

Running head: GRADUATE MANAGEMENT PROJECT (GMP)

Forecasting Medical Materiel Requirements for Contingency
Operations

Major Daniel J. Moroney

U.S. Army-Baylor University Graduate Program in Health Care
Administration

A paper in partial fulfillment of the requirements for the
Administrative Residency

9 April 2004

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 09 APR 2004		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Forecasting Medical Materiel Requirements for Contingency Operations				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Walter Reed Army Medical Center Washington, DC 20307				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 109	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Acknowledgments

I would like to thank my wife, Hiromi, for her unwavering support through this rigorous program. Her commitment to my success has motivated me to achieve my goals as a husband, student, and Army officer. I would also like to acknowledge the various organizations that provided invaluable information to this project. These organizations include the Logistics Management Institute, the Defense Supply Center Philadelphia, the United States Army Medical Research and Materiel Command, the United States Army Medical Materiel Agency, the United States Army Medical Materiel Center Europe, the Office of the Surgeon General Directorate of Logistics, and the Armed Forces Medical Library. Finally, I would like to thank LTC S. Jane Allgood and COL Jonathan M. Kissane for creating the Baylor Medical Logistics Management Internship Program track for medical logisticians seeking an advanced degree.

Abstract

This qualitative study addresses the issue of poor forecasting accuracy for medical materiel requirements in preparation of contingency operations. Using examples from recent operations, to include Operation Enduring Freedom and Operation Iraqi Freedom, this paper identifies how planners forecast requirements, highlights roadblocks to successful forecasting, and describes tools, models, and procedures for forecasting supplies, both internal and external to the Department of Defense. The study concludes that effective forecasting of supplies is accomplished through a collaborative team approach between clinicians, planners, and logisticians. Additionally, planners and logisticians must look beyond authorizations in sets, kits, and outfits when planning for patient treatment within a theater of operations. Among the various tools discussed, those that base medical materiel requirements on a time-phased patient driven scenario show the most promise including the Naval Health Research Center's Estimating Supplies Program and Resupply Validation Program and the Army Medical Research and Materiel Command's Joint Medical Materiel Modeling Tool.

Table of Contents

Introduction	8
Conditions that Prompted the Study	10
Statement of the Problem or Question	13
Literature Review	13
Purpose	19
Methods and Procedures	20
Design	20
Ethical Considerations	21
Reliability	22
Research Findings	
How Planners Forecast Requirements	22
Department of Defense Medical Forecasting Tools	25
Material Analysis Tool (MAT)	26
Medical Contingency File (MCF)	30
Joint Deployment Formulary (JDF)	32
Estimating Supplies Program (ESP)	34
ReSupply Validation Program (RSVP)	37
Medical Materiel Mobilization Planning Tool (M3PT)	41
Medical Course of Action Tool (MCOAT)	45
Joint Medical Materiel Modeling Tool (JM3T)	48
Other Medical Forecasting Methods and Tools	53
U.S. Agency for International Development (USAID)	53
U.S. Department of State (DoS)	56
Discussion	57
Conclusion and Recommendations	60
References	64

Appendices	70
Appendix A—Acronyms	70
Appendix B—Wholesale Medical Logistics Plan (WMLRP)	75
Appendix C—U.S. Army Medical Unit Assemblages (SKO)	82
Appendix D—Joint Deployment Formulary (JDF)	86
Appendix E—The MCOAT Workbook	99
Appendix F—Iraq Humanitarian and Reconstitution Assistance	105
Appendix G—Supply Chain Management Software Survey	106
Table of Functions Cross-Tabbed by Methodology	

List of Tables

Table 1. Percentage Match of Pharmaceuticals Between Unit Authorizations and JDF Authorizations for Army Medical Units Deployed in Support of OEF

Table 2. Operation Enduring Freedom (Afghanistan) Casualty Estimation Methods Comparison

List of Figures

Figure 1. Comparison of medical materiel sourcing between the Gulf War and today

Figure 2. Viewing requirements by group (forward combat zone) in the Medical Analysis Tool

Figure 3. Medical materiel requirements (in short tons) by level of care and days of the operation in the Medical Analysis Tool

Figure 4. ESP selected report or query screen

Figure 5. Graphical representation of medical items in the Marine Corps' BAS AMAL required to treat notional patient stream

Figure 6. RSVP output for acetaminophen tablets for a fictitious scenario with a defined patient stream

Figure 7. Listing of reports available in the M3PT tool

Figure 8. Listing of medical equipment sets required for fictitious unit deployment using the M3PT tool

Figure 9. Generating medical materiel demands in JM3T

Figure 10. Patient Viewer output in JM3T

Figure 11. Medical Materiel Demand Viewer in JM3T

Figure B1. Medical Readiness Pyramid of the Wholesale Medical Logistics Readiness Plan

Forecasting Medical Materiel Requirements for Contingency Operations

Introduction

The last decade and a half has seen a significant increase in size and scope of U.S. military operations. Prior to Operation Desert Shield (ODS) in August of 1990 (and subsequently Operation Desert Storm), the largest military operation for U.S. Forces occurred in Southeast Asia from 1964-1973, the Vietnam War. Current operations in Southwest Asia, including Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) as well as peacekeeping operations in the Balkans, have proven U.S. Forces' resolve in conducting contingency operations around the world. These operations have consistently shown that U.S. Forces are the best-trained and ready forces to respond to threats against national security both at home and abroad. Today is no exception, as the new U.S.-lead Global War on Terrorism (GWOT) will undoubtedly keep Forces engaged around the world for some time into the future.

Logistically supporting these contingency operations is challenging. After the Vietnam War and prior to the Gulf War, operations were relatively small scale, crisis response actions of short duration. The threat during this period centered on the Soviet Union and the battle against global communism. Stockpiling war reserve material and forward deploying forces were all tools to counter this threat logistically. It was not until the Gulf War, due to its size and scope that the future of U.S. Forces would be re-written.

Viewed by key leaders, including the then Army Chief of Staff General Vuono, the Commander of Central Command General Schwarzkopf, and the Commander of the 22^d Support Command Lieutenant General Pagonis, logistics was a key contributor to the overall success of Operation Desert Storm (Pagonis & Raugh, 1991; Vuono, 1991). U.S. Forces continue to analyze lessons observed during ODS to improve and prepare for future operations. Overarching lessons observed from these operations included mobilization, deployment, logistics, maintenance, and interoperability (U.S. GAO, 1996). Much of how U.S. Forces are structured today, and will be in the future, is based upon Operation Desert Shield/Storm, including force logistical capabilities.

Medical support is key among the logistical capabilities of today's trained and ready forces. Traditionally, the Army has lead the medical logistics effort for the Department of Defense (DoD) on the battlefield with the assumption of the Single Integrated Medical Logistics Manager (SIMLM) mission. The SIMLM is the Service who takes the lead, in a joint operation, for medical supplies, equipment, medical maintenance, blood and optical fabrication (JP 4-02.1, 1997). The Service that assumes this mission is in fact responsible for all aspects of Class VIII support (medical materiel support) for all deployed forces, regardless of service, agency, or component. In OIF that service is the Army and the specific unit responsible is the 6th Medical Logistics Management Center (MLMC). This unit, also known as the United States Army Medical Materiel Center–Southwest Asia

(USAMMC-SWA), continues to be the central point for all medical logistics support in the theater of operations.

A recent draft initiative, which may affect the SIMLM mission, designates the Defense Logistics Agency (DLA) as the Executive Agent (EA) for all logistics matters. This holds true for medical materiel support as well. According to this draft DoD Directive, each service must now be prepared to assume the role of lead agent for medical materiel in the theater of operations (DoD Directive, 2003). It is uncertain at this time what this will mean for medical materiel support for future operations, including the support provided by USAMMC-SWA.

Conditions that Prompted the Study

Analysis of ongoing contingency operations in Afghanistan and Iraq reveal some significant issues with medical supply support. At the direction of the DLA, The Logistics Management Institute (LMI) conducted a medical materiel readiness assessment from October of 2002 to July of 2003. The intent of the study was to test industry's ability to support medical materiel requirements during contingency operations (Cocrane & Mervis, 2003). The study concluded that the commercial sector could support medical materiel contingency requirements. It also identified several issues with medical materiel including poor predictability of demands, lack of commonality between Service requirements, and lack of adequate planning for requirements (Cocrane & Mervis). This report, along with site visits to the Defense Supply Center Philadelphia (DSCP), Johnson & Johnson Health Care Systems (JJHCS), and the U.S. Army Medical Materiel

Center Europe (USAMMCE) all reinforce the lack of accurate forecasting as a significant issue for the medical community. Significant improvements must be made in the planning and forecasting of medical materiel requirements.

As OIF is an ongoing operation, after action reviews and lessons observed documents are just now surfacing. The 82d Airborne Division's Combat Service Support lessons observed concluded that medical logistics in the theater was both inadequate and often slow to respond (82d Airborne Division, 2003). This comment was due to a perceived lack of sick call medications, most notably selective serotonin re-uptake inhibitors (SSRI), used for adjustment and mood disorders. (Interestingly, SSRIs are not listed on the current MES Sick Call unit assemblage (UA) listing. This fact raises two questions: (1) Who forecasted the need for SSRIs; and (2) If SSRIs were not forecasted, how was USAMMC-SWA to know they were needed?) The 3d Infantry Division's Combat Health Support (CHS) lessons observed echoed similar comments. According to this unit, sick call medications were in short supply during the initial phases of the operation (3d Infantry Division, 2003). Additionally, this unit believed that the theater was not able to support their initial medical materiel requirements (3d Infantry Division).

Availability of maintenance, or chronic, medications is yet another problem during OIF (3d Infantry Division, 2003). Maintenance medications are those medications that a soldier is currently prescribed in garrison. Soldiers must deploy with

these prescribed medications. The guidance disseminated for OIF was for deploying Soldiers to carry a 90-day supply of their individual maintenance medications into theater. Due to the long duration of the operation, Soldiers quickly depleted their medications. USAMMC-SWA stocks limited medications and no plan was formulated to support this requirement. Again, the perception is that medical logistics failed to support forces adequately.

The 101st Airborne Division also reported a shortage of sick call medications in theater base camps (101st Airborne Division, 2003). The theater base camps' sick call mission was assigned to and performed by an area support medical battalion. However, this battalion had limited sick call supplies. As a result, the 101st Airborne Division prematurely used their supply of sick call medications to support this mission. These division sick call supplies should have been reserved for division operations outside the base camps once combat operations commenced. Additionally, the sick call medical resupply sets (MRS) ordered by the division arrived late (101st Airborne Division).

None of the individual unit after action reviews and lessons observed documents addressed forecasting of medical materiel requirements. Units are quick to point out the theater's (USAMMC-SWA) inability to support medical materiel requirements. However, did these units properly identify their medical materiel requirements prior to deployment during the deliberate planning process? Whose responsibility is it to

forecast medical materiel requirements in support of contingency operations?

In a recent presentation to the Army Surgeon General, members of the medical logistics integrated concept team (ICT) briefed Operation Iraqi Freedom lessons learned. Several of these lessons were attributable to a lack of accurate forecasting and include the following: (1) Days of supply is an inadequate planning tool; (2) Medical units arrived in Theater without adequate medical supplies to perform their mission; (3) Sick call for US Forces, contractors, and DoD personnel consumed supplies intended for later use; and (4) Current processes are inadequate to accurately predict actual medical materiel requirements with initial theater supplies supporting less than 40% of demands (Fletcher, 2004). These issues were the direct result of poor forecasting of medical materiel requirements.

Statement of the Problem or Question

The perception is that planners cannot accurately forecast medical materiel requirements. This graduate management project (GMP) will identify how planners forecast medical materiel requirements for contingency operations. This project will highlight roadblocks to successful forecasting, recommend ways to increase accurate forecasting for future operations, and identify individuals responsible for forecasting medical materiel requirements for contingency operations.

Literature Review

The importance of logistics to the success of operations is immeasurable. According to General Carl E. Vuono in his article

in the July-August 1991 issue of Army Logistician entitled *Desert Storm and Future Logistics Challenges*, "Logisticians have...a special responsibility that extends far beyond the confines of combat service support, for they are responsible for supporting the young Americans in all types of units who are marching to the sound of the guns in the defense of the Nation" (p. 31). Logistics is truly a combat multiplier and new initiatives must be constantly devised and tested to foster improvement. As previously discussed, Operation Desert Shield/Storm revealed a need to update U.S. Forces' logistics infrastructure and doctrine (Engel, 1999). Doctrinal weaknesses and vulnerabilities in logistics during ODS included support priority, total asset visibility, movement control, managing scarce resources, and command and control (Engel). According to Lieutenant General Pagonis, 'Logisticians had to compete for space on incoming planes to get experts in theater and create a structure for a deployment that was already well underway' (Engle, 1999, p. 35). Some of these same issues continue today in OIF. Priority for movement continues to be an issue for medical materiel, making accurate forecasting even more critical to the success of the medical support mission. Recently, logisticians used commercial carriers to reduce significant backlogs of medical materiel in Germany and Qatar awaiting shipment through DoD distribution channels (Kissane, 2003). Currently, all medical materiel requiring refrigeration is now transported by DHL into Iraq (Kissane). This reliance on commercial carriers will undoubtedly continue in future

operations as movement of medical materiel has traditionally had low priority.

Getting the right supplies to the right place at the right time is critical. Waiting for needed medical supplies, as human lives depend on their timely receipt, is unacceptable. Significant shortages of medical materiel identified during Operation Desert Storm, included antibiotics, morphine, flu vaccines, x-ray film, and laboratory reagents (U.S. GAO, 1994). Units were shipped overseas short of their required basic load of medical materiel; most were told that they would receive their supplies once in theater. At that time, there were limited contracts with industry to support contingency or surge medical materiel requirements. New acquisitions were made to purchase the needed supplies. Commercial medical suppliers were able to fill most orders, but fell short on some larger orders (U.S. GAO). Although casualty estimates were high for ODS, many medical units experienced equipment shortages and transportation issues leading to receipt of only partial receipt of supplies and equipment (U.S. GAO).

In response to these medical materiel issues in the early 1990s, the Defense Supply Center Philadelphia's (DSCP) Directorate of Medical Materiel (DMM) responded by instituting cooperative initiatives with industry, both with manufacturers and distributors. This organization is part of DLA and is the medical commodity manager for the DoD, purchasing supplies from industry (the wholesale level) and coordinating the movement of those supplies to strategic ports (JP 4-02.1, 1997). In 1992

following ODS, DSCP changed the wholesale business practices for medical supplies, most notably through a concept known as prime vendor (PV) (Cardella, 1999). The idea was that a commercial distributor of medical supplies (both pharmaceuticals and medical/surgical supplies) would manage those supplies. When a customer needs medical supplies, the PV delivers, usually within 24-hours to the requesting location. This industry partnership brought DoD more in line with current commercial business practices, reducing millions of dollars worth of warehouse operations.

Since that time, DSCP has built upon innovative commercial business arrangements to increase medical logistics support to DoD. In fact, an analysis of DSCP's medical supply sourcing for contingencies is seen in Figure 1 below. The difficulty in acquiring medical materiel in the Gulf War can be easily seen in this figure. Only 8% of the need supplies were in depot stock and the remaining supplies were new purchases as items were requested in support of the Gulf War.

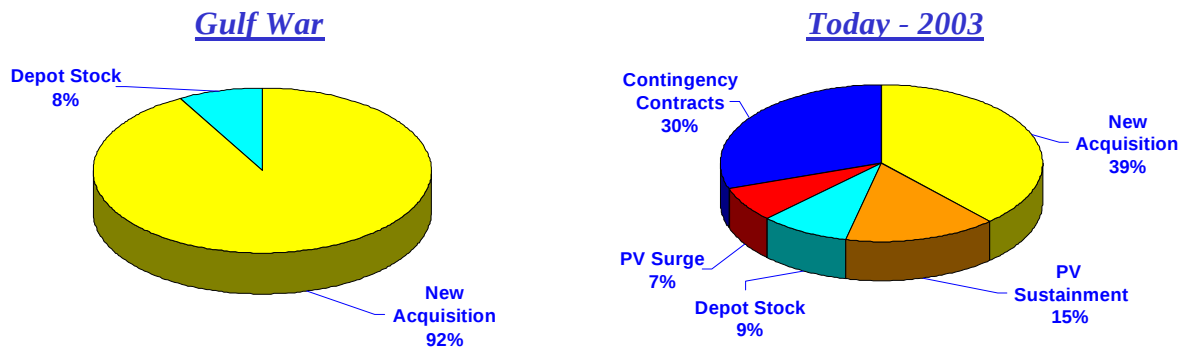


Figure 1. Comparison of medical materiel sourcing between the Gulf War and today (DSCP, 2003)

Today, because of DSCP's smart business practices, contracts are pre-established to meet the medical materiel needs of a contingency. According to Colonel Stuart Mervis, the Army Surgeon General's previous Director of Logistics in his 1999 article in *Army Logistician* entitled *Medical Logistics—Ready for the Future*, "there has been a fundamental shift in medical materiel management from a depot-based institution to a commercially based enterprise" (p. 74). However, even with these initiatives, some of the same problems seen during the Gulf War are currently seen in OIF, namely getting the right medical supplies into the theater at the right time. Problem medical materiel for OIF include laboratory reagents, orthopedic devices, pediatric, burn, and oral surgery supplies (Kissane, 2003). These shortages are certainly linked to a lack of accurate forecasting.

As previously discussed, DSCP is the central location for providing wholesale medical materiel support to the DoD. To do this, DSCP has developed a Wholesale Medical Logistics Readiness Plan (WMLRP). This plan is a collection of programs to provide cutting edge medical logistics support today and is discussed in detail in Appendix B. This comprehensive plan is designed to improve medical readiness for the warfighter. The majority of DSCP initiatives depend on the Services' ability to determine their needs. Once the needs are determined, initiatives are designed to support those needs. If the Services have not accurately identified their needs, these initiatives will not improve medical readiness, they will just speed the "wrong" items to the warfighter.

Although medical materiel support in peacetime (or garrison environment) is extremely successful, it has not been so in contingencies. According to Colonel Jetteka Signaigo, Commander of the United States Army Medical Materiel Agency-Europe (USAMMCE), "We do not do in peacetime as we do in war" (Medical Service Corps Symposium, 2003). This sentiment was echoed by Colonel Jonathan Kissane, Director of Logistics for the Office of the Surgeon General when he briefed medical logistics issues identified during OIF and said, "We need collaborative planning that is different than we have today" (Medical Service Corps Symposium).

A recent collaborative tool used to identify medical materiel sustainment requirements is the Medical Contingency File (MCF). This tool is a subset of DSCP's Readiness Management

Application (RMA). The MCF is a roll-up of Service requirements for medical materiel. Services submit these requirements to the MCF semi-annually. Based upon operations plans (OPLAN) and time-phased force and deployment data (TPFDD), these items are contracted for with commercial industry (Cocrane & Mervis, 2003). An OPLAN is a written plan to conduct one or more military operations in a theater. The TPFDD contains those forces identified to deploy in support of the OPLAN (FM 8-55, 1994). At last count, there were approximately 9,492 items in the MCF and there is little commonality between Services among these items. Interestingly, USAMMCE processed over 59,000 requisitions in direct support of OEF and OIF from October 2001 through June 2003. Only 32% of those requisitions matched items in the MCF. Again, there is poor accuracy in forecasting medical materiel requirements for contingency operations (Cocrane & Mervis).

Purpose

The purpose of this study is to improve the medical logistics support to the warfighter through accurate forecasting of requirements. Medical logistics support must keep pace with the operational tempo of both the current and future force. As U.S. Forces continue to be engaged around the world, it is vital that they receive the best logistics support to fight and win our nation's battles.

Methods and Procedures

Design

This exploratory study will examine current procedures and research in medical materiel forecasting. Qualitative in nature, this study will evaluate both DoD and non-DoD forecasting tools. By exposing various models and procedures, both internal and external to the DoD, an improved forecasting method may be identified and applied within the DoD to maximize the accuracy of materiel forecasting.

Several organizations outside the DoD selected for evaluation include the International Committee of the Red Cross (ICRC), the Department of State, the U.S. Agency for International Development (USAID), and the World Health Organization (WHO). These organizations were selected due to their significant involvement in medical treatment and humanitarian support worldwide.

Within the DoD, specific forecasting methods and tools evaluated will include the Medical Analysis Tool (MAT), the Medical Course of Action Tool (MCOAT), the Medical Materiel Mobilization Planning Tool (M3PT), the Medical Contingency File (MCF), the Joint Deployment Formulary (JDF), the Estimating Supplies Program (ESP), and the Resupply Validation Program (RSVP). Proposed forecasting initiatives will also be evaluated, including the U.S. Army Medical Research and Materiel Command's (USAMRMC) Joint Medical Materiel Modeling Tool (JM3T). This tool is in the design phase and has potential applicability to organizations both within and outside of the DoD.

Finally, this study includes the results of a Medical Logistics Forecasting Conference held in January 2004. Experts within medical logistics presented and discussed different forecasting tools and the status of future tools. This current perspective is DoD specific and added value to this research project.

Ethical Considerations

All information used in this qualitative study was extracted from contingency operation lessons observed documentation, current literature, and numerous organizations, both internal and external to the DoD, including but not limited to Joint Readiness Clinical Advisory Board (JRCAB), the United States Army Medical Materiel Agency (USAMMA), the United States Army Medical Materiel Center Europe (USAMMCE), the United States Army Medical Materiel Center-Southwest Asia (USAMMC-SWA), United States Army Medical Research and Materiel Command (USAMRMC), Defense Supply Center Philadelphia (DSCP), Logistics Management Institute (LMI), United States Agency for International Development (USAID), the World Health Organization (WHO), the International Committee of the Red Cross (ICRC), and the Department of State (DoS). Although this study discusses some medical conditions and medications, there are no direct or indirect links between these conditions and medications and any individual person. Within the context of this qualitative study, informed consent is not required as no direct contact will be made or questions asked of specific Soldiers and their medical conditions deployed in support of contingency operations.

Reliability

As this is a qualitative study, all information gathered will be considered reliable and will come directly from published works or responsible organizations. Every attempt will be made to evaluate all forecasting models and techniques similarly, with no internal bias. In order to compare the different forecasting methods presented in this exploratory case study, evaluation criteria must be uncovered through a thorough literature review. Although attending the Medical Logistics Management Internship Program (MLMIP) sponsored by USAMMA, this researcher is currently assigned to the Office of the Surgeon General (OTSG) Directorate of Logistics. There is no command influence forcing this researcher to favor one model or technique over another. Additionally, this researcher has no personal bias, as he has not personally deployed in support of any contingency operation discussed in this study. Finally, any quantitative information discussed is a result of previously conducted and published research and will be used to reflect the level of accuracy in requirements forecasting.

Research Findings

How planners forecast medical materiel requirements

There are no established doctrinal steps to forecast medical materiel requirements for contingency operations in the Army. Medical logisticians and planners rely upon their experience, good judgment, and unit operating procedures such as tactical standard operating procedures (TACSOP) or field standard operating procedures (FSOP). The unit or combatant

commander provides guidance for an operation in the form of the commander's intent. A current field manual, FM 4-02.1, Combat Health Logistics (2001), states the following:

To anticipate requirements, the logistics planner must fully understand the commander's intent. He must also know the location of supported units, maintain total asset visibility before and throughout the operation, and maintain a continuous intelligence picture of the AO. Responsiveness is the keynote of the medical materiel management system. (p. 1.4)

Today's logistician attempts this anticipation and responsiveness through deliberate planning for medical supplies, equipment maintenance, blood banking, medical waste management, medical gas production and distribution, services contracting, and optical fabrication (FM 4-02.1). However, this deliberate planning has traditionally focused on unit authorizations as detailed in unit assemblage listings (UAL), prescribed load lists (PLL), and deployment packages. Also known as minimum essential wartime (MEWT) materiel requirements, these authorizations are the basis for the logisticians plan. The most common MEWTs can be found in the form of sets, kits, and outfits (SKO).

There are approximately 233 different SKOs currently authorized for use in the Army and are listed in Appendix C-U.S. Army Medical Unit Assemblages. Categorized as medical equipment sets (MES), dental equipment sets (DES), medical materiel sets (MMS), veterinary equipment sets (VES), and other designations,

each is comprised of expendable, durable, and non-expendable items of supply. These supplies are listed on a document called a unit assemblage listing (UAL). A complete listing of all UALs is maintained and updated on the USAMMA web site. These SKOs are designed and built based upon requirements and historical casualty estimates. Reviewed cyclically, every three years, the Directorate of Combat Doctrine and Development (DCDD) updates the UALs (Cooper, 2003). As the combat developer for the Army Medical Department (AMEDD), DCDD is responsible for designing, standardizing, updating, and maintaining these sets. Once an SKO becomes authorized, USAMMA manages the building of the SKO and its associated life cycle management of the set by cataloging and posting updates electronically (USAMMA, 2000).

Even with the seemingly comprehensive listing of SKOs, these sets are not capable of treating every possible patient condition seen during an operation. Today's Army is experiencing change while fighting a new war on terrorism. According to the current Army Chief of Staff, General Peter J. Schoomaker in his draft Army White Paper entitled *Serving a Nation at War, A Campaign Quality Army with a Joint and Expeditionary Mindset* (2003), "...the Army must meet the supreme test of all armies: to rapidly adapt to circumstances which it could not foresee." (p. 3) This includes planning for medical support in a field environment that traditionally has not been planned for, including treatment of pediatric patients, long-term, neurological, and burn patients. Traditional planning efforts must change with our changing Army. We must plan for the

unforeseeable to support our most valuable resource, human life, both Soldier and civilian. We cannot afford to limit our support to only those items authorized in SKOs. We must use these SKOs as a starting point, or MEWT, and build upon their authorizations to support what will actually be required during the contingency, whether currently authorized or not.

The following section explores both existing tools and those under development, which aid the planner, logistician and clinician in developing a medical support plan for a contingency operation. A description of each tool and its capabilities are outlined below. The original intent in this exploratory case study was to objectively evaluate each tool. However, through an exhaustive literature review, no evaluation criteria were uncovered to use as a basis for the comparison. The proponent agency of each tool below was also contacted and asked of existing evaluation criteria and none knew of the existence of such criteria. As a result, each tool will be objectively reviewed, without existing evaluation criteria, culminating in a discussion and recommendation.

Although no official evaluation criteria were available, there are criteria this researcher deems appropriate for a good forecasting tool. First, the tool should look beyond medical authorizations or minimum essential wartime medical materiel. Authorizations in medical sets, kits and outfits should not be the sole consideration. Second, casualty estimates based upon time-phased scenarios should be the basis for medical materiel requirements. Third, the tool must be applicable DoD-wide,

maximizing standardization of medical materiel. Forth, the resulting forecast should be at the line item level of detail, not by set, kit and outfit or total weight. Fifth, the tool must be tailorable to all operations and any patient conditions, including traditional injuries not previously planned for in a deployed setting such as pediatrics, obstetrical, burns, and neurological patients. Sixth, the tool should be easy to use. These criteria, although rudimentary, should be the basis of any good medical forecasting tool for contingency operations.

Department of Defense Medical Forecasting Tools

There are many tools, or systems, within the DoD to aid operational planners and logisticians in preparation for deployment in response to a contingency operation. Within the DoD, there are over 600 different logistics systems alone (Office of the Assistant Deputy Under Secretary of Defense/Logistics Systems Management, & Chainlink Research, 2002). The tools chosen for review in this paper are by no means a complete list of medical tools; however, they are among the most common and widely used by today's medical planners and logisticians. What follows is a description of each tool, its capabilities and limitations, and its focus on logistics forecasting.

Medical Analysis Tool (MAT). The Medical Analysis Tool is considered a joint tool, used by all services. Sponsored by the Theater Medical Information Program (TMIP), the MAT's functional proponent is the J4 Health Service Support Division (HSSD). The TMIP program ensures integration of existing medical information

systems linking all echelons of medical care in a joint environment to provide the best possible care to the Soldier (TMA, 2002). TMIP is currently under development and eventually will encompass a block of components for medical command and control during a contingency operation. The MAT is included among these components.

The MAT generates medical requirements and analyzes courses of action (COA) in support of a joint operation (both deliberate and crisis action planning) from the theater to the division level. The MAT tells the planner at what level and to what degree medical support will be needed for a joint operation (TMA, 2002). This tool can be either downloaded from the Global Command and Control System (GCCS) or operate from a cd-rom. The tool consists of three modules including a scenario builder, a medical requirements estimator, and a course of action analyzer. Constantly updated, its latest version includes the ability to plan for weapons of mass destruction (WMD) events.

The MAT is not a casualty estimator. Everything in the MAT is based upon predetermined casualty rates. These rates are already determined based on the current real-world operation plans (OPLAN) for the major theater wars (MTW). In fact, the MAT uses clinical data in both the medical requirements estimator and course of action analyzer. The Joint Readiness Clinical Advisory Board (JRCAB) provides the clinical data.

The JRCAB is a joint organization under DoD directive to standardize medical materiel for all services, including deployable medical systems, and provide logistical, technical,

and clinical expertise to ensure quality medical materiel is available to the DoD (JRCAB, 2003). The clinical data consists of over 350 patient conditions and their corresponding frequency based upon geographical location. A patient condition, according to the JRCAB, is an identified condition that commonly occurs during periods of combat or in a deployed setting. Other specific frequencies may be added if necessary (Vineyard, 2003).

The scenario builder in MAT allows the planner to select medical facilities, casualty sources, and units to create the scenario. How forces are arrayed will have a definite impact on evacuation and treatment of injured soldiers. The requirements estimator uses patient conditions and other planning factors to determine beds, staff, materiel, and evacuation support requirements. Figure 2 below shows in a sample scenario, the number of beds available by echelon in the forward combat zone. Additionally, this screen capture also shows other information provided by this tool including evacuation, admissions, return to duty (discharges), died in hospital (DIH), blood, and medical supplies (Class VIIIA).

Although at first glance, the MAT provides valuable information to planners, it falls short in estimating medical supplies. The medical supplies estimated by MAT are not specific items of supply, but rather a total estimate by weight only. This is not a useful planning factor. How does a logistician determine what items of supply should be included in the weight estimate? Currently, the planning factor for medical materiel is 8.2 pounds of medical materiel per soldier per day in theater.

How much of the 8.2 pounds per soldier per day is for bandages, medications, or intravenous fluids? Figure 3 below shows an actual screen capture of the medical supply window (Class VIIIA).

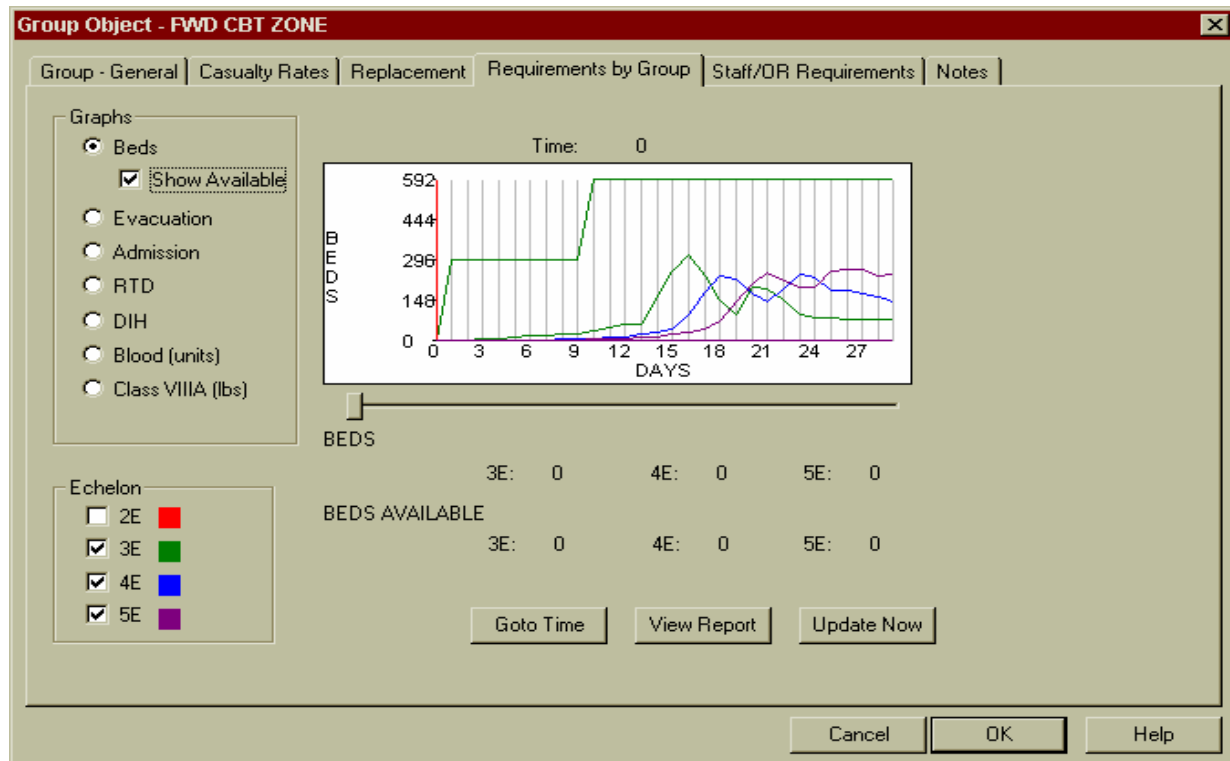


Figure 2. Viewing requirements by group (forward combat zone) in the Medical Analysis Tool (Vineyard, 2003)

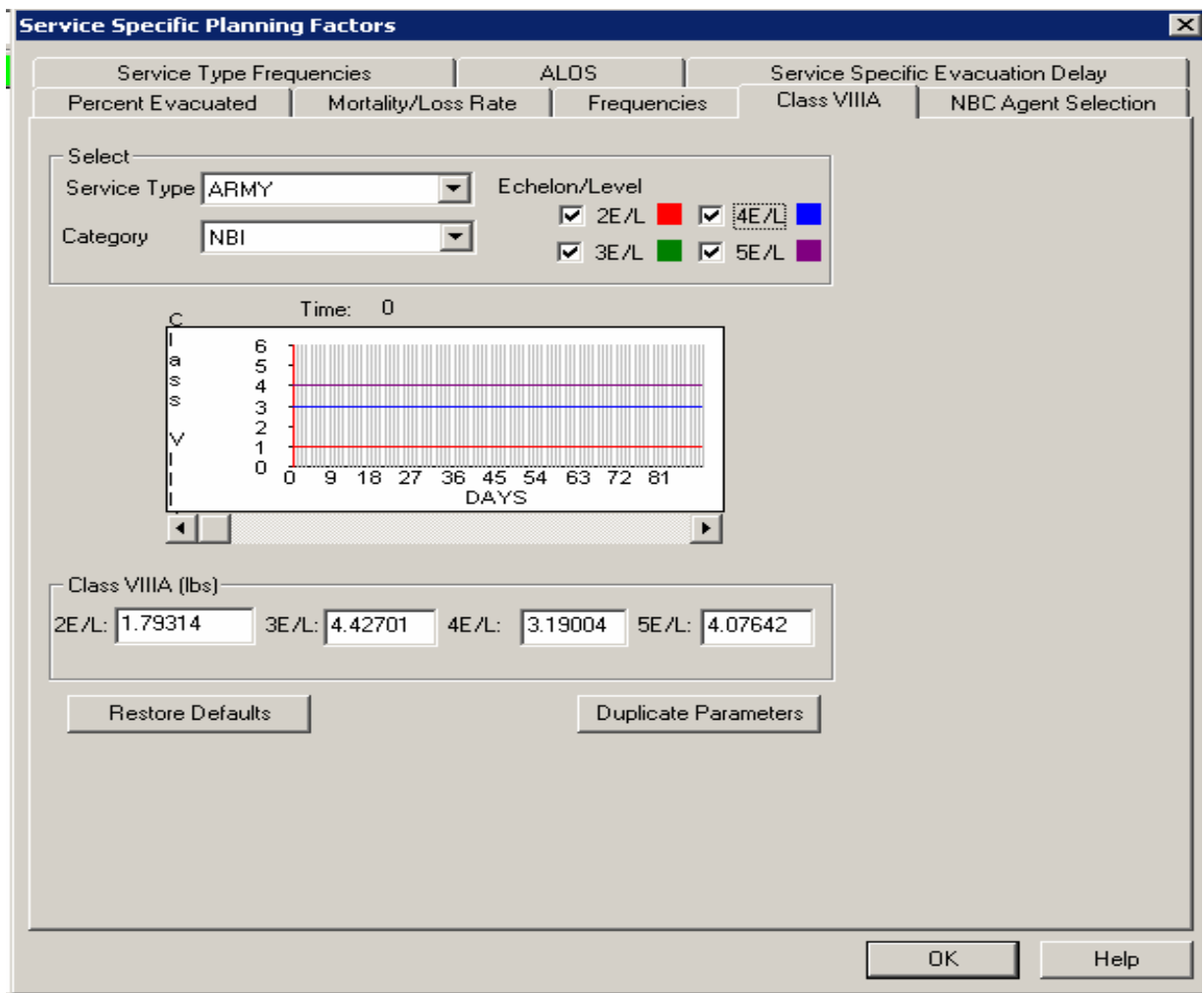


Figure 3. Medical materiel requirements (in short tons) by level of care and days of the operation in the Medical Analysis Tool (Vineyard, 2003)

Medical Contingency File (MCF). Commonality between the services, with respect to medical supplies, is a top priority for joint medical planners and logisticians. There are several initiatives currently working to increase commonality of medical supplies and the Medical Contingency File is one such initiative. The MCF is a conglomeration of each service's

medical materiel requirements (both pharmaceutical and medical/surgical) for a contingency operation in one document. With the requirements captured on one document, the DoD (more specifically DLA) can contract directly with commercial industry to ensure these requirements are available during a contingency. Currently, there are 9,492 separate line items of medical supplies in the MCF, of which only a third (3,177) are commonly used by more than one service (Cocrane & Mervis, 2003). Commonality may have been the goal in the creation of the MCF; however, DoD has yet to achieve this goal.

Each service submits requirements for the MCF independently of each other, with differing procedures to do so. Most are based upon the medical materiel authorizations within the SKOs that they believe will be required within the first 60-days of a contingency. How do logisticians ensure these requirements are accurate? Conducted by the Logistics Management Institute (LMI), an analysis of almost 60,000 medical supply requisitions submitted to USAMMCE between October 2001 and June 2003 revealed only a 32% match to those requirements identified in the MCF (Cocrane & Mervis, 2003). It is interesting that this percentage match is similar to the commonality, or lack of commonality, between the services in the MCF. This analysis shows a lack of commonality and poor accuracy in determining medical materiel requirements for contingency operations. Further analysis conducted by LMI revealed that most unit authorizations match the MCF at a rate of over 50% (Cocrane & Mervis). Again, if the MCF match rate between OIF/OEF requisitions and items in the MCF

is 32% and the match rate between most unit authorizations and the MCF is over 50%, we are not accurately forecasting our medical materiel requirements through the use of the MCF. Additionally, this may suggest the items within sets, kits, and outfits are not sufficient to treat casualties. Based upon the intent of the MCF, this percentage match should have been significantly higher. It seems clear that the services need to increase their forecast accuracy based upon this analysis, in addition to increasing their collaboration.

Joint Deployment Formulary (JDF). The Secretary of Defense for Health Affairs, in the fall of 2002, directed the JRCAB to explore and implement a tool to increase the predictability and availability of pharmaceuticals to sustain forces in a deployed environment. In response to this request, the JRCAB developed the Joint Deployment Formulary (JDF) in January 2003 and announced its creation in a DoD medical materiel quality control (MMQC) message (DoD MMQC 03-1015, 2003). A formulary is a collection of pharmaceuticals on one document approved for use on a specific patient population. Today's JDF is a guide for logisticians, pharmacists, and providers in support of a contingency operation. Those pharmaceuticals listed on the JDF should be stocked in theater to support the operation.

As a member of the DoD Pharmacy and Therapeutics Committee, the JRCAB created this formulary based upon the DoD formulary and the Task Time Treater File (TTTF). The TTTF is another JRCAB product that lists the actual materiel required to treat a patient condition (PC) in theater at each of the four levels of

care (JRCAB, 2003). This file is used to justify the creation of a medical SKO, if needed. The concept behind this formulary is that there is a high probability, if the drug is listed on the JDF, that it will be available in the theater of operations. It will be available because the formulary will be provided ahead of time, during the deliberate planning phase of the operation, to logisticians, planners and clinicians. This will give the logisticians time to requisition those items on the JDF and ensure they will be in theater for use. Additionally, the clinicians will have time to review the JDF, prior to deployment, to ensure it will meet their needs.

Available as either an Excel workbook or Access database, the JDF is not set in stone. It can be modified with recommendations from pharmacists and clinicians. If required, a clinician can order pharmaceuticals not listed on the JDF with the approval from the theater pharmacist. However, the order ship time for that item may be extended, as the item is not stocked in theater. The current JDF contains over 900 pharmaceuticals and is included in Appendix D. (It has been edited and formatted to fit this document.) Currently, all pharmaceuticals on the JDF are also authorized in the Level 4 Joint Deployable Medical Systems Pharmaceutical Set, D406. However, not all pharmaceuticals in the other medical SKOs have been updated to reflect those listed on the JDF. As previously discussed, SKOs are updated cyclically. When updating sets, the JDF should be reviewed to ensure those pharmaceuticals in the SKO are representative of those listed on the JDF. Table 1 below

shows the comparison match between pharmaceutical authorizations in SKOs to those pharmaceuticals listed on the JDF for Army medical units that deployed in support of OEF. These medical units are typical of those that would support a contingency operation. The overall percentage match between pharmaceuticals in the SKOs and on the JDF suggests that the JDF is working. However, pharmaceuticals in SKOs should be continually updated to reflect the JDF.

Table 1

Percentage Match of Pharmaceuticals Between Unit Authorizations and JDF Authorizations for Army Medical Units Deployed in Support of OEF (Cocrane & Mervis, 2003)

OEF Army Medical Units	Unit	JDF	Match
Combat Support hospital (CSH)	714	369	52%
Area Support Medical Company (ASMC)	127	93	73%
Forward Surgical Team (FST)	56	43	77%
Total Match			56%

Estimating Supplies Program (ESP). The U.S. Navy has accomplished a lot in the way of research dealing with medical logistics. Under the direction of the Bureau of Medicine and Surgery (BUMED), the Naval Health Research Center (NHRC) developed ESP and the Resupply Validation Program (RSVP) to

improve the medical logistics readiness of the Navy and Marine Corps. The NHRC mission is to protect, maintain, and promote the health of military personnel and their family members medical readiness and biomedical research (NHRC, 2002).

Representatives from the NHRC presented both ESP and RSVP at the January 2004 Modeling and Simulation Seminar held at Fort Detrick, Maryland. Prior to its creation, the NHRC conducted a review of Marine Corps medical supply requirements. This review identified medical tasks necessary to treat specific injuries and the corresponding medical supplies needed for each medical task. This thorough review involved over 130 experts evaluating treatments, tasks, medical supplies and equipment. The initial result was a drastic reduction of the amount of medical supplies in the Marine Corps, thus reducing the logistical footprint of far forward medical units. A subsequent result was a comprehensive database that could estimate supplies as a result of a patient stream (Tropeano & Konoske, 2000).

The ability to estimate supplies is not the only advantage of the ESP program. The program also evaluates medical inventory readiness. Prior to ESP, each item of medical inventory in a set, kit, or outfit was of equal importance. Now, ESP can assign a criticality code to both the medical treatment task and medical supply items required for that task. Based upon the criticality codes, ESP determines the amount of critical medical supplies absent from the on-hand medical inventory based upon a medical scenario or patient stream. This enables a planner to determine which patient conditions will be affected based upon a

current on-hand medical supply inventory. This is a powerful tool that will allow a planner to target specific supplies to ensure medical readiness. Additionally, a planner can use ESP to perform a query that lists the medical supplies to perform a specific medical task or to treat a specific diagnosis or patient condition. The figure below, Figure 4, shows these capabilities in ESP.

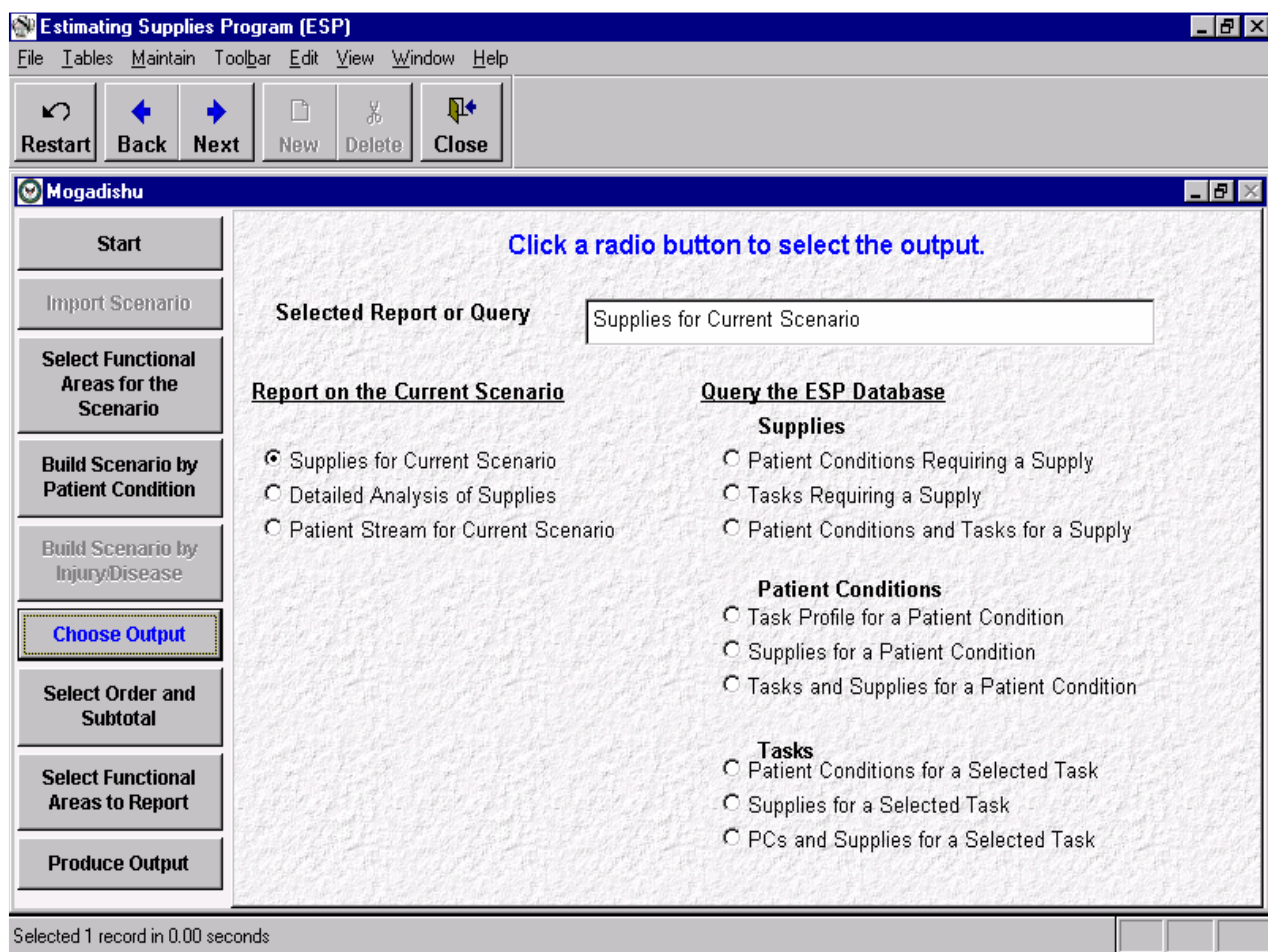


Figure 4. ESP selected report or query screen (Konoske, 2004)

Similar to the MAT, the ESP program is not a casualty estimator. A patient stream or scenario must be input into the system in order for ESP to estimate supplies and inventory readiness. Patient data can be entered in one of three ways; manually, imported from a casualty estimation program, or loaded from a predefined patient stream. The ESP program was written to accept casualty estimations from various programs to include the Patient Workload Generator (PATGEN), the Ground Casualty Projection System (FORECAS), the Shipboard Casualty Projection System (SHIPCAS), and the Automated Patient Stream Estimator (APSE).

The Estimating Supplies Program can be downloaded from the NHRC web site. Once installed, the user logs on with a user name and password. The user may select from an inventory or a scenario, including creating a new scenario. When developing a new scenario, it is important to enter a patient stream from one of the casualty estimators previously identified. The resulting outputs can be viewed, printed or sent via email. The combination of estimating supplies and assessing readiness makes this a powerful medical logistics forecasting tool.

Resupply Validation Program (RSVP). Even though great strides were made by the NHRC with the ESP program, there was still a requirement to validate the total number of medical supply items to support a patient stream. Thus the simulation tool, the Resupply Validation Program, was born. As previously discussed, the Army denotes the authorizations in their sets, kits, and outfits as unit assemblage listings. In the Navy and

Marine Corps, these UALs are called authorized medical assemblage listings (AMAL). It was necessary to task organize these AMAL configurations, based upon ESP estimates, through a validation of the total number of medical supply items necessary to support a patient stream scenario over a 60-day period. This is the purpose of RSVP.

Currently, in the Army, USAMMA builds medical resupply sets. These resupply sets do not account for specific usage or a specific patient stream. An Army unit receives the complete consumables package for a new medical equipment set, as the resupply set. This is a lot of unnecessary weight and cube. This assumes that each item in the set has the same usage pattern; however, this is not the case. If an authorized item in an SKO gets used very infrequently, why resupply it in the resupply set? Over time, these resupply sets become burdensome for the unit, increasing its logistical footprint. The Marine Corps realized this problem and asked the NHRC for assistance in solving it.

To help solve this problem, the NHRC developed a patient stream, over 350 patient conditions, for 8331 patients. This number of patients is a notional number in which the Marine Corps' current AMAL configurations are organized to treat. For purposes of this example, the battalion aid station (BAS) AMAL will be used. There are approximately 156 BAS AMALs authorized in a Marine Expeditionary Force (MEF). Each BAS AMAL has over 170 separate medical items of supply. When NHRC looked at the consumption rates of medical supplies for this patient stream,

they determined that 156 BAS AMALs was significantly over what was actually needed. The NHRC determined that the total of all individual medical items throughout 156 BAS AMALs, for the specified patient stream, greatly exceeded what was required. The ESP program determined, for example, for the above patient stream, 5155 elastic bandages were required. There are exactly 96 elastic bandages in one BAS AMAL. Based upon the authorization of 156 AMALs in the MEF, there would be 14,976 elastic bandages in the area of operations. This is significantly higher than what is needed to treat the patient stream. The graph in Figure 5 below shows the individual medical items required to treat the patient stream is significantly less than what was authorized (represented by the horizontal line), with a few exceptions. The graph shows that the requirement for the majority of supply items is significantly lower than 156 BAS AMALs worth. There were a small number of items that were not sufficient to treat the patient stream and are identified as those items above the horizontal bar.

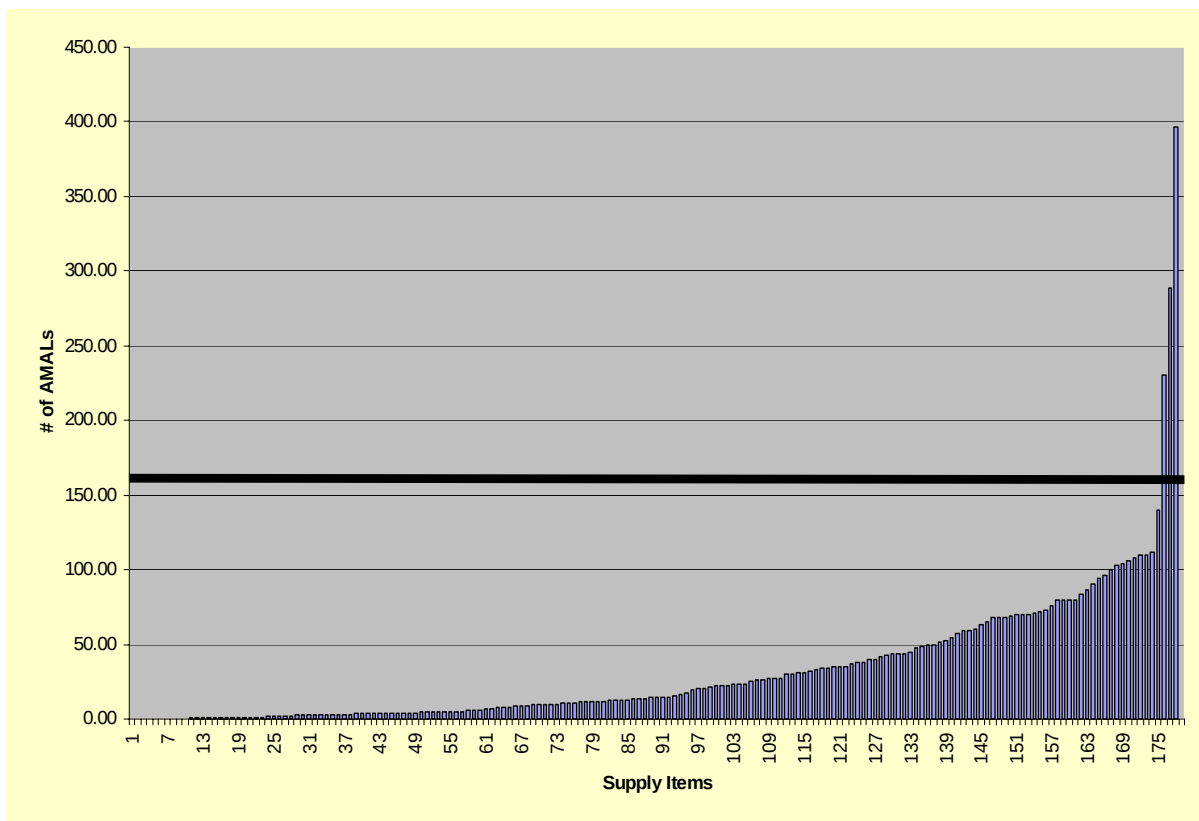


Figure 5. Graphical representation of medical items in the Marine Corps' BAS AMAL required treating notional patient stream (Tropeano et al., 2003)

Based upon this analysis, resupply sets should be tailored based upon a forecasted patient stream. Thus the purpose of RSVP is to tailor resupply blocks. The program now configures resupply blocks based upon patient requirements. This can be seen in Figure 6 below. Here, RSVP projected in this example, the quantity of acetaminophen tablets needed over six periods for a specific patient stream. These periods, or time phases, can be developed into resupply blocks to ensure there are

sufficient acetaminophen tablets in theater. The value of this capability is immeasurable with a significant reduction in the logistics footprint, cost, quantities, and manpower.

Time Phased Resupply for OIF Example for IMLG						
6505009857301	ACETAMINOPHEN TABLETS .325GM 1000 TABS					
	Period1	Period2	Period3	Period4	Period5	Period6
1RSP First Responder - Medical						MTFs: 8
Qty	268.295	1286.326	1470.085	2205.132	1653.845	1286.326
UI	8000.000	8000.000	8000.000	8000.000	8000.000	8000.000
UI-	8000.000	0.000	0.000	0.000	0.000	8000.000
BAS Battalion Aid Station						MTFs: 4
Qty	729.551	3497.798	3997.480	5996.232	4497.163	3497.798
UI	4000.000	4000.000	4000.000	8000.000	8000.000	4000.000
UI-	4000.000	4000.000	4000.000	4000.000	4000.000	4000.000
SC Triage/SST						MTFs: 1
Qty	8.932	42.825	48.943	73.414	55.061	42.825
UI	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000
UI-	1000.000	0.000	0.000	0.000	0.000	0.000
SC Ward						MTFs: 1
Qty	301.396	1445.030	1651.462	2477.197	1857.893	1445.030
UI	1000.000	2000.000	2000.000	3000.000	2000.000	2000.000
UI-	1000.000	1000.000	2000.000	2000.000	2000.000	2000.000
Required Qty: 39836.0000	Qty/Pkg: 1000.000	Pkgs: 51	Order qty: 51000.000			

Figure 6. RSVP output for acetaminophen tablets for a fictitious scenario with a defined patient stream (Tropeano et al., 2003)

Medical Materiel Mobilization Planning Tool (M3PT). This tool is a component of the Medical Operational Data System (MODS). An Army-specific tool, its proponent is the U.S. Army Office of the Surgeon General. This web-based tool allows the user to pull data from 18 different DoD databases. The purpose of M3PT is to assist planners logistically in preparing a

mobilized unit for deployment. The different outputs or reports produced are solely based upon authorization data for each medical unit. That is, those medical items specifically authorized for that particular unit by its table of organization and equipment (TOE), common table of allowances (CTA), and other documents. The focus of this tool is medical materiel mobilization or the ability to mobilize a unit and successfully deploy that unit from a power projection platform (PPP) or power support platform (PSP) with its minimum essential wartime (MEWT) supplies and equipment (MODS, 2004).

The first step in M3PT is building the scenario to include defining and naming the operation and choosing a power projection platform (Pina, 2003). There are approximately 15 Army PPPs in the United States. These installations, or platforms, have the capability to strategically deploy active and reserve forces anywhere in the world. Because of their unique status as power projection platforms, these installations are resourced appropriately to accomplish this mission and are co-located with strategic air and seaports.

The second step begins with identifying the units to deploy. This can be done either by unit identification code (UIC), description, or a Department of Defense Activity Address Code (DODAAC). The user can build custom units in this step or modify existing units, if for example, only a portion of the unit is to deploy.

The third and fourth steps identify various items of supplies that the unit must have prior to deployment or

accompany the unit on the deployment. These items include, among other things, vaccines, medical chemical defense materiel (MCDM), CTA 8-100 authorized items, and other issue items. During the fourth step, the planner can further refine information about the unit. The fifth and final step displays reports. The various reports available include a listing of CTA 8-100 items, vaccines, optical requirements, unit assemblages (UA), medical equipment sets (MES), medical resupply sets (MRS), and troop issue items.

Figures 7 and 8 are the result of a fictitious scenario built by this researcher in the M3PT tool. The first figure, Figure 7 shows the available reports in the tool. The second figure, Figure 8 shows a medical logistics planning report of medical equipment sets (MES) that are authorized in the unit. (This is the resultant report that is highlighted in Figure 7 with a red arrow.) The individual items for each medical equipment set can also be displayed with quantity and dollar value; however, the report would be too cumbersome to put into this paper. Again, this tool only plans for authorized medical materiel based upon the users input and the unit's authorizations. Those medical items listed would be those items authorized in the specific medical equipment sets or SKOs.



M3PT

[M3PT Home](#) [Help](#) [Clear Scenario](#) [Save](#)
[Discussions](#) [Logout](#) [From the M3PT](#)

[Home](#) [1: Scenario](#) [2: Units](#) [3: Troop Issue](#) [4: Review & Edit](#) [5: Reports](#)

Step 5: Build a Scenario [<< Previous](#) [Next >>](#)

Select Report

Medical Readiness Reporting (MRR)

These reports are designated for MRR requirements.

- [CTA 8-100 MRR](#)
- [Vaccine MRR](#)
- [Optical Requirements](#)
- [Units](#)

Medical Logistics Planning (MLP)

These reports are designated for medical logistics and/or mobilization planners.

- [Unit Assemblage](#)
- [Medical Equipment Sets](#)
- [Medical Resupply Sets](#)
- [Units](#)
- [Optical Requirements](#)
- [Troop Issue](#)

Figure 7. Listing of reports available in the M3PT tool (MODS, 2004)



M3PT

[M3PT Home](#) [Help](#) [Clear Scenario](#) [Save](#)
[Discussions](#) [Logout](#) [From the M3PT](#)

[Home](#) [1: Scenario](#) [2: Units](#) [3: Troop Issue](#) [4: Review & Edit](#) [5: Reports](#)

Medical Equipment Sets Report, Grouped by AOR [Done](#)

Scenario Name: MoroneyGMP

To print this report, please use your browser's print command.
 Report date: February 20, 2004
 Report time: 09:10

AOR: CONUS**Medical Equipment Sets**

NSN	Nomenclature	P1	P2	P3	P4	P5	P6	Total
6545-01-104-5359	DES GENERAL DENTISTRY FIELD:	1	0	0	0	0	0	1
6545-01-102-6789	DES DENTAL HYGIENIST FIELD:	1	0	0	0	0	0	1
6545-01-141-9472	DES DENTAL X-RAY FIELD:	1	0	0	0	0	0	1
6545-01-141-9478	DENTAL EQUIPMENT SET DENTAL SUPPORT:	1	0	0	0	0	0	1
6545-01-191-8973	DENTAL EQUIPMENT SET OPERATORY FIELD LIGHTWEIGHT:	1	0	0	0	0	0	1
6545-01-141-9469	MEDICAL EQUIPMENT SET CHEMICAL AGENT PATIENT TREATMENT:	6	0	0	0	0	0	6
6545-01-176-4612	MEDICAL EQUIPMENT SET CHEMICAL AGENTS PATIENT DECONTAMINATION:	6	0	0	0	0	0	6
6545-01-141-9476	MEDICAL EQUIPMENT SET GROUND AMBULANCE:	8	0	0	0	0	0	8
6545-01-228-1886	MEDICAL EQUIPMENT SET SICK CALL FIELD (2):	6	0	0	0	0	0	6
6545-01-191-8972	MEDICAL EQUIPMENT SET TRAUMA FIELD (1):	6	0	0	0	0	0	6
6545-01-191-8971	MEDICAL EQUIPMENT SET X-RAY FIELD LIGHTWEIGHT:	1	0	0	0	0	0	1

Figure 8. Listing of medical equipment sets required for fictitious unit deployment from the M3PT tool (MODS, 2002)

The M3PT tool is a valuable asset to ensure deploying medical units have the minimum essential wartime medical materiel to treat patients. However, the tool does not forecast supplies above and beyond what is authorized, to treat a defined patient stream, based upon variables such as risk, terrain, weather, posture, strength, or opposition, unlike the variables in the next tool.

Medical Course of Action Tool (MCOAT). As previously discussed, the MAT accomplishes medical course of action planning at and above the corps level. The Medical Course of

Action Tool was created to fill the medical planning tool void at the division level and below. In 1998, a medical planner, Lieutenant Colonel Bruce Shahbaz, developed the tool known as the Medical Course of Action Tool. Although not an official Army-approved tool, MCOAT is AMEDD approved and has been used by medical planners in today's active Army divisions for recent operations such as OIF and OEF. Unlike the MAT, MCOAT is a casualty estimator. Comprised of five modules (casualty estimation, patient flow, workload, medical supply, and basis of allocation rules), it uses the goal seek function on an Excel spreadsheet.

The functions behind the MCOAT tool are a combination of the work of two researchers, Colonel Trevor Dupuy and George Kuhn. Dupuy's work, Attrition: Forecasting Battle Casualties and Equipment Losses in Modern War (Nova Publications, 1995) developed a formula for casualty estimation based upon eight variables including population at risk, terrain, weather, posture (offensive or defensive), strength, opposition, surprise (enemy's ability to ambush), and sophistication (impact of technology). George Kuhn, in his work "CJCS Guide to Battle Casualty Rate Patterns for Conventional Ground Forces" (DoD, 1998) identified a new variable called operational forms. These operational forms include the continuous front, disrupted front, and disintegrated front and identify the likelihood of success of an attacker over a defender. Each of the operational forms has an impact on attacker success; continuous having minimal, disrupted having increased, and disintegrated having total

success (Shahbaz, 1999). Lieutenant Colonel Shahbaz integrated the variables and formulas of both researchers into one spreadsheet called MCOAT.

The MCOAT user's guide is included in Appendix E-The MCOAT Workbook. Interestingly, a validation of MCOAT was conducted based upon patients treated by the medical task force in Afghanistan from 21 February through 24 March 2002. The results are displayed below in Table 2. Performing better than the Army Casualty Estimator, the MCOAT casualty estimates were close to the MAT estimates (the MAT can estimate casualties if you input the variables from the MCOAT into MAT).

Table 2

Operation Enduring Freedom (Afghanistan) Casualty Estimation Methods Comparison (Shahbaz, 2002)

Estimation Method	Estimate	Actual	Error
AMEDDC&S DNBI Estimator	N/A	2247	N/A
MAT-Using MCOAT Estimates	2280	2247	33
Army Casualty Estimator (ACE)	1929	2247	-318
Medical Course of Action Tool	2289	2247	42

Although the MCOAT shows promise as a hasty medical course of action planning tool, it does not estimate medical materiel in line item detail. It produces a weight estimate, similar to

the MAT, based upon soldier per day. Again, this is not useful to a medical logistics planner as it is difficult to translate the stated weight estimate into actual materiel needed to treat casualties. An example of the medical materiel estimate can be seen in Appendix E-The MCOAT Workbook.

Joint Medical Materiel Modeling Tool (JM3T). The Joint Medical Materiel Modeling Tool is a recent initiative from the U.S. Army Medical Research and Materiel Command. This tool is a modification of Blackjack, which was a Defense Advanced Research Projects Agency (DARPA) Advanced Logistics Program (ALP) initiative. Originally developed to support Class I (subsistence), Class III (fuel), Class VIII (medical materiel), and Class IX (repair parts) it was abandoned by DARPA and adopted by the MPMC in 2002. With funding provided by the DLA, MPMC has developed a promising tool in what is today called the JM3T. The name change reflects its new purpose as a medical materiel modeling tool (Kramer, 2003).

The JM3T provides line item level modeling detail for medical materiel requirements. Line item level of detail means specific medical items required to treat patients, by national stock number, national drug code, or prime vendor number such as specific pharmaceuticals, bandages, intravenous fluids, and other supplies. This tool has the potential to be DoD's premier medical materiel requirements generator.

Similar to ESP and RSVP, this tool forecasts medical materiel requirements, at the line item level of detail, based upon a time-phased scenario and defined patient stream. It uses

information from several established databases that were previously described in this paper. For casualty estimation, JM3T uses the Kuhn Study (CJCS Guide 3161) to estimate wounded in action (WIA) and the Army Casualty Estimator (ACE) for disease non-battle injuries (DNBI) estimations. The Patient Generator (PATGEN) provides over 400 specific patient condition distributions. Finally, the Task Time Treater File (TTTF) provides the medical supply line item level of detail for each patient condition. Figure 9 below shows a graphical representation of the medical materiel demand generation in JM3T. Key to the tailorability of JM3T is its ability to incorporate other data determined important by the user. This tool also has applicability to organizations outside the DoD to include the Centers for Disease Control (CDC) and the Department of Homeland Security.

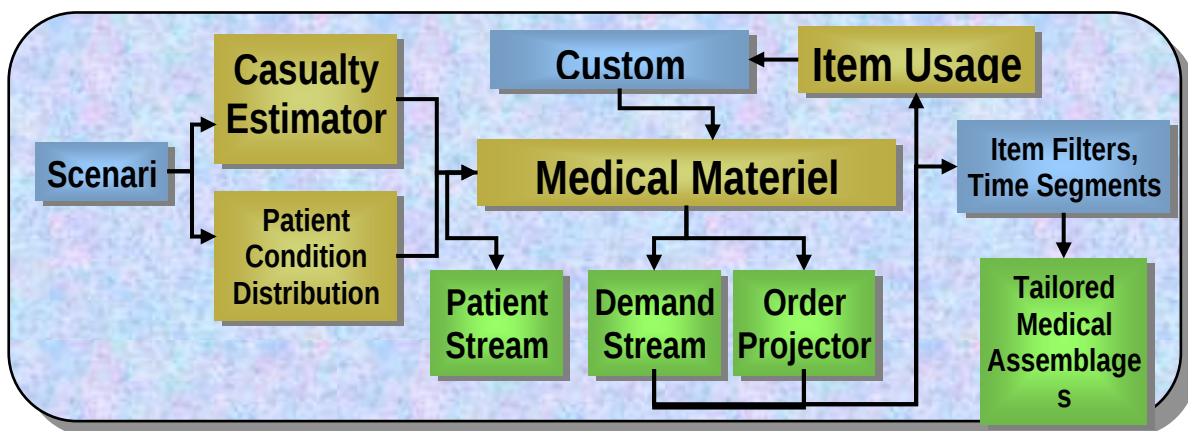


Figure 9. Generating medical materiel demands in JM3T (Kramer, 2003)

The ability to tailor the inputs into this tool is its power. The user can adjust organizational parameters such as

level of care, treatment protocols, supply points, and current on-hand quantities of supplies. The population at risk can be adjusted by day or phase of the operation for an accurate picture of soldiers on the ground. Additionally, casualty rates can be adjusted, including total battle casualty rate, wounded, and disease non-battle injury rates as well as the evacuation policy. Although PATGEN and ACE provide the patient categories, the user can adjust the output based upon new information or assumptions not captured in the original distribution. Finally, the user can establish new or modify existing treatment protocols, in addition to those provided by the TTTF. These unique protocols can be provider specific, mission specific, unit specific, etc.

The following figures show the capability of JM3T. Figure 10 shows the patient viewer, which is a collection of patient conditions displayed based upon the information provided by the user. Each patient condition reveals a histogram showing the number of presentations per day for that patient condition for the duration of the scenario. This is a powerful capability that allows planners to prioritize resources based upon patient flow. If the resulting data does not make sense to the user, it can be modified. Figure 11 shows the materiel demand viewer. This is a listing of all the medical materiel supplies required for the scenario. Like the patient viewer, each item of materiel will reveal a histogram to show the quantity of that line item of medical materiel per day to treat the scenario's patient conditions. This is an awesome report that will allow

logisticians to plan time-phased medical materiel requirements to support the operation. This is a true forecasting capability.

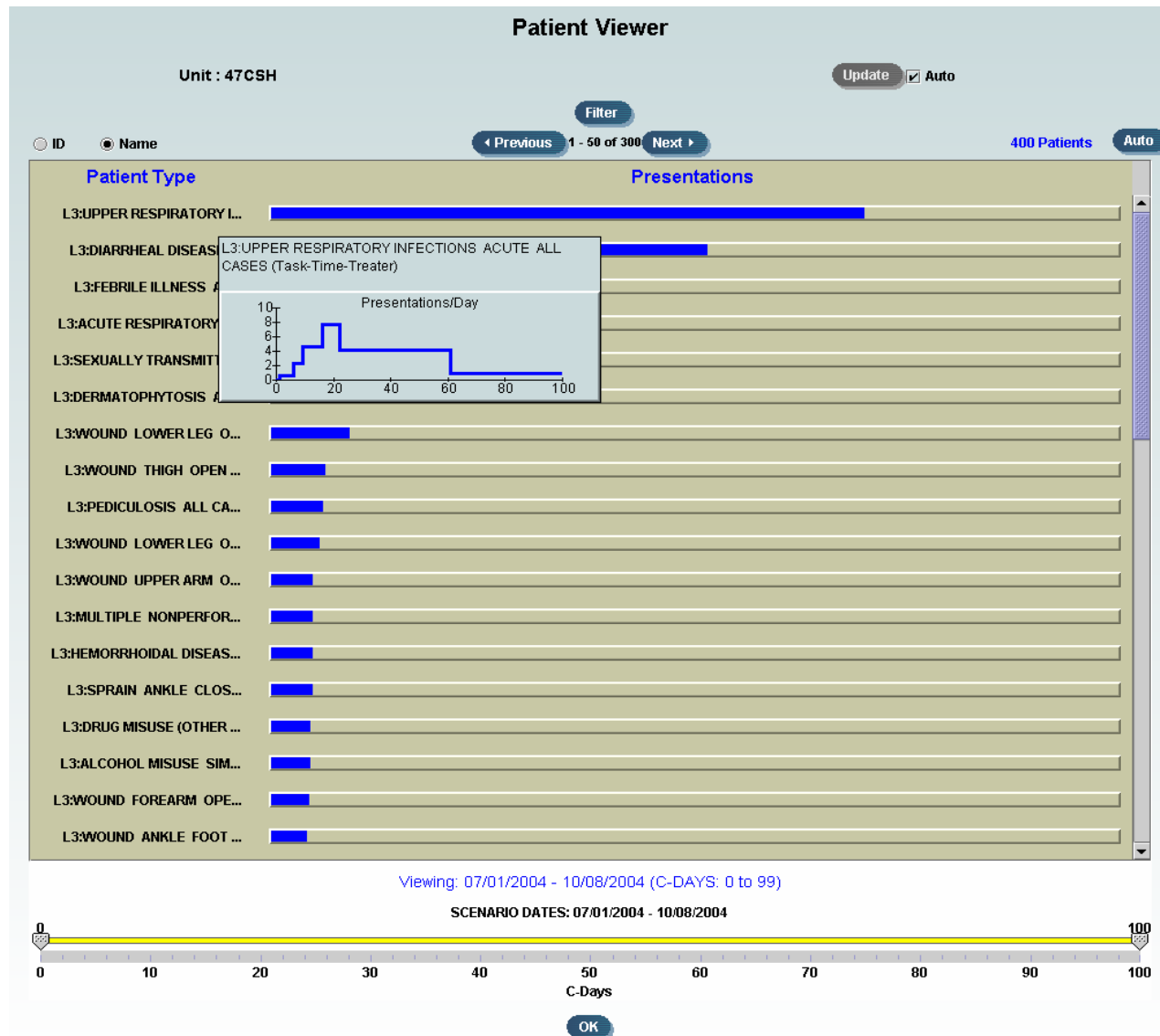


Figure 10. Patient Viewer output in JM3T (Kramer, 2003)

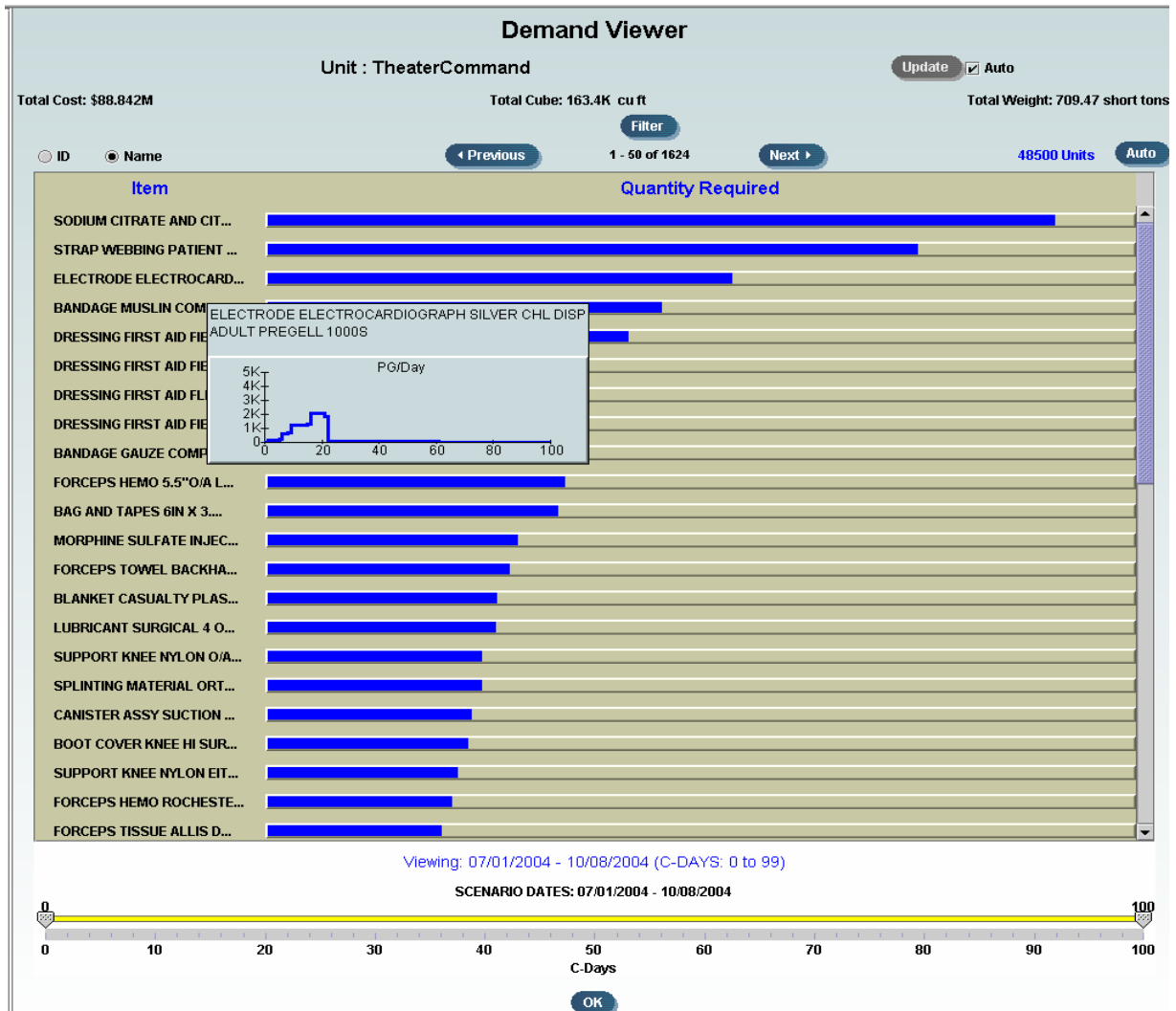


Figure 11. Medical Materiel Demand Viewer in JM3T (Kramer, 2003)

The JM3T is a collaborative tool. That is, planners, logisticians, and clinicians must work together with this tool to achieve its most optimal output. This is the only tool that requires a collaborative approach. The only limitation to the JM3T tool is the data that supports its functionality. The JM3T output is only as good as the information and databases that

provide the data. Additionally, there are some budgetary issues with JM3T, as it is in need of funding for further development.

Other Medical Forecasting Methods and Tools

The Army medical logistics community has adapted its business processes to reflect those of its civilian counterparts. These business practices are outlined in the Wholesale Medical Logistics Plan (WMLRP) in Appendix B. In some instances, the Army leads the way in logistics initiatives. However, it is important to look outside the Army and the Department of Defense for possible answers to the forecasting accuracy program. Several organizations were selected to include the U.S. Agency for International Development, the U.S. Department of State, the World Health Organization, and the International Committee of the Red Cross.

All organizations were contacted with a mix of responses to research queries. The two most cooperative agencies include the USAID and the Department of State. Unfortunately, the WHO and the ICRC were reluctant to share information pertaining to their logistics operations, methods and procedures.

U.S. Agency for International Development (USAID). Providing U.S. foreign assistance, through the foreign policy guidance of the Secretary of State, is the mission of USAID. Since its creation in 1961 during the Kennedy administration, this independent federal government agency has expanded democracy and improved the lives of those in the developing world. Specifically, the organization supports democracy, humanitarian assistance, conflict prevention, agriculture,

trade, economic growth, trade and global health (USAID, 2003). Currently, the USAID is heavily involved in support to the reconstruction efforts in Iraq, as a result of Operation Iraqi Freedom.

A significant portion of this reconstruction effort is in development of a comprehensive health program. The leading healthcare issues, for Iraq, include malnutrition, diarrheal diseases, low birth weights, acute respiratory infections, and an average life expectancy of 58 years (USAID Fact Sheet, 2003). USAID has countered these threats through awards and contracts to relief agencies to include the United Nations Children's Fund (UNICEF), Mercy Corps, International Medical Corps, Save the Children, CARE, WHO, and Abt Associates, Inc (USAID Fact Sheet). Essentially, USAID uses the expertise of other agencies to include private voluntary organizations (PVO), non-governmental organizations (NGO), and International Organizations (IO). A snapshot of humanitarian and reconstruction assistance is provided in Appendix F. Those organizations and activities that are providing health and logistics efforts are highlighted in yellow. This fiscal year (FY) 2004 funding summary lists those organizations and emergency relief activities, coordinated by USAID and Department of State that are providing for Iraq's humanitarian and reconstruction assistance. Over \$2.56 billion was provide thus far in FY04 to this effort (USAID Weekly Update #19, 2004). Although the WHO and ICRC were reluctant to provide information for this research project, this funding summary lists these organizations as contributors to this reconstruction

effort, both of which provided health assistance for a combined total amount of \$15 million (USAID Weekly Update).

Unlike the Department of Defense, contingency responses are not forecasted in advance by USAID, but rather assessed at the time of the emerging crisis or after the crisis is over. When a disaster occurs, a needs assessment is conducted in conjunction with NGOs and other organizations in the region. This needs assessment coupled with what supplies are available in the region determine what is provided to the country or population in need. One organization used frequently by both USAID and the WHO is the International Dispensary Association (IDA). This non-profit organization provides medical supplies throughout the world. The mission of the IDA is to provide essential medical supplies, at lowest possible price, to the non-profit sector in low and medium income countries (IDA, 2004). This organization is represented in the funding summary in Appendix F.

Like the Army, the IDA has medical sets, kits and outfits. The most commonly used is the New Emergency Health Kit (NEHK). Developed by the WHO in 1998, this kit is capable of treating 10,000 persons for a 3-month period of time. This kit is specially designed for natural disasters or armed conflict. These kits can be shipped anywhere in the world within 24 hours. The IDA stocks 50 kits that are fully functional at all times. The kit consists of 24 boxes weighing approximately 840 kilograms; 10 basic and 14 supplementary boxes. The medical supplies include medicines, instruments, and renewable supplies such as intravenous fluids (IDA, 2004). If required, with more

lead time, it is possible to assemble tailor-made kits for a particular region or threat.

Within the USAID, no unique forecasting methods or procedures were uncovered. Unlike the military, which must plan proactively, the USAID basis its plan on a retroactive needs assessment. Additionally, the USAID does not provide all needed supplies, but utilizes the expertise of other governmental and non-governmental agencies, many of which are already stationed in the region of interest. Appendix F shows this awesome coordination effort in more detail. All organizations and activities highlighted in yellow are providing both medical and logistics assistance to the region. This puts the USAID at an extreme advantage and allows it to harness the strength of these governmental and non-governmental agencies, relying on their ability and expertise to forecast needed supplies.

U.S. Department of State. The State Department is responsible for U.S. foreign policy activities. These activities include among other things, foreign assistance programs, foreign military training programs, countering international crime, establishing stable economic environments, countering humanitarian crises, terrorism, disease, and nuclear smuggling (State Department, 2004).

The Office of Logistics Management (A/LM) manages the logistics activities of the State Department. A subordinate organization of the Bureau of Administration, A/LM was created in 1998 as a result of a thorough reengineering effort. This reengineering pooled the logistics resources and

responsibilities into a central location, whereas it was previously fragmented and disjointed (US Department of State, 2004).

The Office of Procurement Executive conducts a yearly Preliminary Forecast Plan (PFP) for all acquisitions over \$100,000 two years out according to a Department of State procurement officer, S. Catington (personal communication, February 25, 2004). For example, this year's PFP submissions will be for planned acquisitions in fiscal years 2005 and 2006. Procurement forecasting is the only forecasting occurring in the State Department. The State Department relies on organizations, like USAID, to conduct the appropriate forecasting of supplies in achieving U.S. foreign policy objectives.

Discussion

Each tool, method, and procedure addressed in this project for forecasting medical materiel requirements has special characteristics. Several of the tools rely upon authorization data solely, including the M3PT, MAT, MCOAT, and the MCF. Planners and logisticians seem to be stuck in an "authorization" rut when planning operations. Planners need to look beyond authorizations and prepare for the unknown. This requires a tool that is tailorable to the user's need, allowing the modification of external variables, treatment protocols, medicines and other supplies that comprise medical sets, kits, and outfits. Three of the tools reviewed meet this capability including the Estimating Supplies Program, the Resupply Validation Program and the Joint Medical Materiel Modeling Tool. However, tools can only bring

the DoD half way to improving forecast accuracy. The second half of the equation is a shift in planning to a collaborative approach.

Medical logisticians, planners and clinicians must become collaborators in this forecasting endeavor. Each brings a special skill set to the planning process. Good plans will incorporate the ideas and skill sets of each of these professionals. This team approach will enable the Army and DoD to continue to succeed in the upcoming years as the global war on terrorism continues. Flexibility and adaptability are the key to responsiveness. According to the Army Chief of Staff, "We're going to have to [change] some of the things that made us the best Army in the world. Our values are sacrosanct...everything else is on the table" (Schoomaker, 2004, p. 21).

Collaborative planning can also be accomplished through different techniques, such as the Delphi Technique or the Nominal Group Technique (NGT). According to a leading expert in forecasting, J. Scott Armstrong in his book Principles of Forecasting: A Handbook for Researchers and Practitioners, statistical analysis is not always the answer when forecasting. Sometimes expert opinion is necessary because of the lack of appropriate information to use a statistical procedure. This is true when planning for medical support. Although, the Army and DoD currently estimates casualty rates based upon past battles and campaigns, they cannot, for example, calculate the number of pediatric patients Soldiers may be required to treat on the battlefield. Traditionally, clinicians have not been required to

treat pediatric patients on the battlefield, but information coming from OIF and OEF indicate many pediatric patients are receiving treatment from U.S. Forces, requiring special medical supplies not previously anticipated.

In anticipation of changes in Army logistical requirements, the Army G4 has requested the Combined Arms Support Command (CASCOC) at Fort Lee, Virginia, to conduct a Logistics Planning Factor Review. This review, according to Lieutenant Colonel Allgood, will analyze all logistics planning factors and other Total Army Analysis modeling inputs to identify those factors that may be affected by the redesign of Army brigades (personal communication, 2004). This review could affect forecasting of not only medical supplies, but all other classes of supply as well.

Another logistical initiative includes the Medical Logistics Modeling and Simulation Seminar conducted at the Naval Medical Logistics Command, Fort Detrick, Maryland in January of 2004. Tool proponents and program managers presented four of the systems discussed in this project (MCOAT, ESP, RSVP, and JM3T) to leaders within the joint medical logistics community. This shows an effort toward addressing the issue of forecast accuracy from a joint perspective. There is still work to be done; however, as there are no developed evaluation criteria for these tools. Future seminars must be planned and a joint working group to address medical logistics forecasting must be established. A positive step towards this endeavor is the creation of the

CONUS-Based Clinical Centers of Excellence (CCOE) in support of medical materiel requirements determination.

The CCOE is a subset within the Theater Medical Logistics Integrated Process Action Team (IPAT). Headed by Ms. Deborah Kramer from MPMC, this group has already met in January 2004 and is addressing the requirement for clinical expansion blocks. The group will determine how the medical logistics community will identify and develop the medical materiel requirements above and beyond the mission essential wartime requirements. This is a positive example of collaborative planning within the Army; however, this must also become a joint endeavor.

Conclusions and Recommendations

The purpose of this graduate management project was to improve the medical logistics support to the warfighter through accurate forecasting of requirements. Although no silver lining was uncovered in this study, many issues have been surfaced for awareness and consideration when planning for future contingency operations, namely future iterations of Operation Iraqi Freedom (OIF2/3) and Operation Enduring Freedom (OEF6). These issues have lead to four major recommendations to the medical logistics community to improve medical materiel requirements forecasting accuracy.

First, adopt an expeditionary mindset as outlined by General Peter Schoomaker in his draft Army White Paper entitled *Serving a Nation at War, A Campaign Quality Army with a Joint and Expeditionary Mindset* (2003) which states, "Our challenge now is to extend it [Army doctrine] to address asymmetric

opponents" (p. 15). This doctrine will be key for future operations. General Schoomaker further explains, "A doctrine geared to uncertainty cannot prescribe solutions. Instead, it must furnish the intellectual tools with which to diagnose unexpected requirements, and a menu of practical options founded in experience from which leaders can create their own solutions quickly and effectively" (p. 15). In this new era planners, clinicians, and logisticians must look beyond authorizations, anticipating requirements that have not been planned for in the past.

Second, collaborative planning is a must. The medical logistician cannot be held responsible for the success or failure of an operation if planners and clinicians are not involved in the plan. Requirements determination, for medical materiel requirements, is a team effort. The Joint Deployment Formulary is an example of a successful product when collaborative planning is accomplished. Although the JDF does not forecast supplies, it identifies those pharmaceuticals that are available for use during a contingency, without limiting clinicians to that list. Additionally, the JM3T is a collaborative tool that incorporates necessary data from the logistician, planner and clinician. The JM3T must be tested in future iterations of OIF and OEF.

Third, establish evaluation criteria before proceeding with current or future forecasting projects. The initial objective of this project was to evaluate all tools, models and methods objectively with no bias. However, there are no existing

evaluation criteria to accomplish this. Within the DoD, there are over 600 different logistics systems (Office of the Assistant Deputy Under Secretary of Defense/Logistics Systems Management, & Chainlink Research, 2002). In this paper alone, eight medical tools were described. The DoD must reduce the number of logistics systems and develop evaluation criteria for those that survive or will be designed in the future. The evaluation criteria should provide direction and establish a standard for the individual system under development. These criteria will also serve as a guide when researching existing systems that may already accomplish the same purpose.

Fourth, continue aggressive research to improve medical logistics forecasting accuracy. This joint problem must pool joint resources to solve it. None of the tools described above can stand alone in solving the issues of forecasting accuracy; however, there are several that show promise including the Naval Health Research Center's Estimating Supplies Program/Resupply Validation Program and the Army Medical Research and Materiel Command's Joint Medical Materiel Modeling Tool. This does not suggest the other tools presented do not contribute to the medical community. In fact they do, but not with respect to logistical forecasting.

Keeping pace with commercial industry through collaboration must also continue. The DoD should look outside the enterprise for possible solutions. There are currently over 160 different commercial software companies that offer supply chain management programs. Although not feasible to research all these companies

with the time constraints of this project, the DoD should investigate these programs to determine if any meet their forecasting needs. Results of a preliminary study of supply chain management programs are included in Appendix G-Supply Chain Management Software Survey Table of Functions Cross-Tabbed by Methodology (Aksoy & Derbez, 2003). This 2003 survey identified 30 supply chain management software vendors, of which 22 offer some capability to forecast supplies.

The problem of forecasting accuracy must be tackled now by a designated group of planners, logisticians, and clinicians. As the Army and the DoD continue to fight the global war on terrorism, forecasting accuracy will become more critical than ever. Our Soldiers deserve the finest medical care, including the accompanying medical logistics support. We cannot afford to repeat the mistakes of the past.

References

- 101st Airborne Division (Air Assault). (2003). 101st Airborne Division (AASLT)- Lessons Learned. In *Center for Army Lessons Learned--Operation Iraqi Freedom: chap. 17. Combat Health Support*. Retrieved August 15, 2003, from Center for Army Lessons Learned:
<https://call2.leavenworth.army.mil/fouo/index.asp?WGSID=769621436>
- 3d Infantry Division. (2003). 3d Infantry Division's After Action Report. In *Center for Army Lessons Learned--Operation Iraqi Freedom: chap. 20. Combat Health Support (CHS)*. Retrieved August 15, 2003, from
<https://calls.leavenworth.army.mil/fouo/documents/3IDAAR/ch20.asp>
- 82d Airborne Division. (2003). Combat Service Support. In *Center for Army Lessons Learned--Operation Iraqi Freedom*. Retrieved August 15, 2003, from
https://call2.leavenworth.army.mil/fouo.documents/oif/82d_Abn/html/css.asp
- Aksoy, Y. & Derbez, A. (2003). Supply Chain Management Software Survey. [Electronic version]. *OR/MS Today*. Retrieved February 24, 2004 from <http://www.lionhrtpub.com/orms-6-03/scm.html>
- Armstrong, J. S. (2003). Principles of Forecasting [Review of the book *Type ONLY title of reviewed item*]. *Futurecasts online magazine*, 5(2), 1-42.

- Brew, M., & Baker, D. (2003, June). The transformation of medical logistics since Operation Desert Storm. *Army Magazine*, 53(6), 1-2.
- Cardella, T. (1999). Medical prime vendor. *Army Logistician*, 71(9), 50-51.
- Cocrane, R. M., & Mervis, S. A. (2003, September). *Medical Materiel Readiness Assessment*. Logistics Management Institute (DL207R1).
- Cooper, K.E. (2003). *The Implementation of Reach Logistics in Support of the Department of the Army's Transformation Policy Including A Review of Forward Surgical Team Unit Assemblage Management*. US Army-Baylor University Graduate Program in Healthcare Administration.
- DoD Directive. (2003, February). *DoD Directive: Executive Agent for Medical Materiel (DRAFT)*. Retrieved October 6, 2003, from http://www.dla.mil/j-3/j-341/documents/dla_ea_dodd_27_fed.doc
- DoD MMQC 03-1015. (2003, January). Joint deployment formulary/information bulletin. Retrieved February 17, 2004, from http://usamma.detrack.army.mil/ftp/mmqc_messages
- DSCP. (2001). *DSCP Medical Readiness Wholesale Medical Logistics Readiness Plan* (4th ed.) [Brochure]. Unknown: INS, Inc.
- Engel, G. R. (1999). Joint and combined theater logistics--the future reality. *Army Logistician*, 71(9), 34-37.
- Field Manual 4-02.1 (2001). *Combat Health Logistics*. Headquarters, Department of the Army. Washington, DC: Government Printing Office.

- Field Manual 8-55. (1994). *Planning for Health Service Support*. Headquarters, Department of the Army. Washington, DC: Government Printing Office.
- Fletcher, J. (20 Jan 2004). *Medical Logistics Integrated Concept Team*. OIF Lessons Learned IPR to LTG Peake
- IDA. (2004). International Dispensary Association: *Main products group*. Retrieved February 22, 2004 from <http://www.ida.nl/en-US/>
- Joint Pub 4-02. (2001). *Doctrine for Health Service Support in Joint Operations*. Washington, DC: Government Printing Office.
- Joint Pub 4-02.1. (1997). *Joint Tactics, Techniques, and Procedures for Health Service Logistics Support in Joint Operations*. Washington, DC: Government Printing Office.
- JRCAB. (2003, May 20). *Joint Readiness Clinical Advisory Board Command Briefing*. Retrieved February 17, 2004, from <http://www.jrcab.army.mil/JRCAB%20May03%20Command%20brief.ppt>.
- Kissane, J. M. (2003, August). *Medical Logistics Support to Operation Iraqi Freedom (Power Point Presentation)*. Brief to IMLG, Falls Church, VA.
- Konoske. (2004, January). *Medical Modeling & Simulation Supporting Operational Medical Readiness*. Modeling and Simulation Seminar, Fort Detrick, Maryland.
- Kramer, D. K. (2003). *Joint Medical Materiel Modeling Tool (JM3T): Modeling Time-Phased, Scenario Driven, Patient-*

- Based Medical Materiel Demands*. Unpublished manuscript, US Army Medical Research & Materiel Command.
- Kramer, D. K. (2003, November). *Closing the Gap: Clinical Requirements and Medical Assemblages*. Medical Strategic Leadership Course, Ft Detrick, Maryland.
- Medora, M. (2003). *Medical Readiness Building for Tomorrow—PowerPoint Presentation*. (Available from Defense Supply Center Philadelphia, DSCP-MBP, 700 Robbins Avenue, Philadelphia, PA 19111)
- Mervis, S. A. (1999). Medical logistics--ready for the future. *Army Logistician*, 71(9), 72-78.
- MODS. (2004). *Medical Operational Data Systems: M3PT*. Retrieved February 17, 2004 from <http://www.mods.army.mil>
- Mullin, P. (2003, July). Personally Supporting Operation Enduring Freedom. *Lifeline*, 1,4-5. (Available from Defense Supply Center Philadelphia, DSCP-MBP, 700 Robbins Avenue, Philadelphia, PA 19111)
- Naval Health Research Center (2002, November 21). Command Naval Health Research Center. Retrieved February 20, 2004 from <http://hq.nhrc.navy.mil/overview.html>
- Office of the Assistant Deputy Under Secretary of Defense/Logistics Systems Management, & Chainlink Research. (2002, November). *The future logistics enterprise (FLE): roadmap to transformation*. Cambridge, MA: Chainlink Research.

- Pagonis, W. G., & Raugh, H. E. (1991). Good logistics is combat power, the logistics sustainment of Operation Desert Storm. *Military Review*, 71(9), 28-39.
- Pina, M. (2003). *Medical Materiel Mobilization Planning Tool (M3PT)*.
- Schoomaker, P. J. (2004, February 9). Serving a nation at war a campaign quality Army with a joint expeditionary mindset (draft Army white paper). Available https://www.us.army.mil/portal/portal_home.jhtml
- Shahbaz, B. A. (2002). *Medical Course of Action Tool*. AUSA Medical Symposium Sperandio Breakout Session.
- Smith, A. M. (1995, Summer). Joint medical support. *Joint Forces Quarterly*, 102-109.
- Tropeano, A., & Konoske, P. (2000). *Estimating Supplies Program Version 2.00: User's Guide*. San Diego, CA: Naval Health Research Center. NHRC Tech. Doc. No. 02-1A.
- Tropeano, A., Daly, T., Konoske, P., Galarneau, M., Pang, G., & Reading, M. (2003). *The ReSupply Validation Program (RSVP): Developing ESP Into a Tool That Validates Patient-Driven Fleet Marine Force Medical Resource Requirements*. San Diego, CA: Naval Health Research Center. NHRC Tech. Doc. No. 03-18.
- Tricare Management Activity (TMA). (2002). Medical Analysis Tool (MAT). In *TMIP Program and Applications* (chap.). Retrieved February 9, 2004, from <http://www.tricare.osd.mil/peo/tmip/programs.htm>

- USAID. (2003, September 29). *About USAID*. Retrieved February 22, 2004 from http://www.usaid.gov/about_usaid
- USAID. (2004, February 17). *Iraq reconstruction and humanitarian relief weekly update #19*. Retrieved February 22, 2004 from http://www.usaid.gov/iraq/updates/feb04/iraq_fs19_021704.pdf
- USAMMA. (2000). USAMMA Unit Assemblages. In *Medical Unit Assemblage Listings*. Retrieved February 11, 2004, from http://www.usamma.army.mil/apps/nana_uaweb/index.htm
- U.S. Department of State. (2004) U.S. Department of State website. Retrieved February 22, 2004 from <http://www.state.gov/r/pa/ei/rls/dos/436.htm>
- U.S. General Accounting Office. (1994, March). *Desert Shield and Desert Storm Reports and Testimonies: 1991-93* (GAO/NSIAD-94-134W, pp. 1-42). Washington: Government Printing Office.
- U.S. General Accounting Office. (1996, September). *Wartime Medical Care: GAO/NSIAD-96-224. DoD is Addressing Capability Shortfalls but Challenges Remain* (pp. 1-18). Washington: Government Printing Office.
- Vineyard, M. L. (2003, November). *Medical Analysis Tool (MAT) Overview*.
- Vuono, C. E. (1991). Desert Storm and future logistics challenges. *Army Logistician*, 71(9), 28-31.

Appendix A—Acronyms

A/LM	Office of Logistics Management
ALP	Advanced Logistics Program
AMAL	Authorized Medical Assemblage Listing
AMEDD	Army Medical Department
AO	Area of Operations
APSE	Automated Patient Stream Estimator
ASMC	Area Support Medical Company
BAS	Battalion Aid Station
BUMED	Bureau of Medicine and Surgery
CASCOM	Combined Arms Support Command
CAV	Commercial Asset Visibility
CEC	Corporate Exigency Contract
CHS	Combat Health Support
CLASS VIII	Medical Materiel (class of supply)
COA	Course of Action
CSH	Combat Support Hospital
CTA	Common Table of Allowances
DARPA	Defense Advanced Research Project Agency
DCDD	Directorate of Combat Doctrine and Development
DES	Dental Equipment Set
DIH	Died in Hospital
DLA	Defense Logistics Agency
DMM	Directorate of Medical Materiel
DMSO	Division Medical Supply Office
DoD	Department of Defense
DODAAC	Department of Defense Activity Address Code

DoS	Department of State
DPG	Defense Planning Guidance
DSCP	Defense Supply Center Philadelphia
DVD	Direct Vendor Delivery
EA	Executive Agent
ECAT	Electronic Catalog
EO	Executive Order
ESP	Estimating Supplies Program
FORECAS	Ground Casualty Projection System
FSOP	Field Standard Operating Procedure
FST	Forward Surgical Team
GAO	Government Accounting Office
GCCS	Global Command and Control System
GMP	Graduate Management Project
GWOT	Global War On Terrorism
HSSD	Health Service Support Division (J4)
IBMC	Industrial Base Maintenance Contracts
ICRC	International Committee of the Red Cross
ICT	Integrated Concept Team
IPP	Industrial Preparedness Planning
JDF	Joint Deployment Formulary
JJHCS	Johnson & Johnson Health Care Systems
JM3T	Joint Medical Materiel Modeling Tool
JP	Joint Publication
JRCAB	Joint Readiness Clinical Advisory Board
LMI	Logistics Management Institute
M3PT	Medical Materiel Mobilization Planning Tool

MAT	Medical Analysis Tool
MCDM	Medical Chemical Defense Materiel
MCF	Medical Contingency File
MCOAT	Medical Course of Action Tool
MEF	Marine Expeditionary Force
MES	Medical Equipment Set
MEWT	Minimum Essential Wartime
MLMC	Medical Logistics Management Center
MLMIP	Medical Logistics Management Internship Program
MMS	Medical Materiel Set
MMQC	Medical Materiel Quality Control
MODS	Medical Operational Data System
MRS	Medical Resupply Set
MTOE	Modified Table of Organization and Equipment
MTW	Major Theater of War
NAAA	Nerve Agent Antidote Auto Injector
NHRC	Naval Health Research Center
ODS	Operation Desert Shield/Storm
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OPLAN	Operations Plan
OR	Operating Room
OSDHA	Office of the Secretary of Defense Health Affairs
OSI	Overseas Support Initiative
OTSG	Office of the Surgeon General
PATGEN	Patient Workload Generator
PC	Patient Condition

P&D	Potency & Dated
PLL	Prescribed Load List
PMI	Patient Movement Item
PPP	Power Projection Platform
PSP	Power Support Platform
PV	Prime Vendor
RMA	Readiness Management Application
RSVP	Resupply Validation Program
SHIPCAS	Shipboard Casualty Projection System
SIMLM	Single Integrated Medical Logistics Manager
SKO	Sets, Kits, and Outfits
SSRI	Selective Serotonin Reuptake Inhibitors
TACSOP	Tactical Standard Operating procedure
TMIP	Theater Medical Information Program
TOE	Table of Organization and Equipment
TPFDD	Time-Phased Force and Deployment Data
TTTF	Task Time Treater File
UAL	Unit Authorization Listing
UIC	Unit Identification Code
USAID	United States Agency for International Development
USAMMA	United States Army Medical Materiel Agency
USAMMCE	United States Army Medical Materiel Center Europe
USAMMC-SWA	United States Army Medical Materiel Center Southwest Asia
USAMRMC	United States Army Medical Research and Materiel Command

VES	Veterinary Equipment Set
VMI	Vendor Managed Inventory
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WMLRP	Wholesale Medical Logistics Readiness Plan

Appendix B—Wholesale Medical Logistics Readiness Plan (WMLRP)

The Wholesale Medical Logistics Readiness Plan is a collection of programs to provide cutting edge medical logistics support to today's warfighter. The Plan is depicted below as a pyramid (see Figure B1). The purpose of this appendix is to explain recent medical logistics initiatives to readers of this study.

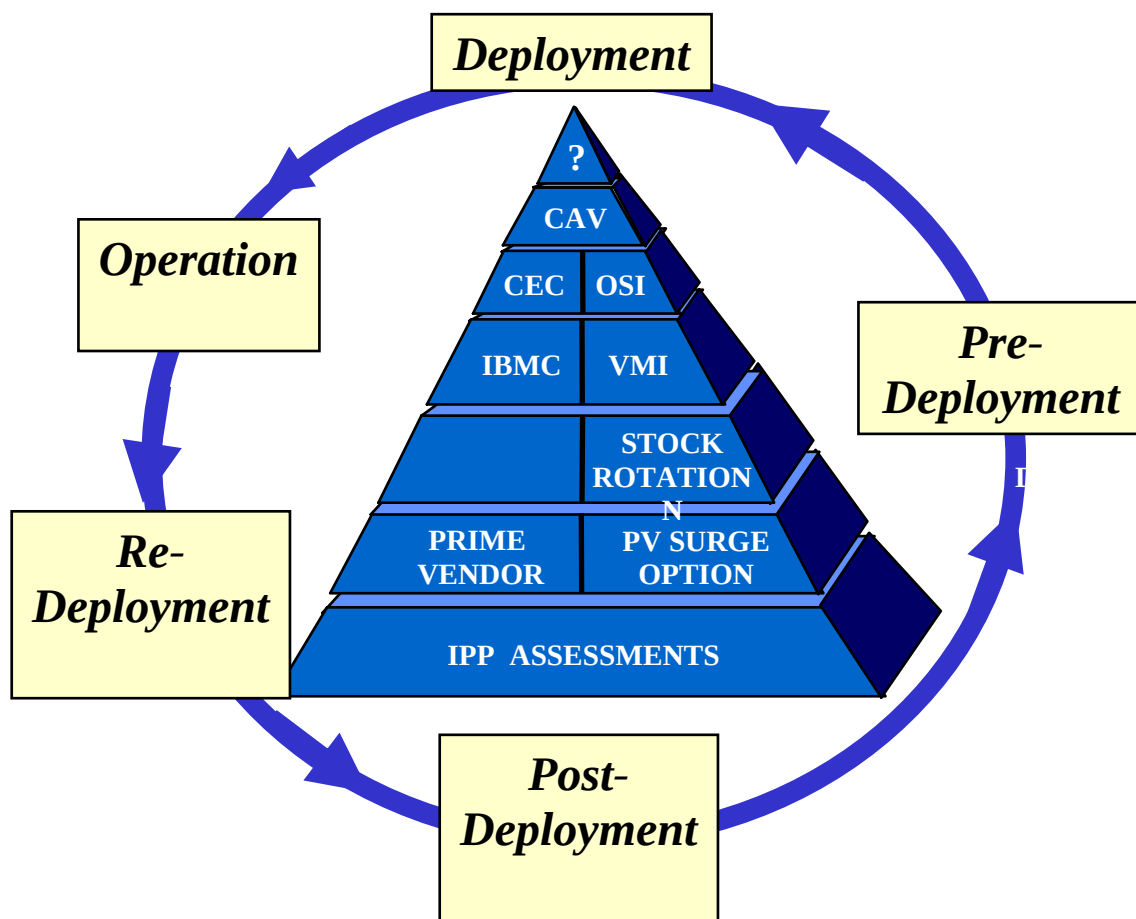


Figure B1. Medical Readiness Pyramid of the Wholesale Medical Logistics Readiness Plan (McManus, 2001)

As depicted in the pyramid, the process starts with the Industrial Preparedness Planning (IPP) assessment. This biannual

assessment evaluates industry's ability to support the DoD with required medical materiel. As directed by the Joint Staff, individual services provide medical materiel requirements to DSCP based upon the current Defense Planning Guidance (DPG). DSCP passes individual service requirements for medical materiel to industry in the form of a survey. Based upon this survey, industry provides production data to support these requirements. Industry passes production data back to DSCP and based upon industry's response to individual service medical materiel requirements, initiatives are developed to support these requirements. For example, if industry cannot support a service requirement for materiel, DSCP determines the best course of action to support a service requirement that industry cannot (McManus, 2001). Finding a commercially supportable substitute or developing an initiative to overcome the industry shortfall can accomplish these shortfalls. The IPP-02 survey process is currently underway with approximately 8995 unique medical lines of supply for contingency operations (Medora, 2003).

Prime Vendor is the oldest initiative on the pyramid. As previously discussed, prime vendor provides participating medical facilities with a direct commercial distributor. Although used primarily in peacetime, prime vendor also supports contingency operations. Medical facilities located on power projection platforms (PPP) order medical supplies for deploying units under the prime vendor system. Today, the United States Army Medical Materiel Center—Europe (USAMMCE) utilizes prime vendor in supplying USAMMC—SWA. Here, prime vendor surge options

are introduced, which are next on the pyramid. Prime vendor surge provides those needed medical assemblage shelf-life materiel to deploying units. Basically, this option allows the distributor to manage these shelf life or dated materiel so they do not expire on the shelf of the medical facility (DSCP, 2001). Currently, prime vendor surge allows the DoD access to approximately 800 lines of supply valued at \$14 million (Medora, 2003). Prime vendor surge has traditionally been for medical/surgical items. However, the first pharmaceutical prime vendor war reserve materiel clause was established for approximately 350 lines of pharmaceuticals valued at \$12 million in August of 2003 (Medora).

For those customers who cannot access materiel through a prime vendor for whatever reason, DSCP offers direct vendor delivery and the DLA depot stocks. Depot stocks are an integral part of medical materiel preparedness. Some medical materiel, especially military unique items, is maintained by DLA in one of a few depots across the country. Examples of depot-stocked items include vaccines, nerve agent antidote kits, some narcotics, items with long lead times, and some hazardous items (DSCP, 2001). Although depot stocks are necessary, DSCP is making every effort to reduce the number of depot-stocked lines and focus more on commercial channels. Direct Vendor Delivery (DVD) allows DSCP to sell supplies directly to customers; especially if a prime vendor does not offer the item or a customer cannot access a prime vendor distributor. Direct vendor delivery is manpower intensive for DSCP as the organization must research and

resource the item needed by a customer and arrange shipment of that item. A popular DVD tool used today is the Electronic Catalog (ECAT). Here, DSCP has attempted, with some success, to automate the DVD process for certain items including laboratory reagents, dental supplies, and some medical/surgical supplies not available through a prime vendor. This program automates the ordering, shipping, and billing functions that once were time consuming for DSCP staff (DSCP).

The stock rotation program is still another important program on the Wholesale Medical Logistics Readiness Plan. In this program, DSCP purchases stock from a manufacturer, instead of a distributor. This stock stays with the manufacturer who rotates and conducts quality control checks. The manufacturer rotates this stock with other commercial customers, but always maintains the contracted quantity readily available to the DoD. This ensures that the stocks have the maximum shelf life when issued to a DoD customer in response to a contingency operation (DSCP, 2001). Currently, there are 49 lines of supply in this program with a value of \$20.5 million (Medora, 2003).

A more unique medical readiness vehicle is the Industrial Base Maintenance Contract (IBMC). This contract is a method to ensure that the industrial base's capability to manufacture an item is maintained. A current IBMC is the contract for nerve agent antidote auto injectors (NAAA). This item is a war stopper item. Without an IBMC in place, it would take several months for industry to produce the auto-injector, as there is a limited demand for this item in peacetime. The IBMC allows DoD to reduce

its inventory of NAAA, with the exception of NAAA in depot stocks for early deploying units. Other IBMC's include contracts for camouflage dressings and bandages (DSCP, 2001).

Vendor Managed Inventory (VMI) is yet another initiative to support the warfighter. Current VMI contracts include both medical/surgical items as well as pharmaceutical items. Under these contracts, distributors guarantee access to those identified items for contingency operations. The idea behind VMI is to guarantee access to supplies by DoD until industry can adjust its manufacturing to the actual increased demand as a result of the contingency (DSCP, 2001). There is a cost to do this, but well worth it as every dollar-invested guarantees DoD access to \$7.54 worth of inventory (Medora, 2003). Current VMI contracts for medical/surgical items include 210 lines worth \$3.3 million and for pharmaceutical items include 1200 lines valued at \$20 million (Medora).

Corporate Exigency Contracts guarantee access to supplies by partnering with manufacturers. In a sense, DoD is buying access to needed materiel directly from manufacturers for known quantities and also access to manufacturing information to meet unplanned requirements (DSCP, 2001). These contracts are flexible in that the contracts can be changed as technology and products change, ensuring DoD is not buying obsolete items. One of the largest contracts under this program is for suture materiel from Johnson & Johnson Health Care Systems (DSCP).

All DSCP initiatives discussed to this point are based with distributors or manufacturers in the United States. A new

initiative, the Overseas Support Initiative (OSI), contracts for medical materiel overseas. Currently, there are OSI contracts in Europe and the Pacific. For example, Baxter Healthcare International is the European manufacturer with which DoD has contracted for access to 20 lines of intravenous and irrigation solutions valued at \$5 million. Fluids are difficult to transport from the U.S. due to their weight and cube. The OSI alleviates the high demand on shipping channels by putting the manufacturer of fluids closer to the warfighter. However, DoD has not executed these contracts due to an interpretation by the Office of the Secretary of Defense, Health Affairs (OSDHA) of an Executive Order (EO), which states that military personnel must receive safe and effective medical materiel. Because the FDA has not approved these fluids because they are manufactured overseas, OSDHA has not allowed their release for use on U.S. military personnel.

Commercial Asset Visibility (CAV) is at the top of the pyramid and is a relatively new concept for readiness planning. DSCP has CAV under some of their programs such as surge options, stock rotation, VMI, CEC, and OSI (DSCP, 2001). However, there is a need to have commercial asset visibility for items not under contract to ensure the DoD is contracting for the right items, up to date, which are not obsolete. For example, DoD does not want to contract for a specific item needed for a medical equipment set if there is a better, more current item, available commercially. CAV gives the DoD the ability to see what is selling in the commercial sector as an item of choice. By

evaluating sales data in the commercial sector, DSCP can make a best guess to the future commercial supportability of these items. If that item is no longer used by the commercial sector and is an item used by DoD, DSCP can look for a substitute item that has commercial demands against it, ensuring industry will continue to produce that item. This alleviates contracting for industry-obsolete items. This tool allows DoD to track current medical materiel trends.

Appendix C-Army Medical Unit Assemblages (SKO)

UAC	FSC	NIIN	Title
245	6545	12549551	MES COMBAT LIFESAVER
246	6545	11419470	SUR INSTR&SUP SE INDI
249	6545	11419469	MES CHEM ACT PAT TR
253	6545	11419487	MES CLIN PSYCHOL FLD
255	6545	14921738	MES TRAP RODENT SET
256	6545	11419476	MES GROUND AMBULANCE
257	6545	11419477	MES AIR AMBULANCE
258	6545	11764612	MES CHEM AG PAT DECON
259	6545	11918972	MES TRAU FLD (1)
260	6545	11918974	MES SICK CALL FLD (1)
261	6545	11921900	MES PAT HOLD SQUAD LT
262	6545	11918971	MES X-RAY FLD LID
263	6545	11918970	MES LAB FLD LIGHTWT
264	6545	12281887	MES TRAUMA FIELD (2)
265	6545	12281886	MES SICK CALL FLD (2)
267	6545	14131322	MES FORWARD SURG TEAM
268	6545	14712857	MES SP FORCES TACTICL
269	6545	11419485	MES GEN CLIN COMZ TY1
270	6545	14801237	MES TELEMEDICINE DET
300	6545	14921739	RODENT SURV ST 1 2003
301	6545	14617027	MES PRIM GYN CARE AUG
307	6545	1521578	GEN PACKET SURVIV KIT
311	6545	11001675	MES BATTALION AID STA
313	6545	2319421	MEDICAL PACK AIRMANS
504	6545	9112450	MES BLD PROCESS/1999
1106	6545	9494000	MED INST SUP SET 1999
1107	6545	1407826	MES WTR QUAL/1999
1108	6545	9494100	MEDICAL INSTR PREVENT
1109	6545	9355881	MED IND HYG SURV FLD
1202	6630	14763178	SYSTEM GAS G202
1205	6545	5434111	MED EQ SE ARMY MED LA
1207	6545	9359882	MED EQ SE EPIDEM SER
1208	6545	10333690	MED EQ SE PATH LAB AU
1209	6545	10333691	MED EQ SE LAB VET AUG
1210	6545	10333692	MED EQ SE IMMUN-SEROL
1211	6545	14497010	MES ENDEM DISEASE
1212	6545	14497013	MES ENDEM DISEASE VET
1213	6545	14497014	MES LAB GEN FLD AREA
1214	6545	14497015	MES ANIMAL PATHOLOGY
1215	6545	14497016	MES ENTOMOLOGIC LAB
1216	6545	14497018	MES AREA MED LAB IND
1217	6545	14497023	MES ENVIRONMENT LAB
1218	6545	14497026	MES ENVIRONMEN HEALTH
1219	6545	14497028	MES LAB RADIOLOGICAL
1220	6545	14497058	MES BIOLOGCL WARFARE
1221	6545	14497061	MES BIOCHEM&CHEM WAR
1222	6545	14356014	WATER DISTRIBUTION SE
1223	6545	14349624	WASTE WATR MGT SE HOS
1224	6545	14356013	WASTE WATR AUG SE HOS
1225	6545	14806913	WATER DISTRIB & WASTE
1226	6545	15072140	WATER DIST CONNECT SE
1308	6545	8646260	RSL FORWARD SURG TEAM
1324	6545	11312633	OPTOMETRY EQ SE (R-1)
1325	6545	12544119	MEDICAL RESUPPLY SE
1326	6545	12544120	MEDICAL RESUPPLY SET
1327	6545	12544124	MRS TRAU FLD PREPG(2)
1328	6545	12544129	MRS SICK FLD PREPG 2
1329	6545	12544125	MEDICAL RESUPPLY SE
1330	6545	12544121	MEDICAL RESUPPLY SE
1331	6545	12544128	MEDICAL RESUPPLY SE
1332	6545	12544122	DENTAL RESUPPLY SET
1334	6545	13815058	RSL MASH 60
1335	6545	13815035	RSL COMBAT SUPT HOSP
1336	6545	13815022	RSL FIELD HOSPITAL
1337	6545	13815039	RSL GENERAL HOSPITAL
1338	6545	13918387	RSL MF2K CSH CON M
1339	6545	13914609	RSL MF2K CSH IS GRE
1342	6545	14388379	MRSL RESUPPLY GENH
1343	6545	14389554	MRSL RESUPPLY GENH
1344	6545	14388380	MRSL RESUPPLY FLD
1345	6545	14340929	MEDICAL CONSUMABLE
1346	6545	14370734	MRSL 2X2 BDE CONTING
1347	6545	14383963	MEDICAL RECOMMENDED

1348	6545	14370736	MRSAL AWR3>=36MO CONTN
1349	6545	14370737	MRSAL AWR3 CONTG CONTR
1350	6545	14388382	MRSAL RESUPPLY DMSO HV
1351	6545	14370738	MRSAL DMSO HVY CONTING
1352	6545	14184495	RSL DMSO HVY >=36 MO
1360	6545	14370739	MRSAL AREA SUPPORT BN
1362	6545	14187114	MCBL HA >=36 MOS
1363	6545	14336230	MED CONSUM BASIC LOAD
1364	6545	14336229	MED CONSUM BASIC LOAD
1365	6545	1050104	RSL IBCT
1366	6545	1050123	RSL CSH 84 BED CORP
1368	6545	14932115	MEDICAL RESUPPLY SET
1370	6545	15127791	RSL,MRI,164 BED
1623	6545	14535658	MES HUMANITARIAN AUGM
1711	6545	9596240	DENT EQ SE PROST TEAM
1712	6545	11045359	DES GEN DENT FLD/1999
1714	6545	14616437	DENTAL EQUIPMENT SET
1719	6545	11026789	DES DENT HYGIEN FIELD
1720	6545	11419472	DES DEN X-RAY FLD1999
1721	6545	11419482	DES PROSTHETICS-1999
1723	6545	11425590	DES MAINTAINING CARE
1724	6545	11419478	DES DENTAL EQ SE SUP
1725	6545	11918973	DES OP FLD LTWT/1999
1727	6545	14630946	DES PERIODONTICS
1728	6545	14630947	DES ENDODONTICS
1729	6545	7534875	DSS EMERG DEN REP1999
1901	6545	9359881	VES SVC FIELD/1999
1905	6545	11419480	VES DET 50PATIENT SML
1907	6545	11419484	VET EQUIPMT SET/1999
1908	6545	11417452	VES EGG INSP/1999
1909	6545	11417454	VET EQ SET/1999
1910	6545	11419471	VET EQUIP SET/1999
1911	6545	11417453	VES FOOD INDIV/1999
1912	6545	11417461	VES SURG INST/1999
1913	6545	14633623	VES FLD MICROBIO-2003
1914	6545	14633605	VES FOOD TESTING 2003
1920	6545	11419481	VES BIO COLLECT/1999
1921	6545	1450095	MES VET LG AN FLD1999
2006	6545	15052340	OES MULTIVISN AUGM
2246	6545	14964847	MES SURG INST SUP2000
2249	6545	14964849	MES CHEM AGENT/2000
2253	6545	14964841	MES CLIN PSY FLD/2000
2256	6545	14964830	MES GROUND AMBU/2000
2257	6545	14964855	MES AIR AMBULAN-2000
2258	6545	14964843	MES CHEM PATIENT/2000
2259	6545	14964835	MES TRAUMA FLD 1-2000
2260	6545	14964850	MES SICK CALL FIELD
2261	6545	14964819	MES PATIENT HOLD/2000
2262	6545	14964828	MES X-RAYFLD LTWT2000
2263	6545	14964826	MES LAB FLD LTWT/2000
2264	6545	14968316	MES TRAUMA FLD 2-2000
2265	6545	14964853	MES SICK CALL 2/2000
2267	6545	14964834	MES FWD SUR TEAM 2000
3003	6545	9315130	OPTIC FAB UNIT PORTFL
3004	6545	2929683	OPTIC FAB UNIT FLD 1
3005	6545	2929696	OPTIC FAB UNIT FLD 2
3006	6545	14917274	OES MULTIVIS AUG/1999
3008	6545	8902201	OPTICAL RESUP SET NO1
3009	6545	7826505	OPTICAL RESUP SET NO2
3107	6545	15074313	MES WATER QUAL ANALYS
3223	6545	15001690	WASTEWATER MGT 44BED
3246	6545	14992306	SISS/2003
3256	6545	14992308	MES GROUND AMB 2003
3263	6545	14992329	MES LAB FLD LTWT/2003
3264	6545	14992338	MES TRAUMA FLD-2003
3265	6545	14992340	MES SICK CALL FLD2003
3268	6545	14998033	MES SP OPS FORCE
3714	6545	15001713	DES COMPREHNS DEN2002
3720	6545	15001712	DES DENT XRAY FLD2002
3724	6545	15001709	DES DENTAL SPT - 2002
7001	3740	9522180	TRAP SET RODENT
7005	6532	9390100	COAT SET MENS 100COMP
7006	6532	9390300	TROUSERS SET MENS DP
7009	6545	2970033	MED EQ SE FLT SURG
7011	6540	12756065	SPECTACLE FITTING SET

7034	6545	6169404	X-RAY EQP SET DNTL
7047	6545	9111300	BLANKET SET BED
7048	6545	9143865	CLINICAL PSYCHO FLD
7049	6545	9180050	DENTAL EQUIP OPER FLD
7051	6545	9191500	MED INST DISP FLD
7054	6545	9195900	SURG I-S FLIGHT SURG
7055	6545	9196650	FIRST AID KIT GEN PUR
7061	6545	9221200	FIRST AID KIT GP RIGI
7068	6545	9258000	SURG I-S HSP WARD FLD
7077	6545	9274200	SURG INS-SUP SE CBT
7079	6545	9274840	DENTAL INSTR EMERG FL
7081	6545	9274960	SURG I-S INDIVIDUAL
7089	6545	9522420	SHEET SET BED
7090	6545	9522500	SISS SHOCK TREAT FIEL
7094	6545	9577650	SURG INSTR SE MNR SUR
7104	6545	9591445	UTENSIL SET,OPERATI
7105	6545	9591550	SURG INST SE BASIC
7110	6545	9597800	TOWEL SET BATH
7111	6545	9597850	TOWEL SET HAND
7115	6545	9522175	RODENT SURVEY SET
7116	6545	9522178	RODENT SURVEY SENO 1
7120	6545	8238061	MED EQ SE SF TACT
7124	6545	9824121	ENTOMOLOGICAL KIT FLD
7129	6545	9261483	MED EQP ST MD LAB CBT
7141	6545	9357093	MISS FIELD CASU TREAT
7142	6545	1161410	FIRST AID KIT GEN PUR
7150	6545	9268961	MICROSCOPE SE MED LAB
7151	6545	9355849	MES MED LAB CENTRIFUG
7152	6545	9355850	MES MED LAB REAGENT
7153	6545	8536309	FIRST AID KIT EYE DRS
7175	6545	10948412	FIRST AID KIT INDIV
7192	6545	11663499	PATIENT UTIL KTDIS12S
7193	6530	11669517	SHAVE KT PATIENT 100S
7194	6530	8901786	PATIENT UTIL KIT PLAS
7990	6545	10794253	RESUSCITATION KT CARD
7991	6545	12843666	RESUSCITATIN KT CARDI
8001	5180	6117923	TOOL KT MED EQ REPRMN
8002	5180	6117924	TOOL KT MED EQ MAINT
8003	6545	5946455	SHOP SET BN MED MAINT
8004	5180	14831431	TOOL KT MEDEQ UNITLEV
8005	6545	14822907	SHOP SET MED GS LEVEL
8700	5110	5958316	FILE SET HAND
8702	5120	812305	WRENCH SET SOCKET 13P
8704	5120	2888739	SCREWDRIVER SET JEWL
8705	5120	3226231	WRENCH SET SOCKET
8706	5120	4081493	PUNCH SET CENTER SOL
8707	5120	5417704	PUNCH SET DRIVE
8708	5120	5958279	EXTRACTOR SET SCREW
8709	5120	5959244	KEY SET SOCKET HEAD
8710	5120	9627580	WRENCH SET,OPEN END
8711	5120	9708947	KEY SET SPLINE HEAD
8719	5120	9357315	WRENCH SET,SOCKET
8720	5120	10464979	WRENCH SET COMB
8722	5120	2930019	BENDER SET TUBE HAND
8723	5180	5961038	CUTTER AND FLARING
8724	5120	1487917	WRENCH SET COMB
8725	5120	259361	WRENCH SET,COMBINAT
8726	3417	3571948	MILLING MACH HOR PLAI
8727	3433	2558953	BRAZ/SOLDR SE 16 COMP
8728	3439	8538760	SOLDERING IRON ELEC
8729	3455	6843918	BLADE KIT HOLE SAW
8730	5110	2042685	FILE SET HAND
8731	5110	3576862	REAMER SET HAND
8732	5120	5401416	EXTRACTOR SET,SCREW
8733	5133	2930983	DRILL SE TWIST 29COMP
8734	5133	4496775	DRILL SET TWIST
8735	5180	3577514	THREAD SET PIPE 1/8-1
8736	5180	3577510	THREADING SET SCREW
8737	5180	4224975	THRD SET SCREW PLUG
8738	5180	4482362	THRD SET SCREW PLUG
9100	6545	14904938	SISS IND 0246 2000UPG
9101	6545	14904942	PAT TRMT 0249 2000UPG
9102	6545	14904941	CLIN PSYC0253 2000UPG
9103	6545	14904945	GRD AMBU0256 2000UPG
9104	6545	14904956	AIR AMBU0257 2000UPG

9105	6545	14904958	PAT DECN0258 2000UGG
9106	6545	14904960	TRAUMA1 0259 2000UPG
9107	6545	14904962	SCK CAL1 0260 2000UPG
9108	6545	14904965	PAT HOLD 0261 2000UPG
9109	6545	14904967	LABRATRY 0263 2000UPG
9110	6545	14904969	TRAUMA2 0264 2000UPG
9111	6545	14904970	SCK CAL2 0265 2000UG
9112	6545	14904972	OPT EQMT 1324 2000UPG
9115	6545	14966969	CONSEQUENCE MANAGEMEN
9116	6545	14966516	CONSEQUENCE MANAGEMEN

UAC-Unit Assemblage Code

FSC-Federal Supply Code

NIIN-National Item Identification Number

Appendix D-Joint Deployment Formulary (JDF)

AHFS Description	NSN	National Drug Code	Nomenclature	UI
Antihistamines	6505014938616	00536088097	BROMPHENIRAMINE MALEATE AND PSEUDOEPHEDRINE ELIXIR 4 OZ.	BT
Antihistamines	6505014271064	00069551066	CETIRIZINE HYDROCHLORIDE 10MG TABLET 100S	BT
Antihistamines	6505012591749	00603314321	CHLORPHENIRAMINE 8MG & PSEUDOEPHEDRINE 120MG CAPS SA	BT
Antihistamines	6505002998610	17236011610	CHLORPHENIRAMINE MALEATE 4MG 1000S	BT
Antihistamines	6505012366453	00904001259	CHLORPHENIRAMINE MALEATE 4MG 100S	BT
Antihistamines	6505011743792	00904001224	CHLORPHENIRAMINE MALEATE 4MG 24S	BT
Antihistamines	6505005824867	17236051610	DIPHENHYDRAMINE HYDROCHLORIDE CAPSULES USP 25MG 1000S	BT
Antihistamines	6505001168350	00555005902	DIPHENHYDRAMINE HYDROCHLORIDE CAPSULES USP 50MG 100S	BT
Antihistamines	6505001487177	00071425945	DIPHENHYDRAMINE HYDROCHLORIDE INJ USP 50MG/ML 1ML SYRINGE	BX
Antihistamines	6505010917538	00641037625	DIPHENHYDRAMINE HYDROCHLORIDE INJ USP 50MG/ML 1ML VIAL 25S	BX
Antihistamines	6505010917538	00641037625	DIPHENHYDRAMINE HYDROCHLORIDE INJ USP 50MG/ML 1ML VIAL 25S	BX
Antihistamines	6505010298074	00904122820	DIPHENHYDRAMINE HYDROCHLORIDE SYRUP 12.5MG/5ML 4 OZ.	BT
Antihistamines	6505015057721	00088110947	FEXOFENADINE HYDROCHLORIDE 180MG TABLET 100S	BT
Antihistamines	6505015050947	11523716102	LORATADINE 10MG & PSEUDOEPHEDRINE 240MG TABS SR (CLARITIN-	PG
Antihistamines	6505015050915	11523716002	LORATADINE TABLETS 10MG 10S (OTC)	PG
Antihistamines	6505006807352	00008006301	PROMETHAZINE HYDROCHLORIDE INJECTION USP 25MG/ML 1ML	BX
Antihistamines	6505000654214	00008021201	PROMETHAZINE HYDROCHLORIDE SUPPOSITORIES 25 MG 12S	PG
Antihistamines	6505005843277	00781183010	PROMETHAZINE HYDROCHLORIDE TABLETS USP 25 MG 1000S	BT
Antihistamines	6505013648557	00781183001	PROMETHAZINE HYDROCHLORIDE TABLETS USP 25 MG 100S	BT
Antihistamines	6505014817280	17236029910	TRIPROLIDINE AND PSEUDOEPHEDRINE HCL TABS USP 1000S	BT
Antihistamines	6505007539615	00904025059	TRIPROLIDINE AND PSEUDOEPHEDRINE HCL TABS USP 100S	BT
Antihistamines	6505011425595	00904025024	TRIPROLIDINE AND PSEUDOEPHEDRINE HCL TABS USP 24S	PG
Amebicides	6505012300578	00516009301	IDOQUINOL TABLETS USP 650MG 100S	BT
Anthelmintics	6505014477334	00007550040	ALBENDAZOLE TABLETS 200MG 112S	BT
Anthelmintics	6505015086910	00006013910	IVERMECTIN 6MG TABLETS, I.S., 10S (SPECTROMECTOL)	BX
Anthelmintics	6505013881364	00093910729	MEBENDAZOLE TABLETS USP 100MG I.S. 12S	PG
Anthelmintics	6505011684445	00026252106	PRAZIQUANTEL TABLETS 600MG 6S	BT
Anthelmintics	6505001486967	55806002411	PYRANTEL PAMOATE 144MG/ML ORAL SUSP 60ML	BT
Anthelmintics	650500148696	55806002411	PYRANTEL PAMOATE ORAL SUSPENSION USP 50MG EQUIVALENT PER	BT
Aminoglycosides	6505010330058	00641012323	AMIKACIN SULFATE INJECTION USP 250MG/ML, 2ML VIAL 10 VIALS PER	PG
Aminoglycosides	6505012560710	00641233143	GENTAMICIN SULFATE INJECTION USP 40MG EQUIV/ML 20ML VIAL 10S	PG
Aminoglycosides	6505015050825	63323001020	GENTAMICIN SULFATE INJECTION USP 40MG EQUIV/ML 20ML VIAL 25S	PG
Aminoglycosides	6505015050825	63323001020	GENTAMICIN SULFATE INJECTION USP 40MG EQUIV/ML 20ML VIAL 25S	PG
Aminoglycosides	6505012139514	00641039525	GENTAMICIN SULFATE INJECTION USP 40MG EQUIV/ML 2ML VIAL 25S	PG
Aminoglycosides	6505015052050	00093117701	NEOMYCIN SULFATE 500MG TABLETS 100S	BT
Aminoglycosides	6505010831038	00002704016	TOBRAMYCIN SULFATE 1.2GM BULK POWDER FOR INJECTION VIAL 6S	CT
Antifungals	6505010849453	00703978501	AMPHOTERICIN B FOR INJECTION USP 50MG BOTTLE	BT
Antifungals	6505013196651	00049343526	FLUCONAZOLE 200MG IN 100ML SODIUM CHLORIDE INJ, 6S	PG
Antifungals	6505015077331	00049350119	FLUCONAZOLE POWDER FOR ORAL SUSPENSION 200MG/5ML, 35ML IN	BT
Antifungals	6505013953039	00049350079	FLUCONAZOLE TABLETS 150MG I.S. 12S	PG
Antifungals	6505012549596	00884077350	GRISEOFULVIN ULTRMICROSIZED 250MG TABLETS 500S	BT
Antifungals	6505012549596	00884077350	GRISEOFULVIN ULTRMICROSIZED 250MG TABLETS 500S (REQUIRED	BT
Antifungals	6505013865254	50458029004	ITRACONAZOLE 100MG CAPSULE 30S	BT
Antifungals	6505002165051	60432053760	NYSTATIN 100,000 UNITS/ML ORAL SUSP 60ML	BT
Antifungals	6505014338677	00078017915	TERBINAFINE 250MG TABLETS, 30S (LAMISIL)	BT
Cephalosporins	6505010612194	00007313705	CEFAZOLIN SODIUM INJECTION USP 1GM 100ML PIGGYBACK VIAL 10S	PG
Cephalosporins	6505014802501	00364246534	CEFAZOLIN SODIUM INJECTION USP 1GM VIAL 25S	PG
Cephalosporins	6505012314807	00173038132	CEFTAZIDIME FOR INJECTION 2GM VIAL 10S	PG
Cephalosporins	6505012192760	00004196401	CEFTRIAXONE SODIUM 1GM VIAL 10S	PG
Cephalosporins	6505012277028	00004196201	CEFTRIAXONE SODIUM 250MG VIAL 10S	PG
Cephalosporins	6505012764573	00173038742	CEFUROXIME 250MG TABLET 60S	BT
Cephalosporins	6505012764571	00173039400	CEFUROXIME 500MG TABLET 20S	BT
Cephalosporins	6505001656545	00093314501	CEPHALEXIN 250MG CAPSULES 100S	BT
Cephalosporins	6505012593891	00093314505	CEPHALEXIN 250MG CAPSULES 500S	BT
Cephalosporins	6505010433897	00093417774	CEPHALEXIN SUSPENSION 250MG/5ML 200ML	BT
Beta-Lactam Antibiotics	6505012426532	00310037720	CEFOTETAN DISODIUM STERILE 2GM VIAL 10S	PG
Beta-Lactam Antibiotics	6505015035374	00006384371	ERTAPENEM SODIUM 1GM VIAL 10S	PG
Beta-Lactam Antibiotics	6505012340240	00006351775	IMIPENEM 500MG - CILASTATIN SODIUM 500MG INFUSION BOTTLE 10S	PG
Chloramphenicol	6505007540280	63323001115	CHLORAMPHENICOL SODIUM SUCCINATE 1 GRAM VIAL 10S	BX
Chloramphenicol	650500754028	63323001115	CHLORAMPHENICOL SODIUM SUCCINATE STERILE USP 1 GRAM VIAL	BX
Macrolides	6505014590414	00069315083	AZITHROMYCIN FOR INJECTION 500MG/VIAL 10S	PG
Macrolides	6505014554559	00069312019	AZITHROMYCIN SUSPENSION 200MG/5ML 15ML	BT
Macrolides	6505015053359	00069314019	AZITHROMYCIN SUSPENSION 200MG/5ML 30ML	BT
Macrolides	6505014491618	00069306075	AZITHROMYCIN TABLETS 250MG 18S (3 Z-PAKS 6S)	PG
Macrolides	6505014491635	00069306030	AZITHROMYCIN TABLETS 250MG 30S	BT
Macrolides	6505013548581	00074258660	CLARITHROMYCIN TABLETS 500MG 60S	BT
Macrolides	650501113475	00074630440	ERYTHROMYCIN BASE TABLETS 250MG 40S	BT
Macrolides	6505011134758	00074630440	ERYTHROMYCIN BASE TABLETS 250MG 40S	BT
Macrolides	6505012935593	00074634205	ERYTHROMYCIN LACTOBIONATE FOR INJECTION USP 1GM VIAL 10S	PG
Macrolides	6505015050839	00074636502	ERYTHROMYCIN LACTOBIONATE FOR INJECTION USP 500MG VIAL 10S	PG
Penicillins	6505015055928	00029609251	AMOXICILLIN AND POTASSIUM CLAVULANATE SUSP 400-57MG/5ML	BT
Penicillins	6505014310403	00029608012	AMOXICILLIN AND POTASSIUM CLAVULANATE TABLETS (AUGMENTIN	BT
Penicillins	6505014310403	00029608012	AMOXICILLIN AND POTASSIUM CLAVULANATE TABLETS (AUGMENTIN	BT
Penicillins	6505014309740	00029608612	AMOXICILLIN AND POTASSIUM CLAVULANATE TABLETS (AUGMENTIN	BT

Penicillins	6505010107953	55370088407	AMOXICILLIN CAPSULES 250MG 100S	BT
Penicillins	6505011166013	00029600632	AMOXICILLIN CAPSULES 250MG 500S	BT
Penicillins	6505013535665	55370088508	AMOXICILLIN CAPSULES 500MG 100S	BT
Penicillins	6505013535665	55370088508	AMOXICILLIN CAPSULES 500MG 100S	BT
Penicillins	6505010664195	00029600922	AMOXICILLIN SUSPENSION 250MG/5ML 150ML	BT
Penicillins	6505014591034	00029604720	AMOXICILLIN TABLETS 875MG 100S	BT
Penicillins	6505012732405	00049001383	AMPICILLIN AND SULBACTAM 1.5GM VIAL 10S	PG
Penicillins	6505012752568	00049001483	AMPICILLIN AND SULBACTAM 3GM VIAL 10S	PG
Penicillins	6505009933518	00015740420	AMPICILLIN SODIUM 1GM VIAL 1S	BT
Penicillins	650500993351	00015740420	AMPICILLIN SODIUM STERILE USP POWDER FORM 1GM BOTTLE	BT
Penicillins	6505003697289	00093312301	DICLOXACILLIN SODIUM CAPSULES USP 250MG 100S	BT
Penicillins	6505013026665	00015710198	NAFCILLIN SODIUM 10GM VIAL 10S	PG
Penicillins	6505013026664	00015722599	NAFCILLIN SODIUM 1GM VIAL 10S	PG
Penicillins	6505001334447	00049021035	PENICILLIN G BENZATHINE SUSP STERILE USP 600000 UNITS/ML 2ML	BX
Penicillins	6505001334447	00049021035	PENICILLIN G BENZATHINE SUSP STERILE USP 600000 UNITS/ML 2ML	BX
Penicillins	6505008902172	00049053028	PENICILLIN G POTASSIUM FOR INJECTION USP 20,000,000 UNITS VIAL	BT
Penicillins	6505001178579	00440805040	PENICILLIN V POTASSIUM TABLETS USP 400000 UNITS (250MG) 40S	BT
Penicillins	6505001490139	00093519501	PENICILLIN V POTASSIUM TABLETS USP 800000 UNITS (500MG) 100S	BT
Penicillins	6505013845767	00206845455	PIPERACILLIN SODIUM 3GM & TAZOBACTAM 0.375GM INJECTION VIALS	PG
Penicillins	6505013129086	00029657126	TICARCILLIN DISODIUM & CLAVULANATE POTASSIUM STERILE 3.1GM	PG
Tetracyclines	6505011084828	63323013010	DOXYCYCLINE HYCLATE FOR INJECTION 100MG VIAL 5S	PG
Tetracyclines	6505014915506		DOXYCYCLINE HYCLATE TABLETS USP 100 MG I.S. 30	BT
Tetracyclines	6505011534335	00172362670	DOXYCYCLINE HYCLATE TABLETS USP 100MG 500S	BT
Tetracyclines	6505011534335	00172362670	DOXYCYCLINE HYCLATE TABLETS USP 100MG 500S	BT
Tetracyclines	6505015050146	00182153589	DOXYCYCLINE HYCLATE TABLETS USP 100MG, I.S., 100S	PG
Tetracyclines	6505014926461	00069097065	DOXYCYCLINE MONOHYDRATE FOR ORAL SUSPENSION 25MG/5ML	BT
Misc. Antibiotics	6505001181794	00009023301	CLINDAMYCIN HYDROCHLORIDE CAPSULES 150MG I.S. 100S	PG
Misc. Antibiotics	6505001594892	00591570801	CLINDAMYCIN HYDROCHLORIDE CAPSULES USP 150MG 100S	BT
Misc. Antibiotics	6505011875540	00009090218	CLINDAMYCIN INJECTION USP 150MG/ML 6ML VIAL 25S	PG
Misc. Antibiotics	6505012478801	00074653301	VANCOMYCIN HYDROCHLORIDE STERILE USP 1GM VIAL 10S	PG
Antituberculosis Agents	6505008122579	51479004701	ETHAMBUTOL 400MG TABLET 100S	BT
Antituberculosis Agents	6505001326904	17236018201	ISONIAZID 300MG TABLET 100S	BT
Antituberculosis Agents	6505011897083	61748001201	PYRAZINAMIDE 500MG TABLET 100S	BT
Antituberculosis Agents	6505001656575	00781201801	RIFAMPIN CAPSULES USP 300MG 100S	BT
Antivirals	6505012069246	00172426660	ACYCLOVIR CAPSULES 200MG 100S	BT
Antivirals	6505012069245	00173099156	ACYCLOVIR CAPSULES 200MG I.S. 100S	PG
Antivirals	6505013110386	00173099501	ACYCLOVIR SODIUM 500MG VIAL 10S	CT
Antivirals	6505015054353	00173056502	VALACYCLOVIR 1000MG TABLETS 21S	BT
Antivirals	6505014554230	00173093356	VALACYCLOVIR 500MG TABLETS I.S. 100S	PG
Antiretroviral Agents	6505014470081	00006057142	INDINAVIR SULFATE CAPSULES 200MG 270S	BT
Antiretroviral Agents	6505014629945	00173059500	LAMIVUDINE 150MG & ZIDOVUDINE 300MG (COMBIVIR) CAPSULES 60S	BT
Antiretroviral Agents	6505014366708	00173047001	LAMIVUDINE TABLETS 150 MG 60S	BT
Antiretroviral Agents	6505014876694	63010001030	NELFINAVIR MESYLATE 250MG TABLET 300S	BT
Antiretroviral Agents	6505013952099	00003196601	STAVUDINE CAPSULES 30MG 60S	BT
Antiretroviral Agents	6505013952097	00003196701	STAVUDINE CAPSULES 40MG 60S	BT
Antimalarial Agents	6505014919430	00173067501	ATOVAQUONE 250MG & PROGUANIL 100MG TABLETS (MALARONE)	BT
Antimalarial Agents	6505010783717	00024007401	CHLOROQUINE HYDROCHLORIDE INJECTION USP 50MG/CC 5ML AMPUL	BX
Antimalarial Agents	6505001176450	00024008456	CHLOROQUINE PHOSPHATE TABLETS USP 0.5GM 500S	BT
Antimalarial Agents	6505013151275	00004017202	MEFLOQUINE HYDROCHLORIDE TABLETS 250MG I.S. 25S	PG
Antimalarial Agents	6505013482465	00024159601	PRIMAQUINE PHOSPHATE TABLETS USP 15MG 100S	BT
Antimalarial Agents	6505011320257	00004016103	SULFADOXINE 500MG & PYRIMETHAMINE 25MG TABLETS I.S.	PG
Quinolones	6505013366179	00026855463	CIPROFLOXACIN 400MG IN 200ML D5W PIGGYBACK BAGS 24S	CS
Quinolones	6505014866591	00026856464	CIPROFLOXACIN CONCENTRATE FOR INJECTION 10MG/ML, 40ML VIAL	PG
Quinolones	6505014928089	00026855136	CIPROFLOXACIN ORAL SUSPENSION 250MG/5ML 100ML	BT
Quinolones	6505013334154	00026851351	CIPROFLOXACIN TABLETS USP 500MG 100S	BT
Quinolones	6505012738650	00026851348	CIPROFLOXACIN TABLETS USP 500MG I.S. 100S	PG
Quinolones	6505014912834		CIPROFLOXACIN TABLETS USP 500MG I.S. 30 TABLETS PER PACKAGE	PG
Quinolones	6505015034851	00015118180	GATIFLOXACIN 400MG IN 200ML D5W PIGGYBACK BAGS 10S	CS
Quinolones	6505015037458	00015117760	GATIFLOXACIN TABLETS 400MG 50S	BT
Quinolones	6505015034855	00015117780	GATIFLOXACIN TABLETS 400MG I.S. 100S	PG
Quinolones	6505014448356	00045006951	LEVOFLOXACIN INJECTION 25MG/ML, 20ML SINGLE DOSE VIAL	VI
Quinolones	6505014446632	00045152550	LEVOFLOXACIN TABLETS 500MG 50S	BT
Quinolones	6505014446635	00045152510	LEVOFLOXACIN TABLETS 500MG I.S. 100S	PG
Sulfonamides	6505014437133	00013010120	SULFASALAZINE TABLETS USP 500MG 300S	BT
Sulfonamides	6505011533565	52544079601	SULFASALAZINE TABLETS USP 500MG I.S. 100S	BT
Urinary Anti-infectives	6505013523884	00149071001	NITROFURANTOIN EXTENDED-RELEASE CAPSULES 100MG 100S	BT
Misc. Anti-infectives	6505011445318	00074715653	ERYTHROMYCIN/SULFAMETHOXAZOLE SUSPENSION 200ML	BT
Misc. Anti-infectives	6505014626450	00338105548	METRONIDAZOLE HCL 500MG IN 100ML SODIUM CHLORIDE PIGGYBACK	PG
Misc. Anti-infectives	6505008901840	00093085152	METRONIDAZOLE TABLETS USP 250MG 250S	BT
Misc. Anti-infectives	6505011424914	00182133089	METRONIDAZOLE TABLETS USP 250MG I.S. 100S	PG
Misc. Anti-infectives	6505010161470	00093008901	SULFAMETHOXAZOLE 800MG & TRIMETHOPRIM 160MG TABLETS	BT
Misc. Anti-infectives	6505013948459	00093008905	SULFAMETHOXAZOLE 800MG & TRIMETHOPRIM 160MG TABLETS 500S	BT
Misc. Anti-infectives	6505015059162	00472128533	SULFAMETHOXAZOLE/TRIMETHOPRIM 200-40MG/5 ORAL SUSP 100ML	BT
Misc. Anti-infectives	6505010867611	00472128516	SULFAMETHOXAZOLE/TRIMETHOPRIM 200-40MG/5 ORAL SUSP 480ML	BT
Misc. Anti-infectives	6505010867611	00472128516	SULFAMETHOXAZOLE/TRIMETHOPRIM 200-40MG/5 ORAL SUSP 480ML	BT
Antineoplastic Agents	6505015062039	00300364101	LEUPROLIDE ACETATE SUSPENSION, 3.75MG KIT (LUPRON DEPOT)	PG
Antineoplastic Agents	6505009635353	00005450723	METHOTREXATE SODIUM 2.5MG TABLETS 100S	BT
Cholinergic Agents	6505014977913	10019027010	NEOSTIGMINE METHYLSULFATE INJECTION USP 10ML MULTIPLE DOSE	VI
Cholinergic Agents	6505014667522	11098051002	PHYSOSTIGMINE SALICYLATE INJECTION USP 1MG/ML 2ML 10S	PG
Cholinergic Agents	6505011787903	MIL-UNIQUE	PYRIDOSTIGMINE BROMIDE TABLETS USP 30MG I.S. 210	PG

Antiparkinson Agents	650500785030	00006327538	BENZTROPINE MESYLATE 1MG/ML INJ 2ML AMPULES 5S	PG
Antiparkinson Agents	6505012308726	00006006068	BENZTROPINE MESYLATE TABLETS USP 2MG 100S	BT
Antimuscarinics	6505013321281	MIL-UNIQUE	ATROPINE SULFATE INHALATION AEROSOL 240	PG
Antimuscarinics	6505010946196	00548333900	ATROPINE SULFATE INJECTION 0.1MG/ML 10ML 10S	BX
Antimuscarinics	6505014745440	10019025020	ATROPINE SULFATE INJECTION 0.4MG/ML 20ML 10S	PG
Antimuscarinics	6505014745440	10019025020	ATROPINE SULFATE INJECTION 0.4MG/ML 20ML 10S	PG
Antimuscarinics	6505015054077	63323023420	ATROPINE SULFATE INJECTION 0.4MG/ML 20ML VIAL 25S	PG
Antimuscarinics	6505009578089	63323024601	ATROPINE SULFATE INJECTION 1MG/ML 1ML VIAL 25S	PG
Antimuscarinics	6505011007983	00143114010	BELLADONNA ALKALOIDS AND PHENOBARBITAL TABLETS 1000S	BT
Antimuscarinics	6505009444130	00378162001	DICYCLOMINE HYDROCHLORIDE TABLETS USP 20MG 100S	BT
Antimuscarinics	6505010197627	00031789083	GLYCOPYRROLATE INJECTION USP 0.2 MG PER ML 20 ML	BT
Antimuscarinics	6505013916109	00054840211	IPRATROPIUM BROMIDE 0.2MG/ML SOLUTION FOR INHALATION	PG
Antimuscarinics	6505012561948	00597008214	IPRATROPIUM BROMIDE 18MCG AEROSOL INHALER 14GM	EA
Antimuscarinics	6505010880499	63323026801	SCOPOLAMINE HYDROBROMIDE INJECTION USP 0.4MG/ML 1ML VIAL	PG
Adrenergic Agents	6505011169245	00172439018	ALBUTEROL INHALATION AEROSOL 17GM CONTAINER 200 METERED	PG
Adrenergic Agents	6505012384243	00173032188	ALBUTEROL INHALATION AEROSOL 90MCG/SPRAY 17GM CONTAINER	EA
Adrenergic Agents	6505012579953	59930151504	ALBUTEROL SULFATE INHALATION SOLUTION 20ML BOTTLE WITH	BT
Adrenergic Agents	6505012564997	00603100758	ALBUTEROL SULFATE SYRUP 2MG/5ML, 480ML	BT
Adrenergic Agents	6505014917667	00002717510	DOBUTAMINE INJECTION USP 12.5MG/ML 20ML VIAL 10 VIALS/PG	PG
Adrenergic Agents	6505013146681	00074781022	DOPAMINE 800MG IN D5W 250ML BAG 12S	PG
Adrenergic Agents	6505011494089	00517180525	DOPAMINE HYDROCHLORIDE INJECTION 40MG/ML, 5ML VIAL 25S	PG
Adrenergic Agents	6505014665292	11098051501	EPHEDRINE SULFATE INJECTION USP 50MG/ML 1ML AMPUL 25S	PG
Adrenergic Agents	6505014437076	00074307331	EPHEDRINE SULFATE INJECTION USP 50MG/ML 1ML AMPUL 50S	PG
Adrenergic Agents	6505012014236	49502050101	EPINEPHRINE INJECTION USP 1:1000 AUTOMATIC INJECTOR, 0.15ML	EA
Adrenergic Agents	6505011527626	49502050001	EPINEPHRINE INJECTION USP 1:1000 AUTOMATIC INJECTOR, 0.3ML	EA
Adrenergic Agents	650501153304	00517113001	EPINEPHRINE INJECTION USP 1MG/ML 30ML VIAL	VI
Adrenergic Agents	6505011533042	00517113001	EPINEPHRINE INJECTION USP 1MG/ML 30ML VIAL	VI
Adrenergic Agents	6505002998760	00074724101	EPINEPHRINE INJECTION USP AQUEOUS 1ML AMPUL 25 AMPULS/PG	PG
Adrenergic Agents	6505013506981	00548201600	EPINEPHRINE INJECTION USP0.1MG PER ML SYRINGE-NEEDLE UNIT	PG
Adrenergic Agents	6505010932384	00548101400	EPINEPHRINE INJECTION USP0.1MG PER ML SYRINGE-NEEDLE	PG
Adrenergic Agents	6505015049481	00173069500	FLUTICASONE/SALMETEROL 100-50MCG DISK W/DEV 60S	PG
Adrenergic Agents	6505015038443	00173069600	FLUTICASONE/SALMETEROL 250-50MCG DISK W/DEV 60S	PG
Adrenergic Agents	6505015038454	00173069700	FLUTICASONE/SALMETEROL 500-50MCG DISK W/DEV 60S	PG
Adrenergic Agents	650501117199	00074141001	ISOPROTERENOL HYDROCHLORIDE INJECTION USP 0.200MG/ML 1ML	PG
Adrenergic Agents	6505011171996	00074141001	ISOPROTERENOL HYDROCHLORIDE INJECTION USP 0.200MG/ML 1ML	PG
Adrenergic Agents	6505002999496	00074144304	NOREPINEPHRINE BITARTRATE INJECTION USP 4ML AMPUL 10S	BX
Adrenergic Agents	6505001049320	00074180001	PHENYLEPHRINE HYDROCHLORIDE INJECTION USP 1% 1 ML 25S	BX
Adrenergic Agents	6505001334948	00121042104	PSEUDOEPHEDRINE HCL 30MG/5ML SYRUP 120ML	BT
Adrenergic Agents	6505001490098	00904505324	PSEUDOEPHEDRINE HYDROCHLORIDE TABLETS USP 30MG 24S	BT
Adrenergic Agents	6505014737775	00054474425	PSEUDOEPHEDRINE HYDROCHLORIDE TABLETS USP 60MG 100S	BT
Adrenergic Agents	6505015094292	00173052100	SALMETEROL XINAFOATE 50MCG DISKUS INHALER WITH DEVICE, 60S	PG
Adrenergic Agents	6505013889543	00173046400	SALMETEROL XINAFOATE INHALATION AEROSOL 120 DOSE WITH	PG
Adrenergic Agents	6505012505830	00028750701	TERBUTALINE SULFATE INJECTION USP 1MG/ML 1ML AMPUL	PG
Adrenergic Agents	6505010392808	00028010501	TERBUTALINE SULFATE TABLETS USP 5MG 100 TABLETS PER BOTTLE	BT
Adrenergic Blocking Agents	6505014125613	00078004101	DIHYDROERGOTAMINE MESYLATE 1MG/ML AMPUL (DHE-45) 10S	PG
Adrenergic Blocking Agents	6505013770469	00078034905	ERGOTAMINE TARTRATE AND CAFFEINE TABLETS USP 100S	BT
Skeletal Muscle Relaxants	6505010628010	50111056303	CYCLOBENZAPRINE HYDROCHLORIDE TABLETS USP 10MG 100S	BT
Skeletal Muscle Relaxants	6505012396963	00149073402	DANTROLENE SODIUM FOR INJECTION 20 MG VIAL 6 VIALS PER	PG
Skeletal Muscle Relaxants	6505015049519	00143129001	METHOCARBAMOL 500MG TABLET 100S	BT
Skeletal Muscle Relaxants	6505006601601	00143129005	METHOCARBAMOL 500MG TABLET 500S	BT
Skeletal Muscle Relaxants	6505015055808	00052045016	ROCURONIUM BROMIDE INJECTION 10MG/ML 10ML VIAL 10S	PG
Skeletal Muscle Relaxants	6505013932144	00052045015	ROCURONIUM BROMIDE INJECTION 10MG/ML 5ML VIAL 10S	PG
Skeletal Muscle Relaxants	6505014171254	00052044510	SUCINYLCHOLINE CHLORIDE INJECTION USP 20MG/ML 10ML VIAL 25S	PG
Skeletal Muscle Relaxants	6505012580983	10019048101	VECURONIUM BROMIDE FOR INJECTION W/O DILUENT 10MG VIALS 10S	PG
Misc. Autonomic Drugs	6505014813146	00766004508	NICOTINE POLACRILEX 2MG GUM 108 STICKS	BX
Misc. Autonomic Drugs	6505015050859	00766004748	NICOTINE POLACRILEX 4MG GUM 48 STICKS	BX
Misc. Autonomic Drugs	6505014464897	00067021407	NICOTINE TRANSDERMAL PATCHES 14MG/24 HOURS 7S	BX
Misc. Autonomic Drugs	6505014464896	00067021507	NICOTINE TRANSDERMAL PATCHES 21MG/24 HOURS 7S	BX
Misc. Autonomic Drugs	6505014464900	00067021307	NICOTINE TRANSDERMAL PATCHES 7MG/24 HOURS 7S	BX
Blood Derivatives	6505002998179	00053768003	ALBUMIN HUMAN USP 25% 100ML CAN	CN
Blood Derivatives	6505005595807	00026068420	ALBUMIN HUMAN USP 25% 50ML VIAL	VI
Blood Derivatives	6505006802137	00026068525	ALBUMIN HUMAN USP 5% 250ML BOTTLE	PG
Blood Derivatives	6505008901764	00026061325	PLASMA PROTEIN FRACTION USP HEAT-TREATED 5% SOLUTION 250	PG
Iron Preparations	6505001178602	00574060801	FERROUS SULFATE 324MG TABLETS 100S	BT
Iron Preparations	6505011083381	00574060811	FERROUS SULFATE 324MG TABLETS I.S. 100S	PG
Iron Preparations	6505006640856	00536071080	FERROUS SULFATE 75MG/0.6ML DROPS 50ML	BT
Anticoagulants	6505015058467	00075062300	ENOXAPARIN INJECTION 100MG IN 1ML WATER FOR INJECTION 10/PG	PG
Anticoagulants	6505013771444	00075062430	ENOXAPARIN INJECTION 30MG IN 0.3ML WATER FOR INJECTION 10/PG	PG
Anticoagulants	6505015058466	00075062280	ENOXAPARIN INJECTION 80MG IN 0.8ML WATER FOR INJECTION 10/PG	PG
Anticoagulants	6505013876249	00074128131	HEPARIN LOCK FLUSH SOLUTION 100 UNITS PER ML 1ML SYRINGE 50S	PG
Anticoagulants	6505013770444	00074765103	24S	PG
Anticoagulants	6505013708078	00264957710	HEPARIN SODIUM 25,000 UNITS IN D5W 500ML BAG 24S	PG
Anticoagulants	6505011028664	00641244045	HEPARIN SODIUM INJECTION USP 1000 UNITS PER ML 10 ML 25S	PG
Anticoagulants	6505011028664	00641244045	HEPARIN SODIUM INJECTION USP 1000 UNITS PER ML 10 ML 25S	PG
Anticoagulants	6505013667518	63323091501	HEPARIN SODIUM INJECTION USP 20000 UNITS/ML 1ML VIAL 25	PG
Anticoagulants	6505015087238	00074140231	LOCK, WITHOUT NEEDLE, 10S	PG
Anticoagulants	6505013253721	00056016970	WARFARIN SODIUM TABLETS USP 1MG 100 TABLETS PER BOTTLE	BT
Anticoagulants	6505009824230	00056017070	WARFARIN SODIUM TABLETS USP 2MG 100 TABLETS PER BOTTLE	BT
Anticoagulants	6505009824229	00056017270	WARFARIN SODIUM TABLETS USP 5MG 100 TABLETS PER BOTTLE	BT
Antithrombin Agents	6505014990477	63323022930	PROTAMINE SULFATE INJECTION USP 10MG/ML 25ML VIAL	PG

Antiheparin Agents	6505015037425	63323022905	PROTAMINE SULFATE INJECTION USP 10MG/ML 5ML VIAL, 25S	PG
Hemostatics	6505009261442	58406061012	AMINOCAPROIC ACID 250MG/ML VIAL 20ML	VI
Hemostatics	6505015015378	00074434673	AMINOCAPROIC ACID 250MG/ML VIAL 20ML 25S	PG
Hemostatics	6505014598229		FIBRIN SEALANT FOR INJECTION 2ML VAPOR HEATED KIT	EA
Hemostatics	6510000802053	00009031503	GELATIN SPONGE, ABSORBABLE 12-7MM SPONGE 12S	PG
Hemostatics	6505001612950	52604710201	THROMBIN USP 5000 UNITS THROMBIN & 5ML ISOTONIC SODIUM CHLORIDE	PG
Hematopoietic Agents	6505013441136	55513054610	FILGRASTIM INJECTION 480MCG 1.6ML VIAL 10S	PG
Thrombolytic Agents	6505014776768	57894004001	RETAPLASE RECOMBINATION 2 DOSES PER KIT	EA
Thrombolytic Agents	6505012842942	00186177301	STREPTOKINASE FOR INJECTION 1.5 MILLION UNITS/VIAL 10S	PG
Thrombolytic Agents	6505011588002	00186177001	STREPTOKINASE FOR INJECTION 250,000IU/VIAL 10S	PG
Antiarrhythmic Agents	6505013809548	00469087202	ADENOSINE INJECTION USP 2ML SINGLE DOSE VIAL 10S	PG
Antiarrhythmic Agents	6505012370544	00245014760	AMIODARONE HCL 200MG TABLET 60S	BT
Antiarrhythmic Agents	6505014232851	00008081401	AMIODARONE HYDROCHLORIDE INJECTION 50MG/ML 3ML AMPUL 10S	PG
Antiarrhythmic Agents	6505011947265	00338040903	LIDOCAINE HYDROCHLORIDE 0.4% (2GM) IN D5W 500ML 18S	PG
Antiarrhythmic Agents	6505013867770	00264959410	LIDOCAINE HYDROCHLORIDE 0.4% (2GM) IN D5W 500ML 24S	PG
Antiarrhythmic Agents	6505015033316	00074802601	LIDOCAINE HYDROCHLORIDE INJECTION USP 1% 5ML SYRINGE-NEEDLE UNIT 10S	PG
Antiarrhythmic Agents	6505001394512	00074132305	LIDOCAINE HYDROCHLORIDE INJECTION USP 2% 5ML SYRINGE 10S	PG
Antiarrhythmic Agents	6505002998614	00003075920	PROCAINAMIDE HYDROCHLORIDE INJECTION USP 100 MG PER ML 10	BT
Antiarrhythmic Agents	6505012408703	00074190201	PROCAINAMIDE HYDROCHLORIDE INJECTION USP 100 MG PER ML 10 ML 25S	BT
Antiarrhythmic Agents	6505008646298	00002140701	QUINIDINE GLUCONATE INJECTION USP 80MG/ML 10ML VIAL	VI
Cardiotonic Agents	6505004490321	00173024255	DIGOXIN 0.125MG TABLETS 100S	BT
Cardiotonic Agents	6505001167750	00173024955	DIGOXIN 0.25MG TABLETS 100S	BT
Cardiotonic Agents	6505008901726	00173026427	DIGOXIN 50MCG/ML ELIXIR 60ML BOTTLE	PG
Cardiotonic Agents	6505005317761	00173026010	DIGOXIN INJECTION USP 0.25MG/ML 2ML AMPUL 10S	PG
Fibric Acid Derivatives	6505012901762	00093067006	GEMFIBROZIL 600MG TABLETS 60S	BT
HMG-CoA Reductase	6505014598249	00071015523	ATORVASTATIN TABLETS 10MG 90S	BT
HMG-CoA Reductase	6505014598251	00071015623	ATORVASTATIN TABLETS 20MG 90S	BT
HMG-CoA Reductase	6505014598247	00071015723	ATORVASTATIN TABLETS 40MG 90S	BT
HMG-CoA Reductase	6505015094880	00185007060	LOVASTATIN TABLETS 10MG 60S	BT
HMG-CoA Reductase	6505012672497	00185007260	LOVASTATIN TABLETS 20MG 60S	BT
HMG-CoA Reductase	6505013100615	00185007460	LOVASTATIN TABLETS 40MG 60S	BT
HMG-CoA Reductase	6505014133410	00003517805	PRAVASTATIN TABLETS 20MG 90S	BT
HMG-CoA Reductase	6505013544544	00006073554	SIMVASTATIN TABLETS USP 10MG 90S	BT
HMG-CoA Reductase	6505014990479	00006074054	SIMVASTATIN TABLETS USP 20MG 90S	BT
HMG-CoA Reductase	6505013544546	00006074961	SIMVASTATIN TABLETS USP 40MG 60S	BT
HMG-CoA Reductase	6505015052371	00006074954	SIMVASTATIN TABLETS USP 40MG 90S	BT
Hypotensive Agents	6505010585727	00378015210	CLONIDINE HYDROCHLORIDE TABLETS 0.1MG 1000 TABLETS PER	BT
Hypotensive Agents	6505010058425	00378018601	CLONIDINE HYDROCHLORIDE TABLETS 0.2MG 100S	BT
Hypotensive Agents	6505012727036	00517090125	HYDRALAZINE HCL 20MG/ML VIAL 25S	PG
Hypotensive Agents	6505005842895	50111032703	HYDRALAZINE HYDROCHLORIDE TABLETS USP 25MG 1000	BT
Hypotensive Agents	6505012205976	50111032803	HYDRALAZINE HYDROCHLORIDE TABLETS USP 50MG 1000	BT
Hypotensive Agents	6505010095019	10019008202	SODIUM NITROPRUSSIDE STERILE USP 50 MG	VI
Nitrates and Nitrites	6505001069000	39822995002	AMYL NITRATE INHALANT USP 0.300ML AMPUL 12 PER PACKAGE	PG
Nitrates and Nitrites	6505001069000	39822995002	AMYL NITRATE INHALANT USP 0.300ML AMPUL 12 PER PACKAGE	PG
Nitrates and Nitrites	6505015022984	00258361301	ISOSORBIDE DINITRATE 40MG TABLET SA 100S	BT
Nitrates and Nitrites	6505015094427	59930158701	ISOSORBIDE MONONITRATE 120MG TABLET SA, 100S	BT
Nitrates and Nitrites	PENDING	59930150201	ISOSORBIDE MONONITRATE 30MG TABLET SA, 100S	BT
Nitrates and Nitrites	6505013882487	59930154901	ISOSORBIDE MONONITRATE 60MG TABLET SA, 100S	BT
Nitrates and Nitrites	6505013432489	00074148202	NITROGLYCERIN IN DEXTROSE INJECTION 250ML BAG 12	PG
Nitrates and Nitrites	6505014703206	00517481010	NITROGLYCERIN INJECTION USP 5MG/ML 10ML VIAL 10 PER PACKAGE	PG
Nitrates and Nitrites	6505012463781	59630030020	NITROGLYCERIN LINGUAL AEROSOL 14.49GM CONTAINER	CO
Nitrates and Nitrites	6505010083401	00281003856	NITROGLYCERIN OINTMENT 2% 60GM COLLAPSIBLE TUBE	TU
Nitrates and Nitrites	6505006873663	00071041824	NITROGLYCERIN TABLETS USP 0.4MG 100 TABLETS PER BOTTLE	BT
Nitrates and Nitrites	6505011533379	00071041813	NITROGLYCERIN TABLETS USP 0.4MG 100S (4 X 25S)	CT
Nitrates and Nitrites	6505013575370	00085330535	NITROGLYCERIN TRANSDERMAL SYSTEM 0.1MG/HR, 30S (NITRO-DUR)	PG
Nitrates and Nitrites	6505013493540	00085331035	NITROGLYCERIN TRANSDERMAL SYSTEM 0.2MG/HR, 30S (NITRO-DUR)	PG
Nitrates and Nitrites	6505013575373	00085331535	NITROGLYCERIN TRANSDERMAL SYSTEM 0.3MG/HR, 30S (NITRO-DUR)	PG
Nitrates and Nitrites	6505013575372	00085332035	NITROGLYCERIN TRANSDERMAL SYSTEM 0.4MG/HR, 30S (NITRO-DUR)	PG
Nitrates and Nitrites	6505013575371	00085333035	NITROGLYCERIN TRANSDERMAL SYSTEM 0.6MG/HR, 30S (NITRO-DUR)	PG
Alpha-Adrenergic Blocking Agents	6505013523652	00378402401	DOXAZOSIN MESYLATE 4MG 100S	BT
Alpha-Adrenergic Blocking Agents	6505012812852	00781205101	TERAZOSIN HCL 1MG CAPSULE 100S	BT
Alpha-Adrenergic Blocking Agents	6505013158015	00781205201	TERAZOSIN HCL 2MG CAPSULE 100S	BT
Alpha-Adrenergic Blocking Agents	6505012812854	00781205301	TERAZOSIN HCL 5MG CAPSULE 100S	BT
Beta-Adrenergic Blocking Agents	6505013366196	00781107801	ATENOLOL TABLETS 25MG 100S	BT
Beta-Adrenergic Blocking Agents	6505013366195	00378023110	ATENOLOL TABLETS 50MG 1000S	BT
Beta-Adrenergic Blocking Agents	6505011357373	00781150601	ATENOLOL TABLETS 50MG 100S	BT
Beta-Adrenergic Blocking Agents	6505015027737	10019001501	ESMOLOL HYDROCHLORIDE INJECTION 100MG 10ML VIAL 25S	PG
Beta-Adrenergic Blocking Agents	6505012628714	10019002518	ESMOLOL HYDROCHLORIDE INJECTION 250MG 10ML AMPUL 10S	PG
Beta-Adrenergic Blocking Agents	6505012447982	55390013020	LABETALOL HYDROCHLORIDE INJECTION USP 5MG/ML 20ML VIAL	VI
Beta-Adrenergic Blocking Agents	6505013092742	00781307075	METOPROLOL TARTRATE INJECTION USP 1MG/ML 5ML AMPUL 12S	PG
Beta-Adrenergic Blocking Agents	6505010716557	57664016618	METOPROLOL TARTRATE TABLETS 50MG 1000S	BT
Beta-Adrenergic Blocking Agents	6505011637906	00046047181	PROPRANOLOL HYDROCHLORIDE EXTENDED-RELEASE CAPSULES	BT
Beta-Adrenergic Blocking Agents	6505001067395	00591555401	PROPRANOLOL HYDROCHLORIDE TABLETS 10MG 100S	BT
Calcium-Channel Blocking Agents	6505013675243	00069154068	AMLODIPINE BESYLATE 10MG TABLET 90S	BT
Calcium-Channel Blocking Agents	6505013675244	00069153068	AMLODIPINE BESYLATE 5MG TABLET 90S	BT
Calcium-Channel Blocking Agents	6505015054612	00456261390	DILTIAZEM EXTENDED-RELEASE CAPSULES USP 180MG (TIAZAC) 90S	BT
Calcium-Channel Blocking Agents	6505013539848	00088179742	DILTIAZEM EXTENDED-RELEASE CAPSULES USP 240MG (CARDIZEM)	BT
Calcium-Channel Blocking Agents	6505015054614	00456261490	DILTIAZEM EXTENDED-RELEASE CAPSULES USP 240MG (TIAZAC) 90S	BT
Calcium-Channel Blocking Agents	6505015054619	00456261290	DILTIAZEM HCL 120MG CAPSULE SA 90S	BT

Calcium-Channel Blocking Agents	6505015055281	10019051002	DILTIAZEM HYDROCHLORIDE INJECTION 5MG/ML 10ML VIAL 10S	PG
Calcium-Channel Blocking Agents	6505013539827	00088179033	DILTIAZEM HYDROCHLORIDE INJECTION 5MG/ML 10ML VIAL 6S	PG
Calcium-Channel Blocking Agents	6505013797906	00026884151	NIFEDIPINE EXTENDED-RELEASE TABLETS 30MG/24 HOURS 100S	BT
Calcium-Channel Blocking Agents	6505013795446	00026885151	NIFEDIPINE EXTENDED-RELEASE TABLETS 60MG/24 HOURS 100S	BT
Calcium-Channel Blocking Agents	6505013788783	00026886151	NIFEDIPINE EXTENDED-RELEASE TABLETS 90MG/24 HOURS 100S	BT
Calcium-Channel Blocking Agents	6505013281896	00172428060	VERAPAMIL HCL 240MG TABLET SA 100S	BT
Calcium-Channel Blocking Agents	6505011313855	00074114401	VERAPAMIL HYDROCHLORIDE INJECTION 2.5MG/ML 2ML AMPUL	CO
Calcium-Channel Blocking Agents	6505012663771	00074963305	VERAPAMIL HYDROCHLORIDE INJECTION 2.5MG/ML 4ML SYRINGE 10S	PG
Inhibitors	6505011197848	00904504660	CAPTOPRIL 25MG TABLET 100S	BT
Inhibitors	6505011197847	00143117301	CAPTOPRIL 50MG TABLET 100S	BT
Inhibitors	6505012750061	00310013110	LISINOPRIL TABLETS 10MG 100S	BT
Inhibitors	6505012826327	00310013210	LISINOPRIL TABLETS 20MG 100S	BT
Inhibitors	6505012812771	00310013010	LISINOPRIL TABLETS 5MG 100S	BT
Antagonists	6505015041046	00087277232	IRBESARTAN 150MG TABLET 90S	BT
Antagonists	6505015041045	00087277132	IRBESARTAN 75MG TABLET 90S	BT
General Anesthetics	6505012040681	00074806019	ETOMIDATE INJECTION 2MG/ML 20ML ABDOJECT 10S	PG
General Anesthetics	6505008542504	12164000112	HALOTHANE 125 ML BOTTLE 1S	BT
General Anesthetics	6505001050109	12164000125	HALOTHANE 250 ML BOTTLE 1S	BT
General Anesthetics	650500854250	12164000112	HALOTHANE USP 125 ML	BT
General Anesthetics	6505014437083	10019036040	ISOFLURANE USP 100ML BOTTLE 6 BOTTLES PER PACKAGE	PG
General Anesthetics	650500118109		KETAMINE HCL INJECTION USP 100MG PER ML 10ML VETERINARY	VI
General Anesthetics	6505013391909	00074205310	KETAMINE HYDROCHLORIDE INJECTION USP 50mg/ml, 10ML VIAL, 10S	PG
General Anesthetics	6505014348619	00310030011	PROPOFOL INJECTION 10MG/ML 100ML VIAL 10S	PG
General Anesthetics	6505014965229	00310030022	PROPOFOL INJECTION 10MG/ML 20ML VIAL 25S	PG
General Anesthetics	6505014375457	00310030054	PROPOFOL INJECTION 10MG/ML 50ML SYRINGE 20S	PG
General Anesthetics	6505014348622	00310030050	PROPOFOL INJECTION 10MG/ML 50ML VIAL 20S	PG
General Anesthetics	6505014979961	00074445604	SEVOFLURANE 250 ML BOTTLE 1S	BT
General Anesthetics	650500117917	00074332901	THIOPENTAL SODIUM FOR INJECTION USP 0.5GM 500ML BOTTLE 25/PG	PG
General Anesthetics	6505001179171	00074332901	THIOPENTAL SODIUM FOR INJECTION USP 0.5GM 500ML BOTTLE 25/PG	PG
General Anesthetics	6505012226568	00074642001	THIOPENTAL SODIUM FOR INJECTION USP 500MG PER PACKAGE	PG
General Anesthetics	6505010410558	00074335301	THIOPENTAL SODIUM FOR INJECTION USP 500MG VIAL 25	PG
Nonsteroidal Anti-inflammatory	6505010339866	00904404073	ASPIRIN 81MG TAB CHEW 36S	BT
Nonsteroidal Anti-inflammatory	6505009298057	00574703612	ASPIRIN SUPPOSITORIES USP 600MG ADULT RECTAL I.S. 12S	PG
Nonsteroidal Anti-inflammatory	650500100998	00904200960	ASPIRIN TABLETS USP 0.324GM 100S	BT
Nonsteroidal Anti-inflammatory	6505001009985	00904200960	ASPIRIN TABLETS USP 0.324GM 100S	BT
Nonsteroidal Anti-inflammatory	6505015055932	00025152031	CELECOXIB 100MG CAPSULE 100S	BT
Nonsteroidal Anti-inflammatory	6505014919443	00025152531	CELECOXIB 200MG CAPSULE 100S	BT
Nonsteroidal Anti-inflammatory	6505012963174	00054422125	DICLOFENAC SODIUM 50MG TABLET 100S	BT
Nonsteroidal Anti-inflammatory	6505013165049	00045060404	IBUPROFEN ORAL SUSPENSION USP 100MG/5ML FRUIT FLAVORED	BT
Nonsteroidal Anti-inflammatory	6505013108328	00009738503	IBUPROFEN TABLETS USP 400MG 10,000S	PG
Nonsteroidal Anti-inflammatory	6505001288035	49884046705	IBUPROFEN TABLETS USP 400MG 500S	BT
Nonsteroidal Anti-inflammatory	6505010980247	49884046805	IBUPROFEN TABLETS USP 600MG 500 TABLETS PER BOTTLE	BT
Nonsteroidal Anti-inflammatory	6505012149062	49884046905	IBUPROFEN TABLETS USP 800 MG 500 TABLETS PER BOTTLE	BT
Nonsteroidal Anti-inflammatory	6505009262154	00172402960	INDOMETHACIN CAPSULES USP 25MG 100 CAPSULES PER BOTTLE	BT
Nonsteroidal Anti-inflammatory	6505014821064	00074228701	KETOROLAC TROMETHAMINE INJECTION USP 30MG/ML 1ML UNIT	PG
Nonsteroidal Anti-inflammatory	6505015049523	00004692709	KETOROLAC TROMETHAMINE INJECTION USP 30MG/ML 2ML VIAL	VI
Nonsteroidal Anti-inflammatory	6505011121889	00168021931	METHYL SALICYLATE/MENTHOL OINTMENT 30GM	TU
Nonsteroidal Anti-inflammatory	6505010269730	51079079320	NAPROXEN TABLETS USP 250 MG 100S	BT
Nonsteroidal Anti-inflammatory	6505013837911	00781116510	NAPROXEN TABLETS USP 500 MG 1000S	BT
Nonsteroidal Anti-inflammatory	6505011868758	00781116505	NAPROXEN TABLETS USP 500 MG 500S	BT
Nonsteroidal Anti-inflammatory	6505014919284	0006011068	ROFECOXIB 25MG TAB 100S	BT
Opiate Agonists	6505011638089	60432024504	CODEINE PHOSPHATE & ACETAMINOPHEN 12-120MG/5ML ELIXIR 120ML	BT
Opiate Agonists	6505004002054	00093015001	CODEINE PHOSPHATE AND ACETAMINOPHEN TABLETS 100	BT
Opiate Agonists	6505010862993	00045051372	CODEINE PHOSPHATE AND ACETAMINOPHEN TABLETS I.S. 500 PER	BX
Opiate Agonists	6505010104170	11098003002	FENTANYL CITRATE 0.05MG/ML 2ML AMPUL 10S	PG
Opiate Agonists	6505010731316	11098003005	FENTANYL CITRATE 0.05MG/ML 5ML AMPUL 10S	PG
Opiate Agonists	6505011210705	11098003020	FENTANYL CITRATE INJECTION USP 20ML AMPUL 5 AMPULS PER BOX	PG
Opiate Agonists	6505015038935	00406036001	HYDROCODONE BIT/ACETAMINOPHEN 7.5-750MG TABLET 100S	BT
Opiate Agonists	6505011899903	52544034901	HYDROCODONE BITARTRATE AND ACETAMINOPHEN 5-500MG	BT
Opiate Agonists	6505015054693	00074118031	MEPERIDINE HYDROCHLORIDE INJECTION 100MG/ML 1ML CARTRIDGE	PG
Opiate Agonists	6505014993495	00074120120	MEPERIDINE HYDROCHLORIDE INJECTION 100MG/ML 20ML VIAL	VI
Opiate Agonists	6505015055812	00074117830	MEPERIDINE HYDROCHLORIDE INJECTION 50MG/ML 1ML CARTRIDGE,	PG
Opiate Agonists	6505013025530		MORPHINE SULFATE INJECTION 10MG AUTOMATIC INJECTOR	EA
Opiate Agonists	6505008122596	00641118035	MORPHINE SULFATE INJECTION 10MG/ML 1ML AMPUL 25 PER	PG
Opiate Agonists	6505014830274	00641018025	MORPHINE SULFATE INJECTION 10MG/ML 1ML VIAL 25 PER PACKAGE	PG
Opiate Agonists	6505015055813	00074126130	MORPHINE SULFATE INJECTION 10MG/ML, 1ML CARTRIDGE UNIT, LUER	PG
Opiate Agonists	6505011695936	61451501607	OPIUM POWDERED AND BELLADONNA EXTRACT SUPPOSITORIES	PG
Opiate Agonists	6505013625340	63481062375	OXYCODONE HCL/ACETAMINOPHEN 5-325MG TABLET I.S. 100S	PG
Opiate Agonists	6505014629917	00045065960	TRAMADOL HYDROCHLORIDE TABLETS 50 MG 100 TABLETS PER	BT
Opiate Partial Agonists	6505011159852	63481043210	NALBUPHINE HCL 10MG/ML AMPUL 10s	PG
Opiate Partial Agonists	6505011179690	63481050805	NALBUPHINE HYDROCHLORIDE INJECTION 10MG/ML 10ML VIAL	VI
Misc. Analgesics	6505012036283	00536012372	ACETAMINOPHEN DROPS 100MG/ML, 15ML	BT
Misc. Analgesics	6505012013458	00472141004	ACETAMINOPHEN ELIXIR 160MG/5ML 120ML	BT
Misc. Analgesics	6505012005790	45802073232	ACETAMINOPHEN RECTAL SUPPOSITORIES 120MG, 12S	PG
Misc. Analgesics	6505010767866	00182109511	ACETAMINOPHEN RECTAL SUPPOSITORIES ADULT 650MG I.S. 12S	PG
Misc. Analgesics	6505009857301	51111048893	ACETAMINOPHEN TABLETS 325MG 1000S	BT
Misc. Analgesics	6505010171625	00182100019	ACETAMINOPHEN TABLETS USP 325MG 50 TABLETS PER BOTTLE	BT
Misc. Analgesics	6505012191084	00603254721	ACETAMINOPHEN/CAFFEINE/BUTALB 325-40-50 TABLET 100S	BT
Misc. Analgesics	6505010719112	00603466421	ISOMETHEPTENE/ACETAMINOPHEN/DICHLPHEN 65-325-100 CAPSULE	BT
Opiate Antagonists	6505011336915	63481035910	NALOXONE HYDROCHLORIDE INJECTION USP 0.02MG/ML 2ML AMPUL	BX

Opiate Antagonists	650500079786	63481035810	NALOXONE HYDROCHLORIDE INJECTION USP 0.4MG/ML 1ML AMPUL	BX
Opiate Antagonists	6505000797867	63481035810	NALOXONE HYDROCHLORIDE INJECTION USP 0.4MG/ML 1ML AMPUL	BX
Opiate Antagonists	6505012405812	63481037710	NALOXONE HYDROCHLORIDE INJECTION USP 1MG/ML 2ML AMPUL	PG
Benzodiazepine	6505010496735	00378191001	CLONAZEPAM TABLETS USP 0.5 MG 100 TABLETS PER BOTTLE	BT
Benzodiazepine	6505010555071	00378191201	CLONAZEPAM TABLETS USP 1 MG 100 TABLETS PER BOTTLE	BT
Hydantoin Anticonvulsants	6505014359295	00071400810	FOSPHENYTOIN SODIUM INJECTION 50MG/ML 10 ML VIAL 10S	PG
Hydantoin Anticonvulsants	6505014359293	00071400705	FOSPHENYTOIN SODIUM INJECTION 50MG/ML 2 ML VIAL 25S	PG
Hydantoin Anticonvulsants	6505006878486	00071000724	PHENYTOIN 50MG TAB CHEW 100S	BT
Hydantoin Anticonvulsants	6505005842338	00071036232	PHENYTOIN SODIUM EXTENDED 100MG CAPSULE 1000S	BT
Hydantoin Anticonvulsants	6505013329024	00641255545	PHENYTOIN SODIUM INJECTION USP 50MG/ML VIAL 5ML 25S	PG
Misc. Anticonvulsants	6505013024467	00083001976	CARBAMAZEPINE 100MG/5ML ORAL SUSP 450ML	BT
Misc. Anticonvulsants	6505004088915	00083002740	CARBAMAZEPINE TABLETS USP 200MG 1000S	BT
Misc. Anticonvulsants	6505002325046	00083002730	CARBAMAZEPINE TABLETS USP 200MG 100S	BT
Misc. Anticonvulsants	6505011553574	00074621413	DIVALPROEX SODIUM 250MG DELAYED-RELEASE TABLETS 100S	BT
Misc. Anticonvulsants	6505013871817	00071080524	GABAPENTIN 300MG CAPSULE 100S	BT
Misc. Anticonvulsants	6505011998359	00517261025	MAGNESIUM SULFATE INJECTION USP 50% 10ML VIAL 25S	PG
Misc. Anticonvulsants	6505012650056	63323006420	MAGNESIUM SULFATE INJECTION USP 50% 20 ML VIAL 25S	PG
Misc. Anticonvulsants	6505013018175	00517260225	MAGNESIUM SULFATE INJECTION USP 50% 2ML AMPUL 25S	PG
Misc. Anticonvulsants	6505010949241	00074568216	VALPROATE SODIUM 250MG/5ML SYRUP 480	BT
Misc. Anticonvulsants	6505010725364	50111085201	VALPROIC ACID 250MG CAPSULE 100S	BT
Antidepressants	6505000797453	00603221221	AMITRIPTYLINE HCL 10MG TABLET 100S	BT
Antidepressants	6505007246358	00603221332	AMITRIPTYLINE HCL 25MG TABLET 1000S	BT
Antidepressants	6505013146640	00378043501	BUPROPION HYDROCHLORIDE TABLETS 100MG 100 TABLETS PER	BT
Antidepressants	6505015056640	00173055601	BUPROPION HYDROCHLORIDE TABLETS SA 150MG 60S	BT
Antidepressants	6505015054632	00456402001	CITALOPRAM HYDROBROMIDE 20MG TABLET 100S	BT
Antidepressants	6505015054634	00456404001	CITALOPRAM HYDROBROMIDE 40MG TABLET 100S	BT
Antidepressants	6505012817430	00406066301	FLUOXETINE HYDROCHLORIDE CAPSULES 20MG 100 CAPSULES PER	BT
Antidepressants	6505008534799	00781176401	IMIPRAMINE HYDROCHLORIDE TABLETS USP 25MG 100 TABLETS PER	BT
Antidepressants	6505009264773	00093081101	NORTRIPTYLINE HYDROCHLORIDE CAPSULES USP 25MG 100	BT
Antidepressants	6505013718322	00029321120	PAROXETINE HCL 20MG TABLET 100S	BT
Antidepressants	6505013608959	00049491066	SERTRALINE HYDROCHLORIDE TABLETS 100MG 100 TABLETS PER	BT
Antidepressants	6505013608958	00049490066	SERTRALINE HYDROCHLORIDE TABLETS 50MG 100 TABLETS PER	BT
Antidepressants	6505011374627	50111043301	TRAZODONE TABLETS USP 50MG 100 TABLETS PER BOTTLE	BT
Antipsychotics	650901194725		ACEPROMAZINE MALEATE INJECTION 10MG/ML 50ML VIAL	VI
Antipsychotics	650901191723		ACEPROMAZINE MALEATE TABLETS 25MG FOR VETERINARY USE 100	BT
Antipsychotics	6505001296709	00007506111	CHLORPROMAZINE HYDROCHLORIDE INJECTION USP 25MG/ML 2ML	PG
Antipsychotics	6505015055923	00641139835	CHLORPROMAZINE HYDROCHLORIDE INJECTION USP 25MG/ML 2ML	PG
Antipsychotics	6505000221326	00781171610	CHLORPROMAZINE HYDROCHLORIDE TABLETS USP 25MG 1000S	BT
Antipsychotics	6505002688530	00045025501	HALOPERIDOL INJECTION USP 5MG/ML 1ML AMPUL 10	PG
Antipsychotics	6505010035341	00121058104	HALOPERIDOL ORAL SOLUTION USP 2MG/ML 120ML BOTTLE	PG
Antipsychotics	6505010032415	00781139210	HALOPERIDOL TABLETS USP 1MG 1000 TABLETS PER BOTTLE	BT
Antipsychotics	6505014398634	00002411560	OLANZAPINE TABLETS 5 MG 60S	BT
Antipsychotics	6505013879565	50458030006	RISPERIDONE TABLETS 1MG 60S	BT
Antipsychotics	6505013879504	50458030001	RISPERIDONE TABLETS 1MG I.S. 100S	PG
Antipsychotics	6505000503078	00781160410	THIORIDAZINE HCL 10MG TABLET 1000S	BT
Antipsychotics	6505008901538	00781162410	THIORIDAZINE HCL 25MG TABLET 1000S	BT
Antipsychotics	6505006899245	00781163410	THIORIDAZINE HCL 50MG TABLET 1000S	BT
Respiratory and Cerebral	6505001060875	39822990001	AMMONIA INHALANT SOLUTION AROMATIC 0.333CC AMPUL 10S	PG
Respiratory and Cerebral	6505001068715	00007351920	DEXTROAMPHETAMINE SULFATE TABLETS USP 5MG 100S	BT
Respiratory and Cerebral	650500917370	00031484983	DOXAPRAM HYDROCHLORIDE INJECTION USP 20MG/CC 20ML BOTTLE	BT
Respiratory and Cerebral	6505009173709	00031484983	DOXAPRAM HYDROCHLORIDE INJECTION USP 20MG/CC 20ML VIAL	BT
Barbiturate Sedatives	6505015084409	00074234331	PHENOBARBITAL SODIUM INJ 60MG/ML 1ML CARPUJECT SYRINGE,	PG
Barbiturate Sedatives	6505001711377	57480050501	PHENOBARBITAL TABLETS USP 30MG I.S. 100S	PG
Benzodiazepine	6505011403199	00378400301	ALPRAZOLAM 0.5MG TABLET 100S	BT
Benzodiazepine	6505014437061	52544078610	CHLORDIAZEPOXIDE HYDROCHLORIDE CAPSULES USP 10MG 1000S	BT
Benzodiazepine	6505015053476	00074127332	DIAZEPAM INJECTION 5MG/ML 2ML SYRINGE LUER LOCK, W/O NEEDLE,	PG
Benzodiazepine	6505015053476	00074127332	DIAZEPAM INJECTION 5MG/ML 2ML SYRINGE LUER LOCK, W/O NEEDLE,	PG
Benzodiazepine	6505012406894	00641228941	DIAZEPAM INJECTION USP 5MG/ML 10ML VIAL	VI
Benzodiazepine	6505007837218	00172392670	DIAZEPAM TABLETS USP 5MG 500S	BT
Benzodiazepine	6505015011389	00074198530	LORAZEPAM INJECTION USP 2MG/ML 1ML CARTRIDGE, LUER LOCK,	PG
Benzodiazepine	6505013932145	00074153911	LORAZEPAM INJECTION USP 4MG/ML 1ML CARTRIDGE UNIT 10S	PG
Benzodiazepine	6505015056025	00074153931	LORAZEPAM INJECTION USP 4MG/ML 1ML CARTRIDGE, LUER LOCK,	PG
Benzodiazepine	6505013120914	51079038621	LORAZEPAM TABLETS USP 1MG I.S. 100S	PG
Benzodiazepine	6505010579846	00378045701	LORAZEPAM TABLETS 1 MG 100S	BT
Benzodiazepine	6505012721975	59911591202	MIDAZOLAM HYDROCHLORIDE INJECTION 1MG/ML 5ML MULTI DOSE	PG
Benzodiazepine	6505012444736	10019002701	MIDAZOLAM HYDROCHLORIDE INJECTION 5MG/ML 1ML VIAL	PG
Benzodiazepine	6505012395492	10019002710	MIDAZOLAM HYDROCHLORIDE INJECTION 5MG/ML, 10ML, 10S	PG
Benzodiazepine	6505011160481	00781220105	TEMAZEPAM CAPSULES 15 MG 500S	BT
Misc. Anxiolytics/Sedatives/	6505011040399	11098001002	DROPERIDOL INJECTION USP 2.5MG/ML 2ML AMPUL 10S	PG
Misc. Anxiolytics/Sedatives/	6505000521367	00049546074	HYDROXYZINE HYDROCHLORIDE INJECTION USP 50 MG PER ML 10 ML	VI
Misc. Anxiolytics/Sedatives/	6505005799715	00591552205	HYDROXYZINE HYDROCHLORIDE TABLETS USP 10MG 500S	BT
Misc. Anxiolytics/Sedatives/	6505005799717	00364049505	HYDROXYZINE HYDROCHLORIDE TABLETS USP 25MG 500S	BT
Misc. Anxiolytics/Sedatives/	6505014354312	00024542131	ZOLPIDEM TARTRATE TABLETS 10 MG 100S	PG
Misc. CNS Agents	6505013548592	00004691106	FLUMAZENIL 0.1MG/ML 5ML VIAL 10S	PG
Misc. CNS Agents	6505014629906	00173046002	SUMATRIPTAN SUCCINATE 25MG TABLETS 9 TABLETS PER PACKAGE	PG
Misc. CNS Agents	6505014562497	00173045900	SUMATRIPTAN SUCCINATE 50MG TABLETS 9 TABLETS PER PACKAGE	PG
Misc. CNS Agents	6505013745874	00173044902	SUMATRIPTAN SUCCINATE INJECTION 6MG/0.5ML 2ML VIAL 5S	PG
Dental Agents	6505013788002	N/A	SODIUM FLUORIDE 2% GEL MINT 16OZ BOTTLE	BT
Diagnostic Agents	6505015032390	24208039182	FLUORESCIN SODIUM OPHTHALMIC 1MG STRIPS 100S	PG
Diagnostic Agents	6505011591493	24208039183	FLUORESCIN SODIUM OPHTHALMIC STRIPS 1MG (2 PER ENVELOPE)	PG

Diagnostic Agents	650501159149	24208039183	FLUORESCIN SODIUM OPHTHALMIC STRIPS MODIFIED 300S	PG
Roentgenography	6505012235684		BARIUM SULFATE FOR SUSPENSION MODIFIED CHERRY&	PG
Roentgenography	6505012235684		BARIUM SULFATE FOR SUSPENSION MODIFIED CHERRY&	PG
Roentgenography	6505015037419	00270044540	DIATRIZOATE MEGLUMINE 66% AND DIATRIZOATE SODIUM 10% SOL	PG
Roentgenography	6505011038583	00270086020	DIATRIZOATE MEGLUMINE 66% AND DIATRIZOATE SODIUM 10% SOL	PG
Roentgenography	6505010083323	00019480601	DIATRIZOATE MEGLUMINE 66% AND DIATRIZOATE SODIUM 10% SOL	PG
Roentgenography	6505000648731	00407076901	DIATRIZOATE SODIUM FOR ORAL SOLUTION POWDER FORM	CN
Roentgenography	6505015036707	00407222213	IODIXANOL 270MG/ML FOR INJECTION (VISIPAQUE) 150ML PLASTIC	CS
Roentgenography	6505012266499	00407141351	IOHEXOL INJECTION USP 300MG/ML 50ML BOTTLE (OMNIPAQUE) 10S	PG
Roentgenography	6505012656312	00270141125	IOPAMIDOL 41% 20ML VIAL (ISOVUE-M 200) 10S	PG
Roentgenography	6505012656313	00270141215	IOPAMIDOL 61% 15ML VIAL (ISOVUE-M 300) 10S	PG
Roentgenography	6505012550851	00019086207	IOTHALAMATE MEGLUMINE 17.2% INJECTION, 250ML VIAL, 12S (CYSTO-	PG
Tuberculosis Diagnostic	6505001178783	49281075221	TUBERCULIN PURIFIED PROTEIN DERIVATIVE 5 UNITS PER 0.1ML	BT
Tuberculosis Diagnostic	6505001050102	49281075222	TUBERCULIN PURIFIED PROTEIN DERIVATIVE 5 UNITS PER 0.1ML	BT
Disinfectants	6505012145791	00519639536	ANTIBACTERIAL ALCOHOL MOISTURIZING FOAM NO RINSE 110Z 24S	PG
Disinfectants	6505012870629	00436094628	SODIUM HYPOCHLORITE SOLUTION MODIFIED 0.5% 1GL (3840ML)	BT
Alkalinizing Agents	6505010974766	00121059516	CITRIC ACID/SODIUM CITRATE 334-500MG SOLUTION 480ML	BT
Alkalinizing Agents	6505012292151	46287001401	CITRIC ACID/SODIUM CITRATE 640-490MG SOLUTION 500ML	BT
Alkalinizing Agents	6505015052377	63323000650	SODIUM BICARBONATE INJ USP 8.4% 50ML VIAL 25S	PG
Alkalinizing Agents	6505002165370	00074663734	SODIUM BICARBONATE INJ USP 8.4% SYRINGE-NEEDLE UNIT 50ML 10S	PG
Alkalinizing Agents	650501053263	63323008450	SODIUM BICARBONATE INJECTION USP 75 MG PER ML 50 ML 25S	BX
Alkalinizing Agents	6505010532634	63323008450	SODIUM BICARBONATE INJECTION USP 75 MG PER ML 50 ML 25S	BX
Alkalinizing Agents	650500141500		SODIUM BICARBONATE USP 1 LB (453.6 GM)	CO
Ammonia Detoxicants	6505011324609	50383079516	LACTULOSE 10G/15ML SYRUP 480ML	BT
Ammonia Detoxicants	6505011960612	50962003261	LACTULOSE SOLUTION 10GM/15ML 30ML CUP 100S	PG
Replacement Preparations	6505014919899	00074163110	CALCIUM CHLORIDE INJECTION USP 10% 10ML SYRINGE W/O NEEDLE	PG
Replacement Preparations	6505015058043	63323011410	CALCIUM CHLORIDE INJECTION USP 10% 10ML VIAL 25S	PG
Replacement Preparations	6505012559081	00517391025	CALCIUM GLUCONATE 100MG/ML 10ML VIAL 25S	PG
Replacement Preparations	6505012559081	00517391025	CALCIUM GLUCONATE 100MG/ML 10ML VIAL 25S	PG
Replacement Preparations	6505001161064	00074792909	DEXTROSE 5% & LACTATED RINGER'S INJ 1000ML BAGS 12S	PG
Replacement Preparations	6505013080996	00074647132	ELECTROLYTE SOLUTION ORAL FRUIT FLAVORED 32FL OZ BOTTLES	PG
Replacement Preparations	6505014988636	00074155554	HETASTARCH 6% IN LACTATED ELECTROLYTES 500ML PLASTIC BAG	PG
Replacement Preparations	6505012811247	00074724803	HETASTARCH 6% IN SODIUM CHLORIDE 500ML PLASTIC BAG (HESPAN)	PG
Replacement Preparations	6505012811247	00264196510	HETASTARCH 6% IN SODIUM CHLORIDE 500ML PLASTIC BAG (HESPAN)	PG
Replacement Preparations	6505014209275	70085100005	ORAL REHYDRATION SALTS RICE BASED (CERALYTE 70-LEMON)	PG
Replacement Preparations	6505011978809		ORAL REHYDRATION SALTS USP 27.9GM FOIL PACKET 125 PER	PG
Replacement Preparations	6505014624733	00074707514	POTASSIUM CHLORIDE 10MEQ/50ML PIGGYBACK 24S	PG
Replacement Preparations	6505012578457	00085078701	POTASSIUM CHLORIDE 20MEQ TAB SA (K-DUR) 100S	BT
Replacement Preparations	6505010801987	00074665106	POTASSIUM CHLORIDE CONCENTRATE FOR INJECTION USP 10ML VIAL	PG
Replacement Preparations	6505010801988	00074665305	POTASSIUM CHLORIDE CONCENTRATE FOR INJECTION USP 20ML VIAL	PG
Replacement Preparations	650501330626	00074795309	RINGER'S INJECTION LACTATED USP 1000ML BAG 12 BAGS PER	PG
Replacement Preparations	6505013306267	00074795309	RINGER'S INJECTION LACTATED USP 1000ML BAG 12 BAGS PER	PG
Replacement Preparations	6505013127873	00074795303	RINGER'S INJECTION LACTATED USP 500ML BAG 24 BAGS PER	PG
Replacement Preparations	6505015052382	63323002605	SODIUM BICARBONATE INJECTION USP 4.2% 5ML VIALS 25S	PG
Replacement Preparations	6505010270180	49502083003	SODIUM CHLORIDE FOR INHALATION 0.9% 3ML VIALS 100S	PG
Replacement Preparations	6505011541748	49502083005	SODIUM CHLORIDE FOR INHALATION 0.9% 5ML VIALS 100S	PG
Replacement Preparations	6505000836544	00338004904	SODIUM CHLORIDE INJECTION USP 0.9% 1000ML BAGS 12S	BX
Replacement Preparations	6505013306269	00264780000	SODIUM CHLORIDE INJECTION USP 0.9% 1000ML BAGS 12S	PG
Replacement Preparations	6505011082218	00338004918	SODIUM CHLORIDE INJECTION USP 0.9% 100ML BAGS 48S	PG
Replacement Preparations	6505013308924	00264180032	SODIUM CHLORIDE INJECTION USP 0.9% 100ML BAGS 64S	PG
Replacement Preparations	6505013841365	00338055318	SODIUM CHLORIDE INJECTION USP 0.9% 100ML BAGS 80S	PG
Replacement Preparations	6505012870626	63323018610	SODIUM CHLORIDE INJECTION USP 0.9% 10ML VIALS 25S	PG
Replacement Preparations	6505012879651	00074488820	SODIUM CHLORIDE INJECTION USP 0.9% 20ML SINGLE DOSE VIAL 100S	PG
Replacement Preparations	6505011828013	00338004902	SODIUM CHLORIDE INJECTION USP 0.9% 250ML BAGS 24S	PG
Replacement Preparations	6505012606715	00074710102	SODIUM CHLORIDE INJECTION USP 0.9% 250ML BAGS 24S	PG
Replacement Preparations	6505013318945	00264780020	SODIUM CHLORIDE INJECTION USP 0.9% 250ML BAGS 24S	PG
Replacement Preparations	6505013539855	00074798302	SODIUM CHLORIDE INJECTION USP 0.9% 250ML BAGS 24S	PG
Replacement Preparations	6505015063564	00074191833	SODIUM CHLORIDE INJECTION USP 0.9% 3ML CARPUJECT, LUER LOCK,	PG
Replacement Preparations	6505013306268	00264780010	SODIUM CHLORIDE INJECTION USP 0.9% 500ML BAGS 24S	PG
Replacement Preparations	6505013723425	00074798303	SODIUM CHLORIDE INJECTION USP 0.9% 500ML BAGS 24S	PG
Replacement Preparations	6505013308925	00264180031	SODIUM CHLORIDE INJECTION USP 0.9% 50ML BAGS 84S	PG
Replacement Preparations	6505015063570	00074191835	SODIUM CHLORIDE INJECTION USP 0.9% 5ML CARPUJECT, LUER LOCK,	PG
Replacement Preparations	6505012910333	00338005403	SODIUM CHLORIDE INJECTION USP 3% 500ML BAGS 24S	PG
Potassium-removing Agents	6505011932830	00054380563	SODIUM POLYSTYRENE SULFONATE 15GM/60ML SUSPENSION USP	BT
Caloric Agents	6505014622999	00074792409	DEXTROSE 5% & SODIUM CHLORIDE 0.225% INJECTION 1000ML BAGS	PG
Caloric Agents	6505013724486	00074792403	DEXTROSE 5% & SODIUM CHLORIDE 0.225% INJECTION 500ML BAGS	PG
Caloric Agents	6505001161025	00074792609	DEXTROSE 5% & SODIUM CHLORIDE 0.45% INJECTION 1000ML BAGS	PG
Caloric Agents	6505014622502	00074794109	DEXTROSE 5% & SODIUM CHLORIDE 0.9% INJECTION 1000ML BAGS 12S	PG
Caloric Agents	6505013306252	00074792209	DEXTROSE INJECTION USP 5% 1000ML BAG 12 BAGS PER PACKAGE	PG
Caloric Agents	6505013308918	00264151032	DEXTROSE INJECTION USP 5% 100ML BAG 64S	PG
Caloric Agents	6505013318941	00074792202	DEXTROSE INJECTION USP 5% 250ML BAGS 24S	PG
Caloric Agents	6505000288210	00338001703	DEXTROSE INJECTION USP 5% 500ML BAG 24S	PG
Caloric Agents	6505013306254	00074792203	DEXTROSE INJECTION USP 5% 500ML BAG 24S	PG
Caloric Agents	6505013306254	00074792203	DEXTROSE INJECTION USP 5% 500ML BAG 24S	PG
Caloric Agents	6505015053770	00074792336	DEXTROSE INJECTION USP 5% 50ML BAG 80S	PG
Caloric Agents	6505013308919	00264151031	DEXTROSE INJECTION USP 5% 50ML BAG 84 BAGS PER PACKAGE	PG
Caloric Agents	6505015015408	00074751715	DEXTROSE INJECTION USP 50% 50ML ANSYR SYRINGE 10S	PG
Caloric Agents	6505014437072	00074490234	DEXTROSE INJECTION USP 50% 50ML LIFESHIELD ABBJECT SYRINGE	PG
Caloric Agents	6505014437072	00074490234	DEXTROSE INJECTION USP 50% 50ML LIFESHIELD ABBJECT SYRINGE	PG
Caloric Agents	6505010170338	00074664802	DEXTROSE INJECTION USP 50% 50ML VIAL 25S	PG

Diuretics	6505011742389	55390050002	BUMETANIDE INJECTION 0.25MG/ML 2ML AMPUL 10S	PG
Diuretics	6505014806901	00074163910	FUROSEMIDE INJECTION USP 10MG/ML 10ML ANSYR 10S	PG
Diuretics	650501157511	00074610102	FUROSEMIDE INJECTION USP 10MG/ML 2ML AMPUL 25 PER PACKAGE	PG
Diuretics	6505011575117	00074610102	FUROSEMIDE INJECTION USP 10MG/ML 2ML AMPUL 25S	PG
Diuretics	6505010953600	00054429931	FUROSEMIDE TABLETS USP 40 MG 1000S	BT
Diuretics	6505000623336	00172290760	FUROSEMIDE TABLETS USP 40 MG 100S	BT
Diuretics	6505008897930	00172208380	HYDROCHLOROTHIAZIDE TABLETS USP 25MG 1000S	BT
Diuretics	6505001736407	00182055689	HYDROCHLOROTHIAZIDE TABLETS USP 25MG I.S. 100S	PG
Diuretics	6505008897929	00172208980	HYDROCHLOROTHIAZIDE TABLETS USP 50MG 1000S	BT
Diuretics	6505001175984	51079011120	HYDROCHLOROTHIAZIDE TABLETS USP 50MG I.S. 100S	PG
Diuretics	650501125325	63323002425	MANNITOL INJECTION USP 25% 50ML SINGLE DOSE VIALS 25 VIALS/PG	PG
Diuretics	6505011253253	63323002425	MANNITOL INJECTION USP 25% 50ML SINGLE DOSE VIALS 25S	PG
Diuretics	6505012902999	62794046401	TRIAMTERENE/HCTZ 37.5-25MG TABLET 100S	BT
Potassium-Sparing Diuretics	6505015055805	00781159901	SPIRONOLACTONE 25MG TABLET 100S	BT
Potassium-Sparing Diuretics	6505009268996	53489014305	SPIRONOLACTONE 25MG TABLET 500S	BT
Irrigating Solutions	6505014624194	00338004804	SODIUM CHLORIDE IRRIGATION USP 0.9% 1000ML BOTTLE 12 PER BOX	BX
Irrigating Solutions	6505004434582	00074797208	SODIUM CHLORIDE IRRIGATION USP 3000ML BAG 4 BAGS PER	PG
Irrigating Solutions	6505011533796	00338000344	WATER FOR IRRIGATION STERILE USP 1000 ML 12S	PG
Irrigating Solutions	6505010750679	00338000404	WATER FOR IRRIGATION STERILE USP 1000ML CONTAINER 12 PER	PG
Uricosuric Agents	6505005276885	00364031401	PROBENECID 500MG TABLET 100S	BT
Antitussives	6505006601798	00258365401	BENZONATATE CAPSULES USP 100 MG 100S	BT
Antitussives	6505010980221	00472001204	CODEINE 10MG/GUAIFENESIN 100MG/5ML SYRUP 120ML	BT
Antitussives	6505010980221	00182001737	CODEINE 10MG/GUAIFENESIN 100MG/5ML SYRUP 120ML	BT
Antitussives	6505013181565	00121063804	DEXTROMETHORPHAN HYDROBROMIDE AND GUAIFENESIN SYRUP	BT
Antitussives	6505013296484	00603554221	GUAIFENESIN 600MG & DEXTROMETHORPHAN HYDROBROMIDE 30MG	BT
Expectorants	6505013480278	00603566821	GUAIFENESIN AND PSEUDOEPHEDRINE HCL EXTENDED-RELEASE	BT
Expectorants	6505012389443	57664015208	GUAIFENESIN EXTENDED RELEASE TABLETS 600MG 100	BT
Expectorants	6505011168198	00037047220	POTASSIUM IODIDE TABLETS 130MG BOTTLE OF 14 TABLETS	PG
Expectorants	6505014964916	51803000101	POTASSIUM IODIDE TABLETS 130MG I.S. 14S	PG
Mucolytic Agents	6505007679111	00087057003	ACETYLCYSTEINE SOLUTION USP 20% 10ML BOTTLE 3S	PG
EENT, Antiallergic Agents	6505014493698	00472007536	CROMOLYN SODIUM 40MG/ML SPRAY/PUMP 26ML	BT
EENT, Antiallergic Agents	6505014590420	00065027105	OLOPATADINE HYDROCHLORIDE OPHTHALMIC SOLUTION STERILE	BT
EENT, Antibiotics	6505005824190	00168002638	BACITRACIN OPHTHALMIC OINTMENT USP 0.125OZ TUBE	TU
EENT, Antibiotics	6505009820288	00168007038	ERYTHROMYCIN OPHTHALMIC OINTMENT USP 5MG/GM 3.5GM TUBE	TU
EENT, Antibiotics	6505010222646	61314063305	GENTAMICIN SULF OPHTH SOL USP EQUIV 3.0MG GENTAMICIN PER ML	BT
EENT, Antibiotics	650500432106	17478028435	GENTAMICIN SULFATE OPHTHALMIC OINTMENT USP 3.5 GRAM TUBE	TU
EENT, Antibiotics	6505004321065	17478028435	GENTAMICIN SULFATE OPHTHALMIC OINTMENT USP 3.5 GRAM TUBE	TU
EENT, Antibiotics	6505012112382	00065064515	NATAMYCIN OPHTHALMIC SUSPENSION USP 15ML BOTTLE	PG
EENT, Antibiotics	6505011436462	61314063136	NEOMYCIN, POLYMYXIN B SULFATE & DEXAMETHASONE 0.1% OPHTH	TU
EENT, Antibiotics	6505011439509	61314063006	NEOMYCIN, POLYMYXIN B SULFATE & DEXAMETHASONE SUSPENSION	BT
EENT, Antibiotics	6505010430230	24208063562	NEOMYCIN, POLYMYXIN B SULFATE, & HYDROCORTISONE OTIC SUSP	PG
EENT, Antibiotics	6505013181530	00065064835	TOBRAMYCIN SULFATE & DEXAMETHASONE 0.3-0.1% OPHTHALMIC	TU
EENT, Antibiotics	6505013041008	00065064705	TOBRAMYCIN SULFATE & DEXAMETHASONE 0.3-0.1% OPHTHALMIC	BT
EENT, Antibiotics	6505013200234	24208031510	TRIMETHOPRIM AND POLYMYXIN B SULFATE OPHTHALMIC SOLUTION	BT
EENT, Antivirals	6505011428314	61570003775	TRIFLURIDINE OPHTHALMIC SOLUTION 1% 7.5ML BOTTLE	BT
EENT, Antivirals	6505011004218	00071367707	VIDARABINE OPHTHALMIC OINTMENT USP 3% 3.5GM TUBE	TU
EENT, Sulfonamides	6505001839419	00168007938	SULFACETAMIDE SOD OPHTHALMIC OINTMENT USP 10% 1/8 OZ (3.5	TU
EENT, Sulfonamides	650501137846	11980002210	SULFACETAMIDE SODIUM & PREDNISOLONE ACETATE OPHTHALMIC	BT
EENT, Sulfonamides	6505011378464	11980002210	SULFACETAMIDE SODIUM & PREDNISOLONE ACETATE OPHTHALMIC	BT
EENT, Sulfonamides	6505010238713	00168022015	SULFACETAMIDE SODIUM SOLUTION 10%, 15ML	BT
EENT, Misc. Anti-infectives	6505001048061	24208061577	ALUMINUM ACETATE AND ACETIC ACID SOLUTION 2% 60ML BOTTLE	BT
EENT, Misc. Anti-infectives	6505013782884	00472003616	CHLORHEXIDINE GLUCONATE ORAL RINSE 16OZ BOTTLE 12	PG
EENT, Misc. Anti-infectives	6505013455363	00065065625	CIPROFLOXACIN HCL 0.3% OPHTHALMIC DROPS 2.5ML	BT
EENT, Misc. Anti-infectives	6505013519272	00065065605	CIPROFLOXACIN HCL 0.3% OPHTHALMIC DROPS 5ML	BT
EENT, Misc. Anti-infectives	6505015090677	00065401303	MOXIFLOXACIN HCL 0.5% OPHTHALMIC DROPS 3ML (VIGAMOX)	BT
EENT, Misc. Anti-infectives	650500299967		SILVER NITRATE APPLICATORS 6 INCH 100S	CO
EENT, Misc. Anti-infectives	6505002999672		SILVER NITRATE APPLICATORS 6 INCH 100S	CO
EENT, Anti-inflammatory	6505012754811	00173038879	BECLOMETHASONE DIPROPIONATE NASAL SUSPENSION 25GM	EA
EENT, Anti-inflammatory	6505014107226	00173045301	FLUTICASONE PROPIONATE 50MCG SPRAY 16GM	EA
EENT, Anti-inflammatory	6505013850495	00023218105	KETOROLAC TROMETHAMINE OPHTHALMIC 0.5% DROPS 5ML	BT
EENT, Anti-inflammatory	6505015049681	00085119701	MOMETASONE FUROATE 50MCG SPRAY 17GM	EA
EENT, Anti-inflammatory	6505001335843	61314063705	PREDNISOLONE ACETATE OPHTHALMIC SUSPENSION 1% 5 ML	BT
EENT, Carbonic Anhydrase	6505000648724	55390046001	ACETAZOLAMIDE SODIUM STERILE USP 500MG VIAL	VI
EENT, Carbonic Anhydrase	6505006640857	00364040001	ACETAZOLAMIDE TABLETS USP 250MG 100 TABLETS PER BOTTLE	BT
EENT, Contact Lens Solutions	6505014493719	00023074501	CONTACT LENS LUBRICATING AND REWETTING SOLUTION 0.4ML	PG
EENT, Local Anesthetics	6505005985830	00904079335	ANTIPYRINE AND BENZOCAINE OTIC SOLUTION USP 10ML	BT
EENT, Local Anesthetics	6505010645769	00283087131	BENZOCAINE GEL 20% 1OZ OR 28GM BOTTLE	BT
EENT, Local Anesthetics	6505014915466	51284033034	BENZOCAINE ORAL TOPICAL GEL 10% 0.1 OZ TUBE 60S	PG
EENT, Local Anesthetics	6505011057483	00283067902	BENZOCAINE TOPICAL AEROSOL USP 20% 60ML	PG
EENT, Local Anesthetics	6505013630558	00068021217	CETYLPYRIDINIUM CHLORIDE, BENZYL ALCOHOL & MENTHOL	PG
EENT, Local Anesthetics	6505013815054	00068020518	CETYLPYRIDINIUM CHLORIDE, BENZYL ALCOHOL & MENTHOL	PG
EENT, Local Anesthetics	6505000013345	17478063110	FLUORESCIN SODIUM & BENOXINATE HYDROCHLORIDE OPHTHALMIC	BT
EENT, Local Anesthetics	6505000636197	00054350049	LIDOCAINE HYDROCHLORIDE 2% VISCOUS ORAL TOPICAL SOLUTION	BT
EENT, Local Anesthetics	6505011029410	00186036178	LIDOCAINE HYDROCHLORIDE 2% VISCOUS ORAL TOPICAL SOLUTION	PG
EENT, Local Anesthetics	6505005843131	00186033001	LIDOCAINE HYDROCHLORIDE JELLY USP 2% 30 ML TUBE WITH	PG
EENT, Local Anesthetics	6505008237942		MEPIVACAINE HCL&LEVONORDEFIN 1.8ML (DENTAL) F/USE	CO
EENT, Local Anesthetics	6505005824737	24208092064	TETRACAINE HYDROCHLORIDE OPHTHALMIC SOLUTION 0.5% 15 ML	BT
EENT, Miotics	6505014703141	58768077352	ACETYLCOLINE CHLORIDE FOR OPHTHALMIC SOLUTION USP 1% 2ML	EA
EENT, Miotics	6505005824679	61314020415	PILOCARPINE HYDROCHLORIDE OPHTHALMIC SOLUTION USP 2% 15	BT
EENT, Mydriatics	6505014542525	24208082555	ATROPINE SULFATE OPHTHALMIC OINTMENT USP 3.5 GM TUBE	TU

EENT, Mydratics	6505014542525	24208082555	ATROPINE SULFATE OPHTHALMIC OINTMENT USP 3.5 GM TUBE	TU
EENT, Mydratics	6505005824735	61314020315	ATROPINE SULFATE OPHTHALMIC SOLUTION USP 1% 15ML	BT
EENT, Mydratics	6505002999666	17478010012	CYCLOPENTOLATE HYDROCHLORIDE OPHTHALMIC SOLUTION USP 1%	BT
EENT, Mydratics	6505008718289	00998035515	TROPICAMIDE OPHTHALMIC SOLUTION USP 1% 15 ML	BT
EENT, Mouthwashes &	650500153848	00395111316	HYDROGEN PEROXIDE TOPICAL SOLUTION USP 1PINT (473 ML)	BT
EENT, Mouthwashes &	6505001538480	00395111316	HYDROGEN PEROXIDE TOPICAL SOLUTION USP 1PINT (473 ML)	BT
EENT, Vasoconstrictors	6505009746353	58768088115	NAPHAZOLINE HCL&ANTAZOLINE PHOSPHATE OPHTHALMIC SOLUTION	BT
EENT, Vasoconstrictors	6505008694177	00182144464	OXYMETAZOLINE HYDROCHLORIDE NASAL SOLUTION 15ML SPRAY	BT
EENT, Vasoconstrictors	6505011534451	00024134803	PHENYLEPHRINE HCL NASAL SOLUTION USP .25% 15ML SPRAY	BT
EENT, Vasoconstrictors	6505015050858	00274754031	PHENYLEPHRINE HCL NASAL SOLUTION USP .25% 40ML SPRAY	BT
EENT, Vasoconstrictors	6505002719220	24208074006	PHENYLEPHRINE HYDROCHLORIDE OPHTHALMIC SOLUTION USP 2.5%	BT
EENT, Vasoconstrictors	6505001394600	00536094094	TETRAHYDROZOLINE HYDROCHLORIDE OPHTHALMIC SOLUTION USP	BT
EENT, Misc. Drugs	6505009617486	00536197072	ARTIFICIAL TEARS SOLUTION 15 ML DROPPER BOTTLE	BT
EENT, Misc. Drugs	6505010156456	17478006112	ARTIFICIAL TEARS SOLUTION 15ML BOTTLE WITH OPHTHALMIC TIP	BT
EENT, Misc. Drugs	6505015049114	00023917705	BRIMONIDINE TARTRATE 0.15% OPHTHALMIC SOLUTION 5ML	BT
EENT, Misc. Drugs	6505011841250	00088102105	CARBAMIDE PEROXIDE OTIC SOLUTION 15ML	BT
EENT, Misc. Drugs	6505011464267	00065003508	GLYCERIN 50% ORAL SOLUTION 220ML BOTTLE LIME FLAVOR	BT
EENT, Misc. Drugs	6505015038431	58768078815	HYDROXYPROPYL METHYLCELLULOSE 0.3% DROPS 15ML	BT
EENT, Misc. Drugs	6505011472082	58768070115	HYDROXYPROPYL METHYLCELLULOSE OPHTHALMIC SOLUTION USP	BT
EENT, Misc. Drugs	6505014407641	00013830304	LATANOPROST SOLUTION 50 MG/ML 2.5 ML	BT
EENT, Misc. Drugs	6505001507622	17478006235	LUBRICANT OPHTHALMIC TOPICAL 1/8OZ OR 3.5GM W/.5%	TU
EENT, Misc. Drugs	6505001507622	17478006235	LUBRICANT OPHTHALMIC TOPICAL 1/8OZ OR 3.5GM W/.5%	TU
EENT, Misc. Drugs	6505011197693	00065079515	OPHTHALMIC IRRIGATING SOLUTION 15-18ML BOTTLE STERILE	PG
EENT, Misc. Drugs	6505011197694	00065079550	OPHTHALMIC IRRIGATING SOLUTION 500ML BOTTLE W/HANGING	PG
EENT, Misc. Drugs	6505011534014	00168017715	POLYVINYL ALCOHOL 1% DROPS 15ML	BT
EENT, Misc. Drugs	6505014302014		SILICONE OPHTHALMIC OIL STERILE 10ML VIAL	VI
EENT, Misc. Drugs	6505011926554	00904386575	SODIUM CHLORIDE 0.65% NASAL SOLUTION SPRAY 45ML	BT
EENT, Misc. Drugs	6505010696519	61314022705	TIMOLOL MALEATE 0.5% OPHTHALMIC SOLUTION 5ML	BT
GI, Antacids & Adsorbents	6505014113154	00067033279	ALUMINA MAGNESIA AND SIMETHICONE ORAL SUSPENSION USP 5OZ	PG
GI, Antacids & Adsorbents	6505001484631	00603018621	ALUMINUM HYDROXIDE GEL DRIED MAGNESIUM TRISILICATE TABLETS	BT
GI, Antacids & Adsorbents	6505014731770	00536303501	ALUMINUM MAGNESIUM SIMETHICONE TABLETS CHEWABLE 100	BT
GI, Antacids & Adsorbents	6505015059174	00067037045	CALCIUM CARBONATE 600MG TAB CHEW 45S	BX
GI, Antacids & Adsorbents	6505014337370	00904511571	CALCIUM CARBONATE/MAG HYDROX 700-300MG TAB CHEW 70S	BT
GI, Antacids & Adsorbents	650500135288	00574012125	CHARCOAL ACTIVATED 15G LIQUID 72ML	BT
GI, Antacids & Adsorbents	6505001352881	00574012125	CHARCOAL ACTIVATED 15G LIQUID 72ML	BT
GI, Antacids & Adsorbents	6505012828880	00574012008	CHARCOAL ACTIVATED AND SORBITOL SUSPENSION 240ML	BT
GI, Antacids & Adsorbents	6505014207344	00574012076	CHARCOAL ACTIVATED AND SORBITOL SUSPENSION 240ML TUBE 12S	PG
GI, Antidiarrhea Agents	6505013155357	00009345801	ATTAPULGITE TABLETS 750MG I.S. 12 TABLETS PER PACKAGE	PG
GI, Antidiarrhea Agents	6505014437607	00536430107	BISMUTH SUBSALICYLATE 262MG TAB CHEW 30S	BT
GI, Antidiarrhea Agents	6505015056483	00182181144	BISMUTH SUBSALICYLATE SUSPENSION 262MG/15ML 240ML	BT
GI, Antidiarrhea Agents	6505011533909	01490003908	BISMUTH SUBSALICYLATE SUSPENSION 262MG/15ML 240ML BOTTLE	PG
GI, Antidiarrhea Agents	6505012385632	51079069020	LOPERAMIDE HYDROCHLORIDE CAPSULES 2MG I.S. 100	PG
GI, Antidiarrhea Agents	650501066656	00378210001	LOPERAMIDE HYDROCHLORIDE CAPSULES USP 2MG 100	BT
GI, Antidiarrhea Agents	6505010666568	00378210001	LOPERAMIDE HYDROCHLORIDE CAPSULES USP 2MG 100	BT
Antiflatulents	6505010279054	00536453301	SIMETHICONE 80MG TAB CHEW 100S	BT
GI, Cathartics & Laxatives	6505008899033	00574705050	BISACODYL SUPPOSITORIES USP 10MG ADULT RECTAL I.S.50 PER	PG
GI, Cathartics & Laxatives	6505008899034	00054409831	BISACODYL TABLETS USP 5MG FILM ENTERIC 1000S	BT
GI, Cathartics & Laxatives	6505001182759	00574000411	BISACODYL TABLETS USP 5MG FILM ENTERIC I.S. 100S	PG
GI, Cathartics & Laxatives	6505008090241	17236061410	DOCUSATE SODIUM CAPSULES USP 100MG 1000 CAPSULES PER	BT
GI, Cathartics & Laxatives	6505001637656	51079001920	DOCUSATE SODIUM CAPSULES USP 100MG I.S. 100 CAPSULES PER	PG
GI, Cathartics & Laxatives	6505012269917	00603051235	GLYCERIN SUPPOSITORIES USP INFANT RECTAL 25 PER PACKAGE	PG
GI, Cathartics & Laxatives	6505013051170	00395060010	MAGNESIUM CITRATE ORAL SOLUTION USP 10FL OZ BOTTLE 12S	PG
GI, Cathartics & Laxatives	6505012850165	00068041816	METHYLCELLULOSE USP 2GM POWDER FORM ORANGE FLAVOR 16OZ	BT
GI, Cathartics & Laxatives	6505001487263	00536247083	MILK OF MAGNESIA USP 12 FL OZ (355 ML)	BT
GI, Cathartics & Laxatives	650500133600		MINERAL OIL USP 1QT OR 946ML	CO
GI, Cathartics & Laxatives	6505013201707	37000002404	PSYLLIUM HYDROPHILIC MUCILLOID W/ASPARTAME ORANGE 5.2GM	PG
GI, Cathartics & Laxatives	6505014459665	00182151376	PSYLLIUM HYDROPHILIC MUCILLOID WITH SUCROSE 390 GRAMS	CO
GI, Cathartics & Laxatives	6505006198215	00536741551	SODIUM PHOSPHATES ENEMA USP DISP ENEMA UNIT 4-1/2 FL OZ (133	BT
GI, Emetics	650901505878	38779176400	APOMORPHINE HYDROCHLORIDE POWDER 500MG BOTTLE	BT
GI, Emetics	6505009269197	00574001201	IPECAC SYRUP USP 7% 30ML	BT
GI, Antiemetics	6505013916108	00004023909	GRANISETRON HYDROCHLORIDE INJECTION 1MG/ML 1ML VIAL	VI
GI, Antiemetics	6505014120324	00004024126	GRANISETRON HYDROCHLORIDE TABLETS 1MG 20S	PG
GI, Antiemetics	6505014120329	00004024133	GRANISETRON HYDROCHLORIDE TABLETS 1MG 2S	PG
GI, Antiemetics	6505009262111	00536399001	MECLIZINE HYDROCHLORIDE TABLETS USP CHEWABLE 25 MG 100S	BT
GI, Antiemetics	6505013366184	00173044200	ONDANSETRON HYDROCHLORIDE INJECTION 2MG/ML 20ML VIAL	VI
GI, Antiemetics	6505012303931	00007335216	PROCHLORPERAZINE EDISYLATE INJECTION USP 5MG/ML 2ML AMPUL	PG
GI, Antiemetics	6505013541042	00172369160	PROCHLORPERAZINE MALEATE 10MG TABLET 100S	BT
GI, Antiemetics	6505013541042	00172369160	PROCHLORPERAZINE MALEATE 10MG TABLET 100S	BT
GI, Antiemetics	6505001335214	00007336203	PROCHLORPERAZINE SUPPOSITORIES USP 25MG ADULT RECTAL I.S.	BX
GI, Antiemetics	6505014562380	00067434504	SCOPOLAMINE HYDROBROMIDE 1.5MG/72HR PATCH 12S	PG
GI, Antiemetics	6505008901819	00182142719	TRIMETHOBENZAMIDE 200MG SUPPOSITORIES 50S	BX
GI, Misc. Drugs	6505013547000	00149075202	MESALAMINE DELAYED-RELEASE TABLETS 400MG 100S	BT
GI, Misc. Drugs	6505011309358	00093220301	METOCLOPRAMIDE HYDROCHLORIDE 10MG TABLET 100S (REGLAN)	BT
GI, Misc. Drugs	6505012683738	00031670978	METOCLOPRAMIDE INJECTION USP 5MG/ML 2ML VIAL 25 PER PACKAGE	PG
GI, Misc. Drugs	6505012971448	00172443160	MISOPROSTOL 200MCG TABLET 100S (CYTOTEC)	BT
GI, Misc. Drugs	6505013142716	00186074231	OMEPRAZOLE EXTENDED-RELEASE CAPSULES 20MG 30 CAPSULES	BT
GI, Misc. Drugs	6505015055803	62856024330	RABEPRAZOLE SODIUM 20MG TABLET DR 30S	BT
GI, Misc. Drugs	6505014939575	62856024390	RABEPRAZOLE SODIUM 20MG TABLET DR 90S	BT

GI, Misc. Drugs	650501208595	00173036238	RANITIDINE INJECTION USP 25MG/ML 2ML SINGLE DOSE VIAL	PG
GI, Misc. Drugs	6505013714331	00173036301	RANITIDINE INJECTION USP 25MG/ML 6ML VIAL	VI
GI, Misc. Drugs	6505011607702	00781188360	RANITIDINE TABLETS USP 150MG 60 TABLETS PER BOTTLE	BT
GI, Misc. Drugs	6505011607702	00781188360	RANITIDINE TABLETS USP 150MG 60 TABLETS PER BOTTLE	BT
Heavy Metal Antagonists	6505002705278	00089051006	EDETATE CALCIUM DISODIUM INJECTION USP 200MG/ML 5ML AMPUL	PG
Adrenal Hormones	6505009042190	00085056605	BETAMETHASONE SODIUM PHOSPHATE & ACETATE SUSP STER	VI
Adrenal Hormones	6505009635355	00641227341	DEXAMETHASONE SODIUM PHOSPHATE INJECTION 4MG/ML 5ML	VI
Adrenal Hormones	6505009635355	00641227341	DEXAMETHASONE SODIUM PHOSPHATE INJECTION 4MG/ML 5ML	VI
Adrenal Hormones	6505014926420	00517490525	DEXAMETHASONE SODIUM PHOSPHATE INJECTION 4MG/ML 5ML 25S	PG
Adrenal Hormones	6505015049359	00173049400	FLUTICASONE PROPIONATE 110MCG AEROSOL INHALER W/ADAPTER	EA
Adrenal Hormones	6505015049461	00173049500	FLUTICASONE PROPIONATE 220MCG AEROSOL INHALER W/ADAPTER	EA
Adrenal Hormones	6505009515533	00009090908	HYDROCORTISONE SODIUM SUCCINATE FOR INJECTION USP 250 MG	VI
Adrenal Hormones	650501233761	00009028002	METHYLPREDNISOLONE ACETATE INJECTABLE SUSP USP 40MG/ML	VI
Adrenal Hormones	6505012337616	00009028002	METHYLPREDNISOLONE ACETATE INJECTABLE SUSP USP 40MG/ML	VI
Adrenal Hormones	6505012321987	00009079601	METHYLPREDNISOLONE SOD SUCCINATE F/INJ USP 2GRAMS IN 50ML	PG
Adrenal Hormones	6505011080808	00009338901	METHYLPREDNISOLONE SODIUM SUCCINATE FOR INJECTION USP	CO
Adrenal Hormones	6505011080809	00009019009	METHYLPREDNISOLONE SODIUM SUCCINATE FOR INJECTION USP	CO
Adrenal Hormones	6505014925896	00009019016	METHYLPREDNISOLONE SODIUM SUCCINATE FOR INJECTION USP	PG
Adrenal Hormones	6505011315619	00009005604	METHYLPREDNISOLONE TABLETS USP 4MG I.S. 21 TABLETS (MEDROL	PG
Adrenal Hormones	6505012683713	53014025001	PREDNISOLONE SOD PHOSPHATE 6.7MG/5ML (5MG/5ML	BT
Adrenal Hormones	650501190628		PREDNISOLONE SODIUM SUCCINATE STERILE VETERINARY 100MG	VI
Adrenal Hormones	6505011460539	00364046105	PREDNISONE TABLETS USP 10MG 500 TABLETS PER BOTTLE	BT
Adrenal Hormones	6505011460539	00364046105	PREDNISONE TABLETS USP 10MG 500 TABLETS PER BOTTLE	BT
Adrenal Hormones	6505011561840	00054872525	PREDNISONE TABLETS USP 10MG I.S. 100 TABLETS PER PACKAGE	PG
Adrenal Hormones	6505010729666	00591544301	PREDNISONE TABLETS USP 20MG 100 TABLETS PER BOTTLE	BT
Adrenal Hormones	6505012069233	00075006037	TRIAMCINOLONE ACETONIDE 100MCG AEROSOL INHALER W/ADAPTER	PG
Adrenal Hormones	6505012104472	00003029320	TRIAMCINOLONE ACETONIDE INJECTABLE SUSP USP 40MG/ML 5ML	VI
Contraceptive Hormones	6505013717067	00052026106	DESOGESTREL 150MCG AND ETHINYL ESTRADIOL 30MMCG TABLETS	PG
Contraceptive Hormones	6505015049526	50419043312	LEVONORGESTREL - ETHINYL ESTRADIOL 6-5-10 TRIPHASIC, 28	PG
Contraceptive Hormones	6505014493829	00008257602	LEVONORGESTREL 0.1mg - ETHINYL ESTRADIOL 20mcg, 28 TABLET	PG
Contraceptive Hormones	6505015053329	00071091548	NORETHINDRONE 1MG AND ETHINYL ESTRADIOL 20MCG TABLET 5S	PG
Contraceptive Hormones	6505013652363	52544025928	NORETHINDRONE 1MG AND ETHINYL ESTRADIOL 35MCG 28 TABLET	PG
Contraceptive Hormones	6505015062659	00062178115	NORETHINDRONE AND ETHINYL ESTRADIOL TRIPHASIC 7 DAYS EACH	PG
Contraceptive Hormones	6505015062599	00062190315	NORGESTIMATE AND ETHINYL ESTRADIOL TRIPHASIC 7 DAYS EACH	PG
Contraceptive Hormones	6505011479542	00008251402	NORGESTREL 300MCG AND ETHINYL ESTRADIOL TABLETS 30MCG 28	PG
Estrogens	6505013811253	00087075442	ESTRADIOL 0.01% VAGINAL CREAM USP 1.5OZ TUBE WITH	EA
Estrogens	6505015092200	64248031001	ESTRADIOL 0.025MG/24HOUR PATCH, 8S (ESCLIM)	PG
Estrogens	6505015092202	64248032001	ESTRADIOL 0.0375MG/24HOUR PATCH, 8S (ESCLIM)	PG
Estrogens	6505015092197	64248033001	ESTRADIOL 0.05MG/24HOUR PATCH, 8S (ESCLIM)	PG
Estrogens	6505015092195	64248034001	ESTRADIOL 0.075MG/24HOUR PATCH, 8S (ESCLIM)	PG
Estrogens	6505015092196	64248035001	ESTRADIOL 0.1MG/24HOUR PATCH, 8S (ESCLIM)	PG
Estrogens	6505006861029	00046074905	ESTROGENS CONJUGATED FOR INJECTION FREEZE-DRIED POWDER	PG
Estrogens	6505005840412	00046086791	ESTROGENS CONJUGATED TABLETS USP 0.625MG 1000S	BT
Estrogens	6505005840413	00046086781	ESTROGENS CONJUGATED TABLETS USP 0.625MG 100S	BT
Insulins	6505012154825	00169183311	INSULIN HUMAN INJECTION MODIFIED 100UN/ML 10ML VIAL	VI
Insulins	6505012171244	00169183411	INSULIN HUMAN ISOPHANE SUSPENSION 100USP UN/ML 10ML VIAL	VI
Sulfonylureas	6505011980075	00781145301	GLIPIZIDE 10MG TABLET 100S	BT
Sulfonylureas	6505011966212	00781145201	GLIPIZIDE 5MG TABLET 100S	BT
Sulfonylureas	6505012197968	00009017107	GLYBURIDE 5MG TABLETS, 1000S	BT
Misc. Antidiabetic Agents	6505014667505	00002803101	GLUCAGON FOR INJECTION USP 1 MG UNIT FOR EMERGENCY USE	EA
Misc. Antidiabetic Agents	6505014667508	00002808501	GLUCAGON FOR INJECTION USP 1 MG UNIT FOR EMERGENCY USE	EA
Misc. Antidiabetic Agents	6505014139610	00087606005	METFORMIN HYDROCHLORIDE TABLETS 500MG 100 TABLETS PER	BT
Misc. Antidiabetic Agents	6505014139608	00087607005	METFORMIN HYDROCHLORIDE TABLETS 850MG 100 TABLETS PER	BT
Misc. Antidiabetic Agents	PENDING	00029315818	ROSIGLITAZONE MALEATE 2MG TABLETS, 60S (AVANDIA)	BT
Misc. Antidiabetic Agents	PENDING	00029315918	ROSIGLITAZONE MALEATE 4MG TABLETS, 60S (AVANDIA)	BT
Pituitary Hormones	6505012247450	00703505103	DESMOPRESSIN ACETATE INJECTION 4MCG/ML 1ML/AMPUL	PG
Pituitary Hormones	6505006848625	00517102025	VASOPRESSIN INJECTION USP 1ML VIAL 10 VIALS PER PACKAGE	PG
Progestins	6505014619942	00009074630	MEDROXYPROGESTERONE ACETATE INJECTABLE SUSP 150MG/ML	VI
Progestins	6505013715203	00009074635	MEDROXYPROGESTERONE ACETATE INJECTABLE SUSP 150MG/ML,	PG
Progestins	6505008901355	00009005002	MEDROXYPROGESTERONE ACETATE TABLETS USP 10MG 100	BT
Thyroid Agents	6505010429260	00048107005	LEVOTHYROXINE SODIUM 100MCG TABLET 1000s	BT
Thyroid Agents	6505013400152	00048107003	LEVOTHYROXINE SODIUM 100MCG TABLET 100s	BT
Thyroid Agents	6505012213297	00456032001	LEVOTHYROXINE SODIUM 25MCG TABLET 100s	BT
Thyroid Agents	6505011561807	00048104003	LEVOTHYROXINE SODIUM 50MCG TABLET 100s	BT
Thyroid Agents	6505013660962	00048105005	LEVOTHYROXINE SODIUM 75MCG TABLET 1000s	BT
Thyroid Agents	6505011885387	00456032201	LEVOTHYROXINE SODIUM 75MCG TABLET 100s	BT
Local Anesthetics	6505011893973	00961123050	BUPIVACAINE 0.5% AND EPINEPHRINE (1:200,000) 0.005MG/ML	CN
Local Anesthetics	6505001493503	00074174650	BUPIVACAINE HCL 0.25%/EPINEPHRINE 1:200000 50ML VIAL 5S	BX
Local Anesthetics	6505011277946	00074156029	BUPIVACAINE HCL 0.5% INJECTION 30ML 10S	PG
Local Anesthetics	6505012125338	00074176102	BUPIVACAINE HCL 0.75%/DEXTROSE 8.25% SPINAL INJECTION 2ML 10S	PG
Local Anesthetics	6505001387347	00074161050	BUPIVACAINE HYDROCHLORIDE 0.5% INJECTION 50ML VIAL	VI
Local Anesthetics	6505014554200	00186011501	LIDOCAINE HYDROCHLORIDE 1% & EPINEPHRINE INJECTION USP	EA
Local Anesthetics	6505005986116	00517062525	LIDOCAINE HYDROCHLORIDE 1% INJECTION USP 50ML BOTTLE	BT
Local Anesthetics	6505011534229	00186014501	LIDOCAINE HYDROCHLORIDE 1% INJECTION USP 50ML MDV 5S	PG
Local Anesthetics	6505014478094	00074427602	LIDOCAINE HYDROCHLORIDE 1% INJECTION USP 50ML VIAL 25S	PG
Local Anesthetics	6505011461139	00186017514	LIDOCAINE HYDROCHLORIDE 2% & EPINEPHRINE 1:100,000 INJECTION	PG
Local Anesthetics	6505011482431	00186012201	LIDOCAINE HYDROCHLORIDE 2% & EPINEPHRINE 1:200,000 INJECTION	PG
Local Anesthetics	6505011482431	00186012201	LIDOCAINE HYDROCHLORIDE 2% & EPINEPHRINE 1:200,000 INJECTION	PG
Local Anesthetics	6505011467793	00186018014	LIDOCAINE HYDROCHLORIDE 2% & EPINEPHRINE 1:50,000 INJECTION	PG
Local Anesthetics	6505013720180		LIDOCAINE HYDROCHLORIDE 2% & EPINEPHRINE 1:50,000 INJECTION	PG

Local Anesthetics	6505011065499	00186024044	LIDOCAINE HYDROCHLORIDE 2% INJECTION USP 10ML AMPULE 5S	PG
Local Anesthetics	6505005986117	00186012001	LIDOCAINE HYDROCHLORIDE 2% INJECTION USP 20ML VIAL	VI
Local Anesthetics	6505005986117	00186012001	LIDOCAINE HYDROCHLORIDE 2% INJECTION USP 20ML VIAL	VI
Local Anesthetics	6505013445265	00074471201	LIDOCAINE HYDROCHLORIDE 5% & DEXTROSE 7.5% INJECTION SPINAL	PG
Local Anesthetics	6505009141742	00074104130	MEPIVACAINE HYDROCHLORIDE 1.5% INJECTION 30ML VIAL	VI
Local Anesthetics	6505012429149	00186044014	MEPIVACAINE HYDROCHLORIDE 3% INJECTION USP 1.8ML DENTAL	PG
Local Anesthetics	6505011533015	00074184906	TETRACAINE HYDROCHLORIDE STERILE USP 20MG AMPUL 100	PG
Oxytocics	6505013265251	00009085608	CARBAPROST TROMETHAMINE INJECTION 250MG/ML, 1ML AMPULE,	PG
Oxytocics	6505001161374	00078005303	METHYLERGONOVINE MALEATE INJECTION USP 0.2MG/ML 1ML AMPUL	PG
Oxytocics	6505008718309	00078005405	METHYLERGONOVINE MALEATE TABLETS USP 0.2MG 100S	BT
Oxytocics	6505015050773	63323001201	OXYTOCIN 10 UNIT/ML 1ML VIAL 25S	PG
Oxytocics	6505015050773	63323001201	OXYTOCIN 10 UNIT/ML 1ML VIAL 25S	PG
Serums	6505081381272	IND	ANTIVENIN ANTIREPTILIAN 10ML 10S (SNAKE ANTIREPT)	PG
Serums	6505015062998	00281033010	ANTIVENIN CROTALIDAE POLYVALENT FAB (OVINE) VIAL, PKG OF 2S	PG
Serums	6505015062998	00281033010	ANTIVENIN CROTALIDAE POLYVALENT FAB (OVINE) VIAL, PKG OF 2S	PG
Serums	6505011667821	00006408400	ANTIVENIN LATRODECTUS MACTANS 6000UNITS 2ML VIAL	PG
Serums	6505013059160	00008040703	ANTIVENIN MICRURUS FULVIUS USP EASTERN CORAL SNAKE	PG
Serums	6505081391255	IND	ANTIVENIN SCORPION 1ML 20S (SCORPIFV)	PG
Serums	6505014228065	IND	ANTIVENIN VIPERA BERUS	PG
Serums	6505010526862	00026063605	GLOBULIN HEPATITIS B IMMUNE USP 5 ML BOTTLE	BT
Serums	6505014717306	00026063504	GLOBULIN IMMUNE USP SINGLE DOSE VIAL 2 ML	EA
Serums	6505010670807	00026061810	GLOBULIN RABIES IMMUNE 150 UNIT PER ML 10ML VIAL	VI
Serums	6505011455223	00026061802	GLOBULIN RABIES IMMUNE 150 UNIT PER ML 2ML VIAL	VI
Serums	6505014171250	00026063102	GLOBULIN RHO (D) IMMUNE USP 300 MCG SYRINGE 1S	EA
Serums	6505013327888	00026063470	GLOBULIN TETANUS IMMUNE USP SYRINGE-NEEDLE UNIT 10S	PG
Serums	6505014983196	00026063402	GLOBULIN TETANUS IMMUNE USP SYRINGE-NEEDLE UNIT 1S	EA
Serums	6505010532600	IND : AAC - X	GLOBULIN VACCINIA IMMUNE USP 5 ML BOTTLE	BT
Toxoids	6505013348792	49281027510	DIPHThERIA AND TETANUS TOXOIDS ADSORBED USP PEDIATRIC 5ML	VI
Toxoids	6505002998296	49281027183	TETANUS AND DIPHThERIA TOXOIDS FOR ADULT USE ADSORBED USP	BT
Toxoids	6505006855189	49281080083	TETANUS TOXOID ADSORBED USP 5ML VIAL	VI
Vaccines	6505013996828	CENTRALLY	ANTHRAX VACCINE 5ML VIAL (6.1 ML +/- 0.2 ML) 10 DOSE	VI
Vaccines	650501332578		DISTEMPER-ADENOVIRUS TYPE 2-PARAINFLUENZA-PARVOVIRUS	PG
Vaccines	6505014876302	58160085001	HEPATITIS A 720 EL UNITS & HEPATITIS B 20MCG/ML VACCINE	EA
Vaccines	6505014320379	00006484138	HEPATITIS A VIRUS VACCINE INACTIVATED 50 UNITS/1ML SDV, 5/PG	PG
Vaccines	6505014320378	00006484438	HEPATITIS A VIRUS VACCINE INACTIVATED 50 UNITS/1ML SYRINGE	PG
Vaccines	6505015029962	00006499500	HEPATITIS B VIRUS VACCINE RECOMBINANT 10MCG/ML 1ML SDV	VI
Vaccines	6505014696084	00006498000	HEPATITIS B VIRUS VACCINE RECOMBINANT PEDIATRIC 5mcg/0.5ml	VI
Vaccines	6505013561194	49281068020	JAPANESE ENCEPHALITIS VACCINE 10 DOSE PACKAGE	PG
Vaccines	6505013806465	49281068030	JAPANESE ENCEPHALITIS VACCINE 3 VIALS PER PACKAGE	PG
Vaccines	6505001656519	00006468100	MEASLES MUMPS & RUBELLA VIRUS VACCINE LIVE SINGLE DOSE	PG
Vaccines	6505014611546	49281048991	MENINGOCOCCAL POLYSACCHARIDE VAC GRPS A,C,Y&W-135	PG
Vaccines	6505010920391	00006473900	PNEUMOCOCCAL VACCINE POLYVALENT 2.5 ML VIAL 5 DOSES PER	VI
Vaccines	6505014910528	49281086010	POLIOVIRUS VACCINE INACTIVATED MODIFIED 10 DOSE VIAL	VI
Vaccines	6505010916063	49281025010	RABIES VACCINE HUMAN DIPLOID CELL STRAIN 1 DOSE	PG
Vaccines	650501332579		RABIES VACCINE VETERINARY KILLED VIRUS 50 VIALS PER PACKAGE	PG
Vaccines	6505009038173	CENTRALLY	SMALLPOX VACCINE USP 100 DOSES WITH DILUENT AND NEEDLES	PG
Vaccines	6505013246964	58337000301	TYPHOID VACCINE LIVE CAPSULES 4 CAPSULES PER PACKAGE	PG
Vaccines	6505013856328	49281079020	YELLOW FEVER VACCINE MODIFIED 10ML VIAL 20 DOSES	VI
Vaccines	6505012036289	49281091505	YELLOW FEVER VACCINE USP 5DOSE VIAL	VI
Topical Antibiotics	6505001596625	00168001135	BACITRACIN OINTMENT USP 7100 UNITS 0.5OZ (15 GM) TUBE	TU
Topical Antibiotics	6505014933826	00168002109	BACITRACIN ZINC AND POLYMYXIN B SULFATE OINT USP 1/32OZ	PG
Topical Antibiotics	6505013543148	00009332901	CLINDAMYCIN PHOSPHATE 1% TOPICAL LOTION 60ML	BT
Topical Antibiotics	6505011406450	00472098791	CLINDAMYCIN PHOSPHATE 1% TOPICAL SOLUTION 30ML	BT
Topical Antibiotics	6505013682863	58016645701	CLINDAMYCIN PHOSPHATE 2% VAGINAL CREAM/APPL 40GM	PG
Topical Antibiotics	6505011849140	00472124492	ERYTHROMYCIN BASE 2% IN ETHANOL TOPICAL SOLUTION 60ML	BT
Topical Antibiotics	6505000623337	45802004635	GENTAMICIN SULFATE OINTMENT USP 15GM TUBE	TU
Topical Antibiotics	6505014805678	00029152544	MUPIROICIN 2% OINTMENT 22GM	TU
Topical Antibiotics	6505012394666	00168001235	NEOMYCIN SULFATE/BACITRACIN/POLYMYXIN B SULFATE OINTMENT	TU
Topical Antibiotics	6505012394666	00168001235	NEOMYCIN SULFATE/BACITRACIN/POLYMYXIN B SULFATE OINTMENT	TU
Topical Antifungals	6505000749912	00603780176	CLIOQUINOL 3% & HYDROCORTISONE 1% CREAM 20GM	TU
Topical Antifungals	6505010235011	51672200201	CLOTRIMAZOLE CREAM USP TOPICAL 1% 15GM	TU
Topical Antifungals	6505010151405	51672200202	CLOTRIMAZOLE CREAM USP TOPICAL 1% 30GM	TU
Topical Antifungals	6505012028086	17314940001	CLOTRIMAZOLE TROCHES 10MG 70 TROCHES PER BOTTLE	BT
Topical Antifungals	6505013876167	00395100391	GENTIAN VIOLET 1% TOPICAL SOLUTION, USP, 30ML	BT
Topical Antifungals	6505015063483	00062543005	MICONAZOLE 3-DAY COMBINATION PACK 3 X 200MG VAGINAL SUPP &	PG
Topical Antifungals	6505010393467	00062543402	MICONAZOLE NITRATE 2% CREAM 15GM, 24S	PG
Topical Antifungals	6505010601864	00062543401	MICONAZOLE NITRATE 2% CREAM 30GM, 24S	PG
Topical Antifungals	6505010498881	00904773457	MICONAZOLE NITRATE 2% VAGINAL CREAM W/APPL 45GM	PG
Topical Antifungals	6505012157753	00472173803	MICONAZOLE NITRATE 200MG VAGINAL SUPPOSITORIES 3-DAY	PG
Topical Antifungals	6505014910799	00067399885	TERBINAFINE 1% CREAM 24GM	TU
Topical Antifungals	6505013559491	00536515026	TOLNAFTATE POWDER USP 45GM BOTTLE WITH DISPENSER TOP	PG
Topical Antifungals	6505009262241	45802003385	TOLNAFTATE TOPICAL SOLUTION USP 1% 10 ML	BT
Topical Antifungals	6505010083054	00235095602	UNDECYLENIC ACID AND ZINC UNDECYLENATE POWDER 45GM	CO
Scabicides / Pediculocides	6505001160200	00072210360	CROTAMITON CREAM USP 10% 60GM	TU
Scabicides / Pediculocides	6505012564972	00472524267	PERMETHRIN 1% LIQUID (CREAM RINSE) 60ML	BT
Scabicides / Pediculocides	6505013218812	62794013106	PERMETHRIN 5% CREAM 60GM	TU
Scabicides / Pediculocides	650501147945	74300000412	PYRETHRINS AND PIPERONYL BUTOXIDE SOLUTION 2OZ BOTTLE	PG
Misc. Topical Anti-infectives	6505011534431	00234058504	CHLORHEXIDINE GLUCONATE 0.5% CLEANSING SOLUTION 118ML	BT
Misc. Topical Anti-infectives	6505011534431	00234058504	CHLORHEXIDINE GLUCONATE 0.5% CLEANSING SOLUTION 118ML	BT
Misc. Topical Anti-infectives	6505015063449	00234058717	CHLORHEXIDINE GLUCONATE 0.5% CLEANSING TOWELETTE 5ML, 50S	PG

Misc. Topical Anti-infectives	6505010538620	00310057591	CHLORHEXIDINE GLUCONATE 4% SURGICAL DETERGENT 1GL PLASTIC	BT
Misc. Topical Anti-infectives	6505010453255	00310057532	CHLORHEXIDINE GLUCONATE 4% SURGICAL DETERGENT 32FL OZ	BT
Misc. Topical Anti-infectives	6505011013759	00310057508	CHLORHEXIDINE GLUCONATE 4% SURGICAL DETERGENT 8FL OZ	BT
Misc. Topical Anti-infectives	6505001161750	00024153508	HEXACHLOROPHENE 3% CLEANSING EMULSION USP 1GL (3780ML)	BT
Misc. Topical Anti-infectives	6505001490746	00024153548	HEXACHLOROPHENE 3% CLEANSING EMULSION USP 5 FL OZ (148 ML)	PG
Misc. Topical Anti-infectives	650500116175	00024153508	HEXACHLOROPHENE CLEANSING EMULSION USP 1GL OR 3.780LI	BT
Misc. Topical Anti-infectives	6505012694288		ISOPROPYL ALCOHOL GEL 55% 800ML PLASTIC BOTTLE 12S	PG
Misc. Topical Anti-infectives	6505006558366	00395124916	ISOPROPYL RUBBING ALCOHOL 70% 1 PT (473 ML)	BT
Misc. Topical Anti-infectives	650500655836	00395124916	ISOPROPYL RUBBING ALCOHOL USP 1 PT (473 ML)	BT
Misc. Topical Anti-infectives	6505014917013	62794010151	MAFENIDE ACETATE 8.5% CREAM 120GM	TU
Misc. Topical Anti-infectives	6505001050824	62794010154	MAFENIDE ACETATE 8.5% CREAM 454GM	CN
Misc. Topical Anti-infectives	6505001050824	62794010154	MAFENIDE ACETATE 8.5% CREAM 454GM	CN
Misc. Topical Anti-infectives	6505013665847	00089020025	METRONIDAZOLE 0.75% VAGINAL GEL 70GM TUBE WITH APPLICATOR	PG
Misc. Topical Anti-infectives	6505013300177	00034232080	POVIDONE-IODINE 0.3% DOUCHE 8FL OZ CONTAINER 6S	PG
Misc. Topical Anti-infectives	6505009947224	00034220001	POVIDONE-IODINE CLEANSING SOLUTION USP 7.5% 1GL (3780ML)	BT
Misc. Topical Anti-infectives	650500994722	00034220001	POVIDONE-IODINE CLEANSING SOLUTION USP 7.5% 1GL OR 3.780LI	BT
Misc. Topical Anti-infectives	6505004917557	00034220004	POVIDONE-IODINE CLEANSING SOLUTION USP 7.5% 4 FL OUNCES OR	BT
Misc. Topical Anti-infectives	6510010297352	00034213580	POVIDONE-IODINE IMPREGNATED TOPICAL PADS 10 x 100S	PG
Misc. Topical Anti-infectives	6505001487096	00034234003	POVIDONE-IODINE OINT USP 10% 1/8OZ (3.54 GRAM) I.S. 144S	PG
Misc. Topical Anti-infectives	6505009143593	00034210002	POVIDONE-IODINE TOPICAL SOL USP 10% 1/2 FL OZ (14.8 ML) 50S	PG
Misc. Topical Anti-infectives	6505010672812	00034210040	POVIDONE-IODINE TOPICAL SOLUTION USP 10% 120ML	BT
Misc. Topical Anti-infectives	6505007540374	00603155060	POVIDONE-IODINE TOPICAL SOLUTION USP 10% 1GL (3780ML)	BT
Misc. Topical Anti-infectives	650500754037	00603155060	POVIDONE-IODINE TOPICAL SOLUTION USP 1GL (3.780 LITER)	BT
Misc. Topical Anti-infectives	6505002998671	45802004064	SELENIUM SULFIDE LOTION/SHAMPOO 2.5% 118ML	BT
Misc. Topical Anti-infectives	6505011617135	52544081052	SULFADIAZINE SILVER CREAM 1% TOPICAL 20GM	TU
Misc. Topical Anti-infectives	6505005607331	00591081046	SULFADIAZINE SILVER CREAM 1% TOPICAL 400GM	JR
Misc. Topical Anti-infectives	650500560733	00591081046	SULFADIAZINE SILVER CREAM 1% TOPICAL 400GM JAR	JR
Misc. Topical Anti-infectives	6505012804733	00591081085	SULFADIAZINE SILVER CREAM 1% TOPICAL 85GM	TU
Topical Anti-inflammatory	6505010937968	00469705460	AMCINONIDE CREAM USP 0.1% 60GM	TU
Topical Anti-inflammatory	6505012299098	00472040015	CLOBETASAL PROPIONATE 0.05% CREAM 15GM	TU
Topical Anti-inflammatory	6505012299097	00472040115	CLOBETASAL PROPIONATE 0.05% OINTMENT 15GM	TU
Topical Anti-inflammatory	6505012299095	00472040130	CLOBETASAL PROPIONATE 0.05% OINTMENT 30GM	TU
Topical Anti-inflammatory	650501200729		DIMETHYL SULFOXIDE INJECTION 50ML VIAL	VI
Topical Anti-inflammatory	6505011870129	28105014904	FLUOCINOLONE ACETONIDE 0.01% OIL 120ML (DERMA-SMOOTH/FS)	BT
Topical Anti-inflammatory	6505001490160	00093026215	FLUOCINONIDE CREAM 0.05%, 15GM	TU
Topical Anti-inflammatory	6505010222647	00093026492	FLUOCINONIDE OINTMENT 0.05% 60GM	TU
Topical Anti-inflammatory	6505012198558	00093026639	FLUOCINONIDE TOPICAL SOLUTION 0.05% 60ML, 12S (LIDEX)	BT
Topical Anti-inflammatory	6505013100810	00603812711	HEMORRHOIDAL SUPPOSITORIES WITH HYDROCORTISONE ACETATE	PG
Topical Anti-inflammatory	6505010483407	00066009501	HYDROCORTISONE 2.5% CREAM 28.4GM	TU
Topical Anti-inflammatory	6505010802904	00091069010	HYDROCORTISONE ACETATE AND PRAMOXINE HYDROCHLORIDE	PG
Topical Anti-inflammatory	6505009262095	00168001531	HYDROCORTISONE CREAM USP 1% 1 OZ (28.35 GM)	TU
Topical Anti-inflammatory	6505011749931	00168002031	HYDROCORTISONE OINTMENT 1% TOPICAL 1OZ TUBE	TU
Topical Anti-inflammatory	6505006828194	00168000415	TRIAMCINOLONE ACETONIDE CREAM 0.1% 15 GM	TU
Topical Anti-inflammatory	6505009268913	51672126705	TRIAMCINOLONE ACETONIDE DENTAL PASTE USP 5GM	TU
Topical Anti-inflammatory	6505006041567	00168000680	TRIAMCINOLONE ACETONIDE OINTMENT 0.1%, 80GM	TU
Antipruritics and Local	6505011103955	10223020101	BENZOCaine BUTAMBen AND TETRACaine HCL TOPICAL AEROSOL	PG
Antipruritics and Local	6505002999535	00168004631	DIBUCAINE OINTMENT USP 1% 1OZ TUBE WITH RECTAL APPLICATOR	PG
Antipruritics and Local	6505012816758	00496071604	HYDROCORTISONE ACETATE AND PRAMOXINE HYDROCHLORIDE	EA
Antipruritics and Local	6505013850530	00186151601	LIDOCaine 2.5% & PRILOCAINE 2.5% CREAM 30GM TUBE, 12S	PG
Antipruritics and Local	6505007854357	001680020437	LIDOCaine OINTMENT USP 5% 35 GM	TU
Antipruritics and Local	6505001388461	53265019610	PHENAZOPYRIDINE HYDROCHLORIDE TABLETS USP 100MG 100	BT
Astringents	6505012505714	16500002311	ALUMINUM ACETATE SOLUTION TABLETS EFFERVESCENT I.S. 12S	PG
Astringents	6505008901633	16500002312	ALUMINUM ACETATE TABLETS FOR TOPICAL SOLUTION I.S. 100s	PG
Astringents	6505013624958	59366271004	ALUMINUM CHLORIDE 20% TOPICAL SOLUTION 37.5ML	BT
Astringents	6505010616582	D378-0324	ALUMINUM CHLORIDE ORAL SOLUTION 25% 10 ML	BT
Astringents	6505012935580	51284046802	TANNIC ACID GEL 7% 0.25OZ TUBE (ZILACTIN 7% GEL 1.2GM)	TU
Astringents	6508015056492	00501410099	WITCH HAZEL & GLYCERIN MEDICATED PADS 100S	PG
Cell Stimulants & Proliferants	6505014629897	00062027523	TRETINOIN 0.1% CREAM USP 20 GRAM TUBE	TU
Basic Lotions	6505013761771	45802052555	AMMONIUM LACTATE 12% LOTION 225ML	BT
Basic Lotions	650500687453	00182603037	CALAMINE LOTION PHENOLATED USP 4 FL OZ (118 ML) BOTTLE	BT
Basic Lotions	6505006874535	00182603037	CALAMINE LOTION USP 4 OUNCES OR 120 ML	BT
Basic Lotions	6505014568889	00395041396	CALAMINE LOTION USP 6 OUNCES OR 180 ML	BT
Basic Lotions	6508010197181	00072910008	EMOLLIENT LOTION 240ML (MOISTUREL)	BT
Basic Lotions	6508014341725	58291000202	EMOLLIENT LOTION, UNSCENTED 2 FL OZ BOTTLE, 100s (DERM APPLY)	PG
Basic Lotions	6505011414883	10356009004	MINERAL OIL & WHITE PETROLATUM CREAM 4 OZ (EUCERIN)	JR
Keratolytic Agents	6505011479555	00536409256	BENZOYL PEROXIDE 10% GEL 45GM	TU
Keratolytic Agents	6505011132627	00072690505	BENZOYL PEROXIDE 5% WASH 150ML	BT
Keratolytic Agents	6505014143705	00574060115	PODOPHYLLUM RESIN TOPICAL SOLUTION USP 15ML BOTTLE	BT
Keratolytic Agents	6505015056009	45802023663	SALICYLIC ACID 15% LIQUID 15ML	BT
Misc. Skin & Mucous	6505015087798	00299591545	ADAPALENE CREAM 0.1%, 45GM (DIFFERIN)	TU
Misc. Skin & Mucous	6505015087672	00299591045	ADAPALENE GEL 0.1%, 45GM (DIFFERIN)	TU
Misc. Skin & Mucous	6505014141821	46414888802	BENZOIN TINCTURE COMPOUND USP 0.6ML CRUSHABLE AMPUL	PG
Misc. Skin & Mucous	6505002617257	00395024316	BENZOIN TINCTURE COMPOUND USP 1 PINT OR 473 MILLILITERS	CN
Misc. Skin & Mucous	6505015086865	00072026012	CALCIPOTRIENE CREAM 0.005%, 120GM (DOVONEX)	TU
Misc. Skin & Mucous	6505015086857	00072254012	CALCIPOTRIENE OINTMENT 0.005%, 120GM (DOVONEX)	TU
Misc. Skin & Mucous	6505015086897	00072116006	CALCIPOTRIENE SOLUTION 0.005%, 60ML (DOVONEX)	BT
Misc. Skin & Mucous	6505011760723	00145041107	COAL TAR 2.5% SHAMPOO 360ML (POLYTAR), 12S	PG
Misc. Skin & Mucous	6505013508164	00536138912	HEMORRHOIDAL SUPPOSITORIES ADULT RECTAL 12S	PG
Misc. Skin & Mucous	6505014504582	00089061002	IMIQUIMOD CREAM 5% 250MG PACKET 12 PACKETS PER PACKAGE	PG
Misc. Skin & Mucous	650500153880	00168020536	LUBRICANT SURGICAL 4 OZ (113.4 GM)	TU

Misc. Skin & Mucous	6505001538809	00168020536	LUBRICANT SURGICAL 4 OZ (113.4 GM)	TU
Misc. Skin & Mucous	6505001117829	00168020545	LUBRICANT SURGICAL 5 GRAM 144S	BX
Misc. Skin & Mucous	6505015095343	00078037563	PIMECROLIMUS 1% CREAM, 100GM (ELIDEL)	TU
Misc. Skin & Mucous	6505015095349	00078037546	PIMECROLIMUS 1% CREAM, 30GM (ELIDEL)	TU
Misc. Skin & Mucous	6505013384710	55515010101	PODOFILOX 0.5% SOLUTION 3.5ML (CONDYLOX)	BT
Misc. Skin & Mucous	6505014837162	00021008400	SKIN EXPOSURE REDUCTION PASTE AGAINST CHEMICAL WARFARE	EA
Sunscreen Agents	6840012882188		INSECT REPELLENT AND SUNSCREEN PREPARATION SPF-15 2 OZ	BT
Sunscreen Agents	6505011212336	00072937004	SUNSCREEN PREPARATION SPF 15 4OZ BOTTLE	BT
Sunscreen Agents	6505013938410	00072930111	SUNSCREEN PREPARATION SPF-30 8 HOUR WATERPROOF 4OZ	BT
Sunscreen Agents	6505015063435	00869080126	SUNSCREEN PREPARATION SPF-30, WATER-RESISTANT, SWEAT-	BT
Sunscreen Agents	6505015070601	Part # 20101	SUNSCREEN TOWELETTE, SPF-30, 10" X 8", 300S (SPWIPES LARGE)	PG
Sunscreen Agents	6505015070599	Part # 00124	SUNSCREEN TOWELETTE, SPF-30, 8" X 5", 300S (SPWIPES SMALL)	PG
Sunscreen Agents	650500150199	00168006231	ZINC OXIDE OINTMENT USP 1 OZ (28.35 GM)	TU
Sunscreen Agents	6505001501990	00168006231	ZINC OXIDE OINTMENT USP 1 OZ (28.35 GM)	TU
Genitourinary Smooth Muscle	6505010352358	52544077901	OXYBUTYRIN CHLORIDE 5MG TABLET 100S	BT
Respiratory Smooth Muscle	6505001059500	00517381025	AMINOPHYLLINE 250MG/10ML VIAL 25S	PG
Respiratory Smooth Muscle	650500105950	00517381025	AMINOPHYLLINE INJECTION USP 25MG PER ML 10ML AMPUL 25 PER	BX
Respiratory Smooth Muscle	6505010836613	00258358301	THEOPHYLLINE EXTENDED-RELEASE TABLETS 200MG 100	BT
Respiratory Smooth Muscle	6505010375607	00258358101	THEOPHYLLINE EXTENDED-RELEASE TABLETS 300MG 100	BT
Vitamin A	6505014781148	00904426060	VITAMIN A CAPSULES USP 25,000 INTERNATIONAL UNITS 100S	BT
Vitamin B Complex	6505006874049	00517013001	CYANOCOBALAMIN INJECTION USP 1000 MICROGRAMS PER ML 10 ML	VI
Vitamin B Complex	6505000430985	00143124810	FOLIC ACID 1MG TABLET 1000S	BT
Vitamin B Complex	6505001384995	00536440801	PYRIDOXINE HYDROCHLORIDE TABLETS USP 50MG 100S	BT
Vitamin B Complex	6505015094411	63323001302	THIAMINE HYDROCHLORIDE INJECTION USP 100MG/ML 2ML VIAL 25/PK	PG
Vitamin B Complex	6505001472618	00536467801	THIAMINE HYDROCHLORIDE TABLETS USP 50MG 100 TABLETS PER	BT
Vitamin K Activity	650500854249	00006778064	PHYTONADIONE INJECTION 10 MG 1ML 6S	BX
Vitamin K Activity	6505008542499	00006778064	PHYTONADIONE INJECTION 10 MG 1ML 6S	BX
Multivitamin Preparations	6505010076116	17236066801	MULTIVITAMIN AND MINERAL TABLETS 100 TABLETS PER BOTTLE	BT
Multivitamin Preparations	6505015063544	64731079401	MULTIVITAMIN AND MINERAL TABLETS 100 TABLETS PER BOTTLE	BT
Multivitamin Preparations	6505014731125	00186119941	MULTIVITAMIN SOLUTION FOR INJECTION 10ML VIAL 10 PER PACKAGE	PG
Multivitamin Preparations	6505010602393	00182442801	MULTIVITAMIN TABLETS 100 TABLETS PER BOTTLE	BT
Multivitamin Preparations	6505012041824	00074892850	MULTIVITAMIN, FLUORIDE, & IRON SOLUTION, PEDIATRIC, 50ML (VI-	BT
Unclassified Therapeutics	6505010043952	00591554401	ALLOPURINOL 300MG TABLET 100S	BT
Unclassified Therapeutics	6505012978701		CALCIUM HYDROXIDE USP POWDER FORM 2OZ BOTTLE	BT
Unclassified Therapeutics	6505009036210		CASTILE SOAP FOR ENEMA PREPARATION, 2/3 OUNCE PACKET 500S	PG
Unclassified Therapeutics	6505014823067	63653117101	CLOPIDOGREL BISULFATE 75MG TABLET 90S (PLAVIX)	BT
Unclassified Therapeutics	6505006874053	00143120101	COLCHICINE 0.6MG TABLET 100S	BT
Unclassified Therapeutics	6530014988128		DISINFECTANT SURFACE BROMINE CHLORINE TABLETS, 4 BOXES, 16S,	PG
Unclassified Therapeutics	6520013578533		DRESSING DRY SOCKET STERILE RADIOPAQUE, 5.5" LONG,	PG
Unclassified Therapeutics	6505011533440		FERRIC SUBSULFATE SOLUTION USP 16 OZ BOTTLE	BT
Unclassified Therapeutics	6505014578620	62161000334	FOMEPIZOLE INJECTION 1GM/ML 1.5 ML VIAL TRAY PACKS OF FOUR	PG
Unclassified Therapeutics	6505012184447		FORMALDEHYDE 48.5% & CRESOL 48.5% SOLUTION 2FL OZ BOTTLE	BT
Unclassified Therapeutics	6508014360607		LIPSTICK ANTICHAP COLD OR HOT CLIMATE SPF 15 4.4GM STICK	PG
Unclassified Therapeutics	6508015087243	Part# 86630	LIPSTICK ANTICHAP COLD OR HOT CLIMATE SPF-30, 0.15oz. STICK,	PG
Unclassified Therapeutics	6505011425596	00517037370	METHYLENE BLUE INJECTION USP 1% 10ML AMPUL 25 PER PACKAGE	PG
Unclassified Therapeutics	6505015049756	00006011731	MONTELUKAST SODIUM 10MG TABLET 30S (SINGULAIR)	BT
Unclassified Therapeutics	6505001301920		NITROUS OXIDE USP SIZE D CYLINDER 250GL	EA
Unclassified Therapeutics	6505001301940		NITROUS OXIDE USP SIZE M CYLINDER 2000GL	EA
Unclassified Therapeutics	6505014548566		NITROUS OXIDE USP STEEL CYLINDER 7LBS LIQUID NITROUS OXIDE	EA
Unclassified Therapeutics	6505009652439		OXYGEN USP 99% 24GL DISPOSABLE STEEL CYLINDER WITH FACE	PG
Unclassified Therapeutics	650500132518		OXYGEN USP 99% CYLINDER TYPE D 95GL	EA
Unclassified Therapeutics	6505001325181		OXYGEN USP 99% CYLINDER TYPE D 95GL	EA
Unclassified Therapeutics	6505001325199		OXYGEN USP 99% CYLINDER TYPE H 1650 GALLON	EA
Unclassified Therapeutics	6505001330870	00395201591	PEPPERMINT OIL NF 1 OZ (28.35 GRAM)	BT
Unclassified Therapeutics	6505014390933		PERFLUOROCARBON LIQUID PURIFIED 5ML VIAL 3 VIALS PER PACKAGE	PG
Unclassified Therapeutics	6508008526597	193930009800	SOAP ANTISEPTIC CAKE 2 TO 3 OZ (57TO85 GRAM) 200S	PG
Unclassified Therapeutics	650501362831		SODA LIME NF 2.5LB CARTRIDGE 12 PER PACKAGE	PG
Unclassified Therapeutics	6505013628311		SODA LIME NF 2.5LB CARTRIDGE 12 PER PACKAGE	PG
Unclassified Therapeutics	6505006873654		SODA LIME NF 37LB (16.79 KG)	CN
Unclassified Therapeutics	6505015061804	Part # S62264	SODIUM SULFATE POWDER, 500GM BOTTLE	BT
Unclassified Therapeutics	6505014979964		SOLUTION SURGICAL (IODINE 0.7% & ISOPROPYL ALCOHOL 74%)	PG
Unclassified Therapeutics	6505001470000		TALC USP 1 LB	CN
Pharmaceutical Aids	6505001050000		ALCOHOL DEHYDRATED USP 1 PT (473 ML) BOTTLE	BT
Pharmaceutical Aids	6505001049000		ALCOHOL USP 5 GALLONS	DR
Pharmaceutical Aids	6505001538379	17317001602	EUGENOL USP BOTTLE 1OZ OR 23.35GM	BT
Pharmaceutical Aids	6505002545527	00168005321	PETROLATUM WHITE USP 30GM	TU
Pharmaceutical Aids	6505011562171	00074799009	WATER FOR INJECTION STERILE USP 1000 ML 12S	CX
Pharmaceutical Aids	6505005825079	00074488720	WATER FOR INJECTION STERILE USP VIAL WITH FLIP TOP 20 ML 25/PK	PG
Pharmaceutical Aids	6505005825079	00074488720	WATER FOR INJECTION STERILE USP VIAL WITH FLIP TOP 20 ML 25/PK	PG
Unclassified Veterinary Agents	650501485620		EUTHANASIA SOLUTION, VETERINARY 250ML BOTTLE	PG
Unclassified Veterinary Agents	650501199197		NYSTATIN NEOMYCIN SULF THIOSTREPTON&TRIAMCINOLONE	TU
Unclassified Veterinary Agents	650501185419		XYLAZINE INJECTION USP VETERINARY 100MG/ML 50ML VIAL	VI
Unclassified Veterinary Agents	650501162154		XYLAZINE INJECTION USP VETERINARY 20MG PER ML 20ML VIAL	VI
Antidotes	6505014578901	11098052201	ANTIDOTE TREATMENT KIT CYANIDE 6 TREATMENTS	EA
Antidotes	6505011436411	11098050701	ANTIDOTE TREATMENT KIT CYANIDE SINGLE TREATMENT	EA
Antidotes	6505011749919	MIL-UNIQUE	ANTIDOTE TREATMENT KIT NERVE AGENT	EA
Antidotes	6505013627427	MIL-UNIQUE	ANTIDOTE TREATMENT NERVE AGENT AUTOINJECTOR (ATNAA)	EA
Antidotes	6505009269083	MIL-UNIQUE	ATROPINE INJECTION AQUEOUS TYPE 0.7ML SYRINGE WITH NEEDLE	EA
Antidotes	6505011253248	MIL-UNIQUE	PRALIDOXIME CHLORIDE FOR INJ 300MG/ML 2ML AUTOMATIC	EA
Antidotes	650501080198	00641037406	PRALIDOXIME CHLORIDE STERILE USP 1 GM 6S	BX

Appendix E-Medical Course of Action Tool Workbook (Shahbaz, 1999)

Division Estimator (WIA and DNBI)

Blue cells are user input areas, yellow cells are formulas and are locked so the user can't change them, green cells are information cells, and cells with red arrows in the corner have a "pop up" help window.

Step 1, enter the security classification. Don't process classified materiel on unclassified computers!

Security Classification		Unclassified	
Enter the data into the light blue area. Place your cursor over the red triangle for help.			
Yellow cells are "output" and those cells are protected.			
Division and Below Estimate			
Battle Casualty Estimate			
Dupuy's Attrition	Code	Description	Data
Population At Risk	N	Enter the troop population data	0
Terrain Factor	rc	Casualty rates decrease as the terrain becomes more restrictive	1
Weather Factor	hc	Casualty rates decrease as the weather becomes more restrictive	1
Posture Factor	uc	Casualty rates decrease for well prepared defenders that are able to hold their positions	1
Strength Factor	tz	Casualty rates decrease as the size of the unit increases e.g. divisions tend to have a lower rate than infantry platoons	1
Opposition Factor	op	Casualty rates decrease when the combat effectiveness of a force increases (when compared to the enemy's effectiveness)	1
Surprise Factor	Su	Casualty rates decrease if a unit is able to avoid being surprised by the enemy	1
Sophistication Factor	so	Casualty rates decrease when a unit has superior equipment (when compared to the enemy's equipment).	1
Pattern of Operation	PO	Casualty rates tend to DECREASE as the enemy front becomes more disrupted during friendly offensive operations	0.04
This is the equation that is used to determine the casualty numbers. Casualties = PO (N x rc x hc x uc x tz x op x Su) x so			
Total Battle Casualty Estimate The casualty data will show up in the yellow area.			
Battle Casualty Rate as a percentage of the force		0.00%	
KCMIA	16%	0	
WIA	84%	0	
Total Battle Casualties per day		0	
Airborne Insertion	2%	0	
Number of Airborne Soldiers		0	
Sum of Total Battle Casualties per day		0	
Disease & Non-Battle Injury Estimate			
Population at Risk		0	
DNBI Factor		2.58	
Non-Battle Injuries		0	
Disease		0	
DNBI Casualties per day		0	
Total Casualties Requiring Treatment per day		0	
Unclassified			

Step 2, Enter the troop population for your unit. Include everyone operating in your Area of Responsibility.

Step 3, select the appropriate terrain, weather, posture, and strength factor. The strength factor should approximate the population number.

Step 4, push the Calculate Combat Effectiveness Button. Go to next page for instruction on this area.

Step 5, select the appropriate surprise (the enemy surprising you), equipment, and operation pattern. See Annex A for description of operational pattern.

Step 6, select the appropriate percentage for Killed, Captured and Missing in Action.

Step 7, Enter the number of soldiers that parachute into the battle and select the appropriate percentage for day or night.

Step 8, Use the Visualization Tool to look at the credible casualty range that resulted from the WIA estimate.

Step 9, select the appropriate factors that describe the operation location (i.e. division area) and the geographic location (i.e. South Korea). This determines the Disease & Non-Battle Injury rate.

Step 10, The Total Casualties Requiring Treatment per day is the sum of the Battle Casualties and DNBI casualties.

Combat Effectiveness Calculator

Step 1, Enter the number of battalions that will be involved in the fight by type of unit.

Step 2, Adjust the factors that are provided are for training purposes only, they are derived from CGSC Student Text 100-3. These factors must be updated with operational factors based on the Intelligence Officers assessment of friendly and enemy capabilities.

Step 3, Enter the strength of the units that are involved in the fight.

Step 4, Repeat steps 1,2 & 3 for the enemy forces.

Friendly Forces						Enemy Forces					
Unit Type	# of BNs	Factor	Combat Power	% Strength	Relative Cbt Pwr	Unit Type	# of BNs	Factor	Combat Power	% Strength	Relative Cbt Pwr
M1A1	0	1.19	0.00	100%	0.00	T72	0	0.50	0.00	100%	0.00
M1A2	2	1.21	2.42	100%	2.42	T80	1	0.77	0.77	100%	0.77
M2A1	1	1.00	1.00	100%	1.00	Indep. Tank (T-80)	0	1.05	0.00	100%	0.00
M2A2	0	1.00	0.00	100%	0.00	BMP-1/2	0	0.65	0.00	100%	0.00
M3A1	0	1.50	0.00	100%	0.00	BMP-3	3	0.77	2.31	100%	2.31
M3A2	0	1.50	0.00	100%	0.00	BTR-50/60	0	0.35	0.00	100%	0.00
Division Cav Sqn	0	2.60	0.00	100%	0.00	BTR-70/80	0	0.60	0.00	100%	0.00
Lt. Infantry	1	0.48	0.48	100%	0.48	AT BN (BRDM w/AT-5)	0.5	1.00	0.50	100%	0.50
Airborne Infantry	0	0.73	0.00	100%	0.00	Lt. Infantry	0	0.42	0.00	100%	0.00
Air Assault Infantry	0	0.70	0.00	100%	0.00	Airborne Infantry	0	0.51	0.00	100%	0.00
Div Cav Sqn, Lt	0	0.70	0.00	100%	0.00	Air Assault Infantry	0	0.42	0.00	100%	0.00
Attk Helo (AH-1/OH-58D)	0	2.10	0.00	100%	0.00	Attk Helo (Hokum/Havok)	0	2.70	0.00	100%	0.00
Attk Helo (AH-64/OH-58D)	0	4.00	0.00	100%	0.00	Attk Helo (Hind-E)	0	2.05	0.00	100%	0.00
M102	0	0.80	0.00	100%	0.00	2S1	0	0.71	0.00	100%	0.00
M119	0	0.80	0.00	100%	0.00	2S3	0	0.85	0.00	100%	0.00
M109A3	0	1.00	0.00	100%	0.00	2S5	2	0.88	1.76	100%	1.76
M109A6	2	1.20	2.40	100%	2.40	2S7	0	1.02	0.00	100%	0.00
M198	0	0.80	0.00	100%	0.00	BM21	1	2.94	2.94	100%	2.94
MLRS	0.25	4.60	1.15	100%	1.15	BM22	0	3.50	0.00	100%	0.00
ATACMS (B-2)	0	7.50	0.00	100%	0.00	2A65	0	0.84	0.00	100%	0.00
ATACMS (B-1)	0	8.80	0.00	100%	0.00	9P148/2A45M AT	0		0.00	100%	0.00
Division ADA	0	0.20	0.00	100%	0.00	9A52	0	4.50	0.00	100%	0.00
Patriot	0	0.59	0.00	100%	0.00	ZU23/SA18	0	0.76	0.00	100%	0.00
Morale/Training/Discipline		3			1.00	Morale/Training/Discipline		3.00			1.00
Defense Factor		1			1.00	Defense Factor		1			1.00
Total Friendly			7.45		7.45	Total Enemy			8.28		8.28

0.90 Select this factor on the estimator.

Even Match

Enter the number of friendly and enemy units that will be involved in the operation. The Combat Power Factor is from Command and General Staff College Student Text 100-3. The Combat Power factor can be changed to reflect different equipment (Check with the Intel Officer!).

Return to Estimator

Step 5, Examine the ratio of friendly to enemy forces. Push the "Return to Estimator" button to return to the estimator.

Patient Flow Worksheet

			Unclassified	
			Casualty Flow	
Total number of Division patients requiring treatment			105	
Total number of Corps patients requiring treatment			0	
Total number of EAC patients requiring treatment			0	
Total number of patients requiring treatment			105	
Patient Flow				
Level 1 Arrivals	105	Default Values		
Level 1 RTD DNBI	3	10.00%	of DNBI	
Level 1 RTD WIA	10	15.00%	of WIA	
Level 1 Evacuated to Level 2	92			
Level 2 RTD DNBI	29	85.00%	of remaining DNBI	
Level 2 RTD WIA	12	20.00%	of WIA	
Level 2 FST cases	9	15.00%	of WIA	
Level 2 Evacuated to Level 3	51			
Corps Level 2 Treated	0			
Corps Level 2 RTD DNBI	0	85.00%	of remaining DNBI	
Corps Level 2 RTD WIA	0	25.00%		
Corps Level 2 Evac. To Level 3	0			
Level 3 Admissions	51			
Level 3 RTD DNBI	2	45.00%	of remaining DNBI	
Level 3 RTD WIA	5	10.00%		
Level 3 Surgical cases	23	50.00%	of WIA	
Level 3 Evacuated to Level 4	44			
EAC Level 2 Treated	0			
EAC Level 2 RTD DNBI	0	80.00%	of remaining DNBI	
EAC Level 3 RTD WIA	0	0.00%		
EAC Level 2 Evac. To Level 4	0			
Level 4 Admissions	44			
Level 4 RTD	0	45.00%	of remaining DNBI	
Level 4 RTD WIA	0	0.00%		
Level 4 Surgical cases	0	80.00%	of WIA	
Level 4 Evacuated	44			
			Unclassified	

Step 1. Adjust the RTD values at level 1, 2 and 3 as a result of the mission analysis.

Battalion Aid Station Workload Estimates

Step 1, Enter the duration of the operation. This should be the length of time that soldiers are at risk of becoming WIA casualties as a result of being in the "red zone" fight.

Step 2, Select where the expected peak casualty arrival will occur; early (Airborne mission), middle (Movement to Contact), or late (Deliberate Attack).

Step 3, (Must enter at least "1" in each area!)

a. Enter the distance that the evacuation vehicles will have to travel in Kilometers.

b. Enter the number of evacuation vehicles, by type, the average number of patients and the average speed of the vehicle. Account for the time required to load and unload patients when determining the average speed.

Duration of Mission (Hours) Recommend a minimum of 10 hours

	Urgent	Priority	Routine
Casualty Distribution	30%	40%	30%

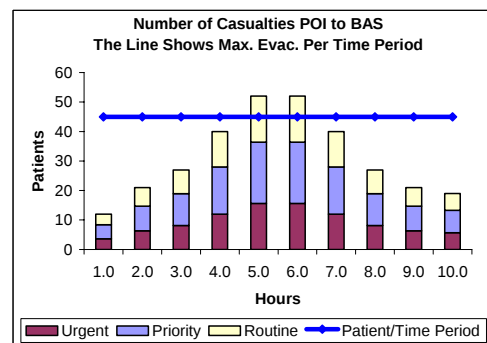
Workload Factors Echelon 1 (BAS)

Minimum Required

Point Of Injury to Echelon 1	311	
Ground Distance from CCP to BAS km	10	
Air Distance from CCP to BAS km	1	
Number of Ground Ambulances	15	10
Number of patients per ambulance	3	
Ground Ambulance Speed km/hr	20	
Number of Nonstandard Ground Vehicles	1	0
Number of patients per vehicle	1	
Nonstandard Vehicle Speed km/hr	1	
Number of Air Ambulances	1	0
Number of patients per ambulance	1	
Air Ambulance Speed km/hr	1	
Number of Nonstandard Aircraft	1	0
Number of patients per aircraft	1	
Aircraft Speed km/hr	1	
Percentage of Patients to go by Ground Amb.	100.00%	
Percentage of Patients to go by NS Ground	0.00%	
Percentage of Patients to go by Air Amb.	0.00%	
Percentage of Patients to go by NS Air	0.00%	100.00%
Time required for Ground Amb. Patient Evac hrs	6.91	7
Time required for NS ground Patient Evac hrs	0.00	0
Time required for Air Amb. Patients Evac hrs	0.00	0
Time required for NS air Patients Evac hrs	0.00	0

Expected Peak Arrival of Casualties

- ☐ Early in the Mission
☒ In the Middle of the Mission
☐ Late in the Mission



Step 4, Select the percentage of patients to be transported by each method. The total must add up to 100%. If there is a method that will not be used, i.e. air ambulance, then enter 0%.

Step 5, Examine the minimum evacuation duration. This is the minimum time required to move the casualties if they all showed up at the same time. The user should adjust the evacuation percentage to order to reduce the

Step 6, Look at the number of round trips necessary to evacuate the casualties. Determine if this number of round trips is feasible (escorts required and available?)

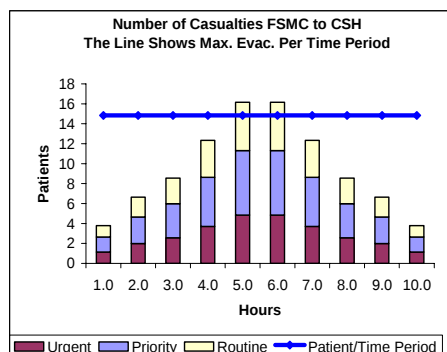
Step 7, Use this chart to determine if there any evacuation shortfalls. The blue line is the maximum evacuation capability and the bars are the number of casualties per time period. If the bars are above the line, casualties exceed evacuation requirements.

Combat Support Hospital Workload Estimates

Step 1, (Must enter at least one in each area!)

- Enter the distance that the evacuation vehicles will have to travel in Kilometers.
- Enter the number of evacuation vehicles, by type, the average number of patients and the average speed of the vehicle. Account for the time required to load and unload patients when determining the average speed.

Workload Factors Echelon 3 (MedGroup & Div / Corps Surgeon)		Unclassified
Number of Patients Requiring Evacuation	95	Minimum Required
Ground Distance from FSMC to CSH km	120	
Air Distance from FSMC to CSH km	120	
Number of Ground Ambulances	10	4
Number of patients per ambulance	4	
Ground Ambulance Speed km/hr	35	
Number of Nonstandard Ground Vehicles	1	0
Number of patients per vehicle	1	
Nonstandard Vehicle Speed km/hr	1	
Number of Air Ambulances	2	2
Number of patients per ambulance	6	
Air Ambulance Speed km/hr	180	
Number of Nonstandard Aircraft	1	0
Number of patients per aircraft	1	
Aircraft Speed km/hr	1	
Percentage of Patients to go by Ground Amb.	25.00%	
Percentage of Patients to go by NS Ground	0.00%	
Percentage of Patients to go by Air Amb.	75.00%	
Percentage of Patients to go by NS Air	0.00%	100.00%
Time required for FSMC Ground Amb. Patient Evac hrs	4.07	
Time required for FSMC NS ground Patient Evac hrs	0.00	
Time required for FSMC Air Amb. Patients Evac hrs	7.92	
Time required for FSMC NS air Patients Evac hrs	0.00	



Step 2, Select the percentage of patients to be transported by each method. The total must add up to 100%. If there is a method that will not be used, i.e. air ambulance, then enter 0%.

Step 3, Examine the minimum evacuation duration. This is the minimum time required to move the casualties if they all showed up at the same time. The user should adjust the evacuation percentage to order to reduce the required time as much as possible.

Step 4, Look at the number of round trips necessary to evacuate the casualties. Determine if this number of round trips is feasible (escorts required and available?)

Step 1, Enter the number of patients that can be treated using one Trauma Treatment Set, Sick Call Set, and/or Forward Surgical Team Set. The more patients that can be treated per set, the less resupply that will be required.

Number of Patients Treated per Trauma Treatment Medical Equipment Set					40
Number of Patients Treated per Sick Call Medical Equipment Set					40
Number of Patients Treated per Forward Surgical Team Set					30
Unit	WIA/NBI pts		lbs of Class VIII	MRS Trauma Treatment	
Division Echelon I	172	11	lbs/pt	1883	4.30
Division Echelon II	172	11	lbs/pt	1883	4.30
Corps Echelon II	0	11	lbs/pt	0	0.00
EAC Echelon II	0	11	lbs/pt	0	0.00
					8.60
Unit	Disease pts		lbs of Class VIII	MRS Sick Call	
Division Echelon I	8	5	lbs/pt	38	0.20
Division Echelon II	7	5	lbs/pt	33	0.18
Corps Echelon II	0	5	lbs/pt	0	0.00
EAC Echelon II	0	5	lbs/pt	0	0.00
					0.38
Unit	WIA/NBI pts		lbs of Class VIII		
FST, Div. Level	26	73	lbs/pt	1898	
FST/Ech II Blood	WIA/NBI pts		Units of	Blood Group	Units Required
Red Blood Cells	172	47.70	units/cpt	82	O+ 70
					O- 12
Total Weight (st)					
0.96	Division Echelon I				
0.96	Division Echelon II				
0.95	FST				
0.00	Corps Echelon II				
0.00	EAC Echelon II				
0.08	Blood, Ice, Administration Sets & Insulated Shipping Container				
2.95	Total Weight (st)				

Step 2, Enter the units of blood per patient that will be required. A study conducted by the International Committee of the Red Cross recommends 47.7 units per one hundred patients for casualties treated by a surgical team. This study was published in the British Journal of Anesthesia, 1992; 68: 221-223.

Step 3, The total short tons of class VIII required to support this patient load is provided in this area.

Appendix F-Iraq Humanitarian and Reconstruction Assistance

(Recreated from USAID Weekly Update #19, FY 04)

Agency	Implementing Partner	Sector	Region	Amount
USAID/ANE				..\$1.9B
	Abt Associates	Health	Countrywide	\$20.9M
	AFCAP	Log	Countrywide	\$91.5M
	Army Corps Engineers	Engineering	Countrywide	\$16.5M
	BearingPoint	Econ	Countrywide	\$47.5M
	Bechtel National	Infra	Countrywide	\$1.28B
	Community Action Program	Development	Countrywide	\$70.0M
	DAI	Marshlands	Countrywide	\$4.00M
	DAI	Agriculture	Countrywide	\$5.00M
	Fed Source	Personnel	Countrywide	\$ 163K
	IRG	Reconstruction	Countrywide	\$29.1M
	RTI	Local Gov	Countrywide	\$ 155M
	CAII	Education	Countrywide	\$47.1M
	UNICEF	Health/Water	Countrywide	\$35.7M
	UNICEF	Education	Countrywide	\$7.00M
	UNESCO	Textbooks	Countrywide	\$10.0M
	WHO	Health	Countrywide	\$10.0M
	SSA	Port Mgmt	Umm Qasr	\$14.3M
	SkyLink	Airport Mgmt	Baghdad	\$27.2M
	MSI	Monitoring	Countrywide	\$5.50M
	University Partners	Education	Universities	\$20.7M
	Yankee Group	Telecoms	Countrywide	\$58.1K
USAID/OFDA				..\$86.9M
	Administrative	Admin	Countrywide	\$6.84M
	AirServ	Logistics	Countrywide	\$5.31M
	ARC	Disaster Spt	Al Basrah	\$ 537K
	The Cuny Center	Research	Countrywide	\$40.2K
	GOAL	Nutrition	Al Muthanna	\$1.51M
	International Dispensary	Health	Countrywide	\$1.28M
	InterAction	Coordination	Kuwait City	\$92.8K
	IOM	IDP Programs	Countrywide	\$5.00M
	Logistics	Commodities	Countrywide	\$12.0M
	UNICEF	Health	Countrywide	\$4.00M
	UN OCHA	Coordination	Countrywide	\$1.20M
	USAID Amman	Water Activity	Countrywide	\$ 500K
	WFP	Logistics	Countrywide	\$5.00M
	IMC	Food, Health	Countrywide	\$10.7M
	IRC	Health, water	Countrywide	\$4.99M
	Mercy Corps	Health	Countrywide	\$7.00M
	SCF/US	Food, Health	Countrywide	\$6.88M
	World Vision	Health, Log	Countrywide	\$4.99M
	CARE	Water, Health	Countrywide	\$9.00M
USAID/FFP				..\$425M
	WFP	Operations	Countrywide	\$45.0M
	WFP	Emerson Trust	Countrywide	\$40.3M
	WFP	Food	Countrywide	\$ 140M
	WFP	Purchases	Countrywide	\$ 200M

Appendix G—Supply Chain Management Software Survey Table of Functions Cross-Tabbed by Methodology (Aksoy & Derbez, 2003)

	Optimization	Simulation	Decision Support	Execution	Data Collection
Auctions				2, 9, 25	2, 9
Automatic Replenishment	1, 6, 7-9, 12, 13, 17-19, 25, 27, 29	1, 3, 6, 8, 12, 13, 17-19, 23, 26, 29	1, 3, 6, 7-9, 12, 13, 17-19, 23, 25-27, 29, 30	1, 2, 4-6, 7-9, 12, 13, 22, 23, 25-28	4, 6, 7, 9, 13, 22, 23, 25-27
Benchmarking	1, 16, 27	1, 3, 18, 23, 29	3, 5, 18, 21, 23, 27, 29	1, 2, 16, 27	27
Contracts	16, 27	3, 4, 7, 18, 23, 29	3, 4, 8, 9, 16-18, 21, 23, 27, 29	2, 4, 8, 9, 12, 16, 23, 25, 27, 28	9, 23, 27
Cross-Docking	1, 8, 13	1, 3, 23	1, 3, 8, 12, 13, 22, 23	1, 4, 8, 12, 13, 22, 23	12, 13, 22, 23
Customer Relationship Management	1, 4, 7, 12, 14	1, 3, 4, 12, 14, 23	1, 3, 4, 7, 9, 12-14, 21-23, 30	1, 2, 7, 9, 12, 14, 22, 27, 28	7, 9, 12, 22, 23, 27
Cycle Time Reduction	1, 7, 8, 12, 13, 16, 18, 29	1, 3, 4, 8, 13, 18, 29	1, 3, 7-9, 12, 13, 18, 21, 23-26, 29	1, 4, 5, 7-9, 12, 16, 22-24	4, 7-9, 13, 22-25, 26
Distribution Requirements Planning (DRP)	1, 4, 6, 8, 12, 13, 17, 18, 29	1, 3, 4, 6, 8, 13, 17, 18, 23, 26, 29	1, 3, 4, 6, 8, 13, 14, 17, 18, 21, 23, 26, 29, 30	1, 4-6, 12-14, 23, 26, 28	6, 13, 23, 26
E-Commerce	4, 7, 13	3, 4, 7, 13, 23, 24	3, 7, 9, 13, 14, 23, 24	2, 4, 7, 9, 12-14, 22, 24	7, 9, 12, 13, 22-24, 27
Electronic Funds Transfer (EFT)				2, 9	9, 24
Enterprise Resource Planning (ERP)	2, 4, 12, 14, 23, 27	3, 4, 12, 14, 23	2-4, 9, 12, 14, 21, 23, 26, 27	2, 4, 9, 12, 14, 23, 27	5, 9, 12, 23, 26, 27
Environmental / Green Concerns			21, 23		23
E-Procurement	1, 2, 4, 8, 25	1, 3, 23	1-3, 8, 9, 12, 14, 21, 23, 25	1, 2, 4, 5, 8, 9, 12, 14, 23, 25, 27	9, 23-25, 27
Facility Location	8, 11-13, 17, 18, 20, 27, 29	4, 8, 12, 13, 17, 18, 29	4, 8, 11, 12-14, 17, 18, 21, 27-29	11, 27	11, 27

Forecasting	1, 2, 4, 6-9, 12-14, 17-19, 23, 29	1, 4, 6, 8, 9, 12-14, 17-19, 23, 26, 29	1, 6-9, 12-14, 17-19, 21, 23, 26, 29, 30	1, 2, 4-6, 8, 9, 12-14, 22, 23, 26	6, 8, 9, 12, 13, 22, 23, 26, 30
Inventory Management	1, 2, 4, 6-9, 12, 13, 15, 17-20, 22, 23, 27, 29	1, 3, 4, 6, 8, 9, 12, 13, 15, 17-19, 23, 26, 29	1, 2-4, 6-9, 12, 13-15, 17-19, 21, 22-27, 29, 30	1, 2, 4-6-9, 12-14, 22-24, 26-28, 30	2, 4, 6-9, 12, 13, 22-27, 30
Just-in-Time (JIT) Deliveries	8, 12, 13, 16, 17, 18, 23, 29	3, 8, 12, 13, 17, 18, 23, 29	3, 8, 9, 12, 13, 16-18, 21-25, 29	4, 8, 9, 12, 13, 16, 22, 23, 25	4, 9, 13, 16, 22-25
Logistics Management	4, 7, 8, 12, 13, 16, 17	3, 4, 8, 12, 13, 17, 23	3-5, 8, 12-14, 16, 17, 21-25	4, 7-9, 12, 13, 16, 22, 25	8, 9, 12, 13, 16, 22-25
Logistics Provider Development	4, 8, 13, 16	4, 8, 13, 23	8, 9, 12, 13, 16, 23	7, 9, 12, 16	9, 13, 16, 23, 24
Logistics Provider Selection / Evaluation	8, 12, 13, 16, 20	13, 23	8, 9, 12, 13, 16, 23	7-9, 12, 13, 16	8, 9, 13, 16, 23, 24
Material Requirements Planning (MRP)	1, 4, 6, 8, 9, 12, 14, 17, 20, 23, 27, 29	1, 4, 6, 8, 9, 12, 14, 17, 18, 23, 29	1, 4, 6, 8, 9, 12, 14, 17, 18, 21, 23, 27, 29	1, 4-6, 9, 12, 14, 27, 28	6, 8, 9, 12, 23, 24, 27
Negotiation	16, 25	18, 25, 29	5, 8, 12, 18, 25, 29	2, 7, 8, 12, 16, 25	16, 25
Order Processing	4, 12, 14, 17, 18, 29	3, 4, 9, 12, 17, 18, 23, 29	3-5, 8, 9, 12, 14, 17, 18, 23, 29	2, 4, 8, 9, 12, 14, 22, 23, 28	9, 12, 22-24
Pick & Pack	4, 13, 22, 23	3, 13, 23	3, 5, 9, 13, 14, 21, 22, 23	2, 4, 9, 12, 13, 22, 23	9, 12, 13, 22, 23
Point-of-Sale (POS) Transactions	1	1, 3	1, 3, 5, 23, 30	1, 28	6, 23, 24
Postponement	1, 8, 12, 13, 15	1, 3, 8, 12, 13, 15, 23	1, 3, 8, 12, 13, 15, 21, 23	1, 8, 12, 13, 23	13, 23
Productivity Analysis	1, 4, 12, 13, 20	1, 3, 4, 12, 13, 18, 23, 29	1-4, 7, 9, 12-14, 18, 21, 23, 27, 29	1, 4, 9, 12-14, 23, 28	5, 9, 13, 23, 27
Profitability Analysis	1, 4, 6, 8, 12-14, 17, 18, 29	1, 3, 4, 6, 8, 12-14, 17, 18, 29	1, 2-4, 6, 8, 9, 12-14, 17, 18, 27, 29, 30	1, 6, 9, 12-14	5, 6, 9, 13, 27
Production Scheduling	1, 2, 4, 8, 9, 12-14, 17-20, 23, 29	1, 3, 4, 8, 9, 12-14, 17-19, 23, 29	1, 3, 4, 8, 9, 12-14, 17-19, 21, 23, 29	1, 2, 4, 5, 8, 9, 12-14, 23, 28	9, 13, 17, 23, 24

Reverse Logistics	1, 8, 12, 13, 17	1, 12, 13, 17, 23	1, 5, 8, 13, 17, 21, 23, 24	1, 8, 12, 13, 22, 23, 25	13, 22, 23, 24
Supply Chain Network Design	1, 8, 10-12, 13, 15, 17, 18, 20, 29	1, 3, 8, 12, 13, 15, 17, 18, 29	1, 3, 8-12, 13, 15, 17, 18, 20, 21, 29	1, 9, 12, 13, 28	5, 9-12, 13, 20
Supplier Development	2, 23	3, 23, 25	3-5, 9, 12, 23, 25	9, 12, 25	9, 23
Supplier Selection / Evaluation	2, 8, 13, 20, 23, 25, 27	8, 13, 18, 23, 29	4, 8, 9, 12, 13, 18, 21, 23-25, 27, 29	5, 8, 9, 12, 13, 25, 27	9, 13, 23-25, 27
Supply Management	1, 12, 13, 17, 23	1, 3, 12-14, 17, 18, 23, 26, 29	1, 3, 9, 12-15, 17, 18, 21, 23, 25, 26, 29	1, 5, 9, 12-14, 22, 25, 26	9, 12-14, 22, 23, 25, 26
Total Cost of Ownership (TCO)	4, 12, 13, 22, 25, 27	3, 12, 13, 23	3, 9, 12, 13, 22, 23, 25, 27	9, 12, 13, 22, 25, 27	9, 12, 13, 22, 23, 25, 27
Tracking & Tracing	1, 7, 8, 12, 13, 16	1, 3, 8, 12, 13, 18, 29	1, 3, 4, 7, 8, 12, 13, 16, 22-25	1, 2, 4, 5, 7, 8, 12, 13, 16, 22, 24, 25	7, 12, 13, 16, 22-24
Transportation	4, 8, 10, 12, 13, 16, 17, 20, 22	3, 8, 10, 12, 13, 17, 18, 29	3, 8, 10, 12, 13, 16, 17, 18, 21-24, 29	4, 7, 8, 10, 12, 13, 16, 20, 22	5, 7, 10, 13, 16, 22-24
Vehicle Routing	4, 10, 13, 16	3, 10, 12, 13, 18, 29	3, 10, 12, 13, 16, 21	4, 10, 12, 13, 16, 22	10, 13, 16, 22, 24
Vendor Managed Inventory (VMI)	1, 6, 8, 12, 13, 17, 19, 23, 25, 27	1, 3, 4, 6, 8, 12, 13, 17-19, 23, 26, 29	1, 3, 6, 7-9, 12, 13-15, 17-19, 21-27, 29, 30	1, 4, 5, 6, 7-9, 12, 13, 22-28, 30	6, 9, 13, 22-27, 30
Warehouse Management Systems (WMS)	12-14, 22, 23, 27	12-14, 23	12-14, 21, 22, 23, 27	2, 12-14, 22, 27	5, 12-14, 22-24, 27

(1) Demand Solutions; (2) e by Epicor; (3) e-SCOR; (4) eXeSys Supply Chain Management; (5) FINECHAIN; (6) ForecastX™; (7) HAHT Commerce Suite; (8) i2 Supply Chain Management; (9) IFS Applications; (10) IIT eRoute Logistics; (11) IIT Facility Location Modeler; (12) JD Edwards 5; (13) Logility Voyager Solutions; (14) Made2Manage Supply Chain Management; (15) Multistage Inventory Planning & Optimization; (16) Nistevo Collaborative Logistics Network; (17) OMP Supply Chain Suite; (18) Picaso™; (19) Prescient; (20) SAILS; (21) SeeChain™; (22) Supply Chain Advantage; (23) Supply Chain Direct; (24) Supply Chain Solutions; (25) SupplyWorks MAX; (26) Syncra Xt; (27)

Synergen Series™; **(28)** SYSPRO 6.0; **(29)**. Value Chain Management;
(30) Velocity