



**U.S. Army Research Institute
for the Behavioral and Social Sciences**

Research Report 1905

**The Development of Planning and Measurement Tools
for Casualty Evacuation Operations at the
Joint Readiness Training Center**

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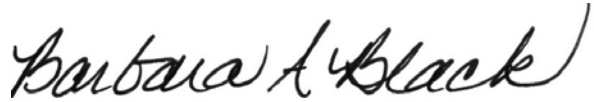
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The Development of Planning and Measurement Tools for Casualty Evacuation Operations at the Joint Readiness Training Center

EXECUTIVE SUMMARY

Research Requirement:

The need to investigate unit casualty evacuation (CASEVAC) operations at the Joint Readiness Training Center (JRTC) was recognized by members of JRTC's Warrior Leadership Council. Operating under the direction of the Deputy Commander of the Operations Group, the Council consists of representatives from each Operations Group division, as well as the 1st Battalion (Airborne) 509th Infantry, the Center for Army Lessons Learned, the Research, Development and Engineering Command (RDECOM), and the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). The primary purpose of the Council is to leverage the expertise of JRTC trainer/mentors (T/Ms), in order to identify and prioritize the most serious small unit leadership and training deficiencies found across rotations.

A frequent topic of discussion in after action reviews (AARs) of unit performance at JRTC, CASEVAC operations were viewed as one of the most common and widespread of all problems identified by the Council since its inception in 2004. The identification of this need led to the present investigation, the purpose of which was twofold. First, the Council wanted to determine the overall prevalence of various unit CASEVAC practices at JRTC, in an attempt to pinpoint those areas of CASEVAC operations in which units have the greatest difficulty. Second, the Council wanted to evaluate the effectiveness of a job performance aid, the Warrior Leaders Casualty Evacuation Guide. Specifically, they wanted to know if units given these guides at the beginning of their rotation would subsequently exhibit better CASEVAC performance than units that were not given the guides.

Procedure:

The Warrior Leadership Council developed the Casualty Evacuation Checklist as a measurement tool for T/Ms to use in gauging the CASEVAC performance of battalions, companies, and platoons during force-on-force missions, situational training exercises (STXs), and live fire missions at JRTC. The Council then developed the Warrior Leaders Casualty Evacuation Guide as a job performance aid that leaders could use to plan and execute their CASEVAC operations. The CASEVAC performance of units that were given copies of the guide, the experimental group, was compared to the CASEVAC performance of units that had not received the guides, the baseline group. Baseline data were drawn from 293 checklists collected by O/Cs during five consecutive unit rotations in 2007 and early 2008. Experimental data were drawn from 475 checklists collected during five later rotations in 2008.

Findings:

Over the span of ten rotations, most units performed well in terms of their understanding and use of the nine-line medical evacuation (MEDEVAC) request form. Most also knew where

they were on the battlefield, relative to the locations of various medical treatment facilities. In contrast, units performed less well in utilizing both standard and non-standard methods of ground and air evacuation. In addition, most units failed to attach a completed DD Form 1380 to each casualty, perhaps because this was an item T/Ms frequently found to be missing from unit medical supplies. Room for improvement also existed in the unit rehearsal of CASEVAC plans, CASEVAC teams, mission plans, mass casualty plans, and communications plans.

The Warrior Leaders Casualty Evacuation Guide had a positive effect on the CASEVAC operations of units receiving them, particularly in the area of CASEVAC planning. Units in the experimental group performed significantly better than the baseline units on 6 of 17 CASEVAC planning measures. Experimental units also performed better than baseline units on 8 of the other 11 planning measures, though not to a statistically significant degree. Group differences were less pronounced in the area of task execution, where experimental unit performance significantly exceeded that of the baseline group on 2 of 28 measures of CASEVAC execution. However, experimental unit performance also exceeded baseline unit performance on 18 of the other 26 execution measures, though not to a statistically significant degree. The baseline group did not perform significantly better than the experimental group on any measure of CASEVAC planning or execution.

These results were achieved despite having a baseline group that appeared to have a substantial head start over the experimental group in terms of CASEVAC preparedness. Not only did baseline units have significantly more Soldiers qualified as a Combat Life Saver (CLS) or Emergency Medical Technician (EMT) than experimental units, but they began each mission with a significantly higher level of familiarity with their unit's CASEVAC Standing Operating Procedure (SOP). Had the two groups been more equal in terms of their CASEVAC backgrounds, it is possible the group differences in the areas of planning and execution would have been greater.

Utilization and Dissemination of Findings:

Findings were briefed to members of the JRTC Warrior Leadership Council in October of 2008. Based on the results obtained, both the authors and members of the Council recommended continued use of the Casualty Evacuation Checklist at JRTC, so T/Ms can systematically gather supporting CASEVAC data to use in their AARs. In particular, it was recommended that the checklist be included in the next printing of JRTC's *T/M Handbook*. Based on the results obtained, continued use of the Warrior Leaders Casualty Evacuation Guide was also recommended for all small unit leaders at JRTC. Specifically, it was recommended that the guide be locally reproduced and distributed to battalions, companies, and platoons at the beginning of their rotations. Electronic versions of the Casualty Evacuation Checklist and Warrior Leaders Casualty Evacuation Guide are available through ARI offices at Fort Benning and Fort Polk.

The Development of Planning and Measurement Tools for Casualty Evacuation Operations at the Joint Readiness Training Center

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The Development of Planning and Measurement Tools for Casualty Evacuation Operations at the Joint Readiness Training Center

Introduction

Casualty evacuation (CASEVAC) refers to the movement of casualties, most often from the point of injury to a casualty collection point (CCP), by nonmedical personnel equipped with nonmedical vehicles (Department of the Army, 2006b). In contrast, medical evacuation (MEDEVAC) refers to the movement of casualties, typically from a CCP to higher level medical facilities, aboard designated medical platforms with medical personnel trained to provide specialized trauma care en route (Department of the Army, 2007).

The need to investigate the CASEVAC practices of units at the Joint Readiness Training Center (JRTC) was recognized by members of JRTC's Warrior Leadership Council. Operating under the direction of the Deputy Commander of the Operations Group, the Council consists of representatives from each Operations Group division, as well as the 1st Battalion (Airborne) 509th Infantry, the Center for Army Lessons Learned, the Research, Development and Engineering Command (RDECOM), and the U.S. Army Research Institute for the Behavioral and Social Sciences. The primary purpose of the Council is to leverage the expertise of JRTC trainer/mentors (T/Ms), formerly called observer/controllers (O/Cs), in order to identify and prioritize the most serious small unit leadership and training deficiencies found across rotations (U.S. Army Research Institute for the Behavioral and Social Sciences, 2005).

A frequent topic of discussion in after action reviews (AARs) of unit performance at JRTC, CASEVAC was the third problem area investigated by the Warrior Leadership Council since its inception in 2004. Earlier Council investigations dealt with troop leading procedures (Evans & Baus, 2006) and unit information management practices (Evans, Reese, & Weldon, 2007). In its investigation of unit CASEVAC procedures, Council members believed the medical treatment provided to Soldiers during the evacuation process was of generally high quality. Yet, their greatest concerns centered on the delays some units experienced in providing treatment to casualties and in evacuating them from the battlefield in an efficient manner. In the worst case scenario, confusion led to some casualties being inadvertently left behind on the battlefield after their units had departed the area.

To address these problems the Council began collecting data on unit CASEVAC practices in July of 2007, using a T/M measurement instrument called the Casualty Evacuation Checklist (see Appendix A). Described in detail in the Research Approach section of this report, the checklist's design and content were based on the casualty and medical evacuation doctrine contained in four U.S. Army field manuals (Department of the Army, 2000, 2006a, 2006b, & 2007).

One purpose of the present investigation was to determine the overall prevalence of various small unit CASEVAC practices during force-on-force missions, situational training exercises (STXs), and live fire missions at JRTC, in an attempt to pinpoint those areas of CASEVAC operations in which units have the greatest difficulty. In particular, Council members wanted to determine the reasons why some units experienced confusion in their

execution of CASEVAC operations and why it sometimes took an inordinate amount of time for some Soldiers to receive medical treatment.

A second purpose of the investigation was to evaluate, in a field environment, the effectiveness of a job performance aid that small unit leaders could use in planning for CASEVAC operations. This job aid or planning tool was called the Warrior Leaders Casualty Evacuation Guide (see Appendix B). Specifically, the Council wanted to determine if units given this guide at the beginning of their rotations would subsequently exhibit better CASEVAC performance than units that were not given the guide. Job performance aids have a rich history of organizational application, especially in the military (see Department of the Army, 1999; Schultz & Wagner, 1981; Swezey, 1987). In fact, earlier JRTC investigations have found support for the efficacy of job aids that were developed to improve troop leading procedures and information management (Evans & Baus, 2006; Evans, Reese, & Weldon, 2007).

Research Approach

The Casualty Evacuation Checklist was developed by JRTC's Warrior Leadership Council as a measurement tool for T/Ms to use in gauging the CASEVAC performance of battalions, companies, and platoons during force-on-force, STX, and live fire missions at JRTC. The Council then developed the Warrior Leaders Casualty Evacuation Guide as a job performance aid that could be used by unit leaders to plan for CASEVAC operations. In evaluating the effectiveness of the Warrior Leaders Casualty Evacuation Guide, the CASEVAC performance of units that were given these guides, the experimental group, was compared to the CASEVAC performance of units that had not received the guides, the baseline group. Although it would have been better to counterbalance or alternate the order of experimental and baseline unit rotations, five consecutive baseline rotations were followed by five subsequent experimental rotations. This provided an opportunity for the Council to design the guide while baseline data were being collected.

Sample

Baseline CASEVAC data were drawn from 293 checklists completed by T/Ms during five consecutive JRTC rotations. Experimental CASEVAC data were then drawn from 475 checklists completed during five subsequent rotations. Over these ten rotations, 2.6% of the checklists were collected from battalions, 26.7% from companies, and 70.7% from platoons. Overall, 49.4% of the observed missions were force-on-force, 44.6% were STX missions, and 5.9% were live fire missions. The baseline and experimental groups did not differ significantly in terms of the echelons and mission types observed.

However, the two groups were found to be significantly different in terms of the types of units observed [$\chi^2(16, N = 739) = 54.21, p = .001$]. These unit differences are shown in Table 1. The most notable differences between groups were higher percentages of Field Artillery, Military Police, and RSTA (Reconnaissance, Surveillance, and Target Acquisition) units in the baseline group, accompanied by higher percentages of Armor and Aviation units in the experimental group. Although statistically significant, these differences were relatively small in

terms of absolute percentages, the largest being the 6.1 percentage point difference between armor units in the two groups.

Table 1

Percentage of Checklists Collected from Various Types of Units in the Baseline and Experimental Groups

Type of Unit	Group	
	Baseline (n = 279)	Experimental (n = 460)
Armor	0.4%	6.5%
Aviation	0.7%	4.3%
Cavalry	16.1%	15.9%
Chemical	0.7%	0.0%
Engineer	2.2%	1.3%
Field Artillery	13.6%	9.6%
Infantry	33.0%	32.6%
Military Intelligence	0.0%	0.9%
Military Police	3.9%	0.7%
Medical	2.5%	2.0%
Ordnance	1.4%	3.0%
Quartermaster	1.8%	1.5%
RSTA	14.7%	10.0%
Signal	0.0%	1.1%
Transportation	1.4%	0.9%
Other	1.4%	2.8%
Combination of Unit Types ^a	6.1%	7.0%
Total	99.9%	100.1%

Note. Total percentages do not equal 100% due to rounding.

^aThe most frequently observed combinations were Cavalry/RSTA units.

Casualty Evacuation Checklist

Unit CASEVAC practices were measured by T/Ms using the Casualty Evacuation Checklist (see Appendix A). Printed on the front and back of a yellow card that was approximately 8½ in. tall and 5 in. wide (22 x 13.4 cm), the Casualty Evacuation Checklist was organized into four sections. Section I asked T/Ms for some general information, including the dates of observation, the type of unit observed, the echelon observed, and the type of mission observed.

Section II dealt with the casualty evacuation background of personnel in each unit. Specifically, the checklist asked if unit personnel were familiar with the unit's standing operating procedure (SOP) for CASEVAC and whether or not the SOP identified the duties and responsibilities of key personnel. T/Ms were then asked to estimate the percentage of unit personnel qualified to be Combat Life Savers (CLSs) and the actual number of Soldiers qualified

to be Emergency Medical Technicians (EMTs). A CLS is a nonmedical Soldier trained to provide advanced first aid beyond the level of self aid or buddy aid (Department of the Army, 2006b). An EMT is a person with additional lifesaving skills that has passed a national certification examination, equivalent to the entry level at most civilian emergency medical service providers. Lastly, Section II asked T/Ms if the unit had CASEVAC equipment packed and readily available, if unit personnel were familiar with the nine-line MEDEVAC request form, and if copies of the request form were available for quick reference.

Section III asked questions related to CASEVAC planning, including whether or not CASEVAC was included in the unit's mission planning process, whether or not CASEVAC procedures were rehearsed, whether or not the unit conducted mass casualty battle drills, and whether or not unit, tactical operations center (TOC), and command post (CP) personnel understood the plan for mass casualties. Other items in Section III asked specific questions about the CCP, Battalion Aid Station (BAS), CASEVAC teams, unit communications plan, and conduct of pre-combat checks and inspections (PCCs/PCIs).

Section IV was the largest on the checklist, as it dealt with a unit's execution of CASEVAC operations. Following questions about CCP movement, security, and marking, T/Ms were asked if the unit SOP was followed. They were also asked about the accuracy and timeliness of nine-line MEDEVAC requests, the different types of aid they observed, whether casualties were separated by triage categories, and whether DD Form 1380 (U.S. Field Medical Card) was completed and attached to each casualty. T/Ms were asked to estimate the average amount of time casualties remained at the CCP before evacuation, the types of evacuation used by units, as well as the average amount of time it took air assets to arrive at the pick up zone (PZ). Additional questions dealt with the support units received from higher echelons, the effectiveness of the unit communications and casualty reception plans, and the number of casualties assessed as having died on the battlefield (DOB). The DOB label has been recently replaced with a more accurate descriptor, died of wounds (DOW). Similar to questions found on previously developed JRTC checklists (Evans & Baus, 2006; Evans, Reese, & Weldon, 2007), T/Ms were then asked whether CASEVAC operations interfered with mission accomplishment and whether friction points were observed between the unit and higher echelons.

Most questions on the Casualty Evacuation Checklist called for a Yes or No response. The Warrior Leadership Council chose this response scale for two reasons. First, they thought a Yes/No format would be relatively easy to use, minimizing the data collection burden on T/Ms. Second, the Council believed this format would lower the amount of subjectivity contained in the checklist data, by simply asking T/Ms whether or not particular CASEVAC practices occurred, rather than asking them to decide how good those practices were.

Largely in response to T/M feedback about checklist usability, the Casualty Evacuation Checklist was revised after the first baseline rotation. These revisions included some item deletions, item additions, and changes to item wording. The final version of the Casualty Evacuation Checklist, shown in Appendix A, was used exclusively during the second baseline rotation and all subsequent rotations. The results reported herein were based solely on items contained in the final version of the checklist.

Warrior Leaders Casualty Evacuation Guide

Developed by the Warrior Leadership Council as a job performance aid to assist unit leaders in planning CASEVAC operations, the Warrior Leaders Casualty Evacuation Guide was designed to be fully consistent with Army doctrine pertaining to casualty and medical evacuation procedures (Department of the Army, 2000, 2006a, 2006b, & 2007). To encourage units to use the guide, it was specifically formatted to serve as an annex to an operations or fragmentary order. Locally reproduced, the guide was printed on the inside two pages of a folded card that was approximately 5½ in. tall and 4 inches wide after folding. (14 x 10.3 cm). Reflecting the order CASEVAC tasks would generally be accomplished during the course of a mission, the guide was organized into three sections: planning, rehearsals, and execution.

Based on feedback obtained from unit personnel in the first experimental rotation, several changes were made to the Warrior Leaders Casualty Evacuation Guide. In particular, three items were revised in the planning section, two items were added to the rehearsals section, and one item was deleted from the execution section. The revised guide, shown in Appendix B, was provided to units in the remaining four experimental group rotations.

Casualty Evacuation Questionnaire

Approximately midway through the present investigation, an opportunity arose to collect casualty evacuation data from some of the casualties themselves, who were routinely removed from the battlefield and sent to a holding area (i.e., 21st Replacement Center) for several hours during force-on-force missions. A brief questionnaire designed to elicit casualty evacuation information from the perspective of the casualties themselves was administered via an electronic data collection system installed and maintained by RDECOM in the holding area. A manual or paper-and-pencil version of this questionnaire, shown in Appendix C, was administered during one rotation.

The Casualty Evacuation Questionnaire was administered to a total of 154 adjudicated training casualties across four rotations. Because all but 8 of the questionnaires were completed by casualties in the experimental group, the questionnaire data could not be used to compare the performance of units in the baseline and experimental groups. Nor was the questionnaire sample likely to have been representative of the larger checklist sample, as 58.4% of the questionnaires were administered during a single rotation (i.e., the ninth). In a pure coincidence, exactly one half of the questionnaires were administered electronically and the other half manually.

Procedure

Through their JRTC Operations Group divisions, T/Ms were issued blank Casualty Evacuation Checklists prior to each baseline and experimental rotation. Completed checklists were then collected at several centralized locations after each rotation had ended. In all but two instances, an interim analysis of the findings for each rotation was completed and presented to members of the Warrior Leadership Council prior to the beginning of the next rotation.

Warrior Leaders Casualty Evacuation Guides were reproduced locally and distributed to units in the five experimental rotations at the beginning of each rotation. These guides were provided by Warrior Leadership Council members to the battalion leadership and they were encouraged to distribute them down to platoon level. While most Council members believed they were thoroughly distributed down to company level, it was unclear how well the guides were distributed to platoons.

No attempt was made to keep T/Ms blind regarding the experimental condition in effect for each rotation (i.e., baseline vs. experimental). T/Ms on the Warrior Leadership Council should certainly have been aware of the experimental condition in effect. However, most other T/Ms could have been unaware of the experimental conditions, as their data collection role did not change in any way across baseline and experimental rotations. The casualty evacuation research plan developed by the Council and approved by the Deputy Commander of the JRTC Operations Group is shown in Appendix D.

Results

The organization of this section closely parallels the general layout of the Casualty Evacuation Checklist (see Appendix A). Analyses of the results for individual items were based on the calculation of descriptive statistics (i.e., frequency distributions for yes/no and multiple choice items and means for quantitative items like the number of EMT-qualified Soldiers in each unit). Chi-square tests were performed when the combined results of two yes/no or multiple choice items were of interest (e.g., the relationship between CASEVAC rehearsals and mission accomplishment).

Each analysis was based on the maximum sample size of checklists available for that analysis; thus, sample sizes varied somewhat across analyses due to missing checklist data. Again, one purpose of the present investigation was to gather information on the prevalence of various unit CASEVAC practices during JRTC missions. For that reason, analyses related to the prevalence of CASEVAC practices were based on the combined results of all 10 rotations ($N \leq 768$). A second purpose of the investigation was to evaluate the effectiveness of the Warrior Leaders Casualty Evacuation Guide. Analyses related to guide effectiveness were based on a comparison of results from the baseline ($n \leq 293$) and experimental groups ($n \leq 475$).

Casualty Evacuation Background

Section II of the Casualty Evacuation Checklist dealt with the CASEVAC background of unit personnel, reflecting their potential degree of preparation for the successful conduct of CASEVAC operations. Eight background tasks were measured, of which two were measured numerically and six were measured nominally (yes vs. no). In general, these background tasks are best performed at a unit's home station, prior to arriving at JRTC. Ideally, one would want baseline and experimental group units to be roughly equivalent in terms of their background characteristics, in order to make any resulting group differences in CASEVAC planning and execution more clearly interpretable. Unfortunately, this did not happen.

On average, an estimated 59.4% ($SD = 29.13$; $n = 272$) of Soldiers in baseline units were CLS qualified across echelons, compared with 53.0% ($SD = 33.23$; $n = 441$) in the experimental group. This difference was found to be highly significant statistically, $t(711) = 2.625$, $p = .009$ (two-tailed). Further, an average of 4.12 ($SD = 13.41$; $n = 253$) Soldiers were found to be EMT-qualified in the baseline group, compared with an average of 2.17 ($SD = 5.36$; $n = 422$) Soldiers in the experimental group. This difference was also highly significant statistically, $t(673) = 2.66$, $p = .008$ (two-tailed). One statistically significant group difference was found among the results of six nominal measures, as shown in Table 2. Specifically, there was significantly higher familiarity with the CASEVAC SOP in baseline units than in experimental units, among those units having an SOP. Units in the baseline group also had higher levels of preparedness than experimental units on three of the five remaining background measures, though none of these group differences was statistically significant.

Overall, these results suggest baseline units were better prepared to conduct CASEVAC operations than experimental units, as they were found to have significantly higher scores on three of eight CASEVAC background measures. One should keep this advantage in mind as the remaining results of the investigation are presented.

Table 2

Percentage of Baseline and Experimental Group Units Performing Six Background Tasks

Background Task	Group Percentage		<i>df</i>	<i>n</i>	χ^2	<i>p</i>
	Baseline	Experimental				
Unit had CASEVAC SOP	79.6	83.7	1	756	2.09	.149
Most personnel familiar with SOP	73.0	65.0	1	621	4.34	.037
SOP identified duties of unit leaders	54.1	55.2	1	725	.07	.785
Equipment packed & readily available	77.0	72.7	1	748	1.74	.187
Familiar with 9-line request form	93.0	92.2	1	745	.18	.669
Copy of form available for reference	85.4	83.3	1	750	.58	.448

Note. Percentages for the baseline and experimental groups combined were 82.1%, 68.0%, 54.8%, 74.3%, 92.5%, and 84.1% for the six background tasks, respectively.

Planning

Section III of the Casualty Evacuation Checklist sought to determine whether or not units performed a series of 17 planning tasks for casualty evacuation. Results are summarized in Table 3. Experimental units were found to have significantly higher completion percentages than baseline units on 6 of the 17 planning tasks ($p < .05$). Specifically, units in the experimental group were significantly more likely than baseline units to have rehearsed their CASEVAC plans, to have conducted drills for mass casualties, and to have understood their mass casualties plan. Similarly, experimental units were also more likely to have had their BAS set up and operational and to have personnel who knew its location. Lastly, experimental units were significantly more likely to have rehearsed their CASEVAC teams. Among the 11 remaining CASEVAC planning tasks, experimental units had higher completion percentages than baseline units on eight of the tasks, though none of these group differences was statistically significant.

Table 3

Percentage of Baseline and Experimental Group Units Performing 17 Planning Tasks

Planning Task	Group Percentage		<i>df</i>	<i>n</i>	χ^2	<i>p</i>
	Baseline	Experimental				
Mission plans included CASEVAC	74.8	75.5	1	698	.04	.845
Plans rehearsed	31.5	42.4	1	612	7.25	.007
Had plan for mass casualties	55.2	54.6	1	673	.02	.894
Mass casualties plan rehearsed	36.6	35.7	1	455	.04	.843
TOC & CP understood plan	62.7	61.8	1	412	.03	.863
Mass casualties battle drills conducted	20.2	28.5	1	580	4.92	.027
Unit understood mass casualties plan	29.5	38.4	1	518	4.22	.040
BAS set up and operational	87.1	92.9	1	467	4.32	.038
Planned moving medical assets forward	57.1	60.3	1	353	.32	.574
CCP locations identified and marked	59.2	64.6	1	692	1.99	.159
Unit personnel knew CCP locations	71.0	74.8	1	665	1.15	.284
Unit knew BAS location	85.7	91.3	1	697	5.47	.019
Nearest medical facility location known	89.7	90.7	1	692	.18	.669
Both air and ground evacuation planned	76.8	80.1	1	746	1.17	.280
CASEVAC teams rehearsed	38.0	50.0	1	694	9.58	.002
Communications plan rehearsed	44.0	49.1	1	710	1.75	.186
PCCs and PCIs conducted	77.2	77.9	1	746	.05	.828

Note. Percentages for the baseline and experimental groups combined were 75.2%, 38.2%, 54.8%, 36.0%, 62.1%, 25.3%, 35.1%, 90.8%, 59.2%, 62.6%, 73.4%, 89.2%, 90.3%, 78.8%, 45.4%, 47.2%, and 77.6% for the 17 planning tasks, respectively.

Execution

Section IV of the Casualty Evacuation Checklist sought to determine whether or not units executed a series of 28 casualty evacuation tasks, of which three were measured numerically and 25 were measured nominally. Numerical measures included an estimate of the average time casualties spent in the CCP before being evacuated, an estimate of the time it took for air assets to arrive at the PZ (after receiving approval for air evacuation), and the number of casualties assessed as having died of wounds (DOWs) on the battlefield, prior to any evacuation. On average, casualties in baseline units spent an estimated 49.99 (*SD* = 116.05; *n* = 209) minutes in the CCP, compared with 41.27 (*SD* = 41.57; *n* = 364) minutes for casualties in experimental units. It took air assets an estimated average of 30.97 (*SD* = 23.11; *n* = 150) minutes to arrive at the PZ in baseline units, compared with 27.84 (*SD* = 21.27; *n* = 232) minutes in experimental units. Baseline units had an average of 0.88 (*SD* = 3.34; *n* = 242) casualties assessed as having died of their wounds, while experimental units had an average of 1.14 (*SD* = 3.78; *n* = 356) DOWs. Although the performance of experimental units tended to exceed that of baseline units on two of the three numerical execution measures, none of these group differences was found to be statistically significant.

Results for the 25 execution tasks that were nominally measured are summarized in Table 4. Experimental units were significantly better than baseline units in using the nine-line MEDEVAC request format correctly and in preventing CASEVAC operations from interrupting mission accomplishment ($p < .05$). Also noteworthy were the findings that aid from a medic was more likely to be observed and the battalion/squadron was more likely to have cleared the air space in experimental units than in baseline units. Group differences on these two measures approached the level of statistical significance ($p < .06$). Group differences were not statistically significant for the other 21 execution tasks, though the experimental group had a better completion percentage on 14 of the tasks.

Table 4

Percentage of Baseline and Experimental Group Units Performing 25 Execution Tasks

Execution Task	Group Percentage		<i>df</i>	<i>n</i>	χ^2	<i>p</i>
	Baseline	Experimental				
CCPs moved as situation changed	61.2	60.1	1	689	.07	.792
CCPs secured and marked IAW plan	46.7	53.4	1	594	2.45	.117
Unit SOP followed	69.6	75.2	1	516	1.91	.167
Nine-line format used accurately	88.0	93.5	1	643	5.84	.016
Use of nine-line format was timely	79.8	85.2	1	518	2.47	.116
Self aid provided	60.1	60.4	1	720	.01	.929
Buddy aid provided	78.8	77.4	1	720	.19	.659
CLS aid provided	73.4	71.5	1	720	.30	.582
Medic aid provided	82.7	87.8	1	720	3.58	.059
DD Form 1380 completed & attached	31.8	32.9	1	677	.10	.752
Movement to CCP secure & timely	72.2	74.2	1	682	.35	.551
Casualties separated by triage category	63.4	65.5	1	674	.30	.582
Unit used ground evacuation	89.3	91.9	1	716	1.45	.228
Both standard & non-standard used	26.6	26.0	1	649	.03	.872
Vehicles provided for security	90.3	88.3	1	593	.58	.447
Unit used air evacuation	71.4	71.7	1	676	.01	.939
Both standard & non-standard used	14.6	18.7	1	484	1.37	.241
PZs cleared, marked, & secured	69.7	71.8	1	525	.26	.613
Bn cleared air space in timely manner	78.4	86.3	1	352	3.70	.055
Got support & resources from higher	65.6	61.7	1	666	1.01	.315
Communications plan effective	65.5	66.0	1	691	.02	.890
Casualties sent to nearest practical loc.	95.5	92.1	1	599	2.54	.111
Bn had casualty reception plan	84.3	84.9	1	327	.02	.894
CASEVAC ops interrupted mission	37.8	29.6	1	703	5.11	.024
Had friction points with higher echelon	23.5	20.8	1	587	.58	.445

Note. Percentages for the baseline and experimental groups combined were 60.5%, 51.0%, 73.1%, 91.4%, 83.2%, 60.3%, 77.9%, 72.2%, 85.8%, 32.5%, 73.5%, 64.7%, 90.9%, 26.2%, 89.0%, 71.6%, 17.1%, 71.0%, 83.5%, 63.2%, 65.8%, 93.3%, 84.7%, 32.7%, and 21.8%, for the 25 execution tasks, respectively. Lower group percentages on the last two tasks reflect a higher level of unit performance.

Rehearsals and Mission Accomplishment

A unit's propensity to conduct rehearsals was found to have a strong positive relationship with mission accomplishment in previous JRTC research (Evans & Baus, 2006; Evans, Reese, & Weldon, 2007). Based on an analysis of the full sample of units observed across the 10 rotations in the present investigation, it was found that those units who rehearsed their CASEVAC plans were less likely to have their CASEVAC operations interrupt mission accomplishment than units who did not rehearse their CASEVAC plans. This difference was highly significant statistically [$\chi^2(1, N = 563) = 8.56, p = .003$].

Strengths and Weaknesses

A total of 48 nominal measures of CASEVAC task performance were included in the present investigation. Of these, 6 were related to a unit's CASEVAC background, 17 were related to planning CASEVAC operations, and 25 were related to the execution of CASEVAC operations. Across all units observed, the 10 CASEVAC tasks with the highest completion percentages are shown in Table 5. In contrast, the 10 CASEVAC tasks with the lowest completion percentages are shown in Table 6. Overall, the average completion percentage was 76.0% for the 6 background tasks, 61.2% for the 17 planning tasks, and 69.1% for the 25 execution tasks (after reverse scoring the last two tasks in Table 4).

Table 5
Ten Casualty Evacuation Tasks with the Highest Unit Completion Percentages

Casualty Evacuation Task	Type of Task	Completion Percentage
Casualties transported to nearest practical location for care	Execution	93.3
Familiar with the nine-line MEDEVAC request form	Background	92.5
Nine-line MEDEVAC request format used accurately	Execution	91.4
Unit used ground evacuation	Execution	90.9
BAS set up and operational	Planning	90.8
Unit knew location of the BAS	Planning	90.3
Unit knew location of the nearest medical facility	Planning	89.2
Vehicles provided for security during ground transportation	Execution	89.0
Medic aid provided	Execution	85.8
Battalion/Squadron had a workable casualty reception plan	Execution	84.7

Note. $N \leq 768$

Table 6

Ten Casualty Evacuation Tasks with the Lowest Unit Completion Percentages

Casualty Evacuation Task	Type of Task	Completion Percentage
Unit used both standard and non-standard air evacuation	Execution	17.1
Battalion/Squadron conducted mass casualties battle drills	Planning	25.3
Unit used both standard and non-standard ground evacuation	Execution	26.2
DD Form 1380 completed and attached to each casualty	Execution	32.5
Unit understood battalion/squadron mass casualties plan	Planning	35.1
Mass casualties plan rehearsed	Planning	36.0
CASEVAC and mission plans rehearsed	Planning	38.2
CASEVAC teams rehearsed	Planning	45.4
Communications plan rehearsed	Planning	47.2
CCPs secured and marked IAW the plan	Execution	51.0

Note. $N \leq 768$

Most units performed well in their understanding and use of the nine-line MEDEVAC request form. Most also knew where they were on the battlefield, relative to the various locations of medical treatment facilities. In contrast, units performed less well in utilizing both standard and non-standard methods of ground and air evacuation. In addition, most units failed to attach a completed DD Form 1380 to each casualty, perhaps because this was an item T/Ms frequently found to be missing from unit medical supplies. Room for improvement also existed in the unit rehearsal of CASEVAC plans, CASEVAC teams, mission plans, mass casualty plans, and communications plans.

How Some Casualties Viewed Their Evacuation

Although there were exceptions, most training casualties held positive views of their evacuation, based on their responses to the Casualty Evacuation Questionnaire. For example, 92.9% of the casualties indicated their unit had a CASEVAC plan, 90.9% said they either understood or “pretty much” understood the plan, and 85.7% claimed the plan was either thoroughly or partially rehearsed. Similarly, 83.7% of the casualties said they were at least partially informed about CCP locations and markings, 86.9% reported having security during their evacuation, and 70.7% thought their evacuation was timely. Based on their experience as a training casualty, 75.2% thought their unit evacuation procedures were effective or very effective, and 80.4% were confident or highly confident in the ability of their leaders to evacuate them. In general, these percentages appear to be somewhat higher than those obtained from T/Ms using similar, but not identical, measures (see Tables 2 through 6).

Discussion

One purpose of the present investigation was to determine the overall prevalence of various unit CASEVAC practices during JRTC training missions, in an attempt to pinpoint those areas in which units have the greatest difficulty with casualty evacuation. Based on the combined results from 10 JRTC rotations, several areas of relative weakness were found (see Table 6). Most units did not use both standard and non-standard evacuation methods, either by ground or air. Although units need to be prepared to use both standard and non-standard methods (Department of the Army, 2007), there are at least two valid reasons why some units may not have done so. First, they may have experienced a relatively low number of casualties, who could have been evacuated solely by standard means. Second, standard air and ground evacuation may have been unavailable to some units, forcing them to use only non-standard methods.

Additionally, most units failed to attach a completed DD Form 1380 to each casualty, perhaps because this was an item T/Ms frequently found to be missing from unit medical supplies. Room for improvement was also seen in the general area of CASEVAC planning. In fact, most units did not rehearse their CASEVAC plans, CASEVAC teams, mission plans, mass casualty plans, or communications plans. Probably the one thing that units can do to better perform CASEVAC operations at JRTC is to do a better job of planning and rehearsing their CASEVAC operations. Units that rehearsed their CASEVAC plans were significantly less likely to have their CASEVAC operations interrupt mission accomplishment than units who did not rehearse their plans. This finding is highly consistent with previous JRTC research linking the importance of unit rehearsals to unit performance in the areas of troop leading procedures (Evans & Baus, 2006) and information management (Evans, Reese, & Weldon, 2007).

Areas of relative strength were also found (see Table 5). In particular, most units performed well in their understanding and use of the nine-line MEDEVAC request form. Most also knew where they were on the battlefield, relative to the locations of various medical treatment facilities. Whether the BAS, the nearest medical facility, or the nearest practical location providing medical care, units usually knew where they needed to transport their casualties.

A second purpose of the investigation was to evaluate the effectiveness of the Warrior Leaders Casualty Evacuation Guide as a unit planning tool for CASEVAC operations. Units that were given these guides at the beginning of their rotations were significantly more likely than baseline units to have successfully completed 6 of 17 planning tasks. Experimental units also performed better than baseline units on 8 of the other 11 planning tasks, though not to a statistically significant degree. Group differences were less pronounced in the area of task execution, where experimental unit performance significantly exceeded that of the baseline group on 2 of 28 measures of CASEVAC execution. However, experimental unit performance also exceeded baseline unit performance on 18 of the other 26 execution measures, though not to a statistically significant degree. The baseline group did not perform significantly better than the experimental group on any measure of CASEVAC planning or execution.

In conclusion, these results suggest the Casualty Evacuation Guide had a positive effect on the CASEVAC operations of units receiving them, particularly in the area of CASEVAC planning. These results were achieved despite having a baseline group that appeared to have a head start over the experimental group in terms of CASEVAC preparedness. Not only did baseline units have significantly more CLS-qualified and EMT-qualified Soldiers than experimental units, but they began each mission with a significantly higher level of SOP familiarity. Had the two groups been more similar in terms of their CASEVAC backgrounds, it is possible that group differences in the areas of planning and execution would have been even greater than those found.

Based on the overall results of this investigation, both the authors and members of the Warrior Leadership Council recommend the continued use of the Casualty Evacuation Checklist at JRTC, so T/Ms can systematically gather supporting data on unit CASEVAC practices to use in their AARs. The continued use of the Casualty Evacuation Guide is also recommended for small unit leaders whose units are training at JRTC. Electronic copies of the Casualty Evacuation Checklist and Casualty Evacuation Guide are available through ARI offices at Fort Benning and Fort Polk.

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Appendix A

Enlarged View of the Casualty Evacuation Checklist

CASUALTY EVACUATION CHECKLIST

Disclosure: Data collected with this form will be used for routine research purposes only. Information will not be used in whole or part in making any determination about an individual or unit. Information gathered will be used for statistical control purposes only and will not be disclosed to any unit undergoing rotations at the Joint Readiness Training Center.

BN SQDN CO BTRY TRP **Section I: General Information** **PLT SECT SQD DET**

Date: From _____ To _____

Unit Observed: BN SQDN CO BTRY TRP PLT SECT SQD DET

Type of Unit Observed: IN AR SF RSTA CAV FA EN ADA AVN SC MI MP MS
OD CHEM QM TC CA PSYOP Multiple Types Other **Rotation Phase:** STX FOF LF

BN SQDN CO BTRY TRP **Section II: Unit Information** **PLT SECT SQD DET**

1a. Were most Leaders/Soldiers familiar with their unit's SOP for CASEVAC? Yes No Unit had none

1b. Did their SOP identify CASEVAC duties and responsibilities of unit Leaders such as CDR, XO, 1SG, PL, PSG, SQD LDR, Medic, and Special Teams? Yes No

2. What percentage of unit Soldiers were currently qualified as Combat Life Savers? _____ %

3. How many Soldiers were Emergency Medical Technician (EMT) qualified? _____

4. Did the unit have CASEVAC serviceable equipment packed and readily available, such as DD Forms 1380, combat life saving bags, IV fluids, bandages, litters, landing zone (LZ) and casualty collection point (CCP) marking aids? Yes No If no, what equipment was missing or unserviceable?

5. Were unit Leaders and Soldiers familiar with the 9-line MEDEVAC request form? Yes No

6. Did Leaders and Soldiers have a copy of the MEDEVAC form available for quick reference? Yes No

Comments:

BN SQDN CO BTRY TRP **Section III: Planning Phase** **PLT SECT SQD DET**

1a. Was CASEVAC included in the unit mission plans at all echelons observed (Bn, Sqdn, Co, Btry, Trp, Plt, Sect, Sqd, Det)? Yes No

1b. Was the plan rehearsed at all echelons observed? Yes No

2a. Did the unit have a plan for mass casualties? Yes No NA

2b. Was the plan rehearsed? Yes No NA 2c. Did tactical operations center and command post personnel understand how to execute the plan? Yes No NA

3a. Did the Bn/Sqdn conduct mass casualty battle drills? Yes No

3b. Was the plan pushed down to Company level and did the unit understand the Bn/Sqdn mass casualty plan? Yes No

4a. Was the Bn/Sqdn Aid Station set up and operational? Yes No Don't know

4b. Did the Bn/Sqdn plan to move medical assets forward to support operations? Yes No NA

4c. Identify assets? _____

5a. Were CCP locations identified and marked? Yes No 5b. Did unit personnel know CCP locations? Yes No 5c. Did unit know location of the BAS? Yes No

5d. Did the unit know location of nearest medical facility? Yes No

6. Did the unit have plans for both ground and air evacuation? Both Ground only Air only Neither

7. Did the unit establish and rehearse CASEVAC teams? Yes No Unit had none

8. Was the communications plan rehearsed? Yes No Unit had none

9. Were PCCs and PCIs conducted? Yes No

Comments:

BN	SQDN	CO	BTRY	TRP	Section IV: Execution Phase				PLT	SECT	SQD	DET
1a. Were CCPs moved based on the changing tactical situation? Yes No												
1b. Were the CCPs secured and marked in accordance with the plan? Yes No												
2a. Was the unit SOP followed? Yes No 2b. If no, why not? _____												
3a. Was the 9-line format used accurately? Yes No NA												
3b. Was it used in a timely manner? Yes No NA												
4a. What levels of aid were given (circle all observed)? Self Buddy Aid Combat Life Saver Medic												
4b. Was a DD Form 1380 completed and attached to each casualty? Yes No												
5a. Were casualties secured and moved to the CCP in a timely manner? Yes No 5b. If no, why not? _____												
5c. Were casualties separated by triage categories? Yes No												
6. What was the average time casualties remained at the CCP before being evacuated? Hours _____ Minutes _____												
7a. Did the unit use ground evacuation? Standard Non-standard Both Neither												
7b. Were vehicles provided for security during ground transportation? Yes No												
8a. Did the unit use air evacuation? Standard Non-standard Both Neither												
8b. Were pickup zones cleared, marked, and secured properly? Yes No												
9a. Did the Bn/Sqdn clear the air space in a timely manner? Yes No NA												
9b. After approval for air evacuation, how long did it take for the air asset to arrive at the PZ? Hours _____ Minutes _____												
10. Did the unit receive support and resources from higher echelons? Yes No												
11. Was the communications plan effective? Yes No												
12. Were casualties transported to the nearest practical location for care? Yes No NA												
13. Did the Bn/Sqdn have a workable casualty reception plan? Yes No NA												
14a. Did CASEVAC operations interrupt or cause the unit to deviate from mission accomplishment? Yes No												
14b. Please explain the above impact, if any: _____												
15a. Did friction points exist between the unit and higher echelons? Yes No 15b. If your answer is yes, please identify the friction points: _____												
16a. How many casualties (RTU only) were assessed as Died of Wounds (DOW)? _____ (Do not include KIA)												
16b. If casualties were assessed as DOW, what were the reasons? _____												
17a. Identify CASEVAC tasks that the unit should sustain: _____												
17b. Identify CASEVAC tasks that the unit should improve: _____												
Comments:												
T/M Initials _____ Callsign _____ Division/Task Force _____ Rotation Number _____												

Version 4: 06/25/0

Appendix B

Enlarged View of the Warrior Leaders Casualty Evacuation Guide

WARRIOR LEADERS CASUALTY EVACUATION GUIDE

PLANNING

ANNEX _____ (CASUALTY EVACUATION) TO OPORD/FRAGO _____

1. SITUATION. N/C

2. MISSION. N/C

3. EXECUTION.

a. Concept of the Operation _____

b. Mass Casualties _____

c. Tasks to Subordinate Units _____

1. Company/platoon litter teams _____
2. CASEVAC security teams _____
3. Medics/CLS _____

d. Coordinating Instructions _____

1. Location, route to, and type of medical assets _____
2. Location and route to nearest medical facility _____
3. Location and route to CCPs. Primary _____ Alternate _____
CCP markings (day/night) _____ CCP security _____
4. Location and route to PZ. Primary _____ Alternate _____
PZ markings (day/night) _____ PZ security _____
5. Route security _____
6. Wounded detainee security and evacuation _____

4. SERVICE SUPPORT.

a. Equipment _____

1. Mission capable litters w/straps (fit in M-1114 and UH-60) _____
2. Mission capable medical kits [IFAK, CLS Bag, M5 Bag, with all items (i.e., bandages, IV fluids, DD Forms 1380)] _____
3. Marking aids for CCPs and PZs (day/night) _____

b. Transportation _____

1. Primary and alternate CASEVAC vehicles (type, location, & patient load plan) _____
2. Grid location of higher AXP or CCP _____

3. Air assets available (type) _____
a. Location _____
b. Time of flight (estimated) _____
- c. Class VIII Resupply. Available _____ Location _____

5. COMMAND AND SIGNAL.

- a. Command. N/C
- b. Signal. Current SOI in effect. Other Call Signs and Frequencies.

Bn/Sqdn Operations Net _____ CASEVAC Net/Callsign _____

Air Evacuation Net _____ Bn/Sqdn A/L Net _____ Adjacent Units _____

REHEARSALS, PCIs, & PCCs (Use Unit SOP)

1. Rehearse litter teams, use of equipment, and completion of DD Form 1380. Practice evacuation techniques.
2. Establish, check, and rehearse communications plan.
3. Rehearse mass casualties and TRIAGE.
4. Designate routes and person in charge of specialty teams.
5. Designate and rehearse security teams for CCPs/PZs.
6. Rehearse and ensure all personnel fully understand the plan, location, markings, actions for CCPs/PZs, and duties and roles of coalition forces.
7. Rehearse nine-line MEDEVAC request.
8. Inspect/check medical bags for proper and serviceable contents. Inspect litters and CCP/PZ day/night marking materials for serviceability. Rehearse aircraft and vehicle loading procedures.
9. Rehearse treatment/evacuation of local national forces casualties (using current in-country rules of engagement) to include use of interpreter and location of facilities to evacuate casualties.

EXECUTION (Enforce Unit SOP)

1. Establish FAST teams and position assets based on METT-TC and changing situation.
2. Move CCPs/PZs based on the changing situation, ensuring security & markings as planned.
3. Request CASEVAC support from higher echelons, to include resupply of medical materials as needed. Include your request for Class VIII resupply in the nine-line MEDEVAC request.
4. Ensure all types of medical aid (self aid, buddy aid, CLS, & medic) are administered promptly, as soon as the situation permits.
5. Ensure casualties, weapons, sensitive items, and equipment are secured, accounted for, and evacuated IAW unit SOP. Ensure a DD Form 1380 is completed and attached to each casualty.
6. Move casualties to the CCP and separate by precedence and type for evacuation.
7. Evacuate casualties to the **nearest** medical facility.
8. Maximize use of all available transportation (standard, non-standard, ground, & air assets).
9. Check and maintain communications.

Appendix C

Casualty Evacuation Questionnaire

CASUALTY EVACUATION QUESTIONNAIRE

Privacy Act Statement

1. Public Law 93-573, called the Privacy Act of 1974, requires that you be informed of the purpose and uses to be made of the information collected in this research. The Department of the Army may collect the information requested on this form under the authority of Title 10 United States Code 2358.
2. Principal Purpose: To collect data in conjunction with an approved U.S. Army Research Institute and Joint Readiness Training Center research plan: "Casualty Evacuation".
3. Routine Uses: The data collected with this form are to be used for routine research purposes only. They will not become part of any individual's record and will not be used, in whole or in part, to make any determination about an individual. Full confidentiality of responses will be maintained in the processing of these data.
4. Mandatory or Voluntary Disclosure and Effect on Individual Providing Information. You are encouraged to provide complete and accurate information in the interests of the research, but there will no effect on individuals not providing all or part of the information.

DATE: _____ **DUTY POSITION:** _____ (e.g., Driver, RTO, Rifleman, Scout, Team Leader) **TYPE of UNIT:** _____ (e.g., Infantry, Field Artillery, Cavalry, Medical, etc.) **TYPE OF CASUALTY:** ____ KIA ____ WIA ____ DOW

For each of the following 10 items, please place an X on the appropriate line to the left of your response.

1. Did your unit have a plan for casualty evacuation?
____ Yes ____ No ____ I don't know
2. Did you understand the plan?
____ Yes ____ Pretty much ____ A little confusing ____ No plan
3. Was the plan rehearsed?
____ Yes, thoroughly ____ Yes, partially ____ Not rehearsed
4. How were you informed of your unit CCP locations and routes to CCPs? *(Mark all that apply)*
____ Map grid ____ CCP sketch ____ Shown by leader using a map ____ Not informed
5. Were you informed of CCP Markings (Day and Night)?
____ Yes ____ Day only ____ Night only ____ Not informed
6. As a training casualty, what level of aid were you given at the point of injury? *(Mark all that apply)*
____ Self Aid ____ Buddy Aid ____ Combat Life Saver ____ Unit Medic ____ None
7. As a training casualty, were you provided security?
____ Yes ____ No ____ I don't know
8. As a training casualty, was your evacuation done in a timely manner?
____ Yes ____ No ____ I have no way of knowing ____ Unit didn't evacuate
9. Based on your experience as a training casualty, please describe your unit evacuation procedures. ____ Very effective ____ Effective ____ Somewhat effective ____ Ineffective
10. Based on your experience as a training casualty, please describe your confidence in the ability of your leaders to evacuate you.
____ Highly confident ____ Confident ____ A little confident ____ Not confident

Appendix D

Casualty Evacuation Research Plan



DEPARTMENT OF THE ARMY
JOINT READINESS TRAINING CENTER OPERATIONS GROUP
7260 ALABAMA AVENUE
FORT POLK, LOUISIANA 71459-5314

REPLY TO
ATTENTION OF

ATZL-JR

09 June 2007

MEMORANDUM FOR RECORD

SUBJECT: Research Plan – Casualty Evacuation (CASEVAC) – Joint Readiness Training Center, Warrior Leadership Council, and U.S. Army Research Institute

1. Goal. To increase effective Army-wide Casualty Evacuation, IAW FM 3-21.10 Infantry Rifle Company, FM 3-21-20 Infantry Battalion, and FM 8-10-6 Medical Evacuation in a Theater of Operations.
2. Concept of Research. The intent is to collect data on the effectiveness of CASEVAC by units at the battalion, company, and platoon levels for nine consecutive rotations. The first rotation will be a pilot rotation to verify usability and suitability of the data collection instrument. We will collect and analyze baseline data for the next four rotations. Based on cumulative analysis of data after each rotation, revisions to data collection methods will be made if needed. The Warrior Leadership Council will then propose an intervention to be introduced to unit commanders and leaders prior to the next four rotations. An example of an intervention may be a pocket-sized guide to assist the commander, staff member, or leader in planning and execution of CASEVAC operations. To gauge the overall effectiveness of the intervention, we will statistically compare the effectiveness of CASEVAC operations between the last four and the first four rotations.
3. Scope. Echelons of interest are Battalions, Squadrons, Batteries, Companies, Troops, and Platoons with the Battery, Company, and Troop being the center of interest. Units will be observed during the Situational Training, Live Fire, and Force on Force phases of the rotation. The research will focus on Unit Information, Planning, and Execution.
4. Data Collection. O/Cs at each echelon will collect data using a Checklist developed and approved by the Warrior Leadership Council. Measures of interest include the following:
 - a. Unit Information.
 - (1) Were most Leaders/Soldiers familiar with their unit's SOP for CASEVAC?
 - (2) Did their SOP identify CASEVAC duties and responsibilities of unit Leaders?
 - (3) What percent of unit Soldiers were Combat Life Saver qualified?

ATZL-JR

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- (4) How many Soldiers were Emergency Medical Treatment (EMT) qualified?
- (5) Did the unit have CASEVAC equipment packed and readily available?
- (6) Were Unit Leaders and Soldiers familiar with the 9-line MEDEVAC request form?
- (7) Did most Leaders and Soldiers have a copy of the MEDEVAC form available?

b. Planning

- (1) Was CASEVAC included in the unit mission plans at all echelons observed? Was the plan rehearsed at all echelons observed?
- (2) Did the unit have a plan for mass casualties? Was the plan rehearsed?
- (3) Did tactical operations center and command post personnel understand how to execute the plan?
- (4) Did the unit conduct mass casualty battle drills?
- (5) Was the Bn/Sqdn Aid Station set up and operational? Did the Bn/Sqdn plan to move medical assets forward to support operations?
- (6) Were CCP locations identified? Did unit personnel know CCP locations?
- (7) Did the unit have plans for both ground and air evacuation?
- (8) Did the unit establish and rehearse CASEVAC teams? Was the communications plan rehearsed?
- (9) Were PCCs and PCIs conducted?
- (10) Did most Leaders and Soldiers understand their unit's overall mission?

c. Execution

- (1) Were CCPs moved based on the changing tactical situation? Were the CCPs marked and secured?
- (2) Was the unit SOP followed? Was the 9-line format used accurately? Was it used in a timely manner?

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(3) What levels of aid were given (Self, Buddy Aid, Combat Life Saver, Medic)? Was a DD Form 1380 completed and attached to each casualty?

(4) Were casualties secured and moved to the CCP in a timely manner? Were casualties separated by triage categories?

(5) What was the average time casualties remained at the CCP before being evacuated?

(6) Did the unit use ground evacuation? Were vehicles provided security during ground transportation?

(7) Did the unit use air evacuation? Were pickup zones marked and secured?

(8) Did the Bn/Sqdn clear the air space in a timely manner? After approval for air evacuation, how long did it take for the air asset to arrive at the PZ?

(9) Did the unit receive support and resources from higher echelons?

(10) Was the communications plan effective?

(11) Were casualties transported to the nearest practical location for care? Did the Bn/Sqdn have a workable casualty reception plan?

(12) Did CASEVAC operations interrupt or cause the unit to deviate from mission accomplishment?

(13) Did friction points exist between the unit and higher echelons? Identify them.

(14) How many casualties were assessed as having Died of Wounds (DOW)? If casualties were assessed as DOW what were the reasons?

(15) Identify CASEVAC tasks that the unit should sustain and improve.

5. Responsibilities.

a. Operations Group Deputy Commander and Command Sergeant Major shall provide Command oversight to the CASEVAC investigation.

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b. The ARI technical representative shall provide technical and scientific support to the Warrior Leadership Council, analyze data after each rotation, and provide a written report of the research findings for review by the Council and Commander Operations Group following the conclusion of the investigation.

c. The ARI Liaison Officer shall provide administrative support and warrior experience to the Warrior Leadership Council, develop and revise the research plan, develop a data collection form to be used by O/Cs and provide local coordination for plan approval and execution.

d. O/Cs within each Division shall be responsible for collecting data on measures of interest.

e. Division members of the Warrior Leadership Council shall be responsible for insuring O/C data collection forms in their respective Division provide satisfactory data on measures of interest as outlined in Paragraph 4.

f. Through its regularly scheduled meetings after each rotation, the Warrior Leadership Council shall insure consistency and continuity of data collection efforts across Divisions.

6. Points of Contact. Major Richard Reese, Warrior Leadership Council Chairman, 531-5938; Richard.Reese@us.army.mil; Master Sergeant Louis Weldon, Warrior Leadership Council Vice Chairman, DSN 863-448-9662; Louis.Weldon@us.army.mil; Bill Gates, U.S. Army Research Institute, Liaison Officer, 531-1248; julius.gates@us.army.mil.

DAVID M. MILLER
COL, IN
Deputy Commander

Appendix E

List of Acronyms and Abbreviations

List of Acronyms and Abbreviations

1SG	First Sergeant
AAR	After Action Review
ADA	Air Defense Artillery
AR	Armor
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
AVN	Aviation
AXP	Ambulance Exchange Point
BAS	Battalion Aid Station
BN	Battalion
BTRY	Battery
CA	Civil Affairs
CASEVAC	Casualty Evacuation
CAV	Cavalry
CCP	Casualty Collection Point
CDR	Commander
CHEM	Chemical
CLS	Combat Life Saver
CO	Company
COL	Colonel
CP	Command Post
DD	Department of Defense
DET	Detachment
DOB	Died on the Battlefield
DOW	Died of Wounds
ED	Editor
EMT	Emergency Medical Technician; Emergency Medical Treatment
EN	Engineer
FA	Field Artillery
FAST	Forward Area Support Team
FM	Field Manual
FRAGO	Fragmentary Order
FOF	Force on Force
IAW	In Accordance With
IFAK	Improved First Aid Kit
IN	Infantry
IV	Intravenous

JRTC	Joint Readiness Training Center
KIA	Killed in Action
LOC	Location
LF	Live Fire
MEDEVAC	Medical Evacuation
METT-TC	Mission, Enemy, Terrain, and Troops – Time available, Civil considerations
MI	Military Intelligence
MP	Military Police
MS	Medical Service
NA	Not Applicable
N/C	No Change
O/C	Observer/Controller
OD	Ordnance
OPORD	Operations Order
PCC	Pre-Combat Check
PCI	Pre-Combat Inspection
PL	Platoon Leader
PLT	Platoon
PSG	Platoon Sergeant
PSYOP	Psychological Operations
PZ	Pickup Zone
QM	Quartermaster
RDECOM	U.S. Army Research, Development, and Engineering Command
RSTA	Reconnaissance, Surveillance, and Target Acquisition
RTO	Radio Telephone Operator
RTU	Replacement Training Unit
SC	Signal Corps
SECT	Section
SF	Special Forces
SMA	Sergeant Major of the Army
SOI	Signal Operating Instruction
SOP	Standing Operating Procedure
SQD	Squad
SQD LDR	Squad Leader
SQDN	Squadron
STX	Situational Training Exercise

TC	Transportation Corps
T/M	Trainer/Mentor
TOC	Tactical Operations Center
TRADOC	U.S. Army Training and Doctrine Command
TRP	Troop
WIA	Wounded in Action
XO	Executive Officer