Problems with Using Women's Cancer Screening Rates to Measure Performance

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When a VA audit determined that the San Francisco VA Medical Center had underperformed with regard to breast and cervical cancer screening, these authors reviewed the medical charts of patients who were counted as screening failures. Their findings point to flaws with the VA's auditing process and its use of women's cancer screening rates as performance measures.

The VA uses breast and cervical cancer screening rates, as determined by its External Peer Review Program (EPRP), as performance measures for its facilities. The EPRP determines each facility's rates through audits of patients' medical charts that are performed by a private contractor. For each VA facility, a chart sample is chosen from female patients who have completed a visit to any one of 10 primary, medical or surgical specialty, and mental health care clinics affiliated with the facility. The charts are used to determine whether the patients had screening examinations completed during a preceding time period defined by the VA.[1] The VA uses this data in distributing report cards to VA facilities, ranking the facilities, awarding financial bonuses to senior executives, and penalizing low performing facilities in the budgeting process. Individual VA facilities use the data in their pay for performance systems to reward providers.

Our facility, the San Francisco VA Medical Center (SFVAMC) in San Francisco, CA, failed to meet the VA's targets for breast and cervical cancer screening every year from 2004 to 2007. In 2007, the SFVAMC's score for breast cancer screening was at a level that fell below the VA's predetermined performance "floor" and, thus, was to automatically invoke severe penalties for the facility—potentially amounting to a loss of millions of dollars in its budget for the next year—and the facility's VISN. In addition, the SFVAMC's score for cervical cancer screening was only slightly above the VA's floor level. To find out what went wrong, we completed a chart review of all "failed" patients—those who, according to the EPRP's audit, should have received screening but did not—in both the breast cancer and the cervical cancer samples.

We believe that the results of our review highlight problems with the VA's use of breast and cervical cancer screening rates as performance measures. Our review indicated that the SFVAMC performed poorly on the audits largely because the EPRP sampled many patients who had a low probability of benefiting from screening or who consistently refused to be screened. Beyond the SFVAMC's experience, we believe that the VA's numerical goals for breast and cervical cancer screening are arbitrary and that using the screening rates as performance measures encourages facilities to overemphasize low priority interventions, ignore informed patient preference, and displace more important clinical priorities. In this article, we describe the results of our review, discuss the shortcomings of the VA's current practices, and make recommendations for improving these practices.

SFVAMC REVIEW

The SFVAMC's 2007 failure to meet screening targets was determined by an EPRP audit of the electronic charts of patients who visited the facility during that fiscal year. The VA requires that women aged 52 to 69 years must have received a mammogram in less than the preceding two years and that women aged younger than 65 years must have received a Papanicolaou (Pap) smear in less than the prior three years.[1] To be considered fully successful under 2007 rules, a VA facility was required to have provided

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Table. Reasons for women's cancer screening failures in fiscal year 2007 at the San Francisco VA Medical Center

Category	Breast cancer screening failure, no.	Cervical cancer screening failure, no.
Serious mental illness	7	3
Serious medical illness	5	2
Multiple refusals without a serious comorbid condition	3	3
Test performed late	4	1
Episodic care	2	1
Transgender	2	1
Mistake on review (study was recorded)	0	1
Hysterectomy	N/A	1
Clinically significant screening failures	1	2
Total screening failures	**24**	**15**

appropriate breast and cervical cancer screening to 85% of sampled women. The floor levels for breast and cervical cancer screening were set at 75%.

The EPRP's audit of breast cancer screening at the SFVAMC included a sample of 92 patients aged 52 to 69, and it found that only 68 (74%) of these patients had a documented mammogram in the prior two years. Similarly, the EPRP's audit of cervical cancer screening at the SFVAMC included a sample of 69 patients aged younger than 65 years, and it found that only 54 (78%) of these patients had a documented Pap smear in the prior three years.

We reviewed the charts of all 39 patients whom the EPRP counted as breast cancer or cervical cancer screening failures. Our review indicated that the majority of the failures were due either to serious medical or psychiatric comorbidities that contraindicated screening—it is well recognized that patients with a poor overall prognosis will not benefit from cancer screening and should not receive it[2]—or to multiple refusals on the part of the patient. Although we found that many patients counted as screening failures had multiple reasons to have not been screened, we assigned the strongest clinical contraindication for each patient (Table).

Ten patients counted as screening failures had serious, contraindicating mental illness. All ten of these patients were taking at least two psychotropic medications, and most had multiple mammogram and Pap refusals documented in their charts. In addition, four of the screening failures with mental illness had long psychiatric admissions for depression or bipolar disorder, while the others received intensive outpatient services for posttraumatic stress disorder, depression, or schizophrenia.

Seven patients counted as screening failures had serious, comorbid, contraindicating medical conditions. These included, alone and in combination, diabetes, diabetic gastroparesis, renal failure on dialysis, coronary artery disease, recent coronary angioplasty, congestive heart failure, severe systemic lupus erythematosus, and oxygen dependent chronic obstructive pulmonary disease with enrollment in the VA's home-based primary care program.

Of the patients counted as screening failures who did not have serious physical or mental illness, six patients had multiple, documented, and consistent refusals to be screened, despite providers' educational efforts to the contrary. In addition, three patients counted as screening failures received only episodic care—a single, urgent care visit to a women's or primary care clinic without a follow-up visit. Two of those patients had a substance abuse diagnosis and did not attend scheduled follow-up appointments. Four additional patients counted as screening failures had screenings that took place fewer than five months after the screening due date because of patient-initiated postponements leading to delays that were, most likely, clinically insignificant. We also found that, of the 15 patients who were counted as cervical cancer screening failures, nine were older than age 50 and had a documented prior normal Pap smear, which placed them in a group at low risk for cervical cancer.[3]

Our review indicated that the EPRP had made two mistakes in its audit. One of the patients counted as a screening failure had received a hysterectomy, which is a contraindication that makes a Pap smear impossible. Another patient was counted mistakenly as a cervical cancer screening failure but actually had received a Pap smear.

The patients counted as screening failures also included two transgen-

dered and genetically male patients. Due to requests from these patients, their status as transsexuals was not displayed prominently in their medical records. Appeal to the highest level of the VA removed these patients as failures and brought the SFVAMC above the 75% floor level for breast cancer screening, thereby avoiding a severe financial penalty to the institution.

Overall, we found only three cases that we determined to be clinically significant screening failures. In order to achieve 85% screening compliance, SFVAMC would have had to coax or coerce about 10 more of the sampled patients to have a mammogram and about five more of the sampled patients to have a Pap smear. Extrapolated over the entire eligible women's population, such an endeavor would be incompatible with informed patient decision making and with U.S. Preventive Services Task Force (USPSTF) guidelines that suggest considering comorbid conditions and life expectancy in recommending for or against screening tests.[4]

IMPLICATIONS OF OUR REVIEW

The high percentage of patients with serious mental or medical illness that we found in our patient samples is related to the VA's current practice of sample selection. As mentioned, the EPRP selects its women's cancer screening samples from groups of female patients who have completed a visit to one of 10 primary, medical or surgical specialty, and mental health care clinics in the same fiscal year as the audit. Since many disease categories other than cancer screening (including hypertension, coronary disease, congestive heart failure, and diabetes) are monitored for performance, the EPRP process preferentially includes patients with these diagnoses in the breast and cervical cancer screening samples in order to enhance audit efficiency. Although this practice allows for fewer charts to be audited, the result is that patients are selected based on the presence of a comorbidity. Likewise, due to sampling from women who visit mental health clinics and to the short intervals between such visits, the EPRP sample is biased toward patients with serious mental illness.

The overall effect is that the EPRP reviews a biased VA population with a high prevalence of medical and mental illness. And since fewer than 100 women are sampled at most facilities over an entire year, these biases have serious effects. For one, they make VA results less comparable with private sector results as measured by the Health Effectiveness Data and Information Set (HEDIS), a performance measuring tool used by private health plans.[5]

Our finding that nine of the cervical cancer screening failures were from women older than 50 years who had a prior normal Pap smear highlights the problematic nature of the VA's Pap smear requirements. The potential benefit of each additional Pap smear drops substantially and predictably as women age and accumulate prior normal results. The cost-effectiveness of even triennial Pap smears in women older than 60 years who have had three prior normal tests approaches $1 million for each year of life saved, which is well above the limits accepted by health policy makers.[6] Such poor effectiveness has garnered the practice of continuing to screen women older than 65 years a "D" rating by the USPSTF—which indicates that, according to at least fair evidence, this practice is ineffective or has harms that outweigh its benefits.[7] The transition of a screening program from effective to ineffective based on patient age does not occur instantly at age 65 but varies according to each individual's risk and prior Pap smear results. Well informed, low risk women older than age 50 may reasonably refuse a Pap smear, and that decision should be respected.

BROADER PROBLEMS WITH PERFORMANCE MEASURES

We believe that, beyond the auditing problems suggested by our results, there are a number of broader problems with the VA's use of breast and cervical cancer screening rates as performance measures.

First, this use is an example of poor integration of evidence-based medicine and evidence-based management.[8] For instance, in 2007, the VA set the fully successful level of women's cancer screening at 85% because that success rate was proven achievable by the highest performing 20% of VA facilities; clinical efficiency and cost-effectiveness were not considerations. There is no evidence-based literature upon which to set screening rates based on a high quality care.

As performance measures, cancer screening rates are different from proven, effective treatments for patients with known disease. The delivery of effective treatments might be expected at an 85% rate because all patients would receive some benefit from such treatments. Cancer screening, however, requires patients without the disease to enter a program that requires uncomfortable examinations and follow-up tests and will not personally benefit the great majority of patients. Additionally, screening may cause unnecessary worry or result in a diagnosis of disease that will never become clinically evident.[9] Therefore, secondary prevention through screening is a lower health priority than treating active, serious medical problems. Screening also has a sig-

nificant opportunity cost. The practice of engaging in repeated screening discussions with an informed patient who consistently and appropriately refuses can interfere with addressing that patient's higher priority issues. Because a certain percentage of patients refuse consistently or have contraindications to screening, very high numerical screening goals are likely indicators of intrusive screening programs, rather than predictors of improved patient outcomes.

Second, although the VA arrived at its particular women's cancer screening rate goals by trying to "outperform" commercial health care[10] (presumably in an attempt to demonstrate its superiority over private sector care), it has not been consistent in making changes to those goals. Recently, based on an evidence-based review of the literature, the VA lowered its fully successful level for breast cancer screening to 72%, which made it consistent with the average 2008 HEDIS results. The VA did not conduct a similar review for cervical cancer screening, however, and it appears to have arbitrarily raised the fully successful cervical cancer goal from 85% to 90%, even though the HEDIS 2008 goal remained at 85%.[11]

A third problem with the VA's use of women's cancer screening rates as performance measures is that it can encourage counterproductive efforts on the part of VA facilities. For every year that the SFVAMC failed to meet the VA's cancer screening goals, it invested more resources in attempting to do so. The SFVAMC's standard efforts included providing patients with educational materials, training providers to encourage screening, and using computer-generated reminders. In addition, it built a nurse-run system to anticipate future visits, so that screening would be accomplished prior to a visit that might lead to an EPRP review. The facility also encouraged special screening appointments, arranged special patient transportation, and responded to failed appointments by calling and reminding patients repeatedly. Some successful VA programs employ a full-time staff person just to meet this performance measure. We believe, however, that such repeated efforts are not an effective use of resources.

Women's clinics at some VA facilities focus on cancer screening, rather than comprehensive primary care. Many continue to recommend a yearly mammogram and Pap smear—even though there is little additional benefit from more frequent screening and the USPSTF has not advocated yearly frequency for more than a decade. Yearly screening is known to increase the harm from additional workups of false-positive tests, and it is much less cost-effective than biyearly mammograms and tri-yearly Pap smears for age-appropriate patients.[4] Too frequent screening also over-samples and over-screens adherent patients, although this practice does raise the VA performance measure score. Annual screening at some VA facilities is possibly the factor that led to the very high success rates at the highest performing 20% of VA facilities—which, in turn, led the VA to set its fully successful level at 85%.

In 2009, the VA created an initiative to transition its women's clinics from gender-specific cancer screening clinics to clinics that provide comprehensive primary care and mental health services. The SFVAMC women's clinic has provided such comprehensive care for more than a decade. Altering VA's cancer screening performance measures will help that transition, by decreasing the over-emphasis on screening.

AN ONGOING IMPROVEMENT PROCESS

In recent years, the VA has showed a willingness to improve its quality measures for colon cancer screening. Walter and colleagues demonstrated in 2004 that there were problems with converting colon cancer screening guidelines into performance measures.[12] Shortly thereafter, the VA revised its colon cancer screening criteria by adding an upper age cutoff of 80 years for required screening. (The USPSTF recently lowered its cutoff to 75 years.[13]) The VA also has initiated a major national project to improve the entire process of timely diagnosis and treatment of colorectal cancer.

We hope that our findings will encourage the VA to undertake a similar reevaluation of its breast and cervical cancer screening performance measures. The VA must recognize that higher is not always better, especially for cancer screening programs. It must develop more sophisticated cancer screening measures that encourage the availability, convenience, and efficiency of evidence-based screening in the context of comprehensive primary care, and it must ensure that positive results lead to appropriate and timely follow-up and treatment. Screening audits must target the records of a representative sample of women for whom screening is highly recommended, adopt larger sample sizes, avoid sampling patients who have a life expectancy that is shorter than the potential benefit incurred by screening, and avoid over-sampling patients with multiple comorbidities.[14] Finally, the screening process must respect patient autonomy and avoid penalizing informed patient refusal.

The VA is acknowledged widely as a leader in providing high quality care, surpassing the private sector in many HEDIS measures.[15] Much of this success is due to its practice of

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integrating evidence-based quality measures into its performance measure system. The VA's specific measurement methodologies, however, must be adjusted and improved regularly. By modifying its breast and cervical cancer screening performance measures, the VA would further posture itself as a leader in health care quality.

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