

Title: Descriptive analysis of COVID-19 aeromedical evacuations by Critical Care Air Transport Teams

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Disclaimer: The opinions expressed on this document are solely those of the author and do not represent an endorsement by or the views of the United States Air Force, the Department of Defense, or the United States Government. This study was conducted under a protocol reviewed and approved by the USAF 59th Medical Wing IRB and in accordance with the approved protocol.

Abstract

Background

Preserving aeromedical evacuation capabilities for critically ill patients with COVID-19 required innovation for en route care logistics, training, and equipment. The aim of this study was to describe characteristics and in-flight interventions for patients with suspected COVID-19 requiring aeromedical evacuation by U.S. Air Force Critical Care Air Transport Teams (CCATT).

Methods

We performed a retrospective chart review of patients with suspected COVID-19 requiring aeromedical evacuation by CCATT from April 2020 to February 2021. We included patients with an available CCATT medical record and transport with COVID-19 infection isolation precautions. CCATT medical records were the data source, and we performed descriptive analyses of patient characteristics and in-flight interventions.

Results

We reviewed 460 records and identified 16 patients for inclusion. The Transport Isolation System (50%) and Negatively Pressurized Conex (31%) were commonly utilized portable biocontainment units. Median patient age was 48.5 years and 94% were male. All patients required oxygen supplementation, with eight (50%) receiving mechanical ventilation. In-flight interventions among intubated patients (n=8) included vasopressors (50%), paralytics (25%), and patient-ventilator asynchrony management (63%).

Conclusion

Patients with COVID-19 requiring CCATT transport were older than prior military en route care cohorts, and in-flight interventions for patient-ventilator asynchrony were commonly required during mechanical ventilation.

Introduction

The world is currently experiencing a pandemic caused by a novel coronavirus (CoV), SARS-CoV-2, which leads to the disease referred to as COVID-19. The clinical presentation ranges from no symptoms to fever, cough, dyspnea, expectorations, headache, myalgia, and fatigue; and in 5-20% of patients progresses to critical illness primarily characterized by acute respiratory distress syndrome.¹ The pandemic is having a significant impact on the Military Health System (MHS), affecting 72,671 active duty service members as of 10 December 2020, plus an additional 36,167 MHS beneficiaries.² Approximately 9% of these cases occurred outside of the continental United States (U.S.).² An article published in the December 2020 Medical Surveillance Report described 225 air evacuations of COVID-19 infected service members in the Central Command (n=186) and European Command (n= 39) Areas of Responsibility.³ The report had limited clinical data and did not describe critically ill patients.

United States Air Force Critical Care Air Transport Teams (CCATT) are three person teams composed of a physician, nurse, and respiratory therapist with the mission of transporting critically ill patients within and out of theaters of combat operations to higher levels of care.^{4,5} CCATT also assists in natural disasters, humanitarian efforts, and medical evacuations for U.S. military personnel across the globe. The COVID-19 pandemic challenged the en route care community to transport large volumes of patients with effective infection isolation precautions during flight. In response to this need, the Air Force developed the Negatively Pressurized Conex (NPC) and the NPC-Lite (NPCL) to provide airborne isolation precautions during flight (Figure 1).⁶ COVID-19 transports were augmented with a public health official and infectious disease specialist to assist with adherence to infection isolation precautions and protocols for enplaning, in-flight care, and deplaning.² These personnel work closely with aeromedical evacuation (AE) crews who manage non-critically ill patients requiring air transport. Portable biocontainment units were a requirement for regulated transports of patients with confirmed or suspected COVID-19 in order to reduce risk of in-flight disease transmission to aircrew, medical personnel, and other passengers. Civilian transport services made similar efforts to augment critical care and infection isolation capabilities for interfacility transports of critically ill patients with COVID-19.^{7,8}

The aim of this study was to describe characteristics and in-flight interventions for patients with COVID-19 requiring aeromedical evacuation by CCATT. Describing critically ill patients with COVID-19 and resources utilized for aeromedical evacuation will help inform planning and delivery of future en route care for COVID-19 and other highly contagious diseases. It is imperative that we record lessons learned from the current pandemic, to be better prepared to respond to future threats and preserve en route care capabilities while mitigating spread of infectious disease. The description of epidemiological parameters of COVID-19 is important in the provision of critical information to inform modelers, and policy makers.

Methods

We performed a retrospective analysis of patients requiring transport by United States Air Force CCATT with concern for COVID-19 between March 2020 and February 2021. The U.S. Air Force 59th Medical Wing Institutional Review Board approved this study.

We queried the En Route Critical Care Pilot Unit Quality Improvement database for CCATT transport missions for patients with COVID-19. Following receipt of potentially eligible patients, we searched the Theater Medical Data Store (TMDS) for CCATT medical records. For patients with CCATT medical

records, the Patient Movement Record (PMR) from TRANSCOM Regulating and Command & Control Evacuation System (TRAC2ES) and the CCATT medical record, Air Force Form 3899 (Appendix Figure 1), were reviewed. Inclusion criteria included 1) transport by CCATT, 2) available CCATT medical record, and 3) COVID diagnosis or suspicion necessitating infection isolation precautions for transport. We excluded patients with no available CCATT medical record.

Data Sources

Trained research nurses with experience in CCATT medical records abstracted patient demographics, clinical characteristics, and in-flight events into an Access database (Microsoft Corporation, Redmond, WA, USA). Demographic data included age, sex, and service status. Clinical characteristics included documented past medical history related to increased risk for severe COVID-19 illness, the presence and method of COVID-19 diagnosis, and COVID-19 treatment pre-flight. Pre-flight and in-flight respiratory support characteristics were collected for each patient. The type of isolation system (if any) and in-flight pain and sedation doses were recorded.

All data recorded were based on documentation in the PMR or provider documentation in the 3899. Usual data quality measures, to include meetings between the PI and abstractors to develop abstraction guidelines, regular discussions to clarify unclear entries, and quality assurance checking by a second team member, were employed. The PI reviewed the free text narrative of each record to provide a narrative summary of any in-flight events or COVID-19 management decisions.

Statistical Analysis

Descriptive analyses were performed for all data. Given the limited number of patients meeting enrollment criteria, we calculated frequencies with percentages and medians with ranges or interquartile ranges (IQR) for the majority of data elements.

Results

We reviewed 460 records from TMDS. The most common reasons for exclusion were lack of a 3899 CCATT medical record and cancelled transports (Figure 2). The initial search contained missions with CCATT augmentation for infection isolation precautions, but CCATT medical records were generated only for critically ill patients primarily assigned to CCATT. Thus, the high proportion of patients without a CCATT medical record was likely due to many patients requiring air transport with infection precautions but were not critically ill enough to require primary assignment to CCATT. We identified and analyzed 16 patients meeting inclusion criteria.

The median age was 48.5 years, and most patients (94%) were male (Table 1). Diabetes (19%) was the most common comorbidity, but the majority of patients (63%) had no documented pre-existing medical conditions associated with increased risk for severe COVID-19 illness. The majority of patients had positive COVID-19 Polymerase Chain Reaction (PCR) testing but specific numbers are not currently approved for information release. Pre-flight fever (69%) was common.

Aircraft platforms included the C-17 (94%) and C-130J (6%). Median transport time was 7.3 hours (range: 0.7 to 17 hours). The Transport Isolation System (TIS) was the most commonly utilized portable biocontainment unit (50% of flights) followed by the Negatively Pressurized Conex (31%). All patients required oxygen supplementation in-flight, with 50% receiving mechanical ventilation (Table 2). All

patients (n=16) received DVT prophylaxis. Among intubated patients (n=8), in-flight interventions included vasopressor (63%) and paralytic (25%) administration. All intubated patients received continuous fentanyl and propofol infusions with 25% of intubated patients also receiving ketamine infusions. Three patients required additional IV pushes of analgesedation in flight (Table 3). Patient-ventilator asynchrony (PVA) was documented in 63% of patients requiring mechanical ventilation. Four of five patients with PVA were successfully managed with ketamine IV push. The fifth patient required increasing levels of sedation and initiation of chemical paralysis to enable tolerance of mechanical ventilation.

Notable findings from narrative case review included in-flight chest pain in one patient with a pre-flight pulmonary embolus diagnosis (Table 4). In-flight awake prone positioning was successfully implemented in one non-intubated patient with a high pre-flight oxygen requirement. One intubated patient had worsening respiratory status in flight requiring up-titration of mechanical ventilation to 100% FiO₂ and initiation of chemical paralysis. One transport team successfully performed a flight line transfer of care from a stretcher to a litter at the back of the aircraft while maintaining infection isolation precautions for a critically ill patient with multiple tubes, lines, and drains.

Discussion

The COVID-19 pandemic challenged the US military en route care system to enable air transport of US personnel across the globe while maintaining infection isolation precautions to limit COVID-19 transmission risk to aircrew and healthcare workers. This study highlights the retention of en route critical care capabilities with the transition of the care environment from an open bay to portable biocontainment units with enhanced personal protective equipment for infection isolation precautions. Among patients with concern for COVID-19 requiring critical care during transport, essential medical capabilities include mechanical ventilation with increased positive end-expiratory pressure (PEEP) and hemodynamic monitoring and medication pumps to enable simultaneous infusions of analgesedation.

A cohort of interfacility transports in civilian systems found that 40% of patients required mechanical ventilation, 32% required vasopressor support, and 80% required oxygen therapy. In this cohort, 13% received neuromuscular paralysis prior to transport and another 5% of patients had chemical paralysis initiated during transport.⁹ While our study had a very limited sample size, patients in the military en route critical care system required interventions with similar frequency to this civilian cohort. PVA was frequently documented during flight, and most teams successfully utilized ketamine boluses to resolve these episodes.

Self-proning in non-intubated patients with COVID-19 has been previously described to assist with oxygenation.^{10,11} Self-proning was feasible for the single patient where this was recorded in the current cohort. Given the long transport times and vibrations of military aircraft, transport teams should consider that patients will not be able to tolerate self-proning for the entirety of a transport.

As noted in table 4, one case required transferring a fully loaded critical care patient to a different litter on the flight line at the back of the aircraft. Prior case series have noted the importance of a CCATT capability to be able to safely transition and package patients in a variety of operational conditions, to include flight-line transfers.¹² CCATT teams performing COVID-19 transports receive additional training to transition usual en route critical care skills to the infection isolation environment, to include a portable biocontainment unit and additional personal protective equipment. The successful and safe

transfer of this patient represents a successful validation of these training efforts. Retention of these skills as COVID-19 transports decline for CCATT will be a future challenge for skill sustainment training platforms.

Limitations

Limitations of our study include lack of data regarding COVID-19 transmission among medical crew and aircrew performing these evacuations, but military publications have suggested that transport using these precautions is safe.⁶ We lack clinical outcomes for these patients following transport but flight care records indicated that the patients were transferred to definitive care in stable condition. The small sample size as a result of this very specialized population of air transport patients does not allow for inferential statistics. CCATT were part of an augmentation package for COVID-19 transports but we were only able to include patients with a CCATT medical record in TMDS. This may result in missing some COVID-19 patients who received en route critical care from CCATT.

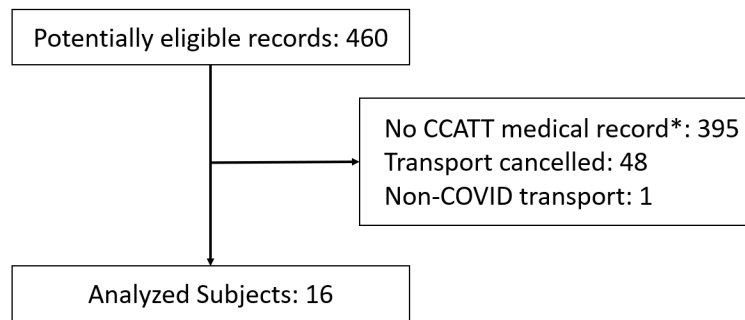
Conclusions

Patients with COVID-19 requiring CCATT transport were older than prior military en route care cohorts, and in-flight interventions for patient-ventilator asynchrony were commonly required for patients receiving mechanical ventilation.

Figure 1. Negatively Pressurized Conex (NPC). The top photo shows an NPC being loaded onto a C-17 Globemaster III from <https://www.af.mil/News/Article-Display/Article/2517264/negative-for-covid-19/>. The bottom photo shows the interior of an NPC from <https://usdefensestory.com/new-kid-on-the-block-negatively-pressurized-conex-npc-arrives-at-ramstein/>.



Figure 2. CONSORT Flow Diagram.



*CCATT medical records were only generated for critically ill patients primarily assigned to CCATT for in-flight care.

Table 1. Demographics and pre-flight COVID diagnosis and treatments

	Analyzed patients (n=16)
Origin	
Middle East	14 (87.5)
Europe	1 (6.3)
Asia	1 (6.3)
Destination	
Middle East	1 (6.3)
Europe	14 (87.5)
United States	1 (6.3)
Age, years	48.5 [38.8 to 55]
Male	15 (93.8)
Days since symptom onset	8 [4 to 11]
Past medical history*	
Diabetes	3 (18.8)
Hypertension	2 (12.5)
Smoking	1 (6.3)
Precedence Category	
Urgent	4 (25)
Priority	11 (68.8)
Routine	1 (6.3)
Portable Biocontainment Unit	
TIS	8 (50.0)
NPC	5 (31.3)
NPCL	1 (6.3)
Unknown	2 (12.5)
Pre-flight medications	
Antiviral agent	5 (31.3)
Corticosteroid	10 (62.5)
Antibiotic	12 (75.0)

Data are presented as median [IQR], or frequency (percentage).

*No patients had documented pre-existing cardiac (other than hypertension), pulmonary, kidney, liver, or neurologic conditions.

Table 2. Respiratory characteristics among intubated and non-intubated patients

Non-intubated (n=8)	
Pre-flight	
Supplemental O ₂ , L/min	4 [1-6]
O ₂ saturation, %	96 [93-97]
In-flight	
Supplemental O ₂ , L/min	4 [1-8]
Minimum O ₂ saturation, %	92 [85-93]
Intubated (n=8)	
Pre-flight	
O ₂ saturation, %	96 [93.5-96]
P/F ratio	159 [131-184]
Mechanical ventilation	
FiO ₂ , %	60 [55-70]
Respiratory Rate	14 [13-17]
Tidal Volume	450 [450-480]
PEEP	10 [5-10]
In-flight	
Minimum O ₂ saturation, %	93.5 [92.3-94.0]
Minimum P/F ratio	146 [104-155]
Maximum required ventilation settings	
FiO ₂ , %	60 [52.5-90]
Respiratory Rate	22 [16.8-24]
Tidal Volume	490 [450-540]
PEEP	10 [5.8-13.5]

All data are presented as median [IQR].

Table 3. In-flight analgo-sedation dosing for ventilated patients (n=8)

	Fentanyl	Propofol	Ketamine
IV gtt administered	8 (100)	8 (100)	2 (25)
IV gtt dose	100 mcg/hr {75-500}	43 mcg/kg/min {20-60}	18.5 mcg/kg/min {17-20}
IV push administered	1 (12.5)	3 (37.5)	2 (25)
IVP per transport	2	3 {1-3}	6 {5-7}
IVP dose	37.5 mcg {25-50}	20 mg {10-40}	100 mg {100-150}

All data are presented as frequency (percentage of ventilated patients) or median {range}.

Table 4. Narrative summary of select cases.

	Narrative case descriptions
1.	Non-intubated patient with concomitant pulmonary embolism developed chest pain during flight with associated ST depressions. Pain resolved spontaneously and EKG improved post-flight.
2.	Non-intubated patient with pre-flight oxygen saturation of 87% on 6 L/min was transitioned to awake prone positioning. He tolerated in-flight prone positioning for 3 hours and had an increased oxygen requirement to 8 L/min after transition to supine positioning.
3.	Intubated patient with high pre-flight sedation requirement required in-flight initiation of chemical paralysis and increase of ventilation support to 100% FiO2 and PEEP of 14 cm of water.
4.	Intubated patient with 5 medication drips required flight line transfer of care on flight line from wheeled stretcher to medical litter.
5.	Point-of-care ultrasound was utilized in-flight to guide fluid management after one patient developed hypoxia and tachycardia during flight.
6.	Patient ventilator asynchrony (PVA) was successfully managed with ketamine IVP in four patients. One patient required push dose phenylephrine for transient hypotension.
7.	Hyperglycemia was managed with insulin.

Appendix Figure 1. The CCATT medical record was the data source for descriptive analyses. Retrieved from https://static.e-publishing.af.mil/production/1/af_sg/form/af3899l/3899l.pdf.

PATIENT MOVEMENT RECORD ENROUTE CRITICAL CARE									
DATA PROTECTED BY PRIVACY ACT OF 1974					PERMANENT MEDICAL RECORD				
1. Name	2. SSN	3. Cite #	4. Age	5. Sex	6. WT	7. HT	8. Allergies	9. Precedence <input type="checkbox"/> U <input type="checkbox"/> P <input type="checkbox"/> R	10. Date/Time
11. Originating facility	12. Destination Facility		13. AC / Tail #	14. AE/CCAT unit		15. CCAT pts Total #		16. Hrs En Route	
17. Diagnosis: <input type="checkbox"/> D <input type="checkbox"/> NBI <input type="checkbox"/> BI									
18. Preflight Procedures:									
19. Alt. Restriction <input type="checkbox"/> Y-FL: <input type="checkbox"/> N	20. Max Cabin Alt.	21. O2 Req/Delivery Type: <input type="checkbox"/> Lpm / %	Ventilator <input type="checkbox"/> LTV <input type="checkbox"/> 731	Mode <input type="checkbox"/> AC <input type="checkbox"/> SIMV <input type="checkbox"/> PC		FiO2	TV	Rate	Peep
22. ETT size / location : cm @ <input type="checkbox"/> Nasal <input type="checkbox"/> Oral <input type="checkbox"/> Trach									
23. Pre-flight Time	T	SpO2	RR	HR	BP/MAP	ICP/CP	CVP	Bladder P	pH / BE
24. Post-flight Time	T	SpO2	RR	HR	BP/MAP	ICP/CP	CVP	Bladder P	pH / BE
25. Pre-flight assessment / Time:		26. Post-flight Assessment / Time:		27. IVF <input type="checkbox"/> None		28. Lines <input type="checkbox"/> None		29. Tubes <input type="checkbox"/> None	
Neurologic: E: M: V: GCS Pupils R: mm Reactive <input type="checkbox"/> Y <input type="checkbox"/> N L: mm Reactive <input type="checkbox"/> Y <input type="checkbox"/> N		Neurologic: E: M: V: GCS Pupils R: mm Reactive <input type="checkbox"/> Y <input type="checkbox"/> N L: mm Reactive <input type="checkbox"/> Y <input type="checkbox"/> N		LR <input type="checkbox"/> NS <input type="checkbox"/> 5%Alb 1/2NS meq K Rate: ml/hr		Line #1 Foley <input type="checkbox"/> Y Size: Type/location Color/Character/Assess			
Sedated: <input type="checkbox"/> Y <input type="checkbox"/> N Paralyzed <input type="checkbox"/> Y <input type="checkbox"/> N		Sedated: <input type="checkbox"/> Y <input type="checkbox"/> N Paralyzed <input type="checkbox"/> Y <input type="checkbox"/> N		LR <input type="checkbox"/> NS <input type="checkbox"/> 5%Alb 1/2NS meq K Rate: ml/hr		Line #2 NG <input type="checkbox"/> R <input type="checkbox"/> L OG Gravity <input type="checkbox"/> Suct Int <input type="checkbox"/> Cont		Type/location	
Cardiovascular Rhythm <input type="checkbox"/> Regular <input type="checkbox"/> Irregular <input type="checkbox"/> Tachy <input type="checkbox"/> Murmurs <input type="checkbox"/> Gallops <input type="checkbox"/> Rubs <input type="checkbox"/> Cap Refil: fs		Cardiovascular Rhythm <input type="checkbox"/> Regular <input type="checkbox"/> Irregular <input type="checkbox"/> Tachy <input type="checkbox"/> Murmurs <input type="checkbox"/> Gallops <input type="checkbox"/> Rubs <input type="checkbox"/> Cap Refil:		LR <input type="checkbox"/> NS <input type="checkbox"/> 5%Alb 1/2NS meq K Rate: ml/hr		Line #3 A - Line <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> Rad <input type="checkbox"/> Brac <input type="checkbox"/> Axil <input type="checkbox"/> Fem <input type="checkbox"/> Ped		CTW1 <input type="checkbox"/> R <input type="checkbox"/> L Suct <input type="checkbox"/> Y cmH2O Air Leak <input type="checkbox"/> Y <input type="checkbox"/> N	
Respiratory Wheezing <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B <input type="checkbox"/> CTA Bilat <input type="checkbox"/> Dimin Bases Otherwise Clear Rales <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B Rhonchi <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B		Respiratory Wheezing <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B <input type="checkbox"/> CTA Bilat <input type="checkbox"/> Dimin Bases Otherwise Clear Rales <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B Rhonchi <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> B		31. Major Events/Location: <input type="checkbox"/> Airway Loss <input type="checkbox"/> Cardiac Arrest <input type="checkbox"/> SpO2<90% <input type="checkbox"/> ΔHR>20% <input type="checkbox"/> ↑ O2 Requirement >10% FiO2 or ↑>2 lpm <input type="checkbox"/> ΔMAP >20% <input type="checkbox"/> Temp < 96 F <input type="checkbox"/> Arrhythmia <input type="checkbox"/> Tachy <input type="checkbox"/> Brady <input type="checkbox"/> Narrow <input type="checkbox"/> Wide <input type="checkbox"/> Loss Extremity Pulse: <input type="checkbox"/> Loss of Line: <input type="checkbox"/> Loss of Tube/Drain: Type/Site: <input type="checkbox"/> Bleeding: Site: Est Vol: <input type="checkbox"/> ICP>20 <input type="checkbox"/> CPP<60mm Hg <input type="checkbox"/> ΔBladder Pressure: <input type="checkbox"/> ETT Cuff Rupture <input type="checkbox"/> Rapid Decompression <input type="checkbox"/> Fire/Fumes <input type="checkbox"/> AC Divert <input type="checkbox"/> Tail Swap <input type="checkbox"/> Pre-Flight Facility <input type="checkbox"/> Post-Flight Facility <input type="checkbox"/> Ambus To <input type="checkbox"/> Ambus From <input type="checkbox"/> Enplaning <input type="checkbox"/> Deplaning <input type="checkbox"/> Ascent <input type="checkbox"/> Descent <input type="checkbox"/> Altitude <input type="checkbox"/> Trauma/Critical Incident Activation <input type="checkbox"/> Code # <input type="checkbox"/> Other:					
Gastrointestinal <input type="checkbox"/> Open Abdomen <input type="checkbox"/> Soft <input type="checkbox"/> Distended <input type="checkbox"/> Tympanitic <input type="checkbox"/> Pain <input type="checkbox"/> Mass <input type="checkbox"/> Hernia <input type="checkbox"/> Bowel Sounds Present		Gastrointestinal <input type="checkbox"/> Open Abdomen <input type="checkbox"/> Soft <input type="checkbox"/> Distended <input type="checkbox"/> Tympanitic <input type="checkbox"/> Pain <input type="checkbox"/> Mass <input type="checkbox"/> Hernia <input type="checkbox"/> Bowel Sounds Present		32. Procedures Enroute: <input type="checkbox"/> Intubate <input type="checkbox"/> Surgical Airway <input type="checkbox"/> CPR <input type="checkbox"/> Chest Tube <input type="checkbox"/> Art Line <input type="checkbox"/> Rad <input type="checkbox"/> Fem <input type="checkbox"/> Central Line <input type="checkbox"/> PIV <input type="checkbox"/> Splint Modification <input type="checkbox"/> Hemorrhage Control <input type="checkbox"/> ABG <input type="checkbox"/> VBG <input type="checkbox"/> Dressing Change <input type="checkbox"/> Foley <input type="checkbox"/> NG/OG <input type="checkbox"/> Escharotomy <input type="checkbox"/> Other:					
Musculoskeletal <input type="checkbox"/> Weakness <input type="checkbox"/> Pain X-Fix <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> Pelvis <input type="checkbox"/> Normal Sensation <input type="checkbox"/> Normal ROM Pulses Right Left Carotid <input type="checkbox"/> <input type="checkbox"/> Radial <input type="checkbox"/> <input type="checkbox"/> Fem <input type="checkbox"/> <input type="checkbox"/> Pedal <input type="checkbox"/> <input type="checkbox"/>		Musculoskeletal <input type="checkbox"/> Weakness <input type="checkbox"/> Pain X-Fix <input type="checkbox"/> RUE <input type="checkbox"/> LUE <input type="checkbox"/> RLE <input type="checkbox"/> LLE <input type="checkbox"/> Pelvis <input type="checkbox"/> Normal Sensation <input type="checkbox"/> Normal ROM Pulses Right Left Carotid <input type="checkbox"/> <input type="checkbox"/> Radial <input type="checkbox"/> <input type="checkbox"/> Fem <input type="checkbox"/> <input type="checkbox"/> Pedal <input type="checkbox"/> <input type="checkbox"/>		33. Equipment Used Enroute/ Issues: <input type="checkbox"/> Propaq <input type="checkbox"/> HeartStart MRx <input type="checkbox"/> IV Pump <input type="checkbox"/> ambIT <input type="checkbox"/> Suction <input type="checkbox"/> EZ-IO <input type="checkbox"/> iStat <input type="checkbox"/> SMEED <input type="checkbox"/> Ventric <input type="checkbox"/> Parynch ICP <input type="checkbox"/> Interface Ctrl Unit <input type="checkbox"/> Codman Exprs <input type="checkbox"/> VAC <input type="checkbox"/> C-Collar <input type="checkbox"/> VSB <input type="checkbox"/> NATO Litter <input type="checkbox"/> OSL <input type="checkbox"/> Floor <input type="checkbox"/> PSP <input type="checkbox"/> Stanchion <input type="checkbox"/> SLS <input type="checkbox"/> Head First <input type="checkbox"/> Feet First <input type="checkbox"/> Front <input type="checkbox"/> Rear <input type="checkbox"/> Rt <input type="checkbox"/> Lt <input type="checkbox"/> AC Power <input type="checkbox"/> ECAS <input type="checkbox"/> Freq <input type="checkbox"/> PTLOX <input type="checkbox"/> AC O2 <input type="checkbox"/> Power Loss <input type="checkbox"/> User Error <input type="checkbox"/> Eq Failure <input type="checkbox"/> Other:					
Integumentary <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Dry <input type="checkbox"/> Diaphoretic <input type="checkbox"/> Rash <input type="checkbox"/> Freq Position Change <input type="checkbox"/> Skin Breakdown Noted		Integumentary <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Dry <input type="checkbox"/> Diaphoretic <input type="checkbox"/> Rash <input type="checkbox"/> Freq Position Change <input type="checkbox"/> Skin Breakdown Noted		34. Care In Flight: <input type="checkbox"/> O2 Administration <input type="checkbox"/> Std Mech Ventilation <input type="checkbox"/> Adv Mech Ventilation <input type="checkbox"/> J-Tube Feeding <input type="checkbox"/> ET Cuff Pressure Check <input type="checkbox"/> Oral Care <input type="checkbox"/> Wright Respirometer <input type="checkbox"/> Ventric <input type="checkbox"/> Parynch <input type="checkbox"/> IBP Monitor <input type="checkbox"/> NIBP Monitor <input type="checkbox"/> ICP Monitor <input type="checkbox"/> Chest Tube Management <input type="checkbox"/> Drain Management <input type="checkbox"/> Blood Product Transfused <input type="checkbox"/> Antibiotics <input type="checkbox"/> IV Narcotic Analgesia <input type="checkbox"/> IV Sedation <input type="checkbox"/> NMB <input type="checkbox"/> Complex Wound/Dressing <input type="checkbox"/> VAC <input type="checkbox"/> 3% NaCl <input type="checkbox"/> Mannitol <input type="checkbox"/> Inhaled Bronchodilators <input type="checkbox"/> DVT Prophylaxis <input type="checkbox"/> Burn Flowsheet <input type="checkbox"/> Other:					
36. Meds/Drips/Tube Feeds/Dose/Time		37. RX-received/waste/ turn-over		35. Medical Decision Making in Flight / Comments:					
1.				<input type="checkbox"/> Cardiovascular					
2.				<input type="checkbox"/> Pulmonary					
3.				<input type="checkbox"/> Thoracic					
4.				<input type="checkbox"/> Neurologic					
5.		38. RT Rank/Name/Skill level:		<input type="checkbox"/> Abdominal					
6.		Signature: <input type="text"/>		<input type="checkbox"/> Renal					
7.		39. RN Rank/Name/AFSC:		<input type="checkbox"/> Analgesia/Sedation					
8.		Signature: <input type="text"/>							
9.		40. MD Rank/Name/AFSC:							
10.		Signature: <input type="text"/>							

AF 3899L, 20140107, V2.0

Submit

41. PATIENT NAME:

42. CITE # / SSAN:

43. Zulu Time

44. Temp

45. CARDIOVASCULAR

46. RESPIRATORY

47. NEURO

48. PAIN

49. INTAKE

50. OUTPUT

51. In Flight Notes

52. Totals:

53. Grand Total / Balance

54. ABG/Electrolytes/Glucose

55. Anatomic Diagram

56. Physicians Orders

Running Balance

MD Initials

RN Initial/Time

DATA PROTECTED BY PRIVACY ACT OF 1974

PATIENT MOVEMENT RECORD ENROUTE CRITICAL CARE (cont.)

PERMANENT MEDICAL RECORD

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