

Manpower and Personnel Management for the Navy Chaplain Corps

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Abstract

The Chief of Navy Chaplains asked for analytical support to help the Chaplain Corps (CHC) refine its approaches to manpower and personnel management. Based on input from CHC subject matter experts and data analysis, we found that the CHC currently lacks: (1) institutionalized, documented processes for supporting and providing CHC input to manpower management decisions; (2) consistent staffing standards; and (3) adequate emphasis on manpower management in training and development. To address these deficiencies, we developed community-specific metrics to support the assessment of risks associated with proposed billet cuts or realignments. These metrics are intended to be applied to defined geographic areas called cooperative ministry vicinities and to capture the impact of taking into account junior and senior chaplains' roles, the mandate to serve families, and personnel deployment patterns. We also recommended changes to CHC training and development to support the appropriate use of these metrics.

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Executive Summary

Issues and approach

The Chief of Chaplains asked for analytical support to help the Chaplain Corps (CHC) refine its approaches to manpower and personnel management. In response to this request, the research emphasis in this study was on providing objective, data-derived facts and tools to support new management processes that the community can implement on its own. Specifically, we used a three-step approach:

1. **Qualitative effort:** We reviewed literature and conducted discussions with subject matter experts (SMEs) to identify perceived problems related to CHC manpower and personnel management.
2. **Quantitative effort:** Guided by the results from the qualitative effort, we used billet, inventory, and other data to assess CHC manpower and personnel management processes and potential capability delivery.
3. **Synthesis:** Based on our findings from the process and capability assessments, we identified areas where attention can be usefully placed, and we developed metrics to use as inputs to management processes.

CHC manpower and personnel management processes

Although there are problems with personnel management, the SMEs focused on manpower management as the area of that requires the most attention. And, while there is concern about the CHC's lack of formal decision-making authority in manpower management, the SME input focused more on the quality than the quantity of input. Specifically, the SMEs identified three community deficiencies that limit the quality of their input and, therefore, exacerbate the effects of the CHC's limited manpower management role. The process assessments confirmed these perceptions. Thus, we conclude that the CHC currently lacks the following:

- Institutionalized, documented processes for supporting and providing CHC input to manpower management decisions
- Consistent staffing standards based on workload analysis, especially for shore installations
- Emphasis on manpower management in training and development

CHC potential capability delivery

There are currently no metrics that directly assess either the quantity or quality of capability delivered by the CHC. Therefore, we used five metrics that proxy the *potential quantity* of capability delivered, and we focused on changes in those metrics over time to look for evidence that CHC capability delivery has consistently degraded as a result of process deficiencies. The results are summarized by metric as follows.

Total CHC authorized billets (BA)

Total BA captures the intended amount of capability delivery. Total CHC Navy fleet BA decreased over the study period, but most of the decrease occurred 10 years ago, so there is little evidence of a recent or persistent decrease due to problems with manpower management processes. The data also show that CHC BA fell by more than the BA of other officer communities over the same time period. Authorization decisions should not, however, be made on the basis of “fair share” allocations to communities, but on the basis of relevant mission-related factors.

The ratio of BA to manpower requirements (REQs)

The BA/REQ ratio captures accepted risk imposed by budget constraints. The BA/REQ ratio for all Navy fleet billets increased slightly. All else equal, this indicates a slight increase in potential capability provision and a slight decrease in capability risk due to budget constraints. In addition, comparing changes in the BA/REQ ratios for sea and shore billets revealed a shift from the authorization of shore billets to the authorization of sea billets, which represents a shift of risk from sea to shore.

The ratio of CHC personnel inventory (INV) to CHC BA

The INV/BA ratio is an indicator of potential capability delivery, as well as community health. We looked at INV/BA for total CHC, by domain, and by paygrade group. All three of these INV/BA ratios indicate that INV shortfalls do indeed add risk to capability delivery beyond that imposed by budget constraints, especially at junior grade levels. This risk did not, however, increase over the study period.

Ship-to-ship proximity

Ship-to-ship proximity is an indicator of the community’s ability to apply the circuit-rider model of capability delivery. The data on ship positioning indicated that the amount of time that destroyers were likely to be out of flying distance of another ship

has increased since 2010, which, in turn, suggests that changes in fleet operating concepts may be making the circuit-rider model less workable for this ship type.

The number of people served per chaplain billet

Also known as a capitation ratio (CR), this metric is an indicator of intended capability delivery, controlling for the size of the served population. We calculated all-Navy CRs for the study period, as well as several more specific CRs to capture the impacts of:

- The geographic reallocation of billets based on newly defined cooperative ministry vicinities (CMVs)
- The different roles of junior and senior chaplains
- The mandate to serve families as well as active-duty (AD) personnel
- Deployment patterns for both AD personnel and chaplains

The all-Navy CR decreased slightly over the study period, indicating that the cuts to CHC Navy BA reflected decreases in the size of the population to be served. The CMV-specific CRs showed, however, that changes in potential capability delivery differed substantially across the force; some areas experienced increases and some experienced decreases. The impacts of the different factors—chaplains' roles, families, and deployment—on potential capability delivery also varied across CMVs.

In addition to identifying areas of potential concern, the analysis of the different CRs illustrated how to think about billet allocation decisions. Specifically, it showed how to identify places where risk is increasing or especially high in order to give informed input to decision-makers. It also highlighted the importance of knowing which factors matter in a given location and having baselines for identifying minimum levels of service.

Recommendations

We cannot directly tie the measured decreases in potential capability to the community's manpower management deficiencies, but the analytical approach and its results provide direction on how to overcome the deficiencies and improve CHC input to manpower management decisions. In particular, they demonstrate the need to consider the impact of manpower decisions below the all-Navy level.

With this in mind, improved community manpower and personnel management processes should be designed to help individual chaplains, in cooperation with the Chief of Chaplains office, identify local risks associated with proposed BA cuts or realignments. We make several specific recommendations for how to do this. They can be summarized as follows:

- Start by adopting CMV-specific CRs as the basic metric by which to assess proposed BA cuts or redistributions, and adopt the other CRs to capture the impacts of chaplains' roles, families, and deployment patterns.
- Develop baseline values or ranges for the CRs that define the acceptable range of potential capability provision, and know what conditions suggest deviating from general baselines.
- Develop a process by which local chaplains can reach back to the Chief of Chaplains office to calculate CRs of interest depending on what BA cuts or reallocations are being proposed.
- Support the new process by documenting and disseminating guidance on when and how to apply it.

Contents

Introduction.....	1
Motivation and background	1
Analytical approach and methodologies.....	3
Scope.....	4
Process assessments	5
Capability assessments.....	5
Data sources.....	6
Report outline	6
Perceived Problems	7
Community deficiencies	8
Lack of institutionalized processes.....	8
Lack of consistent, complete staffing standards	8
Lack of emphasis on manpower management in training and development ...	9
Complicating factors	9
Budget and endstrength constraints.....	9
Persistent inventory shortfalls	10
Changing operational concepts.....	10
Direction from the perceived problems	10
CHC Required Capabilities	12
The purpose of the CHC	12
Professional Naval Chaplaincy	12
The RMP role	13
The naval staff officer role.....	13
PNC core capabilities	14
Provide.....	14
Facilitate	14
Care	14
Advise	15
Additional PNC functions.....	15
Deployment	16
Program administration.....	16

Cooperative religious ministry	17
PNC capabilities and chaplain jobs	17
Direction from required CHC capabilities	19
Manpower Management: Process Assessment	20
Staffing standard options.....	20
Option 1: 2006 standards.....	20
Option 2: 2010 standards.....	21
2006 standard versus 2010 standard for operational billets.....	22
Staffing standards versus REQs	22
Cruisers	22
Dock landing ships	23
Operational Ministry Centers	24
Summary and takeaways	26
Manpower Management: Capability Assessment	27
Changes in total CHC USN BA	27
CHC USN fleet BA by paygrade.....	30
Changes in BA relative to REQs.....	31
By domain	31
By sea-shore status and BSO for USN fleet billets.....	32
Changes in capitation ratios	34
Three sets of CRs	34
Cooperative ministry vicinities (CMVs)	35
Ship-to-ship proximity	41
Calculating ship-to-ship proximity.....	41
DDGs' proximity to other ships	43
Summary and takeaways	44
Total USN fleet BA.....	44
USN fleet BA by paygrade.....	44
USN BA/REQ.....	44
USN CRs.....	44
Ship-to-ship proximity	45
Personnel Management: Process Assessment	46
CHC training opportunities.....	46
Training opportunities.....	46
Other professional development	48
Manpower management in training curricula	49
Training attendance.....	49

Summary and takeaways	50
Personnel Management: Capability Assessment	52
INV/BA.....	52
For the whole CHC	52
By domain	52
By paygrade for the USN domain.....	54
Summary and takeaways	54
Conclusion	55
Manpower management recommendations.....	55
Personnel management recommendations.....	56
Appendix A: CHC NOBCs	58
Appendix B: USN Capitation Ratios by FCA CMVs.....	60
Cities in each FCA CMV	60
Norfolk	60
San Diego	60
Everett.....	60
Honolulu	61
Jacksonville	61
Yokosuka	61
Capitation ratios by CMV.....	62
Norfolk CMV.....	62
San Diego CMV.....	63
Everett CMV	64
Honolulu CMV.....	65
Jacksonville CMV	66
Yokosuka CMV.....	67
Appendix C: Ship-to-ship proximity data	68
References.....	70

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List of Figures

Figure 1.	Flowchart of relevant systems: MPT&E for the CHC.....	2
Figure 2.	Three CHC deficiencies identified by SMEs.....	7
Figure 3.	Flowchart of relevant systems revisited	11
Figure 4.	Standards vs. REQs by BSO: CGs.....	23
Figure 5.	Standards vs. REQs by BSO: LSDs.....	24
Figure 6.	Standards vs. REQs vs. BA: Operational Ministry Centers	25
Figure 7.	USN BA by fleet category.....	28
Figure 8.	CHC USN fleet BA by paygrade	30
Figure 9.	CHC BA/REQ by domain ^a	32
Figure 10.	CMV illustration	36
Figure 11.	All-Navy capitation ratios over time	37
Figure 12.	Distribution of days DDGs spent at least 245 n.mi. from shore	42
Figure 13.	Percentage of days with a DDG, CVN, or CG within flying distance, by calendar year	43
Figure 14.	CHC leader development continuum	47
Figure 15.	Course completion rates: ILC ^a and ALC ^b	51
Figure 16.	INV/BA for the total Chaplain Corps, by domain, and by paygrade for USN billets only ^a	53
Figure 17.	Capitation ratios over time—the Norfolk CMV	62
Figure 18.	Capitation ratios over time—the San Diego CMV	63
Figure 19.	Capitation ratios over time—the Everett CMV.....	64
Figure 20.	Capitation ratios over time—the Honolulu CMV.....	65
Figure 21.	Capitation ratios over time—the Jacksonville CMV.....	66
Figure 22.	Capitation ratios over time—the Yokosuka CMV.....	67
Figure 23.	U.S. Navy CVNs, CGs, DDGs at least 245 n.mi. from shore	68
Figure 24.	Percentage of days with a DDG within flying distance	69
Figure 25.	Percentage of days with a CVN or CG within flying distance.....	69

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List of Tables

Table 1.	CHC BA ^a by domain—2004–2016 averages and changes over time.....	4
Table 2.	CHC NOBCs mapped to PNC capabilities.....	18
Table 3.	Changes in USN fleet BA by designator ^a	29
Table 4.	CHC BA/REQ by sea-shore status and selected BSOs	33
Table 5.	All-Navy vs. CMV-specific capitation ratios ^a	39
Table 6.	Capitation ratio 1b versus 1a by CMV ^a	40
Table 7.	Capitation ratio 2a versus 1a by CMV ^a	40
Table 8.	Capitation ratio 3a versus 2a by CMV ^a	41
Table 9.	Manpower management content in CHC training courses.....	49
Table 10.	Chaplain Corps NOBCs	58

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Glossary

AD	active duty
ALC	Advanced Leadership Course
BA	authorized billets
BLC	Basic Leadership Course
BSO	budget submitting office
CG	guided missile cruiser
CHC	Chaplain Corps
CM	cooperative religious ministry
CMV	cooperative ministry vicinity
CNI	Commander, Navy Installations
COC	Chief of Chaplains
CR	capitation ratio
CREDO	Chaplains Religious Enrichment Development Operation
CRP	Command Religious Program
CSG	carrier strike group
DESRON	destroyer squadron
DOD	Department of Defense
DON	Department of the Navy
EMR	Enlisted Master Record
ESG	expeditionary strike group
FCA	fleet concentration area
FFCMAT	Fleet Forces Command Manpower Analysis Team
FMD	fleet manpower document
FOUO	For Official Use Only
ILC	Intermediate Leadership Course
INV	personnel inventory
LSD	dock landing ship
MFTs	missions, functions, and tasks
MOU	memorandum of understanding
MPN	Military Personnel Navy
MPT&E	Manpower, Personnel, Training and Education
MRD	manpower requirements determination
NAVMAC	Naval Manpower Analysis Center
NCSC	Naval Chaplaincy School and Center
NOBC	Navy officer billet classification
NTTP	Navy Tactics, Techniques, and Procedures
NWP	Navy Warfare Publication
OMC	Operational Ministry Center
OMF	Officer Master File

OPA	officer programmed authorizations
OPINS	Officer Personnel Information System
OPNAV	Office of the Chief of Naval Operations
PDTC	Professional Development Training Course
PCTW	Professional Development Training Workshop
PNC	Professional Naval Chaplaincy
POM	Program Objective Memorandum (DOD's annual programming process)
REQ	manpower requirement
RL	restricted line
RMC	Regional Ministry Center
RMP	religious ministry professional
RMT	religious ministry team
ROC/POE	Required Operational Capabilities and Projected Operational Environments
RP	Religious Program Specialist
RS	resource sponsor
SMD	ship manpower document
SME	subject matter expert
SMR	shore manning requirement
SQMD	squadron manpower document
SSG	surface strike group
SWMC	Sailor Worthy Ministry Council
TFMMS	Total Force Manpower Management System
TPPH	transient, patient, prisoner, or holdee
UIC	unit identification code
URL	unrestricted line
U.S.C.	United States Code
USCG	US Coast Guard
USMC	US Marine Corps
USN	US Navy

Introduction

The Chief of Navy Chaplains (COC) requested analytical support to assess the capabilities that the Navy's religious programs are expected to provide and to help determine how best to provide them. The chief's request included three broad questions:

- What capabilities is the Chaplain Corps (CHC) expected to deliver?
- How do these expectations translate to billet requirements, and does the current process for setting and funding requirements generate the right billet structure?
- What inventory is needed to staff the billets, and does the current process for managing the community facilitate attracting, developing, and retaining the right number and types of officers?

To support the COC's request, the Office of the Chief of Naval Operations (OPNAV), Force Generation Branch (N814), sponsored this study.

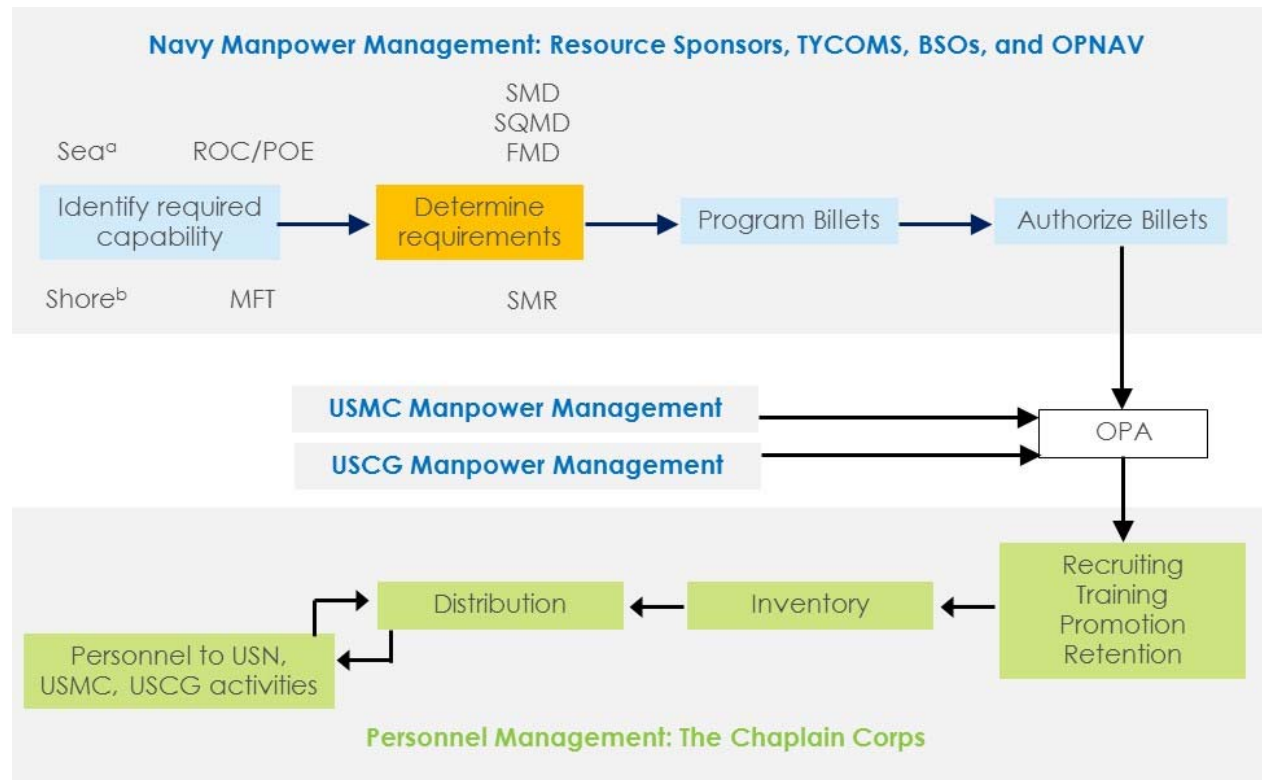
Motivation and background

Taken together, the questions asked by the COC translate to a request for analytical support to help the CHC refine its approaches to manpower and personnel management, which in the Navy are combined into one system called Manpower, Personnel, Training and Education (MPT&E). Figure 1 is a schematic of the MPT&E system as it applies to the CHC. Three features of the system explain why the CHC may need help managing and coordinating these two processes.

First, although it is a simplification, Figure 1 still shows the overall complexity of the MPT&E system. It has multiple processes that are governed by different Navy organizations and based on different sets of inputs.

Second, manpower management is primarily controlled by non-CHC entities. In United States Navy (USN) manpower management, there are four main sets of decision-makers. Resource sponsors (RSs) determine how much to spend on manpower during the billet programming process. Budget submitting offices (BSOs, also known as claimants) work with Type Commanders (TYCOMs) to determine requirements initially and also to specify which requirements they want to authorize after the RSs have set

Figure 1. Flowchart of relevant systems: MPT&E for the CHC



Source: Adapted from reference [1].

^a. Sea manpower requirements are based on Required Operational Capabilities and Projected Operational Environments (ROC/POE). They are expressed in ship, squadron, and fleet manpower documents (SMDs, SQMDs, and FMDs, respectively).

^b. Shore manpower requirements are based on the missions, functions, and tasks (MFTs) performed by the activity and are expressed in shore manning requirements (SMRs).

the budget constraints. Finally, various offices within OPNAV define and oversee the whole process. For the CHC, which serves the US Marine Corps (USMC) and the US Coast Guard (USCG) as well as the USN, an extra layer of complexity is added because each of these services has its own processes for requirements determination and billet authorization. Within this system, the CHC has limited formal decision-making authority in manpower management. It was recently granted stakeholder “concur/non-concur” authority for the billet change requests that are made throughout the year, but the community’s role in the annual programming process (known as the POM) is based only on informal input from local chaplains.

Third, in contrast to manpower management, personnel management is primarily controlled by the CHC. There are, however, significant constraints, the first of which is OPA (officer programmed authorizations). OPA defines the number of officers the community can have at each rank. This is not unique to the CHC. All officer communities must manage within their own OPA constraints and according to other guidelines defined by US law and by Department of Defense (DOD) and Department of Navy (DON) policies.

Although all the MPT&E processes are intended to work together as parts of one integrated system, in practice, the manpower and personnel management halves tend to function separately. The CHC is concerned that this is having a negative impact on its ability to serve its many constituencies to the best readiness advantage, while also managing its personnel efficiently and effectively.¹

Analytical approach and methodologies

Responding to the request for analytical support, the research emphasis in this study was on what it could provide in terms of objective, data-derived facts and potential management tools. Specifically, we used a three-step approach:

1. **Qualitative effort:** We reviewed literature and conducted discussions with subject matter experts (SMEs) to identify perceived problems related to CHC manpower and personnel management.
2. **Quantitative effort:** Guided by the qualitative results, we used billet, inventory, and other data to assess CHC manpower and personnel management processes and potential capability delivery.
3. **Synthesis:** Based on our findings from the process and capability assessments, we identified areas where attention can be usefully placed and developed metrics to apply.

¹ For a more detailed description of the MPT&E process, see [2]. For an example of how the tensions between manpower and personnel management play out in other communities, see [3].

Additional details of our assessment methodologies are described below, starting with the parameters that define the scope of the analysis.

Scope

To stay within the project’s budget and timeline, it was necessary to impose scope boundaries based on guiding assumptions, the study period, and CHC domains.

Guiding assumptions

The first guiding assumption was that the study would be most useful if it could produce practical recommendations that the community can implement independently. Two assumptions followed: (1) the study would focus on internal CHC processes and (2) the essential CHC community structure would be retained.

Study period

The study period covered by our data analysis is September 2004 to September 2016. The start date was chosen because changes in Navy organizational structures in 2004 make comparisons to earlier years more complicated. The end date was chosen because 2016 is the most recent complete fiscal year for which billet and requirements data were available.

CHC domain

Although the CHC serves the USN, the USMC, and the USCG, the bulk of our analysis focuses on the USN because it consistently has the majority of CHC billets and because it accounted for virtually all of the change in the number of CHC authorized billets (BA) over the study period, as shown in Table 1.

Table 1. CHC BA^a by domain—2004–2016 averages and changes over time

Domain	Average		Change in counts	
	Count	Share ^b	Absolute	Percentage
USCG ^c	40	4.7%	1	2.5%
USMC ^d	281	32.7%	-2	-0.7%
USN	540	62.7%	-60	-10.2%
Total	862	100.0%	-61	-6.8%

Source: Total Force Manpower Management System (TFMMS).

^a The appropriations category is Military Personnel Navy (MPN).

^b Shares do not sum to 100 percent due to rounding.

^c USCG BA are identified by USCG unit identification codes (UICs) in BSO 02, Central Operating Activity (COA).

^d USMC BA are identified by UICs in BSO 27, Commandant of the Marine Corps (CMC).

Process assessments

The process assessments began with SME discussions to identify specific manpower and personnel management problems, as well as potential solutions. The team spoke with both CHC and MPT&E SMEs, listening mainly for broad themes.²

Concurrent with conducting our discussions, we used information from policy and community management documents to interpret the SME input. In some cases, we re-engaged with SMEs to get clarification on a particular topic or to expand the discussion.

Finally, we used both manpower and personnel data to look for evidence of cited problems.

Capability assessments

There are currently no metrics that directly assess either the quantity or quality of capability delivered by the CHC. Therefore, we used several metrics that proxy the *potential quantity* of capability delivered, and we focused on changes in those metrics over time to look for evidence that CHC capability delivery has consistently degraded as a result of process deficiencies. Assessing the *quality* of CHC capability was beyond the scope of the project.³

We used five metrics to assess changes in potential CHC capability delivery that could result from manpower management processes:

- Total BA: Total BA is the funded demand signal and represents the intended quantity of capability to be delivered.
- The paygrade structure of BA: The paygrade structure of BA captures rank-specific differences in potential capability delivery.
- The ratio of BA to manpower requirements (REQs): The BA/REQ ratio captures accepted risk imposed by budget constraints.
- The number of people served per chaplain billet in specified geographic areas: Also known as a capitation ratio, this metric is an indicator of intended per capita capability delivery.
- Ship-to-ship proximity: Changes in the distance between ships capture the potential impact of changes in fleet operational concepts on CHC capability delivery.

² We do not provide a list of SMEs, but we thank all of them for their help and insight.

³ The CHC is developing an electronic method for recording religious ministry activity for use in evaluating the effectiveness of religious programs.

We used only one metric to assess changes in potential CHC capability delivery that could result from personnel management processes: the ratio of CHC personnel inventory (INV) to CHC BA. The INV/BA ratio is an indicator of potential capability delivery, as well as community health.

Data sources

We drew on several data sources to support both the process and capability assessments.

The CHC REQ and BA data came from CNA's extracts of the Total Force Manpower Management System (TFFMS).

CHC INV data came from CNA's extracts of the Officer Master File (OMF), which is based on data from the Officer Personnel Information System (OPINS). We also used OMF data combined with data from the Enlisted Master Records (EMR) to calculate the sizes of the served populations in the numerators of the capitation ratios.

To calculate distances between deployed ships, we used unclassified/FOUO extracts of Office of Naval Intelligence SeaLink data.

Report outline

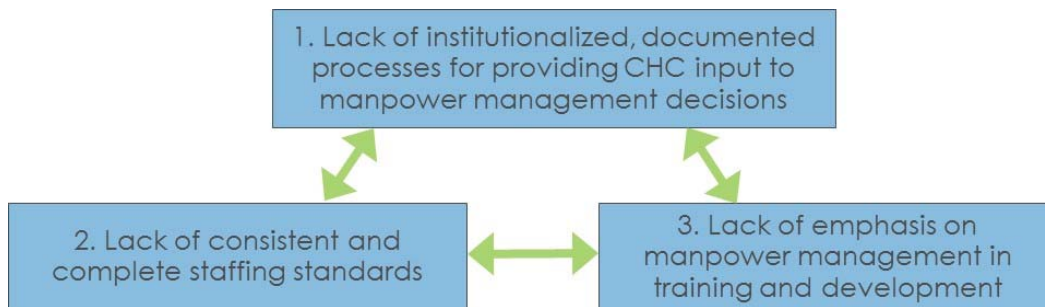
This introduction is followed by two additional background sections that further inform our analytical approach as well as our recommendations. The first summarizes the perceived problems identified in the qualitative effort, and the second describes required CHC capabilities. The next two sections present our process and capability assessments for manpower management; the following two sections present the assessments for personnel management. In the final section, we summarize our main takeaways and make recommendations. Each section builds on the previous one but is also written to stand alone so that readers looking for specific information can skip to the section of interest.

Perceived Problems

Although there are problems with personnel management, all the SMEs with whom we spoke focused on manpower management as the area that requires the most attention. The primary concern for the community is that the current process does not ensure that the required capability can be consistently delivered. There is particular fear that significant degradation in capability delivery has occurred in recent years based on the perception that CHC BA has been cut at disproportionately high rates relative to other officer communities.

While concern remains about the CHC's lack of formal decision-making authority in manpower management, the SME input focused more on the quality of input they give than the quantity. Specifically, the SMEs identified three community deficiencies that limit the quality of their input and, therefore, exacerbate the effects of the CHC's limited manpower management role. These deficiencies are identified in Figure 2. We use the figure rather than a simple list to illustrate that, while each deficiency has an independent effect, the three are also mutually reinforcing.

Figure 2. Three CHC deficiencies identified by SMEs



In addition to the three community deficiencies, the SMEs identified three additional factors that complicate manpower management for the CHC: budget and endstrength constraints, persistent inventory shortfalls, and changing fleet operational concepts. This section describes all six perceived problems and then explains how they guide the rest of the analysis. Additional details will also be provided in the section on CHC capabilities and the appropriate assessment sections.

Community deficiencies

Lack of institutionalized processes

That the CHC community lacks well-defined and institutionalized manpower management processes was a consistent theme in our SME discussions. Specifically, although CHC participation in the POM process is via local-level chaplains, SMEs both within and outside the CHC indicated that the quality of chaplain engagement in manpower management is inconsistent. While some chaplains are able to effectively engage in and support manpower management within their commands, others are not able to do this well, and their efforts can even be counterproductive. Essentially, the quality of individual chaplain input was characterized as “personality dependent” based on interest or past experience, as well as each chaplain’s perception of his or her primary role.

While some of this inconsistency can be attributed to the lack of emphasis on manpower management in CHC training and development (i.e., deficiency 3), it is also true that such training must be accompanied by supporting, complementary processes, but these are missing. In particular, we heard that the community has none of the following:

- Mandate or model for regular communication about manpower issues within the CHC, either up and down CHC chains of command or among peers across relevant command boundaries
- Model for how and when chaplains should engage the manpower planners (e.g., the “N1s”) in their commands
- Mandate or format for documenting local manpower management efforts and outcomes, including no central repository for the memoranda of understanding (MOUs) that are used to enable the delivery of religious ministry between commands
- Agreed metrics to assess and demonstrate risks associated with any given billet cuts

Lack of consistent, complete staffing standards

The starting point for manpower management is the manpower requirements determination (MRD) process. A key input into that process is staffing standards, which define the amounts and types of manpower required to accomplish specific functions or tasks. According to CHC SMEs, there are currently no universally agreed-on staffing standards for their community. Instead, there are two competing options,

neither of which is complete. Option 1 was developed in 2006 and was described as the current standard. It covers operational billets only; it includes no standards for installations. Option 2 was developed in 2008 by a Fleet Forces Command Manpower Analysis Team (FFCMAT) using a rigorous work study analysis [4]. While Option 2 provides standards for more billets than does Option 1, it does not provide standards for all CHC billets.

Incomplete staffing standards limit chaplains' ability to articulate risk when billet cuts are proposed. For example, in addition to their concerns about total billet cuts, CHC SMEs also voiced concern about cuts to senior billets that they say result from a perception on the part of external decision-makers that all CHC billets have the same job content, regardless of paygrade.

Lack of emphasis on manpower management in training and development

The CHC SMEs gave two reasons why CHC training and development do not emphasize manpower management. First, we heard that there is a long-standing philosophical disagreement within the community about the relative weight to be placed on Navy chaplains' identity as religious ministry professionals (RMPs) versus their identity as naval staff officers. And, there was a perception among the SMEs that the current approach to both training and overall development favors the RMP identity. This explains not only the failure of CHC training to address manpower management—a naval staff officer role—but also the lack of manpower management processes that would support and complement such training. It also sheds light on the idea that external decision-makers have difficulty distinguishing between different CHC billets. The second reason for lack of emphasis on manpower management in formal training, specifically is lack of funding. We heard that, content aside, because of funding arrangements, not many chaplains get training beyond the basic leadership level. Although this deficiency is stated in terms of manpower management, it is really a personnel management issue because it is about how the community trains and develops its people.

Complicating factors

Budget and endstrength constraints

Tighter budget and concomitant endstrength constraints have two effects. First, they make the overall problem more acute because they mean more forced trade-offs between CHC capabilities and other capabilities. In particular, CHC SMEs perceived that their billets get cut disproportionately when budget constraints become binding. In

their words, CHC billets are “low-hanging fruit” when cuts must be made. Second, tighter budget constraints may further limit funding for training.

Persistent inventory shortfalls

The direct effect of persistent inventory shortfalls is to make it difficult to protect CHC OPA. The community cannot effectively argue for more BA if it cannot fill the billets it has. Indirectly, inventory shortfalls may exacerbate training and development issues by making it more difficult to place proper emphasis on formal training. Specifically, chaplains in commands where inventory shortages lead to unfilled billets may not receive approval to attend in-residence training programs and/or may have less time to complete nonresident training modules. Finally, inventory shortfalls make personnel management, especially detailing, more difficult.

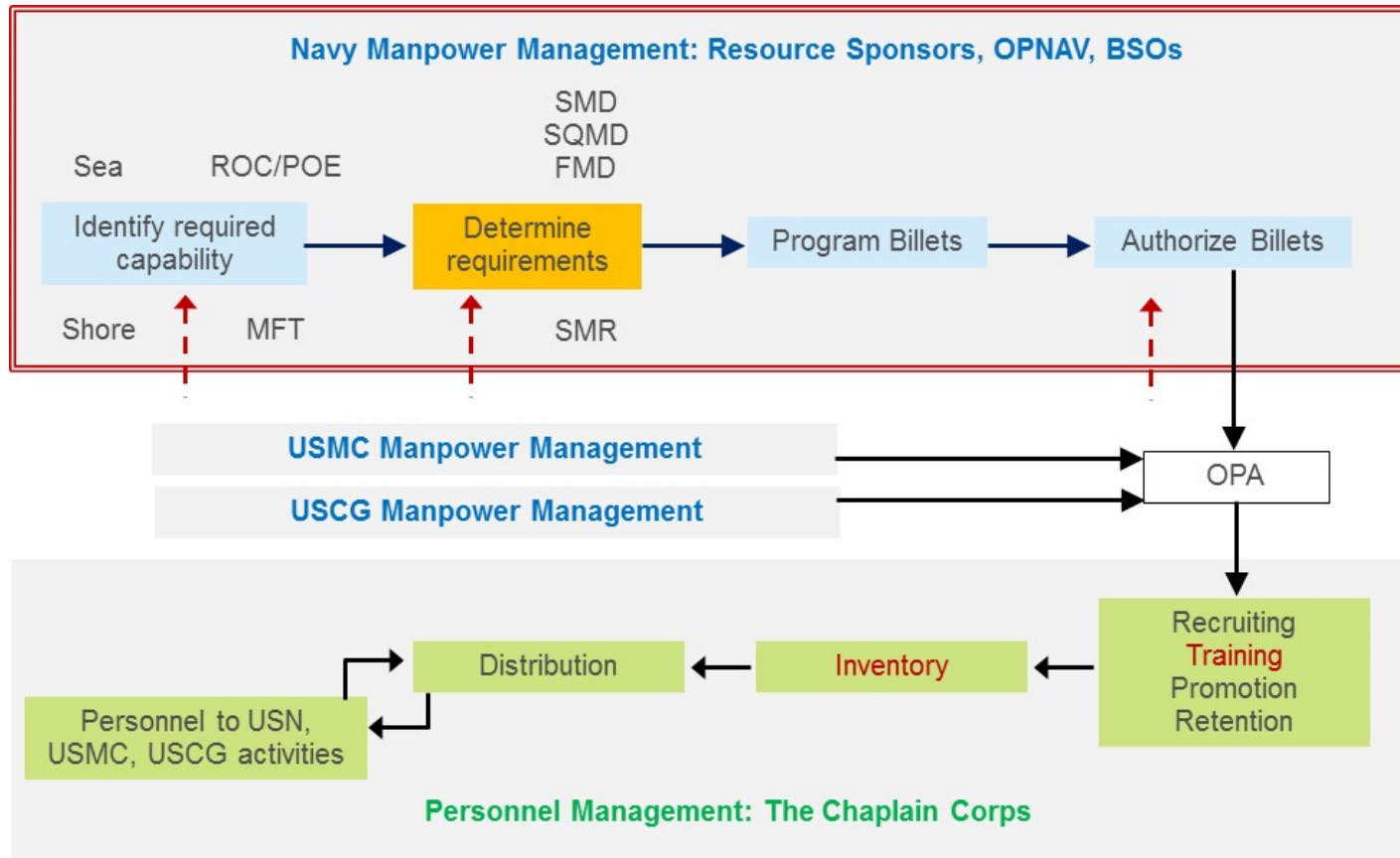
Changing operational concepts

One way the Navy tries to make the most efficient use of its chaplains is to move them from ship to ship by helicopter. This is called the “circuit rider” model of service delivery. New operational concepts (e.g., Distributed Maritime Operations and Small Surface Action Groups), however, are creating conditions under which ships are more likely to be independently deployed and, therefore, out of helicopter range. This is especially problematic for destroyers, which depend on a version of the circuit-rider model according to which they do not have individually assigned chaplains but rather share one chaplain across a destroyer squadron (DESRON). More generally, however, CHC SMEs are concerned that their current manpower processes aren’t sufficiently flexible or sophisticated to allow them to respond to such changes in a timely way.

Direction from the perceived problems

The problems perceived by the CHC and other SMEs provided direction for the analysis by refining and prioritizing the questions identified at inception. This new direction is illustrated in Figure 3, a revised version of Figure 1. First, the manpower management portion is highlighted by a red border to show that this is the primary area of concern. Within manpower management, the dotted red arrows indicate points in the system where the CHC do not give or have adequate input. In the personnel management section, training and inventory are highlighted as the two areas of concern in that part of the system.

Figure 3. Flowchart of relevant systems revisited



Source: Adapted from reference [1].

CHC Required Capabilities

This section provides a brief summary of required CHC capabilities based on both our review of CHC policy and community documents, and the SME discussions. The summary both expands on the perceived problems from the previous section and informs the capability and process assessments in the next sections.

The purpose of the CHC

The direct legal basis for the existence of the CHC is provided in Title 10 of the United States Code (U.S.C.), which simply states, “The Chaplain Corps is a staff corps of the Navy and shall be organized in accordance with regulations prescribed by the Secretary of the Navy” [5].

More fundamentally, however, the CHC exists to protect servicemembers’ First-Amendment right to the free exercise of religion. This is reflected in DOD policy [6], which states that the chaplaincies of the military departments were established to “advise and assist commanders in the discharge of their responsibilities to provide for the free exercise of religion in the context of military service as guaranteed by the Constitution...”

Although the CHC does not exist to help the service accomplish its combat mission [7], it does have an indirect mission-related purpose. According to the DON CHC strategic plan [8], chaplains “play a critical role in helping the Department of the Navy achieve and maintain a ready force through the delivery of professional religious ministry and compassionate pastoral care.” The impact of religious ministry is more specifically summarized as follows: Professionally and effectively delivered religious ministry strengthens servicemembers and commands, and creates more resilient personnel and families.

Professional Naval Chaplaincy

Professional Naval Chaplaincy (PNC) is the term used to describe the unique occupation of the Navy chaplain. Navy policy defines PNC as:

The field of endeavor in which Navy chaplains deliver to the sea services and authorized recipients religious ministry characterized by cooperation, tolerance, mutual respect, and respect for diversity. It is further characterized by an understanding of both the pluralistic nature of the environment and the processes and structures of the organizations and institutions served. [9]

Implicit in this definition is the idea that PNC encompasses the roles of both the RMP and the naval staff officer.

The RMP role

Navy chaplains are accessed as ordained RMPs who are formally endorsed by DOD-approved religious organizations (ROs) as competent to deliver faith-specific services. A Navy chaplain who loses the ecclesiastical authority to function as an RMP, or has his or her endorsement withdrawn by his or her RO, will be separated from military service.

While never being asked to compromise the standards of their ROs, Navy chaplains are required to function in the Navy's religiously diverse, pluralistic environment and to support and facilitate the religious needs of military members of all faiths. This means that endorsing ROs must allow their RMPs to perform their professional duties as chaplains in cooperation with RMPs from other religious traditions.

In their role as RMPs, Navy chaplains help military members, and their families, cope with the uniquely challenging aspects of military life by providing a "visible reminder of the presence of God and offer[ing] hope during the most difficult times" [8].

The naval staff officer role

Navy chaplains must also be competent naval staff officers who understand the systems and structures of the sea services and are amenable to military life. While they are commissioned military officers, chaplains are considered noncombatants under the Geneva Conventions. Thus, they are only permitted to perform duties related to religious services and the administration of religious units, and must avoid any activity that could compromise their noncombatant status.

By wearing a uniform and operating as a naval staff officer within commands and the operating forces, Navy chaplains are uniquely situated to provide advice and counsel to military members because of their shared experiences. Providing this advice and counsel, especially outside a faith-group context, is more effective because it is based on relationships developed in "the context of a shared life in the same unit" [9]. Thus,

based on their naval staff officer role, Navy chaplains are better able to both understand the people they serve and establish and maintain credibility with them.⁴

PNC core capabilities

Various Navy and CHC policy documents refer to the four core capabilities of PNC: provide, facilitate, care, and advise. They are described in the greatest detail in [7], though they are also delineated in several SECNAV and OPNAV Instructions and the Chaplain's Guide to Professional Naval Chaplaincy [12]. Based on our SME discussions, the core capabilities seem to be well understood both inside and outside the community.

Provide

The *provide* capability is the most straightforward. Based on their professional credentials, chaplains are responsible for meeting the religious needs of adherents of their own RO. This includes providing divine services according to the manner and form of the chaplain's RO, sacraments, rites, ordinances, religious counsel, scripture study, and religious education.⁵

Facilitate

The *facilitate* capability stems from the pluralistic nature of PNC and involves those duties and tasks necessary to accommodate the religious requirements of personnel of faiths other than the chaplain's own. This is primarily accomplished through the management and execution of a Command Religious Program (CRP)—the commander's comprehensive plan for supporting the free exercise of religion among his or her personnel and their families. The CRP is based on a religious needs assessment; it identifies military and civilian religious resources in the local area and provides contact information for the duty chaplain, among other things.

Care

Navy chaplains' *care* capabilities are those that extend beyond religious support. Specifically, chaplains attend to the morale and general welfare of the force by

⁴ Also see references [10] and [11].

⁵ In Navy parlance, divine services are RO-specific services conducted by a military chaplain pursuant to the chaplain's official duties. In contrast, religious services are RO-specific worship events conducted by nonuniformed personnel [9].

delivering institutional care, counseling, and coaching to support the well-being of military members and their families.

There are two key features of the care capability that follow from chaplains' RMP identity. The first is that the basis of the chaplain's care is not the utility of the served individual's function but a "belief in the inherent value of each person" [7]. The second key feature is that chaplains are obligated to provide care in a confidential manner. It is DON policy that "information conveyed to a Navy chaplain in the chaplain's role...is not intended to be disclosed to third persons" [13]. This means that chaplains represent an "ultimate safety valve" for people seeking confidential advice and support [7].

Advise

The final capability is the *advise* capability through which chaplains provide expert advice to leaders at all levels. This advice takes three forms [14]: essential advice, executive advice, and external advice.

As RMPs, chaplains provide essential advice throughout the chain of command. This advice addresses matters of right and wrong and is intended to strengthen the chain of command and assist in leadership development. When asked, essential advice can include faith-based counseling and spiritual direction.

Chaplains provide executive advice to commanders on all issues regarding the impact of religion on the command itself, such as advice on matters of morale, morals, spiritual well-being, and ethics within the command. Executive advice also pertains to the management and execution of the CRP. This advice relates to the delivery of the four core capabilities to support the free exercise of religion, including concerns about manpower, training, policy, and future operations.

External advice addresses religious and humanitarian aspects of command operations. This advice is provided only with the approval of the commander and is limited by a chaplain's noncombatant status. The scope, content, and delivery of this advice is shaped by the assignment, grade, experience, and expertise of the chaplain.

Additional PNC functions

While not identified as "core" capabilities, our review of the literature indicated that PNC also includes three additional functions that further define the role of the Navy chaplain: deployment, program administration, and cooperative ministry. These functions receive varying degrees of emphasis in the different community materials.

We call them out because they are related to the perceived problems identified by the SMEs and/or because they inform the process and capability assessments.

Deployment

That chaplains will deploy with their units when required is simply assumed in DON policies and CHC community documents. It is fundamental to the Navy chaplains' naval staff officer role, part of being "amenable to military life," and what enables Navy chaplains to fully understand the military personnel they serve.

Thus, filling operational billets in deployable units is the highest detailing priority [12], and service in operational tours is highly valued for career progression [15]. The inventory shortfalls cited by the SMEs can, however, make filling operational billets especially difficult. The deployment of both chaplains and personnel also has implications for CHC capability delivery, which will be addressed in the manpower management capability assessment.

Program administration

For the most part, CHC program administration is about managing and executing the CRP. In this context, program administration tasks include organizing support for religious and divine services, managing Religious Program Specialists (RPs) and supporting their professional development, and evaluating CRP performance and effectiveness.

Two additional CRP-related program administration tasks are especially relevant in light of perceived problem 3, lack of emphasis on manpower management in CHC training and development. The first is manning, which requires religious ministry teams (RMTs) to be able to identify and fill CRP manpower requirements. The second is programming, which includes assessing the risk to the command and individuals when identified religious ministry requirements cannot be fully met. Note that these tasks overlap with the executive advice described as part of the *advise* core capability.

Outside the CRP context, PNC also includes managing the CHC community to maintain overall community health. This requires understanding the full range of manpower and personnel issues.

Some SMEs interpreted the fact that program administration is not a traditional core capability both as a result of the philosophical disagreement about the relative importance of the naval staff officer identity in PNC and as a reason why manpower management is not emphasized in training and development.

Cooperative religious ministry

The most succinct definition of cooperative religious ministry, or cooperative ministry (CM), for short, is given in reference [7]: “The efforts of chaplains and RPs to deliver religious ministry to personnel beyond command lines for the sake of effective and efficient delivery of the product.” Given this definition, CM is a service delivery model intended to make the best use of scarce resources and maximize the accommodation of various faiths. It is also, however, a function with specific tasks identified as part of the *facilitate* and *care* capabilities.⁶

CM has different manifestations depending on the situation. For example, on shore, CM entails cooperation across command lines, but within designated geographic boundaries. Also, when unit RMTs deploy, cooperation with shore-based RMTs is the principal means by which operational commands at sea can reach back for family support. Both of these types of CM are closely associated with the role of the duty chaplain as described in the tactical document on Cooperative Religious Ministry [16].

At sea, deployed RMTs also deliver services across unit-specific command lines to the extent that it is practical. On one side of the equation, commanders of units with chaplains make them available to other units in the vicinity to ensure that all deployed personnel have access to chaplain services. On the other side of the equation, commanders of units without chaplains request religious services from units in the vicinity with embarked chaplains.

Although CM is well defined in the CHC community documents, the SMEs indicated that there is ambiguity in the application of CM. In terms of manpower management, a specific concern is that there isn’t enough communication about and within the boundaries of CM to ensure that billet cuts are coordinated to maintain desired levels of capability. Consistent with this perception, we never found documentation of or data related to the “designated geographic boundaries” of shore-based CM. The SMEs also indicated that not all areas use the duty chaplain concept.

PNC capabilities and chaplain jobs

In any organization, capabilities are only delivered when people actually fill jobs. In the Navy’s MPT&E system, chaplains’ jobs are primarily defined by the unit

⁶ Cooperative ministry is distinct from collaboration or partnership with service providers outside the CHC, including civilian RMPs and other professionals, such as members of the legal and health care communities.

identification code (UIC), the paygrade, and the Navy officer billet classification (NOBC) code, which describes the duties performed in accomplishing some part of an activity's mission.⁷ Complete descriptions of the CHC NOBCs are provided in the appendix. Here, Table 2 maps CHC NOBCs to paygrades and the four core PNC capabilities plus program administration to show how application of PNC capabilities varies across chaplain jobs. Two features of chaplain jobs stand out.

Table 2. CHC NOBCs mapped to PNC capabilities

NOBC	NOBC title ^a	Rank(s) ^b	Emphasized capabilities ^c	Other capabilities ^c
3710	Chaplain	O2 & O3	Provide, Care, Facilitate	Administration, Advise
3720	Tactical chaplain	O3 & O4	Provide, Care, Facilitate	Administration, Advise
3730	Supervisory chaplain	O4 & O5	Facilitate, Administration, Advise	Provide, Care
3740	Group chaplain	O5 & O6	Facilitate, Administration, Advise	Provide, Care
3760, 3750, 3745	Strategic/Joint; Claimant; Force chaplain	O6	Facilitate, Administration, Advise	Provide, Care

^a. See the appendix for longer descriptions of each NOBC.

^b. The mapping of NOBCs to paygrade is based on cross-tabulations of NOBC and paygrade for USN CHC BA in TFMMS.

^c. The division of capabilities into the “emphasized” and “other” categories is based on the authors' interpretation of the CHC NOBCs described in [18] and other policy documents, as well as SME input.

First, the CHC NOBCs are closely associated with rank: they identify the jobs to which chaplains should be assigned as they progress through the rank structure. Second, the relative emphasis on the different capabilities changes over the course of the chaplain career. The *facilitate* capability remains primary throughout the career, but early assignments emphasize the *provide* and *care* capabilities, which are aligned with the RMP role, while later assignments emphasize the *advise* and program administration capabilities, which are aligned with the naval staff officer role. NOBC 3730 is the first that includes a reference to manpower management activities.

⁷ Billets also have billet titles and additional codes identifying specialty requirements. A review of the CHC billet data indicated that billet titles add very little to the information provided by the other three codes, and the codes for the specialty requirements are not widely used for CHC billets.

Focusing on the *advise* capability, we also note that not only does the emphasis on this capability change as jobs become more senior, but the type of advice also changes: junior jobs include essential advice only, mid-career jobs include both essential advice and executive advice, and senior jobs focus on executive and external advice.⁸ Particularly relevant for this study is that advice about manpower is mentioned only in the definitions of NOBCs 3730 through 3760 and is included in only the description of the highest level of fleet ministry [7].

Finally, not shown in Table 2 is an unusual feature of CHC NOBCs: each successive NOBC includes several of the lower level NOBCs. For example, the definition of NOBC 3720 includes the 3710 definition, and the definition of NOBC 3760 includes the 3710, 3720, 3730, and 3740 definitions. This follows directly from Navy policy spelled out in [17]. It may, however, be contributing to the internal and external confusion about the relative weight to place on Navy chaplains' RMP and staff officer roles.

Direction from required CHC capabilities

CHC community materials highlight the four core capabilities of PNC—*provide*, *facilitate*, *care*, and *advise*. Our review of the literature also revealed additional functions and a key feature of PNC that matter for manpower management and the community deficiencies identified in the previous section. These are:

- Additional functions—deployment, program administration, and CM
- Key feature—junior chaplain jobs emphasize *provide* and *care*, while senior chaplain jobs emphasize *advise* and program administration

Generally, this more detailed description of PNC provides a clearer representation of the role and capabilities of the CHC, which matters for understanding how Navy chaplains contribute to the Navy mission. More specifically, for the purposes of this research, the additional details:

- Help to define work done by Navy chaplains, which informs potential staffing standards
- Highlight the Navy-specific capabilities on which CHC training and development should focus
- Inform our approach to and parameters for assessing CHC capability delivery

⁸ See section 4.1.2, Three Distinct Levels of Fleet Religious Ministry, in reference [7].

Manpower Management: Process Assessment

Manpower management is about determining the mission-driven demand for military personnel. The first step in that process is determining manpower requirements, which represent demand that is unlimited by budget constraints. Staffing standards are a key input in the MRD process. Thus, in this section, we describe the two CHC staffing standard options in more detail and investigate the SME perception that they lack broad acceptance by comparing unit-specific standards to unit-specific requirements.

Staffing standard options

Option 1: 2006 standards

Described as the current standard, Option 1 is dated as effective February 2006 and was promulgated via a memorandum from the Chief of Navy Chaplains to the Command Officer, Navy Manpower Analysis Center [19]. It is labeled the Operational Religious Ministry Staffing Standard, which explains the lack of standards for nonoperational billets.

According to reference [20], this standard was adopted as part of Sea Chaplaincy 21 and was formulated and approved by fleet chaplains with input and concurrence from OPNAV N12, N1 representatives from the fleet and TYCOMs, and the Naval Manpower Analysis Center (NAVMAC). We do not, however, have any documentation that describes the process by which these new standards were developed.

The main innovation introduced with this standard was the establishment of Operational Ministry Centers (OMCs) and Regional Ministry Centers (RMCs) in Norfolk, Virginia; San Diego, California; Mayport, Florida; and Pearl Harbor, Hawaii. According to [20], Chaplains and RPs detailed to OMCs would be assigned as members of RMTs to deploying carrier strike groups (CSGs), expeditionary strike groups (ESGs), surface strike groups (SSGs), and other deploying groups and units.

RMCs, in turn, were to have five core functions: pastoral care, training and professional development, mentoring, ministry quality management, and one-force integration. They were geographically co-located with OMCs but under the cognizance of the Commander, Navy Installations (CNI) Regional Commanders. RMT personnel assigned to RMCs were to provide support and assistance to RMT personnel assigned to OMCs and other area commands, and the regional chaplain would be the RMC chaplain.

To support the OMCs and RMCs, Sailor Worthy Ministry Councils (SWMCs) were also established. Each SWMC was to be the coordinating body for religious ministry in a geographical area and was to be composed of the senior chaplains of the area's various lines of ministry (operational, educational, medical, and installation support). Thus, the SWMCs were intended to ensure that the religious needs in an area would be met as efficiently and effectively as possible by providing horizontal integration for all personnel across traditional command lines. We note, however, that the Chaplain's Guide to Professional Naval Chaplaincy [12], which was published in 2011, makes no reference to the SWMCs in its description of the CHC organizational structure.

Option 2: 2010 standards

Option 2 was developed in 2008 by an FFCMAT that included representatives from the COC's Office, force chaplains and RPs, as well as force line officers and enlisted personnel, Force N1 officers, and others. It was promulgated in an April 2010 letter from the Fleet Forces Command Deputy Chief of Staff for Personnel Development and Allocation (N1).

The FFCMAT developed the 2010 standard using an organization-specific work study analysis that determined the amount of time chaplains should spend on various tasks in each of the four core capabilities plus program administration [4]. The organizations and billets covered by the standards follow:

- Operational billets in BSO 60, Commander, US Fleet Forces Command (FFC) and BSO 70, Commander, US. Pacific Fleet (PACFLT) by Naval Enterprise: Naval Aviation, Surface Warfare, Undersea Warfare, Naval Expeditionary Combat, and Naval Netwar/Forcenet
- Nonoperational billets in BSO 52, Commander, Navy Installations Command (CNIC), for region and Chaplains Religious Enrichment Development Operation (CREDO) staffs, and for various types of installations and activities based on their population sizes (specifically, overseas, training, isolated, and metro installations and activities)
- BSO and numbered fleet staffs

Although it covers more billets than the 2006 standard, the 2010 standard is still incomplete; it provides no standards for the other BSOs, including BSO 18, the Bureau of Navy Medicine (BUMED), and BSO 22, Bureau of Naval Personnel (BUPERS).

The 2010 standard did not introduce a new organizational alignment like that created by the 2006 standard. It did, however, increase the total CHC peacetime requirement by 24 billets relative to an unidentified baseline. Specifically, it reduced operational

requirements in BSOs 60 and 70 by 11 billets and increased nonoperational requirements in BSO 52 by 35 billets.

2006 standard versus 2010 standard for operational billets

For the operational UICs for which direct comparisons were possible, we compared the numbers of billets per unit stipulated in the two standards. We found only three notable differences. Compared with the 2006 standard, the 2010 standard:

- Created a one-billet requirement on guided missile cruisers (CGs)
- Created a one-billet requirement on dock landing ships (LSDs)
- Decreased the requirements in three of the four OMCs

Staffing standards versus REQs

To determine which standard holds and how standards have been applied, we compared the standards to REQs for the three types of units for which the two standards were different: CGs, LSDs, and OMCs.

Cruisers

Figure 4 compares the 2006 and 2010 standards to the per-unit REQ in BSOs 60 and 70. The standards are shown by the two solid lines: the 2006 standard is the red line, which is constant at 0 (indicating that the 2006 standard had no chaplain billets on CGs) and the 2010 standard is the black line, which is constant at 1 (indicating that the 2010 standard called for one chaplain billet on each CG). The blue and green columns show the average REQ per unit for CGs in BSOs 60 and 70, respectively, from 2004 to 2016. A value of less than 1 means that some CGs in the BSO had a REQ equal to zero, and a value of greater than 1 means some CGs in the BSO had REQ of more than one billet.

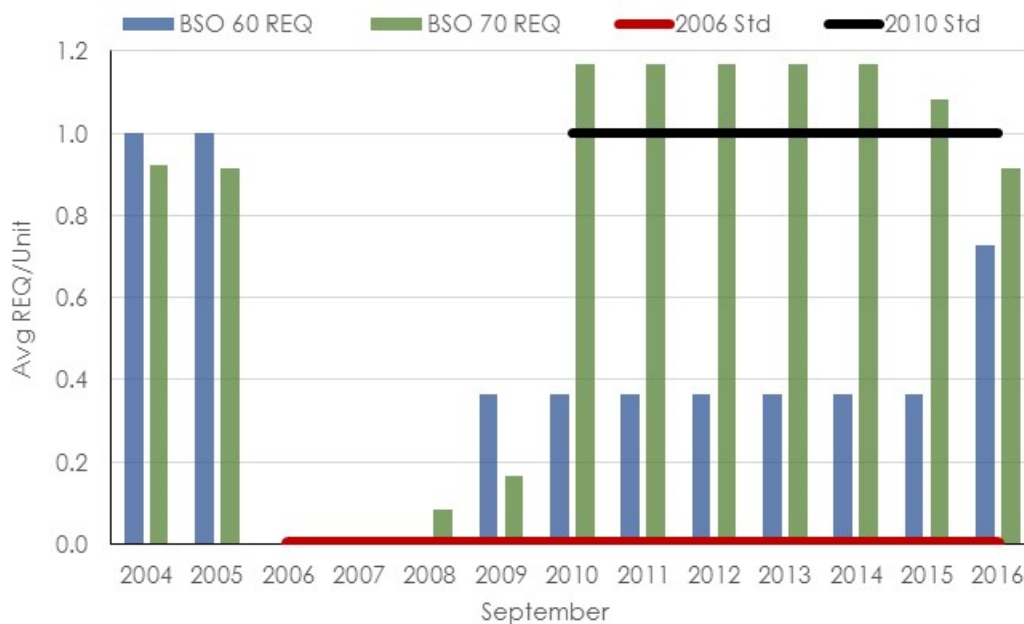
The data show that neither standard was strictly applied in either BSO, but that BSO 70 seemed to shift to the 2010 standard when it was introduced, while BSO 60 continued to adhere more closely to the 2006 standard. To see this, consider the data for each BSO separately.

Starting with BSO 60, the data show that, from 2006 through 2008, the REQ was consistent with the new 2006 standard implied by the OMC model. From 2008 through 2015, the average was less than 0.5, indicating that the REQ stayed at zero for most of

the CGs in the BSO. In fact, 7 of the 11 CGs in BSO 60 had a 0-billet REQ for these years. In 2016, the average REQ per unit increased to 0.7 as a 1-billet REQ was attached to 4 more of the CGs in the BSO.

Turning to BSO 70, the data show that the CG REQs here roughly followed the 2006 standard through 2009, then followed the 2010 standard once it was introduced. The only deviation from the standard was that 2 of the 10 CGs had a 2-billet REQ in these years.

Figure 4. Standards vs. REQs by BSO: CGs



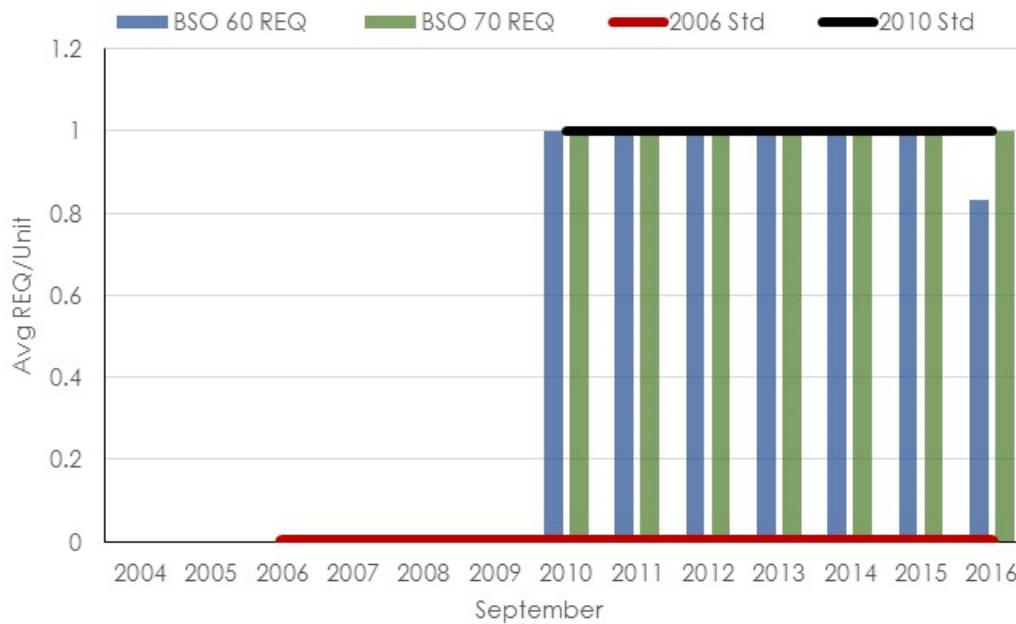
Sources: REQs from TFMMS; 2006 standard from [19]; and 2010 standard from [4].

Dock landing ships

Following the same process used for the CGs, Figure 5 compares the two standards to REQs for LSDs. Again, the 2006 standard of no billets per unit and the 2010 standard of one billet per unit are shown by the solid red and black lines, respectively. Likewise, the average REQ per unit for the two BSOs are shown in the blue and green columns.

These data show that, with one exception (BSO 60 in 2016), the REQs in both BSOs have been consistent with the standard that was in place.

Figure 5. Standards vs. REQs by BSO: LSDs



Source: REQs from TFMMS; 2006 standard from [19]; and 2010 standard from [4].

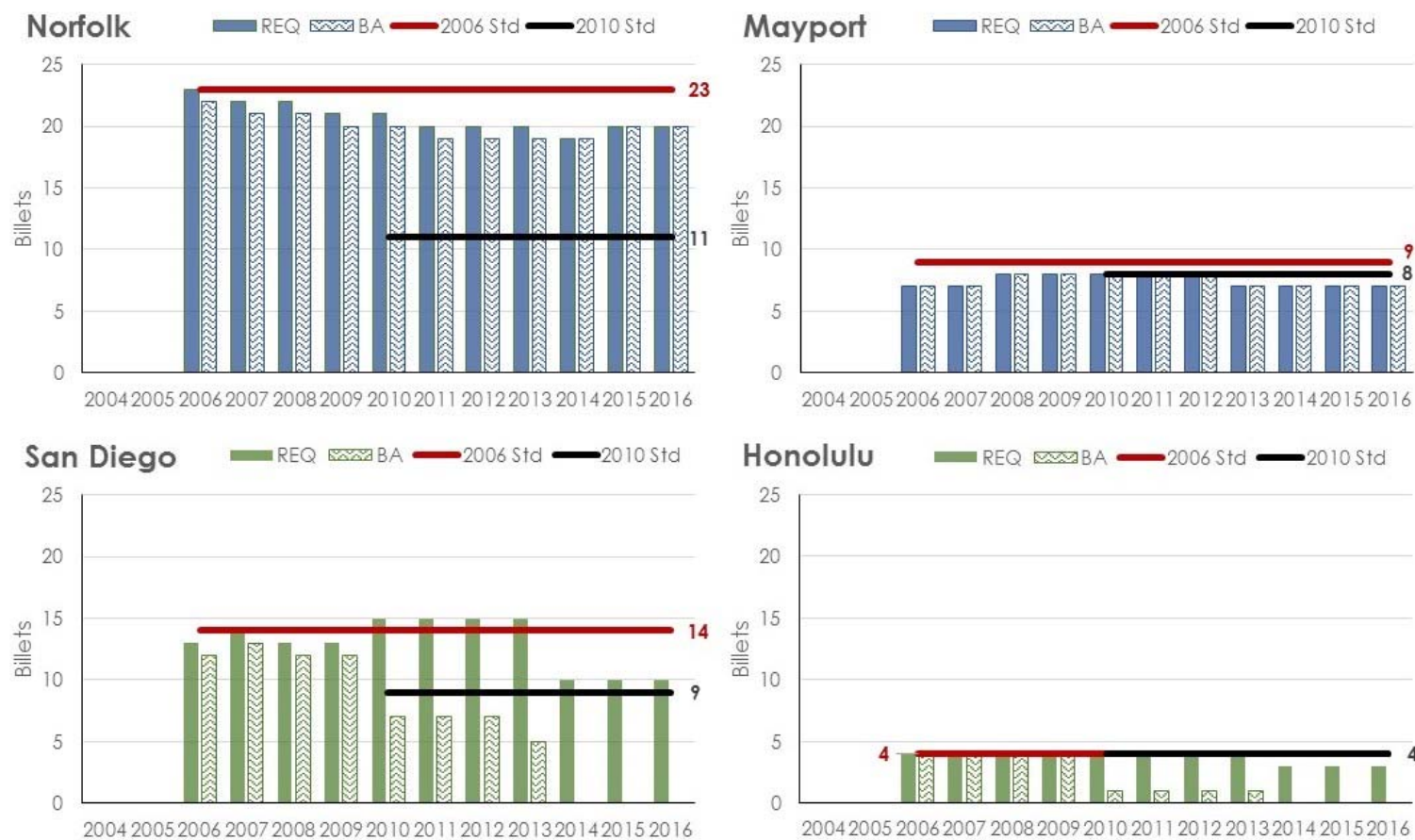
Operational Ministry Centers

Next, we look at the OMCs, two of which are in BSO 60 (Norfolk and Mayport) and two of which are in BSO 70 (San Diego and Honolulu). For each OMC, Figure 6 shows the standards, the REQs, and also the BA, which reveals an important difference in staffing practices across BSOs.

The 2006 and 2010 standards are similar for Mayport and Honolulu, the two smaller OMCs, and the REQs are close to the standards in most years, especially in Honolulu. In the two larger OMCs, however, the 2010 standards are substantially lower than the 2006 standards. In the Norfolk OMC, even though the standard was cut by more than half, the REQs fell much less and stayed closer to the 2006 standard than the 2010 standard through 2016. In contrast, in the San Diego OMC, the REQ increased in 2010 despite the decrease in the standard. Then, in 2014, the REQ dropped to just above the 2010 standard.

For the OMCs, Figure 8 also shows BA for each OMC. Starting with the OMCs in BSO 60, whatever the differences between REQ and standards, BA has been consistently

Figure 6. Standards vs. REQs vs. BA: Operational Ministry Centers



Sources: REQs and BA from TFMMS; 2006 standard from [19]; and 2010 standard from [4].

close to the REQs. In contrast, the data show that BA in the BSO 70 OMCs has decreased over time and has been zero since 2014. This is consistent with information from SMEs who told us that PACFLT has abandoned the OMC model, while FFC has maintained it. It is also consistent with information indicating that PACFLT does not use the duty chaplain model. We were not able to discern the reason for these different approaches to staffing.

Summary and takeaways

The descriptions of the two staffing standard options shed light on the incompleteness of both and explained their different sources. In particular, CHC representatives were included in the groups who developed both sets. Both sets of standards were also formally endorsed and promulgated at the times they were released.

Comparing the unit-specific standards for the operational UICs to which both standards applied, we found that they differ substantially for only three types of units: CGs, LSDs, and OMCs.

Comparing the standards to REQs from TFMMS shows that, after 2010, BSOs 60 and 70 took different approaches to both REQs and BA. For CGs, BSO 70 seemed to shift to the 2010 standard, while BSO 60 did not. For OMCs, regardless of the standard, BSO 60 has maintained the OMC model, while BSO 70 has abandoned it. Taken together, these differences appear to be related. As BSO 70 moved away from the OMC model, it shifted billets to the deploying units themselves. In contrast, by sticking with the OMC model, BSO 60 kept its REQs in the OMCs.

What do these findings say about CHC manpower management processes? They confirm that the existing staffing standards have not been applied consistently over time and are not being applied consistently across the fleet. It is not clear why this is true. It does suggest that either the standards themselves or the approach to applying them needs to be reviewed. At minimum, it raises the question of why the 2010 standards have not unambiguously superseded the 2006 standards. More broadly, without more clarity on which standards to apply and how to apply them, it is difficult to think about how to make accurate risk assessments associated with changing either REQs or BA.

Manpower Management: Capability Assessment

In this section, we investigate whether CHC capability delivery has declined as a result of manpower management outcomes. Since we do not have direct measures of capability delivery, we use five proxy measures of the potential quantity of capability delivered, or potential capability.⁹ Focusing primarily on USN billets, we look at changes in the following:

- Total BA
- The paygrade structure of BA
- BA relative to REQs
- Various capitation ratios
- Ship-to-ship proximity

All the proxy measures are framed in terms of changes over time for two reasons. First, the goal is to address CHC community concerns about decreases in capability. Second, we do not have baseline indicators of optimal or desired levels of any of the metrics we use, so we cannot characterize any value as good or bad.

Finally, for each metric, we look at one or more levels depending on what is appropriate. In most cases, we start with all-Navy aggregations to set baseline expectations, then disaggregate by relevant categories such as BSO, sea-shore status, paygrade, and what we are calling cooperative ministry vicinities (CMVs), which we will define later in the section.

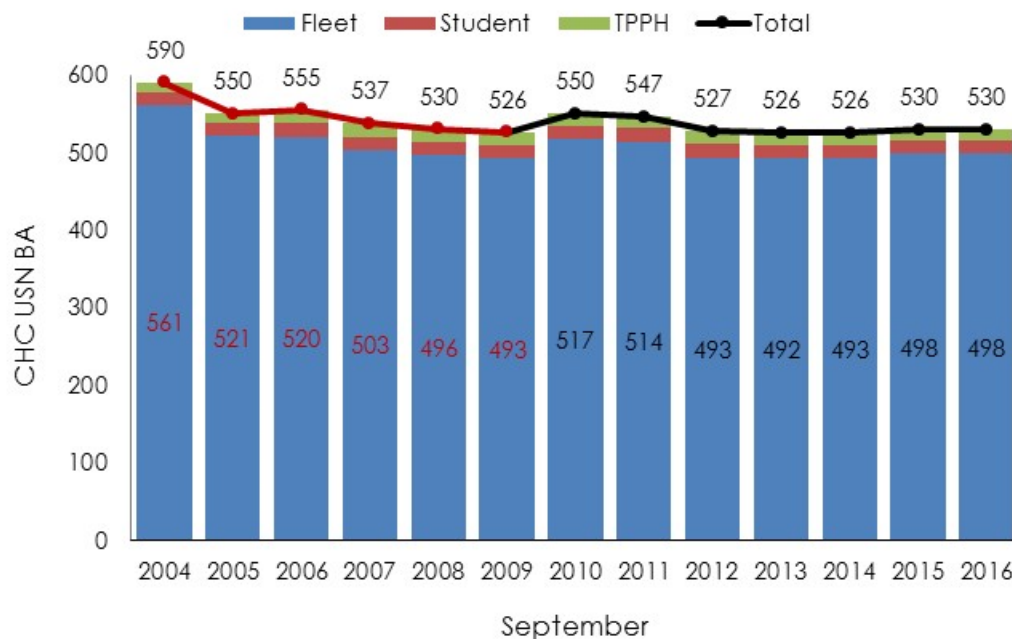
Changes in total CHC USN BA

First, we look at changes in CHC BA over time. We focus on BA because it is the funded demand signal and represents intended quantity of capability to be delivered. We focus on change over time because large or consistent cuts to BA would indicate an erosion of capability delivery, *all else equal*.

⁹ The potential quantity of capability delivered could also be thought of as the CHC's capability capacity.

Figure 7 shows total CHC USN BA by fleet category from September 2004 to September 2016. The categories are fleet, student, and transient, patient, prisoner, or holdee (TPPH). The figure shows that, throughout the study period, student and TPPH BA were roughly constant at about 16 billets. Fleet BA is, however, the series of interest because it represents demand for capability delivery, and we focus on fleet BA for the rest of the analysis.

Figure 7. USN BA by fleet category



Source: TFMMS.

Notes: The appropriations category is MPN and USMC and USCG billets are excluded.

For fleet BA, the data show the following:

- CHC USN fleet BA decreased by 63 billets (11.2 percent), from 561 to 498.
- Decreases in total CHC USN fleet BA occurred almost entirely between 2004 and 2009, with the largest decreases occurring in 2005 (-40) and 2007 (-17).¹⁰

¹⁰ Anecdotally, we heard that these cuts to BA were the result of a contractor-led study that recommended cuts to shore billets throughout the Navy. We do not have data or documentation to confirm this background.

- There was a slight recovery in 2010 and 2011 as fleet BA increased to 517 and 514, but fleet BA fell back to 492 in 2012, and has stayed roughly constant at about 495 since then.

Next, Table 3 shows changes in CHC BA compared with changes in total USN officer fleet BA, as well as changes in fleet BA for all unrestricted line (URL), restricted line (RL), and Staff Corps communities. The data show that cuts to Staff Corps BA were deeper than cuts to URL and RL BA. Thus, the cuts to CHC BA reflect cuts to the Staff Corps as a whole, but they were relatively large even for the Staff Corps.¹¹

Table 3. Changes in USN fleet BA by designator^a

Designator	Sept. 2004	Sept. 2016	Absolute change	Percent. change
USN Officer Corps	38,886	38,086	-800	-2.1%
URL Total ^b	18,976	18,787	189	-1.0%
RL Total	5,278	5,856	78	11.0%
Staff Corps Total	14,632	13,443	-1,189	-8.1%
Dental	1,102	862	-240	-21.8%
Supply	2,181	1,864	-317	-14.5%
Chaplain^c	561	498	-63	-11.2%
Nurse	2,954	2,667	-287	-9.7%
Medical ^d	3,581	3,314	-267	-7.5%
Civil Engineering	1,091	1,037	-54	-4.9%
Medical Service	2,395	2,322	-73	-3.0%
JAG	727	838	111	15.3%

Source: TFMMS.

a. The appropriations category is MPN and all totals exclude USMC billets (i.e., billets in BSO 27).

b. URL totals include both discrete and nondiscrete billets.

c. Chaplain billets exclude USCG billets.

d. Medical totals include both discrete and nondiscrete billets.

The fact that the main cuts to CHC USN BA occurred in a couple of years more than 10 years ago does not indicate a recent or consistent decrease in potential capability delivery or the existence of persistent process problems. However, the fact that the percentage decrease in CHC BA was greater than the percentage decreases in total officer and Staff Corps BA may explain why the CHC is concerned about outcomes of the manpower management process. On one hand, it could indicate that CHC billets are undervalued in the billet authorization process—that they are, indeed, low-hanging fruit. But it may also represent the result of difficult trade-offs in the face of budget constraints; the Navy has chosen cutting support billets over cutting warfighting

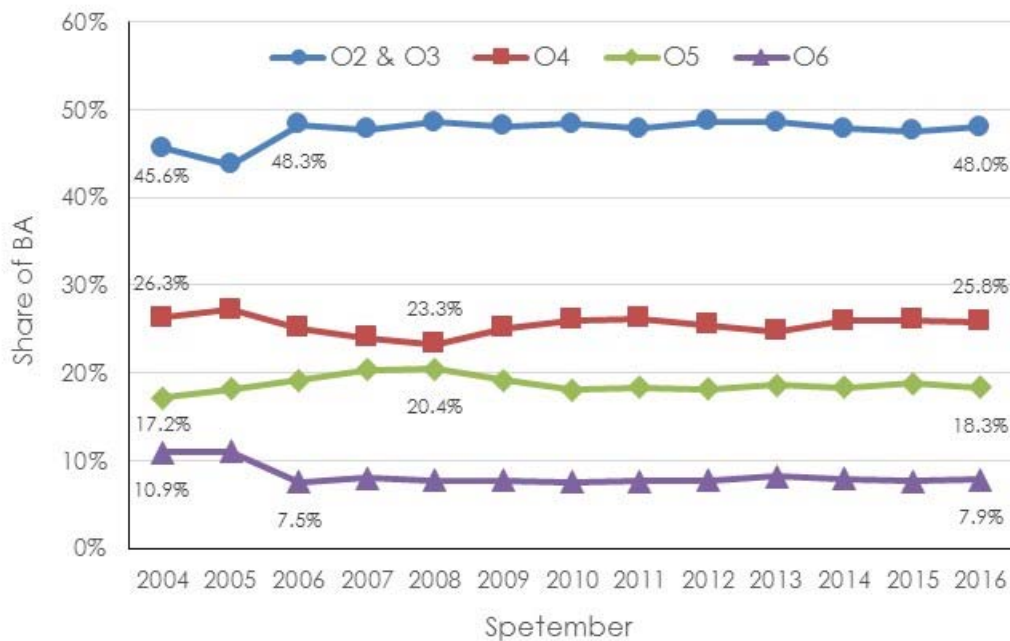
¹¹ The decrease in URL BA was driven by cuts to nondiscrete BA, which fell by 10.4 percent. Many of these billets were then shifted to RL communities.

billets. Either way, a disproportionate cut to CHC BA does not necessarily indicate a cut in capability because it could represent a response to changes in other factors.

CHC USN fleet BA by paygrade

In addition to concerns about cuts to total BA, CHC SMEs also expressed concerns about cuts to senior billets. This matters if senior chaplains are indeed providing different capabilities than more junior chaplains. Figure 8 shows changes to the paygrade structure of CHC BA. The data show that, from 2004 to 2016, the O4 and O5 shares of total BA stayed roughly constant, while the O6 share decreased and the O2 and O3 share increased. Thus, overall, there was a slight shift of BA from senior to junior billets. We also note, however, that the paygrade structure of USN fleet BA has been fairly constant for the seven years since 2010. Thus, there is no indication of a continuous, persistent shift from senior to junior billets.

Figure 8. CHC USN fleet BA by paygrade



Source: TFMMS.

Notes: The appropriations category is MPN and USMC and USCG billets are excluded.

Changes in BA relative to REQs

BA is the funded demand signal, but REQs are the pure, unconstrained statement of the manpower needed to execute the Navy's missions. Thus, differences between BA and REQs reflect risk imposed by the budget constraint. For no community is BA consistently equal to REQ in every UIC; the budget constraint is nearly always binding somewhere. However, an increase in the difference between CHC REQs and BA could indicate a reduction in potential capability delivery, or at least an increase in risk.

Thus, our next capability metric is changes in the ratio of BA to REQs (i.e., BA/REQ). All else equal, ratios closer to 1 indicate more potential capability and less risk, while ratios closer to zero indicate less potential capability and more risk. For this metric, we look at data by CHC domain and by sea-shore status to see where the community is taking more and less risk.

By domain

Figure 9 shows the BA/REQ ratios for fleet billets in all three of the CHC domains: the USN, the USMC, and the USCG. The data show that the USN fleet BA/REQ ratio started out at 0.79, reached a peak of 0.84 in 2009, then ended the period at 0.81.¹² All else equal, this indicates a slight increase in potential capability provision and a slight decrease in capability risk.

The data also show that the USN BA/REQ ratio has consistently been much lower than the USMC and USCG ratios, which averaged 0.97 and 0.98, respectively, over the period. The USN average was 0.81. This indicates that the USCG and USMC requirements are given funding priority, while the USN bears nearly all the risk.

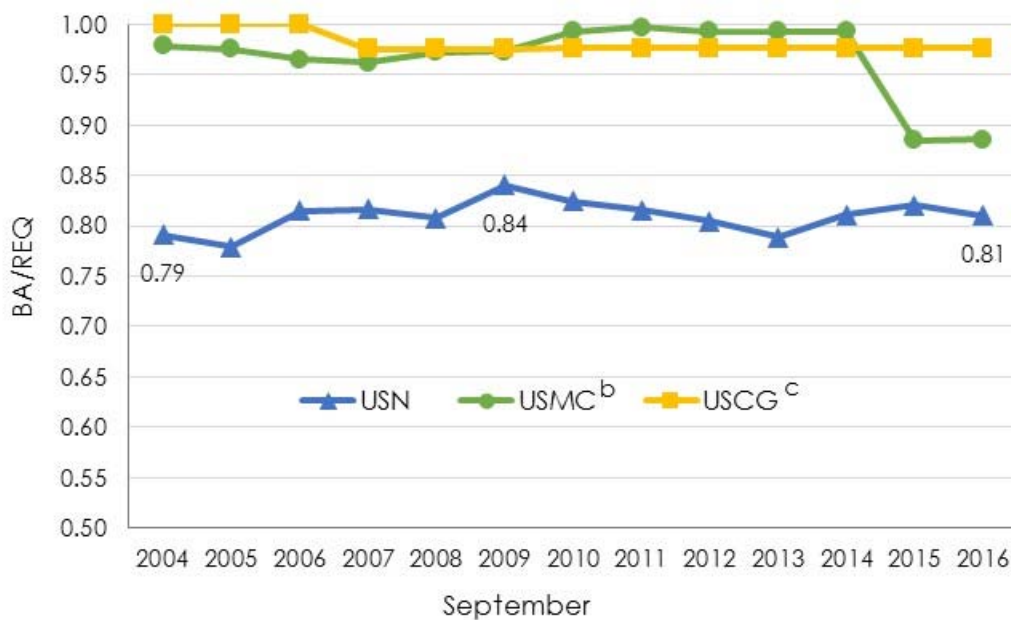
For additional reference, we note that the 2004-to-2015¹³ average BA/REQ ratios (differences between REQ and BA) for the surface warfare, submarine, and aviation communities were 0.86 (1,044), 0.90 (450), and 0.85 (2,106), respectively. Thus, the USN CHC ratio is lower than the ratios for these warfighting communities, which indicates that the Navy takes more risk on CHC capability than on URL capability.¹⁴

¹² In absolute terms, the difference between BA and REQs decreased by 31 billets from 148 to 117. The average difference was 120 billets.

¹³ The URL data did not include the September 2016 update.

¹⁴ The URL community ratios include student and TPPH billets.

Figure 9. CHC BA/REQ by domain^a



Source: TFMMS.

^a. Appropriations category is MPN and fleet category is Fleet.

^b. USMC BA identified by billets in BSO 27.

^c. USCG BA identified by billets in UICs in BSO 02.

By sea-shore status and BSO for USN fleet billets

Next, we disaggregate the USN data to determine whether there were changes in specific areas that indicate a local decrease in capability. Specifically, we calculate BA/REQ ratios by sea-shore status for the four BSOs with the most CHC BA:

- BSO 52, CNIC: average BA = 164 billets; 32 percent of total
- BSO 60, FFC: average BA = 100 billets; 20 percent of total
- BSO 70, PACFLT: average BA = 96 billets; 19 percent of total
- BSO 18, BUMED: average BA = 57 billets; 11 percent of total

There were no noteworthy trends in these BA/REQ series, so these ratios are presented in a different format in Table 4.

Table 4. CHC BA/REQ by sea-shore status and selected BSOs

	Average	Minimum	Maximum	Range	2004	2016	Change
USN	0.81	0.79	0.84	0.05	0.79	0.81	+0.02
Sea							
USN	0.75	0.65	0.82	0.18	0.66	0.78	+0.11
BSO 60	0.75	0.62	0.88	0.26	0.62	0.78	+0.15
BSO 70	0.76	0.66	0.87	0.21	0.71	0.76	+0.06
Shore							
USN	0.84	0.81	0.86	0.06	0.86	0.83	-0.03
BSO 52	0.81	0.80	0.88	0.08	0.88	0.80	-0.08
BSO 18	0.85	0.82	0.88	0.07	0.87	0.83	-0.04
BSO 60	0.75	0.58	0.84	0.27	0.58	0.80	+0.22
BSO 70	0.85	0.63	0.97	0.34	0.63	0.82	+0.20

Source: TFMMS.

Notes: The BA appropriations category is MPN and the fleet category is Fleet.

First, for each BA/REQ ratio, columns two through five of the table show the average, minimum, maximum, and range (i.e., the maximum minus the minimum) over the study period. These data show that the sea ratios were generally lower than the shore ratios, indicating that the Navy has accepted more capability risk at sea than on shore.¹⁵

Next, columns six through eight show the beginning- and end-of-period BA/REQ ratios and the change in each ratio over the study period (i.e., 2016 minus 2004). As also seen in Figure 9, the first row of Table 4 shows that the BA/REQ ratio for all Navy fleet BA increased slightly from end to end, indicating a slight decrease in overall capability risk due to the budget constraint.

The data for sea billets show that the all-Navy BA/REQ ratio increased as did the ratios in BSOs 60 and 70. The increase for BSO 60 was especially large. In contrast, the data for shore billets show that the all-Navy ratio decreased due to decreases in the ratios for the two large shore BSOs, especially BSO 52.¹⁶ Thus, overall, there was a shift of capability risk from sea to shore, which is consistent with the CHC's operational priorities, but may leave nondeploying personnel and families with less support.

¹⁵ OMC billets are sea-duty billets.

¹⁶ Year-by-year data (not shown) indicate that the change in the BSO 52 ratio occurred early in the period—from 2004 to 2007—reflecting the noted changes in total USN fleet BA.

Changes in capitation ratios

A capitation ratio (CR) represents the number of people served per chaplain or per chaplain billet. For this analysis, we focus on billets to capture *intended* capability provision:

$$CR = \frac{\text{Served population}}{\text{Number of chaplain billets}} \quad (1)$$

A previous CNA study of the CHC [21] was critical of using of CRs in manpower planning, pointing out that doing so meant that commands with personnel totals below the target CR almost never had chaplain billets regardless of their need for support. More generally, the authors argued that using CRs in manpower planning meant that chaplain billet requirements would be set not by true demand for chaplain support but by simple counts of personnel.

The intent of using CRs in this analysis is not to argue for a simplistic CR-based rule for manpower management. Rather, the point is to show how CRs can be used to assess changes in potential capability delivery at different levels and demonstrate ways to think about risk assessment.

Three sets of CRs

For this part of the capability assessment, we define and analyze three sets of two CRs each to capture the impacts of three capability-related factors on potential capability delivery.

Set #1: The impact of chaplain roles—providers versus managers

As Navy chaplains become more senior, the focus of their jobs should shift from providing, facilitating, and caring to advising and program administration. To account for these changes, we define “provider” billets as those assigned paygrades O2, O3, and O4 and “manager” billets as those assigned paygrades O5 and O6.¹⁷ Based on these distinctions, the two CRs in this set use different billet counts in the denominators. Specifically, the numerators include only active-duty (AD) personnel and the denominators include either total CHC BA or provider BA only:

- CR1a = AD only/Total
- CR1b = AD only/Provider

¹⁷ Another way to distinguish between provider and manager billets would be to use NOBCs.

Set #2: The impact of families

Navy chaplains serve not only AD personnel but also their families. To capture the impact of including families on potential capability delivery, the numerators in this set of CRs include both AD personnel and their families:

- $CR2a = (AD + Families) / Total$
- $CR2b = (AD + Families) / Provider$

Set #3: The impact of deployment

When chaplains deploy, the number of chaplains remaining on shore to serve families and nondeployed AD personnel is reduced. Of course, the size of the served population also falls. The third set of CRs captures the effects of both changes. The numerators for these CRs include AD personnel assigned to nondeploying plus the families of all personnel, and the denominators include only CHC BA for nondeploying units, either total or provider:

- $CR3a: (Nondeploying\ AD + Families) / Nondeploying\ Total$
- $CR3b: (Nondeploying\ AD + Families) / Nondeploying\ Provider$

Based on this definition, these CRs capture what might be considered boundary-case deployment scenarios because they implicitly assume that all chaplains and all AD personnel assigned to deploying units have indeed deployed.

Cooperative ministry vicinities (CMVs)

The CM model of service delivery defines the scope of Navy chaplains' service responsibility based on geographic rather than command boundaries. We were not, however, able to find explicit definitions of the geographic areas covered under the CM model—neither for specific areas nor in terms of a general size (e.g., square miles) guideline. Thus, to assess the impact of changes in manpower outcomes at this level of capability delivery, we defined our own cooperative ministry vicinities, or CMVs.

The basic approach was to define CMVs based on what might be considered a reasonable travel distance for a servicemember or family member seeking chaplain support. To operationalize this, we chose 50 miles as the distance allowed for reimbursed travel,¹⁸ then mapped UICs to cities making two key assumptions:

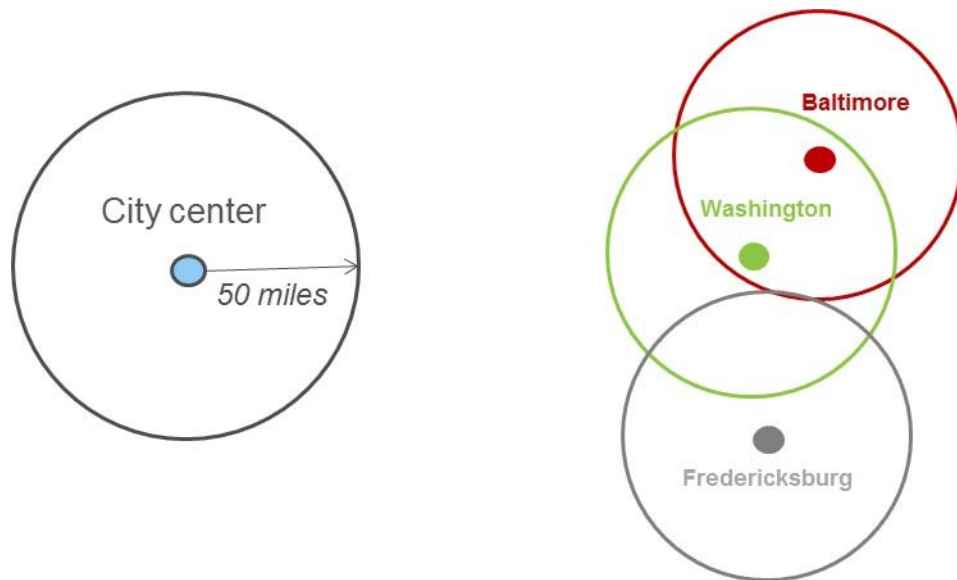
- Distance is measured from city center to city center.

¹⁸ This definition of a reasonable travel distance could be adapted to represent local conditions. For example, in some metro areas, driving time might be better.

- All UICs and, thus, all chaplains and the people they serve, exist at the city center.

Figure 10 illustrates CMV construction for four CMVs in the mid-Atlantic region. An important feature to note is that CMVs can overlap. In this example, the Baltimore CMV also includes Washington, DC, and vice versa, but the Fredericksburg CMV includes only Fredericksburg.

Figure 10. CMV illustration



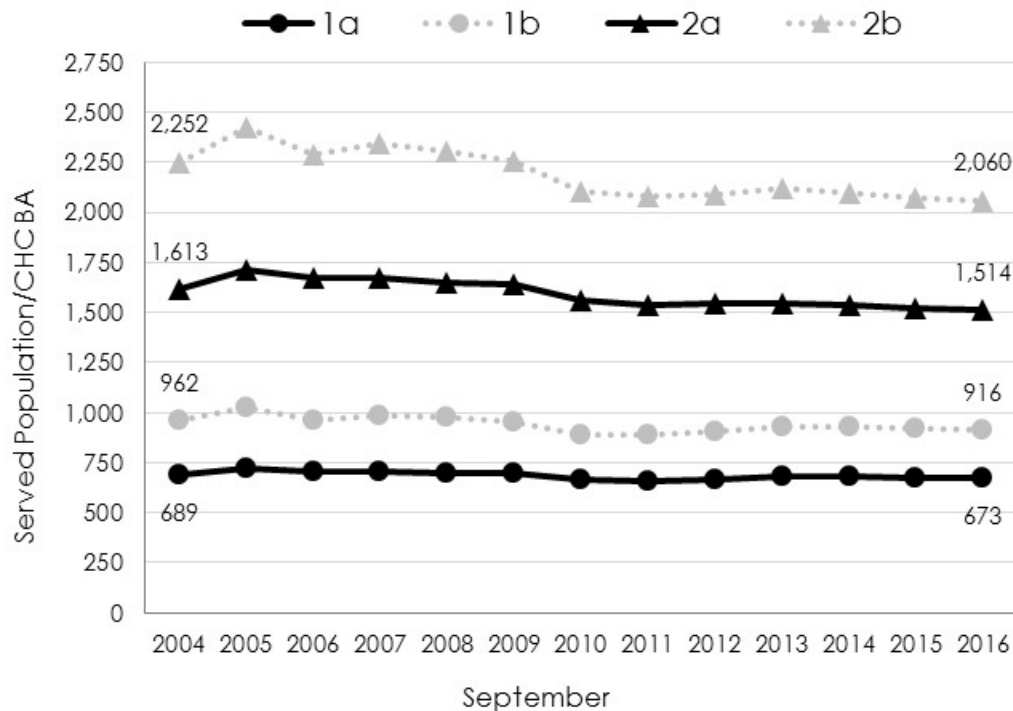
We defined CMVs over the whole country as well as overseas for any city that had any Navy presence (i.e., at least one authorized billet). The analysis presented here, however, focuses on six fleet concentration areas (FCAs) identified by CHC SMEs: Norfolk, Virginia; San Diego, California; Everett, Washington; Honolulu, Hawaii; Jacksonville, Florida; and Yokosuka, Japan.

Results: All Navy

We start with the all-Navy look because it captures changes in overall potential capability delivery and sets benchmarks for analyzing the CMV-specific CRs. The all-

Navy results for CRs 1a, 1b, 2a, and 2b are shown in Figure 11, and relevant summary statistics are provided in the figure's notes.¹⁹

Figure 11. All-Navy capitation ratios over time



Source: Authors' calculations from TFMMS, the OMF, and the EMR.

Note: Summary statistics follow:

Capitation ratio	Average	Absolute change	Percentage change
1a. AD only/Total	685	-17	-2.4%
1b. AD only/Provider	942	-46	-4.8%
2a. AD + Families/Total	1,594	-100	-6.2%
2b. AD + Families/Provider	2,192	-192	-8.5%

Start with CRs 1a and 1b—the ratios defined by the AD-only served population. First, consider the study-period averages. For CR 1a, the study-period average was 685 AD personnel per chaplain billet, which is in the 650-700 historical range defined in [21]. For CR 1b, there is no baseline for comparison because the distinction between

¹⁹ We did not calculate CRs 3a and 3b for all Navy because we did not think they made sense at that level of aggregation.

provider and manager billets is new. Instead, the study-period average for this ratio indicates the average difference in potential capability delivery when chaplains' different roles are taken into account—about 250 more personnel per chaplain billet.

The data in Figure 11 also show that both CR 1a and CR 1b decreased slightly from 2004 to 2016, indicating a slight increase in overall potential capability delivery. The decrease in CR 1b was a little larger, which is consistent with the shift to lower ranked, service-focused billets shown in Figure 8.

Now consider CRs 2a and 2b—the CRs defined by the served population that includes the families of AD personnel. These CRs both decreased more than CRs 1a and 1b, which indicates that the number of dependents per active-duty member fell somewhat. More important, it also indicates that there was no decrease in potential capability delivery that isn't captured by CRs 1a and 1b—the AD-only ratios. We do not know, however, of any baseline for the second set of ratios, which raises the issue of what is desired. Is it assumed that the number of dependents per AD member remains sufficiently stable that an acceptable AD-only CR implies an acceptable AD plus families CR?

Results: By CMV

Next, we look at all six CRs by CMV to see how potential capability delivery varied and changed throughout the force. Ideally, we would have a desired range for each CR and could simply show whether any CR in any CMV went outside its desired range during the study period. Since we do not have desired ranges, we make a variety of comparisons between these CRs to show the impact of accounting for CMV, the provider/manager distinction, families, and deployment. Thus, the data presented here serve as examples of how to think about and evaluate risk in any particular area.²⁰

The impact of CMVs

To illustrate the impact of accounting for differences in CRs by CMV alone, Table 5 shows the study-period averages for and changes in CR 1a for all Navy and each CMV.

The study-period averages are shown in the second column of the table, and the third column shows the ratio of each CMV-specific CR to the all-Navy CR. The data show that the CRs for the two larger BSOs are relatively close to the all-Navy CR. In contrast, the Yokosuka CR is well below the all-Navy average, whereas the CRs for the other CMVs are well above the all-Navy average. Looking at average CRs this way highlights the need to consider whether there exists a mission-related reason why the Everett CR, for example, is consistently so much higher than the Norfolk and San Diego CRs. Looking

²⁰ The appendix includes figures analogous to Figure 11 for each of the six FCA CMVs.

at CMV-specific CRs for any given year could help answer such questions as (1) what is the impact of a proposed billet cut or (2) where can a billet cut be absorbed with least impact to potential capability delivery?

Table 5. All-Navy vs. CMV-specific capitation ratios^a

CMV	Average CR ^b	CMV/ All Navy	Change ^b	
			Absolute	Percentage
All Navy	685	--	-17	-2.4%
Norfolk	673	0.98	-9	-1.3%
San Diego	714	1.04	-39	-5.3%
Everett	937	1.37	65	7.1%
Honolulu	828	1.21	138	19.5%
Jacksonville	764	1.11	-172	-20.0%
Yokosuka	610	0.89	1	0.1%

Source: Authors' calculations from TFMMS, the OMF, and the EMR.

^a. The capitation ratio is CR1a = AD only/Total.

^b. The average and changes are calculated from 2004 to 2016.

Table 5 also shows the changes in CR 1a by CMV. The data show that the CRs in some CMVs decreased by even more than the all-Navy CR, while the CRs in other CMVs actually increased. Comparing changes across CMVs shows that, while the decrease in the all-Navy CR indicated a small overall increase in potential capability delivery, some areas experienced decreases in potential capability delivery. Thus, this look confirms the importance of looking beyond the all-Navy data.

The impact of the manager/provider distinction

To show how the impact of the manager/provider distinction varied by CMV, the data in Table 6 compare CR 1a with CR 1b for all Navy and for each CMV. First, the fourth column in the table shows the ratio of CR 1b to CR 1a. By definition, all ratios are greater than one, and higher ratios mean more manager billets relative to provider billets. The data show that the CR 1b/CR 1a ratio for Honolulu is substantially greater than the all-Navy ratio, while the CR 1b/CR 1a ratio for Jacksonville is substantially lower. This means that Honolulu has relatively more manager billets while Jacksonville has relatively more provider billets. Does this make sense given the needs in each area?

Turning to the changes over time, the fifth and sixth columns of Table 6 show that, in most cases, accounting for the provider/manager distinction makes an increase or decrease more pronounced. In Norfolk, however, it turns the CR change from negative to positive, indicating a decrease in potential capability rather than an increase. Thus, it is important to make sure that the correct ratio is being considered in any decision-making scenario.

Table 6. Capitation ratio 1b versus 1a by CMV^a

CMV	CR average ^{ba}		1b/1a	Percentage change ^b	
	1a	1b		1a	1b
All Navy	685	942	1.37	-2.4%	-4.8%
Norfolk	673	932	1.38	-1.3%	4.0%
San Diego	714	934	1.31	-5.3%	-4.5%
Everett	937	1,340	1.43	7.1%	6.4%
Honolulu	828	1,265	1.53	19.5%	33.3%
Jacksonville	764	957	1.25	-20.0%	-17.8%
Yokosuka	610	852	1.40	0.1%	0.1%

Source: Authors' calculations from TFMMS, the OMF, and the EMR.

a. CR 1a = AD only/Total and CR 1b = AD only/Provider.

b. The averages and changes are calculated from 2004 to 2016.

Impact of families

Taking families into account also matters. To illustrate how, Table 7 compares CR 2a with CR 1a. Again, by definition, the ratio of CR 2a to CR 1a will be greater than 1, and a higher (lower) value indicates that the AD members in the vicinity have more (less) family. The data show that, relative to the all-Navy CR 2a/CR 1a ratio, the ratio for Jacksonville is high, but the ratio for Yokosuka is low. This means that there is relatively more family in Jacksonville and relatively less family in Yokosuka. How should this be accounted for in manpower management? Continuing with the Jacksonville example, the data show that CR 2a decreased more than CR 1a. Does this represent a conscious effort to cover families in the Jacksonville area?

Table 7. Capitation ratio 2a versus 1a by CMV^a

CMV	CR average ^b		2a/1a ^c	Percentage change ^b	
	1a	2a		1a	2a
All Navy	685	1,594	2.33	-2.4%	-6.2%
Norfolk	673	1,632	2.42	-1.3%	-4.1%
San Diego	714	1,664	2.33	-5.3%	-7.2%
Everett	937	2,187	2.33	7.1%	-1.5%
Honolulu	828	1,851	2.23	19.5%	12.0%
Jacksonville	764	1,960	2.56	-20.0%	-23.0%
Yokosuka	610	1,234	2.02	0.1%	-2.2%

Source: Authors' calculations from TFMMS, the OMF, and the EMR.

a. CR 1a = AD only/Total and CR 2a = AD + Families/Total.

b. The averages and changes are calculated from 2004 to 2016.

c. The ratios of CR 2b/ CR 1b are the same.

Impact of deployment

Finally, we consider the impact of deployment by comparing the ratio of CR 3a with CR 2a across CMVs. The relevant data are presented in Table 8. For this evaluation, higher CR 3a/CR 2a ratios indicate that deployment has a greater impact on AD personnel and families who stay behind, but these ratios are not always greater than 1 because deployment affects both the numerator and the denominator. The data show that, on average, taking deployment into account matters a lot for Norfolk and San Diego, but not for Everett and Honolulu. And, the change data show that taking deployment into account changes the story for some of the CMVs, but not others. San Diego and Yokosuka go from decreasing to increasing, indicating worse rather than better potential capability delivery. In contrast, Everett went from a small decrease to a larger one, indicating a potentially substantial rather than a minimal improvement.

Table 8. Capitation ratio 3a versus 2a by CMV^a

CMV	CR average ^b		3a/2a ^c	Percentage change ^b	
	2a	3a		2a	3a
Norfolk	1,632	2,552	1.56	-4.1%	11.1%
San Diego	1,664	2,278	1.37	-7.2%	6.4%
Everett	2,187	2,305	1.05	-1.5%	-10.4%
Honolulu	1,851	1,780	0.96	12.0%	23.1%
Jacksonville	1,960	2,161	1.10	-23.0%	-4.4%
Yokosuka	1,234	1,439	1.17	-2.2%	13.6%

Source: Authors' calculations from TFMMS, the OMF, and the EMR.

a. CR 2a = (AD + Families)/Total and CR 3a = (Nondeploying AD + Families)/Nondeploying Total.

b. The averages and changes are calculated from 2004 to 2016.

c. The ratios of 3b/2b are not the same.

Ship-to-ship proximity

Ship-to-ship proximity is an indicator of the community's ability to apply the circuit-rider model of capability delivery, which is a specific form of CM. Here, we investigate the community's ability to apply the circuit-rider model to DDGs. Specifically, we ask the questions how often is a DDG within helicopter flying distance of another DDG or a CVN or CG (two other platforms that are likely to be carrying at least one chaplain), and has this changed over time?

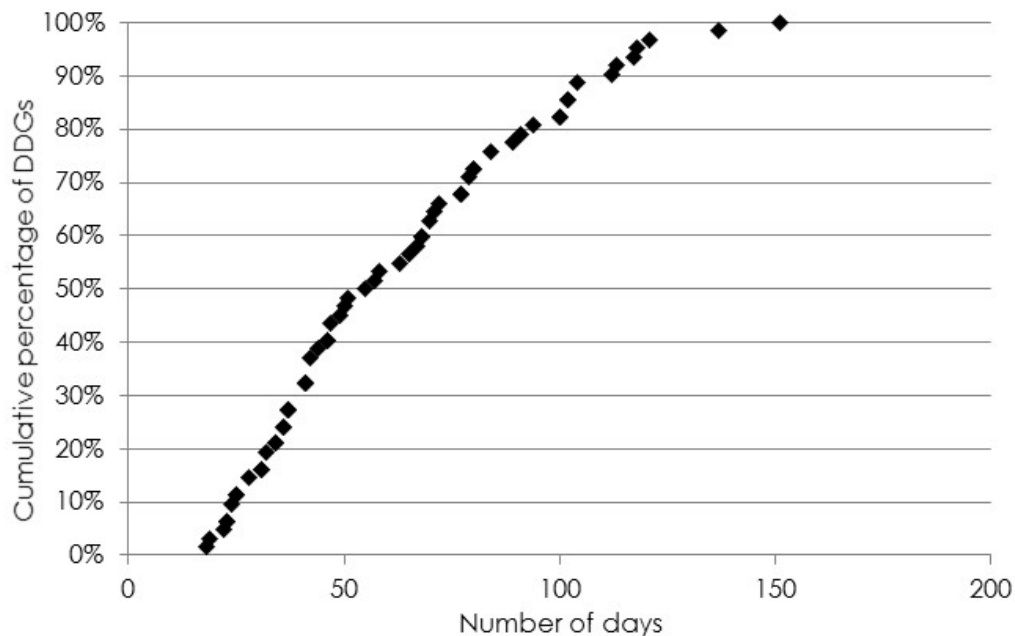
Calculating ship-to-ship proximity

To answer these questions, we looked at the positions of DDGs relative to other DDGs and to CVNs and CGs during the 5.4-year period from January 2010 to May 2016 and,

following guidance from CHC SMEs, we defined flying distance as 245 nautical miles (n.mi.).²¹

To create the sample of DDGs for study, we first filtered out all DDG and other ship positions within flying distance of land. We found that 62 DDGs spent some time at a distance of at least 245 n.mi. offshore during our data period.²² The distribution of days these DDGs spent offshore is shown in Figure 12. The median number of days was 55 (USS *Spruance*), and the minimum and maximum numbers of days were 18 (USS *Michael Murphy*) and 151 (USS *Fitzgerald*), respectively.

Figure 12. Distribution of days DDGs spent at least 245 n.mi. from shore



Source: Unclassified/FOUO extracts of ONI SeaLink data from January 2010 through May 2016.

For each of these 62 DDGs, we then calculated the percentage of the offshore days that it was within flying distance of another ship:

$$\frac{\# \text{ of days } \geq 245 \text{ nmi offshore and within 245 n.mi. of another ship}}{\# \text{ of days } \geq 245 \text{ n.mi. offshore}} \quad (2)$$

²¹ Per the CHC SME, this is based on the flying range of a MH-60S Seahawk.

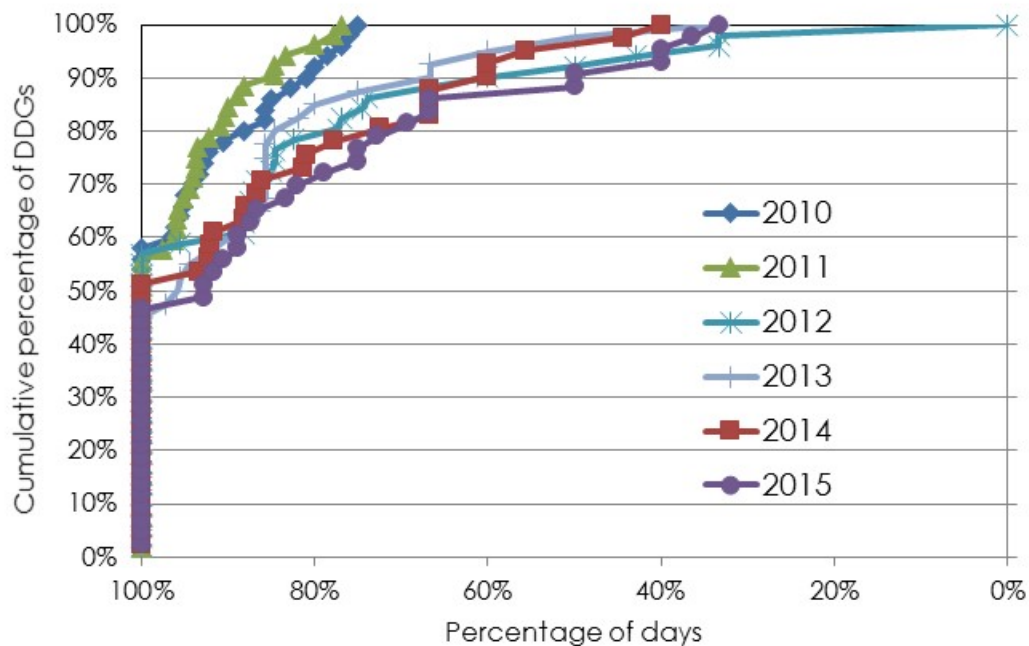
²² See the appendix for a visual representation of the data set.

The percentages calculated with equation (2) represent the amount of time that deployed DDGs were likely to have access to chaplain services via the circuit-rider model. Our calculations show that this access has likely decreased since 2010.

DDGs' proximity to other ships

Figure 13 tracks the percentage of time that offshore DDGs were within flying distance of another DDG, a CG, or a CVN for each of the five calendar years for which there is complete data. These data show that about half of the offshore DDGs were always within flying distance of another ship in all five years. The remaining offshore DDGs, however, became increasingly less likely to be within flying distance of another ship over the five-year period. This is seen by the rightward shift of the year-specific distributions. The appendix provides data on DDGs' proximity to other DDGs only and to CGs or CVNs only. (See Figure 24 and Figure 25.) These data show that the changes depicted in Figure 13 were driven by changes in DDGs' proximity to CGs and CVNs, not to other DDGs.

Figure 13. Percentage of days with a DDG, CVN, or CG within flying distance, by calendar year



Source: Authors' calculations from unclassified/FOUO extracts of ONI SeaLink.

Summary and takeaways

Total USN fleet BA

Total CHC USN fleet BA decreased over the study period, but most of the decrease occurred 10 years ago, so there is little evidence of a recent or persistent decrease due to problems with manpower management processes. The data do show that CHC BA fell by more than the BA of other USN officer communities over the same time period, and this may be what is driving CHC concerns. We note, however, that authorization decisions should not be made based on “fair share” allocations to communities. Rather, they should be based on mission-related factors, which could drive cross-community differences in cuts.

USN fleet BA by paygrade

The data show a shift from senior to junior billets early in the period, but very little change in the past several years. Thus, these data also fail to indicate the existence of a recent or persistent problem.

USN BA/REQ

The ratio of BA to REQs for all USN fleet billets increased slightly. All else equal, this indicates a slight increase in potential capability provision and a slight decrease in potential capability risk due to budget constraints. In addition, comparing changes in the ratios of BA to REQs for sea and shore billets revealed a shift from the authorization of shore billets to the authorization of sea billets. In the data, this appears as a shift of authorizations from BSO 52 to other BSOs. This change represents a shift of risk from sea to shore, which is consistent with the Navy’s focus on warfighting first and the community’s detailing priorities.

We also note that, comparing BA/REQ across domains showed that the BA/REQ ratio for USN CHC billets was consistently lower than the ratios for USMC and USCG CHC billets, indicating that the USN consistently bears nearly all the capability risk associated with budget constraints.

USN CRs

The slight decreases in the all-Navy CRs indicate a slight increase in potential capability delivery, all else equal. At a minimum, they indicate that cuts to CHC BA reflect overall

decreases in the size of the population to be served, rather than an “unfair” swipe at low-hanging fruit.

Looking at changes in CRs by CMV, however, showed that changes in potential capability delivery differed substantially across the force—with some areas experiencing increases and some experiencing decreases. The impact of the different factors—chaplain roles, families, and deployment—on potential capability delivery was also different in different areas.

Without more knowledge about the reasons for the BA decisions underlying the CR changes, we cannot say whether they were good or bad given the constraints. Rather, the analysis of the different CRs illustrated how to think about such decisions. Specifically, it showed how to identify places where risk is increasing or is especially high in order to give informed input to decision-makers. It also highlighted the importance of knowing which factors matter in a given location and having baselines for identifying minimum levels of service.

Ship-to-ship proximity

The data on ship positioning indicated that most DDGs were within flying distance of another ship that could be carrying a chaplain most of the time in every year of the data period, but that the amount of time that DDGs were likely to be out of flying distance of another ship has increased since 2010. These results suggest that changes in fleet operating concepts may have made the circuit-rider model of service delivery less practical for DDGs.

Personnel Management: Process Assessment

A key junction between manpower management and personnel management is the extent to which the personnel management functions of training and development prepare community members to perform the required manpower management functions. According to the SMEs, current CHC training and development do not place enough emphasis on manpower management skills, thus exacerbating the existing disconnect between these two parts of the MPT&E system. In this section, we investigate this perception by describing CHC training opportunities and curricula, then showing the rates at which chaplains attend formal leadership development courses.

CHC training opportunities

Training timing and the CHC career path

Figure 14 shows a modified version of the CHC Officer Leader Development Continuum. It illustrates both the progression of chaplain assignments over the course of the career and how formal training and personal development should be timed to support the gradual increase in leadership responsibility, as well as the shifts of focus from the RMP-based capabilities of *provide* and *care* to the staff officer capabilities of *advise* and program administration.

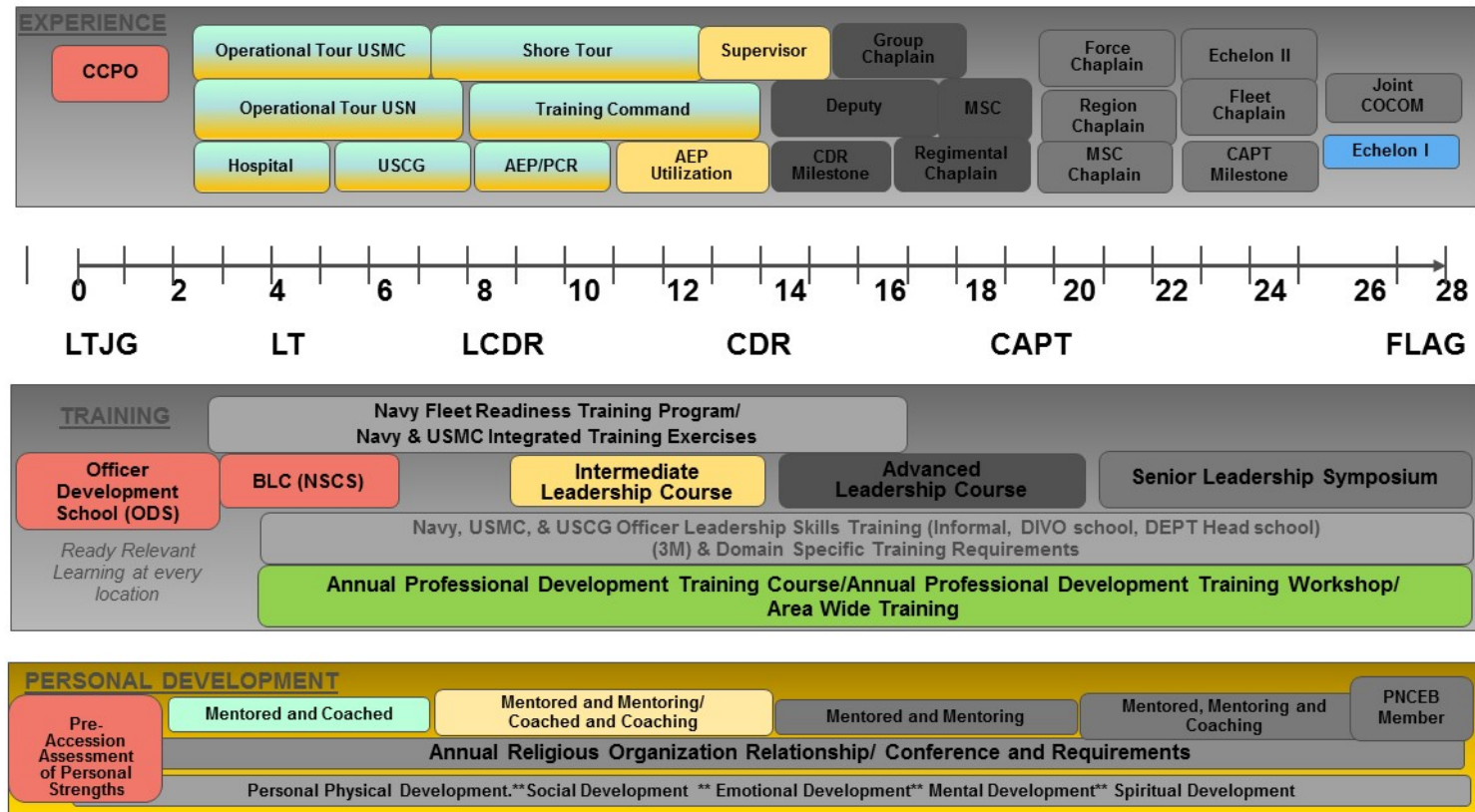
Training opportunities

The CHC offers three formal training opportunities provided by the Naval Chaplaincy School and Center (NCSC) in Fort Jackson, South Carolina. These are the Basic, Intermediate, and Advanced Leadership Courses.

Basic Leadership Course (BLC)

The BLC is designed for new chaplains and focuses on teaching them how to apply their RO-specific pastoral skills in a military setting. The training consists of three residential phases. Topics covered include PNC competencies, religious ministry in an

Figure 14. CHC leader development continuum



Source: Adapted from [22].

institutional setting, collaborative care, privileged communication and confidentiality, and pluralism. Completion of the BLC is required for assignment to a billet coded with the 3710 NOBC. (See references [23], [24], and [25] for BLC phases 1, 2, and 3.)

Intermediate Leadership Course (ILC)

The ILC is designed for O4s and O4 selects (selection for promotion to O4 is a prerequisite for enrollment in the course). The stated goal is to “equip O4 chaplains to excel as supervisory staff officers”[12]. The course has two phases: one is residential and the other is online. The training covers such topics as leadership skills, community relations, career management, community leadership, and pastoral care in response to crises. According to the Training Course Control Documents, completion of the course is required for assignment to a Supervisory Chaplain billet (NOBC 3730). As we will show later, however, the data indicate that not all supervisory chaplains have had this training. (See references [26] and [27] for ILC nonresident and resident phases.)

Advanced Leadership Course (ALC)

The final training course, the ALC, is designed for O5s and O5 selects (selection for promotion to O5 is a prerequisite for enrollment in the course). The goal of this course is to “prepare senior chaplains to serve in leadership positions on large staffs” [12]. This includes training in supervision of religious ministry support, religious ministry support at the operational level of war, organizational strategic planning, and preparing chaplains to fulfill their role as advisor to commanders on the moral and ethical implications of command decisions. This course also has both resident and on-line components, and assignment to Force and Claimant Chaplain billets (NOBCs 3745 and 3750) is supposed to depend on the completion of this training. However, as with the ILC, attendance data indicate that this is not always happening. (See references [28] and [29] for ALC nonresident and resident phases.)

Other professional development

CHC training also takes place via Professional Development Training Courses (PDTCs) and Professional Development Training Workshops (PDTWs). These are open to the entire CHC community and take place every year at locations throughout the world to maximize attendance and minimize travel expenses. They are three days long, and the topics discussed vary depending on what is considered timely and necessary. Each course is preceded by a one-day workshop. The content of the workshops also varies each year.

Manpower management in training curricula

To determine the extent to which these formal training courses cover manpower management, we reviewed Training Course Control Documents for each phase of each course. We summarize our findings in Table 9. They confirm that the formal instruction offered by the CHC has a very limited manpower management focus.

Table 9. Manpower management content in CHC training courses

Course	Class periods	Length
BLC	0	0
ILC (nonresident phase)	<1	40 minutes
ALC (nonresident phase)	2	2 hours
ALC (resident phase)	8	8 hours
PDTC/PDTW	?	?

Sources: References [23] through [30].

The BLC does not cover manpower management at all. The nonresident phase of the ILC contains some manpower management content, but it is less than one hour in length (not even a full class period). The first time manpower management is taught in any detail is in the ALC. Both the resident and nonresident phases of the ALC cover manpower management, and the combined time allocation is about 10 hours.²³

CHC training also takes place at PDTCs and PDTWs. A recent analysis done by the CHC [30] found that “Professionalism, Leadership and Management” was the training topic 20 percent of the time between 1974 and 2018—or approximately every 5 years. The analysis did not include details regarding the content of these courses and workshops, so we cannot confirm that manpower management was actually covered, but this gives an idea of the focus placed on training chaplains for their broader program administration role.

Training attendance

As indicated by CHC SMEs, lack of community funding for training limits chaplains’ ability to attend the ILC and ALC. Before 2015, chaplains had to rely entirely on the willingness of their commands to approve and fund formal training at these levels. And, even when commands were willing to give this support, chaplains were known to pay their own expenses (i.e., transportation, meals and lodging). In 2015, the then Chief

²³ At the time of the study, the curricula for these courses were being revised, but CHC leaders indicated that the new versions will not cover manpower management in any greater detail.

of Chaplains struck a deal with the then-Chief of Naval Personnel (N1) such that N1 now funds attendance at ILC and ALC as part of permanent-change-of-station (PCS) orders. This works well for chaplains whose PCS transfers coincide with the NCSC's training schedule, but this timing alignment is hit or miss. The problem can be exacerbated by cancellation of courses by the NCSC due to lack of enrollment.²⁴

To determine the severity of these constraints, we used chaplains' personnel records, to calculate actual ILC and ALC course completion rates. The results are shown in Figure 15.

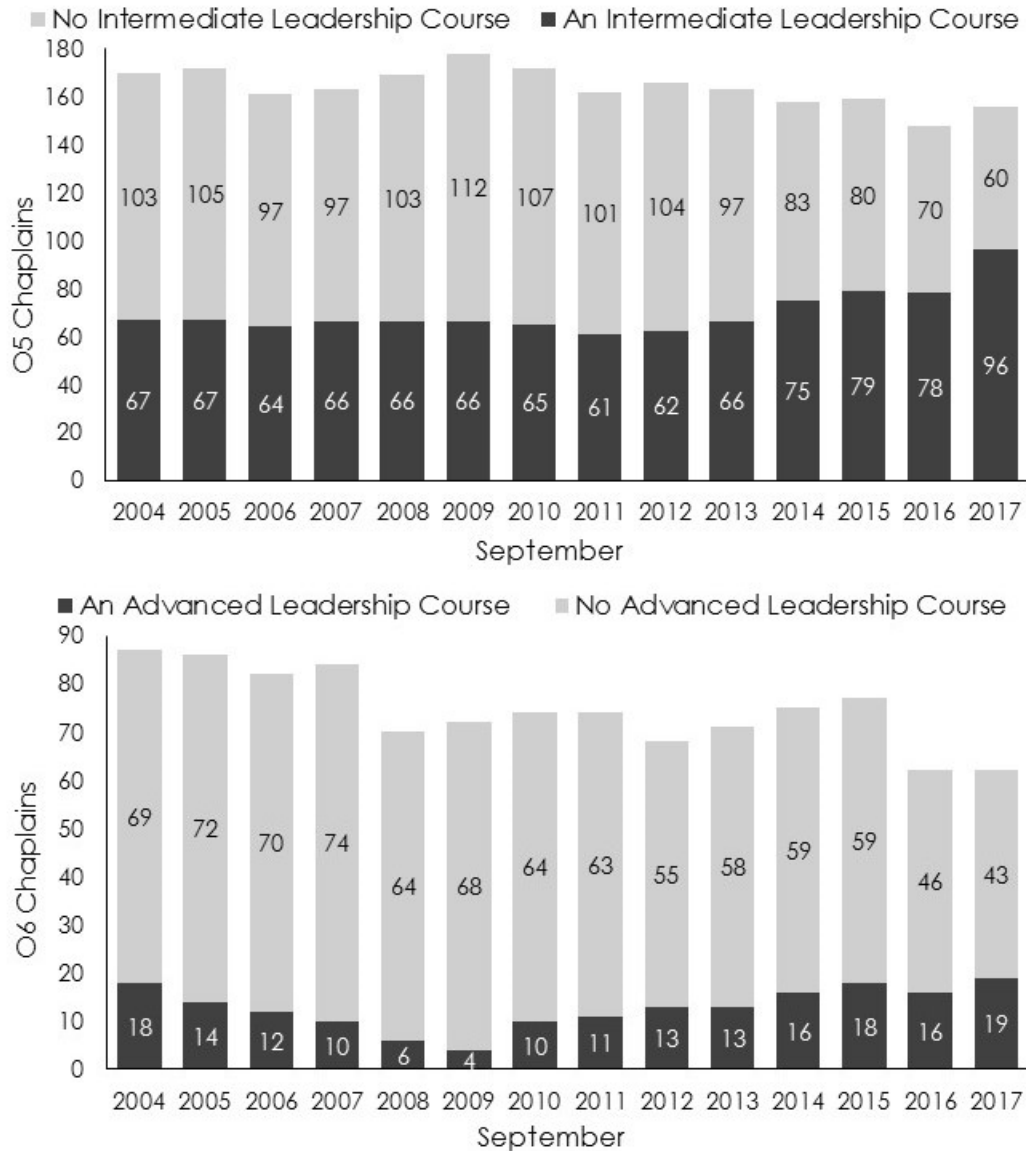
The data show that ILC completion rates have increased over time, but only reached 50 percent in 2015. ALC completion rates have also increased since 2009, but have never exceeded 30 percent.

Summary and takeaways

Our review of the CHC training materials confirmed that manpower management is not emphasized in CHC formal leadership training curricula or in the more informal PDTs and PDTWs. In particular, manpower management topics aren't covered in any detail until the O5-level ALC. According to the definition of the Supervisory Chaplain NOBC, however, O4 chaplains in these billets must be able to advise their Force Chaplains on manpower issues. The more immediate problem, however, is that few chaplains attend formal training beyond the BLC. Time will tell if the recent funding support from N1 results in meaningful increases in attendance rates.

²⁴ This information was provided by the CHC community manager and other CHC SMEs.

Figure 15. Course completion rates: ILC^a and ALC^b



Source: OMF.

^a. Based on the CHC career path, all O5 chaplains should have completed ILC. Intermediate leadership courses include the CHC ILC (195) and the Department Head leadership course (00E).

^b. Based on the CHC career path, all O6 chaplains should have completed ALC. Advanced leadership courses include the CHC ALC (190 or 196) and the Advanced Officer Leadership Course (00C).

Personnel Management: Capability Assessment

In the Navy's MPT&E system, BA provides the official demand signal for manpower capability, but capability cannot, ultimately, be delivered without the personnel inventory (INV) to fill the billets. In this section, we investigate the extent to which INV shortfalls limit potential CHC capability delivery. To do this, we look at various ratios of INV to BA (INV/BA) and how they have changed over time.

The INV/BA metric serves two functions. First, community managers use this metric as an indicator of community health. Specifically, for a community to be considered "healthy," its INV/BA ratio should be between 0.95 and 1.05—overall and at each paygrade [31]. Second, for the purposes of this study, the INV/BA ratio serves as an indicator of the potential availability of personnel to deliver required capabilities. Given the paygrade-specific differences in chaplain roles (i.e., provider versus manager), differences by paygrade also matter here. Thus, for this assessment, we look at INV/BA for total CHC, by domain, and by paygrade group.

INV/BA

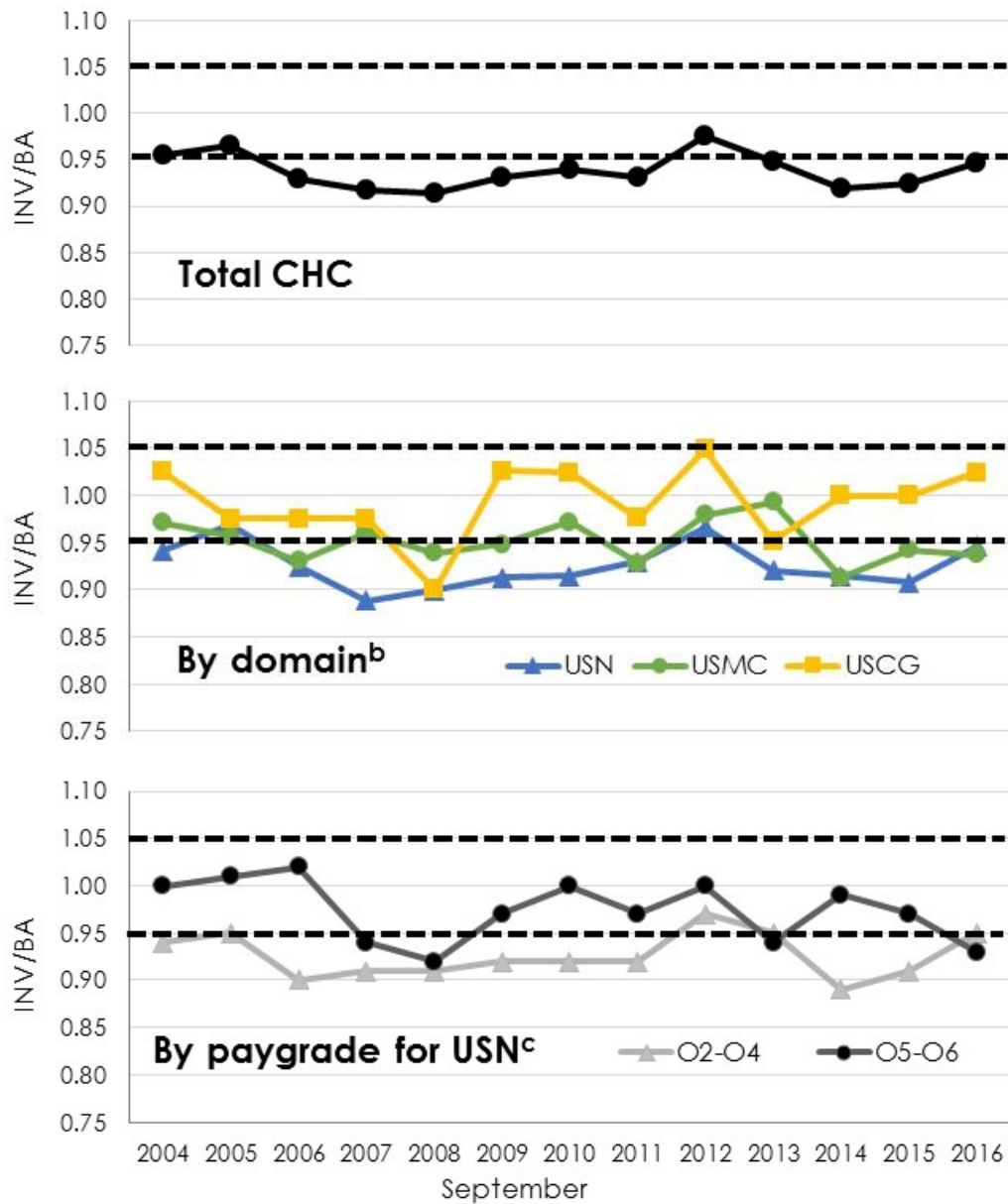
For the whole CHC

INV/BA ratios for the whole CHC are shown in the top panel of Figure 16. The chart shows that CHC INV was below the healthy minimum of 0.95 for most of the study period (10 out of the 13 years) and that there has been no marked upward or downward trend. The average for the period was 0.94. Thus, these data show that, while INV shortfalls do consistently exacerbate the capability risk imposed by the budget constraint during the billet authorization process, the extra risk has not notably increased over the study period.

By domain

The middle panel of Figure 16 shows the CHC INV/BA ratios by domain. The study-period average for the USN ratio was 0.93, and the ratio was below the healthy cutoff in 11 of the 13 years; it was 0.91 or below in 6 of the 13 years. There was, however, no steady decline over time, indicating that this is a persistent problem rather than a case of eroding capability. The USN INV/BA ratio was generally below the USMC and USCG

Figure 16. INV/BA for the total Chaplain Corps, by domain, and by paygrade for USN billets only^a



Source: TFMMS and OMF.

^a. For billets, the appropriations category is MPN and the fleet category is fleet. For inventory, the personnel type is regular and the accounting categories are fleet and limited duty.

^b. USMC BA are identified by billets in BSO 27 and personnel assigned to USMC activity. USCG BA are identified by billets in and personnel assigned to UICs in BSO 02.

^c. USN fleet billets only. O2-O4 BA are provider billets; O5-O6 BA are manager billets.

ratios, which averaged 0.95 and 0.99, respectively, over the study period. So, as did the BA/REQ ratio, this ratio indicates that USMC and USCG needs are filled ahead of USN needs.

By paygrade for the USN domain

Finally, the bottom panel of Figure 16 shows the USN INV/BA ratios by paygrade. Specifically, continuing with the distinction between provider and manager billets defined earlier, the chart shows the INV/BA ratios for grades O2 to O4 and for O5 and O6. The data do not reveal any particular trend over time for either series. Instead, they show that, with a study-period average of 0.90, the provider INV/BA ratio has been consistently below the healthy cutoff. In contrast, the data show that the manager ratio has been consistently in the healthy range. The study-period average was 0.98, and the ratio was greater than 1 in 4 of the 13 years. Thus, INV shortfalls pose more risk to provider capability than management capability.

Summary and takeaways

The various INV/BA ratios indicate that INV shortfalls do indeed add risk to capability delivery beyond that imposed by budget constraints. Although they do not reveal evidence of increases in capability risk over the study period, they do show that inventory shortfalls persistently pose particular risk to USN provider-level capability.

Conclusion

Early in the study process, the Chief of Chaplains clarified her initial request for analytical support; she asked the study team to help take the emotion out of discussions about CHC manpower management. We have tried to do this by using data and objective analysis to assess problems and identify solutions.

The results of the process assessments support the perceived problems identified by the CHC and other SMEs. The CHC does lack the following:

- Institutionalized processes for supporting and providing CHC input to billet authorization decisions
- Consistent staffing standards
- Emphasis on manpower management in training and development

The results of the capability assessments indicated that cuts to total CHC BA do not represent a decrease in potential capability delivery but are consistent with decreases in the size of the served population. There is, however, evidence of decreased potential capability delivery by some measures in some geographic areas.

We cannot directly tie the measured decreases in potential capability to the community's manpower management deficiencies, but the analytical approach and its results do provide direction on how to overcome the deficiencies and improve CHC input to manpower management decisions. In particular, they demonstrate the need to consider the impact of manpower decisions below the all-Navy level, and they identify what to take into account: CMVs and the presence of families, chaplains' roles, and deployment patterns.

With these things in mind, improved community manpower and personnel management processes should be designed to help individual chaplains and the Chief of Chaplains office identify local risks associated with proposed BA cuts or realignments. We make several specific recommendations to for how to do this. The recommendations follow from the takeaways at the end of each assessment and are divided into manpower management and personnel management recommendations.

Manpower management recommendations

Our recommendations for addressing manpower management deficiencies follow:

- Use CHC-function-specific and CMV-specific CRs as the basis for inputs to manpower management decision-making, focusing especially on risk assessment. Specifically:
 - o Define chaplain jobs more precisely to distinguish between junior provider, senior manager, and other roles; this could entail revising the CHC NOBCs.
 - o Define CM more explicitly, especially as it does or does not relate to the duty chaplain role.
 - o Define CMVs to appropriately reflect local conditions (e.g., population density) and needs for chaplain support.
 - o Define CR levels that represent an acceptable range of potential capability provision, and know what conditions suggest deviating from general baselines.
- Revisit CHC staffing standards. Specifically, clarify what standard is supposed to be used, work to understand the East Coast-West Coast differences in staffing practices, and then resolve the differences or support them appropriately.
- To institutionalize manpower management processes, document them and disseminate as appropriate. This would include tracking input to manpower decisions at the BSO level, as well as tracking outcomes. A central repository for MOUs would also be helpful.

Personnel management recommendations

The recommendations for personnel management address changes to CHC development and training to better support effective engagement in manpower management processes. Note that the point here is not to create pseudo-human-resource officers within the CHC but to ensure that chaplains know how and when to engage with the NIs in the staffs to which they are assigned.

Our recommendations for personnel management follow:

- Emphasize manpower management and other program administration roles in CHC professional development and career management:
 - o Make program administration a fifth core competency for PNC.

- o Revise community materials (e.g., the PNC guide) to be clearer about how the role of the Navy chaplain changes over the course of the career.
 - o Include the documented manpower management processes recommended above.
- Revise ILC and ALC curricula to increase emphasis on manpower management and other program administration functions:
 - o Use course content of ILC and ALC to reinforce the career evolution of the chaplain role; for example, this could entail adding manpower management topics to ILC.
 - o Include content on how to use the new manpower management metrics that have been proposed.
- Track ILC and ALC attendance. If it does not improve as a result of the new funding arrangements, revisit the issue for a new solution.

Appendix A: CHC NOBCs

Table 10 shows CHC NOBCs with key parts highlighted in colored font. The color code is in the table notes.

Table 10. Chaplain Corps NOBCs

NOBC and NOBC title	Description
3701 Chaplain Selectee	Is under instruction and working toward qualification as a Professional Navy Chaplain, but not permitted to function as such.
3710 Chaplain	Advises commander on ethical and religious matters within the command. Develops the spiritually fit sea warrior through the administration of the CRP by: conducting divine services, administering sacraments/ordinances, performing rites and ceremonies in the manner and form of the Chaplain's own faith, conducting pastoral visitations, providing advisement and instruction pertaining to spiritual fitness for personnel and other faiths. Serves as staff chaplain at the unit level under the direct supervision of a supervisory chaplain.
3720 Tactical Chaplain	Serves as a staff, lead, Command Chaplain in a nonsupervisory position of administration and supervision of chaplains and/or civilians. Includes NOBC 3710 definition.
3730 Supervisory Chaplain	Serves as senior chaplain and department head/principal staff officer at a staff or unit level . Supervises assigned chaplains, enlisted and /or civilian personnel, and executes functions outlined in NOBC 3710. Advises respective force chaplain of manpower and religious facility requirements. Coordinates religious ministry activities: professional development, manpower, personnel, ecclesiastical relations and ministry. Includes NOBCs 3710 and 3720 definition.
3740 Group Chaplain	Serves as senior chaplain/principal staff officer responsible for facilitating religious ministries and chaplain activities at a force or equivalent level . Provides professional supervision of personnel assigned to subordinate activities. Advises respective claimant chaplain of manpower, personnel , professional development and religious facility requirements. Directs the force commander's CRP. Includes NOBCs 3710, 3720, and 3730 definition.
3745 Force Chaplain	Serves as senior chaplain/principal staff officer responsible for facilitating religious ministries and chaplain activities at a force or equivalent level . Provides professional supervision of personnel assigned to subordinate activities. Advises respective claimant chaplain of manpower, personnel , professional development and religious facility requirements. Directs the force commander's CRP.

NOBC and NOBC title	Description
3750 Claimant Chaplain	Serves as senior chaplain assigned to the staff of a major manpower claimant . Advises major manpower claimant and Chief of Chaplains on all matters relating to religion and religious ministries within the respective claimancy. Directs the claimant's CRP. Includes NOBCs 3710, 3720, 3730, and 3740 definition.
3760 Strategic/Joint Chaplain	Serves as senior chaplain/principal staff officer responsible for facilitating religious ministries and chaplain activities at a joint or combatant commander equivalent level . Provides professional supervision of personnel assigned to subordinate activities. Advises respective services Chief of Chaplains of manpower, personnel, professional development and religious facility requirements. Directs the combatant commander's CRP. Includes NOBCs 3710, 3720, 3730, and 3740 definition.

Source: Reference [18].

Notes: **Blue** = Lower level NOBCs included

Green = RMP/naval staff officer role

Purple = Level of assigned command

Gold = Advisee

Red = Manpower role

Appendix B: USN Capitation Ratios by FCA CMVs

This appendix includes more information about the FCA CMVs and how the CMV-specific capitation ratios changed over the study period. Each figure shows year-by-year changes in the capitation ratios, and the relevant summary statistics are shown in each figure's footnote.

Cities in each FCA CMV

The cities in each CMV are listed below. The numbers in parentheses indicate miles from the title city's city center.

Norfolk

The Norfolk CMV includes 17 cities. The average distance away is 17 miles, the longest distance is 42.2 miles (Elizabeth City, North Carolina), and 6 cities in the vicinity are fewer than 10 miles away. The other cities in the Norfolk CMV are Fort Story, VA (1.7); Little Creek Amphibious Base, VA (1.7); Little Creek, VA: (1.7); Virginia Beach, VA (6); Oceana, VA (7.4); Fort Monroe, VA (10); Chesapeake, VA (10.1); Portsmouth, VA (10.6); Langley Air Force Base, VA (15.4); Hampton, VA (15.8); Newport News, VA (18); Suffolk, VA (19.1); Fort Eustis, VA (27.5); Yorktown, VA (28.9); Williamsburg, VA (38.9); Gloucester, VA (40.2); and Elizabeth City, NC (42.2).

San Diego

The San Diego CMV includes 13 cities. The average distance away is 22 miles, the longest distance is 49 miles (Warner Springs, CA), and 5 cities in the vicinity are fewer than 10 miles away. The other cities in the San Diego CMV are North Island Naval Station, CA (2.4); Point Loma, CA (4.4); Coronado, CA (4.6); Chula Vista, CA (7.7); Imperial Beach, CA (10.1); Miramar Naval Air Station, CA (12); El Cajon, CA (12.6); San Marcos, CA (29.2); Vista, CA (33.3); Oceanside, CA (34.9); Camp Pendleton, CA (37.1); Fallbrook, CA (45.5); and Warner Springs, CA (49).

Everett

The Everett CMV includes 14 cities. The average distance away is 30 miles, the longest distance is 43 miles (Seattle, WA), there are no cities in the vicinity that are closer than 10 miles away. The other cities in the Everett CMV are Lynnwood, WA (13.3); Oso, WA

(23.1); Poulsbo, WA (25.2); Bellevue, WA (25.8); Hadlock, WA (26.8); Keyport, WA (28.1); Oak Harbor, WA (30.2); Mount Vernon, WA (30.8); Bangor, WA (31.3); Silverdale, WA (31.5); Whidbey Island Naval Station, WA (32.8); Bremerton, WA (33.2); Kent, WA (42.1); and Seattle, WA (42.6).

Honolulu

The Honolulu CMV includes 15 cities. The average distance away is 13 miles, the longest distance is 25 miles (Kaneohe, HI), and 7 cities in the vicinity are fewer than 10 miles away. The other cities in the Honolulu CMV are Tripler Army Hospital, HI (3.7); Camp H. M. Smith Marine Corps Base, HI (5.8); Hickam Air Force Base, HI (6); Aiea, HI (6.9); Ford Island, HI (7.4); Pearl Harbor, HI (7.4); Ewa Beach, HI (10.2); Oahu Island, HI (12.5); Barbers Point, HI (13.7); Pearl City, HI (16.2); Wheeler Air Force Base, HI (16.5); Kunia, HI (16.7); Wahiawa, HI (19.3); Lualualei, HI (22.7); and Kaneohe, HI (24.9).

Jacksonville

The Jacksonville CMV includes 4 cities. The average distance away is 25 miles, the longest distance is 34 miles (St. Augustine, FL), and only 1 city in the vicinity is fewer than 10 miles away. The cities in the Jacksonville CMV are Cecil Field, FL (10.4); Mayport, FL (20.9); Kings Bay, GA (33.3); and St. Augustine, FL (33.7).

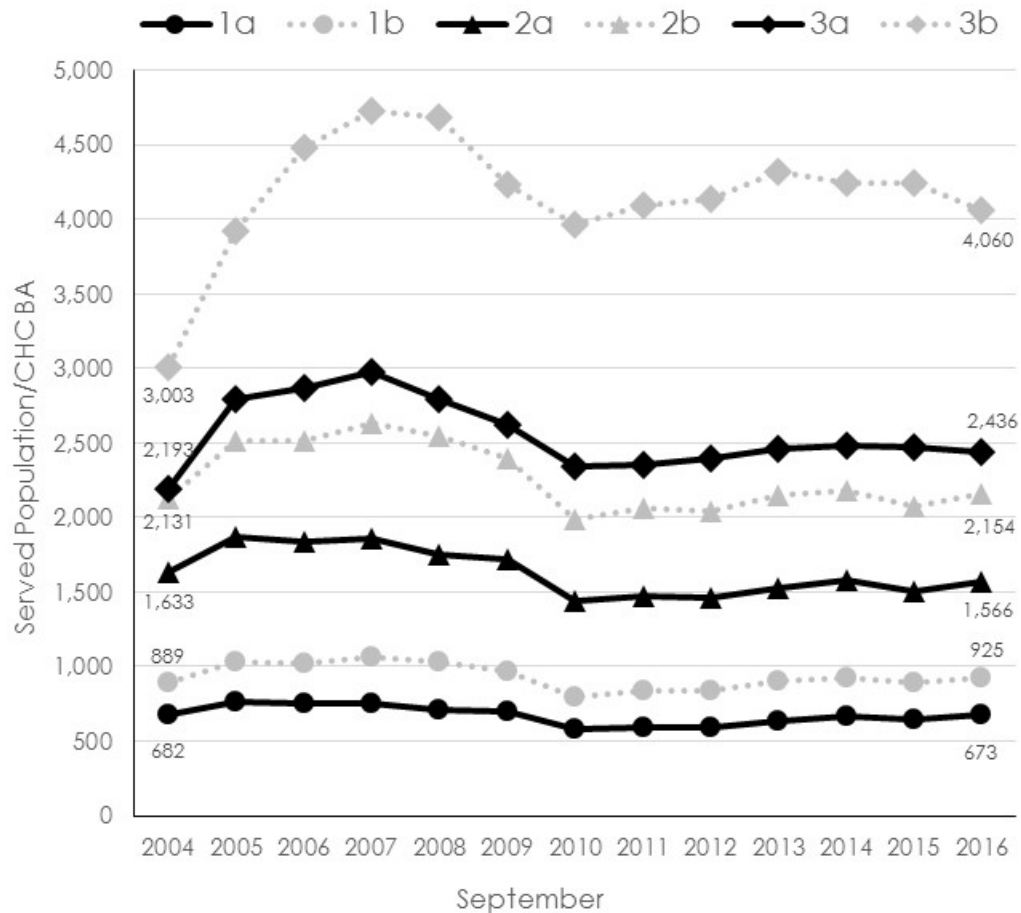
Yokosuka

The Yokosuka CMV includes 8 cities. The average distance away is 26 miles, the longest distance is 46 miles (Camp Fuji, Japan), and only 1 city in the vicinity is fewer than 10 miles away. The cities in the Yokosuka CMV are Yokohama, Japan (5.6); Totsuka, Japan (11.3); Atsugi, Japan (20.7); Zama, Japan (21); Tokyo, Japan (28.2); Yokota Air Force Base (36.3); Drake, Japan (40.1); and Camp Fuji (45.5).

Capitation ratios by CMV

Norfolk CMV

Figure 17. Capitation ratios over time—the Norfolk CMV



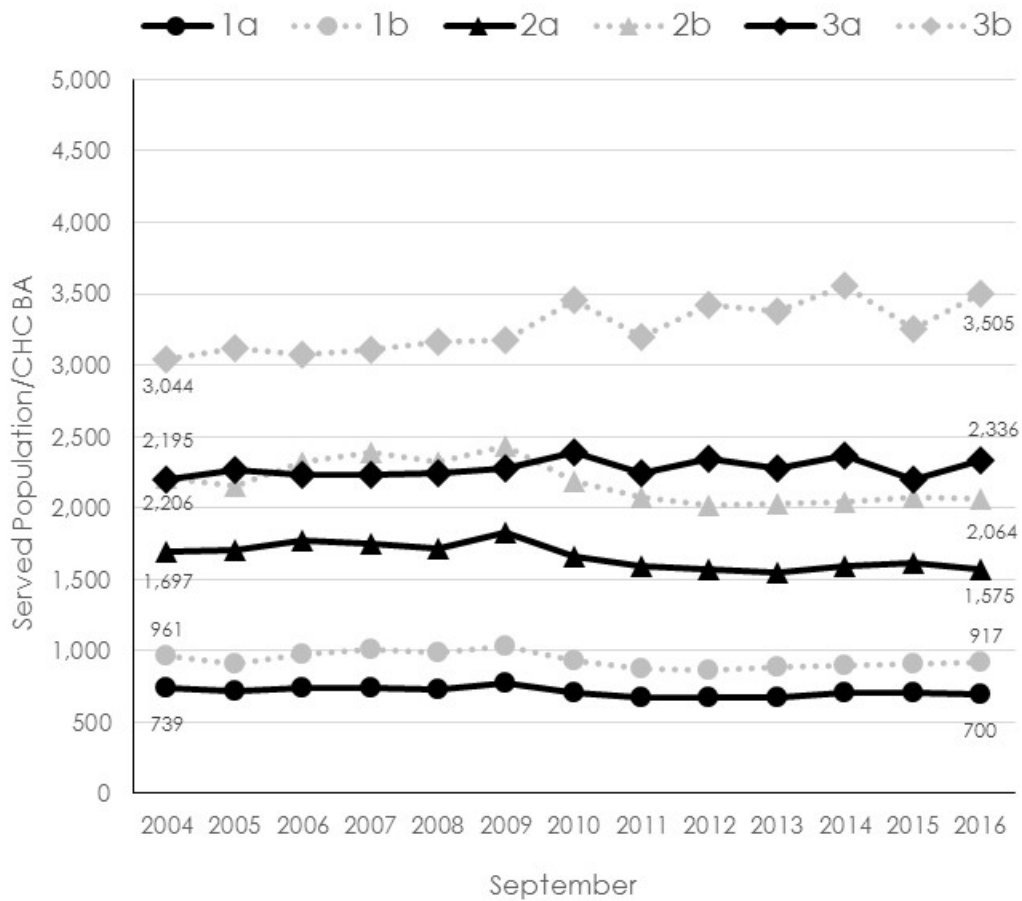
Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow.

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	673	0.98	-9	-1.3
1b. AD only/Provider	932	0.99	36	4.0
2a. AD + Families/Total	1,632	1.02	-67	-4.1
2b. AD + Families/Provider	2,259	1.03	23	1.1
3a. Non-Depl: AD + Families/Total	2,552	--	243	11.1
3b. Non-Depl: AD + Families/Provider	4,162	--	1,057	35.2

San Diego CMV

Figure 18. Capitation ratios over time—the San Diego CMV



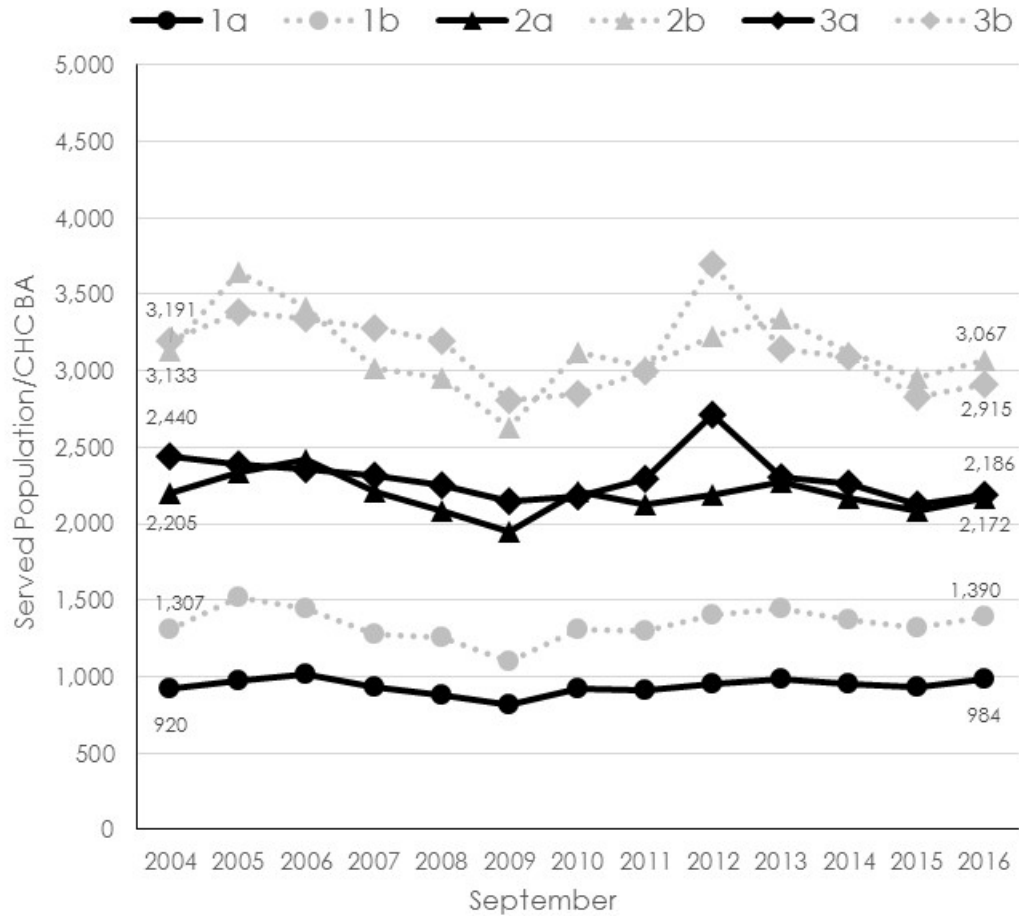
Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow:

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	714	1.04	-39	-5.3
1b. AD only/Provider	934	0.99	-43	-4.5
2a. AD + Families/Total	1,664	1.04	-122	-7.2
2b. AD + Families/Provider	2,179	0.99	-142	-6.4
3a. Non-Depl: AD + Families/Total	2,278	--	142	6.4
3b. Non-Depl: AD + Families/Provider	3,266	--	460	15.1

Everett CMV

Figure 19. Capitation ratios over time—the Everett CMV



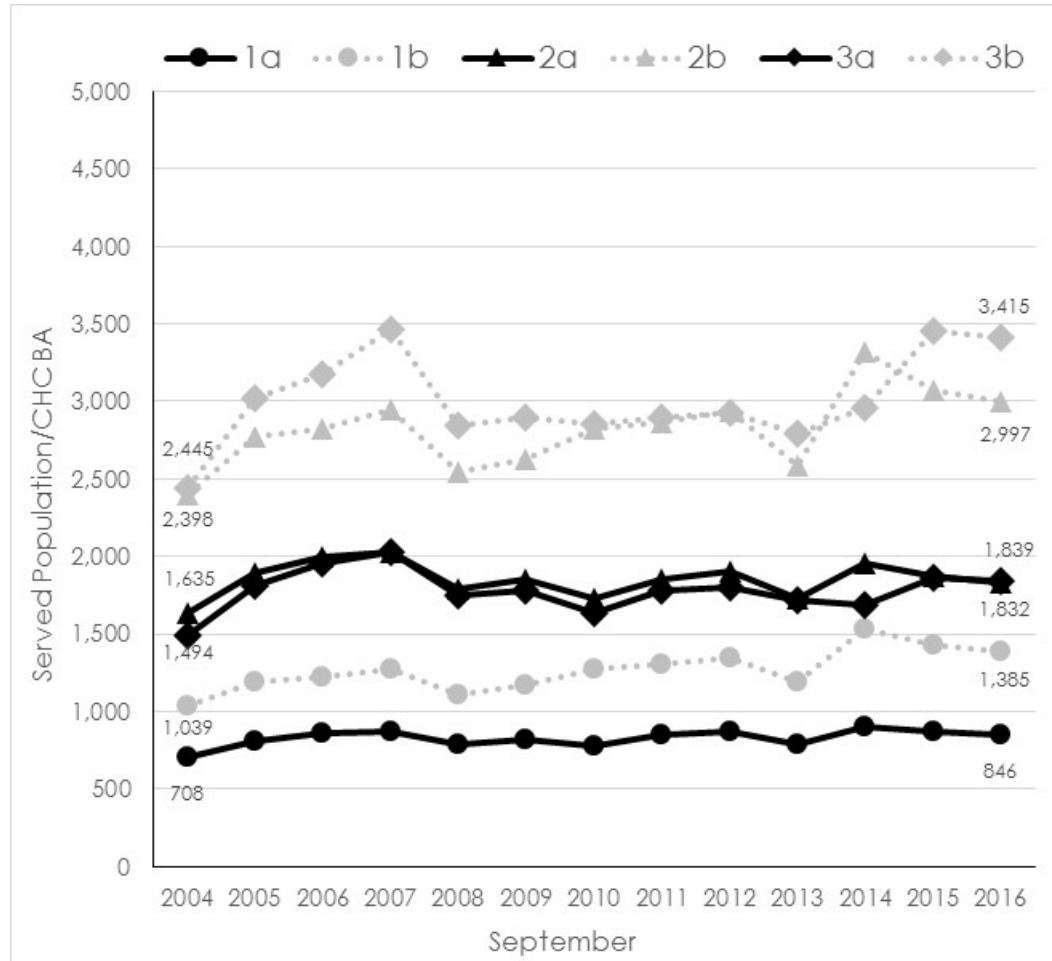
Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow:

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	937	1.37	65	7.1
1b. AD only/Provider	1,340	1.42	83	6.4
2a. AD + Families/Total	2,187	1.37	-32	-1.5
2b. AD + Families/Provider	3,127	1.43	-66	-2.1
3a. Non-Depl: AD + Families/Total	2,305	--	-254	-10.4
3b. Non-Depl: AD + Families/Provider	3,133	--	-276	-8.7

Honolulu CMV

Figure 20. Capitation ratios over time—the Honolulu CMV



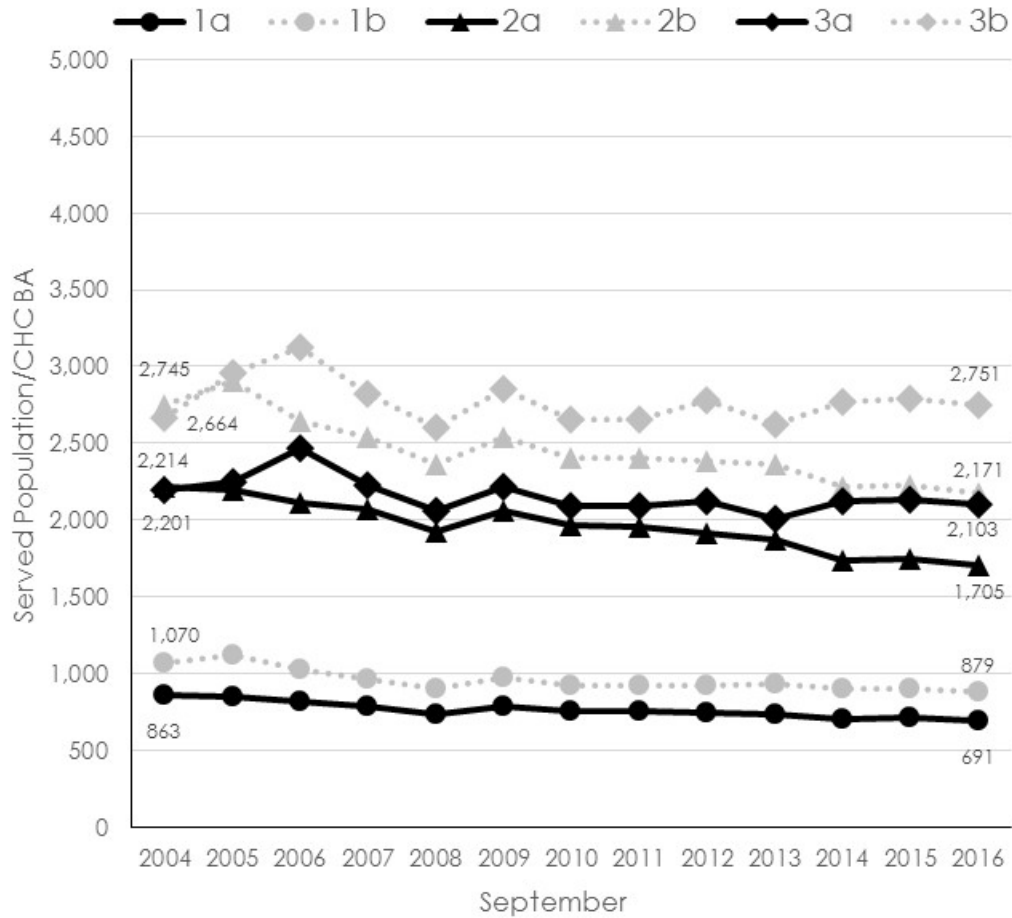
Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow:

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	828	1.21	138	19.5
1b. AD only/Provider	1,265	1.34	346	33.3
2a. AD + Families/Total	1,851	1.16	197	12.0
2b. AD + Families/Provider	2,823	1.29	599	25.0
3a. Non-Depl: AD + Families/Total	1,780	--	344	23.1
3b. Non-Depl: AD + Families/Provider	3,011	--	970	39.7

Jacksonville CMV

Figure 21. Capitation ratios over time—the Jacksonville CMV



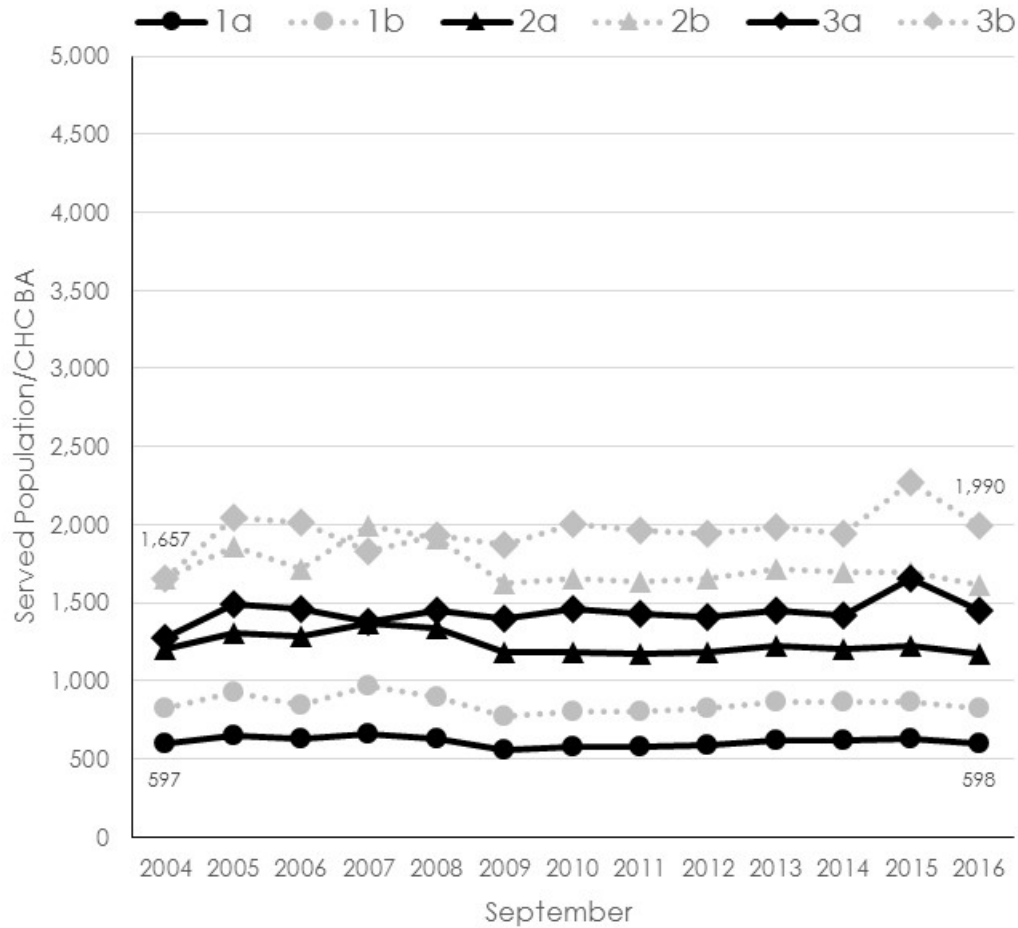
Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow:

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	764	1.11	-172	-20.0
1b. AD only/Provider	957	1.02	-191	-17.8
2a. AD + Families/Total	1,960	1.23	-508	-23.0
2b. AD + Families/Provider	2,455	1.12	-574	-20.9
3a. Non-Depl: AD + Families/Total	2,161	--	-97	-4.4
3b. Non-Depl: AD + Families/Provider	2,772	--	87	3.3

Yokosuka CMV

Figure 22. Capitation ratios over time—the Yokosuka CMV



Source: Authors' calculations using TFMMS, OMF, and EMR.

Note: Summary statistics follow:

Capitation ratio	Averages		Change	
	CMV	CMV/ ALNAV	Absolute	Percentage
1a. AD only/Total	610	0.89	1	0.1
1b. AD only/Provider	852	0.90	1	0.1
2a. AD + Families/Total	1,234	0.77	-27	-2.2
2b. AD + Families/Provider	1,726	0.79	-36	-2.2
3a. Non-Depl: AD + Families/Total	1,439	--	173	13.6
3b. Non-Depl: AD + Families/Provider	1,958	--	334	20.1

Appendix C: Ship-to-ship proximity data

The figures in this appendix provide additional information on the sample used and on the distributions of days DDGs spent within flying distance of other ships. The data are all from the same source: Authors' calculations from unclassified/FOUO extracts of ONI SeaLink data from January 2010 through May 2016.

Figure 23. U.S. Navy CVNs, CGs, DDGs at least 245 n.mi. from shore

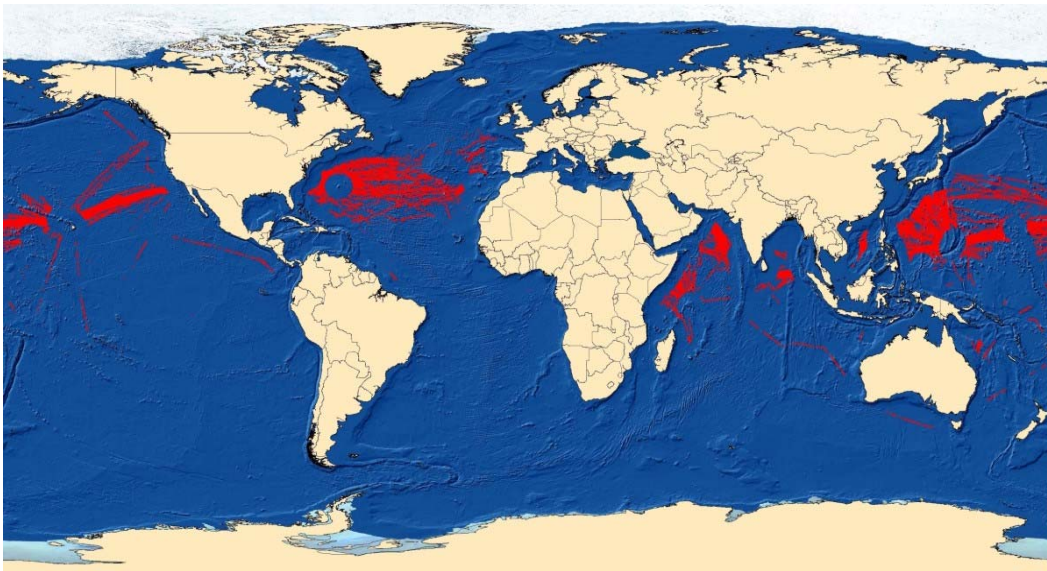


Figure 24. Percentage of days with a DDG within flying distance

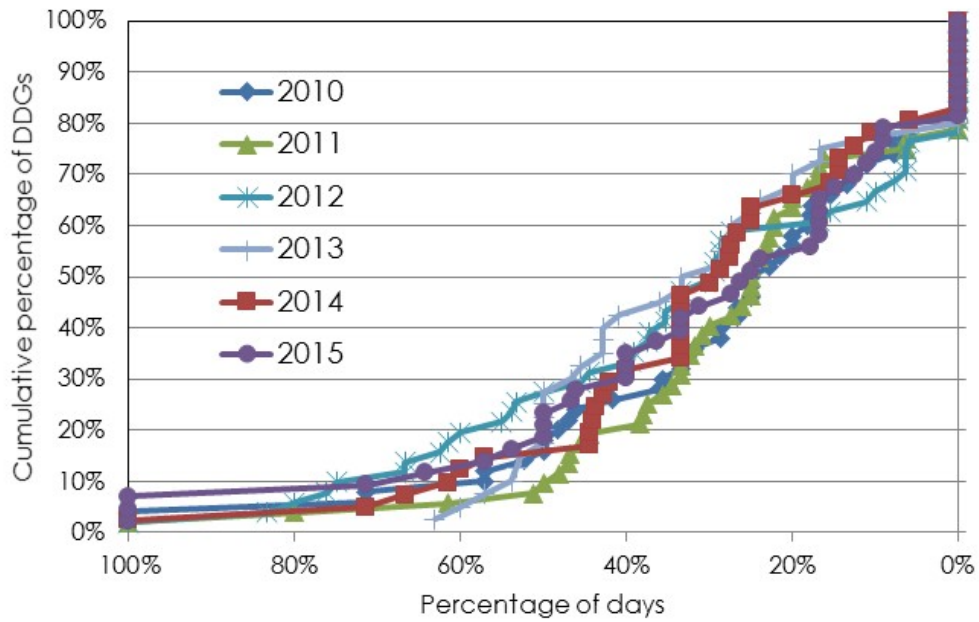
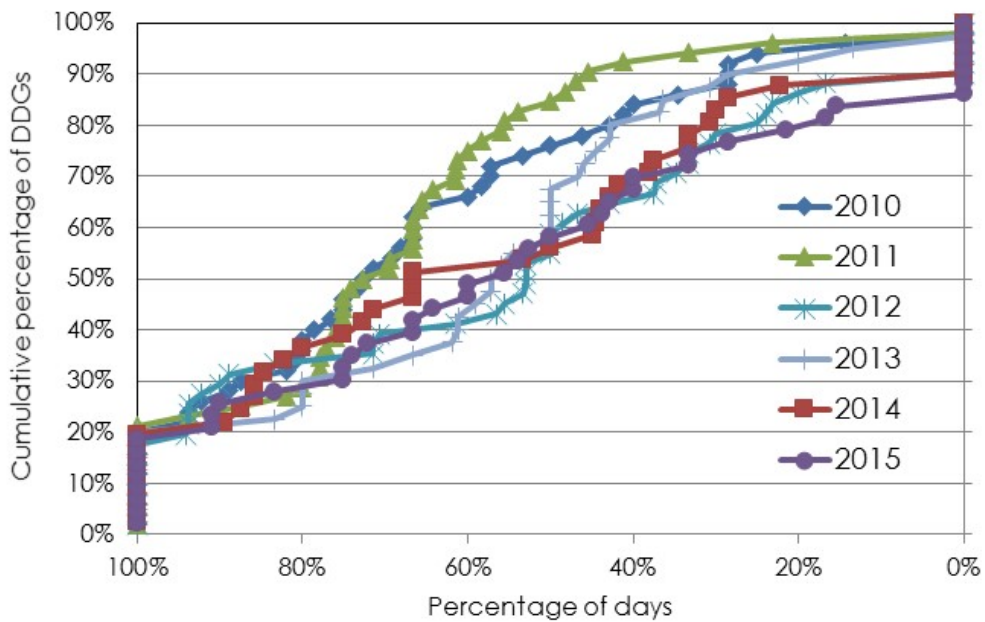


Figure 25. Percentage of days with a CVN or CG within flying distance



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