

Patient Knowledge of and Barriers to Breast, Colon, and Cervical Cancer Screenings: A Cross-Sectional Survey of TRICARE Beneficiaries

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TRICARE Prime beneficiaries view cancer screening as important for overall health but may need more frequent scheduling reminders, education, and scheduling options to increase below-average screening rates.

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The National Defense Appropriations Act for fiscal year 2009, Subtitle B, waived copayments for preventive cancer screening services for all TRICARE beneficiaries, excluding Medicare-eligible beneficiaries.¹ These preventive services include screening for colorectal cancer (CRC), breast cancer, and cervical cancer based on current guidelines (Appendix, available at www.fedprac.com/AVAHO). TRICARE Prime is a health care option available to active-duty service members (ADSMs), military retirees, and their families, providing no-fee, routine cancer screening through a primary care manager (PCM) or any network (commercial) provider.

Despite having unrestricted access to these cancer screenings, TRICARE Prime beneficiaries report overall screening completion rates that are below the national commercial benchmarks established by the Healthcare Effectiveness Data and Information Set (HEDIS) for all 3 cancer types.² Specifically, among TRICARE Prime beneficiaries enrolled in the western region of the U.S. in October 2013, the reported breast cancer screening rate was 61.6% (43,138/69,976) for women aged 42 to 69 years, which is well below the HEDIS 75th percentile of 76%. Similarly, the reported rate of cervical cancer screening among women aged 24 to 64 years was 68.3% (63,523/92,946), well below the HEDIS 75th percentile of 79%. Last, the reported rate of CRC screening among male and female TRICARE Prime members aged 51 to 75 years was 61.6% (52,860/85,827), also below the 2013 HEDIS 75th

percentile of 63% based on internal review of TRICARE data used for HEDIS reporting.

Given the reported low screening rates, the Defense Health Agency (DHA) performed a cross-sectional survey to assess TRICARE Prime West region beneficiaries' knowledge and understanding of preventive health screening, specifically for breast cancer, cervical cancer, and CRC, and to identify any potential barriers to access for these screenings.

METHODS

A mostly closed-ended, 42-item telephone survey was designed and conducted (Appendix, available at www.fedprac.com/AVAHO). The survey was fielded from October to November 2013 among TRICARE Prime beneficiaries enrolled in the western U.S. (New Mexico, Arizona, Nevada, southwest corner of Texas, Colorado, Utah, Wyoming, Montana, Idaho, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Hawaii, California, Washington, Oregon, and Alaska). Data were analyzed from 2014 to 2015. The target sample included women aged 21 to 64 years and men aged 51 to 64 years to capture the appropriate age and gender populations for which screening for breast cancer, cervical cancer, and CRC apply. Because the focus was on TRICARE Prime members, the upper age limit was set at 64 years to exclude members aged ≥ 65 years, as this is the age when Medicare becomes the primary health plan among retirees. The sampled TRICARE Prime population comprised

active-duty and retired service members and their family members who were enrolled in the TRICARE West region at the time of the survey.

All women participating in the survey, regardless of age, were asked questions regarding cervical cancer screening. Women aged ≥ 42 years additionally were asked a second set of survey questions specific to breast cancer screening, and women aged between 51 and 64 years were asked a third set of questions related to CRC screening. The ages selected were 1 to 2 years after the recommended age for the respective screening to ensure adequate follow-up time for the member to obtain the screening. Men included in the survey were asked questions related only to CRC screening.

The target survey sample was 3,500 beneficiaries, separated into the following 4 strata: women aged 21 to 64 years of age enrolled in the direct care system ($n = 1,250$); women aged 21 to 64 years enrolled in the purchased (commercial) care network ($n = 1,250$); men aged 51 to 64 years enrolled in the direct care system ($n = 500$); and men aged 51 to 64 years enrolled in the purchased care network ($n = 500$). The random sample was drawn from an overall population of about 35,000 members. Sampling was performed without replacement until the target number of surveys was achieved. Survey completion was defined as the respondent having reached the end of the survey questionnaire but not necessarily having answered every question.

Data Elements

The preventive health survey collected information on beneficiaries' knowledge of and satisfaction with their PCM, the primary location where they sought health care in the previous 12 months, preference for scheduling cancer screening tests, and general knowledge about the frequency and type of screening for breast, cervical, and colorectal cancers. Responses were scored based on guidelines effective as of 2009. In addition, the survey collected information on the beneficiary's overall health status, current age, highest level of education achieved, current employment status, place of residence (on or off a military installation), race, and whether the beneficiary carried other health insurance aside from TRICARE.

Survey Mode and Fielding

A sampling population of eligible beneficiaries was created from a database of all TRICARE

Prime beneficiaries. An automated system was used to randomly draw potential participants from the sample. Survey interviewers were given the beneficiary's name and telephone number but no other identifiable information. Phone numbers from the sample were dialed up to 6 times before the number was classified as a "no answer." Interviewers read to each beneficiary a statement describing the survey and participation risk and benefits and explained that participation was voluntary and the participant could end the survey at any time without penalty or prejudice. The survey commenced only after verbal consent was obtained.

Sample Weighting and Statistical Analysis

Each survey record was weighted to control for potential bias associated with unequal rates of noncoverage and nonresponse in the sampled population. A design weight was calculated as the ratio of the frame size and the sample size in each stratum. For each stratum, an adjusted response rate (RR) was calculated as the number of completed surveys divided by the number of eligible respondents. Since all respondents were eligible, the RR was not adjusted. The ratio of the design weight to the adjusted RR was calculated and assigned to each survey.

Frequency distributions and descriptive statistics were calculated for all close-ended survey items. Open-ended survey items were summarized and assessed qualitatively. When appropriate, open-ended responses were categorized and included in descriptive analyses. No formal statistical testing was performed.

RESULTS

A total of 6,563 beneficiaries were contacted, and 3,688 agreed to participate (56%), resulting in 3,500 TRICARE beneficiaries completing the survey (95% completion rate), of whom 71% (2,500) were female. The overall cooperation rates were similar across the 4 strata. Interviews ceased once 3,500 surveys were completed. The largest distribution of respondents was aged between 55 and 64 years (37%) (Table 1). Respondents aged 21 to 24 years comprised the smallest percentage of the sample (7%). Nearly a third of respondents were dependents of ADSMs (30%), another 30% were retirees, and most respondents self-identified as white (Table 1).

TABLE 1
Participant Demographics

Demographics	Male, n (%) (N = 1,000)	Female, n (%) (N = 2,500)
Enrollment		
Direct care	500 (50)	1,250 (50)
Purchased care	500 (50)	1,250 (50)
Beneficiary category		
AD	21 (2)	206 (11)
Dependent of ADSM	7 (1)	1,049 (47)
Dependent of guard/reserve on AD	2 (<1)	131 (4)
Dependent of retiree	27 (3)	870 (30)
Guard/Reserve on AD	17 (2)	51 (2)
Retiree	920 (92)	133 (5)
Other/Unknown	6 (1)	60 (2)
Age range, y		
21 - 24	0	260 (12)
25 - 34	0	761 (34)
35 - 44	0	492 (20)
45 - 54	261 (27)	440 (16)
55 - 64	739 (73)	547 (19)
Ethnicity		
Hispanic or Latino	78 (8)	321 (13)
Non-Hispanic or Latino	909 (92)	2,169 (87)
Did not respond	13 (1)	10 (<1)
Race		
White	810 (81)	1,978 (79)
Black	76 (8)	142 (6)
Other ^b	114 (11)	380 (15)

Abbreviations: AD, active duty; ADSM, active-duty service member.

^aDirect care includes military treatment providers; purchased care includes all non-military, TRICARE contracted providers.

^bOther includes Asian; Native Hawaiian, or other Pacific Islander; American Indian, Alaska Native; or did not specify.

Barriers to Screening

A series of survey questions was asked about specific barriers to cancer screening, including the convenience of appointment times for the respondent's last cancer screening. The majority (69%, 2,415 of 3,500) responded that the appointment times were convenient. Among those who stated that times were not convenient and those who had not scheduled an examination, 66% responded that they did not know or were not sure how to schedule a cancer screening test.

Screening Preferences

Less than half of survey respondents (48%) reported that they received screening guideline information from their physician or provider;

24% reported that they performed their own research. Only 9% reported that they learned about the guidelines through TRICARE materials, and 7% of respondents indicated that media, family, or friends were their source of screening information.

The survey respondents who indicated that they had not scheduled a screening examination were asked when (time of day) they preferred to have a screening. Less than half (47%) reported that varying available appointment times would not affect their ability to obtain screening. One-quarter preferred times for screening during working hours, 20% preferred times after working hours, 6% preferred times before working hours, and 2% responded that they were unsure or did not know. The majority (89%) reported that they would prefer to receive all available screenings on the same day if possible.

Breast Cancer Screening

Nearly all (98%) of the 1,100 women aged between 42 and 64 years reported having received a mammogram. These women were asked a specific subset of questions related to breast cancer screening. Respondents were asked to state the recommended age at which women should begin receiving mammogram screenings. More than half (55%) provided the correct response (40 years old, per the U.S. Preventive Services Task Force guidelines).^{3,4} About three-quarters of respondents (789) correctly responded annually to the question regarding how often women should receive mammograms.

The survey also sought to identify barriers that prevented women from obtaining necessary breast cancer screening. However, the majority surveyed (85%) noted that the question was not applicable because they typically scheduled screening appointments. Only a few (3%) reported factors such as either themselves or someone they know having had a negative experience, discomfort, pain, or concerns of a false-positive result as reasons for not obtaining breast cancer screening. Of the 112 respondents to the open-ended question, 25% reported that their schedules prevented them from scheduling a mammogram in the past; 12% reported that an inconvenient clinic location, appointment time, or process prevented them from receiving a screening; and 13% reported forgetting to schedule the screening (Table 2).

Cervical Cancer Screening

Female respondents aged between 21 and 64 years (n = 2,432) were asked about the recommended age at which women should begin receiving cervical cancer screening. Only 1% of respondents provided the correct response (that screening begins at 21 years of age per the U.S. Preventive Services Task Force Report guidelines), while 88% provided an incorrect response, and 11% were unsure or did not provide any response.⁵ Among all respondents, 98% reported having had a cervical cancer screening.

Respondents were asked how frequently women should have a Papanicolaou (Pap) test. Responses such as “2 to 3 years,” “2 years,” or “every other year” were labeled as correct, whereas responses such as “every 6 months” or “greater than 3 years” were labeled as incorrect. Just 12% of respondents provided a correct response, whereas 86% answered incorrectly, and 2% did not answer or did not know. Of those who answered incorrectly, the most common response was “annually” or “every year,” with no notable differences according to race, age, or beneficiary category.

To better understand barriers to screening, respondents were asked to identify reasons they might not have sought cervical cancer screening. The majority (84%) reported that they typically scheduled appointments and that the question was not applicable. However, among 228 respondents who provided an open-ended response and who had not previously undergone a hysterectomy, 8% stated that they had received no reminder or that they lacked sufficient information to schedule the appointment, 21% forgot to schedule, 18% reported a scheduling conflict or difficulty in receiving care, and 13% noted that they did not believe in annual screening (Table 2).

Colorectal Cancer Screening

Eighty-seven percent of eligible respondents (n = 1,734) reported having ever had a sigmoidoscopy and/or colonoscopy. Respondents were asked for their understanding of the recommended age for men and women to begin CRC screening.⁶ Nearly three-quarters of respondents provided a correct response (n = 1,225), compared with 23% of respondents (n = 407) who answered incorrectly and 6% (n = 102) who did not provide a response or stated they did not know. Correct responses

were numerically higher among white respondents (73%) compared with black (62%) and other (62%) respondents as well as among persons aged < 60 years (73%) vs those aged ≥ 60 years (67%).

Respondents aged between 51 and 64 years were asked how often the average person should receive colon cancer screenings. The most common response was that screening should occur every 5 years (33%) followed by every 10 years (26%). This aligns with the U.S. Preventive Services Task Force’s recommendations for flexible sigmoidoscopy every 5 years or colonoscopy every 10 years.

Eligible respondents were asked to identify reasons they did not seek CRC screening. Eighty-six percent of respondents indicated that they typically scheduled CRC screening and that the question was not applicable. Among respondents who provided an open-ended response, 26% cited feeling uncomfortable with the procedure, 15% cited forgetting to schedule a screening, 15% noted a lack of information on screening, and 11% reported no need for screening (Table 2). Among the 1,734 respondents, 80% reported that they would prefer a fecal occult blood test (FOBT) over either a colonoscopy or a sigmoidoscopy. Only 51% reported that their PCM had previously discussed the different types of CRC screenings at some point.

DISCUSSION

The purpose of this large, representative survey was to obtain information on beneficiaries’ knowledge, perceived barriers, and beliefs regarding breast, cervical, and colorectal cancer screenings to identify factors contributing to low completion rates. As far as is known, this is the first study to address these questions in a TRICARE population. Overall, the findings suggest that beneficiaries consider cancer screening important, largely relying on their PCM or their research to better understand how and when to obtain such screenings. The majority received 1 or more screenings prior to the survey, but there were some common knowledge gaps about how to schedule screening appointments, relevant TRICARE medical benefits, and the current recommendations regarding screening timing and frequency. A commonly reported issue across all surveyed groups was inconvenient screening times.

More than half (55%) of respondents correctly noted that breast cancer screening begins

TABLE 2
Responses to Questions on Cancer Screening Timing, Frequency, and Barriers

Survey Questions	Breast Cancer (N = 1,100)	Cervical Cancer (N = 2,432)	Colorectal Cancer (N = 1,734)
Correctly identify age to initiate screening ^a	55%	1%	71%
Correctly identify screening frequency ^b	72%	12%	Every year for FOBT (5%) Every 5 years for sigmoidoscopy (33%) Every 10 years for colonoscopy (26%)
Typically schedule screening (yes)	85%	84%	86%
Primary screening barriers	Other (n = 112) Too busy (25%) Forgot (13%) Time, location, process (12%) Lack of information (11%) Personal life event (11%) Uncomfortable (8%) No need for screening (8%) Deployment/moving (6%) Do not want to go/other (6%) Bad experience, discomfort, pain, or false positive (3%) Don't know/don't want a physical (2%)	Other (n = 228) Forgot (21%) Schedule conflict (18%) Not necessary (13%) Lack of Information (8%) Not specified (7%) Child care (6%) Uncomfortable (6%) Deployment/moving (6%) Personal life event (6%) Insurance issue (5%) Changing/finding new doctor (3%) Bad experience, discomfort, pain, or false positive (2%) Don't know (2%) Don't want anyone to touch/look at me (2%) Don't want an exam (1%)	Other (n = 110) Discomfort/fear (26%) Forgot (15%) Lack of information (15%) Not necessary (11%) Do not want to go (7%) Inconvenient (6%) Not specified (8%) Personal life event (4%) Too busy (4%) Transportation issues (4%) Bad experience, discomfort, pain, or false positive (4%) Don't know (2%) Don't want anyone to touch/look at me (2%) Don't want an exam (1%)

Abbreviation: FOBT, fecal occult blood test.

^aAccurate responses to question on recommended age to begin screening: breast cancer: 40 years; colorectal cancer: 50 years; cervical cancer: 21 years, or earlier if sexually active.

^bAccurate responses to question on frequency of screening: cervical cancer: every 2 years (based on 2009 guidelines); breast cancer: yearly (based on 2009 guidelines); colorectal cancer: responses categorized as every year, every 3 years, every 5 years, every 10 years, and other (responses not fitting into categories listed).

at age 40 years (based on recommendations at the time the survey was conducted), and 72% understood when screening should occur. Despite access to care, inconvenient schedules and testing locations were considered the biggest barriers to regularly obtaining a mammogram. There are few studies on knowledge of breast cancer screening in an insured population available for comparison.⁷⁻¹⁰ One study of medically insured black and non-Hispanic women aged 43 to 49 years showed that lack of reminders or knowledge about the need for mammograms,

cost, being too busy, and forgetting to schedule appointments were all factors associated with nonadherence to repeat mammography examinations.⁸ In an integrative review published in 2000, authors cited that among 8 of 13 relevant studies, the major barrier to receiving a recommended mammogram was lack of physician recommendation.⁷

For cervical cancer screening, few respondents (1%) correctly identified the age for initiation of screening, and just 12% correctly identified the frequency of screening.

These findings are consistent with those of other studies, suggesting a general misunderstanding about Pap tests in the U.S. and among low-income women.^{11,12} Reported barriers to screening were uncommon but included scheduling conflicts and lack of reminders or information and were consistent with barriers cited in prior studies.^{13,14} A few respondents (13%) noted that they did not believe in annual screening, which is similar to the findings of Decker and colleagues who cited lack of knowledge about the test and belief that screening is of no benefit as reasons for failure to get a recommended Pap test.¹³ These findings suggest a need to improve patient-provider communication and to provide more patient educational materials about the importance of cervical cancer screening.

A large proportion (71%) gave the correct response regarding the appropriate age to initiate CRC screening. Discomfort with the procedure, belief that the screening is unnecessary, or lack of physician's recommendation were noted barriers to CRC screening. These findings are similar to those reported elsewhere in non-TRICARE populations.¹⁵⁻²⁰ Two focus groups included participants with little knowledge about CRC screening, such as risk factors and symptoms, and expressed fear and embarrassment about CRC and screening. Few of the focus group participants were aware of the available options for screening, and some were confused about the purpose and benefits of the various screening modalities.¹⁶

A Health Information National Trends survey reported that 24% participants had not received a colonoscopy or a sigmoidoscopy because their PCM did not order it or say that it was necessary.¹⁵ The reported perceived barriers included fear of an adverse finding, injury to the colon from screening, and embarrassment. A study performed in 1,901 Medicare-insured individuals with no history of CRC cited lack of knowledge/awareness and no physician order as the most common reasons for not undergoing CRC screening.¹⁸

Strengths and Limitations

A major strength of the current survey is the 56% completion rate, which far exceeds other survey participation rates that were as low as 9%.²¹ A second strength is the scope of the survey to capture information on not 1 but 3 different cancer screening practices in

a unique population who receive preventive screenings at low to no cost.

There are a few study limitations. The majority of respondents identified as white (80%), which does not fully align with the racial distribution of the TRICARE Prime population in the West Region, which is about 68% white. This higher proportion of white respondents may affect the ability to generalize findings to other populations. However, given the open access to care, race should not be a major factor contributing to screening decisions. Another potential limitation to the generalizability of the study is that the age of the respondents was capped at 64 years. Considering that some of the reported barriers to screening were "too busy" or "scheduling conflict," a study population that included respondents aged ≥ 65 years (who might be more likely to be retired) might report lower rates of these schedule-related barriers.

A third limitation is that most questions about prior screenings pertained to any time in the past, and, therefore, limited the ability to identify current factors leading to lower screening rates. Last, the survey was developed prior to the 2012 changes in cervical and breast cancer screening recommendations and was therefore scored based on prior recommendations. Given that the goal was to assess knowledge and barriers, results are not expected to differ greatly if they are scored using the newer guidelines.

CONCLUSION

Findings from this cross-sectional survey indicate high levels of knowledge among TRICARE West Region beneficiaries regarding when and how often screening for breast cancer, cervical cancer, and CRC should occur. To encourage TRICARE beneficiaries to seek and obtain recommended and covered cancer screenings, further efforts are needed, including more education about the importance of screening and how to obtain screening. The survey results suggest that TRICARE Prime beneficiaries view cancer screening as important for overall health but they require (and also may desire) more frequent scheduling reminders, education, and more options for scheduling. Newer modalities for communicating with beneficiaries, such as automated telephone appointment reminders, reminder texts, online appointment scheduling, educational blogs, podcasts on cancer screening, extended appointment hours, or

unconventional strategies to bundle screening services, are tools that could be used by providers to achieve greater compliance with cancer screening recommendations.

AUTHOR DISCLOSURES

The authors report no actual or potential conflicts of interest with regard to this article.

DISCLAIMER

The opinions expressed herein are those of the authors and do not necessarily reflect those of Federal Practitioner, Frontline Medical Communications Inc., the U.S. Government, or any of its agencies.

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