Marine Corps Combat Casualty Care:

Determining Medical Supply Requirements for an Infantry Corpsman Bag

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Summary

Problem

Wartime experience with the current combat corpsman medical bag has shown it to be unsatisfactory for use by the infantry platoon corpsman. Part of the Marine Corps Modular Lightweight Load-Carrying Equipment (MOLLE) system, the MOLLE medical bag was designed to be a modular system that could be customized by the corpsman for specific missions. However, in the field, corpsmen said they have found the bag to be too large, too heavy, and filled with supplies and equipment they never use. Experienced combat corpsmen voiced the need for a lightweight patrol medical kit containing only those items necessary for immediate lifesaving treatments, such as hemorrhage control and fluid resuscitation.

Objective

Naval Health Research Center was tasked by the Marine Corps Systems Command to determine the medical supply requirements for a modular corpsman's bag that could satisfy the specific wartime needs of platoon combat corpsmen.

Method

NHRC's method of modeling and analyzing medical resource requirements was used to identify critical medical tasks corpsmen would need to perform on wounded personnel in a variety of combat scenarios, including current combat operations in Iraq. Those tasks were then modified to comply with the treatment guidelines set forth by the Committee on Tactical Combat Casualty Care. Current casualty rate information indicated a platoon corpsman was likely to treat three combat injuries in a 1-week period. Three multi-injury patient conditions (PC) were chosen from the Defense Medical Standardization Board Treatment Briefs because they provided a good representation of the wound distribution being seen in Iraq, and the NHRC modified corpsman treatment model was applied. The result were reviewed and modified by combat-experienced corpsmen during an integrated product meeting held 12–13 February 2006 at Camp Lejeune, NC.

Results and Discussion

The NHRC study and subsequent subject matter expert panel provided combat corpsmen with the medical supplies they need to provide lifesaving aid to wounded Marines. Combining NHRC modeling methods with current casualty treatment guidelines, along with the insight of experienced combat corpsmen, resulted in updated equipment and supplies used by corpsmen in the field. It also provides corpsmen more control over how they carry that equipment and supplies into battle. The total weight for the final corpsman bag inventory is 20.6 pounds, a reduction of about 12 pounds (38%) from the full weight of the MOLLE bag. The total weight for the final corpsman bag inventory is 20.6 pounds, a reduction of about 12 pounds (38%) from the full weight of the MOLLE bag.

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Introduction

The current Marine Corps corpsman medical bag was introduced in 1999 as a replacement for the M-3 Medical Instrument Supply Set —known as the Unit One bag in the Navy and Marine Corps—which had been in continuous service since the end of WWII. Designed as part of the Marine Corps Modular Lightweight Load-Carrying Equipment (MOLLE), the corpsman bag was designed to carry a mix of medical supplies and equipment that could be tailored to the specific needs and skills of each individual corpsman and his/her mission.[1, 2]

Battlefield experience with the MOLLE bag, however, has had disappointing results. Navy corpsmen assigned to Marine Corps infantry units complained that the bag was too large and bulky for use in combat with small units such as squads or platoons, lacked compartmentalization for easy identification and access to medical supplies while providing treatment under fire or in the dark, and contained too many items rarely used by platoon corpsmen.[3, 4] Total weight for the bag with intravenous fluids was as heavy as 32 pounds.[5] These problems appear to have resulted from an operational requirements document (ORD) specifying that the MOLLE bag must be a one-size-fits-all bag. Unfortunately, the ORD did not distinguish between the load-bearing restrictions experienced by a corpsman assigned to a relatively stationary artillery unit or one assigned to an infantry or light reconnaissance unit. The latter two, however, make up 80% of the corpsmen in a Marine Corps division.[5]

Naval Health Research Center (NHRC) was tasked by the Marine Corps Systems Command (SYSCOM) to determine the medical supply requirements for a modular corpsman's bag that could satisfy the specific wartime needs of platoon combat corpsmen. NHRC was asked to determine the minimum amount of supplies a platoon corpsman would need to carry. Determining the means of carrying the supplies was not part of the request.

Method

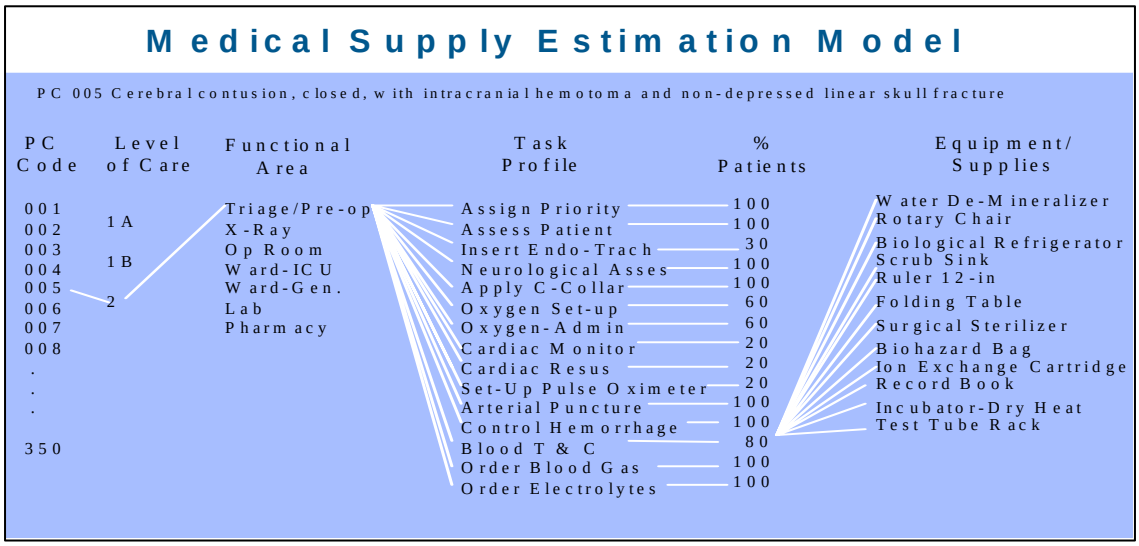
NHRC's study utilized the Center's method of modeling medical supply requirements, which was developed to establish and review Authorized Medical Allowance Lists (AMALs) for various levels of care (LOCs) in the Navy and the Marine Corps. Its aim is to give providers in the field or the fleet the materiel they need to provide the best care possible, while still maintaining as small a logistical footprint as possible in concert with current Navy and Marine Corps doctrine.

The modeling method is a four-step process that includes the identification of likely patient types to be encountered by a particular type of medical treatment asset, including combat wounds, nonbattle injuries, and illnesses. Patient conditions (PCs) found in the Defense Medical Standardization Board (DMSB) Treatment Briefs are used for this purpose. The PCs are then linked to clinical tasks developed by NHRC for the appropriate LOC. Those tasks are, in turn, linked to each supply item needed to complete the task. Equipment and consumable supplies can then be calculated based on the probability of those PCs occurring in a patient stream.

Figure 1 provides a basic representation of the NHRC modeling process. In this model, PC 005, a head injury, is being treated in the triage area of a Level 2 surgical facility. The task profile shows the likely clinical tasks to be performed on this type of patient in that functional area, and the percentage of those patients expected to receive them. The "Equipment/Supplies" column identifies the items needed to complete the blood type and cross-task at that LOC. Not shown in this figure are additional data fields used to calculate supply quantities, including the amount of each supply needed to complete the task, how often the task will be repeated in the first 24 hours of treatment, how often the task will be repeated in each subsequent 24-hour period, and the average length of stay at that LOC.

Figure 1

NHRC Method of Modeling Medical Supplies



Clinical Tasks

To determine the clinical tasks most frequently used by platoon corpsmen in combat, patient streams from three different battle scenarios were run through the NHRC Estimating Supplies Program, a software program that enables medical planners to estimate supply requirements for a wide variety of possible military actions.[6] The three battle scenarios chosen were Operation Iraqi Freedom-1, the Battle of the Black Sea in Mogadishu, Somalia, and a large scale East-West war scenario developed for training purposes. These three scenarios provided patient streams likely to be seen in open desert warfare (OIF-1), urban warfare (Mogadishu) and widespread force-on-force warfare. The clinical tasks required at the corpsman LOC for all three scenarios were then consolidated, modified, and updated to adhere to the treatment guidelines for care under fire and tactical field care promulgated by the Committee on Tactical Combat Casualty Care (TC^3).[7] The identified field clinical tasks can be seen in Table 1. Supply profiles for each task, regardless of PC, can be found in Appendix A.

Table 1

Mandatory Combat Clinical Tasks for Corpsmen

Task No.*	Task Description
001	Triage
002	Assessment and Evaluation of Patient Status
006	Establish Adequate Airway (Oro/Naso Pharyngeal Only)
007	Emergency Cricothyroidotomy
018	Recognize and Respond to Hemorrhage
024	Vital Signs
049	Start/Change IV Infusion Site
050	Administer IV Fluid
086	Dress and Clean Wound
096	Apply Sling
098	Apply Splint/Immobilize Injury
108	Minor Surgical Procedure (Debride/Suture/Incision)
121	Eye Irrigation
127	Patient Restraint (Gauze, Ties)
145	Administer Appropriate Medication
A2	Remove Casualty From Danger
A6	Apply Tourniquet
A12	Occlude Sucking Chest Wound
A10	Position for Postural Drainage/Place in Coma Position
Z014	Establish Adequate Airway (Intubation)
Z083	Expose Patient for Exam
ZZ03	Needle Thoracostomy

*Task number does not indicate order in which task should be completed.

Note that typical civilian emergency care tasks such as neck and spine stabilization are not included, while emergency cricothyroidotomy has been added to the skills matrix. This is in keeping with current TC^3 guidelines. Studies of casualties from the Vietnam

War indicate that neck or spine stabilization is needed in only 1.4% of combat injuries, and the added risk to both responders and the wounded in performing this task in combat outweighs any possible benefits.[7,8]

The TC[3] also determined that cricothyroidotomy is a safe and effective means of establishing a patent airway in combat if other means like endotracheal intubation, or nasal or oral airway adjuncts, prove ineffective. It is also the preferred method of securing an airway in the presence of maxillofacial injuries creating obstructions or disrupted anatomy that prevent the use of other airways.[7,8]

Patient Stream

Ten platoon corpsmen are typically assigned to Marine Corps infantry companies during combat operations. The most senior of these is assigned to the company headquarters, while the rest are distributed among the company's three platoons. Each platoon has three 12-man squads, with a corpsman assigned to each squad.[9] Corpsmen may accompany patrols comprising a smaller number of men, but for this study the full strength of the squad was used as the population at risk.

NHRC statisticians studying casualty rates in Iraq determined that a Marine Corps infantry platoon could expect a 25% casualty rate (or a total of 3 wounded) over a 1-week period (J. Zouris, oral communication, Jan. 2006). These casualties would run the gamut from very minor wounds to major injuries. However, for the study, 3 major multi-injury PCs were chosen from the DMSB Treatment Briefs (see Table 2). These three were chosen because they provided a good representation of the type of wounds (amputations, penetrating trauma, vascular injuries) seen in the Navy–Marine Corps Combat Trauma Registry data from OIF 2 (Figure 2). These PCs were applied to the NHRC medical resource model along with the modified corpsman tasks to produce the new corpsman bag inventory.

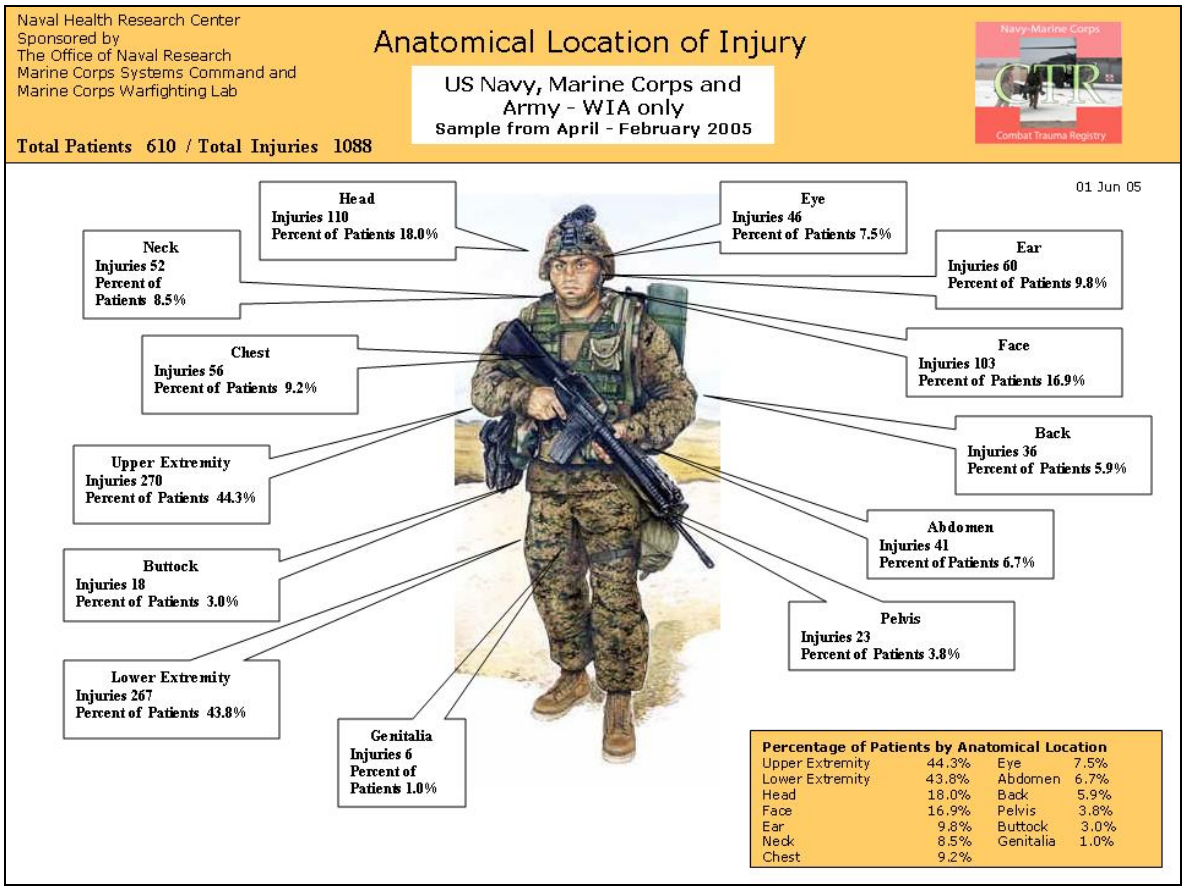
Table 2

Patient Conditions Used in Study

PC No.	PC Description
165	MIW brain and lower limbs requiring bilateral above knee amputations.
171	MIW chest with pneumohemothorax and limbs with fracture and vascular injury.
175	MIW abdomen and limbs with penetrating, perforating wound of colon and open fracture and neurovascular wound of salvageable lower limb.

Figure 2

Wound Distribution in OIF 2



Source: Navy–Marine Corps Combat Trauma Registry.

Once a preliminary inventory was established, it was reviewed by personnel at the Field Medical Service School at Camp Pendleton, and adjusted to comply with skill sets currently being taught there (D. Bennet, oral communication, Jan. 2006).

Results

This study resulted in the corpsman bag inventory being divided into two parts: a trauma module to be carried on foot patrols (Patrol Trauma Kit), and a sick-call module for disease and nonbattle injuries (DNBI Kit), used in a static situation on a base or when mechanized. The trauma module contained only supplies needed for hemorrhage control, airway patency, fluid resuscitation, and pain management. The DNBI module contains only items used for the type of patient assessment seen in sick call, and basic medications like Tylenol and Benadryl.

Trauma Supplies

Among the MOLLE bag inventory deficiencies cited by corpsmen were the standard field dressings, which they said failed to control hemmorhage.[3] (The three different sizes of battle dressings in the MOLLE bag were replaced with two sizes of Cinch Tight bandages (National Stock Numbers [NSNs] 6510015328930 and 6510015032109), which have adjustable-size dressings and elastic wrappings. The Kerlix crinkle weave cotton fluff bandage in the MOLLE bag was replaced with a similarly sized Cinch Tight crinkle weave, cotton fluff bandage (NSN 6510015032117) that is vacuum packed to reduce cube. All three replacement items will standardize the new bag's contents with those of the new Marine Corps Individual First Aid Kit and the airborne casualty evacuation AMAL. The nonpneumatic tourniquet currently in the MOLLE bag will need to be replaced with a more effective means of hemorrhage control. For modeling purposes, it was temporarily replaced for this study with the Combat Applied Tourniquet (CAT) (NSN 65150152179). The CAT is already widely available in the Iraqi theater. However, SYSCOM is currently conducting studies of a number of commercially available tourniquets to identify a permanent replacement for the nonpneumatic tourniquet. The proposed trauma module inventory can be found in Appendix B.

Sick-Call Supplies

The sick call or DNBI module contains those items identified in the 1998 NHRC study for the MOLLE bag as needed for the care of minor sick-call complaints or injuries.[2] Two items, both mercury-based thermometers, were replaced in accordance with current regulations against the use of items containing mercury, a hazardous material. The thermometers were replaced with a single low-temperature electronic thermometer and probe covers.

The 1998 study also identified several resupply items that should be carried in the Battalion Aid Station consumable AMAL (AMAL 636), including medications to be distributed by corpsmen as mission needs and skill levels allow. *These items should remain part of the BAS consumable AMAL.* The proposed sick call/DNBI module contents can be seen in Appendix C.

Integrated Planning Team

These findings were presented to a panel of combat-experienced corpsmen during an integrated product team (IPT) meeting held at Camp Lejeune, NC, 12–13 February 2006. (A list of commands participating in the IPT meeting can be found in Appendix C.) Modifications made during the meeting included removing all medications and fluids from the corpsman bag inventory; these will be drawn from the BAS on an as-needed basis. The endotracheal tubes were replaced with the King LT rescue oropharyngeal airway (NSN 6515-01-515-0151). The King LT allows "blind" intubation of patients without the use of a laryngoscope, allowing that piece of equipment to be removed from the inventory. Also added were the F.A.S.T. 1 intraosseous infusion device (NSN 6515-01-463-7309) and a Cricothyroidotomy kit (NSN 6515-01-321-5211). A lightweight,

collapsible traction splint (NSN 6515-01-3469-186) was also added to the DNBI module, as was a lightweight pelvic sling (6515-01-526-1175) for stabilization of pelvic injuries. *Specific items may be changed as SYSCOM identifies adequate substitutes through additional testing.* The proposed trauma and DNBI inventories can be found in Appendices B.

The corpsmen determined that the equipment and supplies should be divided among three separate bags, depending on mission requirements. A large backpack medical bag currently being fielded to replace the MOLLE bag will contain all equipment and consumables, as well as two smaller containers—a medium-sized bag that attaches to the corpsman's assault vest, and an even smaller thigh pouch. The latter two will be stocked by the individual corpsman from the contents of the backpack as each mission requirement dictates. Normally, the smaller bags will carry only those items needed for immediate care under fire and tactical field care, and will be the primary means of carrying supplies while on patrol. The backpack will be used for resupplying the smaller bags and for holding items used for casualty evacuation or DNBI. The exact size and type of these smaller bags will be determined by SYSCOM at a later date.

Discussion and Comment

The NHRC study and subsequent IPT panel will provide Marine Corps infantry corpsmen with the medical supplies they need to provide lifesaving aid to wounded Marines. Combining NHRC modeling methods with TC^3 treatment guidelines, along with the insight of experienced combat corpsmen, succeeded in updating the equipment and supplies used by corpsmen in the field. At the same time, it will give corpsmen more control over how they carry equipment and supplies into battle. The total weight for the final corpsman bag inventory is 20.6 pounds, a reduction of about 12 pounds (38%) from the full weight of the MOLLE bag. Unlike the MOLLE bag, however, corpsmen will now be able to carry only those portions of the inventory that meet their immediate mission needs, resulting in an even greater weight savings.

Establishing the corpsman bag inventory, however, is not an end in and of itself. The inventory should be regularly reviewed and updated as experience on the battlefield reveals either success or failure of its components, as TC^3 training introduces new protocols, or as new technology applicable to tactical medicine becomes available. This study and subsequent panels have shown NHRC's method of researching and modeling is appropriate for conducting such ongoing reviews and updates.

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Appendix A: Medical Tasks and Associated Supplies

Appendix A:
Medical Tasks and Associated Supplies*
*Regardless of PC

TASK	TASKDESC	NSN	NOMEN	QUANT	UM
001	Triage	XXXXXXXXXXX13	No Medical Supplies At This Level Of Care	X	XX
002	Assessment And Evaluation Of Patient Status	XXXXXXXXXXX9	Visual Task-No Medical Supplies Assigned	X	XX
		6515011676637	Airway Nasopharyngeal Robertazzi 30fr 12s	0.1	EA
		6515009582232	Airway Pharyngeal Berman Design 80mm 12s	0.5	EA
		6515011649637	Airway Pharyngeal Cut Away Flange 30fr 30s	0.4	EA
007	Emergency Cricothyroidotomy	6545009577650	Surgical Instrument Set Minor Surgery	1	EA
		6510007863736	Pad Prep Isopropyl Alcohol Impreg 1x2.5in 100	1	EA
		6515011676637	Airway Nasopharyngeal Robertazzi 30fr 12s	0.5	EA
		6515010369034	Tube Endotracheal Murphy 7.5mm 10s	0.5	EA
010	Assess Neurological Status	XXXXXXXXXXX25	No Supplies Assigned This Task	X	XX
018	Recognize And Respond To Hemorrhage	6510015032117	Bandage Gauze Fluff 4.5in X 4.1yds 1s	2	RL
		6510002011755	Bandage Muslin Camouflage 37x37x52in 1s	1	EA
		6510015328930	Bandage Elastic 16x12" Abdominal Wound Pad Sterile (Big Cinch)	2	EA
		6510015032109	Bandage Elastic 8x10" Compressed Sterile	2	EA
		6510007822699	Sponge Surg 12-Ply Gauze 8x4in Nonster 200s	2	EA
		6510014999285	Wound Pack Hemostatic Treatment 5x7" Pkg	1	EA
024	Vital Signs	XXXXXXXXXXX25	No Supplies Assigned This Task	1	EA
049	Start/Change IV Infusion Site	6515013909654	Catheter & Needle Unit Iv 18gax1.25in 200s	1	EA
		6515011050614	Iv Inj Set Macrodrip 15 Drops/Ml 50s	1	EA
		6510007863736	Pad Prep Isopropyl Alcohol Impreg 1x2.5in 100	2	EA
		6510009268882	Tape Adhesive Surg Woven 1inx12yd 12s	0.05	RL
050	Administer IV Fluid	6505001161120	Sodium Chloride Injection 500ml 12s	1	ea

Appendix A:
Medical Tasks and Associated Supplies*
*Regardless of PC

TASK	TASKDESC	NSN	NOMEN	QUANT	UM
086	Clean And Dress Wound	6510012435894	Dressing Burn 4x16in Saturated W/Water Gel Individually Wrapped 28s	1	EA
		6510015032117	Bandage Gauze Fluff 4.5in X 4.1yds 1s	1	EA
		6510007822699	Sponge Surg 12-Ply Gauze 8x4in Nonster 200s	3	EA
096	Apply Sling/Swath	6510002011755	Bandage Muslin Camouflage 37x37x52in 1s	2	EA
098	Apply Splint/Immobilize Injury	6510009355823	Bandage Elastic Rolled Ace 6inx4.5yds 12s	1	RL
		6515014941951	Splint Univ Alum 4in Wi X 36in Lg 1s	1	EA
		6510009268884	Tape Adhesive Surg Woven 3inx10yd 4s	0.2	RL
121	Eye Irrigation	6505001161120	Sodium Chloride Injection 500ml 12s	1	EA
126	Seizure Care/Precautions	6510015032117	Bandage Gauze Fluff 4.5in X 4.1yds 1s	3	RL
142	Order And Document Appropriate Meds/Treatment	7520013907870	Marker Tube Type Felt Fine Black Permanent Sharpie 12s	0.05	EA
		0102lf0135500	Us Field Medical Card Form Dd 1380	1	EA
145	Administer Appropriate Medication	6505011527626	Epinephrine Injection 1:1000 Syr-Ndl 0.3mg 1s	1	EA
		6505013025530	Morphine Sulfate Inj 10mg Auto Injector	1	EA
		6505000797867	Naloxone Hcl Inj Usp .4mg/Ml 1ml Amp 10s	1	EA
		6515014520465	Syringe & Needle Vanish-Point 3cc 23ga 100s	1	EA
278	Arrange For Patient Evacuation	XXXXXXXXXXX13	No Medical Supplies At This Level Of Care	X	XX
A10	Position For Postural Drainage/Place In Coma Position	XXXXXXXXXXX26	Manual Task - No Medical Supplies Assigned	X	XX
A12	Occlude Sucking Chest Wound	XXXXXXXXXXX25	No Supplies Assigned This Task	X	XX
A2	Remove Casualty From Danger	XXXXXXXXXXX25	No Supplies Assigned This Task	X	XX
A6	Apply Tourniquet	6515015217976	Tourniquet Combat Application One-Handed	2	EA
Z014	Establish Adequate	6515011498842	Gloves Surg Gen Surg Sz 8	0.5	PR

Appendix A:
Medical Tasks and Associated Supplies*
*Regardless of PC

TASK	TASKDESC	NSN	NOMEN	QUANT	UM
	Airway (Intubation)		Rubber 50pr		
		6515014509790	Laryngoscope Set Softcase W/Light Blades	1	EA
		6515013948327	Stylet Tracheal Tube 7.5-10mm Plas Disp 10s	0.25	EA
		6515007540412	Syringe Hypo Gp 10ml Cap Luer Slip 100s	1	EA
		6510009268882	Tape Adhesive Surg Woven 1inx12yd 12s	0.15	RL
		6515010369034	Tube Endotracheal Murphy 7.5mm 10s	0.5	EA
		6515001050759	Tube Endotracheal Murphy 8.0mm Od 10s	0.5	EA
Z083	Expose Patient For Exam	6515009357138	Scissors Bandage 7.25in Angle To Hdl	1	EA
Zz03	Needle Thoracostomy	6515010687549	Catheter & Ndl Unit D12 IV 14gax2.25" Cath 14ga Ndl Orange 200s	1	EA

Appendix B: Corpsman Bag Equipment and Supplies

Appendix B:
Corpsman Bag Equipment and Supplies*
*Some line items may change with additional research and testing

Trauma Supplies

NSN	NOMEN	UI QTY	UI	UM QTY	UM	UW	UC	UPRICE	TOT W	TOT C	TOT PRICE
	Consumables										
6515014444579	Airway Nasopharyngeal Sz5.5mm 22fr Sterile Disposable	1	EA	1	EA	0.1	0.1	$3.25	0.1	0.1	$3.25
6515014445404	Airway Nasopharyngeal 6.5mm 26fr Plastic Sterile Disposable	1	EA	1	EA	0.1	0.1	$3.25	0.1	0.1	$3.25
6515013215211	Airway Kit Percutaneous Emergency Adult 1s	1	EA	1	EA	0.20	0.0500	$186.68	0.2	0.05	$186.68
6510015328930	Bandage Elastic 16x12" Abdominal Wound Pad Sterile (Big Cinch)	2	EA	2	EA	0.5	0.06	$6.71	1	0.12	$13.42
6510015032109	Bandage Elastic 8x10" Compressed Sterile	12	EA	12	EA	0.3	0.05	$3.97	3.6	0.6	$47.64
6510015222846	Bandage Adhesive Cotton Beige 4" Wide 2 Yds Long 18s (Self Grip)	0.22	PG	4	RL	0.68	0.11	$63.20	0.1496	0.0242	$13.90
6510015032117	Bandage Gauze Fluff 4.5in X 4.1yds 1s	6	RL	6	RL	0.13	0.12	$0.89	0.78	0.72	$5.34
6510002011755	Bandage Muslin Camouflage 37x37x52in 1s	6	EA	6	EA	0.13	0.01	$2.05	0.78	0.06	$12.30
6515013811684	Cannula Needleless Access Sys Iv W/Luer-Lock Inj Site Plas 1000s	0.01	PG	5	EA	3.4	0.4	$225.09	0.034	0.004	$2.25
6515010687549	Catheter & Ndl Unit D12 Iv 14gax2.25" Cath 14ga Ndl Orange 200s	0.01	PG	2	EA	5.7	0.03	$209.75	0.057	0.0003	$2.10
6515013909654	Catheter & Needle Unit Iv 18gax1.25in 200s	0.03	PG	5	EA	22.5	0.14	$393.63	0.675	0.0042	$11.81
6515015214657	Connector	0.05	PG	5	EA	0.4	0.5	$176.00	0.02	0.025	$8.80

Appendix B:
Corpsman Bag Equipment and Supplies*
*Some line items may change with additional research and testing

NSN	NOMEN	UI QTY	UI	UM QTY	UM	UW	UC	UPRICE	TOT W	TOT C	TOT PRICE
	Saline Lock 100s										
6510014081920	Dressing Chest Wound Seal Asherman 10s	0.4	pg	4	4	1.55	0.012	100.71	0.62	0.0048	$40.28
6515014915719	Glove Patient Exam Purple Sz 10 Large 100s	0.05	PG	5	PR	0.29	0.27	$17.00	0.0145	0.0135	$0.85
6515014637309	Intravenous Inj Set Macrodrip 10 Drops 48s	0.1	PG	5	EA	0.55	0.015	$46.36	0.055	0.0015	$4.64
6515014530960	Intraosseous Infusion Device F.A.S.T.1 W/ Remover 1s	1	EA	1	EA	0.2	0.2	95	0.2	0.2	$95.00
6510007863736	Pad Prep Isopropyl Alcohol Impreg 1x2.5in 100	0.13	PG	13	EA	0.5	0.1	$2.58	0.065	0.013	$0.34
7520013907870	Marker Tube Type Felt Fine Black Permanent Sharpie 12s	0.08	DZ	1	EA	0.36	0.14	$12.00	0.0288	0.0112	$0.96
6515007542834	Needle Hypo Gp 18ga 1.5in Lg Luer Lock 100s	0.02	PG	2	EA	0.66	0.044	6.63	0.0132	0.00088	$0.13
6515014941951	Splint Univ Alum 4in Wi X 36in Lg 1s	2	EA	2	EA	0.22	0.08	$10.00	0.44	0.16	$20.00
6510007822699	Sponge Surg 12-Ply Gauze 8x4in Nonster 200s	0.03	PG	6	EA	2.4	0.21	$22.31	0.072	0.0063	$0.67
6515007540412	Syringe Hypo Gp 10ml Cap Luer Slip 100s	0.02	PG	2	EA	5.8	0.57	$18.99	0.116	0.0114	$0.38
6510009268884	Tape Adhesive Surg Woven 3inx10yd 4s	0.5	PG	2	RL	1.2	0.05	$8.08	0.6	0.025	$4.04
6515015217976	Tourniquet Combat Application One-Handed	4	EA	4	EA	0.04	0.05	$27.28	0.16	0.2	$109.12
6515015150151	Tube Rescue Oropharyngeal Airway Red Size #4 (King Lt) 1s	2	EA	2	EA	1	0.26	$57.37	2	0.52	$114.74
6510014999285	Wound Pack Hemostatic Treatment 5x7" Pkg No Refrigeration Reqd	4	EA	4	EA	0.08	0.06	$9.85	0.32	0.24	$39.40

Appendix B:
Corpsman Bag Equipment and Supplies*
*Some line items may change with additional research and testing

NSN	NOMEN	UI QTY	UI	UM QTY	UM	UW	UC	UPRICE	TOT W	TOT C	TOT PRICE
	Subtotals								**12.20**	**3.22**	**$741.29**
	Equipment										
6515009357138	Scissors Bandage 7.25in Angle To Hdl	2	EA	2	EA	0.19	0.01	$0.79	0.19	0.01	$0.79
	Subtotals								**0.19**	**0.01**	**$0.79**
	Totals								**12.39**	**3.23**	**742.08**

DNBI Supplies

NSN	NOMEN	UI QTY	UI	UM QTY	UM	UW	UC	UPRICE	TOT W	TOT C	TOT PRICE
6515014553888	Lantern Electric Head Mount Halo/Krypton	1	EA	1	EA	0.55	0.12	$23.00	0.55	0.12	$23.00
6540014553885	Lens Cover Red Lantern Electric Head Mount	1	EA	1	EA	0.55	0.12	$2.00	0.55	0.12	$2.00
6515014586057	Otoscope & Ophthalmoscope Set Basic Soft	1	EA	1	EA	0.55	0.12	$89.00	0.55	0.12	$89.00
6515015261175	Sling Pelvic Orthotic Device, T-Pod Olive Drab	1	EA	1	EA	0.7	0.11	$140.43	0.7	0.11	$140.43
6515010394884	Sphygmomanometer Aneroid 300mm Max	1	EA	1	EA	1.25	0.10	$12.41	1.25	0.1	$12.41
6515013146694	Stethoscope Littman Classic Ii 28in Lg	1	EA	1	EA	1.00	0.00	$49.41	1	0.003	$49.41
6545009577650	Surgical Instrument Set Minor Surgery	1	SE	1	SE	1.87	0.13	$152.24	1.87	0.13	$152.24
6515010998517	Syringe Irrigating Toomey 70cc Sterile 50s	0.02	PG	1	EA	8	1.55	$37.15	0.16	0.031	$0.74
6515013317295	Thermometer Kit Clinical Human Elec W/ Probe Covers	1	EA	1	EA	0.10	0.02	$4.89	0.1	0.024	$4.89
6515013469186	Traction Apparatus Kendrick F/Immobilization Of Femoral Fracture	1	EA	1	EA	1.25	0.08	$84.03	1.25	0.08	$84.03
	TOTALS								**7.98**	**0.84**	**$558.15**

Appendix C: Commands Respresented by Attendees

Appendix C
Commands Represented by Attendees

Units
1/6 Battalion Landing Team
1/9 Battalion Landing Team
1/9 Battalion Landing Team
1st Marine Division
1st Medical Logistics Company
2d Medical Battalion
2nd Medical Logistics Company
2nd FSSG
Field Medical Schools
Field Medical Service School East
Field Medical Service School West
Research Commands
Naval Health Research Center
Headquarters Commands
USMC Combat Development Command
USMC HQ, Quantico
USMC Systems Command
USMC Warfighting Lab

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14. ABSTRACT (maximum 200 words)

Wartime experience with the current combat corpsman medical bag has shown it to be unsatisfactory for use by the infantry platoon corpsman. Part of the Marine Corps Modular Lightweight Load-Carrying Equipment (MOLLE) system, the MOLLE medical bag was designed to be a modular system that could be customized by the corpsman for specific missions. However, in the field, corpsmen say they found the bag to be too large, too heavy, and filled with supplies and equipment they never use. Experienced combat corpsmen voiced the need for a lightweight patrol medical kit containing only those items necessary for immediate lifesaving treatments, such as hemorrhage control and fluid resuscitation.

Naval Health Research Center was tasked by the Marine Corps Systems Command to determine the medical supply requirements for a modular corpsman's bag that could satisfy the specific wartime needs of platoon combat corpsmen.

15. SUBJECT TERMS
combat corpsman, tactical combat casualty care

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