Sharpening the Edge: Paramedic Training for Flight Medics

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BACKGROUND

Military physicians have long recognized that rapid evacuation from the battlefield decreases suffering and prevents death. Air medical evacuation (MEDEVAC) of seriously ill and injured patients during military operations was pioneered in the United States by the US Army. The first use of an aircraft to evacuate US Soldiers was in 1926 when the US Army Air Corps transported them from Nicaragua to Panama.1

Helicopter evacuation came to the fore during the Korea War. Although the platforms were crude and no medical care was given during transport, more than 22,000 casualties were evacuated by that method.2 Helicopter MEDEVAC would undergo significant expansion and growth during the Vietnam era. During this period, dedicated MEDEVAC helicopters were deployed en masse to Vietnam. The Bell UH-1 was large enough to carry several patients and a combat medic who could provide care en route to the hospital. This rapid evacuation to surgical care was one of the principal reasons for the significant reduction in battlefield mortality during the Vietnam War compared to other wars of the 20th century.

In 1966, with the Vietnam War at its peak, the National Academy of Sciences published a landmark paper entitled Accidental Death and Disability: The Neglected Disease of Modern Society, more commonly known as “the White Paper.”3 Researchers who prepared this paper noted that Soldiers injured on the battlefields of Vietnam and Korea received better medical care than residents of the United States injured on its highways. The White Paper led to the passage of the National Highway Safety Act4 and prompted Congress to pour millions of dollars into the development of our modern emergency medical services (EMS) systems.

Coincident with the development of modern civilian EMS systems were the end of the Vietnam War and the demobilization of the physicians, nurses, and medics who served there. Many of these returning medical providers helped develop our current EMS systems based on their wartime experiences.

The first Emergency Medical Technician–Paramedic (EMT-P) programs were established in the late 1960s, and today EMT-Ps are operating in every state. In the early 1970s, the US military began to use its MEDEVAC helicopters based on wartime experience to transport civilians in the United States under the Military Assistance to Safety and Traffic program. Prehospital care and the development of civilian helicopter EMS systems underwent significant growth after the end of the Vietnam conflict. The civilian model evolved to become patient-centric, focusing on care delivered en route and training providers to a high level of care in the unique environment of the helicopter. The US Army’s model focuses on the platform, with greater emphasis given to aircraft performance and operations. En route care in the Army is generally provided by a single combat medic, a model rooted in the Vietnam War. A comparison of civilian and military helicopter EMS systems (Table 1) provides ample basis for healthy discussions on ways to improve Army medical evacuation care.

As a result of progressive development, civilian EMS providers have evolved into North America’s most sophisticated system of en route care. Air EMS has become the gold standard in managing and transporting severely ill or injured patients from the scene of injury or between medical facilities. To achieve this level of excellence, civilian aircraft are generally staffed by a pair of highly trained flight paramedics or comparably trained flight nurses.

CURRENT OPERATIONAL ENVIRONMENT

The Army currently staffs MEDEVAC helicopters with a single EMT-Basic (EMT-B). There are several reasons for this approach to staffing, including training...
constraints, cost, and the origins of modern medical evacuation doctrine—a Cold War model that anticipated large-scale combined arms battles where rapidly “clearing the battlefield” was paramount and an austere level of care was necessarily assumed.5

The operational environment of Iraq and Afghanistan have challenged the traditional staffing model of one EMT-B medic on several fronts: a) transport of unprecedented numbers of civilians, including pediatric, geriatric, obstetric, and medical cases; b) transport of postoperative critical care patients (levels II to III or level III to III); and c) transport across large geographic areas requiring prolonged inflight care. To illustrate these dramatic and unprecedented changes in helicopter medical evacuation, a synopsis of over 600 flights from one MEDEVAC unit’s recent experience in Operation Enduring Freedom is presented in Table 2. Soldiers injured in remote, rugged areas (eg, most of Afghanistan and large swaths of Iraq) have been almost universally transported by MEDEVAC. Many

Table 1. Comparison between civilian and military emergency medical services systems.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Army Flight Medic</th>
<th>Civilian Flight Paramedic (% programs that require)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT level</td>
<td>EMT-Basic (MOS requirement)</td>
<td>EMT paramedic (100%)</td>
</tr>
<tr>
<td>Experience</td>
<td>1 year as MOS 68W (EMT-B)</td>
<td>3 yr lead paramedic busy ALS system (70%); 5 yr (30%)</td>
</tr>
<tr>
<td>Certification/ licensure</td>
<td>EMT-B</td>
<td>State or nationally registered EMT paramedic</td>
</tr>
<tr>
<td>Flight medic course</td>
<td>Currently not required</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Training hours</td>
<td>No hour requirement for mission 2120</td>
<td>New hire: 60 hr in classroom (75%)</td>
</tr>
<tr>
<td>Clinical hours</td>
<td>None</td>
<td>New hire: 40 hr of clinical rotations (75%)</td>
</tr>
<tr>
<td>Preceptor field hours</td>
<td>No hour requirement; Task 2120 will be evaluated by flight or standards instructor until completed proficiently</td>
<td>New hire: 120 hr Preceptor Ride-Outs (50%) – based on type of aircraft flown and whether ride-outs can be done</td>
</tr>
<tr>
<td>Critical care training</td>
<td>Not required; JECC is available but not widely used by FM due to unit cost.</td>
<td>Program-specific requirement (80%)</td>
</tr>
<tr>
<td>RSI competency</td>
<td>Task not in flight medic’s scope of practice</td>
<td>Required (100%)</td>
</tr>
<tr>
<td>ACLS</td>
<td>Required for flight medic course only</td>
<td>Required (100%)</td>
</tr>
<tr>
<td>ITLS/PHTLS</td>
<td>ITLS required for flight medic course only; PHTLS required by medic transition (once); no sustainment requirement</td>
<td>Required (100%)</td>
</tr>
<tr>
<td>PEPP/PALS</td>
<td>PEPP required for flight medic course only</td>
<td>Required (100%)</td>
</tr>
<tr>
<td>Documentation</td>
<td>No standard; often absent from medical record</td>
<td>Legal requirement in all states; used for PI, remediation, workload</td>
</tr>
<tr>
<td>Medical direction</td>
<td>Unit-based flight surgeon (usually a primary care specialty) is responsible for oversight. Most often has little trauma or EMS experience. No formalized interaction with flight medics. No standard PI process. No online medical control</td>
<td>Virtually all state medical practice acts require an emergency medical director with training in emergency medical/trauma or at least “extensive experience directing EMS.” Mandatory for ALS services; most systems use offline direction (retrospective PI review and remediation, continuing education, credentialing) and online direction (complex procedures, field declaration of death, protocol deviations, direct observation of EMT-Ps for validation)</td>
</tr>
<tr>
<td>Standard protocols</td>
<td>No standard US Army treatment protocols; unit-based</td>
<td>Required (100%)</td>
</tr>
<tr>
<td>Continuing medical education</td>
<td>TC 8-800 MEDIC (annual requirement focused on Level 10 MOS tasks)</td>
<td>Required (National Registry = 80 hr every 2 yrs)</td>
</tr>
<tr>
<td>Chart review/PI/QA</td>
<td>No standard</td>
<td>Required (100%)</td>
</tr>
</tbody>
</table>

GLOSSARY

ACLS – advanced cardiac life support
ALS – advanced life support
APART – annual proficiency and readiness test
EMS – emergency medical services
EMT – emergency medical technician
EMT-P – emergency medical technician-paramedic
FM – flight medic
FMC – flight medic course
ITLS – international trauma life support
JECC – joint enroute care course
MODS – medical operational data system
PEPP – pediatric prehospital providers
PALS – pediatric advanced life support
PI – process improvement
PHTLS – prehospital trauma life support
RL – readiness level (TC 1-210)
QA – quality Assurance
RSL – rapid sequence intubation

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require advanced life support measures in order to survive even a brief flight to a forward surgical team (FST). Because FSTs are not able to hold postoperative patients for long periods, they in turn must evacuate critically ill postoperative cases following resuscitative surgery. These patients are likely to be sedated, intubated, on a ventilator, and are often receiving multiple medication drips and blood products. The knowledge and skills required to care for these cases unequivocally requires a paramedic or nurse with critical care training and experience.

The high-intensity needs of many postoperative casualties do not match the current level of training of flight medics. To fill the gap, deployed medical units (eg, FST) are, on a case-by-case basis, pressing nurses or other highly-trained providers into provisional flight service. While this expedient measure satisfies the immediate needs of the patient, it has consequences including temporarily depriving the thinly-staffed FST of a key provider. In some cases, pressing mission needs all but preclude the FST from sending a nurse, and a wrenching decision regarding patient transport ensues.

The case for more advanced training for flight medics is steadily growing. More than 40 combat-deployed unit after-action reports have identified Army flight medic training and skill level as a key issue and recommended paramedic level training as a solution. Typical examples of comments concerning flight medic capabilities received by the Army Medical Department (AMEDD) Lessons Learned Center are presented in the Appendix.

As evidence mounts that improved patient outcomes are linked to better provider training, the Theater Trauma Consultants responded with a Clinical Practice Guideline (CPG) entitled “Intratheater Transfer and Transport of Level II and III Critical Care Trauma Patients.” The CPG states, “Polytrauma patients require a higher level of care than normally provided by MEDEVAC units.” The CPG further recommends that a nurse or physician trained in critical care accompany these patients. As a result of the Theater Trauma Consultants’ input, 18 critical care nurses have recently been deployed to Afghanistan to supplement the flight medics in theater. Other elements of the system have responded in similar fashion. In March 2010, the US Army School of Aviation Medicine recommended changes to flight medic training, including additional skills, tasks, and training to close the capability gap. Implementation of the recommendations, however, requires a significant reprioritization of resources and action is pending.

In summary, 21st century conflicts will demand flight medics who can operate across the full spectrum of operations. Future combat operations are envisioned to be increasingly expeditionary in an “era of persistent conflict.” Forward and theater medical assets will be smaller and more dispersed. Forces will likely operate across large geographic areas requiring prolonged and advanced care by the flight medic. We will likely continue to operate among civilian populations, both local nationals and contractors, necessitating transport of pediatric, geriatric, and medical cases typical of air ambulance operations in the United States. Furthermore, consequence management operations and defense support to civil authorities in the United States related to disasters or large-scale terrorism will require flight medics with the same skills as their civilian counterparts in order be fully integrated in the medical response plan.

**PROPOSED SOLUTION**

Meeting the unprecedented challenges of medical evacuation requires steps that are at once bold and yet familiar: training all US Army flight medics to flight paramedic competency and certification as described in the 2009 International Association of Flight Paramedics Position Statement (Table 3). The training is

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**Table 2. Synopsis of more than 600 MEDEVAC flights in one region during Operation Enduring Freedom.***

<table>
<thead>
<tr>
<th>Types of Cases</th>
<th>Percentage of Cases</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>86</td>
<td>Includes acute myocardial infarction, chronic obstructive pulmonary disease, stroke, toxic exposures, overdose, psychosis, seizures</td>
</tr>
<tr>
<td>Medical</td>
<td>14</td>
<td>Intubation, vent management, chest tube insertion, advanced medications</td>
</tr>
<tr>
<td>Critical care</td>
<td>14</td>
<td>Includes critical care cases</td>
</tr>
<tr>
<td>EMT paramedic level</td>
<td>62</td>
<td>Mostly trauma but also congenital heart conditions, toxic exposures, burns, sepsis, complicated childbirth</td>
</tr>
<tr>
<td>Adult</td>
<td>94</td>
<td>Aged 18 to 68 years</td>
</tr>
<tr>
<td>Pediatric</td>
<td>6</td>
<td>Mostly trauma but also congenital heart conditions, toxic exposures, burns, sepsis, complicated childbirth</td>
</tr>
</tbody>
</table>

*Data is from 9½ months of MEDEVAC operations by a 3 helicopter detachment in Afghanistan, 2008-2009. Source of data is internal military documents not normally accessible by the general public.
bold because of the intensity and the skill level that a
select group of combat medics will achieve. It is famil-
\textit{\textbf{i}}\textit{\textbf{i}}\textit{\textbf{iar because the AMEDD and the Army has decades of
experience in training small groups of motivated en-
listed Soldiers in highly technical and specialized med-
ic fields, such as licensed practical nurses, cardiovas-
cular technicians, and special forces medical sergeants.

It is posited that this training could be rapidly
implemented under realistic resource ceilings. Training
could be conducted in 3 phases totaling approximately
32 weeks. Costs are estimated at $10,000 per flight
medic, in addition to permanent change of station costs
for initial flight paramedic training.

\textbf{Phase I: Military Flight Medic Training}

\textbf{Program Length:} Currently 4 weeks.

\textbf{Location:} Fort Rucker, Alabama.

\textbf{Cost:} Temporary duty at Fort Rucker and associated
course costs.

\textbf{Prerequisites:} 68W with at least 3 years of experience,
preferably at least one combat deployment, current
BLS/EMT-B, valid flight physical, meets height,
weight, and Army Physical Fitness standards.

\textbf{Description:} Program would incorporate elements of
current Flight Medic course focusing on physical and
mental fitness, validation of combat medic skills,
aircraft and flight operations, and Readiness Level
(RL) progression. This would serve as the selection
and assessment phase to ensure that candidates are
physically and mentally capable to perform the duties
of a flight medic. At the end of this phase, candidates
who successfully completed the course would return to
their units and permanent change of station to Fort
Sam Houston for phase II.

\textbf{Phase II: EMT-Paramedic}

\textbf{Program Length:} 1000 hours (20 weeks)

\textbf{Location:} University of Texas Health Science Center,
San Antonio, TX (UTHSC-SA).

\textbf{Costs:} $6,000 per student for course costs. Permanent
change of station move to Fort Sam Houston for
Phases II and III.

\textbf{Prerequisites:} Completion of Phase I.

\textbf{Description:} Program would model the existing San
Antonio Fire Department Paramedic training course, a
fully accredited EMT-P program. The current UTHSC-SA
program can accommodate 20 to 30 US Army flight
paramedic candidates per class, up to 60 per year. At
the end of the course, students would achieve the Na-
tional Registry of EMT–Paramedic Certification. On-
course completion students would be eligible for 33+
semester hours of college credit. A historical precedent
with UTHSC-SA and the US Special Operations Com-
mand Paramedic program exists where Special Forces
medics trained as EMT-Ps in San Antonio. Existing
memoranda of agreement could be modified to
accommodate US Army flight paramedic candidates.

\textbf{Phase III: Critical Care Flight Paramedic}

\textbf{Program Length:} 524 hours (120 classroom, 284
clinical, 120 field training exercise) (8 weeks)

\textbf{Location:} Brooke Army Medical Center (BAMC),
University of Texas Health Science Center-San
Antonio, San Antonio Air Life.

\textbf{Prerequisites:} Completion of Phase I and II and
National Registry of EMT-paramedic certification.

\textbf{Costs:} Would be based on cooperative agreements
with UTSAHSC, BAMC, and Air Life. Clinical
rotations would be conducted at BAMC, an existing
military facility with little associated costs.

\textbf{Description:} Students would learn and apply principles
of critical care in the classroom, laboratory, clinical,
and field settings. Student rotations will include
operating room/anesthesia service; medical, surgical,
cardiac, and pediatric intensive care units; the Institute
of Surgical Research burn unit; and San Antonio Air
Life. Clinical and didactic rotations will be followed
by a 120-hour continuous field training exercise at
Camp Bullis, Texas, that is reflective of the current
contemporary operational environment.

\textbf{END STATE}

Following this recommended training pathway, the US
Army flight paramedic will:

- Be prepared to take the Flight Paramedic
Certification Exam.
- Be trained to entry-level civilian flight paramedic
proficiency/competency.
- Be able to provide competent en route care to most
critically ill or injured patients from the point of
injury or between medical treatment facilities.
Sharpening the Edge: Paramedic Training for Flight Medics

<table>
<thead>
<tr>
<th>Area</th>
<th>Standards</th>
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<tbody>
<tr>
<td>1. Experience</td>
<td>Minimum 3 years of experience as a combat medic</td>
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</table>
| 2. Education | a. Primary: Successful completion of the paramedic National Standard Curriculum or equivalent.  
    b. Secondary: Successful completion of a critical care education program that meets or exceeds the educational objectives of this position statement, including didactic sessions, practical sessions, skill proficiency demonstration, and clinical rotations  
    c. Tertiary: Continuing mentored didactic education, skill maintenance, and clinical opportunities that maintain the educational objectives of this position statement |
| 3. Certifications | a. Advanced Cardiac Life Support  
    b. Adult and Pediatric International Trauma Life Support / Prehospital Trauma Life Support / Advanced Trauma Life Support  
    c. Pediatric Advanced Life Support / Advanced Pediatric Life Support  
    d. Neonatal Resuscitation Program  
    e. Or an equivalent education in each of the aforementioned areas |
| 4. Knowledge | a. Assessment of the critically ill or injured patient  
   b. Advanced adult and pediatric airway management including, but not limited to:  
      i. Rapid sequence induction (RSI) intubation  
      ii. Alternative and rescue airways  
      iii. Surgical cricothyroidotomy  
      iv. Continuous waveform capnography to monitor end tidal carbon dioxide (ETCO2)  
    c. Mechanical and noninvasive ventilation theory, troubleshooting, and competence  
    d. Chest tube thoracostomy management and insertion (if applicable)  
    e. Obtain and maintain peripheral venous, central venous (if applicable), and/or intraosseous access  
    f. Administration of blood and blood products  
    g. Electrocardiogram (ECG) monitoring and 12 lead ECG interpretation  
    h. Defibrillation, cardioversion, and transcutaneous and transvenous pacing monitoring, maintenance, and treatment  
    i. Circulatory management and support including invasive hemodynamic monitoring and intra-aortic balloon pump (IABP) management (theory, transport considerations, troubleshooting, and operations, if applicable)  
    j. Intracranial pressure monitoring and management  
    k. Pharmacology included in the National Standard Curriculum augmented by knowledge of analgesics, antibiotics, antidysrhythmics, antiepileptics, paralytics, sedatives, and vasoactive medications  
    l. Laboratory value interpretation including arterial blood gas analysis  
    m. Targeted radiology study interpretation |
| 5. Patient management | a. Acute respiratory emergencies  
   b. Cardiovascular emergencies  
   c. Hypertensive emergencies  
   d. Shock and multiple organ system failure  
   e. Infectious diseases  
   f. Neurological emergencies including stroke and intracranial hemorrhage  
   g. Trauma  
   h. Spinal cord injury  
   i. Burn  
   j. Trauma in pregnancy  
   k. Pediatric trauma  
   l. Critical pediatric emergencies  
   m. Obstetrical emergencies  
   n. Neonatal emergencies (if applicable)  
   o. Environmental emergencies  
   p. Poisoning / toxic exposure / hazardous material awareness  
   q. Bioterrorism |
| 6. Transport medicine | a. Safety  
   i. Vehicle operations and emergency procedures  
   ii. Critical care transport equipment  
   iii. Patient / family factors  
   iv. Human factors (including but not limited to air medical resource management (AMRM) or equivalent)  
   b. Evaluation of appropriateness for transport based on required level of care  
   c. Transport logistics  
   d. Critical care transport equipment (ventilator, IABP, neonatal isolette, etc.)  
   e. Patient packaging for safety and accessibility  
   f. Radio and communication technology  
   g. Transport physiology  
   h. Interaction and communication with medical oversight  
   i. Medical provider communication / transfer of care  
   j. Documentation |
| 7. Quality management | Understanding principles and best practice |
| 8. Certification examination | Successful completion of a critical care paramedic certification examination. Along with the FP-C®, the IAFP recognizes the Critical Care Paramedic Certification Examination (CCP-C®) as a valid certification examination for the critical care paramedic. |
• Provide Soldiers wounded on the battlefield with the same level of care as a civilian evacuated by helicopter receives in the United States.

**TRANSITION AND SUSTAINMENT**

Although 2 classes of 25 to 30 to medics per year would meet the requirements of the current conflict, it would be insufficient over time to generate sufficient numbers of flight paramedics to fill every air ambulance unit in all 3 components as authorizations increase from 645 total flight medics currently to a projected end state of 1173 flight medics in the year 2017.

Since the proposed course is conducted in different phases, the modular nature of the proposed course would make Phase II, the paramedic phase, easily exportable to other accredited paramedic programs near a flight medic’s current post. The 101st Airborne Division sent all of its flight medics to civilian paramedic training near Fort Campbell prior to their most recent deployment to Operation Enduring Freedom. The 82nd Airborne Division is also implementing a paramedic program with an additional critical care course for their flight medics. It is likely that a large number of flight medics, especially in the Army Reserve and the National Guard, are already qualified as EMT paramedics. A survey to determine the exact numbers should be conducted since this qualification is not currently tracked in Army personnel systems.

Phase III, the critical care phase, could be reproduced at other medical centers with an adequate volume of critical care patients and at which a cooperative arrangement could be established with a supporting civilian air ambulance service.

The proposed modular design would facilitate “off the street” civilian paramedics and flight paramedics enlisting directly into the Army flight paramedic program. Flight medic trainees would first attend basic combat training, the battlefield portion of MOS 68W initial entry training, and fast-track directly to the appropriate phases of training required to meet the US Army flight paramedic standard.

To better illuminate resource issues, it is useful to examine the cost of training a Special Forces Medical Sergeant (MOS 18D), another highly-trained enlisted medic. Cost for class VIII supplies and temporary duty alone during the medical phase of training of an 18D are approximately $45,000 per individual trained. These medics treat a relatively small number of patients entering the evacuation system. The cost to train a critical care flight medic will be about one-third of this amount, yet flight medics touch 95% of the patients evacuated in Operation Enduring Freedom.

One of the reasons cited for leaving the Army following the initial enlistment by 68Ws is the lack of additional training opportunities and lack of a career pathway that includes additional certifications. A flight paramedic program would provide a career ladder for 68Ws. While there will likely be attrition just as there is in the MOS 18D course, a system of bonuses and selection would mitigate this. The current University of Texas Health Science Center-San Antonio paramedic training program has a greater than 88% pass rate.

Sustainment training for an advanced flight medic (Table 4) would naturally be more intensive than the current 68W flight medic model. However, in many respects sustainment can be easier for military paramedics given our access to military treatment facilities for clinical time and our medical simulation training centers. Sustainment is the other side of the advanced flight medic coin. Without a well thought-out sustainment plan, the benefits of rigorous initial training would wane over time. Flight medic competency and sustainment should be tracked on the Unit Status Report, as is aircrew readiness.

Proficiency pay and enlistment bonuses will be key features in attracting and sustaining highly qualified

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Monthly</td>
<td>Four intubations on simulators, cadavers, live patients, or animal models</td>
</tr>
<tr>
<td>Monthly</td>
<td>Four training scenarios on simulators, live patients, or animal models, One each: trauma, pediatric, medical, critical care</td>
</tr>
<tr>
<td>Every 6 months</td>
<td>One-week anesthesia rotation with a minimum of 5 live intubations</td>
</tr>
<tr>
<td>Every 2 years</td>
<td>Recertification of ACLS, PALS, PHTLS, AMLS, or equivalent courses</td>
</tr>
<tr>
<td>Every 4 years</td>
<td>Two-week Medical Proficiency Training rotations in an intensive care unit or with a busy civilian EMS/ Air Ambulance service</td>
</tr>
<tr>
<td>Predeployment</td>
<td>Four-week trauma center rotation Total of 100 Continuing Education units required for FP-C recertification in addition to 2-day FP-C recertification course</td>
</tr>
<tr>
<td></td>
<td>One-week FTX (same as final FTX in Phase III)</td>
</tr>
</tbody>
</table>

Table 4. Process for sustaining flight paramedic certification.
flight paramedics. Proficiency pay should be linked to passing the rigorous Flight Paramedic Certification Examination and maintaining this certification through a rigorous sustainment process (Table 4). Proficiency pay should bring the US Army flight paramedic’s salary to the civilian flight paramedic entry-level pay of approximately $45,000 per year. Proficiency and bonus pay will be key features in attracting high-caliber enlisted Soldiers into this career pathway, and retaining them.

The idea to increase the training of Army flight medics to the civilian flight paramedic level may superficially appear to be a radical departure from current practice. In fact, the idea that has been around for more than a quarter century, beginning with the Division 86 concept and advocated in several other studies examining MEDEVAC.8-10 A detailed review article made a comprehensive case for paramedic trained flight medics in 1997.11 Counterarguments to the concept of paramedic flight training must be considered. These include: a) costs that exceed value, b) difficulties in achieving training success (and consequent classroom attrition), c) combat units unlikely to embrace the change or the burden of sustainment, d) the sustainment tail will be expensive, e) the National Guard and Reserve will be challenged to meet the increased time commitment of training, and f) competition from civilian employers will increase as they seek to hire away the now highly-trained flight medics. While acknowledging these possibilities, it is instructive to consider the history of the then 91W (now 68W) combat medic program. During its inception, each of these counterarguments were postulated (some quite vigorously), but ultimately all were refuted. The resounding success of the 68W program stands as testimony to the ability of the AMEDD to achieve deep and lasting success in enlisted medic training.

CONCLUSION

The US Army pioneered the concept of helicopter evacuation, and justifiably stands proud as the father of modern air EMS. In turn, civilian helicopter EMS has now come full circle since the Vietnam War and the publication of the White Paper on trauma in the 1960s. It is now the most sophisticated delivery platform for prehospital care in the United States. To continue the cycle, the US Army stands poised to combine outstanding MEDEVAC aircraft capabilities with the advanced training of flight paramedics.11 The ultimate goal is improved care for battlefield casualties and a more responsive and flexible medical evacuation system. Flight paramedic training is an important step in keeping combat casualty care on the cutting edge.

REFERENCES


APPENDIX

Sample of comments from units deployed to Operations Iraqi Freedom and Enduring Freedom regarding flight medic capabilities and qualifications received by AMEDD Lessons Learned (http://lessonslearned.amedd.army.mil).

Observation: Flight medic training

Discussion: Like civilian EMS, many of the MEDEVAC missions involve routine patient transfers. Even the majority of point-of-injury patients require mainly basic life support skills, with oxygen therapy and intravenous infusions accounting for the majority of medical interventions. About 5% of these patients, however, are critically ill or are injured patients who present with unstable airways or hemodynamics requiring advanced airway management and other lifesaving interventions. This population of patients is precisely where skills and training need to be focused, they are the patients most likely to require and benefit from aggressive advanced prehospital care. Reviewing these cases made it clear that there were many cases in which the current flight medic training program falls short. Additionally, there was a sizable subset of cardiac/chest pain patients for which the medic was the only medical attendant. The current training program does not adequately prepare flight medics for treating cardiac patients, who were frequently transferred without appropriate treatment or safeguards. In the 1159th and 54th Medical Companies, many of the patients were critical-care interfacility transfers involving patients who were chemically paralyzed, sedated, intubated, on a ventilator with ongoing drug administration, chest tubes, and intensive hemodynamic monitoring. The 1159th Air Ambulance was a Guard unit in which about a third of their medics are civilian EMT-Ps, including 2 medics who were Critical Care EMT-Ps. Fortunately, this unit performed a large number of the critical-care transfers.

While a medical attendant is often provided from the combat support hospital or forward surgical team, in the early stages of this conflict that was not always possible nor would it be possible in the expeditionary phase of most future conflicts.

Lesson Learned: The current flight medic training program is not sufficient as a standalone program to provide the critical-care aeromedical skills necessary to treat the most severely injured patients experienced during this operation.

Authors’ Recommendation: The flight medic needs solid MOS 91W skills supplemented by the skills of the Advanced Cardiac Life Support (ACLS) and Critical Care Air Transport Teams, coupled with continuous clinical practice. Excellent airway management and endotracheal intubation skills are essential. Although a patchwork system of courses can be created to try to meet this need (and it is likely to be the short-term fix), what is really needed is an EMT-P level certification that includes the necessary clinical experience in critical care and advanced level procedures, similar to the Special Operations Combat Medic program. The vast majority of flight programs in civilian air ambulance programs include a flight nurse and an EMT-P as the medical attendants. The key is clinical experience in addition to the enhanced critical care didactics. Completing an ACLS course does not mean that you adequately understand cardiac pharmacology or arrhythmia recognition sufficiently to provide advanced cardiac care independently. No civilian air or ground ambulance crew could provide that level of treatment in the United States without completing a paramedic course that included extensive didactic and clinical training in the relevant conditions and treatment. The curriculum from the Joint Enroute Critical Care course is inadequate for 91W medics, as is the civilian Critical Care EMT-P course, since they were designed to provide an already experienced field EMT-P with additional critical care air transport skills, not to turn an EMT-B provider into a Critical Care Transfer Paramedic! It is dangerous to train a medic to maintain deep sedation and paralysis during transfer of a ventilator patient unless he has excellent intubation skills, chest decompression skills, ventilator management skills, and the clinical experience to treat the potential complications. The current flight medic training program is not sufficient to provide the en route care necessary for critically injured casualties evacuated from the forward surgical team (FST) after life-sustaining surgery to Role III facilities. The Army National Guard flight medics are paramedic-qualified and better trained to care for potential issues when evacuating patients from the FST after surgery than are active-duty flight medics who are trained to the minimum qualification: EMT-B; BTLS; ACLS; PHTLS; and PAL standards. Flight medics also need more training on ventilation and transporting sedated patients. Flight medic training was identified by the unit as a top issue.

Deployment/Operation: Operation Iraqi Freedom

From the 3/10th IBCT Operation Enduring Freedom deployment: Flight medics require training to reach the paramedic skill level in order to provide the en route care necessary for critically injured casualties evacuated from the forward surgical team (FST) after life-sustaining surgery to Role III facilities. The Army National Guard flight medics are paramedic-qualified and better trained to care for potential issues when evacuating patients from the FST after surgery than are active-duty flight medics who are trained to the minimum qualification: EMT-B; BTLS; ACLS; PHTLS; and PAL standards. Flight medic training was identified by the unit as a top issue.
APPENDIX (CONTINUED)

Observation: Need for increased medical training for flight medics.

Discussion: The war on terrorism is a new kind of war fought with mostly Special Forces. Most of the Special Forces and medical facilities located in Afghanistan did not want to use our medics and paramedics because they were not trained by Special Operations Forces (SOF). At the request of the SOF, a doctor, physician-assistant, or SF medic would accompany patients, taking away that medical asset from the battlefield. The MOS 68W program is a good start to the 91 series in the Army, but it needs to be taken to a new level for flight medics.

Lesson Learned: SOF units are reluctant to trust EMT-B trained medical personnel.

Authors’ Recommendation: In dispersed operations, MEDEVAC is always provided for more critical patients; whereas lower-priority patients are evacuated by ground. The current knowledge, skill set, and critical decision-making performed by current Army flight medics do not provide the breadth and depth of care our civilian counterparts have come to expect. Flight medics should be trained to the paramedic level to provide a higher level of care, so that other elements will be more confident in their abilities and the medic better prepared to handle an urgent MEDEVAC.


From the 4/4th IBCT Operation Enduring Freedom deployment: Flight Medic Training. The unit noted that all the National Guard air ambulance company flight medics (68WF) had paramedic certification. As a result, the National Guard flight medics had superior skills to monitor and provide advance inflight care for critically injured patients when compared to the active-duty flight medics. Paramedic-qualified flight medics are able to intervene and handle potential issues that severely injured patients may experience. This issue has been noted in previous After Action Reports, and the AMEDD Center and School is evaluating the training requirements for the flight medics to determine whether all need to be trained to the paramedic level.

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