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14. ABSTRACT

The purpose of this paper is to identify core competencies and important skills, knowledge, and abilities (SKAs) required by junior Navy Medical Service Corps officers to be successful in the next five to ten years. In addition, this study tested similarities and differences among responses within subspecialty groups of the Medical Service Corps including: Administrators, Scientists, and Clinicians. Two waves of the Delphi technique were employed. In Wave I, junior Navy Medical Service Corps officers identified the five most important competencies and their important SKAs. An expert panel of six Lieutenant Commanders reviewed, sorted, and identified competencies from Wave I into 11 domains. From the expert analysis, the researcher developed a questionnaire for use in Delphi technique, Wave II. In Wave II, junior Navy Medical Service Corps officers rated the SKAs from each domain based on importance. Descriptive and inferential statistics were used to test similarities and differences between responses and among subspecialty groups within the Medical Service Corps. Results indicated that Core Values, Leadership traits, subspecialty expertise and operational understanding were most critical for junior Medical Service Corps officer in the next five to ten years. Many similar opinions merged among the Administrators and Scientists suggesting that although these two subspecialty groups evolved from different educational and professional backgrounds, they share similar opinions on success in the Corps today. In contrast, Clinicians and Administrators shared in only one opinion, the importance of Subspecialty Expertise. Once statistical interaction between groups was revealed, post hoc tests were conducted to determine a significant difference of opinion. Results revealed that Clinicians Vs. Others have a real difference of opinion with 36 of 100 SKAs significant. Administrators Vs. Others showed 11 of 100 SKAs statistically different. Scientists Vs. Others showed no statistically significant difference. 10 out of the 15 lowest rated SKAs were found within all three subspecialty groups of the Medical Service Corps suggesting that although there is widely varied opinion among subspecialties of SKAs required for success, respondents agree upon those of which are not necessary for success.

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Forge into the Future: Identifying Core Competencies and Important Skills, Knowledge, and Abilities (SKAs) for Junior Navy Medical Service Corps Officers

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October 20, 2008

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To my colleagues, I hope you are afforded the same opportunity of having strong mentors. I commit to continuing the tradition of the Medical Service Corps by supporting "growing from within."

Most importantly, I would like to thank God who directs and carries me when I don't know my way.

Abstract

The purpose of this paper is to identify core competencies and important skills, knowledge, and abilities (SKAs) required by junior Navy Medical Service Corps officers to be successful in the next five to ten years. In addition, this study tested similarities and differences among responses within subspecialty groups of the Medical Service Corps including: Administrators, Scientists, and Clinicians. Two waves of the Delphi technique were employed. In Wave I, junior Navy Medical Service Corps officers identified the five most important competencies and their important SKAs. An expert panel of six Lieutenant Commanders reviewed, sorted, and identified competencies from Wave I into 11 domains. From the expert analysis, the researcher developed a questionnaire for use in Delphi technique, Wave II. In Wave II, junior Navy Medical Service Corps officers rated the SKAs from each domain based on importance. Descriptive and inferential statistics were used to test similarities and differences between responses and among subspecialty groups within the Medical Service Corps. Results indicated that Core Values, Leadership traits, subspecialty expertise and operational understanding were most critical for junior Medical Service Corps officer in the next five to ten years. Many similar opinions merged among the Administrators and Scientists suggesting that although these two subspecialty groups evolved from different educational and professional backgrounds, they share similar opinions on success in the Corps today. In contrast, Clinicians and Administrators shared in only one opinion, the importance of Subspecialty Expertise. Once statistical interaction between groups was revealed, post hoc tests were conducted to determine a significant difference of opinion. Results revealed that Clinicians Vs. Others have a real difference of opinion with 36 of 100 SKAs significant. Administrators Vs. Others showed 11 of 100 SKAs statistically different. Scientists Vs. Others showed no statistically significant difference. 10 out of the 15 lowest rated

SKAs were found within all three subspecialty groups of the Medical Service Corps suggesting that although there is widely varied opinion among subspecialties of SKAs required for success, respondents agree upon those of which are not necessary for success.

Introduction

Conditions Prompting the Study

The shifting needs of the healthcare industry have been dominated by changing demographic structures, rising healthcare expenditures, tiered payor and insurance systems, and patterns in healthcare employment. These prevalent changes in the healthcare industry have created a recurring need to identify core competencies for junior healthcare executives, such as Medical Service Corps officers into the next five to ten years. "The goal of competency research is to change healthcare management and education for the better" (Shewchuk, O'Connor, & Finc, 2005, p. 33). With these changes and added responsibilities of understanding and implementing joint ventures, alliances, and partnerships with other organizations identifying core competencies and skills, knowledge, and abilities (SKAs) is crucial for the development of educational and mentorship programs which prepare junior Navy Medical Service Corps officers for success in an increasingly complex environment.

Rapidly changing dynamics of the military healthcare system create both challenges and opportunities for junior Navy Medical Service Corps officers. These officers are faced with the challenging task of optimizing healthcare for opposing missions. The increased numbers of beneficiaries require Medical Service Corps officers to manage change while using innovative management skills. In support of the war fighter, Medical Service Corps officers must adapt their leader and executive skills to manage a myriad of missions such as: joint blood programs, research, trauma and triage units, and joint medical regulating programs. Rear Admiral Mittelman (2007) states "Navy Medical Service Corps Officers play a key and essential role to assure that our forces are ready, remain healthy and the healthcare benefit is delivered efficiently and effectively. Each specialty within the Medical Service Corps provides relevant and critically

important services to the joint force" (p. 1). Identifying core competencies for subspecialties within the Medical Service Corps is imperative for the successful development of junior Navy Medical Service Corps officers in support of the joint mission.

Additionally, Shewchuk, O'Connor, and Fine (2005) declare "Environmental change has occurred with such speed that the educational component of healthcare management must struggle to keep up-to-date" (p. 33). Through this struggle comes opportunity. As stated by Rear Admiral Mittelman (2007) "our Corps is vibrant and our Corps is strong. The future is bright. However, demands of a changing world present new opportunities. I believe these will require us to become less specialized in some areas in order to be more interoperable and function more efficiently in a joint environment" (p. 2). With this changing environment, Medical Service Corps officers, Clinicians, Scientists, and Administrators, need to have a clear understanding of their roles and responsibilities and how they integrate into the healthcare system. Identifying core competencies and important SKAs for junior Navy Medical Service Corps officers, will not only aid in the development of healthcare education programs, but support health and quality management programs.

Medical Service Corps Subspecialties

Medical Service Corps history dates back to World War I and II when Navy Hospital Corps personnel were given temporary appointments as Naval Reserve officers to support the Medical Corps. Although not identified as Medical Service Corps officers, these officers filled several subspecialties known today in the Medical Service Corps such as: pharmacy, optometry, other specialties, and allied medicine. After World War II, the Navy Medicine Department recognized what a vital role these officers played in support of the wartime mission and acknowledged the need for a permanent officer category to compliment and supplement the

existing officer corps. Consequently, the Navy Medical Service Corps Act of 1947 authorized the Medical Service Corps, as a staff corps, of the Navy. The Corps was initially formed with four specialties: supply and administration, optometry, allied sciences, and pharmacy which could not exceed 20 percent of Medical officers (Gray, 1997).

Today, the Medical Service Corps is made up of 31 subspecialties, all of which contribute to the mission of effective and efficient healthcare delivery. The most highly diversified Corps within the Navy Medical Department; the Medical Service Corps is comprised of 3,600 active duty and reserve officers filling Clinical, Scientific, and Administrative subspecialties. With 22 subspecialties, Clinicians and Scientists make up 60 percent of the Medical Service Corps and healthcare Administrators make up the remaining 40 percent. Medical Service Corps officers serve in more than 250 Naval and medical commands throughout the world. About 65 percent serve in facilities delivering direct patient care and 35 percent serve in operational units, training and research commands, occupational and preventive medicine units, material and logistic support commands, and headquarters commands (Navy Knowledge Online).

Figure 1 depicts the structure of the Medical Service Corps subspecialties.

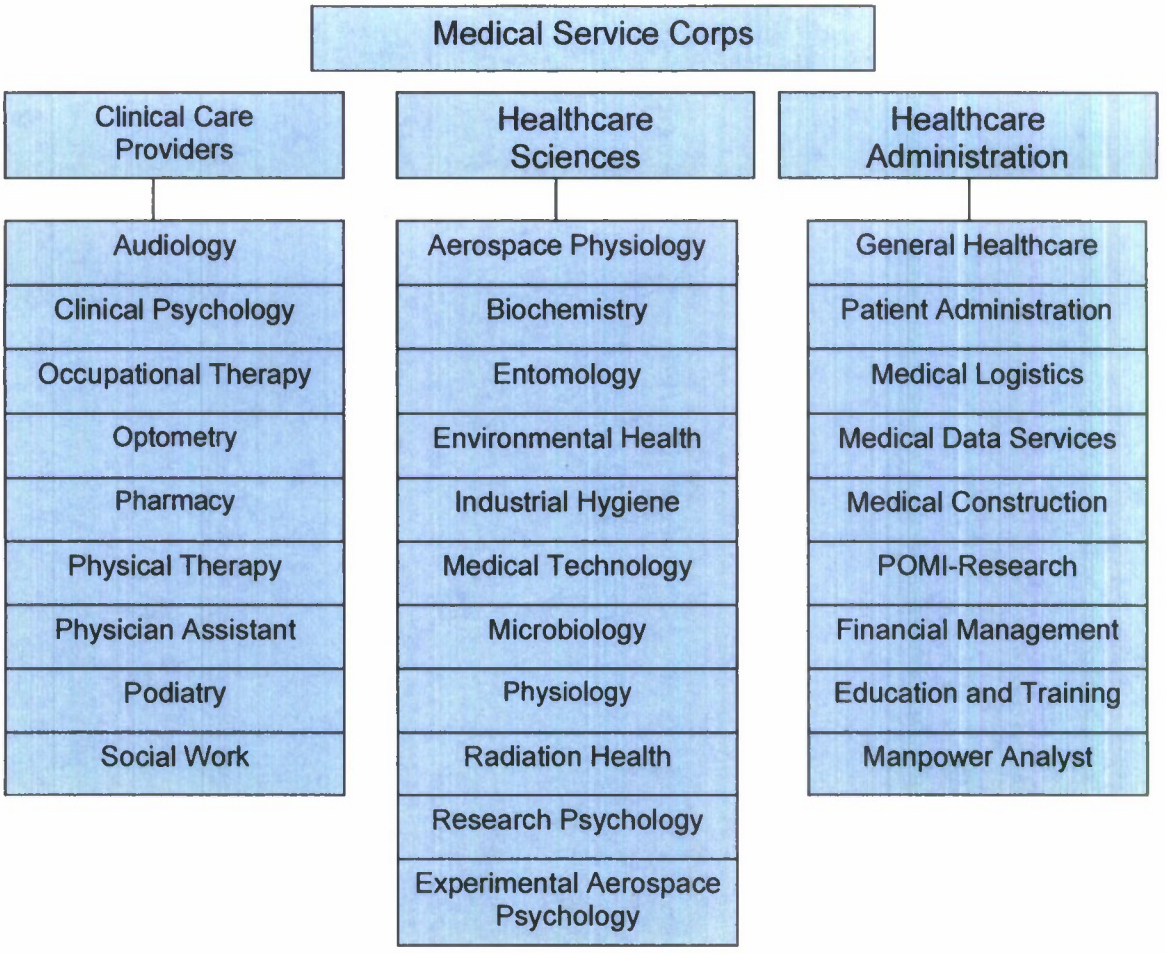

Figure 1. Medical Service Corps Subspecialty

Administrators

Ultimately emerging from the Hospital Corps in 1898 as faithful attendants assisting medical officers, Navy Administrators have evolved with the changing needs of Navy Medicine. These needs have required Administrators to master several professions, morphing from specialists to generalists. Gray (1997) states, "Navy Administrators possess diverse and specialized skills that facilitate operation of one of the largest healthcare system in the world" (p. 105). Administration started early in the twentieth century by Pharmacists who supported more than just Pharmacy. By the 1950's, the system for Administration and support services was

cstablishcd and administrator roles and responsibilities were in support of the Executivc officer; normally the most senior Medical Service Corps officer. Today, thc Medical Service Corps is made up a total of nine Administrative subspecialties within the 1800 scries. In addition, a realignment from the line community added the 3000 and 6000 series to the Medical Servicc Corps.

The General Administrator (1800) serves the Corps in understanding the complex mission. An officer holding this subspecialty is expected to understand the complexities of all administrativc subspecialties. The Patient Administration Officer (1801) focuses on the maintenance of records and disposition of patients, written medical board surveys for activc duty board, and patient care correspondence. The Medical Logistics Officer (1802), a key elemcnt of healthcare from the inception of Navy Medicine began prior to the 1850's. During this timc Medical officers were often frustrated with the acquisition and procurement of medical equipment and supplies and looked towards the Medical Logistics Officers to acquire neeclcd equipmcnt and supplies for the flcet. Today, the Medical Logistics officer supports garrison, fleet and operational missions ensuring equipment and supplies are stocked and replenished to complctc the job. The Information Managemcnt Specialist (1803) focuses on design, development, administration and maintenance of various telccommunications, computer networks and operating systems. This specialty has evolved overtimc ensuring networks across the globe are secure. Medical Construction (1804) is subspecialty that manages medical construction and facilities across the globe.

Plans Operations and Medical Intclligence (1805) subspecialty replicated the lineagc of thc Medical Logistics subspecialty with difficulty differcntiating thc two subspecialtics in thc early 1970's. After 1991 the two subspecialties divided and thc Plans Opcrations and Medical

Intelligence (POMI) subspecialty was created. Today, the POMI officer is found throughout the globe in support of both garrison and wartime missions, predominantly supporting the Marine Corps. Sharing the same heritage as the Medical Logistician, the Resource Management subspecialty (1806) built in the early 60's, focused on improving fiscal planning, cost accounting, and management of funds. In the late 90's, Fiscal Management specialists were found throughout garrison facilities, research activities, and specialty commands. Over the last few years Fiscal Specialists have become experts in managed care: including capitation budgeting, diagnostic related groups, patient enrollment, and management analysis.

Administrative subspecialties provide expert support to the providers of patient care throughout the Military Health System. The evolution of Medical Service Corps Administrative subspecialties have developed with the ever-changing demands of the Military Healthcare system. As we forge into the future, Administrators have an ever increasing task to do more with less. As environmental changes occur, it is more important than ever to identify core competencies and important SKA to support the foundation on which Administrators were built and help them to succeed in the next five to ten years.

The Clinicians

Except for pharmacists which evolved in the early 1800's, Medical Service Corps Clinicians developed in the 20th century meeting the needs of the Military Healthcare System. The increasing amount of healthcare delivered to the fleet drove the need for clinical specialists to assist physicians in the delivery of healthcare: including pharmacy, rehabilitative care, and dietetics. Gray (1997) states, "The technical requirements of modern war impacted military medicine, making necessary the addition of numerous clinical and scientific support personnel in fields new to Navy Medicine" (p. 130). Following the influx of specialties and needed patient

care, Bureau of Medicine and Surgery sought to establish a more permanent corps of allied health professionals, Clinicians, and Administrators creating the Medical Service Corps in August of 1947.

Pharmacists (1887 and 1888) have a long standing tradition within the Medical Service Corps starting with the appointment of the surgeon steward. To ensure the implementation of optimal patient care programs, surgeon stewards were required to be well educated, even tempered and industrious. Today, education is still a main requirement of Pharmacists; they play an integral role in the delivery of healthcare supporting grounded in decision.

Optometrists (1880) were first introduced into the Navy during World War II to support the quickly expanding fleet. Initially, Navy visual acuity standards were so high that the services of Optometrists were not required. But during World War II, the fleet needed personnel to serve causing the visual acuity standards to lower. A growing force required the Navy to open optical bases which supported combat and advanced base areas. Today, Optometrists are instrumental in rendering patient care, diagnosing diseases and disorders with military personnel and supporting the war fighter.

Clinical Psychology (1840) was initially developed as a subspecialty to support the screening and special duty selection process. During Vietnam and Operation Desert Shield/Storm clinical psychologists were used to support United States Marine Corps division units. Today, clinical psychologists are deployed in support of Operation Iraqi and Enduring Freedom and support post deployment programs including wounded warrior and other rehabilitative services.

Physical Therapists (1873), Occupational Therapists (1874) and Dietitians (1876) were founded within the Navy Nurse Corps. Ensuring services were continued in critically needed billets, the Secretary of the Navy per request of the Surgeon General, requested an additional

group of the Medical Service Corps which supported patient rehabilitation and supported the overall mission of postwar time recovery which enabled Marines and Sailors to return to the front as quickly as possible. Additional subspecialties services needed included; Audio logists (1862), Podiatrists (1892), and Social Workers (1870).

Evolving overtime, Physicians Assistants (1893) were introduced into the Medical Service Corps in the 1950's. Initially, BUMED believed that physician assistants could take more administrative responsibilities and provide the physician with more patient care time primarily supporting outpatient services. Although this was an accurate concept, the nation did not have enough Physicians Assistants, so the Navy had to grow their own with the use of training programs (Gray, 1997). During the 1970's and 1980's Physician Assistants went through a restructuring process and in 1989 Physicians Assistants were inducted into the Medical Service Corps. Physicians Assistants today make up approximately 18 percent of the Medical Service Corps and support maritime, garrison, and forward deployed units.

Clinicians are vital part of the triad of the Medical Service Corps supporting Medical officers and other specialists in outpatient care facilities. Additionally, Clinicians provide an element of patient care focus that balance the mission of the Medical Service Corps and support war time operations. Identifying core competencies and SKAs will assist with the communication gap across the Corps.

The Scientists

Scientists were first introduced into the Navy after World War II to enhance and sustain combat capability and ensure a high level of health readiness (Gray, 1997). The subset of this subspecialty falls into two subsets: military medical Scientists and practitioners of applied sciences. Initially, the overall goal of these specialties was to advise the operational commanders

on recruit recommendations, clothing, preventative medicine, medical supply, personal hygiene and lay the foundation for medical healthcare facilities. Technological advances introduced in the ninetieth century coupled with an increasing number of personnel and diverse travel locations, caused more risks for Naval personnel validating sanitary conditions research. After World War II, scientific subspecialties were almost dissolved but with the creation of the Corps in 1947 the allied group sciences was created.

Although infectious disease plagued military personnel during the Spanish – American war, the Navy Medical Department recognized the need for Entomologists in 1941 to support the battle throughout the swamps. The Navy recruited hospital volunteer specialists to serve as Entomologists(1850). Over the last 70 years, entomologists have gone through a restructuring process. Today they are active in research and development of pesticides, work in Navy and Environmental and Preventive Medicine Units, and contribute to Research and Fleet Marine Force units. Similarly, the Environmental Health Officer (1860) evolved from naval sanitary tradition. This subspecialty provides public health services including: epidemiology, venereal disease control, microbiology, and sanitation support worldwide. Industrial Hygiene (1861) is a group of Preventive Medicine division supporting the safety of military personnel.

Aerospace Experimental Psychology evolved from a necessity to test physical, psychological, and personality capabilities to ensure aviators were fully qualified for the community. After the 1940's, the Medical Department identified the need for research on medical, physiological, and psychological effects of naval aviation. Likewise, Research Psychologists started screening recruits and conducted assessments for the selection of special duty within the Navy. Today, Allied Scientists are involved in research, development, testing and evaluation.

Physiology (1835) and Aerospace Physiology (1836) subspecialtics were developed to meld man and machine. These subspecialties concentrate on thc human factor stressors which establish safe tolerances or limits to adverse environments and identify multi-disciplinary concerns throughout the fleet. Radiation Health officers (1825) evolved from technological advancement and thc development of nuclear power and medicine in the early 1950s. Today, Radiation officcrs support and serve in many capacities: radiobiology, nuclear medicine, and nuclear research and safety activities.

Medical Technology officer's (1865) developed out of a combination of Medical, Nurse, and Hospital Corps personnel. In the late 1800s, Medical officers ran laboratories and Nurscs with Hospital Corps personnel supported clinic operations. After the late 1950s, the medical technologist's field was restructured. Navy Nurses were undermanned and expected to support nursing services. Navy Medicine recognizcd a need for research and allied Scientists; which included Blood Banking capabilities. Today, medical technologists serve in joint arenas, military treatment facilities, blood banks, and support forward operating bases. They are supportcd by Microbiologists (1815) who develop means for detecting and combating natural and man-madc biological thrcats, conduct rcsearch and dcvclop vaccincs, antibiotics, and diagnostic reagents. In addition Toxicologists (1811) and Biochemists (1840) provide support in technical and administrative expertise in research.

Thc allied sciences group of the Medical Service Corps has gone through many years of restructuring. During World War II, allied support staffs were integrated among the Corps. After World War II, the Navy restructured and divested many of the Scientist billets. Navy Medicine recognized the need for these professions and established one of the four groups with the enactment of the Medical Service Corps in 1947. Today, Scientists make significant

contributions to Navy Medicine which sets the Medical Service Corps apart from other organizations. The combination of all three subspecialties, make the Medical Service Corps strong, unique, and difficult to imitate.

Navy Officer Career Development

As posited by Dalkey (1969), a consensus of expert group opinion can be useful for self-assessment, mentoring, and professional development. By providing a foundation for junior officers to build on through out their career, identifying core competencies and important SKAs will support the common goal to develop interoperable Medical Service Corps officers who are ready to take the next challenge. One key tool that supports the self assessment of the Medical Service Corps officer is the career roadmap. This roadmap educates Medical Service Corps officers on milestones in their career including: billet or duty station selections, educational opportunities, and affiliations with professional organizations which support career development. As stated by Blanchard (1983), "Feedback is the breakfast of champions" (p. 36), the career roadmap identifies significant milestones and provides expectations for the Medical Service Corps officer to follow. Identifying core competencies and important SKAs will complement this document and align with the mission of Director of the Medical Service Corps to build diversified Medical Service Corps officers to support the joint environment.

Supporting the development of Medical Service Corps officers and the career roadmap is mentoring. Mentorship refers to a developmental relationship between a more experienced mentor and a less experienced partner referred to as a mentee or protégé -- a person guided and protected by a more prominent person (Abbreviated Mentorship Guide). Flynn (2003) suggests mentoring is effectively used in many organizations as a way of developing new accessions knowledge of values, beliefs, and practices, thus implanting the organizational culture. Horgan &

Simeon (1991) propose that mentorship generates more productive, efficient, and effective professionals. A long standing tradition of the Medical Service Corps, mentorship has been established as a key element of leadership or building from within as stated by Gray (1997). This key is a primary tool for promoting officer growth, development and professionalism.

Delong, Gabarro, and Lees (2008) state, "mentoring today is what matters most in our hypercompetitive world. Today's professional service firms are so busy making money that they've lost the art of making talent. Many organizations today struggle to retain professionals: the loyal, cooperative culture that organizations enjoyed just five years ago have all but evaporated" (p. 115). Additionally, they posit young professionals see themselves as free agents, and stay only until a choicer offer comes along or are trying to maintain work life balance. These changes in the workforce may have second and third order effects on the healthcare environment and culture of military health system. Identifying and taking notice of these changes, including the impact of operational change makes the development of junior Navy Medical Service Corps officers unique. As junior Navy Medical Service Corps officers are expected to take increasingly challenging roles, mentorship programs are more important than ever to steer the Medical Service Corps officer onto the pathway to success.

Professional development refers to required skills for maintaining subspecialties, skill sets, and personal goals through the concept of lifelong learning. Additionally, professional development envelops the concept of continuous process improvement which promotes high standards, responsibility, and ownership. This concept coupled with self assessment and mentoring help to build and guide a Medical Service Corps officer which contribute to successful

retention, career satisfaction, better decision making, and greater perceived competence (Olfert, 2006).

Statement of the problem

Purpose of the study

The purpose of this Delphi study is to identify the relevant competencies and important SKAs required of junior Medical Service Corps officers into the next five to ten years.

Research questions

There are four research questions to be answered in this study. The first question is, "What are the relevant competencies and important SKAs for junior Navy Medical Service Corps officers?" Identifying competencies and important SKAs are a vital step in building a comprehensive professional development system for junior officers. As the Military Health System changes so does the workforce. Generation Y, a force of as many as 70 million are now beginning to embark on their career including the military health system. This generation as suggested by Blass (2005) has high expectations of their employers and they want fair and direct managers who are highly engaged in their professional development. The identification of core competencies and SKAs could help to support the professional development of junior Navy Medical Service Corps officers.

The second research question to be answered in this study is, "Are there differences of SKAs in each domain?" As suggested by Marty (2005), junior officers forecast that leadership, essential resources, and environmental analysis domains comprise the top ten relevant competencies domains for the next five to ten years. The senior officers responded with similar

domains, but different SKAs associated with the domains. This study seeks to identify if there are differences of SKAs in each domain as seen in Marty (2005) study.

The third research question that will be answered, "Are there differences among the ratings of clinical, scientific, and administrative SKAs to overall group membership?" This research question has not been addressed across the Medical Service Corps at the junior officer level. As stated by Rear Admiral Mittelman (2007) "our Corps is vibrant and our Corps is strong. The future is bright. However, demands of a changing world present new opportunities. I believe these will require us to become less specialized in some areas in order to be more interoperable and function more efficiently in a joint environment" (p. 2).

The fourth research questions that will be answered, "Are their significant interaction effects to overall group membership?" Statistical significant differences of SKAs among different subspecialties may suggest to senior Medical Service Corps decision makers that although the Medical Service Corps is unified, career road maps, education programs and training may need to be realigned.

Assumptions

The assumptions of the conditions prompting this study were respondents used; their insights, experience, and were able to predict the future better than theoretical approaches or trend extrapolation. Additional assumptions included that the respondents had no previous communication regarding the study and represented diverse backgrounds with both experience and expertise as suggested by the respondent's diverse subspecialties. Vital to the validity of the study, the use of the Delphi study provides the exchange of ideas with respondents all over the world including personnel deployed in a combat environment.

Ethieal Statement

Ethical considerations for this researeh included anonymity and eonfidentiality. Anonymity was ensured with the use of online eommunieations tools and eonfidentiality was guaranteed by discarding respondents personal information after the data from Wave II was entered into eleetronie format. In addition, all responses were put into proper eontext when input into data tables and appendixes.

Literature Review

Navy Healthcare Executive Studies

Over the last nine years, numerous studies have doeumented the importanee of identifying eore competeneies for Navy healtheare exeeutives. An initial Delphi study eondueted by Sentell & Finstuen (1998) of senior Navy hospital exeeutives identified 106 unique issues that were separated into nine domains. Results indieated that while business orientation is needed for organizational survival, an emphasis on person-oriented SKAs is required for future success as a healtheare exeeutive in the Navy healtheare system. A Delphi study eondueted by Marty (2005) tested whether or not core competeneies from Sentell & Finstuen (1998) had ehanged for senior Navy Exeeutives. Results indicated that eompeteneies surrounding interpersonal skills were still as important in 2005 as they were in 1998. Competeneies and SKAs surrounding strategie planning and understanding the environment emerged as most eritieal for senior Navy healtheare exeeutives into the next five to ten years. Marty also tested the differenee of opinions between senior and junior Navy hospital executives. Results indieated statistically signifieant differenees in opinions between groups and among 20 of the 100 individual SKAs rated indieating that senior and junior healtheare exeeutives had very real differenees in opinion regarding required exeeutive skills. Marty suggests, "This study indieates a need for improvement in the

development of junior Navy healthcare executives specifically in the area of interpersonal skills and understanding the environment" (p. 31).

In between these studies Hudak, Brooke, and Finstuen (2000) conducted a thorough review of a series of Delphi Studies. To ensure consistency of the Delphi technique, Hudak, et al. (2000) analyzed six Delphi studies conducted on senior healthcare executives, regardless of education or background, which identified core competencies and SKAs required to support the achievement of competencies. The analysis identified that leadership and resource management competencies, including cost and finance, were the highest rated competencies which did not appear to vary from 1995 to 2000. "Interpersonal skills" ranked within the top SKAs and "Job specific technical skills" ranked within lowest SKAs. A common thread identified throughout the study was "Communication skills." Of particular interest during the time of this study, ethics was found to have a very low rating.

Through analysis Hudak, Brooke, and Finstuen (2000) infer that, "there is not any predetermined set of competencies that can be considered off-the shelf-package. On the contrary, it appears that the competency mix may be related to the executive's position and educational background" (p. 235); suggesting different competencies are required for varied specialties. In addition, Hudak et. al (2000) recommend executives who change positions develop a repertoire of competencies to meet the changing demands of the environment. Although competencies within this study varied, there was an agreement on the top 10 competencies. The data suggest regardless of educational background or environmental setting, senior healthcare executives should possess diversified human relations skills, in addition to well developed finance and quantitative skills. The data also identified that the lowest rated SKAs had broad dispersion and discrete specificity.

To determine requisite management competencies and SKAs, Hudak, Brooke, and Finstuen (2000) recommend and validate the use of the Delphi technique to identify core competencies and important SKAs for non-healthcare executive managers, i.e. students, Clinicians, and mid level managers. They suggest that the Delphi technique, as developed by Rand, has demonstrated appropriateness in a variety of healthcare settings to establish priorities and predict future trends. In addition, they posit by applying the findings of Delphi studies, executives and educational programs can determine course content, areas for further research, and through research identify competency gaps.

Other Service Studies

Meadows, Finstuen, Hudak, Carillo, Lawrence and Wright (2003) conducted a study on the perception of Managerial and Administrative competencies of professional Pharmacists in the U.S. Department of Defense. This study was conducted to determine whether junior and senior executives had differences of opinions on managerial and administrative competencies. Expanding a previous study conducted by Meadows, Finstuen, and Hudak (2003), 218 junior (0-3 and below) Department of Defense pharmacy officers were asked to complete the same questionnaire as senior pharmacists did. Similar to the Marty (2005) study, the findings inferred that competencies domains were similar, but relative importance of specific items within the domains differed. In particular, junior officers identified more SKAs in the domains of human resources, pharmacy operations and business practices, drug therapy management, and leadership, where as senior pharmacists placed a greater emphasis on the importance of SKAs with the financial resources and pharmacy benefit management domains.

Development of Competencies

Introduced in the management field in the 1990 Harvard Business Review, Prahalad and Hamel developed the Core Competence model, a corporate strategy model, which initiated the strategy process by thinking about the core strengths of an organization. This model contradicted the outside in model which focused on the market, the competition, and personnel as a starting point. They suggested that an organization should be built around a core of shared competences. These competences, focused on corporate strategy, are built through a process of continuous improvement and enhancement which in the long run, creates competitiveness in the organization. The ability to build a core competence at a lower cost and more speedily than others, provides the organization with a quicker response time to changing markets. In addition, they described a core competency as the management concept of corporations possessing specialized expertise in a specific area as a result of harmonizing complex streams of technology and work activity (Prahalad & Hamel, 1990).

Following Prahalad and Hamel, numerous researchers tried to further define the meaning of core competencies. Gallon, Stillman, & Coates (1995) assert that core competencies are more than the traits of individuals: core competencies are "Aggregates of capabilities, where synergy is created that has sustainable value and broad applicability"(p. 22). Coyne, Hall & Clifford (1997) posit that "A core competence is a combination of complementary skills and knowledge bases embedded in a group or team that results in the ability to execute one or more critical processes to a world class standard" (p. 40) reinforcing that to make a superior product, skill and knowledge need to be complementary.

Individual's core competencies are determined by two groups of factors: 1) skills, knowledge and technical qualifications and 2) behavioral characteristics, personality attributes,

and individual aptitudes as defined by Guidestar (2007). Core competencies can take various forms, including technical/subject matter know how, a reliable process, and/or close relationships with customers and suppliers (Mascarenhas, Baveja, & Jamil, 1998). Defined by Spencer and Spencer (1993) a competency is an underlying characteristic of an individual that is casually related to criterion-referenced effective and/or superior performance in a job or situation (p. 8). Additionally, as stated by Shaughnesy (1992) competencies break into three main categories: knowledge, skills, and attitudes. Each category includes attributes such as subject expertise, question negotiation, and service orientation.

Prahalad and Hamel (1990) state a competence is a bundle of skills and technologies rather than a single discrete skill or technology. Coupled with the thoughts of Bonn (2001) , core competencies are rarely the reaetion of one department or an individual but that of a group; suggesting core competencies exist for the subspecialty groups of the Medical Service Corps sueh as Administrators, Clinicians, and Scientists. The combination of these subspecialtics creates a unique capability that sets the Medical Serviee Corps apart from other organizations. The competencies together define a set of unifying principles for the Medieal Service Corps and make the diversified group unique. The SKAs associated with these eore eompeteneies are woven into the fabric of the Medical Service Corps and need to be continually resurreeted.

Prahalad and Hamel (1990) suggest that individual competencies are difficult to definc but the eumulative total of eore eompeteneies is between five and 15. Competeneies today are the foundation on whieh organizations are built. They provide strategy and uniqueness to an organization and are rare and difficult to imitate. Today, eompeteneies are being utilizcd to increasc both knowledge and skill and also increase and devclop higher quality serviee to meet

the needs of the organization, creating synergy, while improving the organization by developing people.

In support and further delineating the definition of competencies and capabilities, Krisinger (2003) suggests that the Secretary of the Air Force influenced by the corporate-management style of today's Department of Defense (DOD) as well as his own experiences in the defense industry, helped explain the change to the service's own assertion of its identity by saying that "just as our concepts of operations and capabilities continually evolve, so also does the way we articulate Air Force competencies" (p. 2). This change in thought of redesigning original core competencies offers insight into how recent changes affect culture and the capability of personnel to understand those competencies and clearly communicate them to sister services.

For the purpose of this paper, the following definitions will be used. Competency is an element of professional performance reflecting occupational or job experience and qualification. Skills include technical expertise. Knowledge is the possession of facts and principles and abilities address the physical, mental, or legal power required to support the achievement of competencies (Hudak, Brooke, & Finstuen, 2000). These three elements combined are required to support the achievement of competencies.

Methodology

Design Overview of the Delphi Technique

After trying many approaches to combat the short comings of forecasting methods, the Delphi method was developed in RAND Corporation during the 1950-1960s (1959) by Olaf

Helmer, Norman Dalkey, and Nicholas Rescher. This process was originally developed during the cold war to forecast the impact of technology on warfare. An initial study conducted by the U.S. Air Force was used to forecast the future of military technological capabilities. Two years later, another aircraft company started Project Rand to study the broad subject of inter-continental warfare other than surface.

Employed since the 1960's, the Delphi technique has been used to determine priorities and forecast future trends. The Delphi method recognizes the value of expert opinion, experience and intuition and allows using the limited information available in these forms, when full scientific knowledge is lacking. Applied across many disciplines including medicine, administration, technical forecasting and program evaluation, the Delphi technique has become a widely recognized consensus-building tool. In the last ten years the increased utilization of the Delphi technique among healthcare executives, has validated the techniques relevancy to forecasting outcomes of new policies, identifying core competencies, and identifying SKAs (Rowe & Wright, 1999).

In accordance with Dalkey (1969) the Delphi technique is, "Above all, a rapid and relative efficient way to 'cream the tops of the heads' of a group of knowledgeable people" (p. 16). It seeks to obtain a consensus of expert opinions through a series of structured questionnaires characterized by anonymity of responses and controlled feedback. This technique allows respondents to state their opinions, discover other viewpoints, raise issues and potential problems, set goals and priorities, and come to a decision. Due to anonymity, controlled feedback and statistical group response, Dalkey states, "That the results of a Delphi exercise are subject to greater acceptance on the part of the group than are the consensuses arrived at by more

direct forms of interaction" (p. 17). Additionally, data from the responses generate a common language among the field experts and executives (Patton, 1986). Furthermore Delbecq, Van de Ven, & Gustafson (1975) suggest, "It can also be used to clarify positions and delineate differences among diverse reference groups" (p. 85).

A multiple iteration decision-making technique, the Delphi process allows for anonymity in aggregating expert opinion within a specific profession. It is a series of questionnaires and ends when consensus has been achieved among respondents or when sufficient information has been exchanged. Cline (2000) states, "The Delphi is particularly appropriate when decision making is required for subjective or emotional environments. This tool works formally or informally, in large or small contexts, and reaps the benefits of group decision making while insulating the process from the limitations of group-decision making: e.g. over dominant group members or political lobbying" (p. 2). The Delphi has the added advantage to work as an informal, subjective model when decisions are based on opinion and can be directly converted to a formal model, when the data is more knowledge-based (Cline).

The Delphi technique includes a series of rounds of questions asked of experts on the subject, known as iterations. The experts submit their judgments, researchers tabulate, and the results are sent back to the experts for modification. The experts in this second iteration are asked to reevaluate their original judgments in light of the average estimates calculated in the first round. This procedure of reevaluation is continued for several waves until a fair degree of consensus is reached, or until the experts no longer modify their previous estimates (Rowe & Wright, 1999).

Experimental Design

This study applied two separate iterations, Wave I and Wave II. Wave I employed an open-ended questionnaire presented in an unstructured format allowing for creativity, exploration, and expression in responses. Through content analysis respondents ranked the top five relevant competencies and important SKAs with each competency as defined by in zone and junior eligible Lieutenants with a date of rank of 01 July 2002 through 01 July 2005 holding the primary or secondary subspecialty of 18XX or 3XXX. Data was summarized and presented to an expert panel that ordered, sorted, and reviewed the competency domains and SKAs. Once data was synthesized, Wave II was initiated. Responses were sent to all eligible respondents. Respondents were asked to rate the important SKAs of the identified relevant competencies. Participation was encouraged even if a Wave I questionnaire was not completed. Data was compiled and summarized to finalize the study.

Descriptive statistics were conducted on demographic data and SKA ratings from the responses received in Wave II. In addition, a two-factor split-plot analysis of variance (ANOVA) mixed design with repeated measures on one factor was performed within each competency domain to determine if there were statistically significant differences among the mean ratings of identified SKAs among three groups; Administrators Vs. Others; Clinicians Vs. Others; and Scientists Vs. Others.

An ANOVA tests the significance of group differences between two or more means as it analyzes variation between and within each group. A two-factor split-plot ANOVA or Mixed Design is a combination of the characteristics of the one-factor repeated measures and the two factor fixed effects model. It is unique because there are two factors, only one of which is repeated. One of the factors is a between subject factor, and the other is a within subjects factor (Lomax, 2007).

In this study, the Administrative Vs. Others, Clinicians Vs. Others, and Seientists Vs. Others represented three-two group faetors and their ratings of the SKAs within the identified competeney domains represent the observations being examined. An ANOVA with repeated measures tests the equality of means, however a repeated measures ANOVA is used when faetors are measured under a number of different eonditions, ie. SKAs . ANOVA tests the equality of means. ANOVA with repeated measures is used when all members of a random sample are measured under a number of different eonditions, ie. SKAs . Using a standard ANOVA to tests these differenees would fail to model the correlation between the repeated measures; the data violate the ANOVA assumption of independenee. If any repeated faetor is present then repeated measures ANOVA should be used (ACITS, 1997). In this study the respondents are rating several SKAs within a single competeney domain. Eaeh rating of an SKA is a repeated measure of the respondent's opinion regarding that speeific competency therefore, a repeated measure ANOVA will be eonducted.

The two-faetor split-plot ANOVA had an alpha level of .05. This allowed the researeher to test main effeets for group membership (Administrative Vs. Others, Clinicians Vs. Others, and Seientists Vs. Others), the importanee of each SKA within the speeifie domains, and the potential interaetion effeets among the SKA ratings. Testing interaction between factors oecurs when the effect of one factor depends on different levels of the other factor (Gravetter&Wallnau, 1999). ANOVA only determines the signifieanee of group differences and does not identify whieh groups are significantly different, if interactions effects were present post hoc tcsts were conducted on each SKA within that domain in order to dctcrminc which SKAs resulted in statistieally differenees between the three groups (Mertler & Vannatta, 2005). In ordcr to evaluate whether a significant interaction effect cxists, the ANOVA proeedure first computed the

mean differences that could not be explained by the main effects. As statistically mean differences are identified, the traditional F test of variance between subjects/variance expected due to chance (error) is changed to variance not explained by main effects/variance expected due to chance (Mertler & Vannatta, 2005).

Sampling

To identify core competencies and important SKAs for junior Navy Medical Service Corps officers regardless of subspecialty, active duty Medical Service Corps officers in or above zone were solicited for their expert opinion. This population was selected for the most reliable consensus of expert opinion for the success of junior Navy Medical Service Corps officers in the next five to ten years. As suggested by Dalkey, 1969 the Delphi method recognizes the value of expert opinion, experience and intuition and allows using the limited information available in these forms, when full scientific knowledge is lacking (Dalkey 1969).

To conduct the study, an estimate of FY09 promotion zones for Lieutenant Commander, including in zone and junior eligible with a date of rank from 01 July 2002 through 01 July 2005, including lineal numbers of 10872400 through 12803800 were identified. Total population of 553 was derived from the manpower database obtained from Navy Medicine, Manpower, Personnel, Training & Education Command dated April 2007. This population is comprised of 303 Medical Service Corps officers holding clinical subspecialties and 250 Medical Service Corps officers holding administrative subspecialties.

Online Computer Communication

Research from previous studies suggests that response rates from junior officers are generally lower than senior officers with an expected response rate of 15 percent. To maximize participation and identify core competencies for all subspecialties within the Medical Service Corps, CAPT Martie Slaughter, Medical Service Corps Career Planner sent an email to the specialty leaders explaining the Delphi process, the significance of the study, the importance of participating, and promoted the study in collaboration with Office of the Medical Service Corps and Navy Manpower Training and Education (see Appendix A). Due to the myriad of professions within the Medical Service Corps, the use of electronic media originating from the specialty leaders ensured connections throughout the globe, including forward deployed personnel. In addition to connectivity, rapid unbiased consensus was achieved and as stated by Dalkey (1969) "Anonymity, effected by the use of questionnaires or other formal communication channels, such as online computer communications, is a way of reducing the effect of dominant individuals" (p. 16).

A second email was sent to the respondents further explaining the steps of the Delphi process. This letter explained that the respondent's expert opinion could help shape the future force of Navy Medicine and aid in the development and modification of Medical Service Corps educational programs, career planning guide, and roadmaps (see Appendix B).

Wave I

Open ended questionnaires were posted on Navy Medicine Online and a link was sent via email to active duty Medical Service Corps officers population on 24 September 2007. This link was sent to Lieutenant Medical Service Corps officers in zone or junior eligible for promotion to

Lieutenant Commander with a date of rank of 01 July 2002 through 01 July 2005, and holding the primary and secondary subspecialty of 18XX as of April 2007 (see Appendix D).

Wave I employed an open ended questionnaire that asked the respondents to personally consider the top five relevant competencies that junior Navy Medical Service Corps officers need in the next five to ten years. The respondents were asked to define each competency as clearly as possible, making sure to avoid generalized or categorical terms. Additionally, for each identified competency, the respondents were asked to list what they considered to be the important and necessary skills, knowledge, abilities that would be required to achieve and/or execute the identified competency.

The deadline for Wave I responses was 20 October 2007. Utilizing the Navy Medicine Online survey tool, respondents' responses were automatically entered into a database. The researcher exported the database file into an EXCEL spreadsheet which provided a preliminary list of competencies and important SKAs. The researcher compiled similar competency items into groups and identified tentative domain names for like groups. The researcher then calculated the frequencies of all items and then further delineated unique items in each tentative domain group. This data was compiled and then put into Tentative junior Navy Medical Service Corps Competency Domains and Initial Frequency Counts and presented to the expert panel (see Appendix F).

Expert Panel

Once Wave I was completed an expert panel selected by Captain Martie Slaughter meet at Bethesda National Medical Center on 29 October 2007. LCDR Christine Palarca explained the

Delphi methodology and expected outcomes to the expert panel with the researchers providing administrative support. The expert panel consisted of six Medical Service Corps officers with the rank of Lieutenant Commander possessing diversified subspecialties who reviewed, sorted, and named competencies identified by the respondents (see Appendix E).

WAVE II

After the expert panel made recommendations on WAVE II, questionnaires were sent out via email on 13 November 2007 to the total population of 553 Medical Service Corps officers regardless of response from Wave I. To maximize response rate for Wave II, the researchers offered the respondents both a link to the questionnaire via Navy Medicine Online and provided a text form to automatically send back to the researchers (see Appendix G). The respondents were asked to rate the 100 SKAs items in the questionnaire according to relevance and importance dealing with the types of competencies listed utilizing a 7 point Likert scale, 1= indicating unimportant and 7 =very important.

Respondents were asked to fill out background and demographic data including: Age, gender, primary and secondary subspecialty, current duty station, job title, education, and years on active duty, deployment experience, and professional affiliation association. In early December 2007, Specialty Leaders and Directors for Administration sent out supporting emails requesting maximum participation (see Appendixes B and C).

Validity and Reliability

Validity of measurement is addressed and accounted for in this study by the following: Face, content, construct, and internal validity. Face validity, the reasonableness of the study, is met by using subject matter expert terminology. Unlike content validity, face validity does not

depend on established theories for support (Fink, 1995). Content validity is addressed by using responses from experts within the Medical Service Corps. Construct validity is attained through the replication of data-gathering methods, procedures, techniques, and analysis of previously published Delphi technique studies using iterations. Furthermore, the Delphi technique has been used across several disciplines and has produced consistent and similar results.

Inter-rater reliability was tested using Cronbach's coefficient alpha (Nunnally, 1978) as shown in Table 5. The alpha coefficient measures the internal consistency of rating responses and represents the stability of the item rating means. Reliability is considered statistically significant when greater than or equal to .70, indicating evidence of consistent and reproducible levels of importance rating agreement (Nunnally, 1978).

In addition, Pemberton (1933) and Miller (1956) posit that a seven point Likert scale provides the optimum number of responses for continuity and reliability. Munshi (1990) completed a study to develop a method for determining the number of choices that should be used in conjunction of Likert scales. The data from this study suggests that a Likert scale with seven points would generate data that can be used as interval data with lower measurement error validity (validity) and a correspondingly higher precision (reliability) when compared with five point equal interval scales.

Results

Wave I: Analysis of Forecasted trends

Wave 1 was sent to 553 officers in September of 2007. A total of 180 officers were not reached for a total of 373 officers. A 19 percent response rate was achieved with 68 officers

responding to Wave I questionnaire. This response rate is considered adequate based on response rates from previous executive skills studies employing the Delphi technique (Hudak, Brook, & Finstuen, 2000).

Refining the Competency Domains: Content Analysis

In October of 2007, the expert panel was provided a copy of the Tentative junior Navy Medical Service Corps Competency Domains and Initial Frequency Counts with a total frequency of 311 response competency items with 139 unique competency items and preliminary group of 19 domain categories (see Appendix E). The expert panel then examined Wave I competency responses, sorted the competency items into like content domains, and provided labels for the domains (groupings of competency items) in job-related, Navy Medical Service Corps language. In addition, the expert panel combined response competency items into like items reducing redundancy.

After the expert panel sorted, combined, reduced, and expanded competency items the researchers reformatted the tentative table counts and developed the junior Navy Medical Service Corps Competency Domains and Frequency Counts which included 11 competency domains, 300 response competency items, and 62 unique items (see Appendix F). Similarly, SKAs were associated with each competency and their frequencies were determined. Competency items were combined by the expert panel into meaningful domains eliminating them due to redundancy in language.

After the expert panel identified competency domains, items and unique items, the researchers calculated the percentage of items in each domain and identified the number of SKAs to be added to the Wave II questionnaire. For example: 57 items out of a total of 300 items were

in the Leadership domain representing a 19 percent response rate. Using a 100 question questionnaire, the researchers selected 19 SKAs associated with Leadership and added them to Wave II questionnaire. This process continued for each domain which totaled 100 questions.

The expert panel had a total of 66 years of experience, 11 years of deployment service with 67 percent of the panel deploying. The average age of the expert panel was 40 years of age. All personnel had a Bachelors degree with 67 percent having a Bachelor of Science Degree and 33 percent having Bachelor of Arts. In addition, all personnel on the expert panel had Master's Degree including Juris Doctor/Masters in Business (JD/MBA), 3 Master of Science (MS), Master of Public Administration (MPA), Doctor of Optometry (OD). Furthermore 3 personnel had a Doctor of Philosophy (PHD).

Wave II: Analysis of Content

Using the 100 SKA item statements, the same pool of potential respondents were tasked to rate the relevant competencies and important SKAs by assigning importance ratings to each SKA item based on a 7-point scale, 1= unimportant and 7= extremely important. Of the 373 junior Navy Medical Service Corps officers, 80 responded for a response rate of 21 percent.

Demographics

The respondents were approximately 36.63 ± 4.92 years old with 11.62 ± 6.68 years of experience with 30 percent of respondents being female and 70 percent being male. A total of 84 percent of respondents were associated with professional organizations. All 80 respondents had a bachelor's degree with 71 respondents having a Masters Degree and 9 respondents holding a

doctorate or higher. Overall 62.50 percent of respondents had deployed approximating 1.43 ± .73 times.

Overall summarizing the demographics for all three subspecialty groups within the Medical Service Corps, the Administrators were oldest with 38 ± 3.6 years compared to the Clinicians with 33.00 ± 6.3 years and Scientists with 36.74 ± 4.51 years. Additionally, the Administrators had a higher mean average of years of experience of 15.22 ± 6.17 years compared to Clinicians with 8.58 ± 7.25 years and Scientists with 9.11 ± 6.6 years. Administrators and Scientists represent approximately the same gender structure with 74 to 77 percent male and 33 to 36 percent females, where the Clinicians represent 50 percent males and 50 percent females. Professional affiliation varied by subspecialty with the highest rating of American College of Healthcare Executives (ACHE) at 17 percent for Administrators and an other category at 16 percent for both Clinicians and Scientists. The number of times deployed varied by subspecialty with 74 percent Administrators deploying, 50 percent of Clinicians deploying, and 47 percent of Scientists deploying.

The response rate of respondents sorted by subspecialties as identified in Table 3 were in alignment with the respondent population as identified in Table 4. This is in contrast to the overall structure of the Medical Service Corps where Clinicians and Scientists make up approximately 60 percent and Administrators make up 40 percent. The overall response rate of Clinicians and Scientists were 46 percent and 54 percent for Administrators. Administrators holding the primary subspecialty of Healthcare Administration (1800) represented a total of 32 percent of respondents. This group was comprised of secondary subspecialties including: Healthcare Administration (1800) 12 percent, Patient Administration (1801) 19 percent, Medical

Logistics Administration (1802) 7 percent, Plans Operations and Medical Intelligence (1805) 21 percent and Comptroller (3112) 2 percent.

Clinicians had a total response rate of 23.75 percent for all respondents. Optometry (1880) had the highest response rate of 10 percent, Clinical Psychology (1840) followed with 5.0 percent. Scientists had a total response rate 22.50 percent for all respondents. Aerospace Experimental Psychology had the highest response rate of 5.00 percent, with Biochemistry(1810), Microbiology(1815), Environmental Health(1860), Industrial Hygiene (1861), and Medical Technology(1865) each representing 2.50 percent. Table 4 identifies the composition make-up of the pool of respondents.

Descriptive Statistics

Respondents rated 100 SKA items by utilizing a 7 point Likert scale, 1 = indicating unimportant and 7 = very important answering the first hypothesis, indicating relevant and important SKAs for junior Navy Medical Service Corps officers. Coefficients were computed for each Medical Service Corps subspecialty group: Administrators, Clinicians, and Scientists for each of the 11 domains. Coefficients of all respondents ranged from .59 in the Communication domain to .91 in the Management domain. Additional coefficients lower than the acceptable level of .70 discussed by Nunnally (1978) were in subspecialty group domains of Joint Operations for Administrators .69 and Core Values for Clinicians .69 suggesting that the results in these domains may not be reliable.

SKAs rated by Administrators, Clinicians, and Scientists had importance ratings between 3.61 and 4.5 suggesting that respondents were undecided or neutral in certain items. The highest relevant competency and important SKA for junior Navy Medical Service Corps officers was "Doing the right thing when no one else is around" in the Core Values domain. This SKA was

consistent with all subspecialty groups; Administrators rating 6.65 ± 0.61, Clinicians rating 6.33 ± 0.75, and Scientists 6.63 ± 0.67 as shown in Tables 6 through 9. The lowest relevant competency and important SKA for junior Navy Medical Service Corps officers was "Maintaining correct forensic practices at DOD drug testing laboratory" found only with the Scientists, rating the SKA 4.68 ± 2.18 and Administrators rating the SKA 4.35 ± 1.68 as identified in Tables 10, 11, and 13.

Junior Navy Medical Service Corps group mean importance ratings and standard deviations for the two highest-rated items within each of the 11 domains are shown in Table 14. All three groups rated same SKAs as the top two most important in five domains including: Communication, Operational Experience, Mentorship, Military Knowledge, and Subspecialty Expertise. Additionally, Administrators and Scientists rated the same SKAs as the top two most important in four other domains including: Management, Core Values, Strategic Management and Planning, and Joint Operations.

Out of the top 15 SKAs identified by all Medical Service Corps subspecialty groups, two common SKAs emerged within the Core Values domain "Judgment" and "Doing the right thing when no one else is around." Shown in Table 7, Scientists and Administrators have like rated SKAs including: "Ability to read, write, and speak," "Initiative and drive," "Demonstrate core values," "Integrity," "Ethical decision making while leading," and "Resourcefulness (knowing where to look for information)." Administrators and Clinicians only rated one like SKA "knowledge of your specialty area." Although only five like SKAs were rated within the top 15, all responses included SKAs in the like domain of Core Values. The next highest domain for each subspecialty group was: Administrators within the Leadership domain, Clinicians within the Operational Experience domain and Scientists within the Communication domain.

Overall the highest rated 15 SKAs included: seven SKA items from the Core Values domain, four SKA items from the Leadership domain, one SKA item from the Communication domain, one SKA item from the Joint Operations domain, one SKA item from the Subspecialty Expertise domain, and one SKA item from the Strategic Management domain. Overall the lowest rated 15 SKAs included: seven SKA items from the Subspecialty Expertise domain, four SKA items from the Management domain, three SKA items from the Professional Development domain, and one SKA items from the Operational Experience domain. All but one SKA item differed from highest to lowest rated by domain Subspecialty Expertise.

Out of the lowest 15 SKAs identified by all Medical Service Corps subspecialty groups, one common SKA was found within the domain of Management, "Civpers (GS) Mato contracts ISA contracts Vs. Non – Personal contracts staffing models staffing benchmarks" (see Tables 10 through 13). Although only one SKA was found consistent throughout all subspecialty groups, Scientists and Administrators had nine like SKAs including: "Understand how supplies are ordered…," "Market analysis job availabilities, resume writing and transition or adjustment tools," "Professional affiliation," "Forecasting Homeland Security Medical Planning Expeditionary Medicine," "Maintaining correct forensic practices at DOD drug testing laboratory," "Strategic Management COCOM structures," "Implementing quality management strategies including Shewart cycle, feedback mechanisms and performance metrics M2, lean six sigma, AHLTA," "Scheduling both clinical and administrative staff," and "Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills." In contrast, Administrators and Clinicians had two like SKAs: "Statistical analysis (regression, ANOVA, correlations), experimental design, critical thinking, interdisciplinary skills" and

"Basic competencies in Chemical/Biological warfare threat environment." Scientists and Clinicians had like SKAs within the bottom 15.

Inferential Statistics

For each of the 11 domains, a two-factor split-plot ANOVA with repeated measures on one factor was used to test the last three hypotheses of differences between overall groups; Administrators Vs. Others, Clinicians Vs. Others, and Scientists Vs. . Others, differences among specific domain items, and the difference between the ratings of specific SKAs between groups to overall group rating patterns. Tables 19, 20, and 21 contain the results of this ANOVA testing. Three F-ratios were obtained for each of the 11 domains; The main effect for overall rating differences between three groups Administrators Vs. Others, Clinicians Vs. Others, and Scientists Vs. . Others, a within effect for overall rating differences within SKA items, and an interaction effect of groups and items. Main effect results revealed that Administrators opinion was significantly different from Others among three domains; Management $F(1, 79) = 5.744$, $p<.05$; Joint Operations $F(1, 79) = 5.877$, $p<.05$; Operational Experience $F(1, 79) = 4.627$, $p<.05$. Main effect results for Scientists revealed they do not differ in opinion from others. In addition, main effect results revealed that Clinicians opinion was significantly different from Others in 7 domains: Management $F(1, 79) = 4.049$, $p<.05$; Professional Development $F(1, 79) = 7.748$, $p<.01$; Strategic Management and Planning $F(1, 79) = 5.510$, $p<.05$; Joint Operations $F(1, 79) = 7.809$, $p<.01$; Military Knowledge $F(1, 79) = 5.775$, $p<.05$; Operational Experience $F(1, 79) = 10.329$, $p<.01$; Mentorship $F(1, 79) = 5.258$, $p<.001$ suggesting that Clinicians have real difference of opinion from the other groups. Interestingly, the three significant differences of opinion for Administrators are like differences found for Clinicians. Overall, this data suggests that there are significant mean differences independent of each other for Administrators

and Clinicians. Furthermore, concluding there are no differences for Scientists opinions to other groups.

Results revealed statistical significance $p < .001$ and systematic within item main effect differences in all three groups in each domain. This provides a measure of variance expected due to chance, such as sampling error. As significance level of $p < .001$, suggests that respondents were consistent with rating responses and concentrated on the task at hand.

Interactions effects were computed for each group producing an F value for each SKA rating within each domain. As suggested by Mertler & Vannatta (2005), "If the interaction is significant, it does not make sense to interpret any main effects. Knowing that two IV's combination result in a significant effect on the DV is more informative than determining that one and/or the other IV have individual effects"(p. 72). In the first group Administrators Vs. Others group, three domains produced statistically significant interaction effects in the domains Professional Development, Subspecialty Expertise, and Communication. In the Scientists Vs. Others group, there was only one domain; Operational Experience with statistical significant interactions effect. Clinicians Vs. Others group showed statistically significant interaction effects in eight of the 11 domains; excluding Core Values, Joint Operations, and Operational Experience. To determine where differences existed, domains that showed statistically significant interaction effects required post hoc tests or multiple comparisons to further examine the SKAs in each domain. Furthermore, main effects showing statistical differences were also tested. Mertler & Vannatta suggest if interaction effects are not significant, then the researcher should evaluate main effects. Whenever group differences are identified, it is appropriate to conduct follow-up post hoc tests to determine where differences lie.

Table 22 presents the findings from the post hoc tests. Overall, significant mean differences were detected in Administrators and Clinicians group for SKA items testcd. Administrator's opinion is significantly different in 11 SKAs from Others. Clinicians have a significantly different opinion in 36 SKAs items from Others. Of importance Scientists, showcd no significantly different opinion in SKAs from other groups.

Discussion

Clinicians rated 36 of 100 SKA items which produced statistical significant differencc which revealed Clinicians differ in opinion from other groups 36 percent of time. Of thesc 36 SKA items rated 32 of thcse SKAs were the lowest rating of the three groups and 20 of the 36 SKAs rating lower than 4.9. This data suggest that Clinicians did not consider thcse SKAs important to the success of the junior Navy Mcdical Servicc Corps officer. In addition, 11 of 100 SKA items rated by Administrators also produced statistically significant differences suggesting that Administrators also had a diffcrencc of opinion from others groups. Comparing mean rating differences among groups as outlined in Table 22, Administrators ratcd 22 of 41 statistically significant differences among all groups the highest, suggesting that Administrators recognized the importancc of the SKA for junior Navy Medical Scrvice Corps officers in thc next five to ten years. Interestingly, 6 SKA items rated among these two groups were like SKA items which produced statistically significancc.

Competcncies should be unique and difficult to imitate. The highcst ratcd percentage within the top 15 competcncies and important SKAs was the competency of Corc Values with a response rate of 47 pcrcent. Interestingly, thc Corc Valucs Domain was the one only domain that did not produce statistically significant main effccts of interactions cffects suggesting that junior

Navy Medical Service Corps officer groups do not have mean differences, or simply stated differ in opinion in this domain. This suggests that in today's changing times, Core Values are at the crux of Medical Service Corps culture. This is in contrast to the study conducted by Hudak, Brooke, and Finstuen (2000) which suggests that ethics received a relatively low rating. In addition, Marty (2005) study had no significant mention of Core Values and juniors rated SKAs in the Leadership domain as most important to succeed in the next five to ten years. The highest rated SKA item in this study among junior Navy Medical Service Corps officers was "Doing the right thing when no else is around" which suggests to leaders, that as leadership opportunities for junior officers increase, Core Values and "leading with integrity" are essential competencies valued throughout the Corps and required for success.

As suggested by respondents, Subspecialty Expertise is a must for success in the next five to ten years. This is in direct contrast to the study conducted by Hudak, Brooke, and Finstuen (2000). As suggested by Hudak et. al the similarities between the least important SKAs in the domain Subspecialty Expertise suggest that executives "may be explicitly recognizing that their upward progression within the organization hierarchy has resulted in their evolution from 'specialists' to 'generalists'"(p. 235). This is in alignment with Admiral Mittelman's statement that the changing times will require Medical Service Corps "to become less specialized in some areas in order to be more interoperable and function more efficiently in a joint environment" (p. 2). This communicates to senior leadership that respondents recognize the importance of being a subject matter expert in their field. In addition, competency and important SKAs should be unique and difficult to imitate at the infancy stage in an officers career, emphasizing subspecialty expertise with the underlying innate abilities of Core Values. Although, this is in alignment with (Rakich, Longest & Darr, 1993 as cited in Hudak et. al, 2000) "the more senior the manager, the

less use of technical skills and the greater use of conceptual and human relations skills"(p. 235), junior Navy Medical Service Corps officers are filling more senior roles early on in their career, emphasizing the importance of having innate human relation skills.

Out of the top 15 SKAs, Scientists and Administrators had nine like items which is greater than any other group combined. Administrators concentrated and communicated the importance of understanding the complexities of finance, statistics, business operations and manpower analysis focusing more on research and process improvement. Similarly, Scientists focused on research and development while documenting process improvement. Where, junior Clinicians directed their responses towards directly supporting the mission of patient care. The difference of opinion from Administrators and Scientists to Clinicians suggests that underlying community specific culture of administration and research and development to patient care has a different focus directing career paths in the Corps. This suggests that although a foundational base must support the subspecialty groups, Scientists and Administrators have similar thought processes on the development of junior Medical Service Corps officers and suggest that their pathways to success can be similarly communicated.

Among the 15 bottom SKAs, all subspecialty groups of the Medical Service Corps had one like SKA of "Civpers (GS) mato contracts ISA contracts Personal Vs. . Non Personal contracts staffing models staffing benchmarks in the domain of Management" with a mean rating of 4.7. Additionally, 17 SKAs were rated between 4.44 and 4.9 suggesting that almost 20 percent of the responses were undecided or neutral. Among those 17 SKAs, seven SKAs were in the domain of Subspecialty Expertise, five SKAs in the domain of Management, four SKAs in the domain Professional Development and one SKA in Operational Experience. Although seven

SKAs, 50 percent of responses in this domain, Subspecialty Expertise are in the bottom ratings, the SKA "Knowledge of your specialty area" with a mean rating 6.50 is found within the top 15 SKAs. This suggests that Medical Service Corps officers expect their colleagues to understand their own specialty and recognize opinion differences between the subspecialties. As an aggregate, as the SKAs became more subspecialty specific such as "Maintaining correct forensic practices at DoD drug testing laboratory" the respondents rated those SKAs with a 4.0, which is a rating of unknown or undecided.

Mentorship SKAs were not found within the overall SKA top 15 ratings but had an overall mean rating of 6.23 ±1.33 with the top 16 percent of responses. Additionally, the top SKA rating for the domain Mentorship, "Develop what you are taught and give it to others as you become more senior" was common among all respondents. SKAs of "Doing the right thing when no one else is around" and "Leading by example" suggest that mentorship is an expected trait of senior leadership that junior officers should emulate. The SKA "Ability to get personnel involved in the community" rated by Clinicians showed statistical difference of opinion from Others. The overall delta between mean rating differences for Clinicians to Administrators was .58 and Clinicians to Scientists .60 with Administrators and Scientists emphasizing community involvement.

Competencies are critical at producing end results. Core competencies and important SKAs in alignment with the mission make up the foundation of the Medical Service Corps. Without a strong knowledge of competencies and important SKAs the Corps may move forward with incorrect information, place its personnel in wrong positions, and decrease overall productivity. As change occurs, so will competencies. One key concept still exists, although competencies will change and adapt to the environment, foundational competencies and

important SKAs should never change. As suggested by Hudak, Brooke and Finstuen (2000) and Marty (2005) no particular trends of changing competencies were identified within the last few studies. Core competencies define who we are and what we do. The Navy should employ this type of questionnaire every five years to assist in determining the pulse of the Corps. As identified throughout this study, each subspecialty evolved from different requirements. To understand the importance of each subspecialty in the Corps, an understanding must exist of both history and future.

Furthermore, differences were identified between this study and Marty's (2005) study. Marty (2005) conducted three Waves; an expert panel, Wave I, and Wave II which included language and expertise of senior Medical Service Corps officers and their responses, and Wave III where junior officers where asked to rate senior officers SKAs. The identified differences of these two studies may lead to an inferred difference and an overall skewed importance of domain language and SKAs. The researcher suggests this study be conducted with senior Navy Medical Service Corps officers to determine similarities and differences among junior and senior Medical Service Corps officers within all subspecialties.

Research Limitations

Ultimately the success of the Delphi study depends on the quality of respondents and their response rate (Turoff and Linstone, 2002). The response rate for this study was 20 percent. Respondent responses were in contrast to the overall structure of the Medical Service Corps including: Administrators response rate of 54 percent and Clinicians and Scientists response rate of 46 percent. Although this response rate is acceptable as documented by Hudak, Brook, and Finstuen (2000), a higher response rate per subspecialty may have produced different results.

Connectivity played a major role in reaching all 553 officers who were identified within the Lieutenant Commander Promotion zone. There were approximately one hundred eighty out of office replies and emails identified as undeliverable to the potential pool of respondents. Aware that movement, including permanent change of stations and deployment, had an impact on reaching respondents; Wave II employed other avenues to reach the population. Wide area networks and local area networks including cross communication between Navy and the Navy and Marine Corps Intranet (NMCI) servers posed difficulties.

The respondents in this study are all junior Navy Medical Service Corps officers limiting the study to support the development of only Navy Medical Service Corps officers and their environment. In evaluation and assessment research, findings are not intended to be externally generalizable, rather they are limited to the environment for which the study is designed (Guba and Lincoln, 1989).

An additional limitation to the study was the composition of the expert panel. Due to unforeseen circumstances, the expert panel was comprised of Caucasian males who were all employed in the Washington, DC area where the cultural environment may differ from the Military treatment facilities.

Conclusion

Rapidly changing dynamics of the military healthcare system combined with shifting needs of the healthcare industry and younger employees entering the workforce, make identifying core competencies for junior officers to succeed in the next five to ten years critical to the development of the Navy Medical Service Corps. Leading such a diverse group of

individuals will take innovative leadership, a complete understanding of each subspecialty and how to motivate different generations of people throughout the Corps. Communicating identified Core Competencies and important SKAs found in this study will facilitate the growth of junior officers along the pathway of success ultimately strengthening the Corps as a whole.

This review integrates with previous Navy research to identify relevant core competencies and SKAs for Navy Medical Service Corps officers. Data suggests that subspecialty groups within the Medical Service Corps have similar opinions on domains but real differences of opinion within SKAs. As SKAs become more specialty specific, a real difference of opinion existed between Clinicians and Administrators and Scientists on what is most important to succeed in the next five to ten years. Results show statistically significant differences in opinion between groups, between the importance of each SKA within specific domains, and between the ratings of specific SKAs among groups to overall group rating patterns causing the null hypothesis to be rejected for all three null hypotheses.

These results suggest that having core competencies and SKAs in alignment with the Navy's motto of honor, courage, and commitment are more important than ever. Junior Navy Medical Service Corps officers must be introduced to these foundational skills early on in their career, and already possess at least a basic innate ability to lead. In today's healthcare environment as business and healthcare continue to merge, senior leaders need to exude characteristics juniors want to emulate.

Recommendations

This study supplements and supports the Navy study of core competencies and important SKAs conducted by Hudak, Brooke and Finstuen (2000) and Marty (2005). The review of literature over the past decade infers that the changing dynamics of the military healthcare system causes competency gaps throughout the system. Although there has been a clear set of competencies defined by junior Medical Service Corps officers, it is apparent that there is a real difference of opinion between Administrator and Scientist and Clinician subspecialty groups of the Medical Service Corps. This analysis suggests the Navy should employ this type of questionnaire every five years to assist in determining the pulse of the Corps and identify requisite competencies and SKAs to be successful as a Medical Service Corps officer. In addition, the analysis suggests this study should be conducted with senior Navy Medical Service Corps officers to determine similarities and differences among junior and senior Medical Service Corps officers within all subspecialties.

Data suggests that the in-processing screening should be extensive. As identified by the respondents of this study in today's healthcare society of environmental, generational, and operational change it is important to recruit officers that have a strong foundation of integrity, drive, and motivation. This study should be shared with the recruiting and retention divisions to ensure new officer accessions exude these innate characteristics. Furthermore to carry on the tradition of "building from within," the Medical Service Corps Community should continue to develop their own personnel through in-service procurement and other officer programs selecting quality Sailors who exude Core Value characteristics early on in their career and come from a diversified background.

The Medical Service Corps has an abundance of strong, talented junior officers searching for senior leaders driven by Core Values to emulate. Although mentorship SKAs were not at the top of the SKA ratings, it is the recommendation of the researcher to pay particular attention to the inferred SKAs communicated by the respondents. Informal mentorship programs that guide, develop, and promote camaraderie are effective tools that promote tradition, team building, and a sense of ownership. Furthermore, an officer's service reputation is built on abilities and characteristics that they exude early on their career. Leaders throughout the MHS need to emphasize the importance of Core Values, teach the foundations on which the Navy was built and demand integrity at all levels. As the MHS continues to pursue excellence in developing processes and access quality controls, this strong foundation, the fabric of the Corps and Navy culture, cannot be relinquished.

Table 1.

Frequency Count of Individual Competencies, Domain Totals, and Unique Competencies from Wave 1 and Expert Panel

Junior Navy Medical Service Corps Officer Competencies within Content Domains				300 Total		62 Unique	
	n		n	n	percent	N	percent
Leadership				57	19.00	1	0.003
Management				51	17.00	11	18.00
Management	17	Organization	2				
Human Resource Management	8	Time Management	2				
Program management	6	Business Management	1				
Finance	5	Outcomes Research	1				
Quantitative Analysis	4	Systems Analysis	1				
Resource Management	4						
Professional Development				39	13.00	11	18.00
Education/Advanced	7	Executive Medicine	3				
Computers/Technical	6	Military Bearing	2				
Teamwork/Team Player	6	Diversity in Assignments	1				
Competence/Cross Competence	5	Military Business Training	1				
Career Development	4	OTAP	1				
Continuous Improvement	3						
Subspecialty Expertise				37	12.00	3	5.00
Subspecialty Expertise	27	Professional Knowledge	3				
Professional Expertise	7						
Core Values				32	10.00	5	8.00
Core Values	11	Ethics	4				
Adaptability	8	Professionalism	2				
Initiative	7						

Table 1. (continued).

	n		n	n	percent	N	percent
Strategic Management and Planning				21	7.00	11	18.00
Creative Think	3	Crisis Resolution	1				
Forecasting and predictive modeling	3	Decision Analysis	1				
Strategic Analysis	3	Planning and Decision Making	1				
Strategic Management	3	Reasoning	1				
Problem Solving	2	Organization Development	1				
Strategic Vision	2						
Joint Operations/Readiness				15	5.00	9	14.50
Operational Readiness	3	Antiterrorism General Threat	1				
Military Mission	3	Joint Forces Training	1				
CBRNE Proficiency	2	Joint Officer	1				
Physical Fitness	2	Joint Professional Education	1				
Operational Risk Management	1						
Communications				14	4.00	6	10.00
Communication	8	Interpersonal skills		1			
Understanding COC	2	Public Speaking		1			
Advising Senior Leadership	1	Risk Communication		1			
Military Knowledge				12	4.00	1	0.003
Military Knowledge	12						
Operational Experience				12	4.00	3	5.00
Deployment Experience	7	Interpersonal skills		1			
Operational Medicine/FMF	4	Public Speaking		1			
Mentorship				10	4.00	1	0.003
Mentorship	10						

Table 2.

Summary of Demographic Data for Respondents

Variable	Administrators (n=43) Mean ± SD[a]	No. (percent)	Clinicians (n=18) Mean ± SD[a]	No. (percent)	Scientists (n=19) Mean ± SD[a]	No. (percent)
Age, Years	38 ± 3.6	-	33.00 ± 6.3	-	36.74 ± 4.51	-
Experience	15.22 ± 6.17	-	8.58 ± 7.25	-	9.11 ± 6.6	-
Sex						
Male	-	33(77.00)	-	9 (50.00)	-	14 (74.00)
Female	-	10(23.00)	-	9 (50.00)	-	5 (26.00)
Professional Affiliation [b]						
ACHE	-	17(39.00)			-	
AAMA	-	7 (16.00)			-	
Other	-	12(27.00)		16(89.00)	-	16(89.00)
None		9(21.00)		2(11.00)		2 (11.00)
Degree Obtained						
Bachelor	-	43(100)	-	18(100)	-	19(100)
Masters[a]	-	40(93.00)	-	15(83.00)	-	16(84.00)
Doctorates	-	0 (0)	-	6(33.00)	-	3(16.00)
Deployment Number of	- 1.43 ±1.28	32(74.00)	- 1.11 ± 1.50	9(50.00)	- 1.16 ± 1.90	9(47.00)

Note. [a]SD = standard deviation. [b]Categories are not exclusive.

Table 3.

Number of Responses by Subspecialty

Subspecialty Code	Subspecialty Name	Total 43	53.75			Total 80
Administrative		n (primary)	%	n (secondary)	%	%
1800	Healthcare Administration	26	60.00	5	12.00	32.50
1801	Patient Administration	2	5.00	8	19.00	2.50
1802	Medical Logistics Administration	5	12.00	3	7.00	6.25
1803	Medical Data Services Administration	1	2.00	-		1.25
1805	Plans Operations and Medical Intelligence	2	5.00	9	21.00	2.50
3000	Resource Management and Analysis - General	1	2.00	-		1.25
3112	Comptroller	2	5.00	1		2.50
3130	Manpower Systems Analysis Management	1	2.00	-		1.25
3150	Education and Training Management	1	2.00	-		1.25
3211	Operations Research Analysis – Analysis and Assessment	2	5.00	-		2.50

Subspecialty Code	Subspecialty Name	Total 19	23.75			
Clinicians		n (primary)	%	n (secondary)	%	
1840	Clinical Psychology	4	21.00	-		5.00
1874	Occupational Therapy	2	11.00	-		2.50
1880	Optometry	8	42.00	-		10.00
1887	Pharmacy	3	16.00	-		3.75
1893	Physician Assistant	2	11.00	-		2.50

Subspecialty Code	Subspecialty Name	Total 18	22.50			
Scientists		n (primary)	%	n (secondary)	%	
1810	Biochemistry	2	11.00	-		2.50
1815	Microbiology	2	11.00	-		2.50
1825	Radiation Health	1	6.00	-		1.25
1836	Aerospace Physiology	1	6.00	-		1.25
1844	Aerospace Experimental Psychology	4	22.00	-		5.00
1845	Research Psychology	1	6.00	-		1.25
1850	Entomology	1	6.00	-		1.25
1860	Environmental Health	2	11.00	-		2.50
1861	Industrial Hygiene	2	11.00	-		2.50
1865	Medical Technology	2	11.00	-		2.50

Table 4.
Subspecialty Demographics

Subspecialty	Subspecialty Name	n=553 Primary	%	n=553 Secondary	%
Administrators					
1800	Healthcare Administration	120	21.70	71	12.84
1801	Patient Administration	31	5.61	24	4.34
1802	Medical Logistics Administration	29	5.24	22	3.98
1803	Medical Data Services Administration	3	0.54	6	1.08
1804	Medical Construction	6	1.08	2	0.36
1805	Plans Operations and Medical Intelligence	23	4.16	16	2.89
3110	Comptroller	18	3.25	27	4.88
3121	Logistics	4	0.72	1	0.18
3130	Manpower Systems Analysis Mgt	8	1.45	0	0.00
3150	Education and Training Management	1	0.18	2	0.36
3211	Operations Research Analysis	1	0.18	0	0.00
6210	Management Information	6	1.08	0	0.00
		250	45.00	171	31.00
Clinicians					
1840	Clinical Psychology	27	4.88	0	0.00
1841	Child Psychology	1	0.18	0	0.00
1844	Aerospace Experimental Psychology	8	1.45	1	0.18
1845	Research Psychology	2	0.36	1	0.18
1874	Occupational Therapy	4	0.72	0	0.00
1876	Dietetics	8	1.45	1	0.18
1880	Optometry	39	7.05	2	0.36
1887	Pharmacy	30	5.42	0	0.00
1892	Podiatry	4	0.72	0	0.00
1893	Physician Assistant	48	8.68	1	0.18
		171	31.00	6	1.00
Scientists					
1810	Biochemistry	12	2.17	1	0.18
1815	Microbiology	14	2.53	2	0.36
1825	Radiation Health	8	1.45	1	0.18
1828	Radiation Specialist	1	0.18	0	0.00
1835	Physiology	3	0.54	0	0.00
1836	Aerospace Physiology	14	2.53	1	0.18
1850	Entomology	3	0.54	0	0.00
1860	Environmental Health	18	3.25	2	0.36
1861	Industrial Hygiene	23	4.16	6	1.08
1862	Audiology	6	1.08	0	0.00
1865	Medical Technology	13	2.35	0	0.00
1870	Social Work	7	1.27	0	0.00
1873	Physical Therapy	10	1.81	1	0.18
		132	24.00	14	3.00
Totals		553	100.00	191	35.00

Table 5.

Skills, Knowledge, and Abilities (SKA) Item Rating Reliability Coefficients

Domain	No. of SKA Items Rated	Cronbach's alpha			
		Administrators Respondents (n=43)	Clinicians (n=18)	Scientists (n=19)	All respondents (n=80)
Leadership	19	0.92	0.81	0.91	0.90
Management	17	0.89	0.92	0.92	0.91
Professional Development	13	0.83	0.83	0.85	0.89
Subspccialty Expertise	12	0.89	0.88	0.89	0.88
Core Values	10	0.89	0.69	0.84	0.84
Strategic Management and Planning	7	0.83	0.76	0.82	0.81
Joint Operations	5	0.69	0.74	0.84	0.76
Communications	5	0.51	0.72	0.64	0.59
Military Knowledge	4	0.88	0.87	0.84	0.88
Operational Experience	4	0.74	0.88	0.81	0.81
Mentorship	4	0.81	0.77	0.83	0.80

Note. a seven point Likert scale was recorded using a 7 point rating scale 1=unimportant and 7=important.

Table 6.

Highest Rated SKAs Overall

Domain	SKA Item	Mean rating[a]	SD[b]
Core Values	**Doing the right thing when no one else is around**	6.66	± 0.86
Communication	Ability to read, write, and speak clearly [S]	6.64	± 0.80
Core Values	Initiative and Drive [S]	6.56	± 0.79
Subspecialty Expertise	Knowledge of specialty area [c]	6.50	± 0.77
Core Values	**Judgment**	6.49	± 0.67
Leadership	Leading by Example	6.45	± 0.70
Joint Operations	Understand the Mission	6.41	± 0.72
Leadership	Ability to make decisions and defend them	6.36	± 0.85
Leadership	Demonstrate Core Values, integrity, and ethical decision making while leading [S]	6.31	± 0.93
Core Values	Knowledge of your field of expertise, up to date with current technologies and ideas, regular training to improve on professional skills, participate in conferences to gain skills and information as well as provide skills and information.	6.29	± 0.87
Leadership	Communicate clear and concise orders	6.28	± 1.07
Core Values	Doing what is right for the Navy or people not oneself	6.28	± 1.07
Core Values	Willingness to learn and try new ways	6.26	± 1.07
Core Values	Willingness to hear others ideas	6.24	± 1.27
Strategic Management and Planning	Resourcefulness (knowing where to look for information) [S]	6.24	± 1.31

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 7.

Highest Rated SKAs Administrators

Domain	SKA	Mean rating[a]	SD[b]
Core Values	**Doing the right thing when no one else is around**	6.65	± 0.61
Core Values	Initiative and Drive [S]	6.60	± 0.69
Joint Operations	Understand the mission	6.60	± 0.65
Communication	Ability to read, write, and speak clearly s	6.60	± 0.65
Leadership	Ability to make decisions and defend them	6.56	± 0.73
Leadership	Leading by example	6.56	± 0.66
Core Values	**Judgment**	6.49	± 0.69
Leadership	Knowledge of your role and the importance of your role	6.37	± 0.89
Leadership	Demonstrate Core Values, integrity, and ethical decision making while leading s	6.35	± 0.89
Core Values	Willingness to hear others ideas	6.35	± 0.68
Core Values	Willingness to learn and try new ways	6.35	± 0.77
Strategic Management and Planning	Resourcefulness (knowing where to look for information) [S]	6.35	± 0.74
Mentorship	Develop what you are taught and give it to others as you become more senior	6.35	± 0.77
Leadership	Communicate clear and concise orders	6.33	± 0.88
Management	Multi-tasking. Ability to manage a myriad of tasks and programs	6.33	± 0.71

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S=] SKA common among Administrators and Scientists.

Table 8.

Highest Rated SKAs Clinicians

Domain	SKA	Mean rating[a]	SD[b]
Leadership	Team Building - building morale for the entire team	6.83	± 0.50
Operational Experience	Working knowledge of how patient care is provided during deployment on land, sea, or air	6.72	± 0.45
Core Values	**Judgment**	6.67	± 0.58
Professional Development	Must being willing to take the headquarters position to learn the organization from within	6.61	± 0.59
Military Knowledge	Knowledge of Operational functions.	6.56	± 0.76
Operational Experience	Interoperability	6.56	± 0.50
Subspecialty Expertise	Knowledge of specialty area c	6.44	± 0.83
Subspecialty Expertise	Participation in community to find out latest updates in the field	6.44	± 0.76
Management	Be able to support opinions, arguments, and point papers with substantiated analysis. Requires ability to quantify certain metrics and adeptly translate them into terms that support requirement but are also easily understood by audience	6.44	± 0.68
Communication	Knowledge of chain of commands: BUMED, COCOM, USMC, etc.	6.44	± 0.60
Core Values	Interoperability. Appreciation of sister Services	6.44	± 0.60
Core Values	**Doing the right thing when no one else is around**	6.33	± 0.75
Core Values	Knowledge of your field of expertise, up to date with current technologies and ideas, regular training to improve on professional skills, participate in conferences to gain skills and information as well as provide skills and information	6.28	± 1.24
Leadership	Desire to meet others needs above your own	6.22	± 0.97
Operational Experience	Operational Experience	6.22	± 0.63

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 9.

Highest Rated SKAs Scientists

Domain	SKA	Mean rating[a]	SD[b]
Communication	Ability to read, write, and speak s	6.74	± 0.55
Subspecialty Expertise	Knowledge of your specialty area c	6.68	± 0.46
Core Values	**Doing the right thing when no one else is around**	6.63	± 0.67
Core Values	**Judgment**	6.53	± 0.60
Core Values	Initiative and Drive s	6.47	± 0.82
Leadership	Demonstrate Core Values, integrity, and ethical decision making while leading s	6.42	± 0.88
Joint Operations	Understand the mission	6.42	± 0.59
Communication	Ability to communicate clearly across multiple arenas (civilian, military, medical, business, and community) and at various levels of the chain of command arenas	6.42	± 0.59
Professional Development	Working knowledge of Microsoft Office Suite-Excel, Word, PowerPoint, etc.	6.37	± 0.93
Professional Development	Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way	6.37	± 0.74
Core Values	Endurance/Persistence	6.37	± 0.74
Strategic Management and Planning	Resourcefulness (Knowing where to look for information) s	6.37	± 0.87
Leadership	Professional writing and communication skills	6.32	± 0.73
Strategic Management	Be able to formulate original thought and arguments to support needed processes	6.32	± 0.73
Communication	Capability of presenting presentations, briefs, etc.	6.32	± 0.65

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 10.

Lowest Rated SKAs Overall

Domain	SKA	Mean rating[a]	SD[b]
Management	Systematic approach to complex problems with POA&M management	4.96	± 1.44
Operational Experience	Understanding the difference between BSO 18 and 27, understanding the HSAP process, understanding the structure and mission of USMC and USN operational medicine (emphasis on Joint) cannot be understated	4.93	± 1.44
Subspecialty Expertise	Risk Assessment Workplace monitoring Risk Communication	4.91	± 1.29
Management	Understand how supplies are: ordered, how to tell what is on order, when it arrives, and how to determine what you need and how much to have on hand [S]	4.90	± 1.22
Professional Development	Statistical analysis (regression, ANOVA, correlations), Experimental design, Critical thinking, Interdisciplinary skills [C]	4.88	± 1.24
Subspecialty Expertise	Forecasting Homeland Security Medical Planning Expeditionary Medicine [S]	4.86	± 1.44
Subspecialty Expertise	Management of public health programs to include immunizations, sexual transmitted disease counseling and tracking, disease and non-battle injury (DNBI) reports	4.84	± 1.60
Subspecialty Expertise	Humanitarian Assistance	4.75	± 1.55
Professional Development	Professional Affiliation [S]	4.71	± 1.38
Management	Implementing quality management strategies including Shewart cycle, feedback mechanisms and performance metrics. M2, Lean Six Sigma, ALTHA [S]	4.7	± 1.50
Management	**Civpers (GS) Mato contracts ISA contracts Personal Vs. Nonpersonal Contracts Staffing Models Staffing Benchmarks**	4.6	± 1.42

Table 10 (continued).

Lowest Rated SKAs Overall

Domain	SKA	Mean rating[a]	SD[b]
Professional Development	Market analysis, job availabilities: resume writing and transition or adjustment tools [S]	4.58	± 1.56
Subspecialty Expertise	Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills [S]	4.58	± 1.74
Subspecialty Expertise	Strategic Management COCOM structures [S]	4.55	± .148
Subspecialty Expertise	Maintaining correct forensics practices and DOD drug testing laboratory [S]	4.44	± 1.85

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 11.

Lowest Rated SKAs Administrators

Domain	SKA	Mean rating[a]	SD[b]
Management	Scheduling both clinical and administrative staff[6]	5.21	±.88
Joint Operations	Basic competencies in Chemical/Biological Warfare threat environment [C]	5.21	± 1.34
Subspecialty Expertise	Forecasting Homeland Security Medical Planning Expeditionary Medicine [S]	5.05	± 1.28
Management	**Civpers (GS) MATO Contracts ISA Contracts Personal Vs. Non-Personal Contracts Staffing Models Staffing Benchmarks**	5.02	± 1.00
Management	Understand how supplies are: ordered, how to tell what is on order, when it arrives, and how to determine what you need and how much to have on hand [S]	4.98	± 1.21
Subspecialty Expertise	Risk Assessment Workplace monitoring Risk Communication	4.95	±1.18
Management	Implementing quality management strategies including Shewart cycle, feedback mechanisms and performance metrics. M2, Lean Six Sigma, ALTHA. [S]	4.93	± 1.32
Subspecialty Expertise	Strategic Management COCOM structures [S]	4.91	± 1.34
Professional Development	Statistical analysis (regression, ANOVA, correlations), Experimental design, Critical thinking, Interdisciplinary skills [C]	4.81	± 1.15
Subspecialty Expertise	Management of public health programs to include immunizations, sexual transmitted disease counseling and tracking, disease and non-battle injury (DNBI) reports	4.77	± 1.43
Professional Development	Professional Affiliation [S]	4.74	± 1.50
Professional Development	Market analysis, job availabilities: resume writing and transition or adjustment tools	4.74	± 1.57
Subspecialty Expertise	Humanitarian Assistance [S]	4.7	± 1.41
Subspecialty Expertise	Maintaining correct forensic practices at DoD drug testing laboratory [S]	4.35	± 1.68

Table 11 (continued).

Lowest Rated SKAs Administrators

Domain	SKA	Mean rating[a]	SD[b]
Subspecialty Expertise	Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills [S]	4.16	± 1.72

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S=] SKA common among Administrators and Scientists.

Table 12.

Lowest Rated SKAs Clinicians

Domain	SKA	Mean rating[a]	SD[b]
Joint Operations	Lead from the front. Uniform Appearance and Physical Fitness lend to the credibility of a leader	4.44	± 1.26
Leadership	Networking with Peer Group	4.44	± 1.26
Professional Development	Statistical analysis (regression, ANOVA, correlations), Experimental design, Critical thinking, Interdisciplinary skills	4.44	± 1.57
Mentorship	Know when you need it and know when to offer it	4.39	± 1.83
Subspecialty Expertise	Must remain engaged with professional organizations and up-to-date with CEU's	4.39	± 1.67
Professional Development	Improve those around you	4.39	± 1.67
Management	**Civpers (GS) MATO Contracts ISA Contracts Personal Vs. Non-Personal Contracts Staffing Models Staffing Benchmarks**	4.39	± 1.67
Professional Development	Working knowledge of Microsoft Office Suite-Excel, Word, Powerpoint, etc.	4.33	± 1.73
Joint Operations	Basic competencies in Chemical/Biological Warfare threat environment	4.33	± 1.45
Professional Development	Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way	4.28	± 1.69
Professional Development	Work as a team with all subspecialties	4.22	± 1.62
Communication	Excellent "chair-side" manner	4.17	± 1.38
Core Values	Adapting to the environment/situation	3.72	± 1.41
Strategic Management and Planning	Vision	3.72	± 1.56

Table 12 (continued).

Lowest Rated SKAs Clinicians

Domain	SKA	Mean rating[a]	SD[b]
Management	Understand HR Systems to include Civilian, Contract, and Military Personnel: How to: hire/promote, hold people accountable, and reward people	3.61	± 1.53

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S=] SKA common among Administrators and Scientists.

Table 13.

Lowest Rated SKAs Scientists

Domain	SKA	Mean rating[a]	SD[b]
Subspecialty Expertise	Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills [S]	5.11	± 1.89
Management	Ability to chart the financial future and sustainment of operations at a particular workplace as it relates to a fiscal planning and a viable budget	5.00	± 1.12
Management	Understand how supplies are: ordered, how to tell what is on order, when it arrives, and how to determine what you need and how much to have on hand [S]	5.00	± 1.12
Professional development	Market analysis, job availabilities: resume writing and transition or adjustment tools [S]	5.00	± 1.17
Professional development	Professional Affiliation [S]	4.89	± 1.17
Subspecialty Expertise	Forecasting Homeland Security Medical Planning Expeditionary Medicine [S]	4.89	± 1.45
Joint Operations	Patient regulation across platforms and services for joint environments	4.89	± 1.33
Management	Systematic approach to complex problems with POA&M management	4.84	± 1.35
Subspecialty Expertise	Maintaining correct forensic practices at DoD drug testing laboratory [S]	4.68	± 2.18
Management	Demonstrate analysis of appropriate care standards and incorporate national standards of Provider/Staff mix as well as patient mix within the patient population	4.63	± 1.75
Subspecialty Expertise	Strategic Management COCOM [S] structures	4.63	± 1.35
Management	Implementing quality management strategies including Shewart cycle, feedback mechanisms and performance metrics. M2, Lean Six Sigma, ALTHA [S]	4.53	± 1.57

Table 13 (continued).

Lowest Rated SKAs Scientists

Domain	SKA	Mean rating[a]	SD[b]
Management	**Civpers (GS) MATO Contracts ISA Contracts Personal Vs. Non-Personal Contracts Staffing Models Staffing Benchmarks**	4.47	± 1.79
Operational Experience	Understanding the difference between BSO 18 and 27, understanding the HSAP process, understanding the structure and mission of USMC and USN operational medicine (emphasis on Joint) cannot be understated	4.47	± 1.87
Management	Scheduling both clinical and administrative staff [S]	4.05	± 0.65

Note. SKA = Skills, Knowledge, and Abilities. Bold = SKA common among all subspecialties.
[a] Seven point Likert relative importance scale, where 1 = extremely unimportant and 7 = extremely important
[b]SD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S=] SKA common among Administrators and Scientists.

Table 14.

Two Most Important SKA Item Average by Domain for all junior Navy Medical Service Corps Officers

Domain	SKA	Mean ± SD[a]
Leadership	Leading by example	6.45 ± 0.71
	Ability to make decisions and defend them	6.36 ± 0.84
Management	Analytical thinking: Statistical techniques: Problem solving: Critical thinking: Planning	6.10 ± 0.97
	Multi-tasking. Ability to manage a myriad of tasks and programs [s]	6.10 ± 1.11
Professional Development	Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way	6.05 ± 0.85
	Working knowledge of Microsoft Office Suite-Excel, Word, Powerpoint, etc.	5.96 ± 1.15
Subspecialty Expertise	**Knowledge of specialty area**	6.50 ± 0.72
	Continuing Education, Certification, Research	6.06 ± 1.00
Core Values	Doing the right thing when no one else is around [s]	6.66 ± 0.59
	Initiative and Drive	6.56 ± 0.69
Strategic Management and Planning	Resourcefulness (knowing where to look for information) [s]	6.24 ± 0.88
	Ability to take information, synthesize it, and think and make independent decisions	6.21 ± 0.82
Joint Operations/Readiness	Understand the mission [s]	6.41 ± 0.72
	Lead from the front. Uniform Appearance and Physical Fitness lend to the credibility of a leader [s]	5.88 ± 1.14

Table 14 (continued).

Two Most Important SKA Item Average by Domain for all junior Navy Medical Service Corps Officers

Domain	SKA	Mean ± SD[a]
Communication	**Ability to read, write, and speak clearly**	6.64 ± 0.62
	Ability to communicate clearly across multiple arenas (civilian, military, medical, business, and community) and at various levels of the chain of command arenas	6.09± 0.84
Military Knowledge	**Knowledge of Operational functions**	5.76± 0.87
	Military customs and courtesy	5.63± 1.18
Operational Experience	Working knowledge of how patient care is provided during deployment on land, sea, or air [c]	5.60± 1.22
	Operational Experience	5.59± 1.35
Mentorship	**Develop what you are taught and give it to others as you become more senior**	6.23± 0.79
	Provide wisdom, insight, and relate to others [s]	5.93± 0.88

Note. Bold = SKA common among all subspecialties.
aSD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 15.

Two Most Important SKA Item Average by Domain for Administrators

Domain	SKA	Mean ± SD[a]
Leadership	Ability to make decisions and defend them	6.5± 0.66
	Leading by example	6.37 ± 0.89
Management	Multi-tasking. Ability to manage a myriad of tasks and programs [s]	6.33 ± 0.71
	Demonstrate department head level ability to manage resources (personnel, financial, facilities, etc.)	6.30 ± 0.73
Professional Development	Be versatile in many areas. Have a fundamental understanding of operational, clinical, and MHS functions	6.14 ± 0.73
	Military Bearing	6.14 ± 1.09
Subspecialty Expertise	**Knowledge of specialty area**	6.28 ± 0.82
	Learn about the Navy	5.86 ± 1.00
Core Values	Doing the right thing when no one else is around [s]	6.65 ± 0.61
	Initiative and Drive	6.60 ± 0.69
Strategic Management and Planning	Resourcefulness (knowing where to look for information) [s]	6.35 ± 0.74
	Be able and willing to think of extraordinary concepts for doing tasks rather than just doing it the "same way it has always been done". (Think outside the Box) [c]	6.30 ± 0.63
Joint Operations/Readiness	Understand the mission [s]	6.60 ± 0.65
	Lead from the front. Uniform Appearance and Physical Fitness lend to the credibility of a leader [s]	6.07 ± 1.07

Table 15 (continued).

Two Most Important SKA Item Average by Domain for Administrators

Domain	SKA	Mean ± SD[a]
Communication	**Ability to read, write, and speak clearly**	6.60± 0.65
	Capability of presenting presentations, briefs, etc.	6.07± 0.59
Military Knowledge	Understand how MSC Community melds into Big Navy [c]	5.93± 0.87
	Knowledge of Operational functions	5.84± 0.80
Operational Experience	**Interoperability**	5.84± 0.96
	Working knowledge of how patient care is provided during deployment on land, sea, or air [c]	5.72± 1.11
Mentorship	**Develop what you are taught and give it to others as you become more senior**	6.35± 0.77
	Provide wisdom, insight, and relate to others [s]	5.93± 0.87

Note. Bold = SKA common among all subspecialties.
aSD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 16.

Two Most Important SKA Item Average by Domain for Clinicians

Domain	SKA	Mean ± SD[a]
Leadership	Team Building – building morale for the entire team	6.83 ± 0.50
	Desire to meet others needs above your own	6.22 ± 0.97
Management	Be able to support opinions, arguments, and point papers with substantiated analysis. Requires ability to quantify certain metrics and adeptly translate them into terms that support requirement but are also easily understood by audience	6.44 ± 0.68
	Understand principles of cost-benefit, cost-effectiveness, and cost-utility analyses. Know difference between humanistic Vs. . economic outcomes	6.22 ± 0.71
Professional Development	Must being willing to take the headquarters position to learn the organization from within	6.61 ± 0.59
	Keeping up to date with new treatment and diagnosis, skills sets, new technology, and state and federal competencies	6.11± 0.99
Subspecialty Expertise	**Knowledge of specialty area**	6.44 ± 0.83
	Participation in community to find out latest updates in the field	6.44 ± 0.76
Core Values	Judgment	6.67 ± 0.58
	Interoperability. Appreciation of sister services	6.44 ± 0.60
Strategic Management and Planning	A sound proficiency in statistical analysis and interpretation to include predictive modeling, forecasting and other statistical/research design	5.94 ± 0.78
	Be able and willing to think of extraordinary concepts for doing tasks rather than just doing it the "same way it has always been done". (Think outside the Box) [c]	5.89 ± 1.15

Table 16 (continued).

Two Most Important SKA Item Average by Domain for Clinicians

Domain	SKA	Mean ± SD[a]
Joint Operations/Readiness	Patient regulation across platforms and services for joint environments	6.00 ± 0.94
	Strategy & Policy National Security Decision Making Joint Military Operations Interagency Process	5.83± 1.07
Communication	Knowledge of chain of commands: BUMED, COCOM, USMC, etc.	6.44 ± 0.60
	Ability to read, write, and speak clearly	5.89± 0.94
Military Knowledge	**Knowledge of Operational functions**	6.56± 0.76
	Understand how MSC Community melds into Big Navy [c]	5.94± 1.39
Operational Experience	Working knowledge of how patient care is provided during deployment on land, sea, or air [c]	6.72± 0.45
	Interoperability	6.56± 0.50
Mentorship	**Develop what you are taught and give it to others as you become more senior**	6.11± 0.87
	Ability to get personnel involved in the community	5.50± 1.38

Note. Bold = SKA common among all subspecialties.
aSD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 17.

Two Most Important SKA Item Average by Domain for Scientists

Domain	SKA	Mean ± SD[a]
Leadership	Demonstrate Core Values, integrity, and ethical decision making while leading	6.42 ± 0.88
	Professional writing and communication skills	6.32 ± 0.73
Management	Analytical thinking: Statistical techniques: Problem solving: Critical thinking: Planning	6.26 ± 0.91
	Multi-tasking. Ability to manage a myriad of tasks and programs [s]	6.16 ± 0.74
Professional Development	Working knowledge of Microsoft Office Suite-Excel, Word, Powerpoint, etc.	6.37 ± 0.93
	Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way	6.37 ± 0.67
Subspecialty Expertise	**Knowledge of specialty area**	6.68 ± 0.46
	Continuing Education, Certification, Research	6.16 ± 1.18
Core Values	Doing the right thing when no one else is around [s]	6.63 ± 0.67
	Judgment [s]	6.53 ± 0.60
Strategic Management and Planning	Resourcefulness (knowing where to look for information)[s]	6.37 ± 0.87
	Be able to formulate original thought and arguments to support needed processes	6.32 ± 0.73
Joint Operations/Readiness	Understand the mission [s]	6.42 ± 0.59
	Lead from the front. Uniform Appearance and Physical Fitness lend to the credibility of a leader [s]	5.79 ± 0.95

Table 17 (continued).

Two Most Important SKA Item Average by Domain for Scientists

Domain	SKA	Mean ± SD[a]
Communication	**Ability to read, write, and speak clearly**	6.74 ± 0.55
	Ability to communicate clearly across multiple arenas (civilian, military, medical, business, and community) and at various levels of the chain of command arenas	6.42± 0.59
Military Knowledge	**Knowledge of Operational functions**	6.05± 0.76
	Military customs and courtesy	5.79± 0.69
Operational Experience	Operational Experience	5.95± 0.83
	Interoperability	5.79± 0.83
Mentorship	**Develop what you are taught and give it to others as you become more senior**	6.16± 0.81
	Provide wisdom, insight, and relate to others [s]	6.05± 0.76

Note. Bold = SKA common among all subspecialties.
aSD = standard deviation. [c]= SKA common among Administrators and Clinicians. [S]= SKA common among Administrators and Scientists.

Table 18.

Mean Rating by Domain for Junior Navy Medical Service Corps Officers

Domain	Administrators Rating	Clinicians Rating	Scientists Rating
Communication	6.01	5.37	6.13
Core Values	6.28	5.81	6.28
Joint Operations	5.76	5.38	5.54
Leadership	6.06	5.37	5.92
Management	5.57	5.26	5.26
Mentorship	5.85	5.42	5.86
Military Knowledge	5.77	6.04	5.78
Operational Experience	5.65	6.18	5.37
Professional Development	5.62	5.03	5.60
Strategic Management and Planning	6.05	5.34	5.98
Subspecialty Expertise	5.16	5.27	5.48

Table 19. ANOVA Summary - Mean differences in Item Ratings Administrators Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
1. Leadership						
Between subjects	-	482.942	79	-	-	-
Admin Officer group (A)	14.060	-	1	14.060	2.339	NS
Residual between subjects	468.882	-	78	6.011	-	-
Within subjects		1032.920	1440	-	-	-
n = 19 items (I)	142.448	-	18	7.914	12.700	<.001
Interaction A x I	15.596	-	18	0.866	1.390	NS
Residual within subjects	874.876	-	1404	0.623	-	-
Total		1515.862	1519			
2. Management						
Between subjects	-	833.647	79	-	-	-
Admin Officer group (A)	57.179	-	1	57.179	5.744	<.05
Residual between subjects	776.468	-	78	9.955	-	-
Within subjects		1507.216	1280	-	-	-
n = 17 items (I)	324.099	-	16	20.256	21.771	<.001
Interaction A x I	21.970	-	16	1.373	1.476	NS
Residual within subjects	1161.147	-	1248	0.930	-	-
Total		2340.863	1359			
3. Professional Development						
Between subjects	-	505.384	79	-	-	-
Admin Officer group (A)	16.594	-	1	16.594	2.648	NS
Residual between subjects	488.790	-	78	6.267	-	-
Within subjects		1220.264	960	-	-	-
n = 13 items (I)	252.573	-	12	21.048	21.122	<.001
Interaction A x I	34.985	-	12	2.915	2.926	<.001
Residual within subjects	932.706	-	936	0.996	-	-
Total		1725.648	1039			
4. Subspecialty Expertise						
Between subjects	-	769.584	79	-	-	-
Admin Officer group (A)	6.131	-	1	6.131	0.626	NS
Residual between subjects	763.453	-	78	9.788	-	-
Within subjects		1449.807	880	-	-	-
n = 12 items (I)	428.465	-	11	38.951	34.372	<.001
Interaction A x I	49.032	-	11	4.457	3.933	<.001
Residual within subjects	972.310	-	858	1.133	-	-
Total		2219.391	959			

Table 19 (continued). ANOVA Summary - Mean differences in Item Ratings Administrators Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
5. Core Values						
Between subjects	-	220.799	79	-	-	-
Admin Officer group (A)	0.991	-	1	0.991	0.352	NS
Residual between subjects	219.808	-	78	2.818	-	-
Within subjects		416.287	720	-	-	-
n = 10 items (I)	93.048	-	9	10.339	22.559	<.001
Interaction A x I	2.088	-	9	0.232	0.507	NS
Residual within subjects	321.151	-	702	0.457	-	-
Total		637.086	799			
6. Strategic Management and Planning						
Between subjects	-	224.426	79	-	-	-
Admin Officer group (A)	7.663	-	1	7.663	2.758	NS
Residual between subjects	216.763	-	78	2.779	-	-
Within subjects		325.143	480	-	-	-
n = 7 items (I)	74.082	-	6	12.347	23.235	<.001
Interaction A x I	2.361	-	6	0.393	0.740	NS
Residual within subjects	248.700	-	468	0.531	-	-
Total		549.569	559			
7. Joint Operations						
Between subjects	-	267.078	79	-	-	-
Admin Officer group (A)	18.714	-	1	18.714	5.877	<.05
Residual between subjects	248.364	-	78	5.877	-	-
Within subjects		357.089	320	-	-	-
n = 5 items (I)	104.754	-	4	26.188	32.497	<.001
Interaction A x I	0.904	-	4	0.226	0.280	NS
Residual within subjects	251.431	-	312	0.806	-	-
Total		624.167	399			
8. Communications						
Between subjects	-	144.960	79	-	-	-
Admin Officer group (A)	1.130	-	1	1.130	0.613	NS
Residual between subjects	143.830	-	78	1.844	-	-
Within subjects		357.089	320	-	-	-
n = 5 items (I)	104.754	-	4	16.670	23.175	<.001
Interaction A x I	0.904	-	4	3.205	4.455	<.05
Residual within subjects	251.431	-	312	0.719	-	-
Total		502.049	399			

Table 19 (continued). ANOVA Summary - Mean differences in Item Ratings Administrators Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
9. Military Knowledge						
Between subjects	-	336.388	79	-	-	-
Admin Officer group (A)	12.893	-	1	12.893	3.109	NS
Residual between subjects	323.495	-	78	4.147	-	-
Within subjects		129.907	240	-	-	-
n = 4 items (I)	9.119	-	3	3.040	6.050	<.001
Interaction A x I	3.219	-	3	1.073	2.136	NS
Residual within subjects	117.569	-	234	0.502	-	-
Total		466.295	319			
10. Operational Experience						
Between subjects	-	339.700	79	-	-	-
Admin Officer group (A)	19.022	-	1	19.022	4.627	<.05
Residual between subjects	320.678	-	78	4.111	-	-
Within subjects		224.090	240	-	-	-
n = 4 items (I)	28.265	-	3	9.422	11.612	<.001
Interaction A x I	5.965	-	3	1.988	2.451	NS
Residual within subjects	189.860	-	234	0.811	-	-
Total		563.790	319			
11. Mentorship						
Between subjects	-	206.950	79	-	-	-
Admin Officer group (A)	2.772	-	1	2.772	1.059	NS
Residual between subjects	204.178	-	78	2.618	-	-
Within subjects		169.139	240	-	-	-
n = 4 items (I)	44.989	-	3	14.996	28.527	<.001
Interaction A x I	1.139	-	3	3.800	0.722	NS
Residual within subjects	123.011	-	234	0.526	-	-
Total		376.089	319			

ANOVA = analysis of variance; df = degrees of freedom; MS = mean squares; NS = not statistically significant; SS = sum of squares

Table 20. ANOVA Summary - Mean differences in Item Ratings Clinicians Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
1. Leadership						
Between subjects	-	482.941	79	-	-	-
Clinicians group (CL)	10.468	-	1	10.468	1.728	NS
Residual between subjects	472.473	-	78	6.057	-	-
Within subjects		1030.023	1440	-	-	-
n = 19 items (I)	139.552	-	18	7.753	12.562	<.001
Interaction CL x I	23.949	-	18	1.331	2.156	<.05
Residual within subjects	866.522	-	1404	0.617	-	-
Total		1512.964	1519			
2. Management						
Between subjects	-	833.647	79	-	-	-
Clinicians group (CL)	41.141	-	1	41.141	4.049	<.05
Residual between subjects	792.506	-	78	10.160	-	-
Within subjects		1432.570	1280	-	-	-
n = 17 items (I)	249.454	-	16	15.591	17.196	<.001
Interaction CL x I	51.627	-	16	3.227	3.559	<.001
Residual within subjects	1131.489	-	1248	0.907	-	-
Total		2266.217	1359			
3. Professional Development						
Between subjects	-	505.385	79	-	-	-
Clinicians group (CL)	45.663	-	1	45.663	7.748	<.01
Residual between subjects	459.722	-	78	5.894	-	-
Within subjects		1177.690	960	-	-	-
n = 13 items (I)	210.000	-	12	17.500	17.756	<.001
Interaction CL x I	45.200	-	12	3.767	3.822	<.10
Residual within subjects	922.490	-	936	0.986	-	-
Total		1683.075	1039			
4. Subspecialty Expertise						
Between subjects	-	769.584	79	-	-	-
Clinicians group (CL)	2.272	-	1	2.272	0.231	NS
Residual between subjects	767.312	-	78	9.837	-	-
Within subjects		1422.813	880	-	-	-
n = 12 items (I)	401.471	-	11	36.497	33.140	<.001
Interaction CL x I	76.421	-	11	6.947	6.308	<.001
Residual within subjects	944.921	-	858	1.101	-	-
Total		2192.397	959			

Table 20 (continued). ANOVA Summary - Mean differences in Item Ratings Clinicians Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
5. Core Values						
Between subjects	-	220.799	79	-	-	-
Clinicians group (CL)	2.803	-	1	2.803	0.352	NS
Residual between subjects	217.996	-	78	2.795	-	-
Within subjects		408.839	720	-	-	-
n = 10 items (I)	85.601	-	9	9.511	21.150	<.001
Interaction CL x I	7.551	-	9	0.084	1.866	NS
Residual within subjects	315.687	-	702	0.045	-	-
Total		629.638	799			
6. Strategic Management and Planning						
Between subjects	-	224.427	79	-	-	-
Clinicians group (CL)	14.807	-	1	14.807	5.510	<.05
Residual between subjects	209.620	-	78	2.687	-	-
Within subjects		324.749	480	-	-	-
n = 7 items (I)	68.688	-	6	11.448	21.974	<.001
Interaction CL x I	7.238	-	6	1.206	2.315	<.05
Residual within subjects	248.823	-	468	0.521	-	-
Total		549.176	559			
7. Joint Operations						
Between subjects	-	267.078	79	-	-	-
Clinicians group (CL)	24.307	-	1	24.307	7.809	<.01
Residual between subjects	242.771	-	78	5.877	-	-
Within subjects		329.997	320	-	-	-
n = 5 items (I)	77.662	-	4	19.416	24.210	<.001
Interaction CL x I	2.122	-	4	0.531	0.662	NS
Residual within subjects	250.213	-	312	0.802	-	-
Total		597.075	399			
8. Communications						
Between subjects	-	144.960	79	-	-	-
Clinicians group (CL)	1.130	-	1	1.130	0.613	NS
Residual between subjects	143.830	-	78	1.844	-	-
Within subjects		357.089	320	-	-	-
n = 5 items (I)	104.754	-	4	16.670	23.175	<.001
Interaction CL x I	0.904	-	4	3.205	4.455	<.05
Residual within subjects	251.431	-	312	0.719	-	-
Total		502.049	399			

Table 20 (continued). ANOVA Summary - Mean differences in Item Ratings Clinicians Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
9. Military Knowledge						
Between subjects	-	144.960	79	-	-	-
Clinicians group (CL)	9.992	-	1	9.992	5.775	<.05
Residual between subjects	134.968	-	78	4.147	-	-
Within subjects		297.650	240	-	-	-
n = 4 items (I)	60.410	-	3	15.102	21.572	<.001
Interaction CL x I	18.810	-	3	4.702	6.717	<.001
Residual within subjects	218.430	-	234	0.700	-	-
Total		442.610	319			
10. Operational Experience						
Between subjects	-	336.388	79	-	-	-
Clinicians group (CL)	39.336	-	1	39.336	10.329	<.01
Residual between subjects	297.052	-	78	4.111	-	-
Within subjects		131.383	240	-	-	-
n = 4 items (I)	10.596	-	3	3.532	7.020	<.001
Interaction CL x I	3.058	-	3	1.019	2.026	NS
Residual within subjects	117.729	-	234	0.503	-	-
Total		467.771	319			
11. Mentorship						
Between subjects	-	339.700	79	-	-	-
Clinicians group (CL)	21.454	-	1	21.454	5.258	<.001
Residual between subjects	318.246	-	78	4.080	-	-
Within subjects		219.232	240	-	-	-
n = 4 items (I)	23.407	-	3	7.802	9.833	<.001
Interaction CL x I	10.157	-	3	3.386	4.267	<.001
Residual within subjects	185.668	-	234	0.793	-	-
Total		558.932	319			

ANOVA = analysis of variance; df = degrees of freedom; MS = mean squares; NS = not statistically significant; SS = sum of squares

Table 21. ANOVA Summary - Mean differences in Item Ratings Scientists Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
1. Leadership						
Between subjects	-	482.941	79	-	-	-
Scientist group (S)	1.484	-	1	1.484	0.240	NS
Residual between subjects	481.457	-	78	6.173	-	-
Within subjects		981.920	1440	-	-	-
n = 19 items (I)	91.449	-	18	5.080	8.174	<.001
Interaction S x I	17.809	-	18	0.989	1.592	NS
Residual within subjects	872.662	-	1404	0.622	-	-
Total		1464.861	1519			
2. Management						
Between subjects	-	833.646	79	-	-	-
Scientist group (S)	6.582	-	1	6.582	0.621	NS
Residual between subjects	827.064	-	78	10.603	-	-
Within subjects		1453.816	1280	-	-	-
n = 17 items (I)	270.699	-	16	16.919	18.389	<.001
Interaction S x I	34.885	-	16	2.180	2.370	NS
Residual within subjects	1148.232	-	1248	0.920	-	-
Total		2287.462	1359			
3. Professional Development						
Between subjects	-	505.385	79	-	-	-
Scientist group (S)	3.453	-	1	3.453	0.537	NS
Residual between subjects	501.932	-	78	6.435	-	-
Within subjects		1132.237	960	-	-	-
n = 13 items (I)	164.547	-	12	13.712	13.535	<.001
Interaction S x I	19.458	-	12	1.622	1.601	NS
Residual within subjects	948.232	-	936	1.013	-	-
Total		1637.622	1039			
4. Subspecialty Expertise						
Between subjects	-	769.584	79	-	-	-
Scientist group (S)	19.184	-	1	19.184	1.994	NS
Residual between subjects	750.400	-	78	9.621	-	-
Within subjects		1306.534	880	-	-	-
n = 12 items (I)	285.193	-	11	25.927	22.048	<.001
Interaction S x I	12.409	-	11	1.128	0.959	NS
Residual within subjects	1008.932	-	858	1.176	-	-
Total		2076.118	959			

Table 21 (continued). ANOVA Summary - Mean differences in Item Ratings Scientists Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
5. Core Values						
Between subjects	-	220.799	79	-	-	-
Scientist group (S)	0.227	-	1	0.227	0.800	NS
Residual between subjects	220.572	-	78	2.828	-	-
Within subjects		375.951	720	-	-	-
n = 10 items (I)	52.712	-	9	5.857	12.954	<.001
Interaction S x I	5.852	-	9	0.650	1.438	NS
Residual within subjects	317.387	-	702	0.452	-	-
Total		596.750	799			
6. Strategic Management and Planning						
Between subjects	-	224.427	79	-	-	-
Scientist group (S)	0.284	-	1	0.099	0.754	NS
Residual between subjects	224.143	-	78	2.874	-	-
Within subjects		296.489	480	-	-	-
n = 7 items (I)	45.428	-	6	7.571	14.426	<.001
Interaction S x I	5.442	-	6	0.907	1.728	NS
Residual within subjects	245.619	-	468	0.525	-	-
Total		520.916	559			
7. Joint Operations						
Between subjects	-	267.077	79	-	-	-
Scientist group (S)	0.053	-	1	0.053	0.016	NS
Residual between subjects	267.024	-	78	3.423	-	-
Within subjects		327.135	320	-	-	-
n = 5 items (I)	74.800	-	4	18.700	23.615	<.001
Interaction S x I	5.270	-	4	1.317	1.664	NS
Residual within subjects	247.065	-	312	0.792	-	-
Total		594.212	399			
8. Communications						
Between subjects	-	144.960	79	-	-	-
Scientist group (S)	3.446	-	1	3.446	1.900	NS
Residual between subjects	141.514	-	78	1.814	-	-
Within subjects		289.036	320	-	-	-
n = 5 items (I)	51.796	-	4	12.949	17.228	<.001
Interaction S x I	2.736	-	4	0.684	0.910	NS
Residual within subjects	234.504	-	312	0.752	-	-
Total		433.996	399			

Table 21 (continued). ANOVA Summary - Mean differences in Item Ratings Scientists Vs. Others

Domain / Effect Sources	SS (Subtotals)	SS (Totals)	df	MS	F	P
9. Military Knowledge						
Between subjects	-	327.388	79	-	-	-
Scientist group (S)	3.793	-	1	3.793	0.889	NS
Residual between subjects	323.595	-	78	4.264	-	-
Within subjects		126.960	240	-	-	-
n = 4 items (I)	6.173	-	3	2.058	4.014	<.01
Interaction S x I	0.835	-	3	0.278	0.543	NS
Residual within subjects	119.952	-	234	0.513	-	-
Total		454.348	319			
10. Operational Experience						
Between subjects	-	339.700	79	-	-	-
Scientist group (S)	0.319	-	1	0.319	0.073	NS
Residual between subjects	339.381	-	78	4.351	-	-
Within subjects		228.702	240	-	-	-
n = 4 items (I)	32.877	-	3	10.959	13.937	<.001
Interaction S x I	11.827	-	3	3.942	5.014	<.01
Residual within subjects	183.998	-	234	0.786	-	-
Total		568.402	319			
11. Mentorship						
Between subjects	-	206.950	79	-	-	-
Scientist group (S)	0.858	-	1	0.858	0.325	NS
Residual between subjects	206.092	-	78	2.642	-	-
Within subjects		152.333	240	-	-	-
n = 4 items (I)	28.183	-	3	9.394	17.832	<.001
Interaction S x I	0.870	-	3	0.290	0.551	NS
Residual within subjects	123.280	-	234	0.527	-	-
Total		359.283	319			

ANOVA = analysis of variance; df = degrees of freedom; MS = mean squares; NS = not statistically significant; SS = sum of squares

Table 22. Item Differences Between Groups via Statistically Significant Main Effects and Interaction Effects

Domain/SKA Leadership[b]	SKAs	Admin Mean ± SD[a]	Scientists Mean ± SD[a]	Clinicians Mean ± SD[a]	Clinicians F Value	Admin F Value	Scientists F Value
SKA 1-12	Professional writing and communication skills	6.07 ± .87	6.32 ± .73	5.61 ± .68	4.404	-	-
SKA 1-15	Value Diversity. Cultural sensitivity	5.67 ± 1.21	5.37 ± .127	5.06 ± 1.27	4.257	-	-
SKA 1-18	Have vision of the department, organization, and the Navy. See the Big Picture	6.14 ± .88	5.63 ± .87	5.39 ± .89	5.466	-	-
SKA 1-19	Networking with Peer group	5.47 ± 1.40	5.32 ± 1.22	4.61 ± 1.06	10.086*	-	-
Management[b]							
SKA 2-1	Learn how to follow the Navy money distribution and check to see what is available. Understand how to make a budget. Understand how to make changes in budget to meet command requirements	5.40 ± 1.20	5.40 ± .1.20	4.70 ± 1.40	4.672	-	-
SKA 2-2	Ability to chart financial future and sustainment if operations a particular workplace as it relates to a fiscal planning and viable budget	5.30 ± 1.30	5.00 ± 1.1	4.50 ± 1.20	5.065	4.403	-
SKA 2-3	Civpers (GS) MATO Contracts ISA Contracts Personal Vs. Non-Personal Contracts Staffing Models Staffing Benchmarks	5.00 ± 1.00	4.50 ± 1.80	3.70 ± 1.40	12.333*	11.396*	-
SKA 2-10	Keeping up to date with new treatment and diagnosis, skills sets, new technology, and state and federal competencies	6.33 ± .71	6.16 ± .74	5.5 ± 1.80	5.763	-	-
SKA 2-12	Understand principles of cost-benefit, cost-effectiveness, and cost-utility analyses. Know difference between humanistic Vs. . economic outcomes	5.53 ± .82	5.16 ± 1.66	4.72 ± 1.45	4.672	4.720	-

Table 22 (continued). Item Differences Between Groups via Statistically Significant Main Effects and Interaction Effects

Domain/SKA	SKAs	Admin Mean ± SD[a]	Scientists Mean ± SD[a]	Clinicians Mean ± SD[a]	Clinicians F Value	Admin F Value	Scientists F Value
SKA 2-13	Systematic approach to complex problems with POA&M management	5.30 ± 1.25	4.84 ± 1.35	4.28 ± 1.67	7.505*	7.346*	-
SKA 2-14	Be able to support opinions, arguments, and point papers with substantiated analysis. Requires ability to quantify certain metrics and adeptly translate them into terms that support requirement but are also easily understood by audience	5.98 ± .79	5.84 ± .99	5.11 ± 1.05	6.534	-	-
SKA 2-15	Demonstrate department head level ability to manage resources (personnel, financial, facilities, etc.)	6.3 ± .73	6.05 ± .89	5.44 ± 1.54	5.870	-	-
Professional Development[b]							
SKA 3-1	Be versatile in many areas. Have a fundamental understanding of operational, clinical, and MHS functions	6.1 ± .70	5.60 ± .80	5.0 ± 1.40	9.584*	10.063*	-
SKA 3-3	Working knowledge of Microsoft Office Suite-Excel, Word, Powerpoint, etc	6.10 ± 1.00	6.40 ± .90	5.20 ± 1.40	5.154	-	-
SKA 3-4	Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way	6.10 ± .80	6.40 ± .70	5.50 ± 1.00	6.740*	-	-
SKA 3-6	Improve those around you	6.00 ± .80	5.30 ± 1.10	5.3 ± 1.10	-	6.622	-
SKA 3-7	Lead without Ego. Be okay with giving up your own identity and need for the achievement of the team	6.00 ± 1.00	5.60 ± 1.20	5.40 ± 1.30	-	4.030	-

Table 22 (continued). Item Differences Between Groups via Statistically Significant Main Effects and Interaction Effects

Domain/SKA	SKAs	Admin Mean ± SD[a]	Scientists Mean ± SD[a]	Clinicians Mean ± SD[a]	Clinicians F Value	Admin F Value	Scientists F Value
SKA 3-10	Keeping up to date with new treatment and diagnosis, skills sets, new technology, and state and federal competencies	5.49 ± 1.32	5.74 ± .85	6.44 ± .76	7.924*	4.984	-
SKA 3-11	Must being willing to take the headquarters position to learn the organization from within	5.23 ± 1.20	5.16 ± 1.23	4.22 ± 1.62	9.979*	3.983	-
SKA 3-12	Market analysis, job availabilities: resume writing and transition or adjustment tools	4.74 ± 1.57	5.00 ± 1.17	3.72 ± 1.56	12.391*	-	-
Subspecialty Expertise[b]							
SKA 4-4	Must remain engaged with professional organizations and up-to-date with CEU's	5.40 ± 1.10	5.60 ± 1.20	6.40 ± .70	7.517*	3.921	-
SKA 4-5	Learn about the Navy	5.90 ± 1.00	6.10 ± 1.00	5.20 ± 1.30	4.320	-	-
SKA 4-6	Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills	4.20 ± 1.70	5.10 ± 1.90	5.00 ± 1.30	-	8.519*	-
SKA 4-9	Strategic Management COCOM structures	4.90 ± 1.30	4.60 ± 1.30	3.60 ± 1.50	11.192*	6.389	-
SKA 4-12	Risk Assessment Workplace monitoring Risk Communication	4.95 ± 1.18	5.53 ± 1.04	4.17 ± 1.38	7.063*	-	-
Strategic Management and Planning[b]							
SKA 6-1	Be able to formulate original thought and arguments to support needed processes	6.10 ± .70	6.30 ± .70	5.70 ± .70	4.663	-	-

Table 22 (continued). Item Differences Between Groups via Statistically Significant Main Effects and Interaction Effects

Domain/SKA	SKAs	Admin Mean ± SD[a]	Scientists Mean ± SD[a]	Clinicians Mean ± SD[a]	Clinicians F Value	Admin F Value	Scientists F Value
SKA 6-6	A sound proficiency in statistical analysis and interpretation to include predictive modeling, forecasting and other statistical/research design	5.30 ± 1.10	5.40 ± 1.20	4.40 ± 1.30	12.481*	-	-
SKA 6-7	Resourcefulness (knowing where to look for information)	6.30 ± .70	6.40 ± .90	5.80 ± 1.10	4.568	-	-
Joint Operations[b]							
SKA 7-2	Patient regulation across platforms and services for joint environments	5.50 ± 1.20	4.90 ± 1.30	4.90 ± 1.00	-	5.880	-
SKA 7-3	Understand the mission	6.60 ± .70	6.40 ± .60	5.90 ± .80	4.025	-	-
SKA 7-5	Basic competencies in Chemical/Biological Warfare threat environment	5.20 ± 1.30	5.30 ± 1.20	4.30 ± 1.50	9.111*	-	-
Communication[b]							
SKA 8-3	Knowledge of chain of commands: BUMED, COCOM, USMC, etc.	5.81 ± 1.00	5.50± .90	4.40 ± 1.60	16.748*	11.312*	-
SKA 8-4	Capability of presenting presentations, briefs, etc	6.10 ± .60	6.30 ± .70	5.30 ± 1.10	10.146*	-	-
Military Knowledge[b]							
SKA 9-2	Knowledge of own Corps, Navy, and all other US services (Joint doctrine) policies, procedures, doctrine	5.60 ± 1.20	5.60 ± 1.00	4.40 ± 1.60	13.164*	-	-
SKA 9-3	Knowledge of operational functions	5.80 ± .80	6.10 ± .80	5.30 ± .90	4.105	-	-
SKA 9-4	Understands how MSC community melds into "Big Navy"	5.90 ± 1.00	5.70 ± 1.10	4.80 ± 1.90	10.949*	-	-

Table 22 (continued). Item Differences Between Groups via Statistically Significant Main Effects and Interaction Effects

Domain/SKA	SKAs	Admin Mean ± SD[a]	Scientists Mean ± SD[a]	Clinicians Mean ± SD[a]	Clinicians F Value	Admin F Value	Scientists F Value
Operational Experience[b]							
SKA 10-1	Operational Experience	5.70 ± 1.23	5.95 ± .83	4.94 ± 1.78	5.947	-	-
SKA 10-2	Interoperability	5.84 ± .96	5.79 ± .83	4.78 ± 1.44	9.4284*	-	-
SKA 10-4	Understanding the difference between BSO 18 and 27, understanding the HSAP process, understanding the structure and mission of USMC and USN operational medicine (emphasis on Joint) cannot be understated.	5.35 ± 1.10	4.47 ± 1.57	4.39 ± 1.67	4.133	10.207*	-
Mentorship[b]							
SKA 11-2	Ability to get personnel involved in the community	5.35 ± 1.05	5.37 ± .98	4.67 ± 1.86	6.430	-	-

Note. SD = standard deviation; SKA = skills, knowledge, and abilities

[a] Seven=point relative importance scale, where 1 = extremely unimportant and 7 = extremely important

[b] Each domain contained a different number of items therefore degrees of freedom varied.

P<.05. * p<.01

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Appendix A - Specialty Leaders Request Letter of support

As current leaders and the future force of Navy Medicine, I would like to invite you to participate in a research project aimed at rating junior Navy Medical Service Corps competencies. This study will identify competencies and associated skills, knowledge, and abilities required by all subspecialties across the Medical Service Corps. Because the Medical Service Corps represents a myriad of professions, this study will identify commonalities and differences of opinions among these professions and provide a guide for future modifications to educational programs and roadmaps designed to support the development of the junior Navy Medical Service Corps officer. The selection criteria for this study include active duty Medical Service Corps officers with the rank of 03, Lieutenant having a date of rank of 01 July 2002 through 01 July 2005 with a lineal number of 10872400 through 12803800. Once the study is completed, the research results will be shared with you.

The study, entitled "Forge into the Future: Identifying Core Competencies and Skills, Knowledge, and Abilities (SKAs) for junior Navy Medical Service officers," seeks to identify relevant competencies and associated skills, knowledge, and abilities (SKAs) required for junior Navy Medical Service Corps officers in the next five to years. The study is conducted in collaboration with OOMSC, NMPTE and researchers at U.S. Army Baylor University Graduate Program in Health and Business Administration. This study will utilize the Delphi technique, a widely recognized consensus building tool that uses expert opinion to forecast trends and identify competencies. Additionally, the Delphi technique can be used to clarify positions and delineate differences among diverse reference groups, such as subspecialties within the Medical Service Corps.

In the next few weeks you will receive an external link to Navy Medicine via email. This link will include a questionnaire and demographic data sheet. Your responses will be kept confidential and demographic data will be used to compute statistical significance. At no time will personal information be identified. The questionnaire will take approximately 30 minutes of your time.

If you have any questions please direct them to Lead Researchers, LT Cindi Palacios and LT Ken Shaw.

Appendix B - Medical Service Corps Request Letter of support

Dear Medical Service Corps Officer,

LT Ken Shaw, MSC, USN and I are residents in the Army-Baylor University Graduate Program in Health and Business Administration. We are conducting a research study on required competencies for junior Navy Medical Service Corps officers in the next five to ten years.

You were selected to participate in this study because you represent the future force of Navy Medicine and can identify what junior Navy Medical Service Corp officers need in the future to succeed. Because the Medical Service Corps represents a myriad of professions, this study will identify commonalities and differences of opinions among these professions and provide a guide for future modifications to educational programs, career planning guide, and roadmaps designed to support the development of the junior Navy Medical Service Corps officer.

This study requires you to complete two questionnaires, one over the next two weeks and another over a two-week period beginning in early November. Each questionnaire will take approximately 10 to 15 minutes to complete. After this study is complete you will be sent the final results.

Initial data collection for the study will be collected via Navy Medicine Online. You will not have to login into Navy Medicine Online. Please click on the link below in order to begin. http://navymedicine.med.navy.mil/survey/default.cfm?survey_id=790&survey_key=MJhp8regKIaNH

Please note: THIS IS NOT A SURVEY, but an effective means of assessing the judgment of a group of experts. Your responses will be totally confidential: at no time will individual respondents be identified. If you have any questions please contact Lead Researchers, LT Cindi Palacios at cindi.palacios@med.navy.mil, or by phone at 910-450-4468 or LT Ken Shaw at kenneth.shaw@med.navy.mil, or by phone 401-841-3444 or refer to the attached background information page.

Appendix C - Director For Administration Request Letter of support

Fellow DFA's

LT Cindi Palacios and LT Ken Shaw are residents of the Army-Baylor Graduate Program in Health and Business Administration. They are conducting a research study on required competencies for junior Navy Medical Service Corps officers in the next five to ten years. In September, Wave I of their study was sent out to approximately 553 Medical Service Corps Officers. The response rate was 19 percent. Currently Wave II of their study is underway and they are hoping to garner greater support for their research. In order to do this they need participation from the MSC community in completing the questionnaire. Participation in this phase of the study does not require you to have completed Wave I. The questionnaire will take between 10 and 15 minutes to complete They are requesting completion of the questionnaire by 12 December 2007. Attached is a list of those junior MSC's that fall into their population and a word version of their questionnaire which can be sent back to them via email or faxed to the number below. The questionnaire can also be accessed online at the NMO link below. Please take a moment to scan the spreadsheet and encourage any of your MSC's to take the opportunity to participate in this study.

http://navymedicine.med.navy.mil/survey/default.cfm?survey_id=801
<https://webmail.med.navy.mil/exchweb/bin/redir.asp?URL=http://navymedicine.med.navy.mil/survey/default.cfm?survey_id=801>
Using the key: nZUjIdQ2rza

Or by fax 910 - 450 - 4922

If you have any questions please contact lead researchers:
LT Cindi Palacios at: (w) 910-450-4468, (c) 910-546-9221 or via email at cindi.palacios@med.navy.mil <mailto:cindi.palacios@med.navy.mil> or LT Ken Shaw at: (w) 401-841-3444 or via email at kenneth.shaw@med.navy.mil <mailto:kenneth.shaw@med.navy.mil> .

Thanks again for helping with this study.

v/r CDR LeFavour

Appendix D - Junior Navy Medical Service Corps officers Questionnaire-Wave I

Navy Medicine Online

Junior Navy Medical Service Corps officers Questionnaire	
The Medical Service Corps is made up of 31 subspecialties, all which contribute to the mission of effective and efficient healthcare delivery. Because the Medical Servicc Corps is comprised of such a diverse group of professionals, the objective of the study is to identify core competencies for all junior MSC officers in the next five to ten years. This task will be accomplished by soliciting responses from you the subject matter expert in your field which competencies and important skills, knowledge, and abilities you believe junior Medical Service Corps officers will need to succeed in the ever-changing complex healthcare environment.	
* Answer Required.	
Group 1: Core Competency and SKAs In this group, list what you personally consider the TOP Five relevant competencies that junior Medical Service Corps officers need in the next five to ten years. Define each competency as clearly as possible, making sure to avoid generalized or categorical terms. Second, for each identified competency, list what you consider to be the important and necessary skills, knowledge, abilities that will be required to achieve and/or execute the identified competency.	
1. Identify Core Competency #1. (Example: Environmental Analysis) *	
2. Identify Important Skills, Knowledge, Abilities with Core Competency #1. (Example: Strategic Management, Forecasting, Homeland Security) *	
3. Identify Core Competency #2. (Example:Leadership) *	
4. Identify Important Skills, Knowledge, Abilities with Core Competency #2. (Example: communication, interpersonal relationships, mentorship) *	
5. Identify Core Competency #3. *	

6. Identify Important Skills, Knowledge, Abilities with Core Competency #3. *
7. Identify Core Competency #4. *
8. Identify Important Skills, Knowledge, Abilities with Core Competency #4. *
9. Identify Core Competency #5. *
10. Identify Important Skills, Knowledge, Abilities with Core Competency #5. *
* Answer Required.

Appendix E - Tentative Junior Navy Medical Service Corps Competency Domains and Initial Frequency Counts

Project Title: Forge into the Future: Identifying Core Competencies and Skills, Knowledge, and Abilities (SKAs) for Junior Navy Medical Service Corps officers

Data For: Expert panel members participating in this study. The panel is scheduled to meet at National Naval Medical Command, Monday, October 29, 2007.

Preliminary Results:

The purpose of this research is to identify the most important competencies that Junior Navy Medical Service Corps officers must possess to be successful. In September 2007, the Army-Baylor researcher team contacted 373 Junior Navy Medical Service Corps officers. Officers were invited to voluntarily participate in the formation of a Delphi* network as part of the research project. Officers were asked to respond to an open-ended questionnaire, identifying five relevant competencies and important skills, knowledge, and abilities (SKAs) that Junior Navy Medical Service Corps officers need to be successful in the next five to ten years.

The purpose of this Delphi expert panel meeting is to:

1) examine the Wave I competency item responses from the Delphi network,
2) sort the competency items into meaningful categories or content domains of like kinds of items, and
3) provide names or labels for the domains (groupings of competency items) in job-related, Navy Medical Service Corps language.

Of the questionnaires requested, 68 were returned (18percent response rate). Respondents were asked to identify five competencies and important SKAs. The total frequency of response items was 311. Most respondents listed five items. Many of the same item phrases were listed by multiple respondents, reducing the total of 311 items to 139 unique competency items. A preliminary grouping of like-kinds of competencies resulted in 18 domain categories. Many of these domains and competency items may be further sorted, combined, reduced, or expanded with the assistance of the expert panel.

* **Delphi** refers to a scientific research methodology used to consolidate expert opinion under a 'pooling of abilities' forecasting model, and was originally developed by the Rand Corporation, Santa Monica, CA. Delphi was a city in ancient Greece. In mythology, the oracle of Apollo at Delphi had the power to foretell or predict the future, e.g. the outcome of the Trojan War.

Tentative Junior Navy Medical Service Corps Competency Domains and Initial Frequency Counts

Junior Navy Medical Service Corps officers

Tentative Medical Service Corps Competency Domains	Nr Items-All	Nr Unique Items
Leadership	57	9
Professional Development	44	16
Personality Traits	28	19
Management	26	10
Joint Operations	22	17
Business Management	22	11
Strategic Management/Critical Thinking	19	9
Military Knowledge	14	7
Communication	12	5
Clinical/Scientific	12	10
Operational Experience	10	2
Mentorship	10	1
Miscellaneous	8	7
Human Resources	8	4
Teamwork	7	3
Computers/Technical	6	4
Organizational Behavior	3	2
Healthcare	3	3
Total	311	139

Reported Frequencies of Competency Items Within Tentative
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Leadership	**(57)**	**9**
•Leadership	49	
•Decision Maker	1	
•Leadership Management	1	
•Leadership Skills	1	
•Navy Leadership	1	
•Planning and Decision Making	1	
•Qualitative Leadership	1	
•Senior Leadership	1	
•Servant Leadership	1	
Professional Development	**(44)**	**16**
•Education/Advanced	7	
•Professional Expertise	7	
•Competence/Cross Competence	5	
•Ethics	4	
•Career Development	3	
•Professional Knowledge	3	
•Continuous Improvement	3	
•Executive Medicine	2	
•Military Bearing	2	
•Professionalism	2	
•Advancement	1	
•Core Values	1	
•Military Business Training	1	
•Operations Related Skills	1	
•OTAP	1	
•Professional Membership	1	

Reported Frequencies of Competency Items Within Tentative
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Personal Traits	**(28)**	**19**
•Initiative	5	
•Adaptability	2	
•Character	2	
•Flexibility	2	
•Motivation	2	
•Perseverance	2	
•Compassion	1	
•Competitiveness	1	
•Consistency	1	
•Courage	1	
•Emotional Intelligence	1	
•Honesty	1	
•Honor	1	
•Humility	1	
•Integrity	1	
•Personal Skills	1	
•Resiliency	1	
•Responsibility	1	
•Stewardship	1	
Management	**(26)**	**10**
•Management	11	
•Administration	5	
•Organization	2	
•Time Management	2	
•Change Management	1	
•Knowledge Management	1	
•Manage your boss	1	
•Patient Administration	1	
•Public Health Management	1	
•Self Management	1	

Reported Frequencies of Competency Items Within Tentative
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Joint Operations	**(10)**	**8**
•CBRNE Proficiency	2	
•Environmental Analysis	2	
•Military Mission	2	
•Operational Personnel Planner	2	
•Operational Readiness	2	
•Antiterrorism General Threat	1	
•FMF	1	
•Increased Naval Experience	1	
•Joint Forces Training	1	
•Joint Officer	1	
•Joint Professional Education	1	
•Medical Planning	1	
•Medical Regulating	1	
•Mission Comprehension	1	
•MTF Operations	1	
•Operational Risk Management	1	
•Threat Analysis	1	
Business Management	**(22)**	**11**
•Finance	5	
•Program Management	3	
•Project Management	3	
•Qualitative Analysis	2	
•Research Analysis	2	
•Resource Management	2	
•Business Management	1	
•Outcomes Research	1	
•Practice Management	1	
•Supply	1	
•Systems	1	

Reported Frcquencies of Competency Items Within Tentativc
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Strategic Management and Planning	**(19)**	**9**
•Creative Think	3	
•Forecasting and predictive modeling	3	
•Strategic Analysis	3	
•Strategic Management	3	
•Problem Solving	2	
•Strategic Vision	2	
•Crisis Resolution	2	
•Decision Analysis	2	
•Rcasoning	2	
Military Knowledge	**(14)**	**7**
•Military Knowledge	6	
•Military Structure/Organization	3	
•Military Sciences	1	
•Naval Competency	1	
•Navy Minded	1	
•Understanding BUMED COC	1	
•Understanding DOD COC	1	
Communication	**(12)**	**5**
•Communication	8	
•Advising Senior Leadership	1	
•Interpersonal Skills	1	
•Public Speaking	1	
•Risk Communication	1	
Clinical/Scientific	**(12)**	**10**
•Clinical Aptitude	2	
•Optometrist	2	
•Clinical Expertise	1	
•Forensic Practices	1	
•In depth scientific abilities	1	
•Medical Research and devclopment	1	
•Pharmacy	1	
•Physical Therapy	1	
•Preventive Medicinc	1	
•Science Program Director	1	

Reported Frequencies of Competency Items Within Tentative
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Operational Experience	**(10)**	**2**
•Deployment Experience	7	
•Operational Medicine	3	
Mentorship and Staff Development	**(10)**	**1**
•Mentorship	10	
Miscellaneous	**(8)**	**7**
•Physical Fitness	2	
•Diversity in Assignments	1	
•Environmental Health Site Assessment	1	
•Family	1	
•Food safety and sanitation	1	
•Industrial Hygiene	1	
•New/Junior Officer Responsibility	1	
Human Resources	**(8)**	**4**
•Human Resource Management	5	
•Human Performance	1	
•Human Relations	1	
•Resource Allocation and Management	1	
Teamwork	**(7)**	**3**
•Teamwork	5	
•Team player	1	
•Medical Team Building	1	

Reported Frequencies of Competency Items Within Tentative
Navy Junior Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Leader Domains	Frequencies	Unique Competencies
Computer/Technical	**(6)**	**4**
•Technical Expertise	2	
•Technical Abilities	2	
•Information analysis and communication skills	1	
•Computers	1	
Organizational Behavior	**(3)**	**2**
•Individual and Organizational Behavior	2	
•Organizational Development	1	
Healthcare	**(3)**	**3**
•HCA 1		
•Healthcare Delivery Systems	1	
•Healthcare in a Complex Environment	1	
Total	311	139

Appendix F - Junior Navy Medical Service Corps Competency Domains and Frequency Counts

Junior Navy Medical Service Corps Competency Domains and Frequency Counts

Junior Navy Medical Service Corps officers

Medical Service Corps Competency Domains	Nr Items-All	Nr Unique Items
Leadership	57	1
Management	51	11
Professional Development	39	11
Subspecialty Expertise	37	3
Core Values	32	5
Strategic Management and Planning	21	11
Joint Operations/ Readiness	15	9
Communication	14	6
Military Knowledge	12	1
Operational Experience	12	3
Mentorship	10	1
Total	300	62

Frequencies of Competency Items Within
Junior Navy Medieal Serviee Corps Competeney Domains

Competeney Items Within Junior Medieal Serviee Corps Domains	Frequeneies	Unique Competencies
Leadership	**(57)**	**1**
•Leadership	57	
Management	**(51)**	**11**
•Management	17	
•Human Resouree Management	8	
•Program Management	6	
•Finanee	5	
•Quantitative Analysis	4	
•Resouree Management	4	
•Organization	2	
•Time Management	2	
•Business Management	1	
•Outeomes Researeh	1	
•Systems Analysis	1	
Professional Development	**(39)**	**11**
•Edueation/Advaneed	7	
•Computers/Technical	6	
•Teamwork/Team Player	6	
•Competenee/Cross Competenee	5	
•Career Development	4	
•Continuous Improvement	3	
•Exeeutive Medieine	3	
•Military Bearing	2	
•Diversity in Assignments	1	
•Military Business Training	1	
•OTAP	1	
Subspecialty Expertise	**(37)**	**3**
•Subspecialty Expertise	27	
•Professional Expertise	7	
•Professional Knowledge	3	
Core Values	**(32)**	**5**
•Core Values	11	
•Adaptability	8	
•Initiative	7	
•Ethies	4	
•Professionalism	2	

Frequencies of Competency Items Within
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Domains	Frequencies	Unique Competencies
Strategic Management and Planning	**(21)**	**11**
•Creative Think	3	
•Forecasting and predictive modeling	3	
•Strategic Analysis	3	
•Strategic Management	3	
•Problem Solving	2	
•Strategic Vision	2	
•Crisis Resolution	1	
•Decision Analysis	1	
•Planning and Decision Making	1	
•Reasoning	1	
•Organizational development	1	
Joint Operations/Readiness	**(15)**	**9**
•Operational Readiness	3	
•Military Mission	3	
•CBRNE Proficiency	2	
•Physical Fitness	2	
•Operational Risk Management	1	
•Antiterrorism General Threat	1	
•Joint Forces Training	1	
•Joint Officer	1	
•Joint Professional Education	1	
Communication	**(14)**	**6**
•Communication	8	
•Understanding COC	2	
•Advising Senior Leadership	1	
•Interpersonal Skills	1	
•Public Speaking	1	
•Risk Communication	1	
Military Knowledge	**(12)**	**1**
•Military Knowledge	12	
Operational Experience	**(12)**	**3**
•Deployment Experience	7	
•Operational Medicine/FMF	4	
•Increased Naval Experience	1	

Frequencies of Competency Items Within
Junior Navy Medical Service Corps Competency Domains

Competency Items Within Junior Medical Service Corps Domains	Frequencies	Unique Competencies
Mentorship	**(10)**	**1**
•Mentorship	10	
Total	300	62

Appendix G - Junior Navy Medical Service Corps officers Questionnaire-Wave II

MEMORANDUM FOR JUNIOR NAVY MEDICAL SERVICE CORPS

SUBJECT: Junior Navy Medical Service Corps officers – Initiation of Wave II

You were selected to participate in this study because you represent the future force of Navy Medicine. Additionally, you are the subject matter expert who can help identify which competencies and skills, knowledge, and abilities (SKAs) junior Navy Medical Service Corp officers need to succeed in a complex healthcare environment.

This study uses the Delphi Method. The Delphi Method is an effective means of assessing the judgments of a group of experts. In September, Wave I of the study was sent out to approximately 373 Medical Service Corps Officers. The response rate was 18 percent. An expert panel of mid-level Navy Medical Service Corps officers then analyzed and categorized like kinds of key items together into groups. These groups are called 'domains' in this study and the expert panel assigned a name to each domain that best summarizes the competency items within that domain. Wave II of the study gives respondents the opportunity to rate the identified important skill, knowledge, and ability (SKA) items that were generated from Wave I. Please be assured that confidentiality of your responses will be maintained.

The tables on the next three pages (pg. 2-3) summarize the responses that were provided in Wave I after the expert panel analyzed and categorized all of the responses. You should find this information interesting and insightful since all responses are generated from fellow Navy Medical Service Corps officers in the field – just like you. Please feel free to print the tables and refer to them as needed in your daily practice.

Please take the time to complete the following questionnaire. *You may participate in this phase of the study even if you did not respond during Wave I*. Although this instrument may appear longer than the Wave I questionnaire, it should take significantly less time to complete because of the standardized format. Please return the questionnaire by 05 December 2007.

To ensure maximum participation you can access this questionnaire online at:

http://navymedicine.med.navy.mil/survey/default.cfm?survey_id=801
Using the key: nZUjIdQ2rza

Or use the form below and return by:

e-mail cindi.palacios@med.navy.mil or Kenneth.shaw@med.navy.mil:

Or by fax 910 – 450 - 4922.

Please select only one option to avoid duplication of results.

Please contact myself at (910) 546-9221 or LT Ken Shaw at (401) 841-3444 if you have any questions. You will receive a summary of the findings at the completion of this study.

Part 1 – Domain Overview**

Junior Navy Medical Service Corps *Competency Domain*	Total Competencies	Unique Domain Items
I. Leadership	57	1
II. Management	51	11
III. Professional Development	39	11
IV. Subspecialty Expertise	37	3
V. Core Values	32	5
VI. Strategic Management and Planning	21	11
VII. Joint Operations/Readiness	15	9
VIII. Communication	14	6
IX. Military Knowledge	12	1
X. Operational Experience	12	3
XI. Mentorship	10	1
Totals	300	62

**Feedback to the respondents

Part 2 – Detailed View of Competency Domain

I. Leadership – 1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Leadership	57

II. Management – 11 Unique Items

(Frequency that item was raised during Wave I is shown in table)

Management	17	Organization	2
Human Resource Management	8	Time Management	2
Program Management	6	Business Management	1
Finance	5	Outcomes Research	1
Quantitative Analysis	4	Systems Analysis	1
Resource Management	4		

III. Professional Development – 11 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Education/Advanced Education	7	Executive Medicine	3
Computers/technical	6	Military Bearing	1
Teamwork/Team player	6	Diversity in Assignments	1
Competence/Cross Competence	5	Military Business Training	1
Career Development	4	OTAP	1
Continuous Improvement	3		

You may keep this page.

Part 2 – Detailed View of Competency Domains (cont'd)

IV. Subspecialty Expertise – 3 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Subspecialty Expertise	27	Professional Knowledge	3
Professional Expertise	7		

V. Core Values – 5 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Core Values	11	Ethics	4
Adaptability	8	Professionalism	2
Initiative	7		

VI. Strategic Management and Planning - 11 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Creative Think	3	Crisis Resolution	1
Forecasting and Predictive Modeling	3	Decision Analysis	1
Strategic Analysis	3	Planning and Decision Making	1
Strategic Management	3	Reasoning	1
Problem Solving	2	Organizational Development	1
Strategic Vision	2		

VII. Joint Operations - 9 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Operational Readiness	3	Crisis Resolution	1
Military Mission	3	Decision Analysis	1
CBRNE proficiency	2	Planning and Decision Making	1
Strategic Management	3	Reasoning	1
Problem Solving	2	Organizational Development	1
Strategic Vision	2		

VIII. Communication – 6 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Communication	8	Interpersonal skills	1
Understanding COC	2	Public Speaking	1
Advising Senior Leadership	1	Risk Communication	1

You may keep this page.

Part 2 – Detailed View of Competency Domains (cont'd)

IX. Military Knowledge – 1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Military Knowledge	12

X. Operational Experience - 3 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Deployment Experience	7	Increased Naval Experience	1
Operational Medicine/FMF	4		

XI. Mentorship - 1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Mentorship	10

Junior Navy Medical Service Corps: Wave II Questionnaire

YOU MAY PARTICIPATE IN THIS PHASE EVEN IF YOU DID NOT COMPLETE THE WAVE I QUESTIONNAIRE. This is the second and last part of the study and differs in format and content from the first questionnaire. Please return the questionnaire by 5 Dec 2007. The form can be returned via online, e-mail or fax. Select one option to avoid duplication of results.

Online: http://navymedicine.med.navy.mil/survey/default.cfm?survey_id=801
Using the key: nZUjIdQ2rza

E-mail: cindi.palacios@med.navy.mil or kenneth.shaw@med.navy.mil
Fax: 910-450-4922

Domain I – Leadership

I. Leadership – 1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Leadership	57

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			Extremely Important
	1	2	3	4	5	6	7
1. Ability to make decisions and defend them	☐	☐	☐	☐	☐	☐	☐
2. Ability to motivate.	☐	☐	☐	☐	☐	☐	☐
3. Ability to tailor leadership style to your staff/crew or the goals at hand to accomplish the mission.	☐	☐	☐	☐	☐	☐	☐
4. Ability to manage, supervise and guide subordinate personnel.	☐	☐	☐	☐	☐	☐	☐
5. Leading by example.	☐	☐	☐	☐	☐	☐	☐
6. Willingness to serve those above and below you.	☐	☐	☐	☐	☐	☐	☐
7. Desire to meet others needs above your own.	☐	☐	☐	☐	☐	☐	☐
8. Knowledge of your role and the importance of your role.	☐	☐	☐	☐	☐	☐	☐
9. Interpersonal skills.	☐	☐	☐	☐	☐	☐	☐
10. Communicate clear and concise.	☐	☐	☐	☐	☐	☐	☐
11. Situational awareness.	☐	☐	☐	☐	☐	☐	☐
12. Professional writing and communication skills	☐	☐	☐	☐	☐	☐	☐
13. Positive representation of department, command, and Navy.	☐	☐	☐	☐	☐	☐	☐
14. Broad knowledge base and strong situational analysis skills to lead people in an effective, positive and confident manner.	☐	☐	☐	☐	☐	☐	☐
15. Value Diversity. Cultural Sensitivity.	☐	☐	☐	☐	☐	☐	☐
16. Demonstrate Core Values, integrity, and ethical decision making while leading	☐	☐	☐	☐	☐	☐	☐
17. Team Building - building morale for the entire team.	☐	☐	☐	☐	☐	☐	☐

18. Have vision of the department, organization, and the Navy. See the "Big Picture".	☐	☐	☐	☐	☐	☐	☐
19. Networking with Peer group.	☐	☐	☐	☐	☐	☐	☐

Domain II –Management

II. Management – 11 Unique Items

(Frequency that item was raised during Wave I is shown in table)

Management	17	Organization	2
Human Resource Management	8	Time Management	2
Program Management	6	Business Management	1
Finance	5	Outcomes Research	1
Quantitative Analysis	4	Systems Analysis	
Resource Management	4		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			Extremely Important
	1	2	3	4	5	6	7
1. Learn how to follow the Navy money distribution and check to see what is available. Understand how to make a budget. Understand how to make changes in budget to meet command requirements.	☐	☐	☐	☐	☐	☐	☐
2. Ability to chart the financial future and sustainment of operations at a particular workplace as it relates to a fiscal planning and a viable budget.	☐	☐	☐	☐	☐	☐	☐
3. Civpers (GS) MATO Contracts ISA Contracts Personal Vs. Non-Personal Contracts Staffing Models Staffing Benchmarks.	☐	☐	☐	☐	☐	☐	☐
4. Cross-Cultural Communication Skills: Group Dynamics, Conflict Management, and Diverse Backgrounds.	☐	☐	☐	☐	☐	☐	☐
5. Understand HR Systems to include Civilian, Contract, and Military Personnel: How to: hire/promote, hold people accountable, and reward people.	☐	☐	☐	☐	☐	☐	☐
6. Time Management.	☐	☐	☐	☐	☐	☐	☐
7. Analytical thinking: Statistical techniques: Problem solving: Critical thinking: Planning	☐	☐	☐	☐	☐	☐	☐
8. Demonstrate analysis of appropriate care standards and incorporate national standards of Provider/Staff mix as well as patient mix within the patient population.	☐	☐	☐	☐	☐	☐	☐
9. Scheduling both clinical and administrative staff.	☐	☐	☐	☐	☐	☐	☐
10. Multi-tasking. Ability to manage a myriad of tasks and programs.	☐	☐	☐	☐	☐	☐	☐
11. Complete tasks in an orderly fashion: for ease of turnover.	☐	☐	☐	☐	☐	☐	☐
12. Understand principles of cost-benefit, cost-effectiveness,	☐	☐	☐	☐	☐	☐	☐

and cost-utility analyses. Know difference between humanistic Vs. . economic outcomes.							
13. Systematic approach to complex problems with POA&M management.	☐	☐	☐	☐	☐	☐	☐
14. Be able to support opinions, arguments, and point papers with substantiated analysis. Requires ability to quantify certain metrics and adeptly translate them into terms that support requirement but are also easily understood by audience.	☐	☐	☐	☐	☐	☐	☐
15. Demonstrate department head level ability to manage resources (personnel, financial, facilities, etc.).	☐	☐	☐	☐	☐	☐	☐
16. Implementing quality management strategies including Shewart cycle, feedback mechanisms and performance metrics. M2, Lean Six Sigma, ALTHA.	☐	☐	☐	☐	☐	☐	☐
17. Understand how supplies are: ordered, how to tell what is on order, when it arrives, and how to determine what you need and how much to have on hand.	☐	☐	☐	☐	☐	☐	☐

Domain III – Professional Development

III. Professional Development – 11 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Education/Advanced Education	7	Executive Medicine	3
Computers/technical	6	Military Bearing	1
Teamwork/Team player	6	Diversity in Assignments	1
Competence/Cross Competence	5	Military Business Training	1
Career Development	4	OTAP	1
Continuous Improvement	3		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Be versatile in many areas. Have a fundamental understanding of operational, clinical, and MHS functions.	☐	☐	☐	☐	☐	☐	☐
2. Military bearing.	☐	☐	☐	☐	☐	☐	☐
3. Working knowledge of Microsoft Office Suite-Excel, Word, Powerpoint, etc	☐	☐	☐	☐	☐	☐	☐
4. Ability to receive, process and interpret data/information in a dynamic environment, synthesize information to make meaningful decisions and communicate in a meaningful and effective way.	☐	☐	☐	☐	☐	☐	☐
5. Statistical analysis (regression, ANOVA, correlations), Experimental design, Critical thinking, Interdisciplinary skills.	☐	☐	☐	☐	☐	☐	☐
6. Improve those around you.	☐	☐	☐	☐	☐	☐	☐

7. Lead without Ego. Be okay with giving up your own identity and need for the achievement of the team.	☐	☐	☐	☐	☐	☐	☐
8. Professional Affiliation.	☐	☐	☐	☐	☐	☐	☐
9. Understand how to be promoted in a competitive environment.	☐	☐	☐	☐	☐	☐	☐
10. Keeping up to date with new treatment and diagnosis, skills sets, new technology, and state and federal competencies.	☐	☐	☐	☐	☐	☐	☐
11. Must being willing to take the headquarters position to learn the organization from within.	☐	☐	☐	☐	☐	☐	☐
12. Market analysis, job availabilities: resume writing and transition or adjustment tools.	☐	☐	☐	☐	☐	☐	☐
13. Work as a team with all subspecialties.	☐	☐	☐	☐	☐	☐	☐

Domain IV – Subspecialty Expertise

IV. Subspecialty Expertise – 3 Unique Items
(Frequency that item was raised during Wave 1 is shown in table)

Subspecialty Expertise	27	Professional Knowledge	3
Professional Expertise	7		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Knowledge of specialty area.	☐	☐	☐	☐	☐	☐	☐
2. Participation in community to find out latest updates in the field.	☐	☐	☐	☐	☐	☐	☐
3. Continuing Education, Certification, Research.	☐	☐	☐	☐	☐	☐	☐
4. Must remain engaged with professional organizations and up-to-date with CEU's.	☐	☐	☐	☐	☐	☐	☐
5. Learn about the Navy.	☐	☐	☐	☐	☐	☐	☐
6. Clinical microbiology, clinical laboratory testing skills, clinical reasoning skills, clinical research skills.	☐	☐	☐	☐	☐	☐	☐
7. Maintaining correct forensic practices at DoD drug testing laboratory.	☐	☐	☐	☐	☐	☐	☐
8. Humanitarian Assistance.	☐	☐	☐	☐	☐	☐	☐
9. Strategic Management COCOM structures.	☐	☐	☐	☐	☐	☐	☐
10. Management of public health programs to include immunizations, sexual transmitted disease counseling and tracking, disease and non-battle injury (DNBI) reports.	☐	☐	☐	☐	☐	☐	☐
11. Forecasting Homeland Security Medical Planning Expeditionary Medicine.	☐	☐	☐	☐	☐	☐	☐
12. Risk Assessment Workplace monitoring Risk Communication.	☐	☐	☐	☐	☐	☐	☐

Domain V – Core Values

V. Core Values – 5 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Core Values	11	Ethics	4
Adaptability	8	Professionalism	2
Initiative	7		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			Extremely Important
	1	2	3	4	5	6	7
1. Interoperability. Appreciation of sister Services.	☐	☐	☐	☐	☐	☐	☐
2. Adapting to the environment/situation.	☐	☐	☐	☐	☐	☐	☐
3. Willingness to hear others ideas.	☐	☐	☐	☐	☐	☐	☐
4. Doing the right thing when no one else is around.	☐	☐	☐	☐	☐	☐	☐
5. Knowledge of your field of expertise, up to date with current technologies and ideas, regular training to improve on professional skills, participate in conferences to gain skills and information as well as provide skills and information.	☐	☐	☐	☐	☐	☐	☐
6. Willingness to learn and try new ways.	☐	☐	☐	☐	☐	☐	☐
7. Initiative and Drive	☐	☐	☐	☐	☐	☐	☐
8. Judgment	☐	☐	☐	☐	☐	☐	☐
9. Endurance/Persistent	☐	☐	☐	☐	☐	☐	☐
10. Doing what is right for the Navy or people not oneself.	☐	☐	☐	☐	☐	☐	☐

Domain VI – Strategic Management and Planning

VI. Strategic Management and Planning - 11 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Creative Think	3	Crisis Resolution	1
Forecasting and Predictive Modeling	3	Decision Analysis	1
Strategic Analysis	3	Planning and Decision Making	1
Strategic Management	3	Reasoning	1
Problem Solving	2	Organizational Development	1
Strategic Vision	2		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			Extremely Important
	1	2	3	4	5	6	7
1. Be able to formulate original thought and arguments to	☐	☐	☐	☐	☐	☐	☐

support needed processes							
2. Vision.	☐	☐	☐	☐	☐	☐	☐
3. Be able and willing to think of extraordinary concepts for doing tasks rather than just doing it the "same way it has always been done". (Think outside the Box)	☐	☐	☐	☐	☐	☐	☐
4. Ability to take information, synthesize it, and think and make independent decisions.	☐	☐	☐	☐	☐	☐	☐
5. Ability to make decisions quickly & efficiently.	☐	☐	☐	☐	☐	☐	☐
6. A sound proficiency in statistical analysis and interpretation to include predictive modeling, forecasting and other statistical/research design.	☐	☐	☐	☐	☐	☐	☐
7. Resourcefulness (knowing where to look for information)	☐	☐	☐	☐	☐	☐	☐

Domain VII – Joint Operations/Readiness

VII. Joint Operations - 9 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Operational Readiness	3	Crisis Resolution	1
Military Mission	3	Decision Analysis	1
CBRNE proficiency	2	Planning and Decision Making	1
Strategic Management	3	Reasoning	1
Problem Solving	2	Organizational Development	1
Strategic Vision	2		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Lead from the front. Uniform Appearance and Physical Fitness lend to the credibility of a leader.	☐	☐	☐	☐	☐	☐	☐
2. Patient regulation across platforms and services for joint environments.	☐	☐	☐	☐	☐	☐	☐
3. Understand the mission.	☐	☐	☐	☐	☐	☐	☐
4. Strategy & Policy National Security Decision Making Joint Military Operations Interagency Process.	☐	☐	☐	☐	☐	☐	☐
5. Basic competencies in Chemical/Biological Warfare threat environment. .	☐	☐	☐	☐	☐	☐	☐

Domain VIII – Communication

VIII. Communication – 6 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Communication	8	Interpersonal skills	1
Understanding COC	2	Public Speaking	1
Advising Senior Leadership	1	Risk Communication	1

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Ability to read, write, and speak clearly.	☐	☐	☐	☐	☐	☐	☐
2. Excellent "chair-side" manner.	☐	☐	☐	☐	☐	☐	☐
3. Knowledge of chain of commands: BUMED, COCOM, USMC, etc.	☐	☐	☐	☐	☐	☐	☐
4. Capability of presenting presentations, briefs, etc.	☐	☐	☐	☐	☐	☐	☐
5. Ability to communicate clearly across multiple arenas (civilian, military, medical, business, and community) and at various levels of the chain of command arenas	☐	☐	☐	☐	☐	☐	☐

Domain IX – **Military Knowledge**

IX. Military Knowledge –1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Military Knowledge	12

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Military Customs and Courtesy.	☐	☐	☐	☐	☐	☐	☐
2. Knowledge of own Corps, Navy, and all other US services (Joint doctrine) policies, procedures, doctrine.	☐	☐	☐	☐	☐	☐	☐
3. Knowledge of operational functions.	☐	☐	☐	☐	☐	☐	☐
4. Understands how MSC community melds into "Big Navy"	☐	☐	☐	☐	☐	☐	☐

Domain X – **Operational Experience**

X. Operational Experience - 3 Unique Items

(Frequency that item was raised during Wave 1 is shown in table)

Deployment Experience	7	Increased Naval Experience	1
Operational Medicine/FMF	4		

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Operational Experience.	☐	☐	☐	☐	☐	☐	☐
2. Interoperability.	☐	☐	☐	☐	☐	☐	☐
3. Working knowledge of how patient care is provided during deployment on land, sea, or air	☐	☐	☐	☐	☐	☐	☐
4. Understanding the difference between BSO 18 and 27, understanding the HSAP process, understanding the structure and mission of USMC and USN operational medicine (emphasis on Joint) cannot be understated.	☐	☐	☐	☐	☐	☐	☐

Domain XI – **Mentorship**

XI. Mentorship - 1 Unique Item

(Frequency that item was raised during Wave 1 is shown in table)

Mentorship	10

Skills, Knowledge, and Abilities Rating Scale

Directions - Please rate all of the following skills, knowledge, and abilities items according to the relevance and importance that should be placed on them in dealing with the types of competencies listed above. Indicate your answers by marking the appropriate box. **Take care to not mark multiple boxes per rating item.**

	Unimportant			---			**Extremely Important**
	1	2	3	4	5	6	7
1. Develop what you are taught and give it to others as you become more senior..	☐	☐	☐	☐	☐	☐	☐
2. Ability to get personnel involved in the community.	☐	☐	☐	☐	☐	☐	☐
3. Provide wisdom, insight, and relate to others.	☐	☐	☐	☐	☐	☐	☐
4. Know when you need it and know when to offer it.	☐	☐	☐	☐	☐	☐	☐

Appendix H

Respondent Background Information (for statistical purposes only)

Please take a minute to complete the following items. Fill in the blanks or mark as appropriate. Manually click on the box to reveal the drop down menus. Thank you!

Demographics:

Age: years (please enter number of years in the box)

Gender: (use drop down menu to choose most appropriate)

List Primary Subspecialty Code:

List Secondary Subspecialty Code:

List Current Duty Station (ex. NHCL):

Job Title/Position:

Education: (check all that apply)

Undergraduate

Bachelor of Arts ☐ Bachelor of Science ☐ Other ☐

Master's

M MBA ☐ MHA ☐ Other ☐

Doctorate (Ph.D.)

☐

Other post-graduate work (please list)

Other: (please list)

Experience:

Years of active duty: years (enter number of years in the box)

Deployment: Yes ☐ No ☐ Times: Location:

Current Position

Experience in current position: years (please enter number of years in the box)

Please list professional affiliations:

Use the space below for any additional comments you may want to share

End of Wave II questionnaire
Thank you for your time and consideration.