NAVAL HEALTH RESEARCH CENTER

A MODEL FOR PREDICTING MARINE CORPS EXPEDITIONARY FORCE PREVENTIVE MEDICINE MATERIEL REQUIREMENTS

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SUMMARY

Problem

Maintenance of large materiel stockpiles in a few locations has been replaced with a policy of rapid global force projection supported by strategic lift. Because strategic lift and mobility define the effectiveness of force projections, large logistical footprints can no longer be supported. Therefore, new approaches to determine how to best match logistical support to operational requirements must be developed and implemented.

Objective

The primary goal of the present study is to develop a Preventive Medicine (PM) model that can be used to identify the appropriate mix of supplies, relate each supply item to a specific mission objective and task, and then use the estimated frequency of each PM task to establish the quantity required of each item of materiel.

Approach

Subject Matter Experts (SMEs) from 14 Navy and Marine Corps commands were assembled and tasked with identifying the primary PM objectives required in a theater of operations. For each of the 8 primary objectives identified, task profiles detailing the step-by-step approach used to achieve the objectives were constructed. In the next phase, SMEs were asked to assign the supplies required to conduct the tasks and to estimate the relative frequency of each task under the conditions of a worst-case scenario conflict. Finally, a computer program was used to project both the number of times each PM task might be conducted and the type and quantity of materiel that would be required to effectively complete the tasks. The materiel projected by the program was then organized into an equipment block and a consumable block.

Results

The two PM AMAL (Authorized Medical Allowance List) supply blocks were compared with the current Marine Corps PM AMALs. Significant decreases in number of items, weight, volume, and cost were realized in both the equipment AMAL 637 and the consumable AMAL 638. The items selected for deletion were limited to those that could not be linked to any PM objective or task conducted in theater. Because a number of items not currently stocked were added, the capability of the blocks was enhanced. For example, upgrades to water-quality testing, pesticide application, personal protective equipment, and food sanitation capability were implemented.

A Model for Predicting Marine Corps Expeditionary Force Preventive Medicine Materiel Requirements

INTRODUCTION

Safeguarding and promoting the health of all Navy and Marine Corps personnel is the primary mission of the Navy Medical Department. This objective can be largely accomplished by preventive medicine (PM) units which emphasize the preservation of health as the primary means of maximizing the effectiveness of the individual.[1]

In a theater of operations, the prevention of disease is one of the most important functions of any military medical service. Traditionally, military forces have lost more personnel to disease than to direct combat with opposing forces.[2] Within the Marine Expeditionary Force (MEF), the bulk of resources dedicated to the prevention of disease-related casualties is assigned to the Medical Battalion Force Service Support Group (FSSG).

In contrast to the operational situations expected during the cold war era, threats to U.S. security are now more global, diverse, and continually changing. Maintenance of large materiel build-ups in a few locations has been replaced with a policy of rapid global force projection supported by strategic lift. Strategic lift and mobility define the effectiveness of force projections.[3] Because large logistical footprints can no longer be supported, new approaches to determine how to best match logistical support to operational requirements must be developed and applied to evolving force medical capabilities.[4] One approach, developed by the Naval Health Research Center (NHRC), has used specific theater clinical requirements as the basis for determining medical supply needs of various Marine Corps medical force capabilities including first responders, Battalion Aid Stations, resuscitative surgical units, laboratory, and x-ray.[5,6,7,8] In this approach, a model links each piece of materiel to a clinical requirement that is expressed as a specific medical task used to treat specific injuries or illnesses known to occur in a theater of operations.

Using this modeling approach, NHRC has been able to reduce significantly the cube and weight of Marine Corps class VIII materiel while increasing clinical capability of deployed forces. Because the model uses mission-defined requirements to assign resources, it is possible to modify the methodology to reflect the needs and requirements of PM units. Instead of relating supply requirements to clinical tasks and patients, PM supplies would be related to mission objectives and the tasks required to accomplish those objectives. In the present study, this methodology of using a mission- and task-based approach has been applied to Marine Corps PM logistics. The goal of the study was to develop a PM model that can be used to identify the appropriate mix of supplies, relate each item of supply to a specific mission objective, and then use the estimated frequency each task is conducted to establish the quantity required of each materiel item.

METHOD

Participants. Twenty Navy and Marine Corps PM personnel participated in the study. These SMEs were drawn from the 14 Navy/Marine Corps commands listed in Table 1. The specialties within the group consisted of 6 epidemiologists, 3 entomologists, 5 environmental health officers (EHOs), and 6 preventive medicine technicians (PMTs).

Table 1
Subject Matter Expert Command Representation

• 1st Medical Battalion Camp Pendleton, CA	• 1st Marine Division Camp Pendleton, CA
• 2nd Medical Battalion Camp Lejeune, NC	• 2nd Marine Division Camp Lejeune, NC
• 1st Force Service Support Group Camp Pendleton, CA	• 3rd Marine Division Okinawa, Japan
• 2nd Force Service Support Group Camp Lejeune, NC	• Marine Corps Combat Development Command, Quantico, VA
• Marine Corps Systems Command Quantico, VA	• 1st Medical Logistics Command Camp Pendleton, CA
• Environmental Preventive Med Unit-5 San Diego, CA	• Blount Island Command Blount Island, FL
• Naval Environmental Health Center Norfolk, VA	• Naval Hospital Camp Lejeune Camp Lejeune, NC

Procedures. The first phase in development of the model required an examination of the goals or objectives of the PM mission in theater.[a] SMEs were assembled and asked to identify the primary objectives PM personnel must achieve to successfully fulfill their mission during the first 60 days of a MEF operation. This process resulted in the identification of 8 primary PM objectives. These objectives, shown in Table 2, formed the foundation upon which the remaining portions of the model rested.

Table 2
Theater Preventive Medicine Objectives

• 1 Water Sanitation	• 5 Food Sanitation
• 2 Pest Control	• 6 Common Area Sanitation
• 3 Heat/Cold Injury Prevention	• 7 Berthing Sanitation
• 4 Communicable Disease Control	• 8 Waste Management

[a] LCDR Julie D. Del Vecchio, REHS, MPH, MSC, USN, is credited with providing the essential elements required to complete this phase of the study. She is currently an environmental health officer at the Naval Environmental and Preventive Medicine Unit No. 5.

Once the PM objectives had been identified, SMEs were again assembled and asked to examine the actions PM personnel take to accomplish the objectives. This process yielded the component tasks required to achieve each PM objective. The tasks associated with each PM objective, shown in Table 3, were arranged in a step-by-step fashion that illustrated each of the critical elements in the process of achieving the objectives.

Table 3
Task Profiles for Preventive Medicine Objectives

PM Objective 1: Water Sanitation

Task #	Task Description
Z500	Select Site of Potable Water Source
Z501	Ensure Potable Water Supply Secure from Contamination
Z502	Conduct Superchlorination of Bulk Potable Water Containers
Z504	Obtain Water Sample/Conduct pH Testing
Z505	Obtain Water Sample/Conduct Chlorine Testing
Z506	Obtain Water/Ice Sample/Conduct Bacteriological Testing
Z507	Obtain Water Sample/Conduct Chemical Testing
Z508	Conduct Chemical Agent Testing (Nerve, Mustard, Cyanide, Lewisite)
Z790	Document/Report Inspection Results
Z791	Make Recommendations/Troubleshoot Discrepancies
Z792	Conduct Training

PM Objective 2: Pest Control

Task #	Task Description
Z540	Conduct/Report Results of Arthropod Surveillance
Z541	Conduct/Report Results of Vector Borne Disease Assessment
Z542	Conduct Large Area Arthropod Control
Z543	Conduct Small Area Arthropod Control
Z544	Implement Personal Protective Measures for Pesticide Operators
Z546	Conduct Proper Disposal/Retrograde of Pesticides
Z547	Conduct Ultra Low Volume (ULV) Arthropod Control
Z548	Prepare/Mount Entomological Sample
Z549	Prepare Entomological Sample for Shipment
Z550	Conduct Rodent Surveillance & Control
Z551	Provide Recommendations for Disposal of Dead Rodents
Z552	Dispense Personal Insect Repellant (Supplemental to 782 Gear)

PM Objective 3: Heat/Cold Injury Prevention

Task #	Task Description
Z580	Monitor/Report Ambient Air Temperature (Dry Bulb)
Z581	Monitor/Report Evaporative Response (Wet Bulb)
Z582	Monitor/Report Radiant Heat Index (Black Globe)
Z583	Make Work Cycle/Work Duration Recommendations
Z584	Monitor/Report Heat Stress Index
Z792	Conduct Training

PM Objective 4: Communicable Disease Intervention

Task #	Task Description
Z600	Screen Sick-call Logs for Infectious Disease Cases
Z601	Compile/Report Infectious Disease Statistics
Z602	Conduct Patient-Tracing Interviews
Z603	Establish Liaison w/ Host Nation Officials
Z604	Assist Medical Personnel w/ Disease Testing (Incl. Malaria Smear)
Z605	Initiate Remedial Action to Prevent Disease Recurrences
Z606	Assist Medical Personnel in Establishing Infection Control Policy
Z607	Assist Medical Personnel in Obtaining Specimens/Samples for Shipment
Z608	Package/Ship Specimen/Sample
Z612	Assist Medical Personnel in Administering Vaccines/Prophylaxis
Z792	Conduct Training

PM Objective 5: Food Sanitation

Task #	Task Description
Z640	Assist in Selection of Messing and Food Storage Sites
Z641	Review Setup/Blueprints for Chow Halls
Z642	Conduct Inspections of Messing and Food Storage Areas
Z643	Conduct Food Receipt Testing
Z644	Evaluate Food Sourcing/Transport
Z790	Document/Report Inspection Results
Z791	Make Recommendations/Troubleshoot Discrepancies
Z792	Conduct Training

PM Objective 6:Common Area Sanitation

Task #	Task Description
Z660	Make Recommendation for Camp set-Up
Z661	Conduct Sanitation Inspections of Common Use Areas
Z662	Conduct Sanitation Inspections of Laundry/Shower Services
Z790	Document/Report Inspection Results
Z791	Make Recommendations/Troubleshoot Discrepancies

PM Objective 7: Berthing Sanitation

Task #	Task Description
Z680	Select Berthing Site
Z681	Conduct Formal Inspections of Berthing Areas
Z682	Dispense Cloth/Bedding Insect Repellant (Supplemental to 782 Gear)
Z791	Make Recommendations/Troubleshoot Discrepancies

PM Objective 8: Waste Management

Task #	Task Description
Z700	Assist in Selection of Waste Disposal Sites
Z701	Conduct/Report Inspection Results
Z791	Make Recommendations/Troubleshoot Discrepancies

The next step in the process was to estimate the number of times each of the tasks for each PM objective would be conducted. SMEs were instructed in the parameters of the PM mission in theater, including size of the mission (Major Regional Contingency), mission duration (first 60 days), number of personnel at risk in theater (39,411), and the estimated number of sites to inspect and maintain (15). SMEs were also instructed to presume some access to transportation assets as a tool for caring out their mission. While transportation assets are not part of the PM table of equipment, access to vehicles was considered essential due to the nature of PM responsibilities (e.g., vehicle-mounted spraying, centralized water testing, food sourcing inspections). Using these parameters as a guide, SMEs estimated the frequency of each task in a worst-case situation. The responses from each SME were combined and consensus achieved to yield a final estimate for each task.

The final step in the process of building the model required determining the best mix of supplies to conduct each of the tasks. SMEs examined each task and assigned the supplies most suitable to the completion of that task (Appendix A). Items currently in the Authorized Medical Allowance Lists (AMALs) were used, when appropriate, before new supply items were brought into the system. When new items were added, they were selected from the pool of joint service-approved items provided by the Joint Readiness Clinical Advisory Board (JRCAB, formerly the Defense Medical Standardization Board). New items were added when either an identified mission requirement was not being met with current materiel, or when upgrades in technology or reductions in weight and cube were indicated.

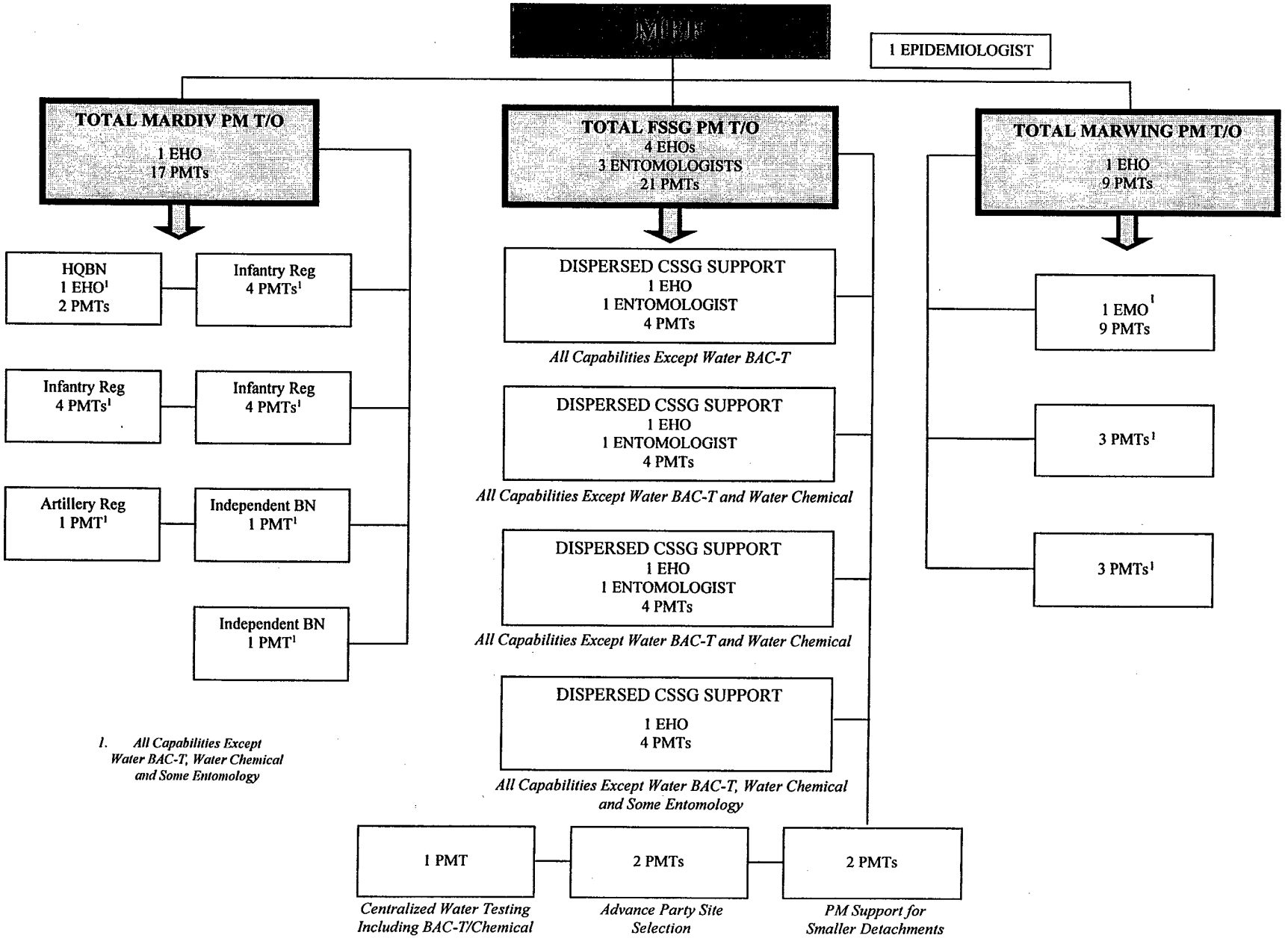
With the completion of the assignment of supplies to the tasks, the four primary components of MEF PM necessary to project supply requirements were identified. These were (1) PM objectives in theater, (2) tasks conducted to achieve the objectives, (3) task frequency, and (4) the supplies required to conduct each task. The PM supplies required to support a MEF operation were projected with a computer program that linked supplies to tasks using the information on PM objectives and task frequency.

Projecting PM Supply Requirements

Preventive medicine supplies were projected for the two MEF PM AMALs. These were the PM equipment AMAL 637 and the PM consumable AMAL 638. These 2 blocks of materiel are designed to supply PM support to the MEF for the first 60 days of a major regional contingency. The equipment AMAL 637 contains the reusable materiel and the consumable AMAL 638 contains the single-use items necessary to establish a PM section providing technical advice to theater commanders, inspection of food service and waste disposal operations, maintenance of potable water supplies, vector control, and coordination of control measures required for the monitoring of communicable disease and immunization programs.

Projecting equipment requirements. Two steps were required to obtain the equipment estimates for the AMAL 637. These were (1) identify the individual items, and (2) determine the quantity of each to stock. Completing the first step required establishing a mission requirement for each item. This process was accomplished by linking each item considered for inclusion in the AMAL 637 to a known PM task to be conducted in theater. To do this, SMEs examined each of the tasks and assigned only those items required to effectively complete the tasks. The second step, determining the quantity of each piece of equipment to stock, was accomplished by matching item quantity to the number and specialties of the personnel in the MEF PM Table of Organization (TO). Fleet Marine Force (FMF) personnel in the MEF PM units are organized into one of 3 sections (FMFM 4-50). As shown in Figure 4, these are (1) Marine Division, typically consisting of 1 EHO and 17 PMTs; (2) Marine Wing, typically consisting of 1 EHO and 9 PMTs; and (3) Force Service Support Group typically consisting of 4 EHOs, 3 entomologists, and 21 PMTs.

Figure 4
A Representation of MEF Preventive Medicine Personnel Organized to Provide Theaterwide Support



Using the MEF PM TO as a baseline, personnel from each of the three sections were grouped into teams so that PM coverage for the MEF could be evenly distributed throughout a theater of operation. As shown in Figure 4, The MEF TO permits the formation of approximately 14 such teams organized according to the PM specialties of team members. Because the nature of the PM mission requires that broad support be provided to the MEF, the teams were structured to be capable of providing PM coverage for a number of detachments with the equipment from the AMAL 637. Determining the number of each item to stock in the proposed AMAL 637 was accomplished by relating item quantity to the number and composition of the teams the items were required to support. For example, the quantity of each piece of entomological equipment to stock was determined by ensuring that each entomology team had an adequate amount of equipment to permit the successful completion of each of the tasks in the pest control objective.

Projecting consumable item requirements. As with the projection of the equipment AMAL, two steps were required to obtain supply estimates for the consumable AMAL 638. The first step, identifying the individual items, was accomplished using the same methodology in which each consumable item was reviewed to determine if it had a mission-specific link to a known PM task to be conducted in theater. The second step, determining the quantity of each consumable item to stock, was conducted differently. Because consumable items are single use, the quantity required to support the mission is related not only to team composition but also to the number of times team members are expected to conduct each of the tasks. Therefore, it becomes necessary to use the estimates of task accomplishment provided by the SMEs.

The frequencies of task accomplishment were combined with the other variables of the model (PM objectives, tasks, supplies) to derive projections of the quantity of each consumable to stock in the proposed AMAL 638. For each task, the quantity of consumable materiel required to conduct the task a single time was multiplied by the number of times the task was estimated to be accomplished within the first 60 days of an operation. The quantities of each consumable were then summed for each of the tasks identified in the PM objectives. This process yielded a total quantity of materiel required for each consumable item. These totals were then divided by the appropriate units of issue to generate the required number of packages of each item to stock in the consumable AMAL 638.

RESULTS AND DISCUSSION

Preventive Medicine Equipment Requirements (AMAL 637)

The PM equipment AMAL 637 was produced using the PM objectives, the PM objective task profiles, and the task supply assignments established by the SMEs. Appendix B shows the proposed list of equipment. Each item in the list is referenced with its National Stock Number (NSN), item description, quantity required, unit weight, unit cube, and unit cost. Equipment items that were added to upgrade mission capability are marked with an asterisk.

When the composition of the proposed AMAL had been determined, it was compared with the current Marine Corps PM equipment AMAL. Results of the comparison, presented in Table 4, show that the proposed PM equipment AMAL contains 71 fewer items. This represents an item decrease of 50.7%. Reductions in weight, cubic volume, and cost were also realized when compared with the current PM equipment block. Table 4 further shows that by establishing the mission-specific requirement for each item, weight could be reduced 26.8%, cubic volume by 29.4%, and cost by 30.8%.

Table 4
Comparison Between Current and Proposed Preventive Medicine Equipment AMAL 637

	No. of Items	Weight	Volume	Cost
Current PM Equip AMAL 637	140	1746.61	184.25	$61,169.74
Proposed PM Equip AMAL 637	69	1277.67	130.05	$42,330.63
% Reduction	-50.7 %	-26.8 %	-29.4 %	-30.8 %

While significant reductions were realized in the proposed AMAL, very little change in the actual capability of the block resulted. This occurred because the items identified for deletion could not be linked to either a PM objective or PM task conducted within the scope the MEF mission. For example, a number of laboratory items have been proposed for deletion. The PM TO does not include the laboratory technicians or microbiologists necessary to operate the equipment, conduct the analyses, or interpret the results. Therefore, a PM objective related to a biological lab could not be established.[b] In addition, when the laboratory items were examined to assess their function, it was found that key components needed to conduct analyses were missing, making it difficult to conduct testing. Furthermore, changes were not limited to deletions. Some items, such as upgrades to pesticide spraying and water testing, that reflected advances in technology were added.

Preventive Medicine Consumable Requirements (AMAL 638)

The PM consumable AMAL 638 was produced using the PM objectives, the PM objective task profiles, the task accomplishment frequencies, and the task supply assignments established by the SMEs. Appendix C shows the proposed list of consumables. Each item in the list is referenced with its NSN, item description, quantity required, unit weight, unit cube, and unit cost. Consumable items that were added to upgrade mission capability are marked with an asterisk.

[b] Biological laboratory capability currently exists in the MEF at the surgical company level. This laboratory function is staffed with 1 laboratory chief and 3 laboratory technicians. In addition, the Forward Deployable Preventive Medicine Unit (FD-PMU) concept of operation, currently in development, includes biological laboratory capability as a key component. The concept of operation proposes staffing this laboratory capability with 5 microbiologists and 5 laboratory technicians.

When the composition of the proposed AMAL had been determined, it was compared with the current Marine Corps consumable AMAL. Results of the comparison, presented in Table 5, show that the proposed PM consumable AMAL contains 16 fewer items. This represents an item decrease of 17.2%. Reductions in weight, cubic volume, and cost were also realized when compared with the current PM consumable block. Table 5 further shows that by establishing the mission-specific requirement for each item, weight could be reduced 10.1%, cubic volume 25.6%, and cost by 33.7%.

Table 5
Comparison Between Current and Proposed PM Consumable AMAL 638

	No. of Items	**Weight**	**Volume**	**Cost**
Current PM Cons AMAL 638	93	4151.94	350.68	$55,229.64
Proposed PM Cons AMAL 638	77	3733.32	260.91	$36,599.81
% Reduction	-17.2 %	-10.1 %	-25.6 %	-33.7 %

While significant reductions in items, weight, volume, and cost were realized, the capability of the consumable PM blocks was not decreased. Items deleted were limited to those that had no link to a mission-specific PM objective or task conducted within the context of the PM mission. Furthermore, because some procedures identified by the SMEs as critical to the PM mission could not be adequately performed with the current materiel, items were added to enhance capability to a more desirable level. For example, the current bacteriological water-testing materiel was replaced with the Colilert™ system, upgraded pesticides were added, and cotton coveralls for pesticide operators were replaced with Tyvek™ suits.

CONCLUSIONS

Using the mission-objective, task-oriented approach presented in this study yielded an efficient, highly capable block of materiel. The model used in this approach reduced the PM theater mission to its individual component elements while retaining a broad overview of the mission that preserved the many inter-relationships among the different objectives and tasks. In this way, the items selected to conduct the tasks could be more closely matched to requirements and the overall quantity of items limited because single items with potential for achieving multiple tasks in different objectives could be identified. In addition, supply intensive tasks, such as the Millipore bacteriological water-testing system currently being used in the blocks, could be identified and selected for efforts to incorporate newer, less supply intensive technologies. As a result of this process, newer, more effective technologies, such as Colilert™ bacteriological testing, ultraviolet lights for water sanitation and pest control, multi-function tools that replace

much of the individual single function gear, and improved personnel protective equipment were added.

This effort to validate the MEF PM materiel provided an opportunity to both enhance standardization between the PM blocks and the remaining MEF blocks and to advance the goals of joint standardization of materiel across the services. Prior to validating the PM blocks, NHRC had conducted an exhaustive examination of 12 MEF AMALs, including the Battalion Aid Station, X-ray, Laboratory, Shock Surgical Team/Triage, Operating Room, and the Acute Care wards. In each effort, standardization was achieved by ensuring each AMAL used the same piece of gear to conduct the same tasks. This process was also carried over to the PM AMALs, resulting in fewer supply items for the medical logistic warehouses to order, maintain, and inventory. Furthermore, each new item added to any of the blocks, including the PM AMALs, was selected from the JRCAB list of joint service-approved materiel.

The effort to enhance standardization should also be injected into the development process of new assemblages of materiel. For example, there is significant overlap between the objectives of the MEF PM mission and that of the proposed FD-PMU.[9] While the FD-PMU has a more extensive mission than that of the MEF PM unit and a significantly expanded range of staff support, standardization could be applied to the core objectives resulting in substantial benefits. If the process of standardization could be achieved between the FD-PMU and the MEF assemblages, both units would be fully capable of supporting each other because of the interchangeability of the materiel. Because the mission of both units could be enhanced by standardization, FD-PMU component managers should continue to work closely with MEF personnel to ensure compatibility between both assemblages.

It is recognized that effective response and management of the nuclear, chemical, and biological warfare threat is a critical element of the PM mission. However, it was only partially addressed in the model. Because joint-service working groups are currently investigating this issue in depth, it was determined that the NHRC PM model would not, at this time, fully address issues related to chemical and biological warfare. Leading the effort to manage the response to chemical and biological threats is the Chemical Biological Incident Response Force (CBIRF) working group. This joint-service working group is tasked with the development of strategies to effectively respond to this threat. CBIRF is approaching the completion of assemblages of materiel for responding to this threat in a theater of operations. It is recommended that the Marine Corps fully review the CBIRF initiative product before further expanding PM assets to counter the chemical and biological threat.

Central to the PM mission are the administrative tasks of assembling data, documenting findings, plotting trends, and recording results. Historically, the gear stocked in the PM AMALs used to support these requirements has been limited to paper-and-pencil methods. It is recognized that this is no longer sufficient. Capability in conducting administrative tasks must be enhanced to include the tools currently used by PM

practitioners in garrison. This includes laptop computers, epidemiological software, such as the Field Medical Surveillance System,[10] the MEDIC[11] catalog, and spreadsheet applications, as well as printers, and communications equipment. While the solution appears evident, a resolution to this problem was not successfully achieved in the current study. Because the automated information technology required becomes obsolete so rapidly, it is impractical to store it in the AMALs, and therefore, the current methods remain. It is recommended that this issue remain open until an adequate solution is achieved.

Finally, the model developed to validate the PM AMALs was constructed to allow multiple objectives to be achieved. For example, it can be used to determine new supply configurations that will be needed to support the changes in war-fighting doctrine currently under development. As these doctrinal concepts are implemented, lighter, more mobile PM assets will be required. Because of the inherent flexibility of the model, the relevant variables can be adapted to develop the materiel assemblages that will be required to support different war-fighting concepts as they emerge. Furthermore, the model lends itself to the creation of modular blocks of materiel required to support different types and sizes of missions. Because the model groups materiel according to objectives and tasks, it can be used to sort materiel into clusters that reflect different functions. For example, the materiel in the PM AMALs could be modularized in ways, including PM function, size of mission, or arranged to support teams with various capabilities.

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Appendix A
Preventive Medicine Tasks & Supply Requirements to Conduct Task One Time

Task Z500: Select Site of Potable Water Source

No 637/638 Supplies Required

Task Z501: Ensure Potable Water Supply Protected from Contamination

No 637/638 Supplies Required

Task Z502: Conduct Superchlorination of Bulk Potable Water Containers

EQUIPMENT

Nomenclature	Amount	Um
Brush Scrub 4 x 8"	1	EA
Gloves Chemical & Oil Protective Sz 11	1	PR
Gloves Chemical & Oil Protective Sz 9	1	PR
Gloves Chemical Protective	1	PR
Goggles Industrial PL HBB Lens D2 Frame	1	EA
Pail Utility Plastic or Rubber 3 Gal	1	EA
Wrench Pipe Adjustable Heavy Duty	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Calcium Hypochlorite Can 3.75 Lb	32	OZ
Chalk Stick Orange	1	EA
Tape Perimeter Warning	.25	RL
Test Paper Chlorine Determ Strip	4	IN
Towel Paper 5 x 40"	10	EA

Task Z504: Obtain Water Sample/Conduct pH Testing

EQUIPMENT

Nomenclature	Amount	Um
Comparator Color Chlorine & pH	1	EA

CONSUMABLES

Nomenclature	Amount	Um
P-Phenylenediamine Reagent Tablet	2	EA

Task Z505: Obtain Water Sample/Conduct Chlorine Testing

EQUIPMENT

Nomenclature	Amount	Um
Comparator Color Chlorine & pH	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Test Paper Chlorine Determ Strip	4	IN

Task Z506: Obtain Water/Ice Sample/Conduct Bacteriological Testing

EQUIPMENT

Nomenclature	Amount	Um
Incubator Water Test Bacteriological	1	EA
Light Ultraviolet Portable Battery Operated	1	EA
Table Folding Legs Lab 72x20x30"	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Applicator Plast/Wood Rod 6" Lg .083 Dia	2	EA
Bag Water Sample w/ Sodium Thiosulfate	1	EA
Battery Nonrechargable 1.5V Ansi Sz AA	3	EA
Label Pressure 3.5 x 1.125" White	2	EA
Pen Ball-Point Retractable Med Pt Black	1	EA
Test Bag Water Coll w/o Sod Thio	1	EA
Water for Irrigation Sterile USP 1000 ml	100	ML
Water Sampling Test Reagent Coliform	1	EA

Task Z507: Obtain Water Sample/Conduct Chemical Testing

EQUIPMENT

Nomenclature	Amount	Um
Water Quality Analysis Set	1	EA

CONSUMABLES

Nomenclature	Amount	Um

Task Z508: Chemical Agent Testing (Nerve, Mustard, Cyanide, Lewisite)

EQUIPMENT

Nomenclature	Amount	Um
Water Test Kit Chemical Agents	1	EA

CONSUMABLES

Nomenclature	Amount	Um

Task Z540: Conduct/Report Results of Arthropod Surveillance

EQUIPMENT

Nomenclature	Amount	Um
Trap Mosquito Light Battery Powered 6V	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Battery Nonrechargable 1.5V 2.406" Cell D	2	EA
Mineral Oil Usp 1Qt or 946 Ml	2	ML
Trap Insect Sticky	4	EA

Task Z541: Conduct/Report Results of Vector Borne Disease Assessment

EQUIPMENT

Nomenclature	Amount	Um
Aspirator Insect Mechanical	1	EA
Bag Insect Net 12"Dia 28"Deep Natural	1	EA
Bulb Dropping Pipet 2Oz Rubber for .188"	1	EA
Case Med. Instrument & Supply Set Olive	1	EA
Dipper Entomologica Poly White 20Oz 14"	1	EA
Flashlight 8.5" 2.25" Dia 3DC Volt Rating	1	EA
Forceps Dressing Ang. & Smooth #17 6.25"	1	EA
Light Ultraviolet Portable Battery Operated	1	EA
Magnifier 30X Pocket	1	EA
Net Insect 32-36"Lg 26Meshes/Linear Inch	1	EA
Ruler Wood w/Bevel 12"Sing Metal Edging	1	EA
Scissors Strabismus 4-4.50" O/A Lg	1	EA
Tool Multi-Function Pocket Gerber	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Alcohol Dehydrated USP 1 Pt (473 ml)	4	ML
Bag Specimen 18Oz 4 ½ x 9"	10	EA
Bag Plastic A4 Flat Heat Seal Nat 16x12"	10	EA
Bag Plastic A4 Flat Ento Nat Heat Seal	10	EA
Battery Nonrechargable 1.5V 2.406" Cell D	4	EA
Battery Nonrechargable 1.5V Ansi Sz AA	3	EA
Bottle Safety Cap Plastic T&C 16Dr	10	EA
Chloroform ACS Lq 16Oz SpecGRAV 1.47	.1	OZ
Cover Glass Micro Slide 22Mm 1Oz	10	EA
Dish Culture Petri Sty D15 Pl Disp	10	EA
Insecticide D-Pheno	.5	CN
Label Pressure 3.5x1.125" White	20	EA
Mineral Oil USP 1Qt or 946 ml	5	ML
Pad Writing Paper 11x8.5" White 100 Sheet	1	EA
Pen Ball-Point Retractable Med Pt Black	1	EA
Pin Insect Transfixion #1 Head 1.5"	10	EA
Pin Insect Transfixion 13Mm Minuten	10	EA
Pin Insect Transfixn #3 Headed 1.5"	10	EA
Pipet Dropping Glass 2.875/3.125" Rubber	2	EA
Slide Microscope Plain Glass 25x75 mm	5	EA
Tape Adhesive Surgical White Por 2x360"	.25	RL
Trap Insect Sticky	4	EA
Tube Collection Use w/Aspirator Machine	1	

Task Z542: Conduct Large Area Arthropod Control

EQUIPMENT

Nomenclature	Amount	Um
Cylinder Graduate Lab Sty C18 460 mm Pl	1	EA
Funnel Plastic Rigid Spout 2 Qt	1	EA
Hose Assembly Spray 25' .5" Dia #26849	1	EA
Nozzle Spray Gun Model #757 #1235000	1	EA
Repair Kit Spray Gun Part #5251845	1	EA
Sprayer Hydrolic 50 Gal Portable	1	EA
Wrench Adjustable Oval 215 Open End 8"	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Insecticide Dursban Liquid 5Gal	125	OZ

Task Z543: Conduct Small Area Arthropod Control

EQUIPMENT

Nomenclature	Amount	Um
Duster Manually Operated Tubular Pump	1	EA
Fog Generator Insecticidal Portable	1	EA
Funnel Plastic Rigid Spout 2Qt	1	EA
Sprayer Pesticide Manually Carried Pres	1	QT
Sprayer /Duster Pesticide Manually Carried	1	EA
Tool Mult-Function Pocket Gerber	1	EA
Wrench Adjustable Oval 215 Open End 8"	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Insecticide Resmethrin 1Gal Can	10	OZ
Insecticide Cyfluthrin (Tempo 20WP)	3	PK
Insecticide D-Pheno	1	CN
Insecticide Diazinon Powder Pail 25Lb	16	OZ
Insecticide Dichlorovos Strip	1	EA
Insecticide Dursban Liquid 5Gal	10	OZ
Insecticide Fly Bait 5Lb	16	OZ
Insecticide Teme Ph05 Granular 5% 25 Pds	64	OZ
Oil 2-Cycle Lubricating Pt	1	QT
Trap Insect Sticky	10	EA

Task Z544: Implement Personal Protective Measures for Pesticide Operators

EQUIPMENT

Nomenclature	Amount	Um
Aural Protector Sound Ear Muff Head Pad	1	PR
Boots Hip 34"Hi Sz 10 Buckle/Strap Rubbr	1	PR
Boots Hip 34"Hi Sz 11 Buckle/Strap Rubbr	1	PR
Boots Hip 34"Hi Sz 12 Buckle/Strap Rubbr	1	PR
Gloves Chemical & Oil Protective Sz 11	2	PR
Gloves Chemical & Oil Protective Sz 9	2	PR
Gloves Chemical Protective	1	PR
Goggles Industrial Pl Hbb Lens D2 Frame	1	PR
Respirator Air Filter Mask Med/Large	1	EA
Respirator Mask Small/Large	1	EA
Retainer Cartridge	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Cartridge Respirator Air Filtering	1	EA
Coveralls Tyvek w/Hood, Booties Lg	1	EA
Coveralls Tyvek w/Hood, Booties Med	1	EA
Coveralls Tyvek w/Hood, Booties Xlg	1	EA
Filter Respirator Air Filtering	1	BX
Plug Ear Noise Protect Univ Sz Vinyl Foam	1	PR

Task Z546: Conduct Proper Disposal/Retrograde of Pesticides

No 637/638 Supplies Required

Task Z547: Conduct Ultra Low Volume (ULV) Arthropod Control

EQUIPMENT

Nomenclature	Amount	Um
Cylinder Graduate Lab C18 460mm Plastic	1	EA
Fog Generator Insecticidal ULV Truck Mon	1	EA
Gage Gap Setting Metal Holder Folding	1	EA
Screwdriver Cross Tip Phillip Ty-6 Cl-1 8"	1	EA
Screwdriver Cross Tip Phillip Sz-3 6"	1	EA
Screwdriver Cross Tip Reed/Prince 10" Bld	1	EA
Screwdriver Flat Tip Plast Handle Ty-1 10"	1	EA
Screwdriver Flat Tip Plast Handle Ty-1 6"	1	EA
Wrench Adjustable Oval 215 Open End 8"	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Insecticide Dursban Liquid 5 Gal	10	OZ
Insecticide Resmethrin 1Gal Can	10	OZ
Oil Motor Lubricating Qt	1	QT

Task Z548: Prepare/Mount Entomological Sample

EQUIPMENT

Nomenclature	Amount	Um
Box Microscope Slide Plastic 25 Slides	1	EA
Box Microscope Slide Sz 1 Plastic	1	EA
Forceps Dressing Ang. & Smooth #17 6.25"	1	EA
Forceps Micro Cover Glass Twzr 110 mm	1	EA
Forceps Micro Slide Twzr Str 130 mm	1	EA
Handle Surgical Knife Detach Blade Sz 3	1	EA
Light Microscope Adjustable 110 Volt	1	EA
Microscope Optical Stereoscopy Inclined	1	EA
Table Folding Legs Lab 72x20x30"	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Alcohol Dehydrated USP 1 Pt (473 Ml)	2	OZ
Bag Specimen 18Oz 4 ½ x 9"	1	EA
Blade Surgical Knife Detach Steel No.11	1	EA
Block Insect Fixation Rectangular	4	EA
Mounting Medium Insect Specimen 1 Oz	2	ML
Mounting Medium Insect Specimen 30 ml	2	ML
Mounting Med Microscopy Synthetic Resn	1	ML
Paper Lens sheet 11x7.5" 5.5Lb Ream	1	EA
Pin Insect Transfixion 13 mm Minuten	10	EA
Punch Mounting Point	1	EA

Task Z549: Prepare Entomological Sample for Shipment

EQUIPMENT

Nomenclature	Amount	Um

CONSUMABLES

Nomenclature	Amount	Um
Bag Plastic A4 Flat Heat Seal Natural	2	EA
Bag Plastic A4 Flat Natural Heat Seal	2	EA
Bateriological Spec Collect & Trans Syst	1	EA
Bottle Safety Cap Plastic T&C 16 Dr	2	EA

Task Z550: Conduct Rodent Surveillance & Control

EQUIPMENT

Nomenclature	Amount	Um
Mousetrap Spring Wood Base 4-Way Rel	10	EA
Rattrap Spring Wood Base 4-Way Release	10	EA

CONSUMABLES

Nomenclature	Amount	Um
Rodenticidal Bait Anticoagul Pellet 11Lb	1	LB

Task Z551: Provide Recommendations for Disposal of Dead Rodents

No 637/638 Supplies Required

Task Z552: Dispense Personal Insect Repellant (Supplemental to 782 Gear)

EQUIPMENT

Nomenclature	Amount	Um

CONSUMABLES

Nomenclature	Amount	Um
Insect Repellant Personal	1	CN

Task Z580: Monitor/Report Ambient Air Temperature (Dry Bulb)

EQUIPMENT

Nomenclature	Amount	Um
Book Memorandum 10.5x8" Ruled 192 Pg	1	EA
Clip Board File 9x12 ½	1	EA
Wet Bulb Globe Temperature Kit	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Pad Writing Paper 11x8.5" White 100 Sheet	1	EA
Pen Ball-Point Retractable Med Pt Black	1	EA

Task Z581: Monitor/Report Evaporative Response (Wet Bulb)

EQUIPMENT

Nomenclature	Amount	Um
Book Memorandum 10.5x8" Ruled 192 Pg	1	EA
Clip Board File 9x12 ½	1	EA
Wet Bulb Globe Temperature Kit	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Pad Writing Paper 11x8.5" White 100 Sheet	1	EA
Pen Ball-Point Retractable Med Pt Black	1	EA
Water for Irrigation Sterile USP 1000 ml	20	ML

Task Z582: Monitor/Report Radiant Heat Index (Black Globe)

EQUIPMENT

Nomenclature	Amount	Um
Book Memorandum 10.5x8" Ruled 192 Pg	1	EA
Clip Board File 9x12 ½	1	EA
Wet Bulb Globe Temperature Kit	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Pad Writing Paper 11x8.5" White 100 Sheet	1	EA
Pen Ball-Point Retractable Med Pt Black	1	EA

Task Z583: Make Work Cycle/Work Duration Recommendations

No 637/638 Supplies Required

Task Z584: Monitor/Report Heat Stress Index

EQUIPMENT

Nomenclature	Amount	Um
Flags Heat Index	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Twine Fibrous Twisted Cotton 16-Ply Ball	5	FT

Task Z600: Screen Sick Call Logs for Infectious Disease Cases

Hardware/Software Requirements (See pp 11-12)

Task Z601: Compile/Report Infectious Disease Statistics

Hardware/Software Requirements (See pp 11-12)

Task Z602: Conduct Patient Tracing Interviews

No 637/638 Supplies Required

Task Z603: Establish Liaison with Host Nation Officials

No 637/638 Supplies Required

Task Z604: Conduct/Assist with Infectious Disease Testing (Including Malaria Smear)

EQUIPMENT

Nomenclature	Amount	Um
Box Microscope Slide Plastic 25 Slides	1	EA
Box Microscope Slide Sz 1 Plastic	1	EA
Microscope Optical Binocular 120/230V	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Bag Sterilization-Biohazard Disp 36x24"	2	EA
Depressor Tong Wood 6x.75x.062" Str	2	EA
Giemsa's Staining Solution 50ml 25Gm	.25	ML
Lancet Finger Bleed 1.25x.375" 5/32" Max	1	EA
Paper Lens Sheet 11x7.5" 5.5Lb Ream	1	EA
Slide Microscope Plain Glass 25x75 mm	2	EA

Task Z605: Initiate Remedial Action to Prevent Disease Recurrences

No 637/638 Supplies Required

Task Z606: Assist Nursing Personnel in Establishing Infection Control Policy

EQUIPMENT

Nomenclature	Amount	Um
Brush Scrub 4x8"	1	EA
Pail Utility Plastic or Rubber 3 Gal	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Bag Sterilization-Biohazard Disp 36x24"	10	EA
Detergent General Purpose Ty 1 Liq 1 Gal	16	OZ
Disinfectant General Purpose Alconox 4Lb	2	OZ
Disinf-Deterg Gen Purpose Phenol 64FlOz	5	OZ
Gloves Patient Exam & Treat Med Plastic	4	EA
Towel Paper 5x40"	20	EA

Task Z607: Obtain Specimen/Sample for Shipment

EQUIPMENT

Nomenclature	Amount	Um

CONSUMABLES

Nomenclature	Amount	Um
Bateriological Spec Collect & Trans Syst	1	EA
Fecal Specimen Collect/Prep Kit	1	EA
Gloves Patient Exam & Treat Med Plastic	2	EA
Specimen Kit Urine 501 Components	1	EA
Swab Culture CalAlg Alum Shaft Wool Tip	1	EA

Task Z608: Package/Ship Specimen/Sample

EQUIPMENT

Nomenclature	Amount	Um
Refrigerator Mechanical Biologicals 115V	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Bateriological Spec Collect & Trans Syst	1	EA
Formaldehyde Solution USP 37% 1Pt	2	ML
Gloves Patient Exam & Treat Med Plastic	4	EA
Refrigerant Gel 1 Qt Use Med Field Assem	16	OZ
Tape Adhesive Surg White Porous 2x360"	.25	RL

Task Z612: Assist Personnel Administer Vaccine/Prophylaxis

EQUIPMENT

Nomenclature	Amount	Um
Refrigerator Mechanical Biologicals	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Bag Sterilization-Biohazard Disp 36x24"	1	EA
Pad Iso Alcoh Impreg Nonwvn Cot 1.5-2.6	1	EA
Syringe&Need Hypo Disp 23G 1" Ndl 3ml	1	EA

Task Z640: Select Site of Messing & Food Storage Areas

No 637/638 Supplies Required

Task Z641: Review Setup/Blueprints for Chowhalls

No 637/638 Supplies Required

Task Z642: Conduct Inspections of Messing & Food Storage Areas

EQUIPMENT

Nomenclature	Amount	Um
Flashlight 8.5" 2.25" Dia 3DC V Rating	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Battery Nonrechargable 1.5V 2.406" Cell D	2	EA

Task Z643: Conduct Food Receipt Testing

EQUIPMENT

Nomenclature	Amount	Um
Ruler Wood w/Bevel 12"Sing Metal Edging	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Pad Iso Alcoh Impreg Nonwvn Cot 1.5-2.6	1	EA
Minimum-Maximum Thermometer Digital	1	EA

Task Z644: Evaluate Food Sourcing/Transport

EQUIPMENT

Nomenclature	Amount	Um

CONSUMABLES

Nomenclature	Amount	Um
Min/Max Thermometer	1	EA
Pad Iso Alcoh Impreg Nonwvn Cot 1.5-2.6	1	EA

Task Z660: Make Recommendations for Camp Setup

No 637/638 Supplies Required

Task Z661: Conduct Sanitation Inspections of Common Use Areas

No 637/638 Supplies Required

Task Z662: Conduct Inspections of Laundry/Shower Services

No 637/638 Supplies Required

Task Z680: Select Berthing Site

No 637/638 Supplies Required

Task Z681: Conduct Inspections of Berthing Areas

No 637/638 Supplies Required

Task Z682: Dispense Cloth/Bedding Insect Repellant (Supplemental to 782)

EQUIPMENT

Nomenclature	Amount	Um

CONSUMABLES

Nomenclature	Amount	Um
Insect Repellent Clothing 602	1	CN

Task Z700: Assist in Selection of Waste Disposal Sites

No 637/638 Supplies Required

Task Z701: Conduct/Report Waste Disposal Inspection Results

No 637/638 Supplies Required

Task Z790: Document/Report Inspection Results

EQUIPMENT

Nomenclature	Amount	Um
Book Memorandum 10.5x8" Ruled 192 Pg	1	EA
Clip Board File 9x12 ½	1	EA

CONSUMABLES

Nomenclature	Amount	Um
Navmed 6240/1 Food Ser	1	EA
Pad Writing Paper 11x8.5" White 100 Sheet	1	EA
Pen Ball-Point Retractable Med Pt Black	1	EA

Task Z791: Make Recommendations/Troubleshoot Discrepancies

No 637/638 Supplies Required

Task Z792: Conduct Training

No 637/638 Supplies Required

Appendix B

Proposed AMAL 637 – Preventive Medicine Equipment

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
3740012102368	Aspriator Insect Mechanical	3	EA	0.45	0.03	42.82
6640004356105	Bag Insect Net Replacement Bag 12"Dia/28"Dp	12	EA	0.06	0.01	5.70
7530002223525	Book Memorandum	20	EA	1.68	0.60	2.24
8430002412780	Boots Hip Mens Rubber Blk H_20-proof Cleat Sz10	1	PR	0.01	0.01	32.25
8430002412781	Boots Hip Mens Rubber Blk H_20-proof Cleat Sz11	1	PR	0.01	0.01	32.25
8430002412782	Boots Hip Mens Rubber Blk H_20-proof Cleat Sz12	1	PR	0.01	0.01	32.25
6640004089915	Box Microscope Slide Plastic 100 Slides Hinged	3	EA	0.76	0.05	5.48
6640006841345	Box Microscope Slide Plastic 25 Slides Hinged	9	EA	0.35	0.02	14.55
7920002407174	*Brush Scrub 4" x 8"	5	EA	0.56	0.01	1.55
6640004098000	Bulb Dropping Pipet Rubber Latex 2 Oz	4	EA	0.09	0.01	3.84
6545004896320	Case Medical Instrument & Supply Set Nylon	6	EA	1.25	0.13	59.31
7520002815918	Clip Board File 9" x 12.5" Composition Back	15	EA	0.01	0.01	.92
6630010273914	Comparator Color Hydrogen Ion & Resid Chlorine	15	EA	2.30	0.21	113.38
6640008897092	Cylinder Graduated Lab 1000ml Capacity Plastic	4	EA	1.17	0.21	8.65
6640001491196	Dipper Entomological Polyethylene White 20 Oz	4	EA	0.42	0.15	8.44
3740001325936	Duster Manually Operated	4	EA	2.03	0.11	20.98
NSN PENDING	*Flags Heat Index	15	EA	0.60	0.20	3.50
6230002648261	Flashlight Right Angle 8.5"L 3 V Plastic	15	EA	0.10	0.01	4.10
374002L002032	Fog Generator Insecticidal ULV Truck	2	EA	100.00	4.00	2516.00
374002L002033	Fog Generator Insecticidal Portable	3	EA	25.00	2.00	1225.00
6520005427000	Forceps Drsg Cres Ang & Smooth Tweez 6.125"L	3	EA	0.10	0.01	6.34
6640004260300	Forceps Microscope Cover Glass CSteel 110mm	3	EA	0.06	0.01	1.56
6640004260315	Forceps Microscope Slide CSteel 130mm	3	EA	0.10	0.01	21.96
7240004049795	Funnel Plastic 2 Qt Rigid	4	EA	0.01	0.01	.62
8415010129294	Gloves Chem & Oil Cotton Lining Rubber Sz9	10	PR	0.35	0.03	1.50
8415011382504	Gloves Chemical Pro	15	PR	0.12	0.10	1.50
8415010137384	Gloves Chemical	10	PR	0.01	0.01	1.50

* Items added to upgrade capability

Appendix B

Proposed AMAL 637 – Preventive Medicine Equipment

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
4240001906432	Goggles Industrial	15	PR	1.00	1.00	1.32
6515003447800	Handle Surg Knife Detach Blade Sz3 Narrow	3	EA	0.08	0.01	5.87
PART # 26849	*Hose Assembly Sprayer .5"Dia 25Ft L	1	EA	3.50	1.30	158.00
6515014553888	Lantern Electric Head Mount Halogen & Krypton	15	EA	0.55	0.12	7.50
6540014553885	Lens Red Lantern Electric Head Mount	7	EA	0.55	0.12	2.00
6650004287010	Light Microscope Adjustable 110V 60 Cycle AC	3	EA	4.33	0.22	564.37
6230004989408	*Lantern Elec Alum Body Bast Type 6V	5	EA	1.00	0.19	23.23
NSN PENDING	*Light Ultraviolet Portable Battery Operated	5	EA	0.25	0.10	6.50
665000L002773	Magnifier 30X Pocket	4	EA	0.01	0.01	26.95
6545001407826	Medical Equipment Set H_20 Qual Analysis	2	EA	55.00	3.65	3825.00
6650012070829	Microscope Optical Binocular Histopath/Path	1	EA	40.00	5.40	2368.38
6650009736945	Microscope Optical Stereoscopy 15 & 20 Mag	3	EA	40.00	3.30	1643.99
3740002523384	Mousetrap Spring 4-way Wood Base 2" x 4"	4	DZ	0.10	0.01	4.55
7810004356100	Net Insect	5	EA	2.50	0.40	10.80
PART#1235000	*Nozzle Spray Gun Model #757	1	EA	0.75	0.25	131.00
7240002461097	Pail Utility Plastic or Rubber 3 Gal	3	EA	1.00	0.01	2.71
4240007593290	Protector Hearing	4	EA	1.02	0.13	11.21
3740002601398	Rattrap Spring Wd Base w/4-way Release Action	8	DZ	0.10	0.01	14.99
4110001156027	Refrigerator Mech Biologicals 4.5 CuFt 115V	2	EA	110.00	13.41	789.39
PART#5251845	*Repair Kit Spray Gun	1	EA	0.75	0.40	25.00
4240012465401	Respirator Air Filt	1	BX	0.01	0.01	150.12
4240012465404	Respirator Air Filt	1	BX	0.01	0.01	137.97
4240012350823	Retainer Cartridge	6	BX	0.01	0.01	22.08
7510001616215	Ruler Wood Metal-Edged Polished Maple 12"	3	EA	0.04	0.01	.26
6515003655200	Scissors Strabismus 4-4.5" Str Blade Semi-Sharp	3	EA	0.07	0.01	17.22
5120002348912	Screwdriver Cross Tip Phillips Sz3 6" Blade	2	EA	0.10	0.01	1.35
5120005293101	Screwdriver Cross T 8" Phillips	2	EA	0.01	0.01	1.67
5120005802361	Screwdriver Cross T 10" Phillips	2	EA	0.01	0.01	2.81

* Items added to upgrade capability

Appendix B Continued

Proposed AMAL 637 – Preventive Medicine Equipment

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
5120002277334	Screwdriver Flat TI 10" Flathead	2	EA	0.01	0.01	2.09
5120002277356	Screwdriver Flat TI 6" Flathead	2	EA	0.19	0.01	.87
3740011574000	Sprayer & Duster Pesticide Manually Carried	4	EA	0.80	1.00	445.48
3740001913677	Sprayer Pesticide Manually Carried 1Gal Tank	9	EA	1.00	0.11	127.28
374002L002031	Sprayer Hydrolic 50 Gal Portable	1	EA	25.00	1.50	1940.00
7105007100210	Table Folding Legs Laboratory	3	EA	30.00	1.25	247.21
5140003152747	*Tool Box Portable	1	EA	1.50	0.75	16.94
NSN PENDING	*Tool Multifunction Gerber	3	EA	0.01	0.01	9.50
3740011060091	Trap Mosquito Light Battery Powered	12	EA	6.00	0.40	116.39
4020002915901	Twine Fibrous	2	LB	1.00	0.03	2.68
6665011340885	Water Testing Kit Chemical Agents	3	EA	28.00	0.15	177.00
6665006824765	Water Testing Kit Bacteriological Self-Contained	1	EA	20.00	2.00	2457.68
5120002405328	Wrench Box & Open End Adjustable Crescent	2	EA	0.10	0.01	7.38
5120002704309	*Wrench Pipe 3.5" Wrenching Area 36" L	3	EA	0.01	0.01	67.84

* Items added to upgrade capability

Appendix C

Proposed AMAL 638 – Preventive Medicine Consumables

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
6505001050000	Alcohol Dehydrated USP 1 Pt (473 Ml) Bottle	10.00	BT	1.71	0.08	$1.43
6505001336000	ineral Oil USP 1Quart	3.00	CO	2.48	0.07	$2.83
6505013308932	Water For Irrig Sterile USP 1000ml Bottle 16 Per Package	4.00	PG	6.66	0.12	$9.99
6510009268883	Adhesive Tape Surgical Porous Woven 2" By 10 Yd 6s	2.00	PG	1.28	0.06	$8.14
6515009051473	*Applic Plas/Wood Rod 6" Lg 0.083" Dia Ster Disp 2000s	0.20	PG	0.65	0.65	$19.40
6550011611859	Bacteriological Specimen Coll & Transportation Syst 100s	2.00	PG	1.70	0.25	$30.97
8105004012010	Bag Plastic 16x12" Plas Sgl Wall Natural Heat Seal 100s	2.00	HD	0.40	0.02	$2.39
8105004012000	Bag Plastic Entomological Specimens 100s	3.00	HD	1.50	0.04	$2.33
6530011075798	Bag Ster-Biohazard Disposal 36x24" .0030" Sgl Wall200	2.00	PG	17.00	0.44	$108.48
6640011536786	Bag Water Sample Polyethylene 3 X 7 In 100s	10.00	PG	0.90	0.07	$21.88
6640012082383	Bag Water Samp A7 Flat w/Tag Plas .6 Oz Cap 500s	1.00	PG	0.54	0.05	$47.87
664000L002801	Bag, Specimen, 18oz, 4 1/2x9" 500s	1.00	PG	0.00	0.00	$42.95
6135008357210	Battery Nonrechargeable 1.5 Volt Cylindrical	9.00	PG	3.50	0.03	$6.40
6135009857845	Battery Nonrechargeable Alkaline 1.5v 1 Yr Shelf Life 24s	6.00	PG	0.10	0.00	$5.44
6135006431310	*Battery Nonrechargeable 6.0v Rectangular 12s	1.00	PG	15.00	0.22	$15.96
6515006600010	Blade Surg Knife Det No.11 Sm Tang U/W 3 3l 7 9 Hdl 6s	4.00	PG	0.03	0.00	$0.89
6640004042100	Block Insect Fix. Rect .25"W .375" Lg .125"Thick 100s	2.00	PG	0.04	0.00	$2.02
6530011031305	Bottle Safety Cap 16 Drams (59ml) Amber/Wht Plas 100s	3.00	PG	3.50	0.60	$29.65
6810002424770	*Calcium Hypochlorite 12pkgs 3.75lbs 45lbs Total	6.00	CN	45.00	2.00	$86.75
4240012465407	Cartridge,Respirator Air Filtering 10s	15.00	BX	0.00	0.00	27.59
NSN PENDING	*Chalk Stick Orange 24s	1.00	PG	0.01	0.00	$1.50
6810002646609	Chloroform Acs 16oz Sp Gr 1.471-1.474	2.00	PT	2.50	0.06	$12.66
NSN PENDING	*Coveralls Tyvek W/Hoods Boots Elastic Wrists 25s	5.00	PG	0.90	0.50	$55.00
NSN PENDING	*Coveralls Tyvek W/Hoods Boots Elastic Wrists 25s	4.00	PG	0.90	0.50	$55.00
NSN PENDING	*Coveralls Tyvek W/Hoods Boots Elastic Wrists 25s	3.00	PG	0.90	0.50	$55.00
6640006180066	Cover Glass Microscope Slide 22 Mm Square 1 Oz 150s	5.00	PG	0.13	0.00	$1.92
6515003245500	Depressor Tongue 6x0.75x0.062" Straight 100s	2.00	PG	0.69	0.04	$1.10
7930002829699	Detergent Gen. Purpose Nonmedicated Liquid 1 Gal Can	4.00	GL	1.00	0.00	$11.85

* Items added to upgrade capability

Appendix C

Proposed AMAL 638 – Preventive Medicine Consumables

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
6640010309012	Dish Culture Petri Plas D1512mm Height 50mm Disp 500s	2.00	PG	14.00	1.30	$165.82
6840010575462	Disinfectant-Deterg. Gen Purose 64 Fl Oz (1.89 Liters) 6s	1.00	BX	29.90	1.05	57.84
7930011079169	* Detergent Hospital Glassware & Insrument Powder 4lbs	1.00	PG	4.00	0.100	$17.67
6550010754011	Fecal Specimen Collection & Prep Kit 9 Components 20s	20.00	PG	2.00	0.50	$90.30
4240012465414	Filter,Respirator,Air Filtering	6.00	BX	0.00	0.00	9.72
6550001391321	Formaldehyde Solution 37% 1 Pt(473 Ml)	1.00	BT	1.75	0.04	$2.95
6550001539968	* Giemsas Stain Liq Pckgd w/One25gm Bt Buffer Salt50ml	1.00	PG	0.78	0.02	$6.30
6515011502978	Glove Patient Exam/Treatment Plas Dispos Med Sz100s	4.00	PG	3.00	0.37	$5.65
6840012781336	Insect Repell Clothg to Kill/Repel Mosquitoes Ticks Mites	3.00	BX	6.00	0.02	$43.63
6840012843982	Insect Repell Personal Applic For Mosquitoes Ticks Mites	4.00	BX	2.00	0.02	$30.86
6840013836251	* Insecticide Cyfluthrin 20s	10.00	BX	2.00	0.50	$410.62
6840014124634	Insecticide D-Pheno 12s	16.00	PG	9.00	1.10	$6.29
6840007535038	Insecticide Diazinon	4.00	CN	48.06	1.16	$38.47
6840001429438	* Insecticide Dichlorovos Strip 48s	4.00	BX	0.75	0.05	$183.24
6840011837244	Insecticide Fly Bait 5 Lb	8.00	CN	5.20	0.11	$18.44
6840004025411	Insecticide,Dursban 5gal	16.00	CN	50.00	0.70	$598.45
6840011040780	Insecticicde Resmethrine 1glcn	180.00	CN	9.00	0.80	$76.28
684002L002029	Insecticide Teme Ph05 Granular 5% 25pds	2.00	BG	0.00	0.00	$49.25
7530009820066	Label Pressure Sensitive Adhes White 3-1/2 x 1-1/8" 248s	2.00	PG	4.10	0.24	$0.76
6515004312890	* Lancet Finger Bleeding 5/32" Max Blade Length 100s	1.00	EA	0.22	0.02	$2.28
9150001178791	Lubricating Oil Engine	24.00	PT	0.00	0.00	$1.52
6640009264477	Mounting Medium Insect Specimen 30 Ml	2.00	BT	0.22	0.00	$57.83
6640002998475	Mounting Medium Insect Spec Acac&Chlor Hyd Base 1Oz	4.00	BT	0.31	0.01	$12.91
6640009351485	Mounting Medium Microscopy Synthetic Resin 1 Oz	4.00	BT	0.18	0.01	$54.90
0105LF2062400	Navmed 6240/1 Food Ser	4.00	PG	0.10	0.01	$8.60
NSN PENDING	* Oil Motor Lubricating Qt 12s	1.00	PG	6.00	1.00	$8.50
6810010512815	P-Phenylenediamine Reagent,Tablet,250s	30.00	BX	0.00	0.00	$15.22
6510007863736	Pad Isopropyl Alc Impreg Nonwvn Cott/Rayon 1.5 x 2"100	6.00	PG	0.50	0.10	$0.80

* Items added to upgrade capability

Appendix C

Proposed AMAL 638 – Preventive Medicine Consumables

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube	Unit Cost
7530011245660	Pad Writing Paper 8.5"W 11"Lg White A/A Pulp Type	5.00	DZ	10.50	0.25	$8.26
6640004365000	Paper Lens 1 Ream Tissue 11in Long 7.5in Wide	1.00	PG	1.17	0.04	$17.50
7520009357136	Pen Ball-Pt Pocket Med Retract Black Cartridge Replac	5.00	DZ	0.36	0.14	$3.10
6640012180615	Pin Insect Transfixion Sz No 1 Cres Headed 1.500"L 100's	4.00	PG	0.07	0.00	$21.94
6640012180614	Pin Insect Transfixion Sz No 3 Cres Headed 1.500"L 100's	4.00	PG	0.10	0.01	$21.41
6640012601231	Pin Insect Transfix w/o Head 13mm L .008"D. Shank 500s	1.00	PG	0.10	0.01	$23.06
6530004228120	Pipet Droppg Glass 2.88/3.13"Min/Max Lgth Rbr Blb 12s	6.00	BX	0.14	0.01	2.35
6515001376345	Plug Ear Noise Protect Univ Sz Vinyl Foam Cylind 400s	2.00	BX	2.00	0.40	$14.87
6850000279493	Refrigerant Gel 1 Qt (946ml)	6.00	EA	3.50	0.35	1.58
6840011514884	Rodenticidal Bait,Antigoagulant 11lbs	8.00	CN	6.25	0.60	$32.81
6640000744191	Slide Microscope Plain Frosted End 75.4 X 25 Mm 72s	4.00	PG	0.75	0.01	$4.33
6530000756636	* Specimen Collection Kit Urine 500s	0.25	PG	13.00	1.25	$90.33
6515007826482	Swab Culture Calcium Alginate Wool Tipped 100s	2.00	PG	0.61	0.10	$20.97
6515001491206	* Syringe & Needle Hypo Disp 23gage 1in Ndl 3ml 100s	10.00	PG	2.45	0.23	$7.34
NSN PENDING	* Tape Perimeter Warning 12s	1.00	PG	0.20	0.80	$2.50
6630010124093	Test Paper Chlorine Determin 10-50-100-200 Parts/Mill 10	10.00	PG	0.50	0.01	$43.73
7920007218884	Towel Paper 40 Sq In 5" Wide A/A Design 240s	5.00	BX	31.70	4.25	$29.95
3740010961632	Trap Insect Sticky 24s	4.00	EA	0.75	0.25	$9.50
6515012102371	Tube Collection For Use W/Mechanical Aspirator	6.00	EA	1.00	0.73	$2.90
4020002915901	Twine Fibrous	2.00	LB	1.00	0.03	$2.68
6630013628299	* Water Sampling Test Reagent Coliform 200s	1.00	PG	1.00	0.50	$702.72

* Items added to upgrade capability

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12. **Abstract**
Maintenance of large materiel stockpiles, in a few locations, has been replaced with a policy of rapid global force projection that can no longer support large logistical footprints. Therefore, new approaches to determine how to best match logistical support to operational requirements must be developed and implemented. The Naval Health Research Center has developed and tested a model that projects Preventive Medicine (PM) materiel requirements by linking individual supply items to PM objectives and tasks conducted in theater. In this way, only those items with a link to a specified PM task are included in the materiel projections. Results of the modeling effort showed significant decreases in the number of items, weight, volume, and cost of materiel required to support a Marine Expeditionary Force (MEF) operation. By establishing a link between PM tasks and supplies, a significant number of items were deemed to be redundant or not required to support the MEF. The reductions yielded by the model provided sufficient room in the blocks to add new, more effective materiel that enhanced water testing, pesticide application, and food sanitation capability. Furthermore, because of the inherent flexibility of the model, the relevant variables can be adapted to develop the materiel assemblages that will be required to support different war-fighting concepts as they emerge.

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