The idea of screening is seductive—isn’t it always better to find things early, rather than late? Screening, defined as testing for a condition when the person has no recognized signs or symptoms of that condition, is widespread and popular. Patients often want screening tests done and clinicians, for a variety of reasons, want to provide them. The purpose of screening, however, is not only to detect a condition but also to help people live better or longer. Early detection of disease by itself is insufficient to justify a screening program. Screening must also demonstrate that people live better or longer as a result of earlier detection and subsequent treatment.

Weighing the Benefits

Screening is not a single test but rather a cascade of events that can lead to either benefits or harms. Potential benefits, living better or longer, are usually experienced some years after screening. Potential harms, including the effects of false-positive or false-negative screening tests and problems that result from overdiagnosis and overtreatment, are usually suffered soon after screening. Because screening programs may lead to either net benefit or net harm, decision makers must carefully evaluate proposed programs.

Among the factors to be considered, accuracy of the screening test is less critical than effectiveness of early treatment. For a screening program to improve health outcomes, it must include a treatment that is not only effective but that is also more effective if applied earlier than later. If the treatment works just as well later in the course of the disease, screening for early detection is not necessary.

Screening for a number of conditions has been shown to meet these criteria. These conditions include: breast, cervical, and colorectal cancer; hypertension, dyslipidemia, and abdominal aortic aneurysm; infectious diseases including HIV and several other sexually transmitted infections in certain populations; obesity, diabetes, and osteoporosis in selected groups; and depression, alcohol misuse, and tobacco use.

Who Should be Screened?

Recommendations for specific screening tests vary by age, gender, and other risk factors. Groups targeted for screening are those in whom the prevalence of the disease is substantial enough to warrant attention. The balance between benefits and harms may be different in people with different risk factors. For example, consider screening for abdominal aortic aneurysm by ultrasonography, which was recently recommended for men age 65 to 75 who have ever smoked by the U.S. Preventive Services Task Force and endorsed by the VHA Office of Quality and Performance. Although the condition does occur in women and in men who have never smoked, the prevalence is greatest among older men who have smoked. For this specific group only, the magnitude of benefits likely outweighs the known harms of screening and treatment (surgical morbidity and mortality).
Director’s Letter

With 185 plenary sessions, exhibits, workshops, and poster sessions, our Health Services Research & Development Service (HSR&D) National Meeting demonstrated the breadth of HSR&D research and its importance to veterans' healthcare. A highlight was the presentation of the Under Secretary’s Award for Outstanding Achievement in Health Services Research to Dr. Eugene Oddone. (See pg. 7 for details).

The quantity and quality of HSR&D work continues to be impressive. In March, the ScientificMerit Review Board reviewed 145 proposals, of which we hope to fund 37 by Fiscal Year 2007. This brings the funding average over the last three review cycles up to approximately 22 percent. Excellent proposals that are particularly responsive to HSR&D and Office of Research and Development solicitations will receive priority funding. We were pleased to receive many such projects this last round, including projects focused on issues critical to Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) veterans. Other highly scored Investigator-Initiated Research proposals will be funded as applicants complete any conditions such as just-in-time institutional review board documentation and as funds become available. In the Quality Enhancement Research Initiative (QUERI) program, three (27 percent) Service-Directed Project proposals reviewed between August 2005 and March 2006 were funded. HSR&D will continue to emphasize research that addresses the health and care of veterans. In addition, we are working to streamline the “intent to submit” and proposal process by developing electronic submissions.

The search for a new Director of HSR&D is underway. While it continues to be rewarding and challenging to serve as Acting Director of HSR&D, I look forward to welcoming a new Director in the near future.

Shirley Meehan, M.B.A., Ph.D.
Acting Director, HSR&D

Upper age limits for screening are important to consider. For most conditions, any life extension from screening does not occur immediately after screening but rather some years in the future. Thus, to realize the benefit from screening, one must live a certain period into the future and be well enough to withstand the confirmatory tests and treatment that may result from a positive screening test. As people age, however, the risk of dying from other conditions may be higher than the risk of dying from the screened condition. Or, their general health may be such that screening, including follow-up tests and treatment, would not be appropriate.

"Early detection of disease by itself is insufficient to justify a screening program. Screening must also demonstrate that people live better or longer as a result of earlier detection and subsequent treatment."

Health care providers need to take into account a person’s estimated life expectancy and overall health status in the decision about screening. An abstract presented at the 2006 HSR&D National Meeting reported that 27 percent of men age 90 and older seen in VA medical facilities had a PSA test for prostate cancer screening in 2003 and that screening for men age 70 and older did not vary by overall health status.1 Given that the benefits of PSA screening have not been definitely proven for men in any age group, screening men in their nineties or younger men with limited life expectancy can result only in harms and wasted effort and costs.

Screening in VA

Screening programs in VA should not only emphasize recommendations that have the most favorable benefits-to-harms balance for individuals, but should also focus on those recommendations that will have the greatest impact at the population level. The demographics of the VA patient population—largely older men—suggest that screening programs focused on risk factors for heart disease (blood pressure, lipids, and smoking) will have the greatest impact on helping veterans live better or longer.

For women, the traditional focus has been on breast and cervical cancer screening programs. VA providers must also remember that, just as in men, heart disease is the leading cause of mortality in women, so focusing on screening and interventions for those cardiovascular risk factors is equally important for women. Screening for colorectal cancer and depression is also important in helping veterans live better and longer. While not ignoring other recommended screening tests, increasing these high priority services will lead to the largest improvements in health outcomes for both men and women.

Shared decision making between patients and providers is a critical element in the screening process. We need to learn more about effective and comfortable ways for patients and clinicians to engage in this activity. The research agenda around screening—what tests to do, for whom, and how to get them done—remains full.

References

Response to Commentary

Individualized Screening

By Sandeep Vijan, M.D., M.S., HSR&D Center for Practice Management & Outcomes Research, Ann Arbor, MI

The U.S. health care system is in the midst of a gradual shift away from treatment of acute conditions to prevention of disease. An emphasis on screening is a major part of this trend. The driving force behind this shift seems to be common sense: early detection, leading to early treatment, should lead to better health. As straightforward as this seems, however, human health is invariably complex and screening is rarely without unanticipated consequences.

Screening Decisions Are Complex

In her commentary, Dr. Kinsinger notes that balancing both the harms and the ultimate benefits of screening (ideally measured in life expectancy and quality of life) is necessary in order to make appropriate screening decisions. Adding to the complexity of decision-making is a myriad of conditions that may be amenable to screening, a variety of screening tests, and questions about who, when, and how often to screen. In most cases, we have only limited answers to these questions.

Organizations such as VA and the U.S. Preventive Services Task Force have reviewed the existing screening literature carefully and have recommended screening for only the subset of conditions pointed out in Dr. Kinsinger’s commentary. In these situations, either randomized trials or overwhelming observational evidence have shown that, on average, there are benefits to screening. Unfortunately, trials are often limited in inclusion criteria and scope, and we often must extrapolate screening decisions beyond those included in trials. Further, only limited screening approaches have been tested in most trials; few studies, for example, compare various intervals for screening, or examine competing screening options.

“Adding to the complexity of decision-making is a myriad of conditions that may be amenable to screening, a variety of screening tests, and questions about who, when, and how often to screen. In most cases, we have only limited answers to these questions.”

The variability in test options, intervals, and accuracy is important to consider. From a health system perspective, inaccurate screening tests and overuse of screening are problematic. In a fixed resource system such as VA, false positives consume limited resources, may delay appropriate evaluation of other patients, and lead to potential harms associated with follow-up testing.

The limitations of the current literature on screening make applying trial evidence to individual patients challenging, and few trials have been examined in ways that help us evaluate individual risks and benefits. At present, we are almost certainly overusing screening in patients unlikely to benefit and underusing it in those who are likely to benefit.

Screening in the Elderly

A common question about screening is: “When do you stop?” The answers to this question seem to vary with the disease under consideration and the type of test being performed.

The vast majority of benefit from cancer screening is achieved before age 75 for breast cancer, age 80 for colon cancer, and age 65 for cervical cancer. However, when disease risk increases with age, the yield of screening tests is higher in the elderly, and screening may be reasonable. Some guidelines are clear on when to stop screening. Cervical cancer screening is not recommended past age 65.

Mammography is probably effective and cost-effective for some older women, and should be considered in those without significant comorbidities. Fewer data are available to guide us on when to stop colorectal cancer screening. As a rule of thumb, if the patient has a life expectancy of less than 10 years, then screening with endoscopy is probably not warranted.

A few general guidelines apply. Clinicians need to be aware of the nature of the disease when counseling patients; diseases that are less prevalent in the elderly (e.g., cervical cancer) generally do not warrant screening. Screening for diseases with higher prevalence should be considered, but the likelihood of benefit and harm must be taken into account. For example, in the typical elderly VA patient with significant comorbidities, competing risks of death will significantly limit the benefits and amplify the harms of screening. Most importantly, patient preferences must play a role in all screening discussions.

Reference

Screening for Mental Health and Substance Use Disorders

By Richard R. Owen, M.D., Center for Mental Healthcare & Outcomes Research, Central Arkansas Veterans Healthcare System, Kathryn M. Magruder, Ph.D., M.P.H., Ralph H. Johnson VAMC, and Daniel R. Kivlahan, Ph.D., Substance Use Disorders QUERI, VA Puget Sound Health Care System

As treatments for mental disorders have become more effective and acceptable to patients, the case for screening and early recognition of these disorders is strengthened. Early recognition raises the possibility of preventing the development of other mental and substance use disorders which so often are co-occurring. Much research has focused on development and validation testing of brief screening instruments that can detect risk for disorders such as depression, post traumatic stress disorder (PTSD) and other anxiety disorders, and substance use disorders (SUDs). VA clinical practice guidelines recommend that all patients be screened for depression, alcohol misuse, and PTSD on the initial visit and annually.

Early Intervention Needed

Two recent developments have heightened attention to screening and prevention of mental disorders within VA. First, substantial proportions of returning OEF/OIF veterans are likely to need mental health care, and early intervention and treatment could improve long-term outcomes. VA implemented a national clinical reminder for post-deployment screening that prompts providers to administer the Primary Care PTSD screen, the AUDIT-C for alcohol misuse, and the Patient Health Questionnaire-2 for depression. The current emphasis on PTSD screening is needed, as almost half of patients with a research diagnosis of PTSD did not have this diagnosis noted in the medical record by their primary care provider. The second development is the report of the President’s New Freedom Commission on Mental Health and the subsequent development of the VA Comprehensive Mental Health Strategic Plan. This document calls for improved access to mental health care in VA and recommends screening for co-occurring mental and substance use disorders and linkage with treatment strategies.

While there are a number of screening measures with sound psychometric properties, relatively little is known about optimal implementation of such measures in VA. Annual screening of the entire population for mental health disorders such as depression is unlikely to be cost-effective. Research using FY2002 External Peer Review Program (EPRP) data on depression screening found that, while 8.8 percent of cases screened positive, only about half had further assessment documented. Only 1.1 percent of cases screened received a new depression diagnosis. Furthermore, patients that were more likely to screen positive (i.e., those who are younger, unmarried, or have greater medical comorbidity) were less likely to be screened. These findings suggest that improved implementation of depression screening and assessment would result in higher detection rates.

Targeted screening of high-risk populations (e.g., OEF/OIF veterans for PTSD, depression, and SUDs; pain patients for depression; PTSD patients for SUDs) is likely to be the most cost-effective approach to improving recognition of these disorders; however, researchers must assess the feasibility and cost-effectiveness of these approaches in routine care settings.

New Approaches to Assessment and Treatment

HSR&D investigators have developed and tested approaches aimed at improving assessment and treatment of mental health disorders. For example, David Oslin and colleagues have developed and tested a “behavioral health laboratory” to improve diagnostic work-up as well as follow-up monitoring. Implementation of an evidence-based collaborative care model for depression called “TIDES” (Translating Initiatives in Depression into Effective Solutions) is underway in four VISNs as part of an HSR&D-funded project led by Lisa Rubenstein and Ed Chaney. John Fortney and colleagues have developed and tested a similar model of depression care that includes telemedicine in rural Community Based Outpatient Clinics. Also, a current HSR&D study led by Kathy Bradley will evaluate the association of AUDIT-C scores with a range of health outcomes as a way to help “calibrate” the risks associated with alcohol misuse.

More research is needed to identify effective and efficient screening approaches. With a new cohort of veterans who may be more amenable to mental health treatments, VA should not miss the opportunity to implement effective screening and follow up.

References

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The Effectiveness and Cost Effectiveness of Screening for HIV

By Douglas K. Owens, M.D., M.S., VA Palo Alto Health Care System and the Center for Primary Care and Outcomes Research, Stanford University

Screening for a disease refers to testing individuals who are asymptomatic and are therefore unaware of whether they have the disease. The rationale for screening is that, for some diseases, early treatment is more effective than is treatment offered later in the course of the disease. For example, screening and early treatment for breast and colon cancer lead to better outcomes.

Screening for an infectious disease offers a second potential benefit—reduced disease transmission. For screening to help reduce disease transmission, either treatment or changes in behavior must reduce the likelihood of transmission. If screening for a disease provides benefits by making early treatment possible, reducing transmission to others, or both, then there is the remaining question of whether these benefits justify the costs of screening.

HIV Screening in VA

VA is the largest provider of HIV care in the United States, with close to 19,000 patients in care. HIV is a strong candidate for screening. First, the weight of evidence indicates that treatment given earlier in the course of HIV does lead to better outcomes when compared to treatment received during advanced stages of the disease. Second, HIV transmission can be reduced if infected individuals take steps to reduce risk behaviors, such as unprotected sex or needle sharing.

The importance of reducing transmission is highlighted by estimates from the Centers for Disease Control and Prevention (CDC), indicating that as many as 20,000 new HIV infections annually can be attributed to people who are unaware of their HIV-positive status. Finally, evidence from within VA and elsewhere suggests that many patients are diagnosed with HIV late in the course of disease, when the opportunity for preventing adverse outcomes has been markedly diminished.

As part of the HIV QUERI, we undertook a study to determine whether screening for HIV is effective and cost effective. We used a mathematical model to estimate the benefit of screening to the individual identified as having HIV, the benefit from reduced HIV transmission, and the cost of screening.

We found that when individuals were identified through screening as being HIV-positive, early treatment resulted in an additional 1.5 years of life expectancy compared to those individuals for whom treatment began later, when they became symptomatic from HIV. This comparison indicates a sizable increase in life expectancy, and reflects the success of current antiretroviral therapy in reducing mortality from HIV. We also found that the benefit from reduced transmission increased the total benefit of screening by about 40 percent, a substantial increase. This finding highlights an important public health benefit from screening.

Finally, we found that screening was cost effective and compared favorably to the cost effectiveness of other screening and treatment interventions for HIV and other diseases. A cost-effectiveness analysis done independently by a highly experienced team from Yale University and Harvard University came to similar conclusions about the cost effectiveness of screening.

Cost Effectiveness of Screening

A key policy question is which populations should be screened? One of the important determinants of the cost effectiveness of screening is the prevalence of HIV infection. Prior screening guidelines from the CDC have recommended screening in populations in which the prevalence of HIV is 1 percent or greater. Our analysis indicated that screening would be cost effective even when the prevalence of undiagnosed HIV was 0.05 percent, twenty times lower than the CDC threshold. The implication of this finding is that screening should be conducted in the vast majority of health care settings. The CDC is currently revising its screening guideline.

The evidence is clear that people with HIV are being diagnosed late in the course of disease in the United States. The current system of identifying HIV disease is seriously deficient. For a reasonable investment of health care resources, screening for HIV offers substantial benefit both to the individual who is identified and to the community from reduced transmission of HIV.

References
Organizational Profile

The Colorectal Cancer Quality Enhancement Research Initiative

By Melissa Partin, Ph.D., CRC QUERI, Minneapolis VA Medical Center

The Colorectal Cancer QUERI (CRC QUERI) is one of 10 VA HSR&D QUERI centers working to improve the care of veterans by increasing the rapid implementation of evidence-based best practices. The specific mission of the CRC QUERI is to promote the translation of research discoveries and innovations into patient care and systems improvements in order to reduce the incidence, late detection, suffering, and mortality from colorectal cancers among all veterans.

Partnerships—A Key Strategy

Effective implementation and system change requires alignment of diverse parties within the organization. Several strategies have proven useful in developing the alignment necessary to carry out our mission:

- We have developed partnerships with numerous operations and policy leaders, VISN leadership, and frontline clinic staff;
- We are actively forging a community of practice that is inclusive of researchers, management, and clinicians; and
- We are applying the six-step QUERI process within a rigorous, conceptually-driven framework.

Partnerships with operations and policy leaders pervade all aspects of CRC QUERI activities. Our executive committee brings a diverse group of researchers together with representatives of the Office of Quality and Performance (OQP), Patient Care Services (PCS), and VISN-level Chief Medical Officers (CMOs). This approach assures leadership a voice in the QUERI agenda, priorities, and strategic plan. Members of the CRC QUERI executive committee bring the voice of research into the policy arena by sitting on key policy committees, including the Gastrointestinal Field Advisory Group, the Evidence-Based Practices Workgroup, and the National Performance Measurement Workgroup.

CRC QUERI also partners with non-VA leadership through its relationship with the National Cancer Institute’s Quality Cancer Care Committee (QCCC). The QCCC is not only a dissemination vehicle for the CRC QUERI but also allows us to improve care for veterans by applying lessons learned by other federal agencies such as the Centers for Medicare and Medicaid Services, Health Resources and Services Administrations, Indian Health Service, and Centers for Disease Control and Prevention.

We partner with national and VISN leadership and frontline clinic staff on specific projects, most recently the Colorectal Cancer Care Collaborative (C4). This ground-breaking work is a partnership between OQP, QUERI and the Office of the Deputy Under Secretary for Health for Operations and Management (represented by the Advance Clinic Access program). We are working with twenty-one quality improvement teams, in one facility per VISN, to improve the timeliness and quality of diagnosis and treatment of colorectal cancer. Phase I of the C4 project, addressing screening and diagnosis, is currently underway and teams are in the process of implementing targeted quality improvement interventions.

The tools, techniques, and insights that emerge from these efforts are being cataloged and shared within the collaborative through a web-based “tools warehouse.” Best practices will eventually be made available to the entire VA. Phase II will focus on colorectal cancer care. We will examine variations in care and describe the types of care provided for veterans. Through these efforts, a powerful alignment of VISN-level and frontline staff, policy, operations, and research is transforming VA practice in the area of colorectal cancer early detection and treatment.

We are sustaining our various partnerships by creating a community of practice. The CRC QUERI has three principle ways of bringing our community together. The CRC QUERI Affiliate Forum is a quarterly newsletter covering a variety of research issues. The Clinical Brief is a letter to clinicians that provides detailed information on a single patient care issue each quarter. And, the Cyber seminar series brings clinicians, management, and researchers together to discuss findings presented by leaders in the field of colorectal cancer.

The CRC QUERI approach is characterized by systems thinking. At each step in the QUERI process, we consider how patient, provider, and organizational factors interact. We conduct thorough, but rapid, needs assessments to understand clinical problems and the needs of management and clinicians. We have found that “one size does not fit all” in the VA and that problems that appear similar on the surface may require different action across facilities.

For programs to be adopted and sustained in the field, we need to consider the implementation system that is made up of change agents (such as QUERI, Advance Clinic Access, OQP), operations and management, and frontline clinical staff and providers. A constant dialogue is critical so that CRC QUERI continues to improve and to reflect the state of the art in knowledge, organizational values and priorities, and the real world constraints encountered in medical care.

For more information or to be added to our email list(s), please contact Adam Powell at Adam.Powell@va.gov.
A Recap of the HSR&D National Meeting

More than 500 researchers, clinicians, and policy makers participated in VA HSR&D’s 24th National Meeting held February 16-17, 2006 in Arlington, VA. The meeting, with the theme “Implementing Equity: Making Research Work for Diverse Veteran Populations,” focused on issues vital to improving health care equity. With 185 plenary sessions, exhibits, workshops, and poster sessions, the conference provided a unique opportunity for discussion, collaboration, and development of strategies to improve the care of our diverse veteran population.

Hosted by HSR&D’s Center for Health Equity Research and Promotion (Pittsburgh and Philadelphia), the meeting highlighted a range of issues, including disparities in medical procedures, telemedicine-based collaborative care to reduce rural disparities, and racial differences in attitudes toward innovative medical technology. Researchers also addressed chronic diseases and other health care issues that affect many veterans, including prostate cancer, HIV, hypertension, mental health, vocational rehabilitation, women’s health, and the health concerns of elderly veterans.

Highlights

Health policy expert Uwe Reinhardt, Ph.D. and his son, Captain (USMC) Mark Cheng Reinhardt gave an inspiring keynote address, “Opportunities and Challenges for VA Health Care: Perspectives from a Health Economist and a Combat Veteran.” Captain Reinhardt recently returned from duty in Iraq and Afghanistan and shared his personal story of how he was wounded when an improvised explosive device hit his Humvee. He praised the care he received, describing the efforts of the initial field trauma team that stabilized him, his transfer to a hospital in Germany, and then, finally, his journey home. In his remarks, Captain Reinhardt discussed the needs military men and women face when transitioning from soldier to civilian, especially if they are wounded. He emphasized the importance of making the transition from Department of Defense to VA health care as seamless as possible. Dr. Reinhardt, Professor of Economics and Public Affairs at Princeton University, spoke of the VA health care system’s economic efficiency, stressing the “moral imperative” of sharing with the private sector VA’s experience in providing better care for less.

In his remarks, Arthur Hamerschlag, VHA’s Chief of Staff, described VA’s research priorities, including obesity, mental health, aging, end of life care, and the needs of a new generation of veterans returning from OEF and OIF. Hamerschlag urged that VA research continue to address the health care needs of these young men and women who may struggle with complex service-related health care needs for many years to come.

Other meeting highlights included a talk given by VA’s Chief Research and Development Officer, Joel Kupersmith, M.D. Dr. Kupersmith described VA’s long-term vision to provide optimal care for veterans with polytraumatic injuries such as brain injury, burns, and spinal cord injury. He also discussed the importance of linking genetic information to VA’s electronic medical record system.

Planning for the next HSR&D National Meeting is underway. The theme will be “Managing Recovery and Health Through the Continuum of Care.” The Meeting is tentatively scheduled for February 2007 in Washington, DC. Watch the Web for details at www.hsrd.research.va.gov.

Oddone Receives Under Secretary’s Award for Outstanding Achievement in Health Services Research

Eugene Oddone, M.D., director of HSR&D’s Center for Health Services Research in Primary Care in Durham, N.C., has received this year’s prestigious Under Secretary’s Award for Outstanding Achievement in Health Services Research. Arthur Hamerschlag, VHA’s Chief of Staff, presented the Award at the HSR&D National Meeting.

The award recognizes Dr. Oddone’s innovation in health services research and his examination of ways to improve the effectiveness and delivery of primary care, reduce racial disparities in health care, and foster self-management among veterans with chronic illness. His work in identifying the underlying causes for racial disparities in access to and use of health care was instrumental in establishing an important new VA research agenda.

Dr. Oddone has served as director of the Center for Health Services Research in Primary Care for the past eight years. Under his leadership, the number of investigators and amount of peer-reviewed funding at the Center has increased significantly.
gain the most benefit. Further, we must be careful that quality monitoring and pay-for-performance metrics do not encourage clinicians to provide unwanted or unnecessary screening tests. Work done by VA investigators, for example, has shown that such measures do not accurately include patients who refuse screening (in many cases, appropriately, in view of age and comorbidities) after discussion with a provider.3

A Tailored Approach to Screening Needed

The argument for a more tailored approach to recommending, implementing, and measuring screening is a strong one and most clinicians intuitively (though perhaps not quantitatively) incorporate clinical risk when making decisions. Adequate implementation of this type of approach, however, requires substantial further inquiry to better define population and individual risks and benefits. Even with better quantification of individual benefit, a paradigm of shared decision-making is necessary to ensure that patients are making appropriate and informed decisions. Research to help better inform quantitative and qualitative aspects of decision-making is a growing area and merits more attention.

Understanding when, in a given individual, screening is worthwhile, and when it is either harmful or an inefficient use of resources, is critical to improving our delivery of screening services. ■

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