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Whether for disaster relief, humanitarian assistance or war, activation of a large operational platform takes many active duty military personnel away from their peacetime positions at Military Health care Treatment Facilities. An activation order may include multiple platforms, and may allow the facility only a few days notice. The larger the hospital and the more numerous the platform requirements, the more difficult it becomes to assess the loss of those personnel from the facility. In that short time, a plan to redistribute remaining staff needs to be produced so that the facility may best continue to serve the beneficiaries and avoid the cost of sending obligated services to the civilian sector at retail prices. The development and use of a database driven tool that helps create just such a plan for the Navy's largest Military Treatment Facility, Naval Medical Center San Diego, California, is examined in this paper.

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Medical Treatment Facility Staffing Loss Effect Estimation Model During Deployment of a Hospital Ship (T-AH).

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Submitted in partial fulfillment of the requirements for the Army-Baylor Degree of Master of Health care Administration

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Abstract

Whether for disaster relief, humanitarian assistance or war, activation of a large operational platform takes many active duty military personnel away from their peacetime positions at Military Health care Treatment Facilities. An activation order may include multiple platforms, and may allow the facility only a few days notice. The larger the hospital and the more numerous the platform requirements, the more difficult it becomes to assess the loss of those personnel from the facility. In that short time, a plan to redistribute remaining staff needs to be produced so that the facility may best continue to serve the beneficiaries and avoid the cost of sending obligated services to the civilian sector at retail prices. The development and use of a database driven tool that helps create just such a plan for the Navy's largest Military Treatment Facility, Naval Medical Center San Diego, California, is examined in this paper.

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Introduction

The Naval Medical Center in Balboa Park, San Diego, is the largest military treatment facility (MTF) in the world. Sitting on 79 acres in Southern California with a staff of over 6,000 active duty, government service and contracted employees, the facility provides care for 260,000 beneficiaries (see Table 1). This tertiary care hospital currently operates 252 beds within its 2.5 million square feet, and has a wartime capacity of 513 beds (NMCSD overview, 2001).

Everyday the Medical Center provides care for approximately 4,000 outpatients, 200 inpatients, 150 emergency department patients and ten new mothers and babies. On the average day the pharmacy fills 6,700 prescriptions, the galley prepares 2,700 meals and security checks 11,000 vehicles as they cross the gate (NMCSD overview, 2001).

Table 1. NMCSD's Patient Population by Beneficiary Category

Beneficiary Category	Number	Percent of total
Active Duty	71,917	27
Active Duty Family Member	72,957	28
Retirees	43,378	17
Retiree Family Member	56,488	22
Other	15,993	6
Total	260,733	100

Note. Represents NMCSD catchment area beneficiaries only.

The Commander of Naval Medical Center, San Diego (NMCSD) is also the Lead Agent for TRICARE Region Nine. Region Nine includes ten additional MTFs; all rely on NMCSD to

provide specialty care for beneficiaries from their catchment areas. The total beneficiary population for Region Nine is 623,000. NMCSD is the Navy's largest graduate medical education (GME) activity as it provides 75 clinical and specialty services (NMCSD overview, 2001).

In addition to the provision of the peacetime health benefit, NMCSD active duty (AD) staff supports a diverse array of operational platforms. The readiness mission of the facility dictates that 66% of AD personnel are assigned to one of the deployable platforms (see Table 2). Staff are assigned a platform in conjunction with their orders to NMCSD. These platforms include USNS MERCY (T-AH 19) hospital ship, the Force Service and Support Group (FSSG), two Fleet Hospitals, three Casualty Receiving and Treatment Ships (CRTS) and a variety of Marine Corps Units. Each assignment is for the duration of the person's tenure at NMCSD and no individual may be simultaneously assigned to more than one platform (BUMEDINST 6440.5B, 2000).

USNS MERCY is the largest of the operational platforms as it requires over 1,200 people for full manning at the highest bed level (1000 beds). In accordance with the Readiness Alignment Plan (RAP), Navy and Marine Corps medical operational platforms such as hospital ships and fleet hospitals are now manned from a single source MTF (Snyder, 1998). The method of manning such a platform provides the benefit of allowing those who deploy together to consistently train together. It builds strong knowledge of the chain of command and familiarity with each individual's responsibilities. Working together day-to-day during peacetime ensures familiarity with one another, which further develops unit cohesion. In short, it puts the "train as you fight" creed into practice.

Table 2. Active Duty Staff Platform Assignment

Platform	Billets authorized	Percent of total NMCSD AD
USNS MERCY	1150	38.4
1st FSSG	267	8.9
Fleet Hospital Bremerton	148	4.9
Fleet Hospital Pendleton	27	0.9
CRTS 1	82	2.7
CRTS 3	83	2.8
CRTS 5	83	2.8
3rd MAW Miramar	43	1.4
3rd MARDIV	53	1.8
Marine Corps Units Detachment	24	0.8
1st MAW Iwakuni, Japan	5	0.2
Total AD staff assigned a platform	1965	66
AD staff not assigned	1026	34
Total AD staff	2991	100

Note. Not all billets called for are filled at any given time.

A less geographically diverse platform-manning plan also simplifies the tracking and provision of readiness training for that staff. Having platform staff drawn from a single medical facility and reserve backfill drawn from that facility's region lends itself well to analysis of different scenarios involving that platform. The remainder of this paper will focus primarily on

analyzing the affect of the staff loss to one or more operational platforms and making estimations of the affect to the beneficiary care provision at NMCSD during such a deployment of a subset of NMCSD's AD staff.

The Military Health Care Benefit (MHCB)

Over the years the Department of Defense (DoD) has assumed greater scope of health benefits for service members and their families. Military medicine originally consisted of emergency care for the service member only. Congress began to legislate increases in the benefit in answer to both morale and readiness concerns. Heinzelman (1997) describes three distinct development phases of the MHCB after World War II. The establishment of the benefit structure and its initial expansion during the years 1956 to 1966 characterizes the first phase. The second phase, 1967 to 1982, was a "status quo" era in which Congress focused its attention on controlling the rising cost of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). The final phase, 1983 to 1996, was dominated by congressional oversight, leading to further expansion of the MHCB and the development of managed care programs (Heinzelman, 1997). The most recent manifestation of the health care benefit is TRICARE.

TRICARE

TRICARE is the DoD's latest effort to control costs, maintain quality and offer a greater choice to the beneficiary. It is offered in three varieties: Standard, Extra or Prime. Standard offers the greatest flexibility by allowing beneficiaries to see any CHAMPUS certified provider. However, it comes with the highest cost share and a low-priority classification for care sought at an MTF. TRICARE Extra is comparable to a preferred provider organization (PPO). A

beneficiary shares in the savings through lower deductibles and cost shares if he or she chooses to use a Prime network provider, but is still free to see any CHAMPUS certified provider if willing to pay the higher cost. The Prime option is a health maintenance organization (HMO) package. Beneficiaries receive a full continuum of care for the lowest out-of-pocket costs. Active duty members are enrolled automatically. Active duty family members must enroll and seek care through a primary care manager (PCM). Retirees under age 65 must enroll, pay an annual enrollment fee and seek care through a PCM. A wealth of detailed information about the program and its benefits may be obtained at the TRICARE Management Activity website at http://www.tricare.osd.mil/.

Conditions That Prompted the Study

Many factors come into play when senior DoD officials consider activation of a large operational platform. Of the many factors, the affect to the source MTF is a fundamental concern. The analysis needed to turn personnel who leave the MTF in support of an operational platform into lost work and finally into increased health care claims cost is a multi-step process. This is due to the loss of personnel and corresponding workload that could be absorbed, or made up for, by the remaining staff and also due to the fact that overhead at the MTF must be considered a sunk cost. Seeing one more or one less patient at the medical center changes cost to the medical center only by the marginal cost of the materials used in that patient's treatment, the buildings and salaries have already been paid for. If that patient is sent to one of the MTF's contracted network providers, the medical center incurs the total "retail" cost of that visit, including their overhead, salaries, etc. Essentially, the MTF pays for overhead twice for every patient it would have otherwise seen in-house.

Currently, no model for making these effect estimations exists. Previous answers to the Chairman of the Joint Chiefs of Staff (CJCS) inquiries were prepared under severe time constraints and sent without full confidence of the assumptions. This paper uses the Hospital ship USNS MERCY and its source hospital, NMCSD as the basis for design and evaluation of this staffing loss effect model.

The hospital ship USNS MERCY (T-AH 19) sails with a full complement of 77 Military Sealift Command ship's operating crew and 1,213 medical support personnel, the majority of whom come from NMCSD's active duty staff. The deployment uproots as many as 30% of the Medical Center's active duty staff with as little as five days notice, causing significant disruption in the MTF's ability to continue to provide the care needed by the Medical Center's many beneficiaries.

Table 3. USNS Mercy Activity Manning Document

Profession	Core/250 Bed	500 Bed	1000 Bed
Physicians	39	54	66
Nurses	85	128	166
Corpsmen	300	443	661
Other	248	260	264
Total	672	885	1157

Note. Numbers reflect positions to be filled by NMCSD staff only.

The estimations are based on little historical precedent. The last major, long-term deployments of USNS MERCY and her sister ship USNS COMFORT (T-AH 20) were during

the Gulf War 12 years ago. At that time, the ships were manned in a very different manner. Sailors from all over the country from many different hospitals were identified as its crew. No single source hospital was used; therefore, none could offer comparable data for the present study. The only other similar useful case involved MERCY as it was home ported in Oakland, California, at the time of the Gulf War. A sizable portion of her manning was drawn from Naval Hospital Oakland. As result of base realignment and closure (BRAC), that hospital no longer exists and no potentially useful data is available. Finally, CHAMPUS has given way to TRICARE in the last decade and the managed care support contract in Southern California has changed hands since 1990, adding to the difficulty in assessing the affect of past deployments.

Statement of the Problem

In the past, the Joint Chiefs of Staff (JCS) have asked Navy Medicine to provide an estimate in the increase cost of continuing to provide care for beneficiaries, through contracts and network providers, given the reduced operating capacity of a medical center in the wake of a large operational platform(s) being deployed (Operational Tasker Received by NMCSD from Chief of Naval Operations (N931) 19 April, 2001). An accurate, flexible effect estimation model could provide the JCS valuable information when making the decision to support humanitarian, military deterrent or training operations and to what degree they should be supported (250, 500 or 1,000 bed configuration for the hospital ship).

Literature Review

USNS MERCY is actually the third hospital ship to bear the name "MERCY". National Steel and Shipbuilding Co., San Diego originally built the current MERCY from an oil tanker,

SS WORTH, built in 1976. Starting in July 1984, she was renamed and converted to a hospital ship by the same company. Launched on 20 July 1985, USNS MERCY was commissioned 08 November 1986 and home ported in Oakland, California.

USNS MERCY Mission

The primary mission of USNS MERCY is to provide rapid, flexible and mobile acute medical and surgical services to support Marine Corps Air/Ground Task Forces deployed ashore, Army and Air Force units deployed ashore, and naval amphibious task forces and battle forces afloat. Her secondary mission is to provide mobile surgical hospital service for use by U.S. Government agencies in disaster or humanitarian relief or limited humanitarian care incident to these missions or peacetime military operations (USNS MERCY homepage, 2001).

To accomplish these missions, the 69,360 ton ship is equipped with the following departments: casualty reception, radiological services, main laboratory plus satellite lab, central sterile receiving, medical supply/pharmacy, physical therapy and burn care, dental services, optometry/lens lab, a morgue, laundry facilities and two oxygen producing plants. Together these departments are able to provide an intensive care ward of 80 beds, a 20-bed recovery ward, 280 intermediate care beds, 120 light care beds and 500 limited care beds for a total patient capacity of 1,000 beds and 12 operating rooms.

USNS MERCY has been on two major deployments in her 15 years. The first for humanitarian reasons, the second in support of combat troops. On 27 February 1987, MERCY began a training and humanitarian cruise to the Philippines and the South Pacific. The staff included U.S. Navy, Army and Air Force active duty and reserve personnel; U.S. Public Health service; medical providers from the Armed Forces of the Philippines; and MSC civilian

mariners. Over 62,000 outpatients and almost 1,000 inpatients were treated at seven Philippine and seven South Pacific ports. MERCY returned to Oakland, CA, on 13 July 1987.

On 9 August 1990, MERCY was activated in support of Operation Desert Shield. Departing on 15 August, she arrived in the Arabian Gulf on 15 September. For the next six months, MERCY provided support to the multinational allied forces. She admitted 690 patients and performed almost 300 surgeries. Including 21 American and two Italian repatriated prisoners of war. She departed for home on 16 March 1991, arriving back in Oakland on 23 April (USNS MERCY homepage, 2001).

Readiness

"Readiness" is commonly defined as the ability of forces, units, weapon systems and equipment to perform as they were designed—including the ability to deploy and act without unacceptable delay (Smith & Peterson, 1997). Snyder (1998) offers a similar definition with Navy Medicine in mind: the right people, with the right training, with the right equipment, in the right place at the right time. The hospital ships are an important component of the Navy's readiness mission. Offering tremendous surgical capabilities, and proximity to any littoral battlefield, they add some measure of confidence for a ground commander facing terribly difficult decisions.

For nearly a decade the Navy has struggled to match its active component and reserve component medical end strength (MES) with the readiness requirement. Much of this debate can be traced to the "Section 733" study of 1992 (a section of the year's National Defense Authorization Act). The study is considered the first comprehensive review of the Military Health Services System and addresses wartime and peacetime requirements and cost. The study

claimed that with the fall of the Soviet Union, the DoD needed only 50% of its medical AD MES but still required all of the reserve MES. Several follow-on studies conducted by the Commission on Roles and Missions (CORM), the Congressional Budget Office (CBO), the Joint Requirements Oversight Council (JROC) and the Quadrennial Review (QDR) all have similar conclusions. Each suggested that AD MES be drastically reduced and that peacetime health care (especially for retirees) be shifted to the private sector (Snyder, 1998).

Concerned that the 733 study focused solely on classic ideas of battlefield casualties, the Navy Surgeon General, then Vice Admiral D. Hagen, assembled a team to determine what was required to support Navy Medicine's day-to-day forward deployed forces in peacetime and address classic wartime scenarios. The team developed the Total Health Care Support Readiness Requirement (THCSRR) model (Snyder, 1998).

The study and model is significantly different than the previous studies because it more fully accounts for the day-to-day requirements of peacetime medicine, whether in the U.S. or in support of troops overseas. The model is a union of both the 733-wartime requirements study and a Center for Naval Analysis' study of the day-to-day health care mission. It also accounts for extra staff needed to rotate between overseas and stateside duty and the number of specific personnel needed in the training pipeline to maintain the minimum combined MES. The THCSRR model accounts for nearly 90% of current AD MES and re-affirms 100% of the current reserve levels (Snyder, 1998).

The MHS contributes to the military's overall readiness in many ways. The right people, training, and equipment may define readiness well enough at the strategic level, but to begin further investigation of just how an MTF contributes to readiness at the individual facility level requires further narrowing of these elements.

An MTF is responsible for ensuring the readiness of two broad categories of people: the warfighters and its own hospital staff. Readiness for the warfighters supported by an MTF includes preventive medicine, immunization, dental status, general health care, care of family members, minimization of warfighter downtime, and first aid/buddy aid training. For the hospital's staff, readiness encompasses all of the above plus deployable platform specific training, uniform and equipment issue, legal documents, and backfill support. All of which are necessary for an MTF to proclaim its staff's ability to "mount out" anywhere in the world in support of combat operations or natural disasters/humanitarian assistance operations (Hart & Connors, 1996).

Individual Readiness

An orientation to one's deployable platform is required annually. Orientation training must include mission briefing and familiarization with the environment and equipment that the member will use upon deployment. At least five days of readiness training is also required. This training should address the individual, collective, and unit leadership skills needed to perform in platform assignments. Additionally, services must program for medical personnel to train with their operational unit at least every three years for five days (DoD Instruction 1322.24).

In order to further delineate and measure the aspects of an individual's readiness (IR), Carol Reineck has lead the development of a tool with which a nurse may measure his/her perceived readiness. Begun in 1996, the Readiness Estimate and Deployability Index (READI) is a survey instrument designed to measure IR across six dimensions: (1) Clinical competency, (2) operational competency, (3) survival skills, (4) personal, psychological and physical

readiness, (5) group integration and identification, and (6) leadership and administrative support. These six overarching criteria were developed by interview and brainstorming sessions with many nurses whose experiences covered a range of operational environments, from combat to humanitarian to disaster relief. The survey is currently available in three versions, civilian, Army and Air Force, with a Navy version in development. It assesses one's perceived readiness with questions covering everything from preparedness to dealing with complex emergency trauma to preparedness to live and work in an environment of very little privacy (Reineck, 2004). Though geared toward nurses and nursing skills in the sections covering medical training expectations, much of the survey applies to anyone involved in military medicine. The surveys are available online at: http://shelob.uthscsa.edu/readi/READI.html.

Overstressing MTF Staff

Literature detailing an MTF's ability to continue its provision of general health care to beneficiaries during a deployment of a significant portion of its staff is sparse. One such study conducted at Naval Hospital Jacksonville, FL during two one-month training deployments of 240 staff members examined productivity and patient satisfaction, as well as other issues associated with maintenance of readiness. Because this was a planned exercise deployment the hospital received reservist staff backfill in a timely manner. During the first training month, March 2000, the MTF received 26% reservist backfill. During the second month, October 2000, they received 70% of the 240 away from the command for the Fleet Hospital Operational Readiness Exercise. At only 26% backfill, the hospital's March outpatient visits and admissions dropped by 10% and 25% respectively when compared to the previous year. In October, with 70% backfill on board outpatient visits and admissions actually *rose* by 11% and 10% respectively. The author

surmised that this was due in large part to the lack of collateral and administrative duties and responsibilities of reservists filling in for a relatively short time, compared to the "overhead" required of the regular AD staff (Wessel, 2001). Calculating an MTF's ability to produce its normal quantity of healthcare must also be balanced with an understanding of what may happen to the quality of care produced during overstressed times while staff are deployed.

A 1993 study of nursing practices looked at overstressed times and examined what nurses do and how they prioritized their efforts. Conducted at a 350 bed, Graduate Medical Education (GME) Army hospital, the study describes what nurses do no matter how busy, what tasks they won't spend adequate time on, and other influences on their task prioritization. The study found that when calculated staff requirements exceeded actual staff availability, the nurses continued to meet 18 of 20 direct nursing care activities. Monitoring patients, preparing medications, maintaining ventilators and intravenous lines are among the task that nurses found time for "no matter what". Items that were put off included attending/teaching Continuing Medical Education (CME), designing/carrying out research, mentoring junior nurses, cleaning of non-medical equipment (such as microwave ovens), and other tasks which contribute less directly to patient care. The authors recommended that nursing departments develop guidelines and protocols for prioritizing various patient care tasks and activities when nursing care requirements exceed staff availability. Such a plan would be authorized by the commander at the recommendation of the head nurse, ensuring proper chain of command accountability for practices taking place in the MTF (Maloney & Allanach, 1993).

MTF Backfill

Three important factors that must be considered in designing an MTF's backfill strategy are effectiveness, feasibility and operational expense of that strategy. A study completed in the Spring of 2001 considered these three variables and how each would be affected under two backfill scenarios, each at two deployment levels. The deployment levels were 14 and 62 personnel and the backfill strategies analyzed were reservist activation or managed care support contractor (MCSC) resource sharing arrangements. The authors found both strategies feasible but effectiveness differed slightly and operational expense differed greatly. The reserve component could backfill 10 of 14 and 53 of 62 deployed staff members. The MCSC claimed ability to fill 100% of the bodies needed for the 270 days required, giving them the edge in the effectiveness criteria. It was in the operational cost variable that the greatest difference was apparent, given two important assumptions: First, that the reservist would even be allowed by law to be called up. Second, that their salary cost could be considered a "sunk" cost (not directly chargeable to the MTF or considered in the final cost tally). The study found that the MTF incurred only about half the cost with reservist activated as it would with the MCSC resource sharing agreement (Mulkey, Hassell and LaFrance, 2001).

If the previous concepts hold true across services, and across different specialties and types of medical staff and sizes and lengths of deployment loses, then significant potential to continue to produce admissions and visits at lower than usual staffing levels seem possible. If 70% of 240 people can not only perform on par, but even perform 110% of the normal outpatient visits and admissions, there should exist potential to avoid significant shifting of workload to the network, even without reservist backfill. A prioritization of effort plan for remaining staff would help maximize efforts to avoid costs and continue to provide the most critical and important

aspects of patient care. At least for the short term, by redistributing existing clinical staff that are in administrative jobs and by reducing the normal administrative overhead, an MTF may realize significant financial "damage control". A formal plan, and the tools to do so, would be most advantageous to an MTF facing a short- or no-notice deployment of a large contingent of staff, especially in scenarios lacking the time to activate, gain and train reservists before departure of the AD staff.

Purpose

The objective of this project is to design a flexible tool that assesses the affect of staff loss from an MTF to a deployable platform(s) under a variety of deployment criteria (the main criteria being the platform(s) activated, and in the case of USNS MERCY, the manning level at which she is to be deployed). Typically, MERCY is configured for 250; 500; or 1,000-bed capacity. This study will also describe the expected backfill effectiveness of the medical center staff and the availability of reservist backfill.

Nearly every department in the Medical Center (and its satellite clinics) is affected to some degree by deployment of USNS MERCY at any bed level. Just how much they are affected varies greatly depending on many factors, which are different for every department. To simply take a list of providers who are to be deployed and tally the cost of their historical workload ignores the rebound or damage control that could be affected by the leadership at the MTF using both managerial finesse and a "call to arms" of the remaining hospital staff in the wake of a large deployment. The first person deployed would not necessarily require backfill for workload performed. However, some "one-of-one" sub-specialties *would* shut down were the specialist to be deployed. Generally, higher volume services have much greater ability to absorb

the loss of a single person and continue to deliver the benefit without any expected shift in costs due to disengagements. The difficulty lies in determining if a department could absorb the loss of a second person—or a third. Add to this, consideration of the mix of people and the variety of skills involved in the chain of events that make up a health care encounter, and the problem quickly becomes more complex.

Methods and Procedures

Assessing just where and to what extent the loss of an unknown cadre of staff would have the greatest affect is the first step toward determining the subsequent workload capacity lost due to a platform deployment. Just where this breaking point is for each department must first be determined before any estimate of workload lost to the Managed Care Support Contractor (MCSC) can begin. This is the first phase of deployment effect analysis. Phase II will assess effectiveness of backfill from within the command and Phase III discusses the availability of Select Reserve (SELRES) backfill should they be called on.

Table 4. Phases of Deployment Effect Analysis

Phase	Purpose
I	To summarize deployment effect by department and by skill. Output at this phase is used as a guide for redistributing "above threshold" persons to departments left below threshold for a similarly skilled person.
II	Command level summation. This phase shows skills left below threshold after command wide redistribution of remaining personnel has been performed.

III SELRES backfill adequacy. Re-assesses shortfalls after activation of SELRES.

Variables Considered

Specific variables addressed in the study represent nearly every work center in the medical facility. Variables related to the ship include the staff required for operating at bed levels of 250, 500, and 1,000, and the length of time considered. The first month following a short notice deployment is analyzed in this paper; it receives special treatment due to the increased difficulty and urgency of managing these tumultuous first weeks.

Staff affected by a deployment of the hospital ship includes the active duty staff, members of the reserve, government service employees, and contract workers. Variables related to the active duty staff include platform assignment and uniqueness of skills provided the MTF. These variables help determine personnel losses and the resultant effect to the MTF from these losses.

Reserve variables treated include the number and specialties of available reservists and activation time. These factors are used to determine the effectiveness/completeness of reserve backfill. The primary variable related to government service employees is reserve membership. This will determine the net gain to the facility if reserves are activated and will aid in estimating whether the medical center will remain short needed positions even after reserve activation.

Threshold

The breaking point, or threshold, should not be confused with an assessment of inefficiency, excess capacity or any other measure of optimized "business as usual". Threshold

is representative of a relatively short-term staffing requirement, under a crisis management situation at which the MTF could not operate indefinitely. It represents the minimum number of people, by department and by skill, at which patient disengagements (and cost) could still be avoided. In other words, the staffing level at which a loss of just one more person would cause the department to curtail obligated services in some way.

To determine the threshold, a series of interviews was conducted with the senior people of each department or specialty (often the Chairman or Assistant Chairman, a senior nurse and the Chief Petty Officer). Each was asked what minimal staff they would need at the MTF to avoid a change in disengagement patterns for 30 days if faced with a short- or no-notice deployment requirement. Each was asked to consider that leave and temporary additional duty (TAD) would be curtailed where possible, that elective procedures and visits would be deferred and access standards would be pushed to their limit. They were also asked to consider maintenance of their GME programs, where applicable.

The result of the interviews is a roster of staffing requirements by department and Naval Officer Billet Code (NOBC) and Additional Qualification Designator (AQD) for officers, and by Rate, Naval Enlisted Classification (NEC) and whether they are above or below the rate of Chief Petty Officer for enlisted staff. During the interview process it was found that nearly all departments having more than a handful of junior enlisted staff believed senior enlisted leadership would be essential to the efficient use of remaining staff and invaluable for their knowledge of the health care system. It is against this threshold roster that deployment of a platform (or multiple platforms) will first be assessed. This assessment determines whether a deployment will or will not bring a department below its threshold for any particular skill; it will

identify where the disruption in patient flow lies, whether reassignment of staff within the MTF can alleviate the pinch, and finally if further analysis of the department should be performed.

Because the AD staff of the MTF and resultant platform assignment is constantly changing (approximately 65 check-ins/outs per month and frequent interdepartmental transfers), an automated means to quickly gauge the affect of a deployment was sought. The Billet Sequence Code (BSC) on an officer's orders to the MTF determines platform assignment. For the enlisted staff the BSC is determined locally. This leaves little flexibility for officer platform assignment but allows the Medical Mobilization Planning Office (MMPO) to fill enlisted operational requirements with the people most suited to the needs of the platform. Also determined locally is a person's departmental assignment at the MTF, which may or may not change a number of times during a person's tenure at the MTF. These factors, in conjunction with the variety of single or multiple platform deployments possible, make assessing the affect of the loss of personnel to the MTF a fast moving target.

For this reason the threshold table was developed to assess positions and skills needed, rather than individuals by name. The threshold table was designed using departmental codes, and descriptive fields readily available from the Standard Personnel Management System (SPMS). For officers, the best representation of their specialty comes from a combination of their designator, NOBC and AQD. For the enlisted staff, their rate and NEC best identify their unique skills.

Table 5. Examples of Designator, NOBC, NEC, AQD, Rate and NEC

Officers:

Designator	Profession	NOBC	Description	AQD	Description
2100	Physician	0101	Internist	6RG	Cardiology
2100	Physician	0101	Internist	6RR	Pulmonologist
2100	Physician	0244	Orthopedic Surgeon	62F	Hand Surgery
2900	Nurse	0944	Staff Nurse		
2900	Nurse	0906	Emergency/Trauma Nurse		

Enlisted:

Rate	Profession	NEC	Description
HM	Hospital Corpsman	0000	General Duty
HM	Hospital Corpsman	8452	Advanced X-Ray Technician
MS	Mess Specialist	0000	General Duty
LN	Legalman	0000	General Duty

Note. Table lists only a small subset of existing codes.

Automating the Assessment

The basic question is a simple one: will a deployment of platform(s) "x" force a department to disengage patients? If the medical center staff were a stable entity, with few platform commitments, efforts toward automation may not be deemed worthwhile. But, as mentioned previously, the manpower at NMCSD is in a constant state of flux. With three-year transfers the norm for AD personnel, a 33% annual AD staff turnover must be dealt with. Add to this, interdepartmental transfers, staff members completing various training programs, and other

factors that change one's position at the medical center, then 40% annual AD staff variability is likely.

Cost avoidance in the wake of a short-notice deployment requirement can be maximized if available manpower resources can quickly be employed where they are needed most. In a post September 11th world, having the time to plan deployments on our terms is no longer an assumption we can count on. USNS COMFORT (T-AH 20) had her boilers lit within hours of the terrorist attacks. Originally manned for a medical/surgical mission, this changed quickly when the mission shifted to one of hotel-like support for the rescuers, punctuating the need for rapid flexibility in the source MTF's ability to assess the affect of personnel lost. Planning to alleviate the affect of deploying any one of the 12 platforms augmented by NMCSD is a daunting proposition by itself. Planning for the deployment of any and all possible combinations of platforms and taking into account the mission-specific tailoring of the platform that occurs, all against a background of constant staffing flux at the medical center, and the possibilities become endless.

Building the Database

While the functionality of a database-driven approach to assessing the loss of hundreds of AD staff on a moments notice is most germane to this project, a few words about the structure and layout of the database is necessary. Four tables form the foundation of the deployment effect database: the NMCSD personnel table (PERS); the contingency table (CONT); a table that lists social security numbers for those to be deployed (DEPLOYMENT_ROSTER); and the threshold table introduced earlier (THRESHOLD). The first two are taken (or linked with) from the Standard Personnel Management System (SPMS) system. The third depends on the

platform(s) to be deployed. The last was built reflecting minimal staffing requirements before services would begin to be curtailed or shut down.

Table 6. What the Database Tables Provide

Table Name	Purpose
PERS	social security number, departmental assignment, designator, NEC, NOBC, AQD of all personnel currently working at NMCSD
CONT	operational unit identification code (OP_UIC), deployability status for NMCSD staff
DEPLOYMENT_ROSTER	social security numbers of those to be deployed
THRESHOLD	roster of minimal staffing requirements at which disengagements could still be avoided for 30 days

The first phase of effect analysis sees the database working through several layers of querying. The first tallies a count of the existing AD staff of NMCSD by department, by personnel type (officer or enlisted), by Naval Officer Billet Code (NOBC) or Naval Enlisted Classification (NEC), by Additional Qualification Designator (AQD) where applicable, and finally by identifying Chief Petty Officers through Master Chief Petty Officers as CPOs. The second layer of querying lines up the predetermined staff threshold for each department and skill next to the "real time" NMCSD count. The third layer shows where and how many of each position deploy due to the currently loaded deployment roster. The final query simply subtracts who is lost to the deployment from how many of the matching skill are currently assigned to that

department at NMCSD and what that departments threshold for each skill is (# at NMCSD – threshold – # deployed = difference from threshold). A positive number in the difference from threshold (threshdiff) column means no immediate problem; the department can avoid disengagements in the near term without outside intervention. A zero in the threshdiff column means the department is at its threshold for that skill, and finally, a negative threshdiff number indicates that additional staff is needed to maintain access standards and maximize cost avoidance. Departments left above threshold (a positive number) for a particular skill should be looked to by senior management for possible interdepartmental backfill of those departments affected more severely (negative numbers) by whatever staffing loss is currently being assessed. See appendix A for a small sample of the database' phase I output.

The second phase of deployment analysis is accomplished with a different variation of the deployment effect query used in the first phase. After assessing the effect at the departmental level, the next question is "to what extent can the command reassign its remaining personnel to backfill those departments either hit the hardest or most likely to disengage the most?" This is essentially a command level summation. It is done to account for the damage control that could be affected from within the command by pulling people from departments with less immediate clinical obligations (administrative areas) and from the clinical departments left relatively unscathed by the loss of personnel to the current deployment package. The main difference is that the departmental assignment detail is left out and all positive and negative values in threshdiff where the NOBCs, AQDs and NECs are equal are summed. In essence, all those of a certain skill remaining above threshold fill the holes in departments where similar skills are left below threshold.

At this point, when the database has finished making all the "easy" matches, careful management is needed to redistribute the remaining "above threshold" personnel in the most beneficial manner. Should a Chief who is also an advanced tech of some sort be placed in accordance with his leadership skills as a CPO or for his technical expertise? Can an Independent Duty Corpsman backfill a physician assistant or nurse practitioner position left short? While decisions such as these can't easily be automated, they are displayed in a concise format from which one could finish the redistribution process.

Results

The analysis conducted is based on an activation of MERCY alone and the people currently billeted to that platform. The effect analysis database was run through three phases for each of the three bed levels MERCY could be deploy at. The numbers of personnel in appendices B, C and D represent what skills would be affected severely enough to cause disruption in service and likely cause an increase in cost either through disengagements or contracted backfill, even after the commands best efforts to redistribute remaining manpower and maximize cost avoidance. Accordingly, these staffing shortfalls indicate the starting point for further costs analysis. At the time of this writing, 545 of 672 MERCY Activity Manning Document (AMD) requirements for a 250-bed deployment are filled by persons from NMCSD. Appendix B reflects the threshdiffs after both phases II and III of effect analysis of a 250-bed deployment. Appendices C and D list threshdiffs for 500- and 1,000-bed deployments respectively.

The database output quickly identifies which functions at the Medical Center would no longer be able to meet usual demand, even after canceling leave, working longer hours and

redistribution of available manpower is taken into account. This gives the MTF's senior leadership a starting point from which the decision to either continue to meet existing demand with contract backfill labor or disengage patients may be made. Remember, the results from this database application reflect the first 30 days post-deployment only. One of the underlying assumptions is that remaining AD staff would be expected to work far longer and harder than under usual circumstances. Another important assumption is that many administrative and non-clinical functions would be deferred while clinical needs are met during the first month, this could not remain the case indefinitely. During those first 30 days, countless meetings and planning would occur. The effect analysis database output, while still a useful guide at this stage, would start to be eclipsed by further assessment of the details of the mission, the season of the deployment and a host of other "real world" variables impossible to account for ahead of time.

The study results provide a useful tool in estimating an important component of the effect to the source medical facility associated with deployment of a large operational platform(s) such as USNS MERCY. The process of "filling in the blanks" required while using this model will also bring to light any critical manning shortages and where they would occur in the event of such a platform deployment. Better understanding of reserve availability gained through use of this model may also prove useful in creating alternative backfill plans before a crisis situation has arisen. Additionally, the model will prove useful to Pentagon level planners when deciding and justifying whether and to what extent humanitarian situations around the world should be supported. It gives both the facility and the Bureau of Medicine and Surgery (BUMED) more specific details that aid in the backfill planning process.

Discussion

Of fundamental importance to the usefulness of the effect analysis database output is the quality of the data in the two primary underlying sources. One of those sources is the data summarized in the staffing threshold table; the other is the data present in the PERS table taken from the SPMS system.

Keeping the Threshold Table Current

The threshold table was developed through the interview process with senior staff at the MTF. It is a static representation of the commands AD crisis staffing needs at the present time. It was designed to survive changes in the underlying staff by relying on a department's need for a person with a certain NOBC, NEC and AQD etc, rather than an individual's name. However, a certain amount of updating will need to occur as positions, command organization, civilian staffing levels, services provided, patient population and the health care benefit itself change over time.

For smaller, incremental changes, a maintenance query was built into the database to show which items in the threshold table are not found in the current staffing mix at NMCSD. This quickly allows one to reassess whether that item in the table is currently gapped (an unfilled position) or needs revision. For larger, more widespread changes, such as the reorganization of the entire command or implementation of a new personnel system (as is expected this fall), the threshold table would need to be rebuilt in its entirety. This is most easily accomplished by running a query designed to summarize the command's current staffing at the present time, using all departmental and personnel related codes as they currently exist and exporting the results as a starting point for the new threshold table. This is how the threshold table for this project was

first created. From this point, taken out are positions and numbers of similarly skilled people within a certain department. Eliminating those positions deemed "not critical" to 30 days of post-deployment cost avoidance at the Medical Center leaves one with a "critical to avoid cost" AD manning, or staffing threshold, table against which a deployment may be assessed and the effect mitigated.

Departmental Interviews

During the interview process it was found that many department heads had some difficulty in shifting their thinking from deployment of a specific platform (and those currently assigned) to thinking about what minimal skill mix is most critical to their department's ability to continue to meet the demand for their services in the absence of an unknown quantity/variety of persons. Most adapted to the concept quickly, though a few stated their minimum crisis requirement was "two more than I have now" or other similar sentiments. Three other department heads either refused to participate directly or chose more passive means of avoiding the topic (either by not returning phone calls or never scheduling a few minutes for discussion). In these cases, the author assessed critical billets with regard to the size of the department, the nature of the department's function and the variety and uniqueness of the skill mix as currently staffed.

Individual interviews were conducted (as opposed to the drafting of a general tasking memorandum) to assure that both the author and interviewee understood the somewhat indistinct proposition. The tremendous differences among the departments with regard to mission, amount and experience of civilian staffing, current-manning levels, services that could be curtailed and amount of work that could be deferred made face-to-face interaction a necessity. It is unlikely

that a "one size fits all" description of the requirement could have adequately addressed everyone from the Main Operating Room to Materials Management.

Data Sources

The PERS table is the piece of the SPMS system where demographic- and skill-related information about every person at the MTF resides. It is a hybrid of information with some fields pulled from the enlisted distribution and verification report (EDVR) and officer distribution control report (ODCR) and others fields entered and updated locally. The fields of concern for this project come from both. An officer's designator, NOBC and AQD, as well as an enlisted sailor's rate and NEC are determined by the BUPERS reports. An individual's departmental assignment at the hospital is entered locally upon check-in to the command. During the course of this project, inaccuracies were noted in both the AQD and departmental assignment fields.

The AQD is used to identify a specific sub-specialty; it's what differentiates an internist from an internist who is a cardiologist, gastroenterologist or any one of a number of possible sub-specialties. In many clinical departments, it was found that the AQD field was either blank for a person with sub-specialty training, or in other cases, the wrong code was listed. Another area of concern was the accuracy of departmental assignments within the MTF. Nursing had the greatest discrepancies between where a person actually worked everyday and where the system showed them as being assigned. For example, on one ward, of 15 nurses showing assignment to that ward, eight worked elsewhere at the command and another seven who did work in that ward were listed as working somewhere else (a 50% inaccuracy rate). While these inaccuracies greatly limit the usefulness of the phase I output of effect analysis (which shows those

departments most and least affected by the deployment under consideration) the effect on phases II and III of the analysis is substantially less. This is because phases II and III are command level summations that tally the count of skills needed versus skills left at the Medical Center. Inaccuracies at the departmental level tend to "wash out" when viewed from this broad perspective. It is important to note here, that the manpower department had already developed and was in the early stages of implementing, a fix to the assignment accuracy problem at the time of this writing. Manpower's new tool will allow departmental representatives password-protected, "view only" access to the SPMS information about their staff from their local desktop computer. Correspondence about staffing issues such as personnel transfers, with a point of contact in manpower, should greatly enhance the accuracy and currency of this system.

Another difficulty encountered was the lack of a readily identifiable code for all areas of enlisted expertise. This was found to be the case for four specially trained types of enlisted technicians: anesthesia techs, blood bank techs, CAT scan techs and ultra sound techs. Currently, anesthesia techs are listed as "quad zero" corpsmen (indicating only completion of basic hospital corpsman "A" school), even though they have completed a five-week, on-the-job training cycle. Blood bank techs are currently identified under the same code as other "advanced lab techs", and CAT and ultra sound techs are undistinguishable from the rest of the "advanced x-ray techs". This not only makes identification and loss assessment of these skill sub-sets difficult from a database perspective (a roster of these techs had to be "piggy backed" into the database), but it also limits knowledge, from the greater Navy perspective, as to what skills are really in inventory. A few years ago a similar problem was solved for cast room technicians with the creation of a new NEC. This should be considered for the techs listed above.

Platform Assignment

Two concerns relate to the platform assignment process. They are auxiliary security force manning and a lack of flexibility in the department heads' ability to choose who is to man the various platforms.

Currently, assignment to the auxiliary security force (ASF) at NMCSD is done without regard to platform billeting. Should a platform be activated in response to an act of war or terrorism, it would almost certainly coincide with the activation of the 19 members of the ASF. Currently, 15 of the 19 ASF personnel also support a platform (11 of those being MERCY); this equates to assignment to two platforms at the same time. Both assignments require training, so reworking the manning of one or the other on short notice adds to the difficulty of meeting all staffing requirements quickly and with properly prepared personnel. The most practical solution to this issue is selecting security augmenters from the approximately 1,000 AD personnel not billeted to another platform.

As mentioned previously, officers are assigned to one platform or another in conjunction with their orders to NMCSD. Nearly all the clinical Department Chairmen expressed frustration with the lack of flexibility afforded to them in picking who is to fill which platform obligations. Their main concern being that the sub-specialty mix left at the Medical Center may not be sufficient to maintain an optimized graduate medical education (GME) program. Though the 21 GME Program Directors themselves are not on a deployable platform, some staff who contribute significantly to the various programs are on a platform. Greater flexibility in the filling of platform requirements would help ensure maintenance of a strong training pipeline at the MTF while also providing sound expertise to the deployed platform(s). If faced with a protracted war,

maintaining the ability to "make more" of the various medical specialists becomes all the more important.

Limitations of the Database

While the effect analysis output from phase I provides useful guidance for the redeployment of existing manpower at NMCSD, it does not provide a list of names of exactly who is to leave one department for another. What it does show, is departments with people of various skills left either above or below threshold, picking exactly who among those is to be used as backfill elsewhere is a task best left to the Department Heads and Division Officers most familiar with their people. At present time, phase I analysis is also hampered by the previously mentioned departmental assignment inaccuracies. For instance, output showing Med/Surg nursing as being taken below threshold by the currently loaded deployment roster may not actually be the case if half the nurses on the deployment roster are miss-assigned and actually work in critical care nursing.

Phase II of the analysis (intra-command level backfill) is largely based on the assumption that persons of the same designator (2900 nurse corps for example) and NOBC (a 0944 staff nurse for example) are interchangeable. While in many cases this is true, there are a few specialized areas that one should pay close attention to. A more fine level of skill and experience difference exists than is fully explained by NOBC alone. For physicians, this is largely addressed by pulling their AQD subspecialty code into their skill description. For nurses, however, who rarely have an AQD, consideration of current departmental assignment and rank provides the best assessment of their "within NOBC specialization". Without these extra considerations taken into account one might mistakenly assume a nurse Ensign with two months

on the Med/Surg ward to be adequate backfill for a Lieutenant in the Pediatric Intensive Care Ward.

Phase III of the analysis (SELRES backfill) presents the number of reserves currently in inventory along side matching skills deployed from NMCSD. As mentioned earlier, the database is capable of making only "easy matches", those where the designator, NOBC/NEC and AQD are the same. To backfill a need for a Physician Assistant with an available SELRES Nurse Practitioner still needs to be done by hand. Also not included in the "push button" output of phase III are those in the SELRES who already work at NMCSD as government service or contracted civilians. Fortunately, these people may be quickly identified and considered for analysis by taking advantage of a "work around" within the SPMS system. The system will not allow duplicates of a SSN. Consequently, a person who works at NMCSD in two ways (GS civilian and drilling reservist) has an "R" substituted for the last digit of their SSN for their reservist entry. Simply querying the PERS table for SSNs like "*R" identifies these dual status personnel quickly. See table 7 for a listing of these "no net gain if activated" reservists at the time of this writing.

Table 7. SELRES Already Working at NMCSD

Profession	Number
Physician, Anesthesiologist	2
Nursing, RN	12
Nursing, Critical Care	2

Nursing, Perioperative	1
Nursing, Health Service Division Officer	1
Pharmacist	2
Dietitian	1
Industrial Hygiene Officer	1
Technician, Cardiovascular	1
Technician, Laboratory, Advanced	1
Technician, Pharmacy	3
Corpsman, General Duty	7
Drug and Alcohol Counselor	1

Note. Profession based upon NOBC or NEC description.

Dental

The dental staffing loaded into the threshold reflects their total staffing as of this writing. This means the database output will show a negative threshdiff with the first person lost. This is because the dental chain of command is largely separate from the rest of the MTF. Also, cost avoidance considerations don't mirror those on the medical side, the TRICARE Dental Benefit is provided through United Concordia and is voluntary for dependants of active duty personnel. Any reduction in dental services at the Medical Center would not generate "retail price" claims as on the medical side.

This is not to say that a MERCY deployment would not cause disruption to NMCSD's dental department. A 250-bed deployment takes away one-of-one comprehensive dentist, one-of-four oral maxillofacial surgeons, two-of-eight dental surgical techs, one-of-three dental lab

techs and two-of-19 dental techs. The 500-bed configuration requires one additional comprehensive dentist (currently an unfilled billet), one oral maxillofacial surgeon, one surgical tech and two dental techs. Lastly, the 1,000-bed configuration takes away one more surgical tech and dental tech.

The most critical loss is the comprehensive dentists and maxillofacial surgeons. Should they be called to MERCY before or without reserve backfill the Medical Center would likely call upon Navy Dental Center Southwest (a large, nearby dental command) for help.

Conclusion

The output from any of the three phases of analysis has limited shelf life. Constant underlying changes in the staffing, mission, organization, platform(s) and reservists available to NMCSD make any assessment valid for a few months at best. This fact is largely responsible for the author's efforts to automate as much of the process as possible. Also, application of this approach to MTFs smaller in size and variety than NMCSD may not prove worth the effort. A large MTF (with multiple satellite clinics) stands to gain the most benefit from the database approach to quickly reassigning staff to meet the demand for health care while attempting to avoid costs in the wake of an unknown quantity and combination of personnel lost to platform augmentation.

The output from Phase I of analysis should be used as a service maximization/cost avoidance guide to staff use and reassignment. Phases II and III may be used as a starting point for further cost estimates. This is where the next phase of analysis should begin. Starting with the threshdiffs that the command and SELRES are unable to backfill, an initial estimation of

which services/procedures that would be sent to the contracted civilian network is established and a cost estimate could be formed.

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Appendix A: Sample of Phase I Output

DEPT	DEPT_NAME	PER_TYPE	DESIG	NOBC/NEC	SKILL_DESC	NMCSD	THRESHOLD	DEPLOYED	THRESHDIFF
41CF	EMERGENCY DEPARTMENT	O	210	0105	Pediatrician	1	0	0	1
41CF	EMERGENCY DEPARTMENT	O	210	0106	Health Service Resident	24	0	0	24
41CF	EMERGENCY DEPARTMENT	O	210	0108	Family Practitioner	1	0	0	1
41CF	EMERGENCY DEPARTMENT	O	210	0109	Emergency Medical Specialist	13	8	0	5
41CF	EMERGENCY DEPARTMENT	O	290	0904	Critical Care Nurse	1	0	0	1
41CF	EMERGENCY DEPARTMENT	O	290	0906	Emergency/Trauma Nurse	9	8	4	-3
41CF	EMERGENCY DEPARTMENT	O	290	0925	Clinical Specialist, Nursing	1	0	1	0
41CF	EMERGENCY DEPARTMENT	O	290	0944	Staff Nurse	13	12	3	-2
41CF	EMERGENCY DEPARTMENT	E	CPO	8425	Surface Force Independent Duty Corpsman	1	1	0	0
41CF	EMERGENCY DEPARTMENT	E	HM	0000	General Duty	41	24	25	-8

Appendix B: Threshdiffs, 250-Bed MERCY Deployment

Profession	Skill Description	Phase II	Phase III
Physician	Internist, Infectious Disease Specialist	-1	0
Physician	Internist, Cardiology Electrophysiologist	-1	-1
Physician	Orthopedic Surgeon, Hand Surgery	-1	-1
Physician	Orthopedic Surgeon, Oncology	-1	-1
Physician	Obstetrician-Gynecologist	-2	0
Ancillary	Medical Technologist (lab)	-1	0
Ancillary	Pharmacist	-1	0
Nursing	Emergency Trauma Nurse	-1	0
Enlisted	Legalman	-1	-1
Enlisted	Mess Specialists	-25	-25
Enlisted	Personnelman	-1	-1

Appendix C: Threshdiffs, 500-Bed MERCY Deployment

Profession	Skill Description	Phase II	Phase III
Physician	Internist, Infectious Disease Specialist	-1	0
Physician	Internist, Cardiology Electrophysiologist	-1	-1
Physician	Psychiatrist, Adolescent Specialty	-1	-1
Physician	General Surgeon, Pediatric Specialty	-1	0
Physician	General Surgeon, Peripheral Vascular Specialty	-1	-1
Physician	Obstetrician-Gynecologist	-2	0
Physician	Orthopedic Surgeon	-1	0
Physician	Orthopedic Surgeon, Hand Surgery	-1	-1
Physician	Orthopedic Surgeon, Oncology	-1	-1
Physician	Urologist	-1	0
Ancillary	Medical Technologist (lab)	-2	0
Ancillary	Pharmacist	-2	0
Nursing	Emergency Trauma Nurse	-1	0
Nursing	Staff Nurse	-3	0
Enlisted	Physical Therapy Tech	-1	0
Enlisted	Pharmacy Tech	-2	0
Enlisted	Surgical Tech	-1	0
Enlisted	Psychiatry Tech	-1	0
Enlisted	Urology Tech	-1	-1

Appendix C (cont.)

Enlisted	Orthopedic Cast Tech	-1	0
Enlisted	Legalman	-1	-1
Enlisted	Mess Specialists	-25	-25
Enlisted	Ship's Serviceman	-3	-3
Enlisted	Personnelman	-2	-2
Enlisted	Store Keeper	-2	-2

Appendix D: Threshdiffs, 1000-Bed MERCY Deployment

Profession	Skill Description	Phase II	Phase III
Physician	Internist, Infectious Disease Specialist	-1	0
Physician	Internist, Cardiology Electrophysiologist	-1	-1
Physician	Internist, Pulmonologist	-1	0
Physician	Pediatrician, Developmental	-1	-1
Physician	Psychiatrist, Adolescent Specialty	-1	-1
Physician	General Surgeon, Pediatric Specialty	-1	0
Physician	General Surgeon, Peripheral Vascular Specialty	-1	-1
Physician	Obstetrician-Gynecologist	-6	-3
Physician	Orthopedic Surgeon	-1	0
Physician	Orthopedic Surgeon, Hand Surgery	-1	-1
Physician	Orthopedic Surgeon, Oncology	-1	-1
Physician	Orthopedic Surgeon, Reconstructive	-1	-1
Physician	Plastic Surgeon	-1	0
Physician	Urologist	-1	0
Ancillary	Radiologist, Diagnostic	-1	0
Ancillary	Radiologist, Diagnostic imaging	-1	0
Ancillary	Pathologist, Anatomic & clinical	-1	-1
Ancillary	Medical Technologist (lab)	-2	0
Ancillary	Pharmacist	-2	0
Nursing	Emergency Trauma Nurse	-1	0

Appendix D (cont.)

Nursing	Perioperative Nurse	-1	0
Nursing	Staff Nurse	-20	0
Nursing	Nurse Anesthetist	-1	0
Nursing	Nurse Practitioner	-2	0
Enlisted	General Duty Corpsman	-132	0
Enlisted	Anesthesia trained Corpsman	-2	-2
Enlisted	Advanced X-ray tech	-2	-2
Enlisted	Physical Therapy Tech	-2	-1
Enlisted	Pharmacy Tech	-6	0
Enlisted	Surgical Tech	-23	-15
Enlisted	Psychiatry Tech	-3	-2
Enlisted	Urology Tech	-3	-1
Enlisted	Orthopedic Cast Tech	-1	0
Enlisted	Histopathology Tech	-1	-1
Enlisted	Information Technology Specialist	-2	-2
Enlisted	Legalman	-1	-1
Enlisted	Mess Specialists	-34	-34
Enlisted	Ship's Serviceman	-5	-5
Enlisted	Personnelman	-2	-2
Enlisted	Store Keeper	-2	-2
Enlisted	Other than HM	-27	-27

Note. One Information Technology Specialist must have message traffic training.