Nonin Onyx)  
Endotracheal tube holder – 1  
E-Z Cap ETCO<sub>2</sub> device – 1  
Oxygen wrench – 1  
Suction catheter 16 Fr – 2  
Tongue depressor – 2  
Nasal airway – 2  
Oral airway – 1  
Suction tubing with Yankauer – 1  
Nonrebreather mask – 1  
Ambu bag valve mask – 1  
Laryngeal mask airway (LMA) – 1 or Combitube, King LTD – 1  
Alcohol pad – 5  
18" needle – 10  
Intraosseous needle – 1  
Filter needle – 2  
10 mL syringe – 5  
10 mL pre-filled saline flush – 4  
Carpject – 1  
Toomey syringe – 1  
Zofran 4 mg vial – 2  
Neosynephrine 100 mL NS with 10 mg – 1  
Dopamine premixed bag – 1  
Lidocaine 100 mg – 2  
Atropine 1 mg – 3  
NaHCO<sub>3</sub> (sodium bicarb) – 1 ampule  
D50 – 1 ampule  
Calcium Chloride 13.6 mEq – 2  
Epinephrine 1 mg – 3  
Hextend 500 mL – 1  
3% saline, 500 mL – 1

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### Appendix D. Sample Pre-Flight Checklist

Once the decision is made to transfer a patient and an accepting physician has been obtained, the following steps will be taken to prepare the patient for transport:

Initials	Evaluation steps
	1. Identify sending physician: (Printed name) _____ Identify flight nurse or physician and call to unit: (Printed name) _____
	2. Call anesthesia to unit if patient requires intubation if indicated. Secure ETT.
	<b>Preparation steps</b>
	<b>Position and monitor; initiate nine line</b>
	1. Move patient to litter (collapsible handles), position, pad, securely strap patient, add and secure equipment (with necessary attachments).
	2. For head-injured patients, perform a pre-sedation neurologic examination. Document assessment on the enroute care (ERC) form. Remember to give the receiving facility a copy of this form.
	3. Program transport ventilator with ordered settings.
	4. Verify IV access and ensure line is secured and readily accessible.
	5. Insert and secure arterial line, if applicable. Position transducer so it is accessible.
	6. Ensure ventilator circuit is free from obstruction and secondary lines are attached.
	7. Unless contraindicated, insert an OG/NG tube, verify placement by chest x-ray, and attach to low-intermittent suction until time of departure.
	8. Place chest tubes to water seal, if applicable.
	9. Call nine line; time called: _____
	<b>Prepare equipment, medication, chart, patient belongings, and personnel gear</b>
	1. Prepare and organize medications needed for flight (see order sheet): ___ Sedation ___ Analgesia ___ Vasoactive ___ Fluids ___ ACLS Meds ___ Paralytics ___ Neuro agents
	2. Obtain and check flight equipment bag. Ensure that a backup pulse oximeter is available.
	3. Photocopy entire chart; obtain CD of radiology images and patient belongings (including medals).
	4. Obtain ear plugs for patient and flight nurse or physician attendant.
	5. Obtain warming measures to prevent hypothermia during flight.
	6. Verify uniform, Kevlar, IBA with DAPS, weapon, ID Card, flash light, and contact information for deployed location. If possible, bring bag to carry equipment on return trip.
	<b>Manage respiratory status and ventilator</b>
	1. Obtain blood gas (preferably ABG) 15 minutes after patient placed on ventilator or previous ventilator settings changed. Goal is to document a blood gas (preferably ABG) within 30 minutes of departure.
	2. Respiratory therapy (RT) technician adjusts ventilator settings: RT name _____ RT technician ensures that oxygen tank's PSI is appropriate for length of flight. PSI: _____ RT technician ensures that Ambu bag is at the patient's head with tubing connected to an oxygen source. RT technician verifies cuff pressure of the endotracheal tube and adjusts as needed. RT technician ensures that ventilator circuit is free of obstruction.
	<b>Complete final pre-flight verification</b>
	1. Transferring physician, flight nurse attendant, and RT technician verbally agree on the plan of action.
	2. Transferring physician reviews and signs the order sheet. Transferring physician adds any additional orders to the same order sheet and informs the flight nurse attendant of the addition.
	3. Complete pre-flight data on the ERC form.
	4. Re-evaluate equipment function and troubleshoot as necessary until aircraft arrives.
	5. Transferring physician and flight nurse attendant perform an immediate pre-departure assessment and document on the ERC form.
	6. Notify the receiving facility.
	7. Notify the designated administrative personnel of departure.

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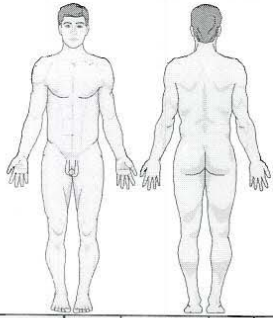
## Appendix E. Joint Enroute Care Form

Date \_\_\_\_\_ **Joint Enroute Care Form**

Trauma Number \_\_\_\_\_ Affiliation: \_\_\_\_\_

Patient Name \_\_\_\_\_ Male/Female \_\_\_\_\_

Destination: \_\_\_\_\_ Battle/Non Battle \_\_\_\_\_



ET Tube size \_\_\_\_\_

ET Tube secured at \_\_\_\_\_ cm @ Lip

Mechanism of injury: \_\_\_\_\_

Surgical Procedure: \_\_\_\_\_

- Laceration (Lac)
- Puncture (P)
- Amputation (Av)
- Burn (B)
- Abrasion (AB)
- A-line (Al)
- Central line (Cl)
- Chest Tube (CT)

	Time	BP	HR	RR	P O <sub>2</sub>	Temp	ETCo <sub>2</sub>	EKG	MAP
Ground		/							
Air		/							
Air		/							
Air		/							
Air		/							
Ground		/							

Diagnosis \_\_\_\_\_

CT /X-ray results: \_\_\_\_\_

GCS prior to intubation \_\_\_\_\_ Pupil size L \_\_\_\_\_ mm R \_\_\_\_\_ mm

ABG results prior to flight PH: \_\_\_\_\_ PCO<sub>2</sub>: \_\_\_\_\_ PO<sub>2</sub>: \_\_\_\_\_ BE: \_\_\_\_\_ HCO<sub>3</sub> \_\_\_\_\_ SaO<sub>2</sub> \_\_\_\_\_

Vent Type \_\_\_\_\_ Warming measures: Wool blanket, Space blanket, HPMK, Blanket, Other \_\_\_\_\_

Lab: Time Hgb \_\_\_\_\_ Hct \_\_\_\_\_ PLT \_\_\_\_\_ PT \_\_\_\_\_ PTT \_\_\_\_\_ INR \_\_\_\_\_ K \_\_\_\_\_ Na \_\_\_\_\_ Bun \_\_\_\_\_ Creat \_\_\_\_\_

Total Blood Products: PRBC \_\_\_\_\_ FFP \_\_\_\_\_ PLT \_\_\_\_\_ Cryo \_\_\_\_\_ FWB \_\_\_\_\_ Factor VII Yes / No Time: \_\_\_\_\_

TV	Mode	Rate	Peep	PS	FIO <sub>2</sub>

**Documentation**


Flight Nurse / Physician \_\_\_\_\_

Flight Medic/Corpsman \_\_\_\_\_

	Location
A-line	
NG/OG	
Peripheral IV Gauge	
Central Line	
Suture	
Chest tube	

Medication	Dose/Amount	Time
Ancef		
Gentamicin		
Tetanus		
Mannitol		
Cerebyx		
Hyper tonic		
Blood products		
Crystalloid		

**Medications given during flight**

Medications	Dose	Time
Versed		
Fentanyl		
Vecuronium		
Propofol (drip)		

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## Appendix F. Riker Sedation-Agitation Scale

Score	Category	Description
7	Dangerous agitation	Pulling at endotracheal tube, trying to remove catheters, climbing over bedrail, striking at staff, thrashing from side-to-side
6	Very agitated	Does not calm despite frequent verbal reminding of limits, requires physical restraints, biting endotracheal tube
5	Agitated	Anxious or physically agitated, attempting to sit up, calms down on verbal instructions
4	Calm, cooperative	Calm, easily arousable, follows commands
3	Sedated	Difficult to arouse, awakens to verbal stimuli or gentle shaking but drifts off again, follows simple commands
2	Very sedated	Arouses to physical stimuli but does not communicate or follow commands, may move spontaneously
1	Unarousable	Minimal or no response to noxious stimuli, does not communicate or follow commands