

Fleet and Marine Corps Health Risk Assessment Annual Report, 2012

The enclosed report discusses and analyzes the data from almost 200,000 health risk assessments for active and reserve components of the Navy, Marine Corps and Coast Guard during calendar year 2012.

Questions or comments about this report can be sent to the HRA Program Manager at (757) 953-0962 or to NMCPHCPTS-HRA@med.navy.mil

Commands needing additional information about implementing the HRA in 2013 can also contact the program manager.

Fleet and Marine Corps Health Risk Assessment, January 1, 2012 – January 1, 2013

Executive Summary

The Fleet and Marine Corps Health Risk Appraisal is a 22-question self-assessment of many of the most common health risks. It supports preventive health screening and counseling by healthcare providers during the annual Periodic Health Assessment (PHA), provides individual members with credible sources of health information on the Web, provides data to health educators to plan and implement community interventions, and provides commanding officers at all levels with snapshots of their unit profiles.

The tool is web-based, but there is also a stand-alone Excel version that can be used on ships that have poor Internet connectivity. Completion of the assessment takes about three minutes and provides personalized reports to each individual. A total of 198,529 completed assessments were analyzed during this 12-month period and included both active and reserve (R) members from the Navy (USN), Marine Corps (USMC), and Coast Guard (USCG).

This report utilizes both descriptive and analytic methods to report the results on the total responses as well as by service component and specific demographic characteristics. Demographic variables that were examined included age, gender, race, rank, and service component. Analyses utilized one of two measures: 1) 'healthy' or 'unhealthy' risk ratings or 2) a risk score based on the total number of risks reported by an individual.

The prevalence of specific risk factors has remained fairly constant from the previous year, with the leading health risks being low fruit and vegetable consumption, high fat foods consumption, not flossing, and not getting enough restful sleep. Calculating mean number of risk factors showed that more USMC members qualified as "high risk" (32.2%), followed by the USMCR (29.2%), USN (24.9%), USCG (14.5%), USNR (14.4%) and USCGR (10.6%). The data also indicate that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as overweight.

Table of Contents

Background

Health Risk Assessments (HRAs) became widely used both in military and civilian settings beginning in the mid-1980s. HRAs are tools that can be used to educate patients, to assist healthcare professionals in counseling patients, and to inform decision makers of the overall health status of their populations. Different versions of HRAs are available to assess a range of conditions and risk behaviors. They are also often used to assess health concerns of specific age groups. The 2012 Fleet and Marine Corps HRA is a 22-question, self-reported, web-based assessment tool specifically designed to assess risk behaviors common to military members. However, the topics and scoring criteria are also valid for the general adult population.

The questions were based on other validated tools, such as the Alcohol Use Disorders Identification Test (AUDIT), the DoD Survey of Health Related Behaviors Among Military Personnel, and the National Health and Nutrition Examination Survey (NHANES), or were based on input from subject matter experts. The questions address 10 risk categories that provide a snapshot of leading health indicators. The categories include:

1. tobacco use
2. alcohol use
3. safety
4. stress management
5. sexual health
6. physical activity
7. nutrition
8. supplement use
9. dental health
10. sleep problems

Methods

Data Collection and Analyses

Data from 204,755 surveys were collected from the most recent 12-month period, 01 January 2012 through 01 January 2013. The data were analyzed by the EpiData Center at the Navy and Marine Corps Public Health Center (NMCPHC). Surveys were excluded from the analysis for the following reasons:

a. Records with blank fields were considered incomplete. There were a total of 2,131 incomplete records across all services.
b. Surveys completed by service members other than the Navy, Marine Corps, and Coast Guard active duty and reserves were also excluded from the analyses. These included assessments completed by Army Active Duty (530), Army Reserves (75), Air Force Active Duty (364), Air Force Reserves (53), and Civilians (3). In addition, members who identified themselves as Navy, Marine Corps, or Coast Guard members and had a rank of civilian were excluded (3,070).

The total number of surveys included in the analysis was 198,529.

All analyses utilized one of two measures: 1) 'healthy' or 'unhealthy' risk ratings or 2) a risk score. The 22 risk assessment questions were categorized healthy or unhealthy according to the standards listed in Appendix B.

A risk score was tabulated based on the total number of risk categories in which one or more of the questions were reported as unhealthy. Risk scores ranged from 0-10 and were categorized into risk levels low, medium, and high.

0-2 risk categories = low risk
3-4 risk categories = medium risk
5 or more risk categories = high risk

Risk scores do not predict early morbidity or mortality; rather, higher risk scores indicate a greater likelihood that members will utilize more healthcare services in the future than lower risk members.

Descriptive analyses, frequencies, and percentages were used to describe survey respondents. Logistic regression examining the relationship between days away from home station and risk

number was conducted using SAS® software (Version 9.2 SAS Institute, Inc., Cary, North Carolina).

The following demographic variables were collected: Age, gender, race, rank and service. Member age was categorized using ranges of 17-19, 20-29, 30-39, 40-49, and 50 years and over. Race was categorized as Caucasian, African Americans, Asian and Pacific Islanders, Hispanics or Other. Rank was categorized as enlisted service members (E1-E5 or E6-E9), officers, (O1-O3 or O4-O9), and warrant officers (W1-W5).

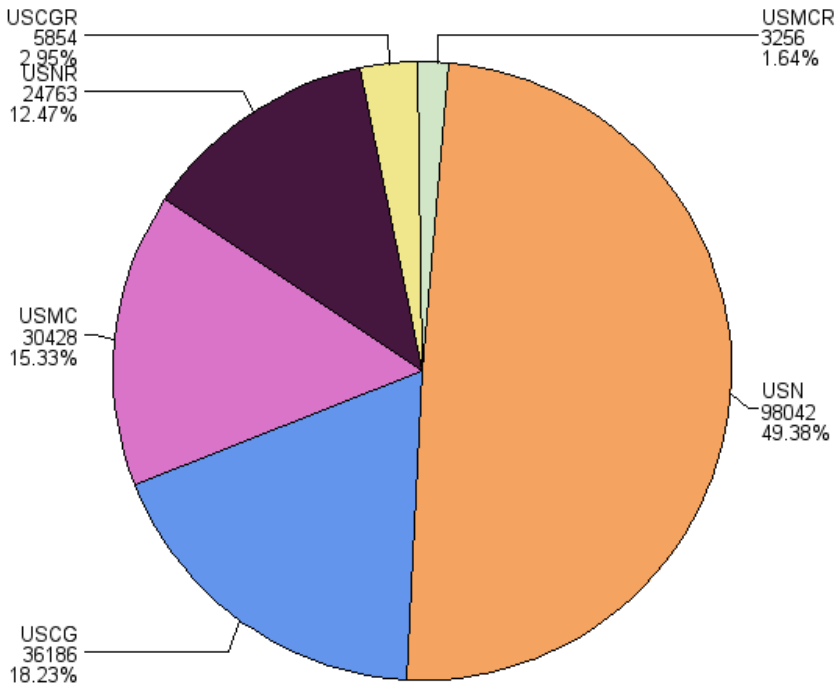
Body mass index (BMI) was calculated from self-reported height and weight data, according to current Centers for Disease Control and Prevention (CDC) guidelines ([weight ÷ (height in inches)^2] x 703)[1]. According to the CDC, BMI values that exceed healthy levels have been shown in published studies to be an independent risk factor for certain diseases and all-cause mortality.

Results

Demographic Analysis

There were 204,755 surveys completed for the 2012 HRA, of which 198,529 surveys completed by the study cohort were included in the analysis. Descriptive analyses of service demographics showed that the majority (49%) of survey respondents were active duty Navy service members, while 12% were Navy Reserves, 17% were active duty and reserve Marines, and 21% were active duty and reserve Coast Guard members (Figure 1).

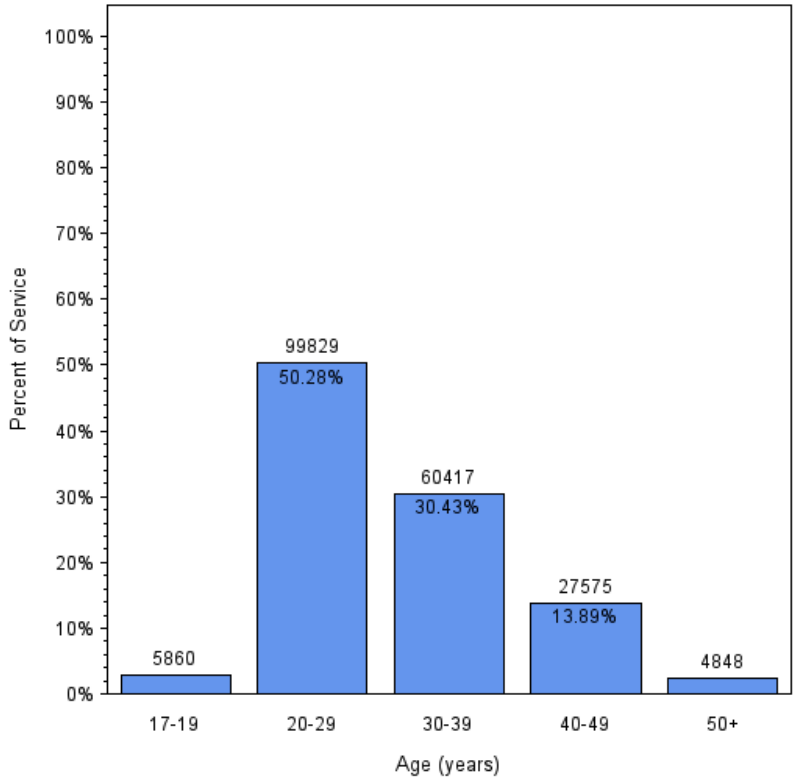
Figure 1:
Distribution of Completed HRAs by Service Component
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Age distribution of survey respondents indicated 50% of the respondents were in the 20-29 year old age group (Figure 2).

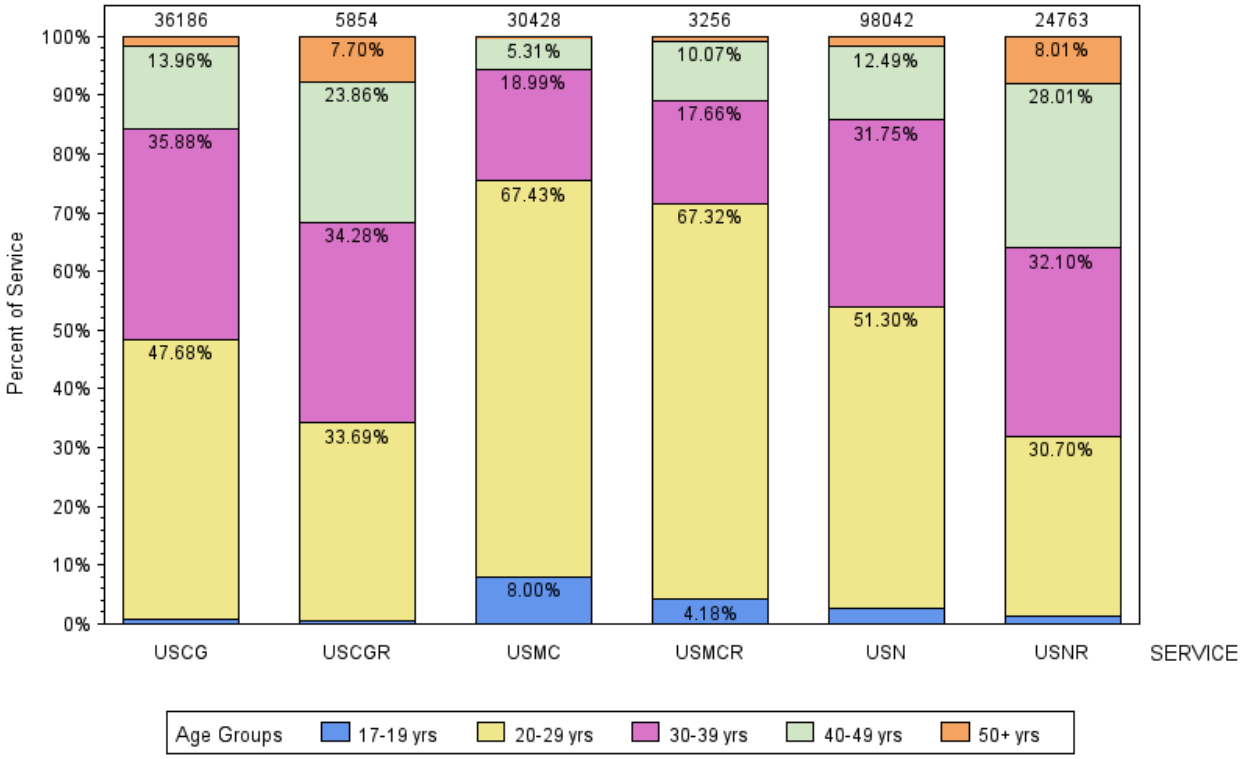
Figure 2:
Age Distribution of Completed HRA Survey
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 05 April 2013

Overall, Navy and Coast Guard service member respondents were older than the Marines survey respondents (Figure 3). The mean age of service member respondents was USN=30.2 years of age, USNR=35.5 years of age, USMC=26.2 years of age, USMCR=27.7 years of age, USCG=31.1 years of age, and USCGR=34.9 years of age.

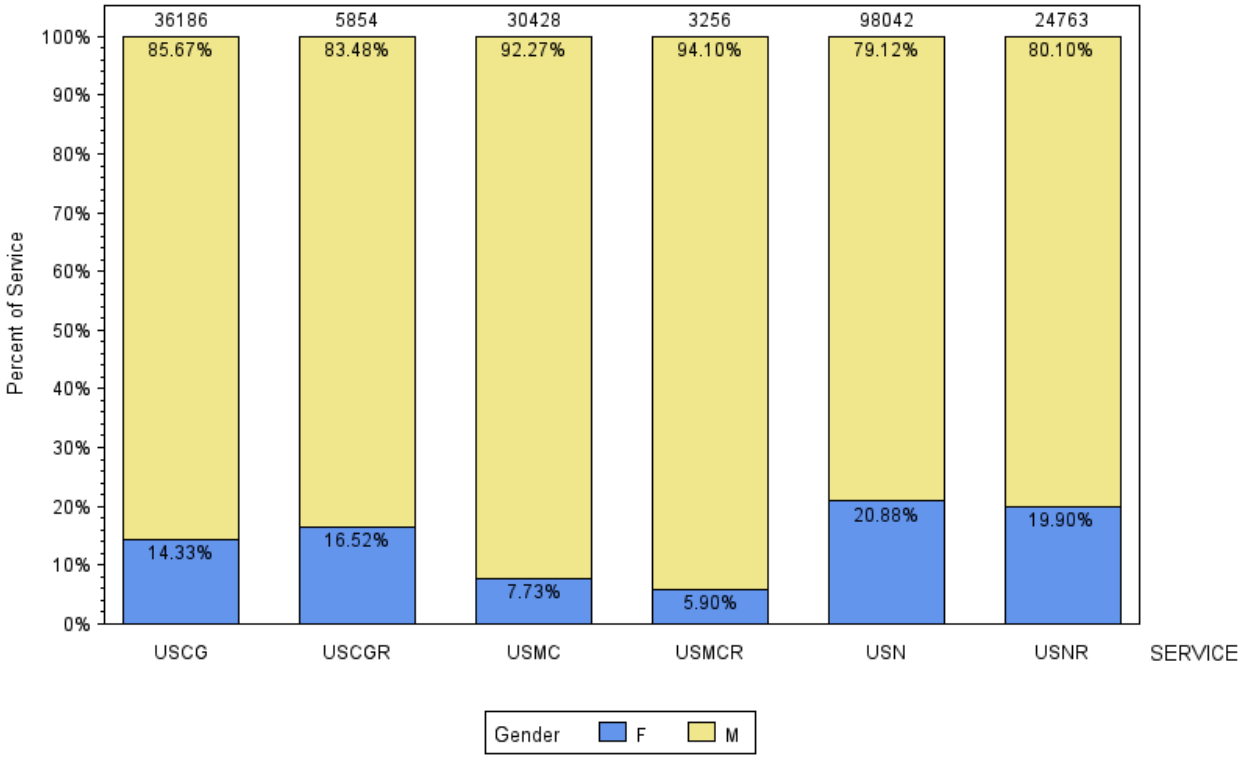
Figure 3:
Age Distribution of Completed HRAs by Service Component
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

With respect to gender, more males completed the HRA (83%), which reflects the general male/female ratio of military service members. The gender difference was especially evident in the Marine Corps, with fewer than 8% of the HRAs completed by females compared to 20% in the Navy.

Figure 4:
Gender Distribution of Completed HRAs by Service Component
198,529 records

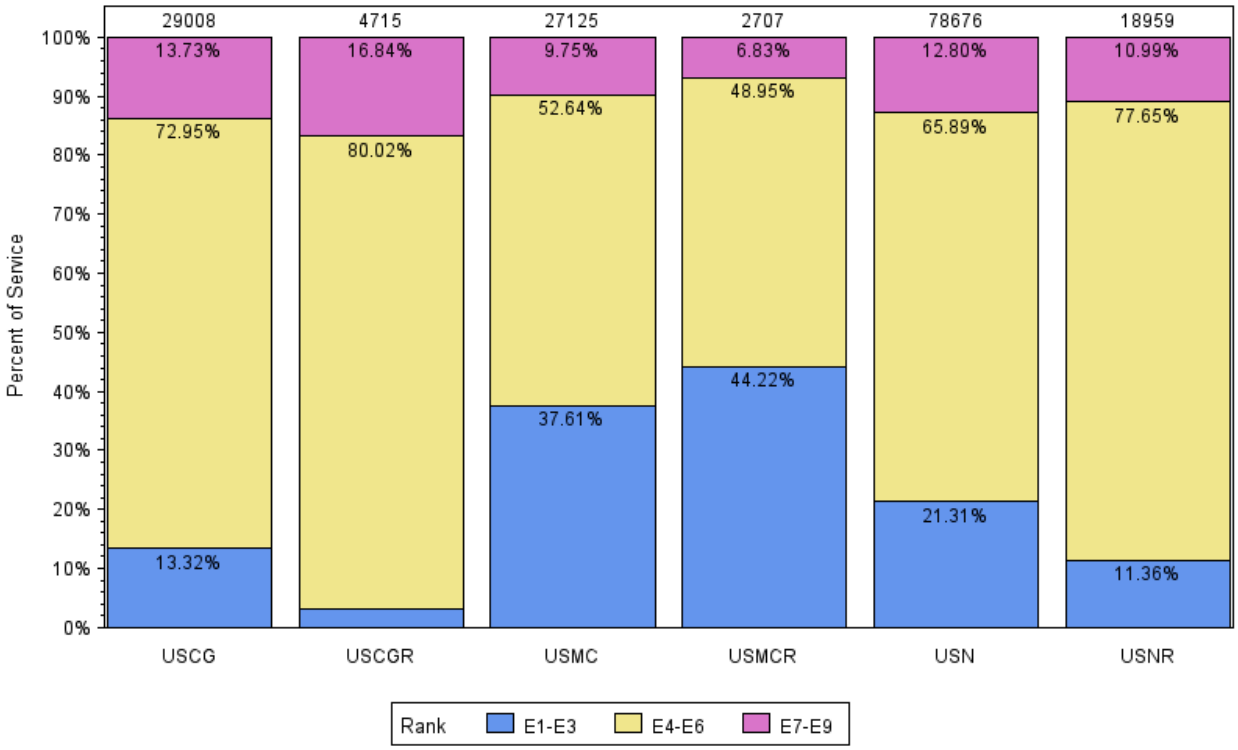


Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Distribution by rank of survey respondents indicated that 81% were completed by enlisted members, 18% by officers, and 1% by warrant officers. Figures 5-7 display the distribution of respondents' rank by service.

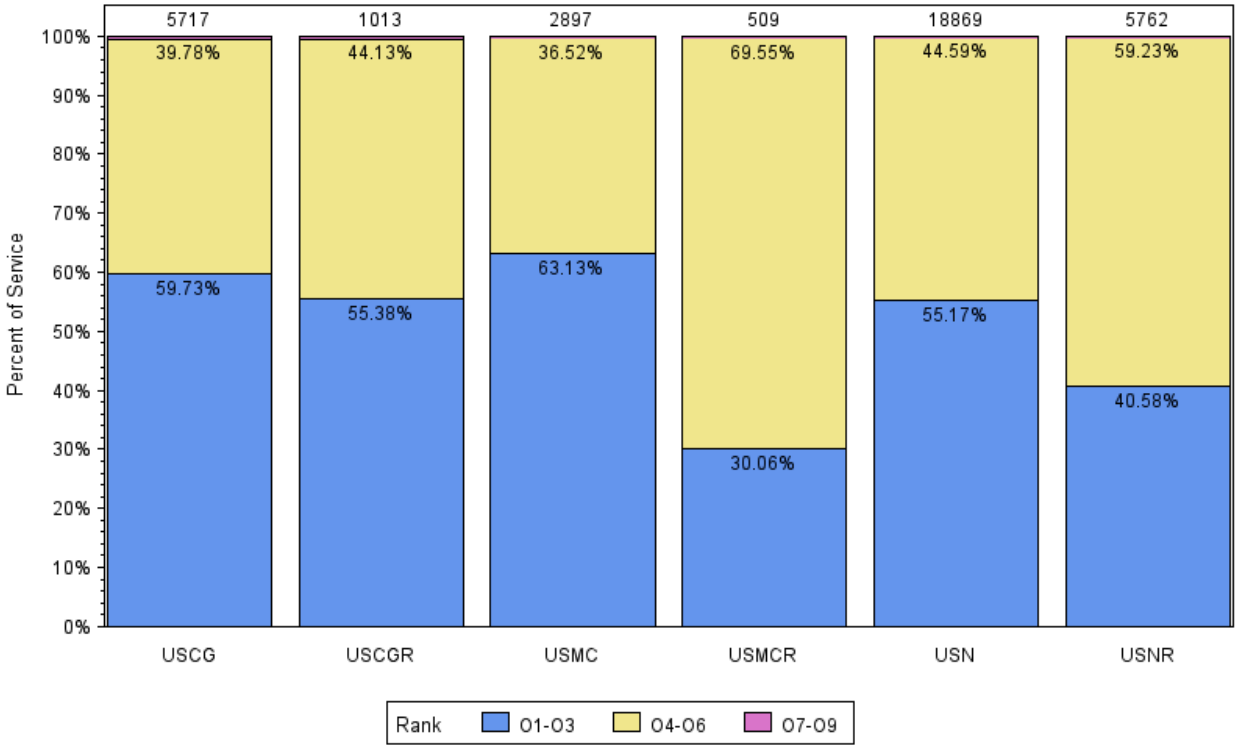
The USMC and USMCR had the largest percentage of lower-ranking enlisted members (37.6% and 44.2%, respectively). The USCG (73.0% E4-E6 and 13.7% E7-E9) and USCGR (80.0% E4-E6 and 16.8% E7-E9) had the largest percentage of senior-ranking enlisted members.

Figure 5:
Rank (Enlisted Personnel) Distribution of Completed HRAs by Service Component*
161,190 records



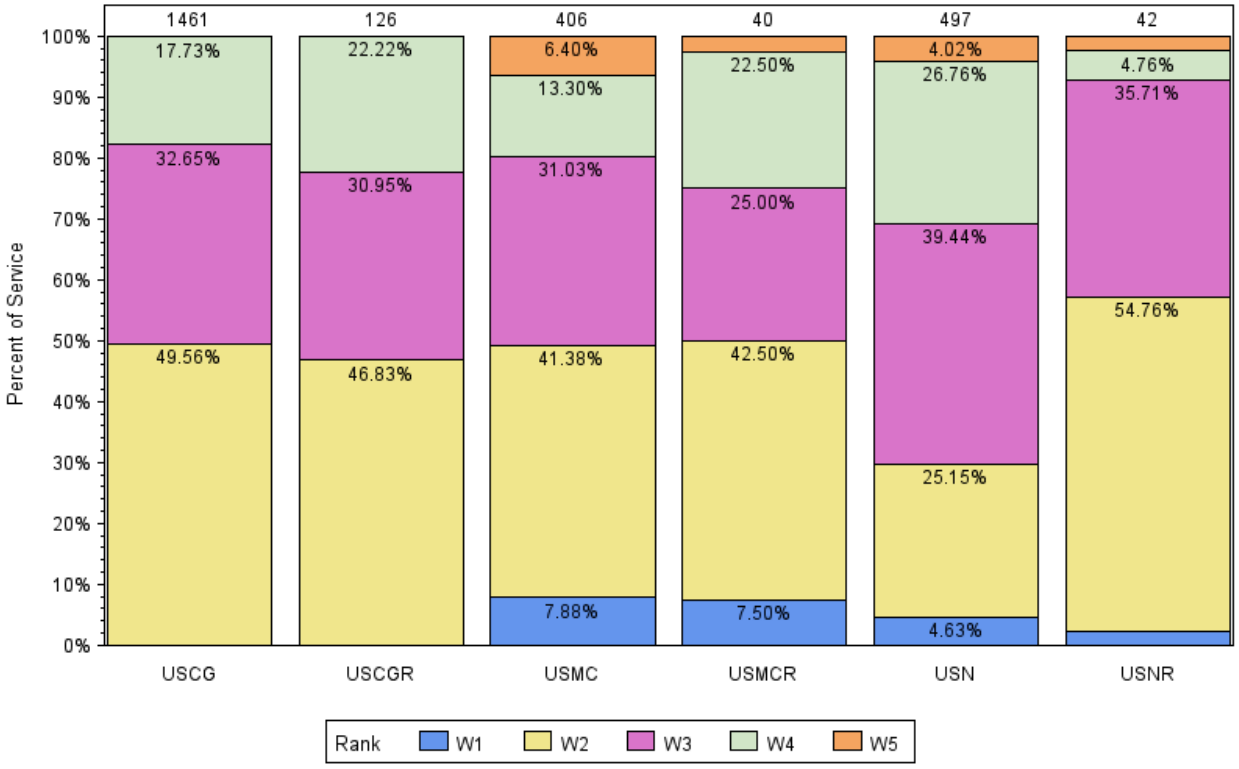
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013
*Does not include people who indicated a rank of E10

Figure 6:
Rank (Officer Personnel) Distribution of Completed HRAs by Service Component
34,767 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013
*Does not include people who indicated a rank of O10

Figure 7:
Rank (Warrant Officer) Distribution of Completed HRAs by Service Component
2,572 records



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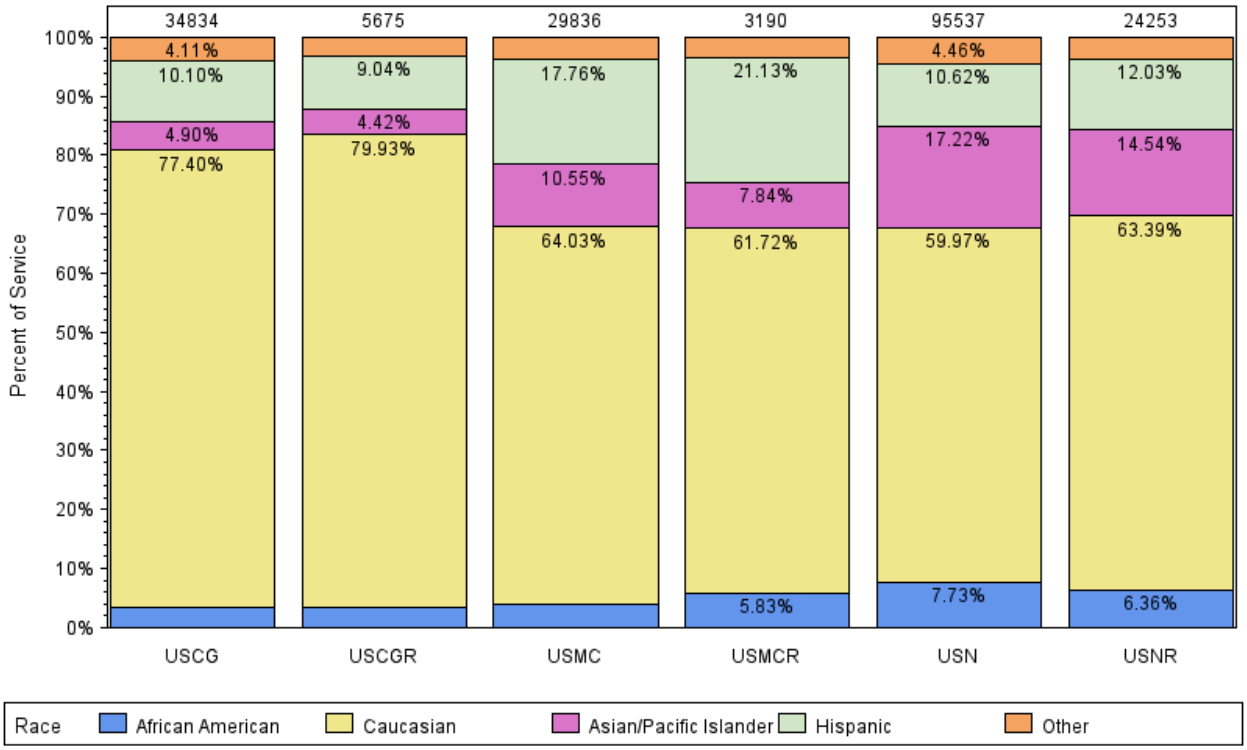
Race varied somewhat between service components, but across services, survey respondents were predominantly Caucasian (65%), followed by Asian/Pacific Islander (13%), Hispanic (12%), African American (6%), and Other (4%) (Figure 8).

Figure 8:
Race Distribution of Completed HRAs by Service Component*
193,325 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013
*5,204 did not answer race question

HRA Risk Factor Analysis

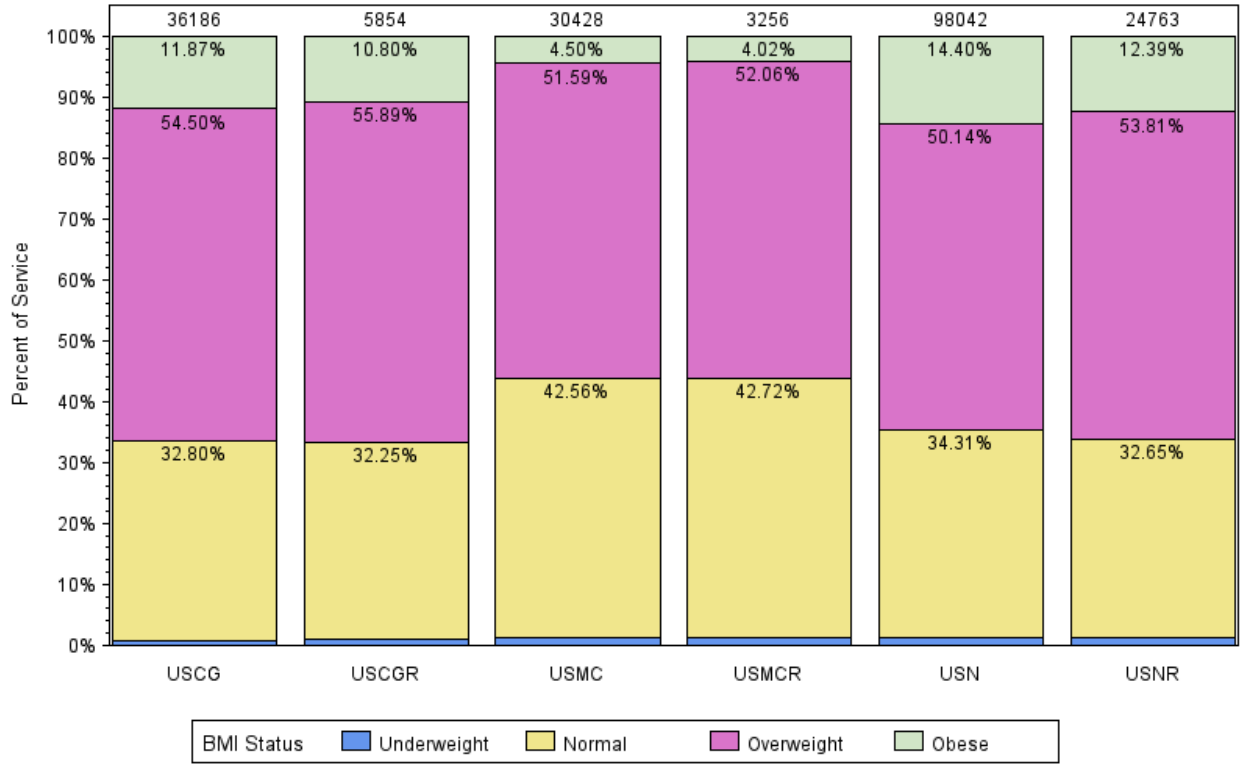
BMI Status

As a screening test, BMI usually correlates well in the U.S. population with the amount of body fat, although some individuals, such as muscular athletes, may have BMIs that identify them as overweight even though they do not have excess body fat. Therefore, this analysis should not necessarily lead to the conclusion that all individuals exceeding these levels are overweight or obese. Rather, the analysis may support some general observations about weight across the services. Overall, 64% of service members were classified as overweight according to the Centers for Disease Control BMI standards for healthy adults. The analysis indicated that, in general, Navy and Coast Guard personnel were more likely to be classified as overweight than Marines, and active duty Navy and Coast Guard are nearly equally as likely to be of normal BMI as reservists (Figure 9).

Figure 9:

Distribution of BMI Category for Completed HRAs by Service Component

198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

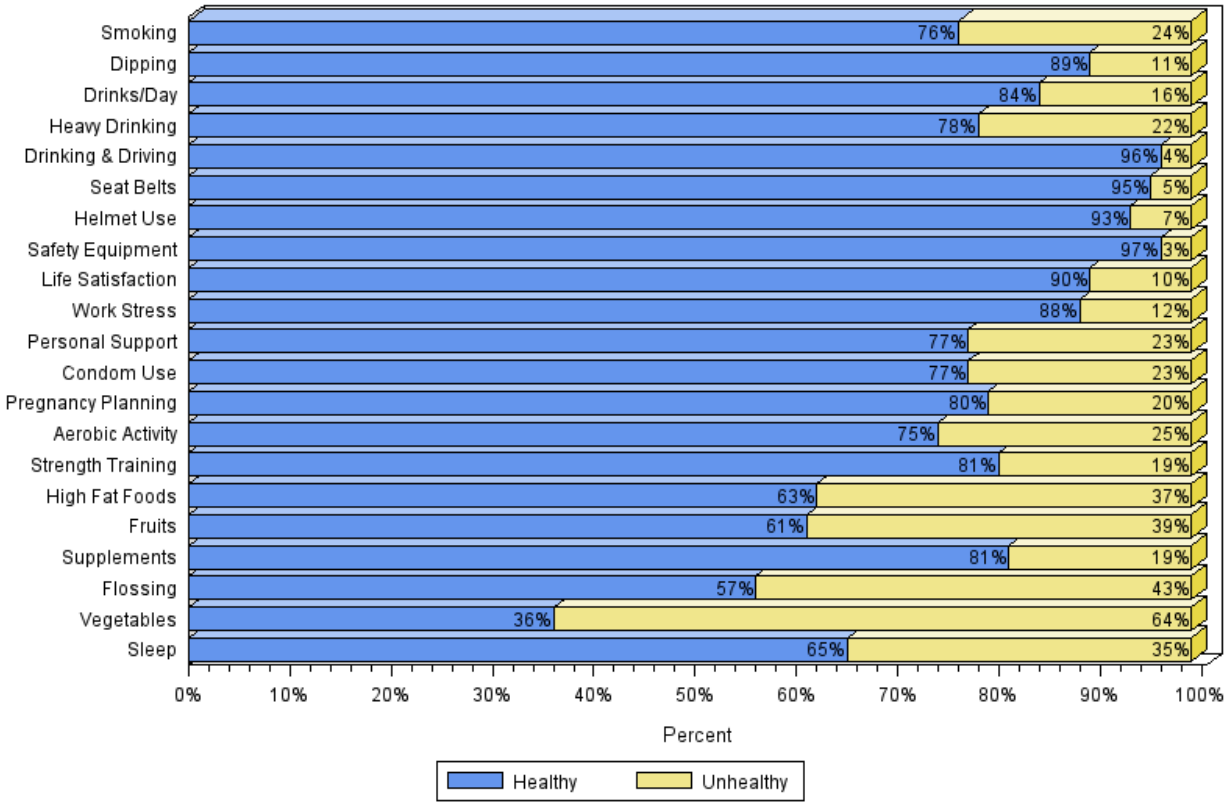
Distribution of "Health" versus "Unhealthy" Responses

As shown in Appendix B, each HRA question was classified as 'healthy' or 'unhealthy' based on responses to the question.

The next seven graphs (Figures 10-16) display the results of these questions by service component. Healthy (light blue) and unhealthy (yellow) response frequencies are displayed along the horizontal axis which depicts total response percentage. A longer light blue bar indicates more people were classified as healthy.

Overall, for all components the leading health risks (unhealthy ratings) were low daily intake of vegetables (64%), lack of flossing (43%), low daily intake of fruits (39%), and high daily intake of high fat foods (37%). Among all respondents, other significant areas of concern included lack of lack of sleep (35%), lack of aerobic activity (25%), smoking (24%), lack of personal support (23%), lack of regular condom use (23%), and heavy drinking (22%). Overall, the most common healthy behaviors reported by members included use of safety equipment (97%), use of seat belts (95%), and use of helmets (93%). However, 4% of all members reported driving after drinking too much alcohol (Figure 10).

Figure 10:
Distribution of Healthy vs. Unhealthy Responses on HRA Questions for All Service Components



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USN and USNR response distributions closely resembled one another (Figures 11 & 12). Both groups shared their top two risk factors of low intake of vegetables (67% and 57%, respectively) and lack of flossing (44% and 36% respectively). In addition, 41% of USN and 31% of USNR members reported frequent consumption of high fat foods; 41% of USN and 32% of USNR members reporting low consumption of fruits. USN service members reported more frequent heavy drinking (22%), and a higher average number of drinks per day (17%) than did USNR members (12% and 8%, respectively). USN members reported higher percentage of smoking (25%) than did USNR members (15%). More USN members also reported they did not get enough restful sleep (39%) compared with USNR members (26%).

Figure 11:
USN Distribution of Healthy vs. Unhealthy Responses on HRA Questions

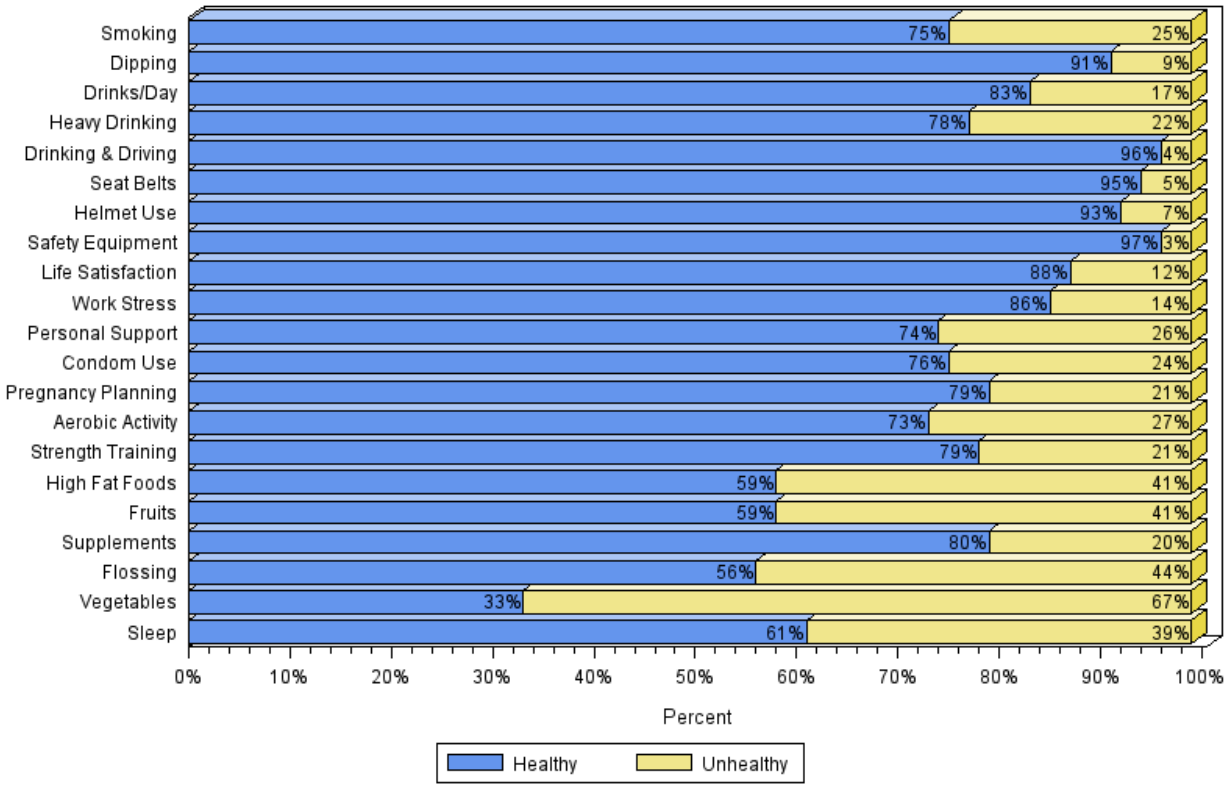

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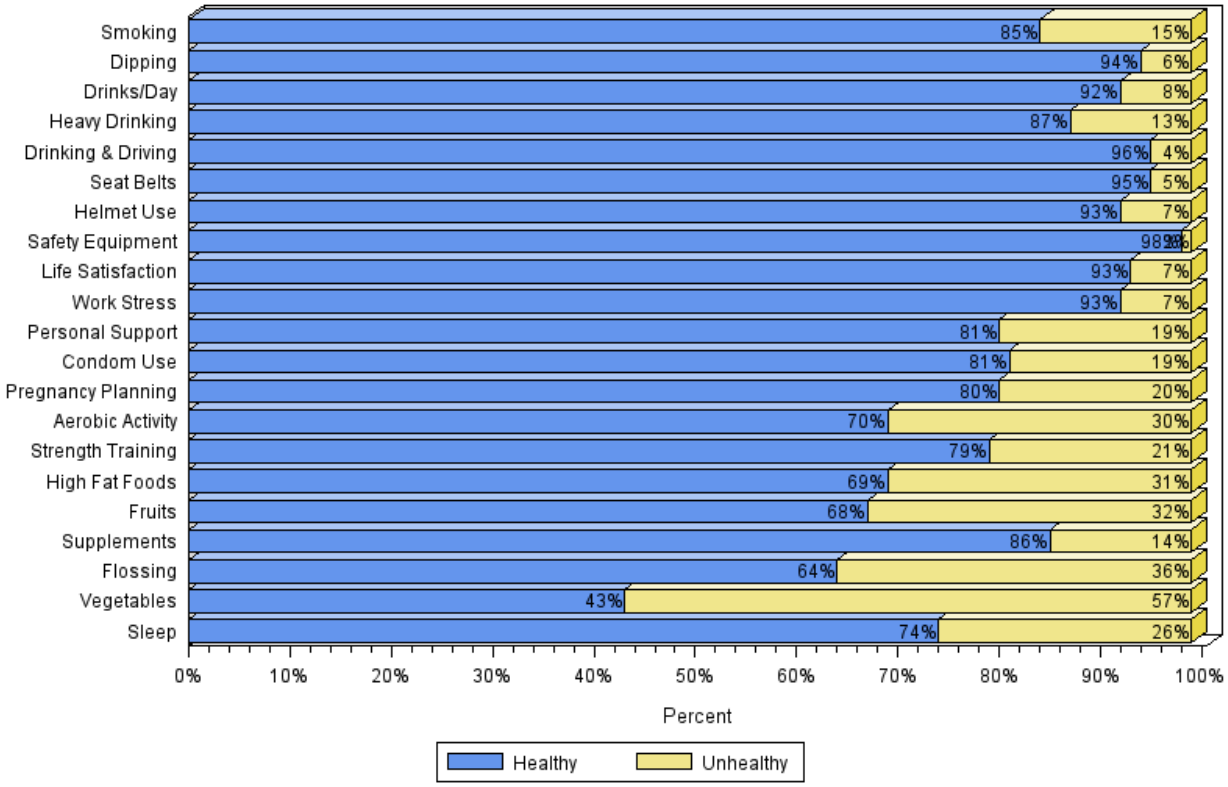
Figure 12:

USNR Distribution of Healthy vs. Unhealthy Responses on HRA Questions



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The USMC and USMCR followed similar trends based on reported risks (Figures 13 & 14). Unhealthy responses for both groups included low intake of vegetables (73% and 67%, respectively), low levels of flossing (54% and 53% respectively), and low intake of fruits (48% and 42%), respectively. USMC members more often reported higher levels of work stress (13%) than USMCR members (9%). USMC and USMCR members both reported the same high percentage of heavy drinking (approximately 33.5%), and high average number of drinks per day (approximately 23%). Members of both groups also reported high levels of tobacco use. Smoking was 34% and 27%, and dipping was 22% and 19%, respectively. Both groups of Marines reported they commonly did not get enough restful sleep (42% and 34%, respectively). More USMCR members (10%) reported driving after drinking too much alcohol than USMC members (4%). Both groups of Marines also reported lower levels of condom use compared with Navy members (31% and 30% for USMC and USMCR, respectively).

Figure 13:
USMC Distribution of Healthy vs. Unhealthy Responses on HRA Questions

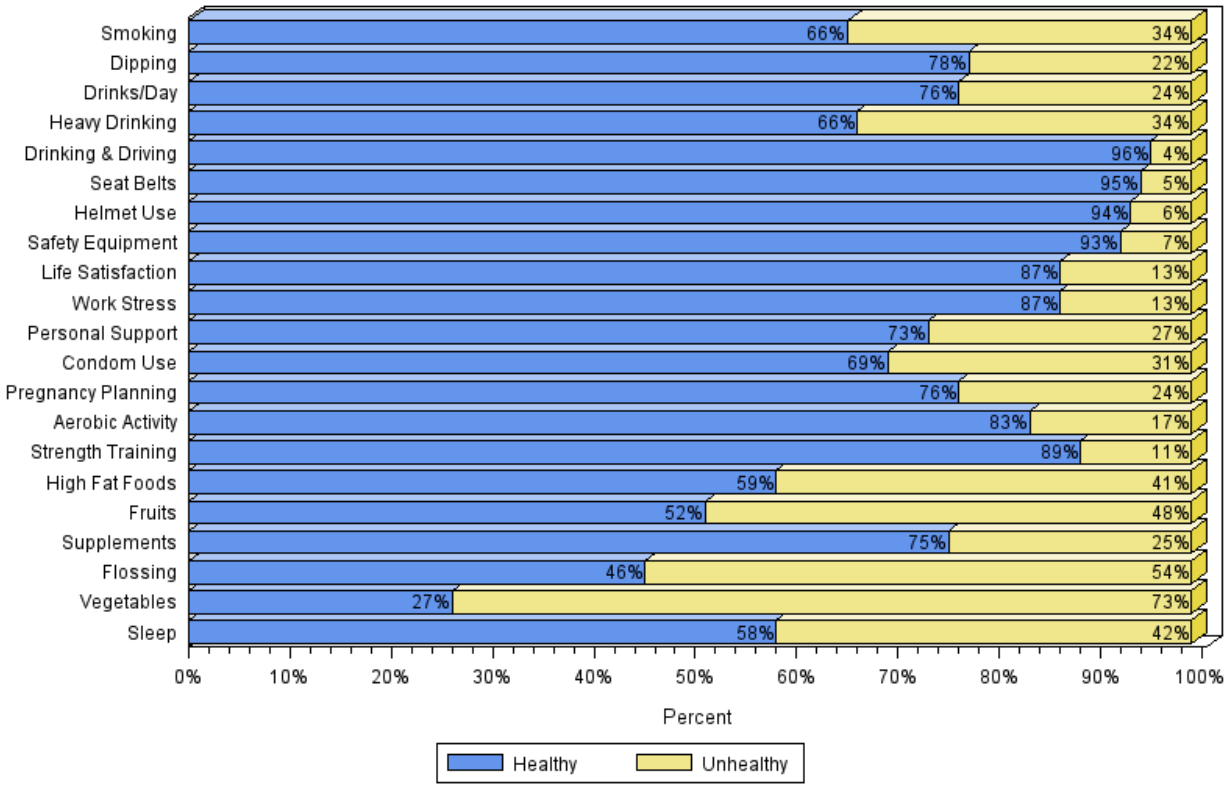

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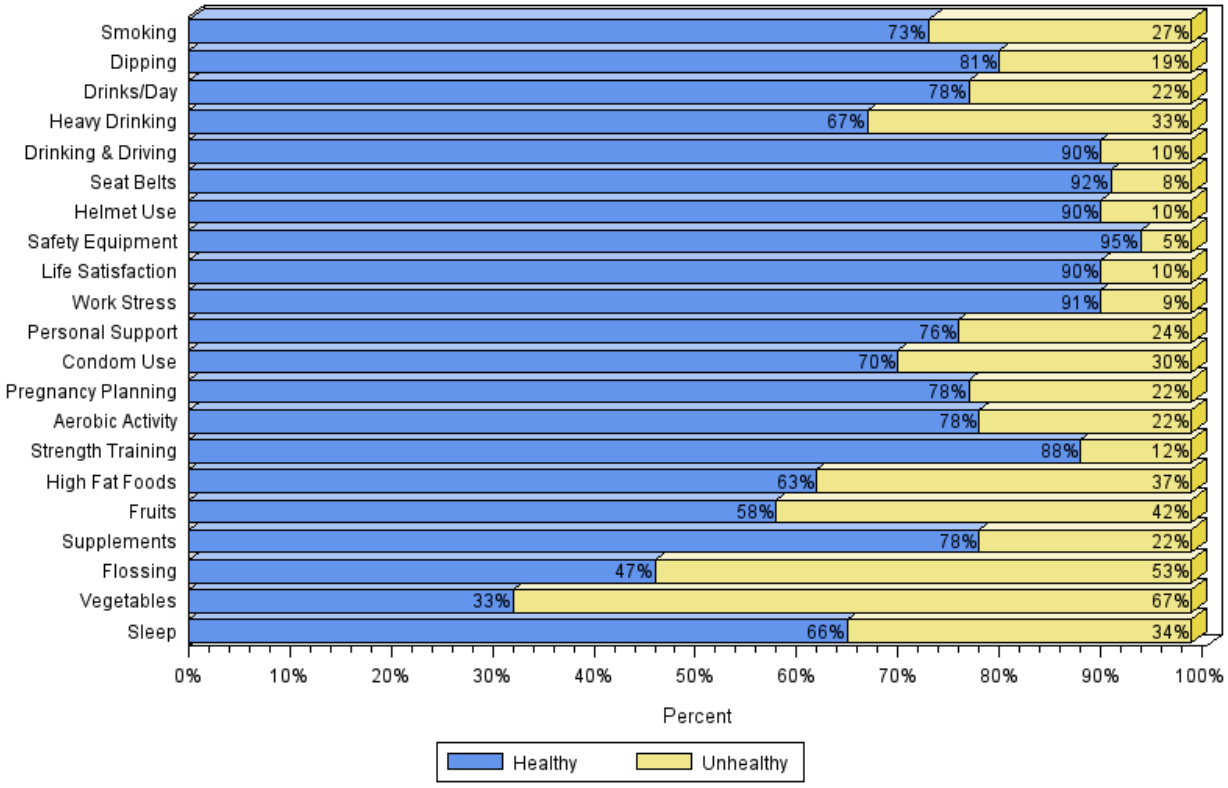
Figure 14:

USMCR Distribution of Healthy vs. Unhealthy Responses on HRA Questions



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The USCG and USCGR showed similar results (Figures 15 & 16). Members of both groups "unhealthy responses" reported low intake of vegetables (54% and 53%), low levels of flossing (38% and 33%), high intake of high fat foods (30% and 27%), and low intake of fruits (29% and 29%). USCG and USCGR members reported slightly lower percentage of smoking (19% and 11%, respectively) than other services. The USCG reported lower percentages of drinks per day (12%) and heavy drinking (17%) than the USMC and USN. Like other service members, the USCG frequently reported not getting enough restful sleep (27% and 20%).

Figure 15:
USCG Distribution of Healthy vs. Unhealthy Responses on HRA Questions

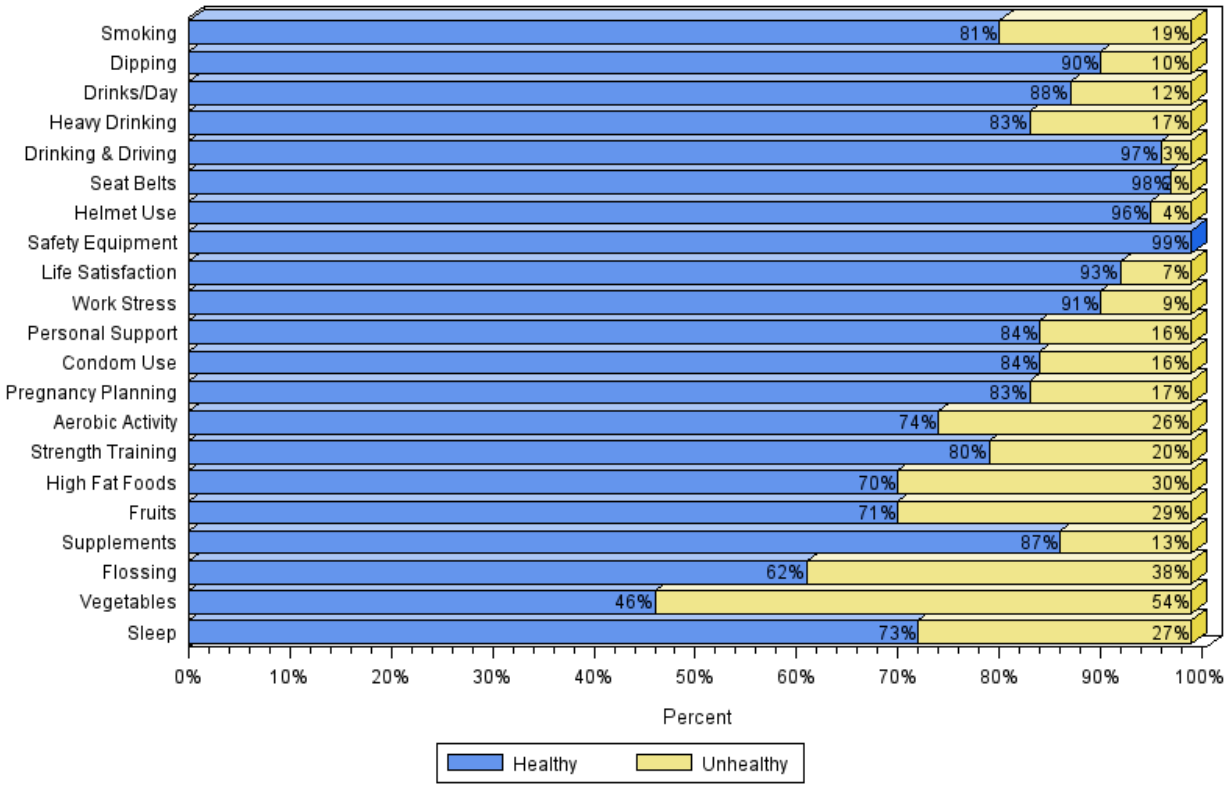

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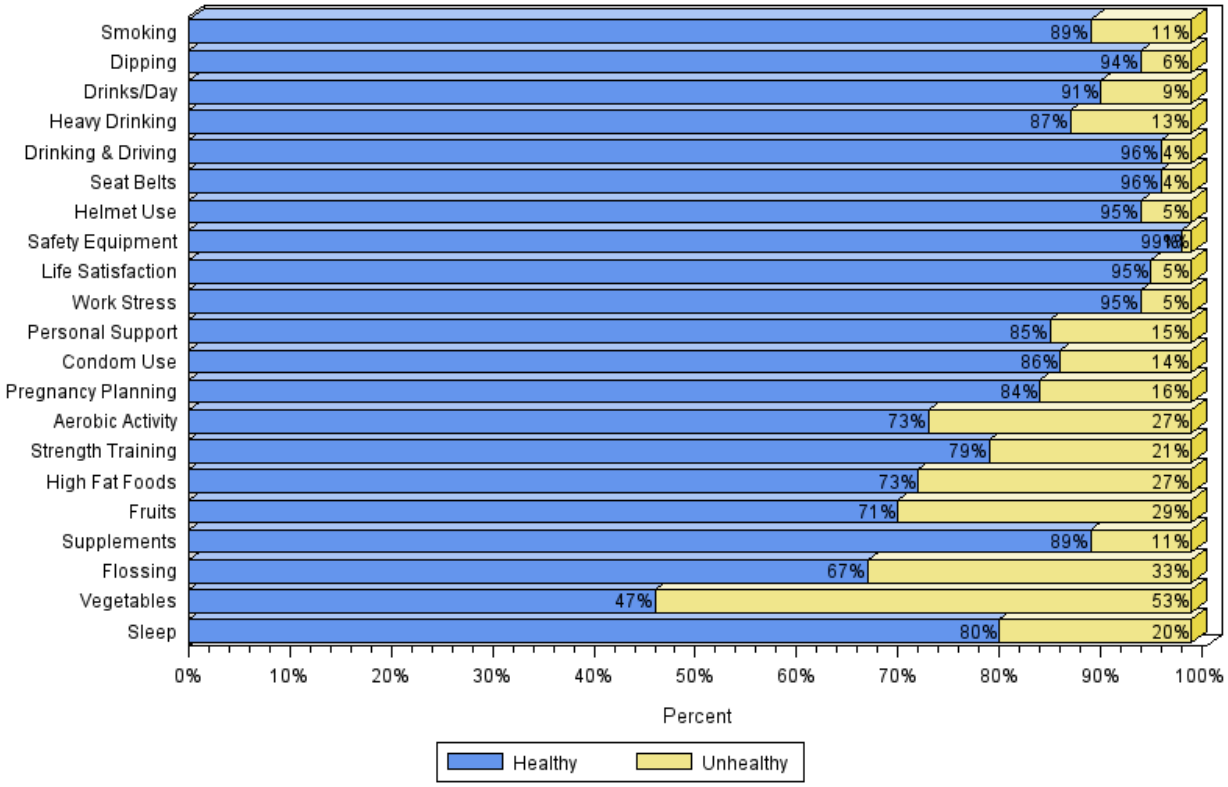
Figure 16:

USCGR Distribution of Healthy vs. Unhealthy Responses on HRA Questions



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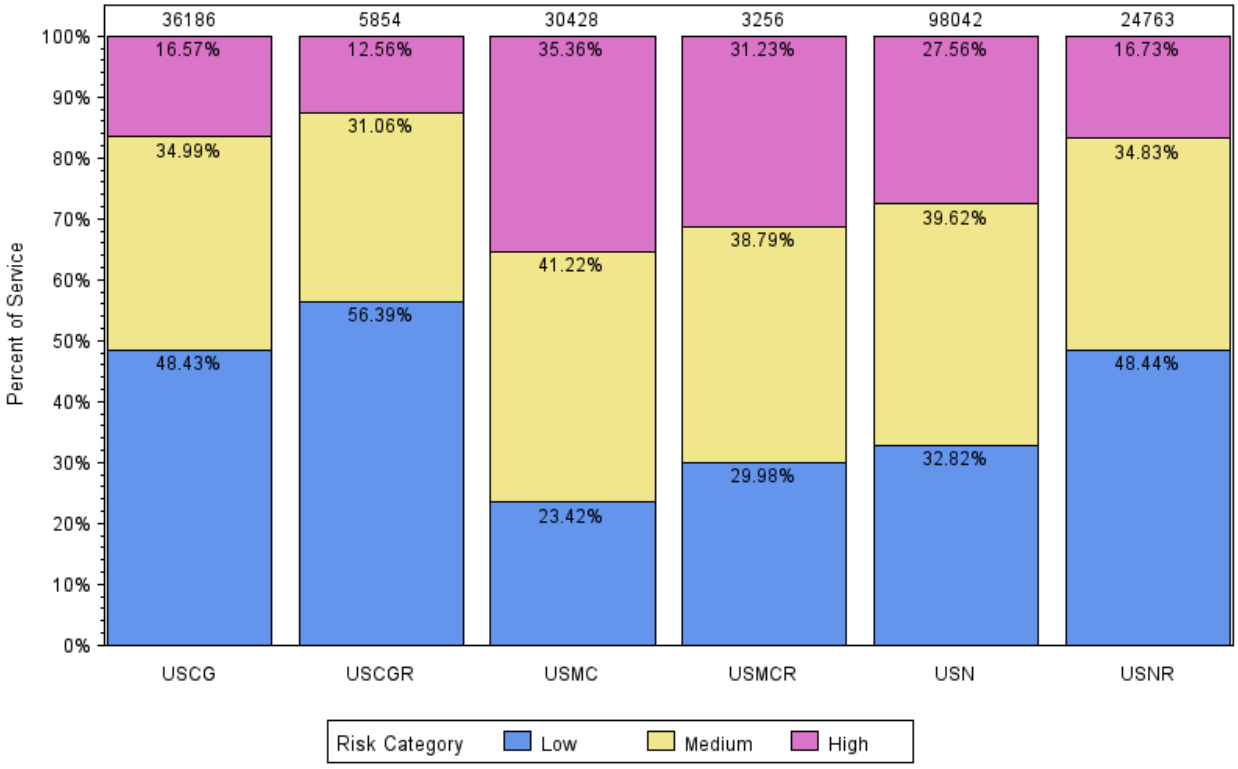
Distribution of Risk Categories

Figure 17 displays risk categories for each service component, based on the number of members falling within each risk category. Each service member was categorized as low, medium, or high risk based on the number of risk categories in which they reported unhealthy responses. Members in higher risk categories are considered more likely to utilize healthcare services in the future.

Based on mean number of risk factors, USMC members were most often scored as "high risk" (35.4%), followed by the USMCR (31.2%), USN (27.6%), USNR (16.7%), USCG (16.6%), and USCGR (12.6%). Members of the USCGR most often scored in the low risk category (56.4%).

Figure 17:
Distribution of Risk Categories for Completed HRAs by Service Component
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Changes in Health Responses

Table 1 displays the percent of respondents that were classified healthy for both this year and the previous study period of July 1, 2010 to June 30, 2011. Percent change in the 'healthy' response was calculated and appears in the last column; increases in values indicate healthier behaviors. New for this year was a question asking about pregnancy prevention. Also new for this year was revised scoring for questions regarding high-fat foods consumption and work stress. Revision of these questions will not allow change in response to be calculated for these questions this year. Overall, most 'healthy' responses remained similar or slightly improved, with the exception of condom use, which had a 5.9% decrease in healthy responses. Notable this year is a 5% increase in 'healthy' responses to the vegetable consumption question; 2010-2011 had already seen a 6% increase from the previous annual report period.

Table 1. Percent Change in Healthy HRA Responses, Total[a]

	2010-2011 (n = 180,481)	2012 (n = 198,529)	% Change
Aerobic Activity	72.0	74.6	3.7
Condom Use	82.2	77.4	-5.9
Dipping	88.4	89.3	1.0
Drinking & Driving	95.3	96.1	0.8
Drinks/Day	82.6	84.3	2.1
Flossing	55.5	56.9	2.6
Fruits	59.1	61.3	3.7
Heavy Drinking	75.7	78.3	3.5
Helmet Use[b]	92.8	93.5	0.8
High Fat Foods[c]	85.3	62.5	...
Life Satisfaction	89.3	89.5	0.3
Personal Support	76.8	77.1	0.4
Safety Equipment[b]	96.6	96.7	0.1
Seat Belts	94.9	95.3	0.4
Sleep	66.3	65.2	-1.7
Smoking	74.6	76.3	2.3
Strength Training	78.7	80.5	2.3
Supplements	81.8	81.3	-0.6
Vegetables	34.6	36.3	4.9
Work Stress[c]	50.4	88.1	...

[a] May not exactly total 100 due to rounding error.

[b] Excludes not applicable answers.

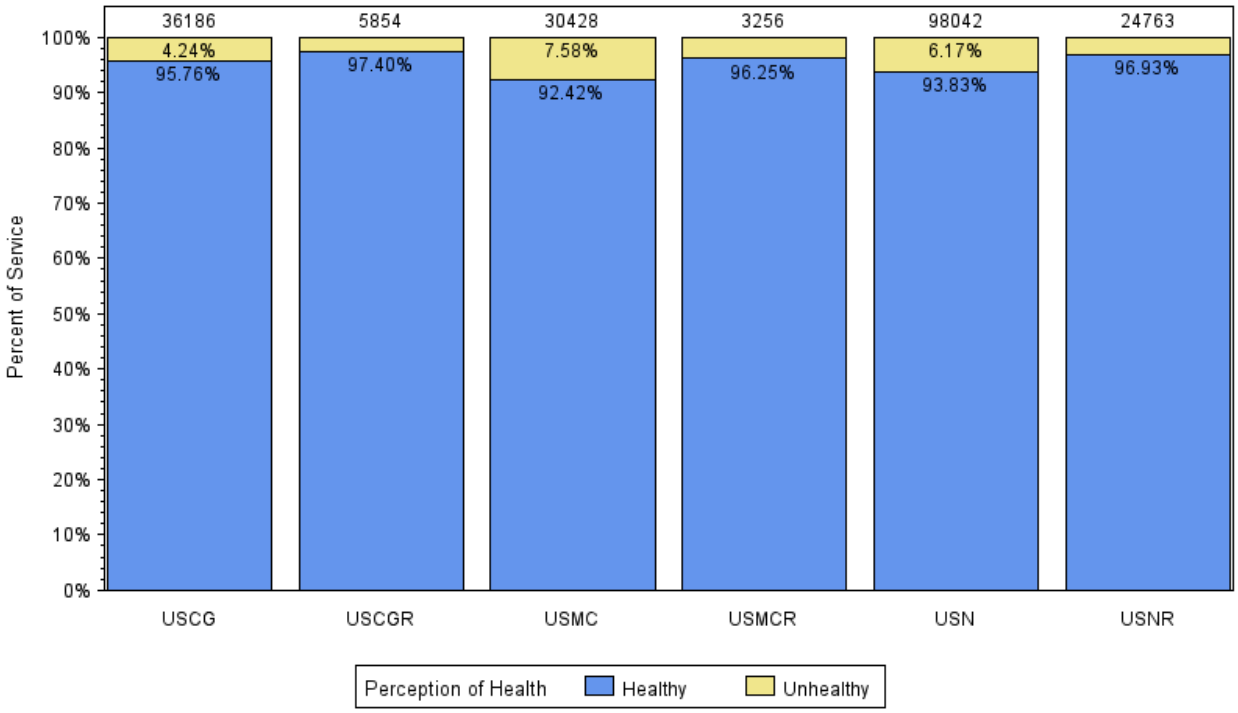
[c] % Change excluded due to changes in definition of "healthy"

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 05 April 2013.

Perception of Health

Perception of one's current state of health has been shown to be fairly accurate. However, perception of current good health may not accurately reflect future health for members who report significant risk factors that are major determinants of health. Of all service members, 95% rated their "health in general" as either good or excellent (Figure 18), even though the self-reported scoring of HRA data shows many members reported risk factors that placed them in medium and high risk categories (Figure 17).

Figure 18:
Distribution of Perception of Health Category for Completed HRAs by Service Component
198,529 records



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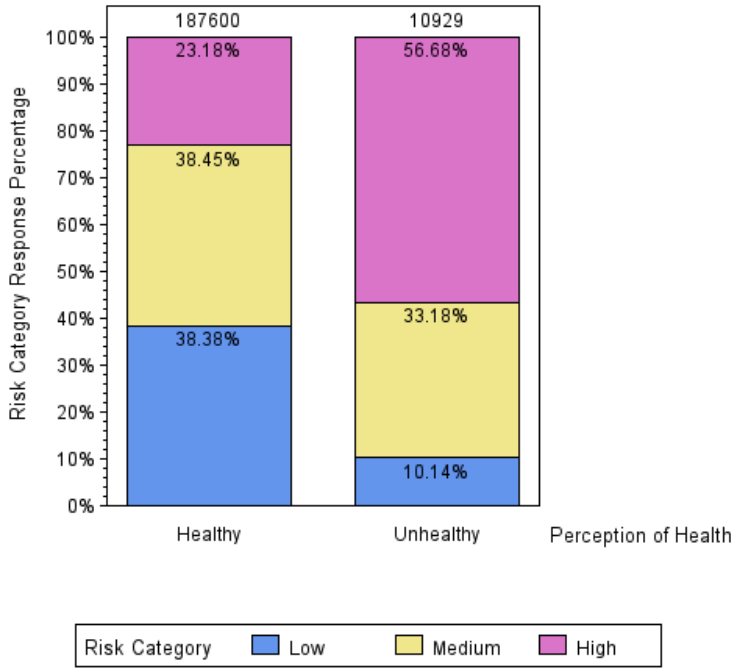
The differences in perception of health and risk category demonstrated that those who perceived their health to be unhealthy were more likely to be in the high risk category compared to those who perceived themselves to be "healthy" (Figure 19).

Figure 19:
Distribution of Perception of Health Category Compared to Risk Category for Completed HRAs
198,529 records



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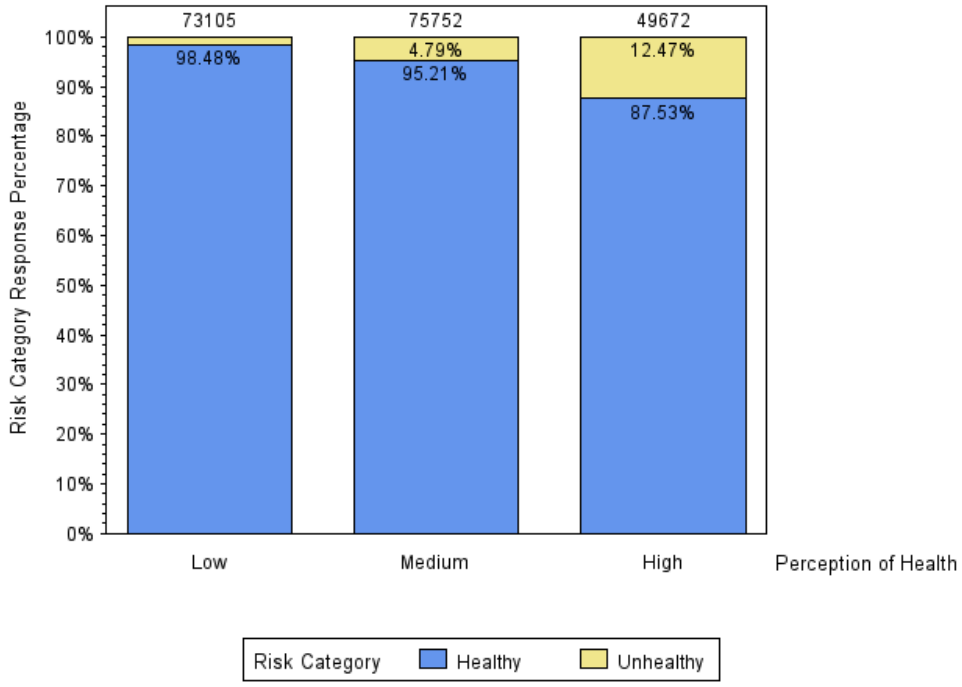
The differences in perception of health and risk category were small but consistent, with lower risk groups having a higher perception of good health (98%) than the other two categories (Figure 20). Many (88%) high-risk individuals also perceived their health as good. Of the small percentage of respondents who indicated their health was generally unhealthy (6% of respondents), the majority had risk scores that fell into the medium to high risk categories (90%).

Figure 20:
Distribution of Perception of Health Category Compared to Risk Category for Completed HRAs
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Mean Risk by Demographic Variables

A risk score for each individual was tabulated based on the total number of risk categories in which one or more of the questions were reported as unhealthy. There was a total of 10 risk categories. Risk scores were grouped into risk levels of low (0-2 risk categories), medium (3-4 risk categories), and high (5 or more risk categories).

More males were classified as high risk (27%) than females (18%) (Table 2).

Table 2. Risk Category by Gender[a]

Gender	% in Low Risk	% in Medium Risk	% in High Risk
Female (n=34,099)	45.51	36.63	17.87
Male (n=164,430)	35.02	38.47	26.50

[a] May not exactly total 100 due to rounding error.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013.

Age was also examined (Table 3). There was a trend of a decreasing number of individuals in the high risk category age from the age range 20-29. More than 58% of younger members (age 17-28) were in the high risk category. The decreasing percentage of members in the high risk category after the age of 29 may be due to survivor effect or healthy worker effect, indicating that those who remain in the military tend to be healthier than those who leave the service. It may also be that some individuals reduce their risky lifestyle behaviors as they mature.

Table 3. Risk Category by Age[a]

Age Group (Years)	% in Low Risk	% in Medium Risk	% in High Risk
17-19 (n=5,860)	28.50	43.04	28.46
20-29 (n=99,829)	32.05	38.12	29.82
30-39 (n=60,417)	39.61	38.59	21.81
40-49 (n=27,575)	46.07	37.38	16.55
50+ (n=4,848)	57.84	31.99	10.17

[a] May not exactly total 100 due to rounding error.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013.

The same association between age and percentage of high risk members was demonstrated by comparing rank with risk categories (Table 4). The E1-E5 group, which is generally comprised of younger service members, had a greater percentage of members in the high risk category compared to E6-E9 and the officer ranks. Senior officers (O6-O9) had a lower percentage of members in the high risk category compared to other officers. Warrant officers were generally most likely to be in the high risk category within the officer ranks.

Table 4. Risk Category by Rank[a]

Rank Group[b]	% in Low Risk	% in Medium Risk	% in High Risk
E1-E5 (n=110,363)	31.85	38.24	29.92
E6-E9 (n=50,827)	37.14	39.45	23.42
O1-O5 (n=32,118)	50.85	36.40	12.75
O6-O9 (n=2,649)	59.98	31.97	8.04
W1-W5 (n=2,572)	45.02	37.60	17.38

[a] May not exactly total 100 due to rounding error.

[b] excludes individuals who indicated a rank of E10 or O10.

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Race was also examined by risk category (Table 5). No strongly apparent trends between race and risk category were noted. This has been the case in previous years' reports.

Table 5. Risk Category by Race[a]

Race Group[b]	% in Low Risk	% in Medium Risk	% in High Risk
African American (n=11,671)	33.01	38.94	28.04
Caucasian (n=125,238)	38.52	37.65	23.83
Asian/Pacific Islander (n=25,	32.48	40.17	27.36
Hispanic (n=23,074)	34.81	38.83	26.36
Other (n=8,009)	35.06	37.41	27.53

[a] May not exactly total 100 due to rounding error.

[b] 5,204 individuals did not indicate race.

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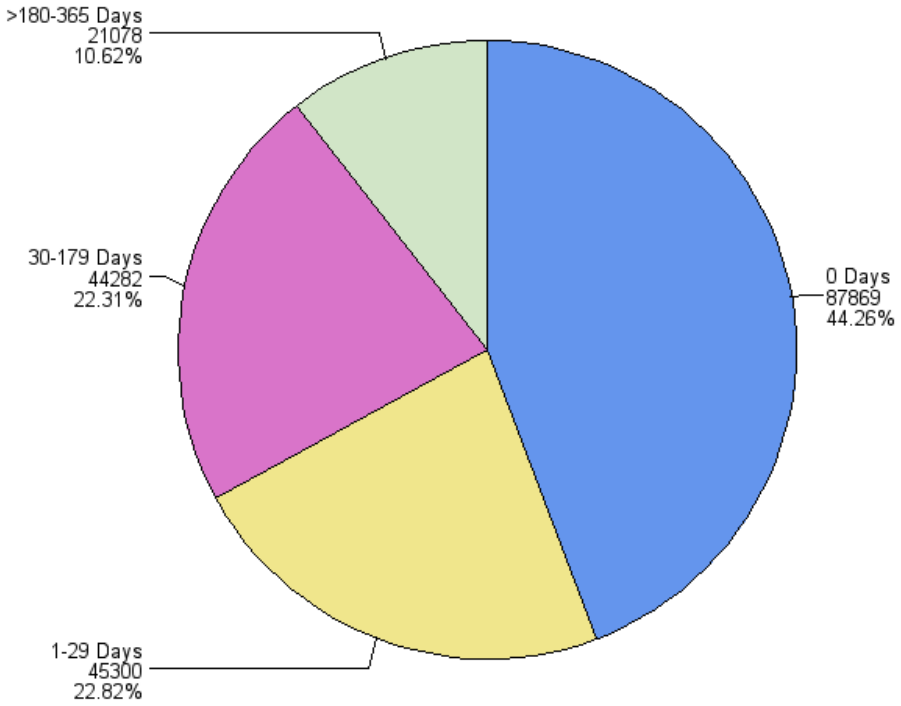
Days Away From Home Station

The relationship between days away from home station and unhealthy behavior response was examined. Using the "days away" variable, four time points were created: 0 days, 1-29 days, 30-179 days, 180-365 days.

In the entire population, 44% of individuals did not spend any time away from the home station, 23% spent 1-29 days away, 22% spent 30-179 days away, and 11% spent 108-365 days away from the home station (Figure 21)

Figure 21:
Percentage of Days Spent Away from Home Station
198,529 records



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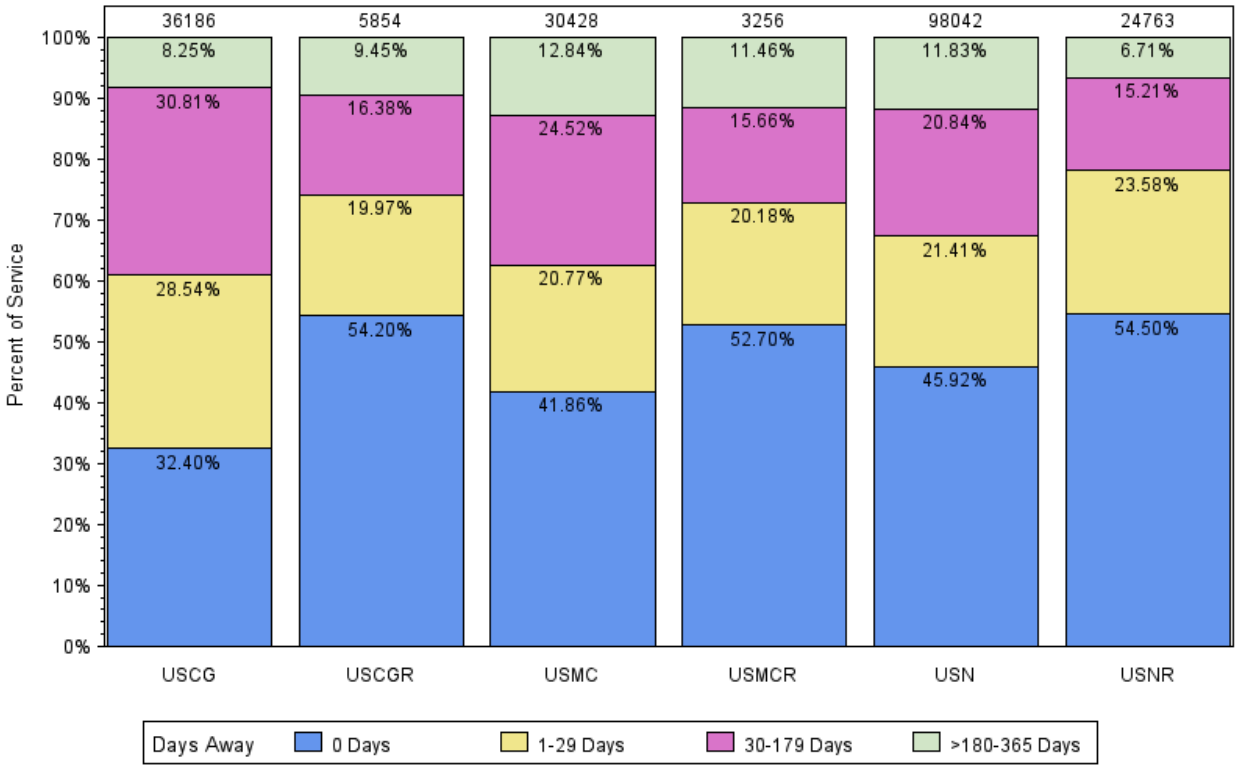
Time away from home station was examined by service component (Figure 22). At least 45% of all USN and USNR members reported 0 days away from home station while 52-55% of all reserve branches reported spending 0 days away from home station. The USCG, USMC, and USN had the highest percentages for total days away with at least 54% of members reporting at least 1 day away. USMC members reported having the greatest percentage of members away from home station for 180-365 days (13%) while the USNR members only had 7% of individuals away from home station for 180-365 days.

Figure 22:
Days Away From Home Station by Service
198,529 records



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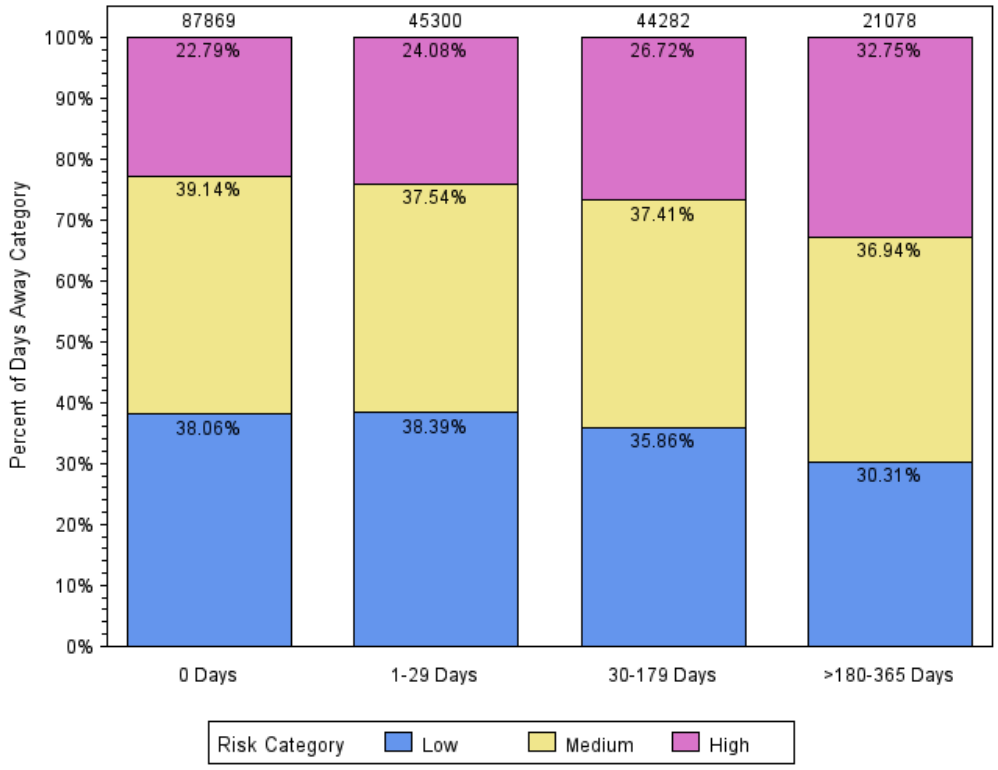
Total HRA risk score was examined in relation to the four days away time points using frequency distribution and logistic regression. The distribution of risk categories, determined by total HRA response risk score, was similar for people classified as a 'medium' risk across all categories. Both the 'low' risk and 'high' risk categories showed a percentage response change over time. The percent of members in the 'low' risk category decreased from 38% at 0 days away to 30% at 180-365 days away. The percentage of members in the 'high' risk category increased from 23% at 0 days away to 33% at 180-365 days away (Figure 23).

Figure 23:
Distribution of Risk Categories for Completed HRAs for Days Away from Home Station
198,529 records



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Days Away From Home Station and Mean Risk

Risk category was compared with the amount of time away from home station. As time away from home station increased, the percentage of members in the high risk category increased.

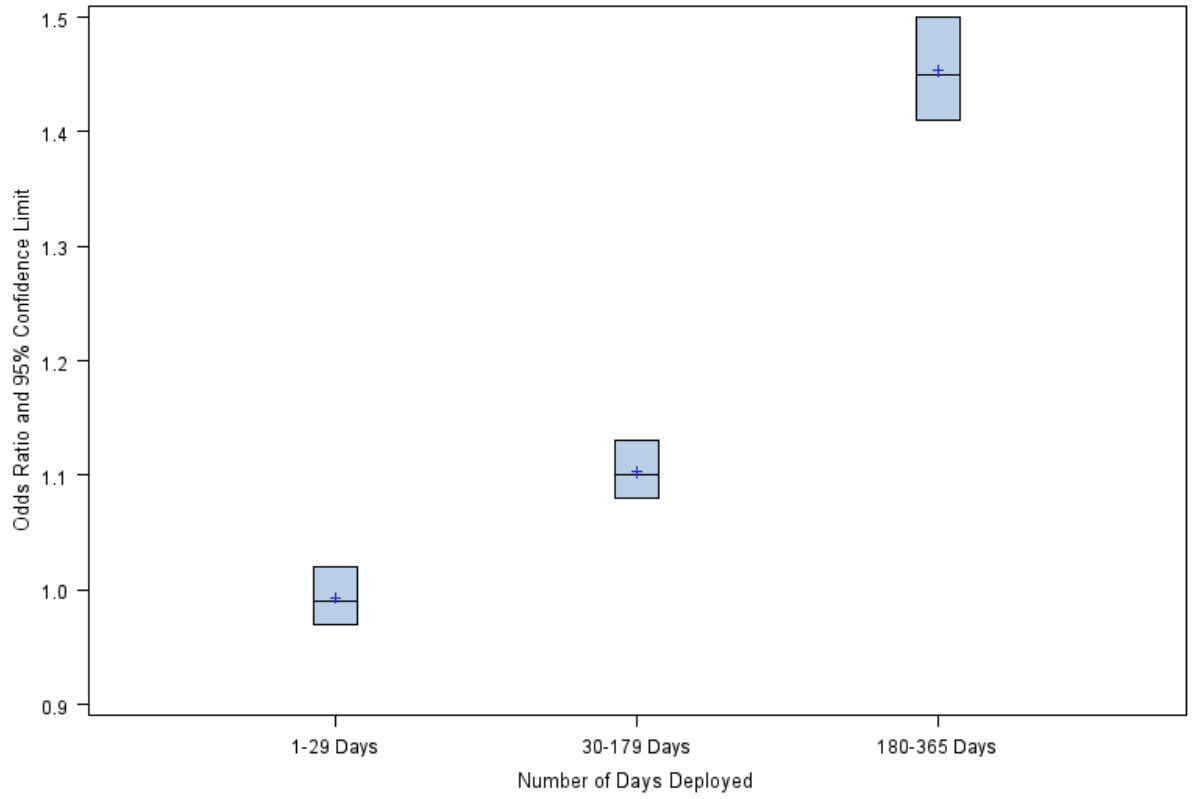
Days Away From Home Station and Risk Score

To evaluate the relationship between length of days away from home station and risk score, a logistic regression model was used. A risk score of greater than 2 (medium and high categories) was set as a dependent variable, while days away from home station was used as a predictive variable divided into four groups: 0 days away from home station, 1-29 days away from home station, 30-179 days away from home station, and 180-365 days away from home station. The model was found to be significant with the odds ratio increasing in each of the days away categories when compared to not leaving home station (Figure 24): OR [1-29 days] 0.99 (95% CI 0.96-1.01), OR [30-179 days] 1.10 (95% CI 1.07-1.13), and OR [180-365days] 1.41 (95% CI 1.37-1.46).

Figure 24:

Relationship Between Risk Number and Different Days Away Categories

198,529 records



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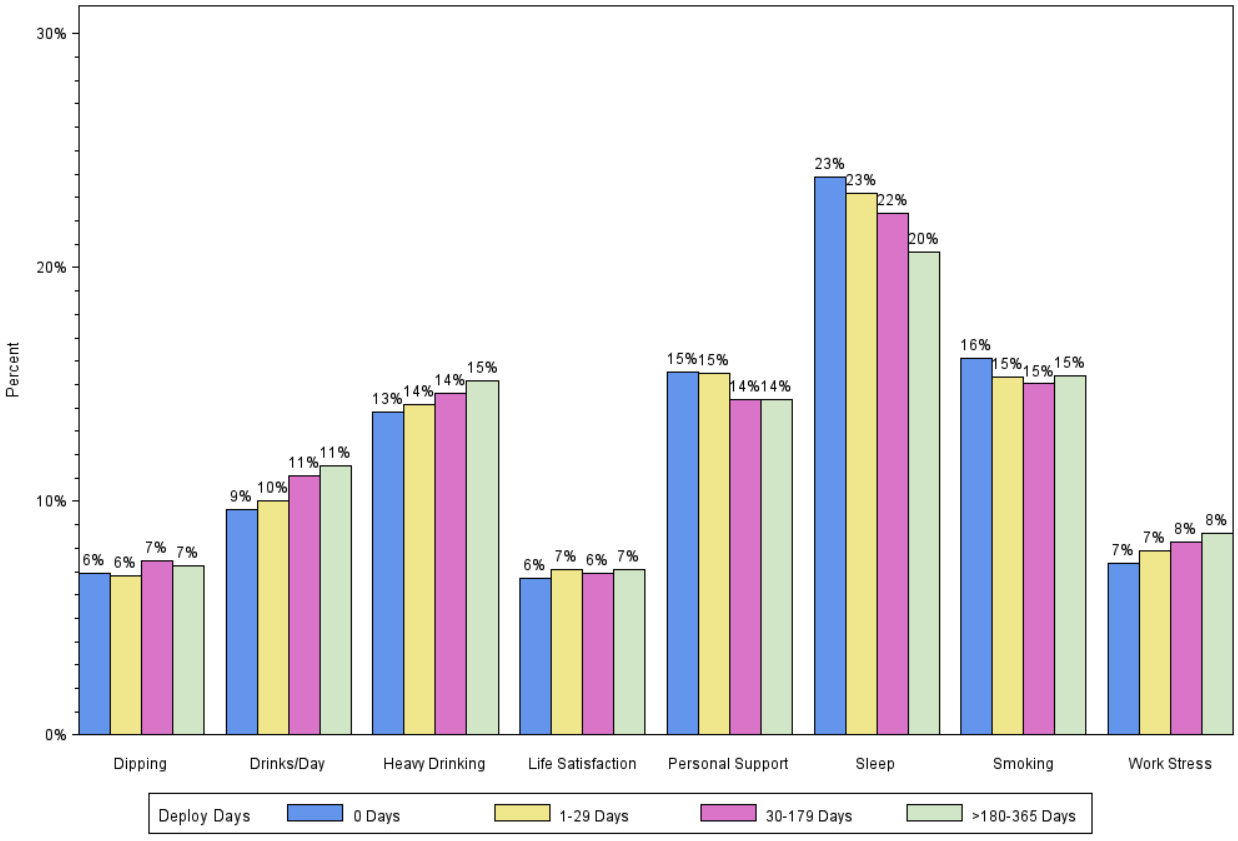
Days Away from Home Station and Unhealthy Behaviors

Responses to questions about smoking, dipping, drinks per day, heavy drinking, life satisfaction, work stress, personal support, and sleep were examined over the four time points. Eight different questions covering smoking, dipping, drinks per day, heavy drinking, life satisfaction, work stress, personal support, and sleep were examined to determine any time-related differences in reporting of unhealthy behaviors. The next seven graphs (Figures 25-31) display the results of 'unhealthy' responses by self-reported time away from home station. While the different services varied somewhat in respect to leading health risks (unhealthy ratings), several risk behaviors were similar across groups, with heavy drinking, drinks per day, dipping, and work stress showing the greatest increases in unhealthy behavior as time away from station increased.

Figure 25:
Distribution of 'Unhealthy' Behaviors by Time Away from Home Station, All Service Components
198,529 records



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Frequency of 'unhealthy' responses increased or stayed relatively stable for all risk factors for USN members as days away from home station increased (Figures 26 and 27), with the exception of sleep. Compared to USNR members, USN members reported higher levels of drinks per day, starting at 9% of all behaviors for those who spent 0 days away and increasing to 11% of all behaviors for those who spent 180-365 days away. On the other hand, USNR members reported a higher lack of personal support, starting at 18% of all behaviors for those who spent 0 days away and increasing to 20% of all behaviors for those who spent 180-365 days away. Other behavior changes were relatively similar between the two groups.

Figure 26:
USN Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records

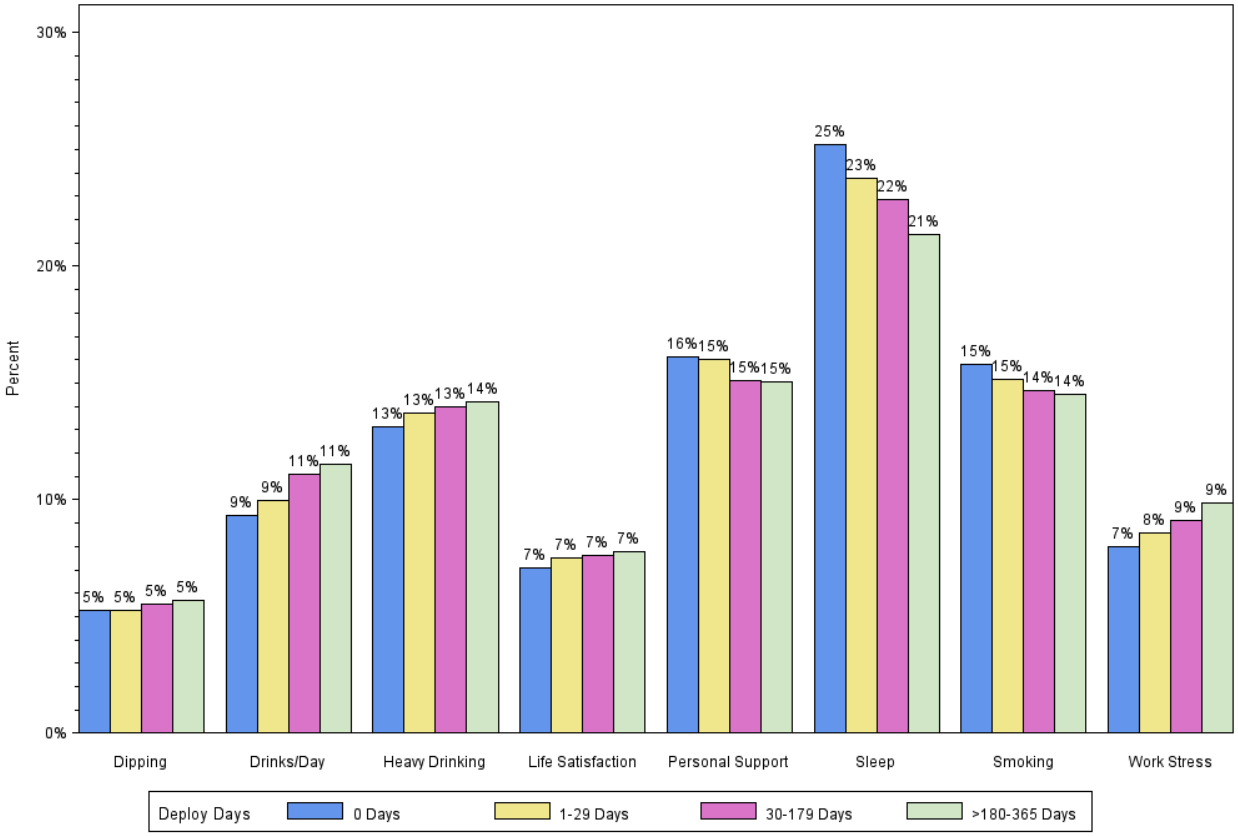

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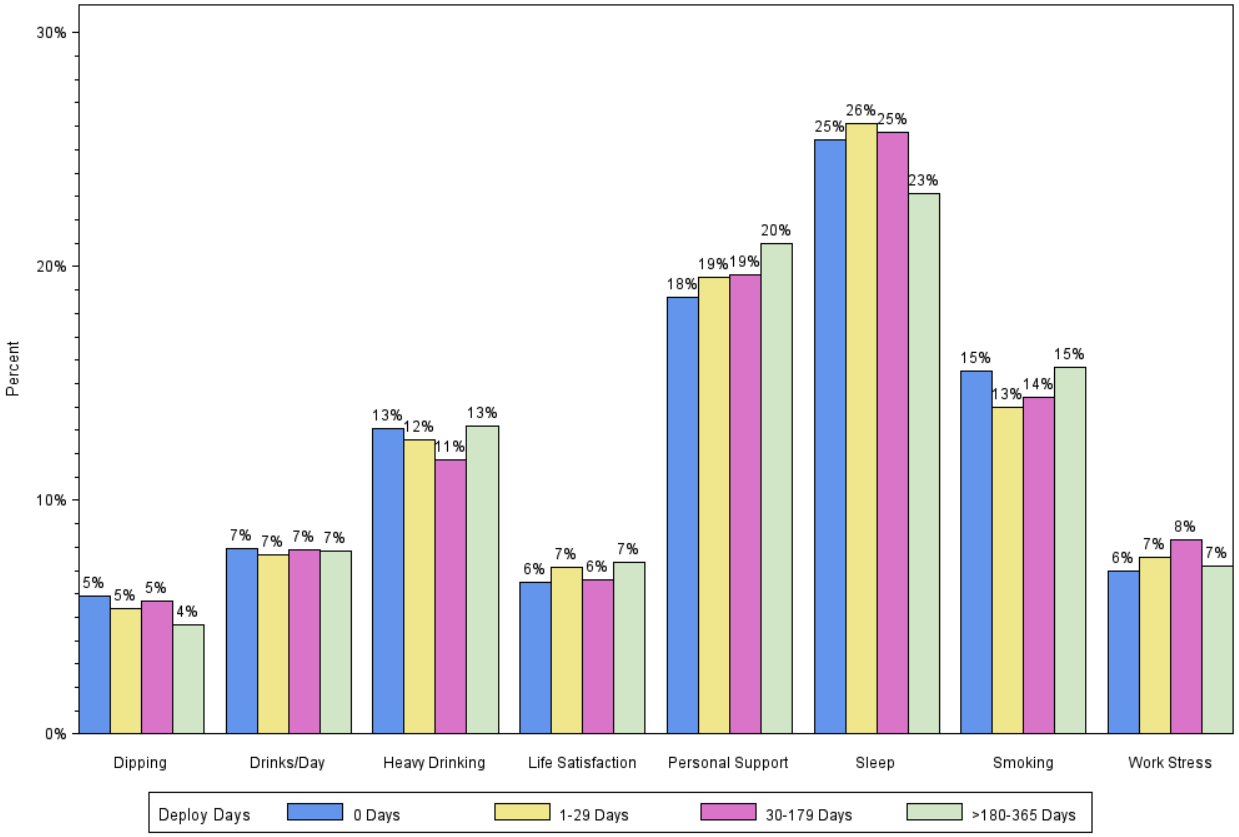
Figure 27:
USNR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records



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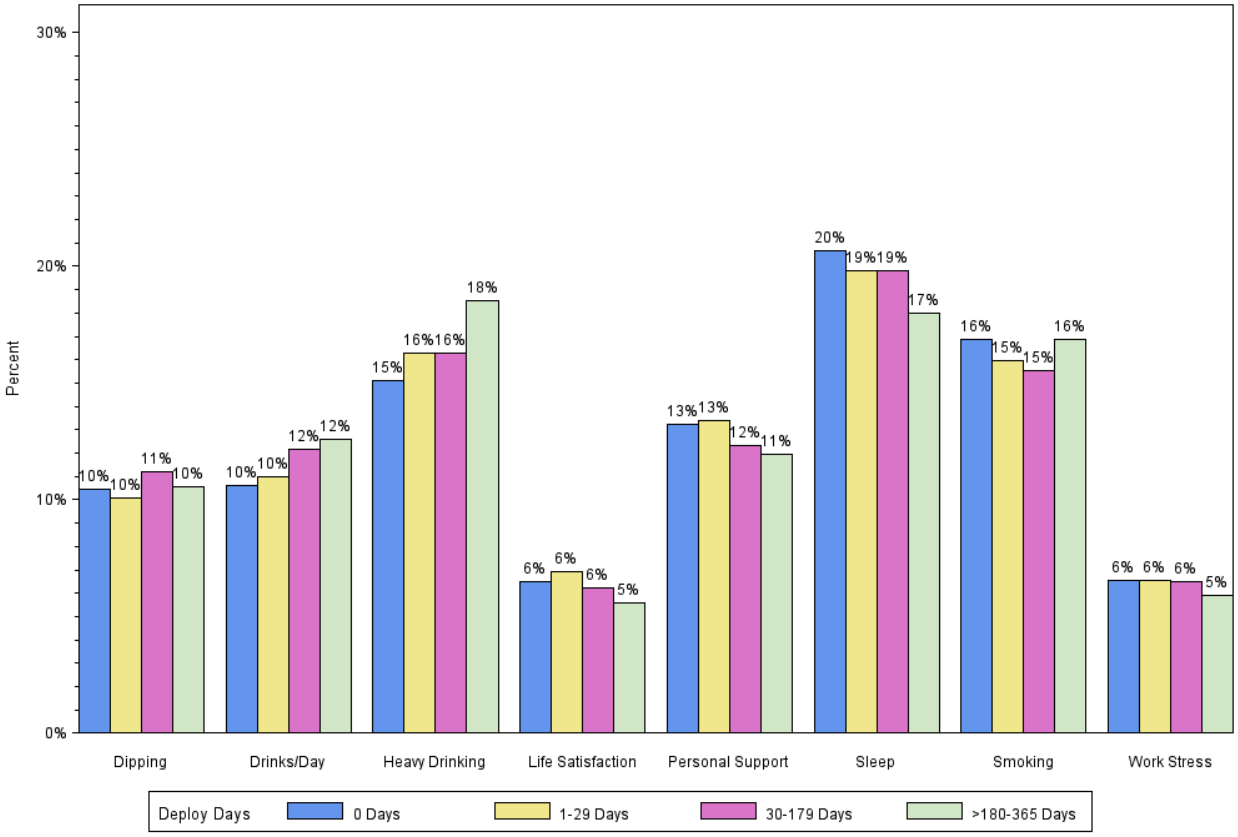
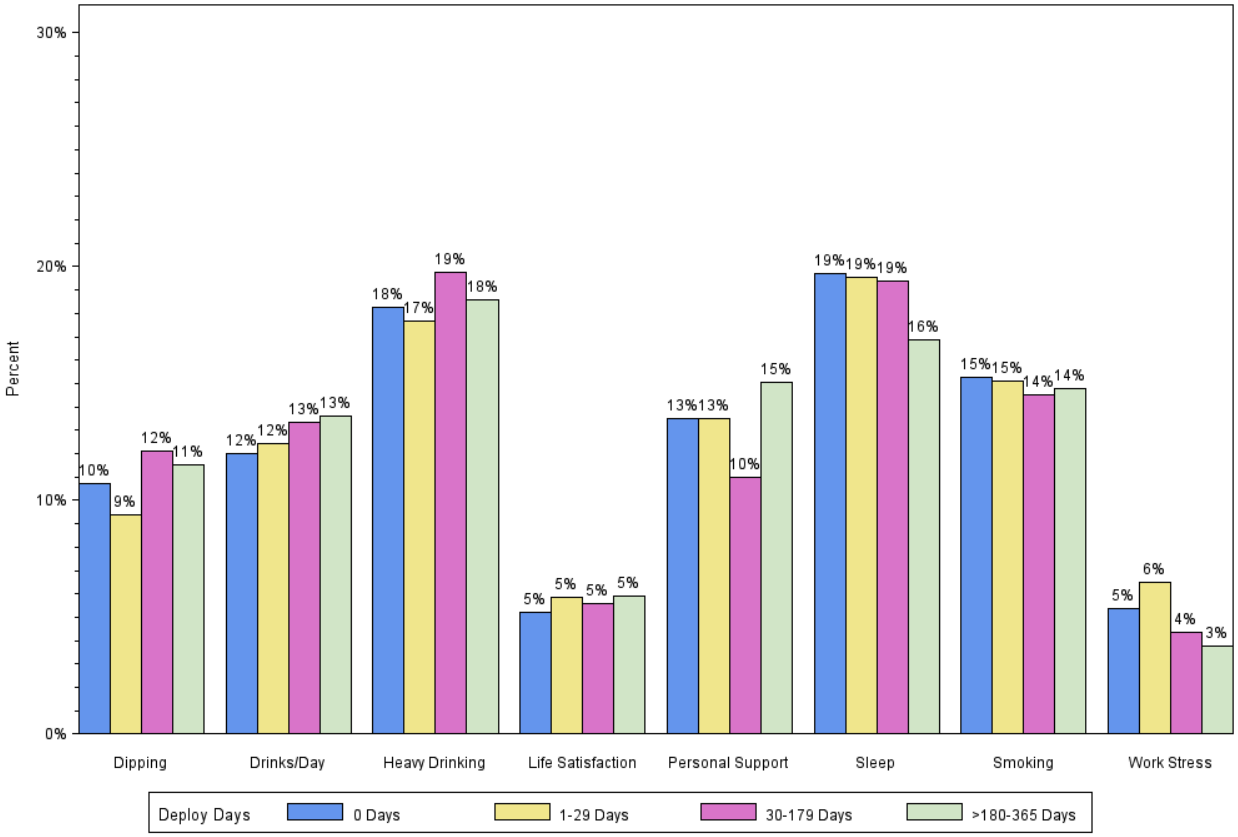
Compared to Navy and Coast Guard members, Marines tended to report a higher percentage of drinks per day and heavy drinking which generally increased as days away from home station increased (Figures 28 and 29). Frequency of 'unhealthy' responses increased or stayed relatively stable for all risk factors for USN members as days away from home station increased, with the exception of sleep. Percentages between USMC and USMCR differed at most by 2%.

Figure 28:
USMC Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Figure 29:
USMCR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records



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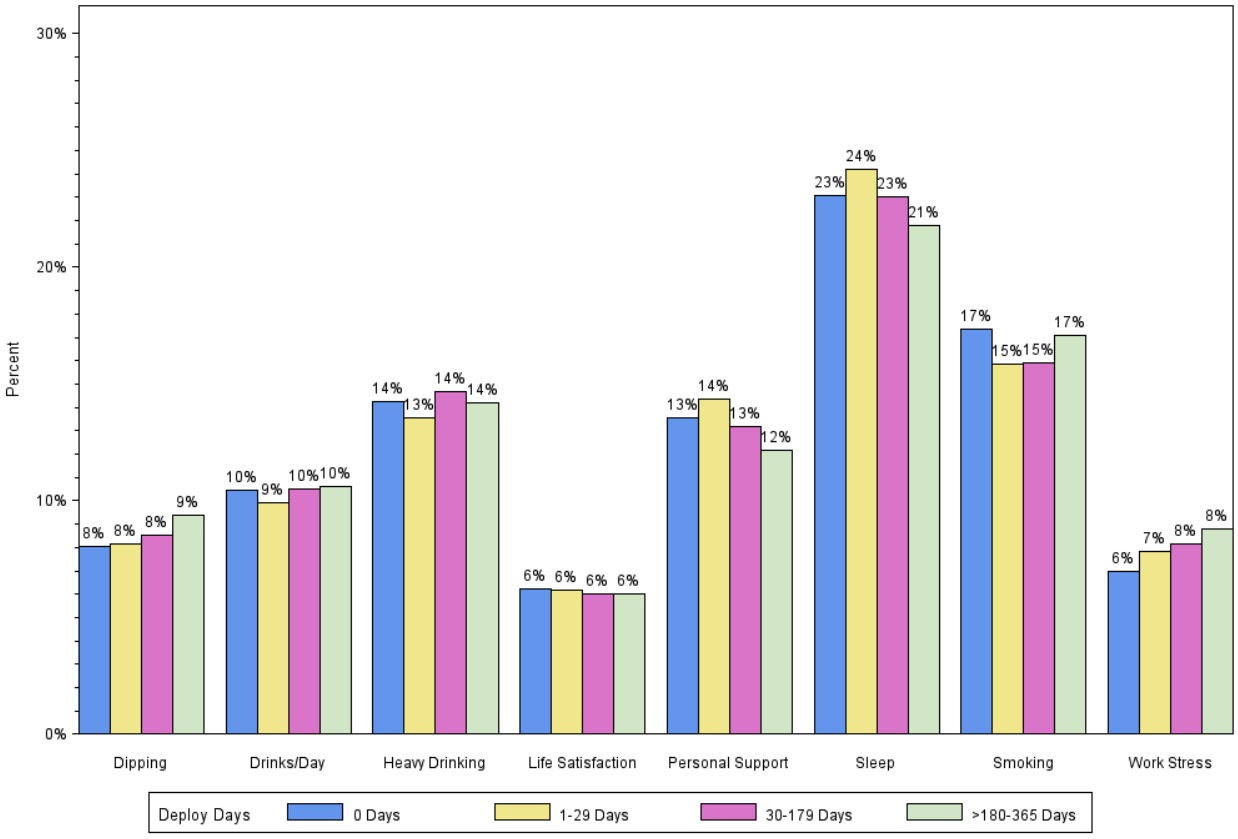
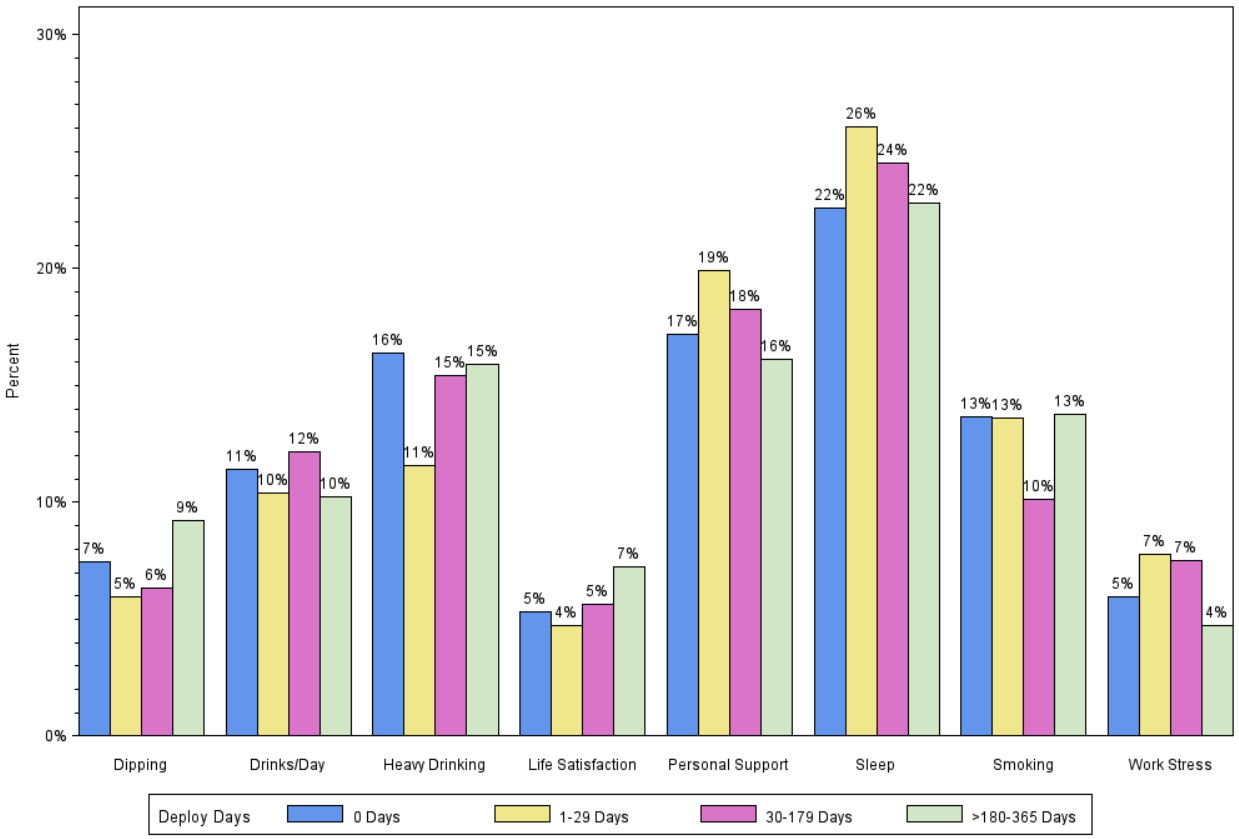
Compared to USCGR members, USCG members reported higher levels of work stress, starting at 6% of all behaviors for those who spent 0 days away and increasing to 8% of all behaviors for those who spent 180-365 days away; USCG members also reported slightly higher levels of smoking than USCGR members. However, USCGR members reported a higher lack of personal support, peaking at 19% for those deployed 1-29 days, as compared to USCG's peak at 14% for 1-29 days. Other behavior changes were relatively similar between the two groups, differing by no more than 2% (Figures 30 and 31).

Figure 30:
USCG Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Figure 31:
USCGR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station
198,529 records



Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 06 March 2013

Discussion

Strengths and Limitations

One strength of the survey results is that the questionnaire does not ask for any personal identifiers, making it more likely that participants will answer honestly about risky behaviors in which they engage. In regards to sampling bias, taking the assessment is merely a matter of commands' implementation of the PHA process; thus, these responses would not represent merely a convenience sample.

Limitations of this report can be attributed to the limitations of the data collection tool. As a self-reported survey, the results can be biased due to participant recall or by the tendency to report socially desirable responses. As such, some overestimation of positive behaviors and underestimation of negative behaviors may occur. Although there is no reason to suspect that individuals complete the questionnaire multiple times, there is no way to block or detect

duplicate entries. It is also difficult to directly compare service components because the demographic characteristics that influence health behavior, as described earlier, vary significantly.

Demographics

The use of the tool grew for some components this year as compared to last year: USN (+20,710), USMC (+5,086), and USCGR (+62). However, the number of USCG (-5,489), USNR (-1,322) and USMCR (-999) members who participated in the survey declined compared to last year.

When interpreting the results, it is important to use caution if comparing groups that are dissimilar. For example, the Marine Corps is comprised of significantly younger members whose mission and environment may affect the results. It would be expected that younger members would report different types and levels of risk behaviors compared to older members. Similar differences in results could be attributed to gender differences. Although specific risk behaviors were not analyzed in this report by age or gender, the total number of risk behaviors, the risk number category, was examined for both of these variables. Not surprisingly, increasing age was inversely associated with the percentage of individuals who fell into the medium and high risk number category. In addition, female members had a lower Mean Risk Number.

Risk Factors

Collection and analysis of body composition was previously added to the HRA tool at the request of Navy customers. The tool uses Body Mass Index (BMI), which is a fairly reliable indicator of body fatness for most people, is based on self-reported height and weight and is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems[1]. Military height-weight tables use this approach but are more lenient for establishing official standards. BMI can also overestimate body fat in lean, muscular individuals. Therefore, these data should not necessarily lead to the conclusion that all individuals exceeding healthy levels are either overweight or obese. Rather, the data may support some general observations about weight across the services. For example, these data indicate that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as overweight, and active duty Navy and Coast Guard are nearly equally as likely to be of normal BMI as reservists.

When compared to previous surveys, the prevalence of specific risk factors has remained fairly constant, with the leading health risks being low fruit and vegetable consumption, high fat foods consumption, not flossing teeth, and lack of restful sleep. These results should be used to plan

health promotion interventions that target priority areas. Although comparing individual service results to the total of all services may be tempting, it may be more appropriate to seek realistic and incremental percentages improvements when setting goals for the future.

Days Away From Home

The largest number of individuals that completed the HRA did not deploy at all last year (44%). When added to the number of members that were away from home for fewer than 30 days, the total percentage was 67%. USCG members were away from home for more days than members of other service components. As stated earlier, as time away from home station increased, both mean risk and percentage of members in the high risk category increased. Therefore, implementing health promotion activities may be even more important in a population that experiences more separations.

Conclusion

The Fleet and Marine Corps HRA can be a valuable tool for tailoring health messages to individuals. The tailored feedback to participants on their individual reports and referral to credible health websites on each of the topics for more detailed information provides participants with the knowledge and skills to better manage their personal health.

From a more global, population health approach, the aggregate data in this HRA report provides each of the service components with valuable information that can be incorporated into comprehensive community health assessments, which is a first step in planning effective health promotion programs. Local HRA Administrators have the ability to generate additional reports in even greater detail at the individual unit level.

Decision-makers can use the data in this report for strategic planning and the results of this report have a bearing on recruitment, retention, readiness, and quality of military life.

Appendix A

Fleet and Marine Corps HEALTH RISK SURVEY

Age:		Sex:		Rank/Rate:		Service:	
Race/Ethnicity:		Height:	FEET	INCHES 0	Weight: women select non-pregnant weight	POUNDS	

Number of days spent away from home station in the past 12 months:

1. Would you say that your health in general is ....
   - a. Excellent
   - b. Good
   - c. Fair
   - d. Poor

2. Do you currently smoke cigarettes, cigars, pipes or hookah?
   - a. Every day
   - b. Most days
   - c. Some days
   - d. Never smoked
   - e. I quit

3. Do you currently use smokeless tobacco (e.g., dip snuff)?
   - a. Every day
   - b. Most days
   - c. Some days
   - d. Never used smokeless tobacco
   - e. I quit

4. How many alcoholic beverages do you have during a typical day when you drink alcohol? *(One drink = 12 ounces of regular beer, 5 ounces of wine, 1.5 ounces of 80-proof distilled spirits)*
   - a. 5 or more
   - b. 3-4
   - c. 1-2
   - d. Not applicable, I do not drink alcohol or I seldom drink alcohol

5. How often do you typically drink 5 or more alcoholic drinks on one occasion? *("One Occasion" refers to an event or period when drinking exceeds one drink per hour)*
   - a. Daily
   - b. Weekly
   - c. Monthly
   - d. Once or twice per year
   - e. Never

6. How often do you drive when perhaps you have had too much to drink?
   - a. Often (i.e., more than once during the past 6 months)
   - b. Sometimes (i.e., once during the past 6 months)
   - c. Rarely (i.e., not in the past past 6 months, but at least once during the past year)
   - d. Never (i.e., not during the past year)

7. Do you use a seat belt when you drive or ride as a passenger?
   - a. Always
   - b. Most of the time
   - c. Sometimes
   - d. Rarely
   - e. Never

8. How often do you wear a helmet when you ride a motorcycle, all-terrain vehicle, or bicycle?
   - a. Always
   - b. Most of the time
   - c. Sometimes
   - d. Rarely
   - e. Never
   - f. Does not apply to me / I do not ride these vehicles

9. How often do you use the safety equipment recommended for your job? *(e.g., hearing and vision protection, respirators, barriers, and other safety devices)*
   - a. Always
   - b. Most of the time
   - c. Sometimes
   - d. Rarely
   - e. Never
   - f. Does not apply to me / None recommended

10. In general, how satisfied are you with your life? *(e.g., work situation, social activity, accomplishing what you set out to do)*
    - a. Very satisfied
    - b. Mostly satisfied
    - c. Somewhat satisfied
    - d. Not satisfied

11. How often do you feel that your work situation is putting you under too much stress?
    - a. Always
    - b. Most of the time
    - c. Sometimes
    - d. Rarely
    - e. Never

12. How often do you have someone to talk to when you are feeling lonely, depressed, angry, or in need of help?
    - a. Always
    - b. Most of the time
    - c. Sometimes
    - d. Rarely
    - e. Never

13. In the past 12 months, how often did you or your partner(s) use a condom when you had sex? ***(read all choices below carefully before responding)*** ○ a. Not Applicable, I am in a long-term relationship where we only have sex with each other / I am not sexually active ○ b. Always ○ c. Most of the Time ○ d. Sometimes ○ e. Rarely ○ f. Never	14. On average, how many weeks per month do you engage in a total of at least 150 minutes of **moderate-intensity** aerobic activity (moderate-intensity physical activity means working hard enough to raise your heart rate and break a sweat, yet still being able to carry on a conversation. *i.e., brisk walking, swimming leisurely, or leisurely biking*) **OR** at least 75 minutes of **vigorous-intensity** aerobic activity (vigorous-intensity means you will not be able to say more than a few words without pausing for a breath , *i.e., jogging/running, swimming laps, or jumping rope*)? ○ a. 4 weeks per month ○ b. 3 weeks per month ○ c. 2 weeks per month ○ d. 1 week per month ○ e. I do not participate in aerobic training	15. On average, how many days per week do you engage in muscle-strengthening activites that work all muscle groups (legs, hips, back, abdomen, chest, shoulders and arms). ○ a. 4 or more days a week ○ b. 3 days a week ○ c. 2 days a week ○ d. 1 day a week ○ e. I do not participate in strength training
16. How often do you usually eat high-fat foods? *(e.g., fried foods; high-fat dairy products such as butter, cheese, or whole milk; regular salad dressing or mayonnaise; or packaged foods high in fats)* ○ a. At most or every meal ○ b. At least once a day ○ c. 3-5 times per week ○ d. 1-2 times per week ○ e. Rarely or never	17. About how many cups of fruit do you eat each day? *(One cup of fruit = one small piece of fruit, one cup of cut-up fruit, one cup of 100% fruit juice, or 1/2 cup of dried fruit)* ○ a. Four or more ○ b. Three ○ c. Two ○ d. One ○ e. Less than one	18. How often do you use over the counter (OTC) drugs, dietary supplements, or herbal products to help you manage your weight, enhance athletic performance, or treat depression? ○ a. Daily ○ b. Weekly ○ c. Monthly ○ d. Seldom ○ e. Never
19. How frequently do you floss your teeth? ○ a. Daily ○ b. Most days ○ c. Sometimes ○ d. Rarely ○ e. Never	20. About how many cups of vegetables do you eat each day? *(One cup of vegetables = one cup of raw or cooked vegetables, 1 cup of 100% vegetable juice, or 2 cups of raw leafy greens)* ○ a. Four or more ○ b. Three ○ c. Two ○ d. One ○ e. Less than one	21. How often do you get enough restful sleep to function well in your job and personal life? ○ a. Always ○ b. Most of the time ○ c. Sometimes ○ d. Rarely ○ e. Never
22. For both men and women, regarding your actions related to possible pregnancy: ○ a. I am not having sexual intercourse at this time in my life -OR- my partner or I are not fertile ○ b. My partner and I are pregnant - OR - are trying to have a baby now ○ c. My partner or I are correctly and consistently using birth control ALL the time ○ d. My partner or I are correctly using birth control MOST of the time ○ e. My partner or I are correctly using birth control SOME of the time ○ f. My partner and I are not using birth control		

FINISHED

Appendix B

CO Report Scoring Grid

Health Indicator	Health Behavior	Unhealthy Rating	Health Rating
Perception	1. Perception of health	c-d	a-b
Tobacco Use	2. Smoking	a-c	d-e
	3. Smokeless Tobacco	a-c	d-e
Alcohol Use	4. Drinks Per Day	a-b	c-d
	5. Heavy Drinking	a-c	d-e
	6. Drinking and Driving	a-c	d
Injury Prevention	7. Seat Belt	b-e	a
	8. Vehicle Helmets*	c-e	a-b
	9. Safety Equipment*	c-e	a-b
Stress Mngt	10. Life Satisfaction	c-d	a-b
	11. Work Stress	a-b	c-e
	12. Personal Support	c-e	a-b
Sexual Health	13. Condom Use	c-f	a-b
	22. Pregnancy Prevention	d-f	a-c
Physical Activity	14. Aerobic Activity	c-e	a-b
	15. Strength Training	d-e	a-c
Nutrition	16. High Fat Foods	a-c	d-e
	17. Fruits	d-e	a-c
Supplements	18. Supplements	a-c	d-e
Dental	19. Flossing	c-e	a-b
Nutrition	20. Vegetables	c-e	a-b
Sleep	21. Sleep	c-e	a-b
BMI		BMI≥25	

***Questions 8 & 9 allow respondents to select 'f' (Does not apply) as an answer. This answer is not included in the ratings.**

Reference:

1. Centers for Disease Control and Prevention BMI Web Site. Available at: http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/#Interpreted. Accessed September 2, 2009

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