

Increasing Cancer Screening Rates in Primary Care



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KEYWORDS

- Cancer screening • Primary care • Primary care clinicians • Population management
- Physician reminders • Patient reminders

KEY POINTS

- A recommendation from a trusted source of primary care is one of the strongest predictors of whether screening does or does not occur.
- In order to achieve the highest possible population-wide screening rates, primary care clinicians must embrace the responsibility to screen their entire enrolled patient population, institute several overarching general approaches to screening, and implement a combination of evidence based interventions.
- The result of following the road map outlined in this review is that more patients will be screened, more cancers prevented, and fewer preventable cancer deaths will occur.

Screening for cervix, colorectal, breast and prostate cancer has led to substantial reductions in disease-specific and overall cancer mortality, and screening high-risk populations for lung cancer has been demonstrated to reduce mortality by at least 20%.^{1,2} Screening for all of these cancers has been shown to be cost-effective and rank among the most cost-effective of all preventive interventions.³ In certain scenarios combining screening and treatment, screening for prostate cancer is cost-effective.⁴ Achieving high rates of cancer screening, however, is very difficult. Numerous barriers related to how care is organized and delivered in the United States, as well as barriers related to the lives of patients, the neighborhoods they live in, their personal attitudes and beliefs, the availability of primary and specialty care, and financial resources must all be addressed to ensure that the highest possible number of patients derive the proved benefits of cancer screening.⁵

Responsibility for promoting screening varies from country to country. Many high-resource nations that provide some form of national health care centralize the responsibility for recommending and delivering screening services.⁶ When done well, high population-wide screening rates are achieved. Primary care clinicians in many of these countries reinforce the recommendation to be screened but are not primarily

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responsible for implementing screening. In the United States, although numerous parts of the health system contribute to screening, responsibility to deliver cancer screening services falls principally on primary care clinicians. For most patients whether or not their primary care clinician recommends that they be screened for a particular cancer is a determining factor in whether screening occurs.^{7,8} This article focuses on the role of primary care clinicians and primary care-based systems in achieving the highest possible screening rates for the populations they serve and provides a roadmap for primary care clinicians and their teams to increase screening within their practices.

On a personal note, the authors of this article are all primary care physicians with many combined years dedicated to clinical and public health practice. We know how easy it is to be caught up in the day-to-day rhythms of acute and chronic care management while addressing the multitude of demands on time, resources, and attention. But cancer is the leading cause of death before age 85 years and the leading cause of premature mortality in our nation. Cancer screening will prevent more premature deaths than almost anything else we do in our practices. Failing to achieve the highest possible rates of cancer screening is very costly as measured by avoidable advanced cancer diagnoses and cancer-related death. Mobilizing our clinical teams to help all patients in every community overcome barriers to cancer screening represents one of our best opportunities to reduce the devastating impact of cancer for all.

BARRIERS TO SCREENING

Numerous barriers must be addressed and overcome to increase screening rates. A brief summary of these barriers follows.

Health System Barriers

Individuals who are uninsured and/or do not have access to a primary care clinician are far less likely to be up to date with cancer screening than patients who have health insurance and a trusted source of primary care.^{9,10} Usually, but not invariably, patients enrolled in fully integrated health systems that combine a closed network of clinicians with health insurance are more likely to receive screening recommendations and reminders and to be up to date with screening than patients covered by traditional open network health insurance.¹¹ Aspects of practice organization, particularly practice autonomy and level of support services, correlate with higher screening rates.¹²

Patient-Related Barriers

Although insurance status is a predominant barrier to screening, other patient-related characteristics affect screening. Patients with lower income, lower educational achievement, and less social support are less likely to be up to date with cancer screening. Regardless of income and insurance status, individuals who are less interested in preventive care, actively resistant to screening for cancer, or who must prioritize issues other than health care are less likely to be screened. Cultural factors, language barriers, and certain beliefs, such as nihilism and fatalism, correlate with lower likelihood of being screened.¹³ In general, African American, Asian, Hispanic, and Native American/Alaska Native populations are more frequently affected by most of the barriers outlined earlier, which likely contributes to the lower prevalence of screening in these groups compared with other populations.^{2,14}

Practice Barriers

Health system and patient-related barriers are intimately tied to the type, number, and complexity of obstacles that a particular primary care practice must overcome to

screen all patients. Federally qualified health centers, (FQHCs) and other practices predominately caring for low-income, nonmajority, uninsured, or Medicaid insured populations will find it far more difficult to reach high practice-wide screening rates than practices predominately providing care for a Medicare and commercially insured, higher income population. For example, only 44% of patients cared for in our nation's FQHC's are up to date with colorectal cancer screening compared with the national rate of 68.8%.^{15,16} Regardless of the challenges that a practice must identify and overcome, no primary care practice can reach the highest possible screening rates without a deliberate, comprehensive, evidence-informed, sustained practice-wide plan and commitment to screen every eligible patient enrolled in the practice. This invariably requires leadership, practice champions, and commitment to do whatever is necessary to reach everyone, including commitment to address the barriers that must be overcome.

GENERAL PRINCIPLES OF SCREENING

Every practice should be committed to improving practice-wide screening rates. Several fundamental steps must be followed, and specific capacities must be available to guide quality improvement. This section reviews foundational elements required to improve screening, followed by discussion of specific evidence-based interventions.

A Practice-Wide Screening Policy

Every practice must precisely identify and define their cancer screening goals: what diseases will be screened for; who will be screened, including age to start and stop screening; what tests will be used; and if a shared decision-making process will be used.¹⁷ These decisions should be in accord with evidence-based cancer screening guidelines. Constructing high-quality cancer screening guidelines is a complex, expensive, time-consuming process requiring an independent evidence review, an expert, independent guideline authorship panel, and external feedback and review. No practice can reproduce this process on their own. All practices should rely on expert guidelines.

Although numerous organizations develop cancer screening guidelines, the guidelines written by the American Cancer Society and the United States Preventive Services Task Force are the most widely known, respected, and influential.¹⁸ Both groups follow the process described by the National Academy of Science for how to write trustworthy guidelines.¹⁹ The recommendations by the USPSTF and ACS are very similar but not identical (**Table 1**).^{20,21} The Affordable Care Act requires that most commercial plans cover all costs of cancer screening tests that receive an A or B rating from the USPSTF.²² Prostate cancer screening is rated as a C; the other 4 receive an A or B rating. Although considering other cancer screening guidelines is reasonable, the guidelines authored by these 2 major groups should form the basis for practice-wide screening policies.

Defining the Population to be Screened

One of the most important advances in primary care-based screening has been the increasing acceptance of responsibility to screen the entire enrolled population associated with the practice. This broad definition of the practice denominator forms the basis of population-based screening. Figuring out the total list of patients for whom the practice is responsible is demanding. Two approaches are commonly used to identify the list of enrolled patients. In some cases, such as closed panel insurance

	USPSTF	ACS
Colorectal cancer	Age 50 y	Age 45y
Breast cancer	Universal screening at age 50 y; shared decision-making at 40–49 y	Universal screening at age 45 y; shared decision-making at 40–44 y
Lung cancer	Age 55 y	Age 55 y
Cervical cancer	Age 21 y	Age 25 y
Prostate cancer	Shared decision-making at age 55 y	Shared decision-making at age 50 y

plans or traditionally capitated plans, patients can be assigned to specific clinicians from a total list of patients who are signed up with a practice. For most of the practices, panels are defined by the visit history. For example, enrolled patients for whom the practice assumes responsibility may be defined by the group of patients who have made a visit within the past year or 2 visits anytime in the previous 2 years. In any case, the practice must be able to define the list of patients and the screening status of each of those patients.

The practice-wide screening rate is determined by measuring the percent of all patients enrolled in the practice who are eligible for screening and who are up to date with the recommended screening test option. (For colorectal cancer and cervical cancer, patients need to be up to date with one of the screening tests from a menu of options.)

Measurement

All quality improvement is predicated on the ability and commitment to measure and report outcomes. In the case of cancer screening, the practice must be able to measure and report practice-wide screening rates and rates for each clinician and generate lists of patients who are not up to date. It is often useful to also identify patients who have never been screened for a particular cancer because these individuals are at particularly high risk for presenting with advanced disease.

Electronic Health Records as Quality Improvement Tools

When the quality “movement” first began, some practices developed stand-alone registries to track screening results. Today, more than 90% of primary care practices use electronic medical records, and almost every practice relies on the electronic health record (EHR) to serve as their quality measurement tool.²³ EHRs have become one of the most important quality improvement aids in all of health care and certainly in primary care. At a minimum, EHRs must function as a registry for all quality initiatives, but the modern-day EHR should do much more. Ideal attributes of a high-functioning EHR in support of cancer screening are listed in **Box 1**.²⁴

Mobilizing the Whole Clinical Team

A hallmark of primary care-based quality improvement efforts is a deliberate effort to mobilize the entire clinical team to achieve quality outcomes. Even highly motivated clinicians who strive to recommend screening at every available opportunity cannot,

Box 1**Ideal electronic health record attributes in support of cancer screening**

Data gathering

- Family history, including generating a genogram
- Past medical history
- Personal habits, such as tobacco use and alcohol
- Exposures that affect cancer risk, such as occupational and environmental exposures
- Cancer screening history, including tests performed, dates, and results

Generate reminders

- Produce effective, automated reminders at the time of visits
- Produce patient reminders

Manage population health

- Generate lists of individuals up to date with screening with contact information
- Determine practice-wide screening rates and screening rates for each clinician's panel

on their own, overcome a multitude of screening barriers. Models of team-based care are the patient-centered medical home (PCMH)²⁵ and advanced primary care (APC).²⁶ Practices earning designation by the National Committee for Quality Assurance (NCQA) such as a PCMH achieve, on average, higher levels of screening for cervical, breast, and colorectal cancers.²⁷ Specific potential roles for team members include identification of screening status; instituting prompts, reminders, or placing a test order to be signed by the clinician; managing patient outreach and reminders; educating patients about how to complete screening tests; tracking results and generating prompts for tests that are not completed; and facilitating follow-up for those who test positive on initial testing. These varied roles can be met by different categories of team members. Some practices employ screening navigators who can address many of these functions and often play an enhanced role in working directly with patients to overcome unique obstacles that may be rendering their participation more difficult. Greater attention to the role of navigation and navigators follows.

Recommending Screening at Every Visit

A screening recommendation by one's personal source of primary care during a patient visit is a highly effective intervention; patients who receive a recommendation are far more likely to participate in screening than those who do not.^{28–30} This recommendation must be delivered clearly and with conviction; patients should not perceive the recommendation as just an option to consider. Preventive care visits, often referred to as wellness visits, present particularly good opportunities to recommend and arrange cancer screening.³¹ Screening recommended during a visit for this, or any other purpose, such as for acute care or chronic disease management, is often called opportunistic screening. Incorporating screening into both visit categories must be a priority for all primary care practices and all clinicians. Although relying only on recommendations to screen given during visits is not a sufficient strategy to achieve the highest possible rates, these recommendations are crucial and can result in reasonably high screening rates. Every practice should strive to ensure that eligible individuals receive age- and risk-appropriate screening recommendations during all visits, regardless of the purpose of the visit. Striving to recommend cancer screening at every opportunity, although almost impossible to perfectly achieve, represents a vital opportunity to increase screening.

Wellness Visits

A series of studies found the concept of the annual check-up to be ineffective.³² This research resulted in gradual abandonment of the annual check-up and a period where

the role of some form of regular visit dedicated to wellness or prevention was abandoned. These findings, however, were counterbalanced by a series of studies revolving around the value of preventive visits to increase cancer screening rates.³³ These findings have gradually catalyzed a redefinition of preventive care visits, culminating in CMS's creation of an annual Wellness benefit as a part of the Affordable Care Act.³⁴ Many insurance companies now encourage their enrollees to have wellness visits and provide incentives to clinicians to conduct these visits.

Unlike the annual check-up from decades ago, which did not include crisply defined elements linked to evidence-based guidelines, the modern-day annual wellness visit usually specifies a minimal set of elements that must be included in order to meet requirements for billing. These elements are usually derived from evidence-based guidelines. Adoption of wellness visits varies substantially, and use of the Medicare annual wellness visit benefit has been low.³⁵ Although the highly prescriptive nature of the wellness visit requirements help ensure that important services are provided at the visit, this model also creates an administrative burden for practices. In fact, fulfilling the visit requirements demands a coordinated team-based approach; many practices do not have the infrastructure or have not created the processes to smoothly deliver wellness visits.

Opportunistic Screening

Administering vaccines to children at every opportunity, including visits for acute concerns, has become a care standard.³⁶ This approach is supported by use of immunization registries and standing practice-wide orders. A similar approach can be taken to preventive care for adults; recommending cancer screening to those due for screening as a part of sick visits or visits for chronic disease management represents a crucial strategy to maximize screening rates. Incorporating screening into as many visits as possible is a proven and necessary strategy.

In order to achieve the aspirational goal of recommending screening at every visit, practices must implement team-based solutions to overcome impediments to screening. Obstacles to opportunistic screening must be systematically addressed. These obstacles include short duration of visits and competing agenda, including addressing patient concerns, managing disease, and implementing other aspects of preventive care, yet can be overcome by such strategies as delegating nonphysician personnel to implement cancer screening tests via standing orders. Variable capacities of EHRs to facilitate screening may enhance or impede opportunistic screening.

INTERVENTIONS TO INCREASE CANCER SCREENING

In addition to cancer screening policies, standing orders, mobilization of the clinical team, and screening at every visit, several practice-based interventions directed at the clinical team function have been proved to increase screening rates. These are summarized in **Boxes 2** and **3**.

Financial Incentives and New Payment Models

Over the past 15 years, increasing emphasis has been placed on the provision of high-quality care. Emerging innovative risk-based payment models and new Medicare payment systems provide variable reimbursement for services based on level of quality achieved. As outlined in the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), CMS is now transitioning to the Quality Payment Program. This program rewards high-quality care through 2 mechanisms: Advanced Alternative Payment Models and the Merit-based Incentive Payment System (MIPS). The most

Box 2**Fundamental requirements to increase cancer screening in primary care**

1. Commitment to increase cancer screening rates
2. A clearly defined screening policy—based on well-established cancer screening guidelines
3. Reliance on a high-performing electronic health record
4. Screening at every visit
5. Encouraging wellness visits
6. Embracing population management

important element in the MIPS program is level of achievement in evidence-based quality measures. Several cancer screening measures are included in essentially all quality-based payment models. Linking quality and payment has led to profound changes in the organization of primary care practice. Many practices have instituted steps to improve quality, have sought training, hired additional staff, instituted measurement, and learned how to incorporate quality improvement into routine practice. MACRA is designed to give practical options for small practices to allow them to participate. Failure to participate places limits on the reimbursements practices are eligible to receive.³⁷

Payment for quality has been instituted inconsistently throughout the country. For some clinicians in some systems, “pay for performance” has become an important influence, a true paradigm shift. For payment and incentives to effectively promote practice, dollars at stake should be substantial, either contributing to higher reimbursement through attainment of high-quality or avoiding payment penalties for the failure to achieve quality milestones. Interestingly, penalty avoidance has been shown to be a somewhat more effective way to affect practice than a positive incentive.³⁸

Continuous Quality Improvement

The most commonly used model of continuous quality improvement (CQI) is called rapid cycle improvement, and the most common specific procedure is called Plan-Do-Study-Act (PDSA). PDSA cycles encourage practices to come up with a plan, execute throughout the practice or in part of the practice, measure the effect of the

Box 3**Primary care interventions proved to increase cancer screening**

1. Financial incentives and new payment models
2. Continuous quality improvement
3. Clinician reminders
4. Audit and feedback
5. Patient reminders or prompts
6. Population management
7. Screening navigation
8. Combining multiple interventions

intervention, and then either spread the intervention to the entire practice, continue the intervention, or alter it to try something else. The PDSA model discourages inaction and overstudy. Regardless of the model used, primary care practices are encouraged to be consistently engaged in the process of improving quality of care. One systematic review of the effects of implementing CQI and PDSA revealed definite but small improvements in care. Failure to achieve greater progress seemed to relate, in part, to incomplete implementation of the model.³⁹

Population Management

One of the most important advances in clinical quality improvement related to prevention and chronic disease management has been the integration of population management methodology into primary care practices and broader health care systems. Population management is a general term referring to a set of activities that occur outside of clinical encounters designed both to capture important characteristics and clinical milestones for all patients enrolled in a system or individual practice, as well as to implement interventions that encourage and help patients receive preventive care, often without requiring an office visit.⁴⁰

True population management demands that the system or practice has ways to reach out to individual patients outside of clinical encounters to encourage them to alter their behavior, come in for care, or to get a test. Most cancer screening population management studies are theory based and evaluate various ways to contact and prompt patients to participate in cancer screening. The most commonly evaluated methods of outreach are by letter, phone call, or, more recently, text. In some cases, reminders are tailored to take advantage of patient preference for a particular approach to screening where more than one screening test can be chosen. The relative efficacy of these different types of interventions varies depending on the population being studied. In general, all types of reminders can increase participation in cancer screening. Phone reminders, with or without tailoring, are usually found to be more effective than mailed interventions.^{41,42} On the other hand, some systems that have long-standing, mature mailed patient reminder programs have achieved very high colorectal screening adherence.^{43,44}

Quality Measures—A Two-Edged Sword

Although linking quality care to payment can change clinician and health system behavior, pay for performance can promote screening for some cancers and simultaneously reduce the emphasis on screening for others. Although screening, with or without a shared decision, is recommended for 5 different cancers, quality measures exist only for colorectal cancer, cervix cancer, and breast cancer—but only for women older than 50 years. In the absence of a quality measure, less than 15% of eligible individuals have been screened for lung cancer, and prostate cancer screening has declined significantly in the past decade.⁴⁵ Unlike the situation for the other cancers, the relevant metric for prostate cancer screening should be proportion of patients offered shared decision-making, rather than proportion actually screened, because prostate screening guidelines call for shared decision-making rather than routine screening.

Clinician Reminders

Reminders directed at primary care providers (PCPs) to improve cancer screening rates have been in use for many years and have evolved with the increasing sophistication of record keeping technology and increasing array of screening options used for cancer early detection and prevention. Paper flowcharts filled in by hand and

handwritten tickler files have largely transitioned to EHR-generated automated reminders with integrated decision support and test ordering. Provider reminders have been consistently identified as one of the key provider-centered facilitators to promote cancer screening. Conversely, lack of a reminder or tracking system has been cited as a provider-centered barrier to screening, along with lack of time, forgetfulness, acute care visits, patient comorbidities, and patient refusal.^{46–48} Before the advent of EHRs, use of reminder systems was sporadic. In a 1990 survey of community-based primary care physicians, only a quarter were using any formal mechanism to promote cancer screening, with only 17% reporting use of a reminder system.⁴⁹ Although EHRs generally include some type of reminder capability, their utilization is far from universal. In a 2014 national survey, only 49% of PCPs reported availability of EHR support for breast cancer screening and 46% for cervical cancer screening. Designation as a PCMH was associated with a greater likelihood of having a system in place. As recently as 2016, only 45% of FQHCs reported using provider reminder systems.⁵⁰ In a 2015 survey of Indian Health Service Tribal facilities, only 65% were using a health care provider reminder system for colorectal cancer (CRC) screening.⁵¹

Manual, computer-generated, and EHR-embedded reminder systems are all in use, and all of them have been shown in well-controlled studies to be effective, although resulting improvements in cancer screening rates vary based on practice setting and cancer test. A 2019 Cochrane review determined with moderate certainty that manually generated paper reminders improve physician adherence to cancer screening with a median improvement of 8.5% over usual care.⁵² A 2017 Cochrane review of computer-generated reminders delivered on paper found that such interventions “probably slightly” improve provider adherence to preventive guidelines, although the review was not limited to cancer screening. The median improvement was 6.8%.⁵³

The Veteran’s Administration (VA) conducted a retrospective descriptive cohort study examining the impact of activating an electronic reminder linked to an option to order lung cancer screening for 9170 patients in the VA system. Of those opting in, 76% completed screening during the 6-month study period, although the baseline rate was not reported.⁵⁴ In a cluster-randomized trial of an EHR prompt for CRC screening, there was no increase in screening based on the intention-to-screen analysis but there was somewhat more screening in the per-protocol analysis. Patients in both arms of the study had been invited to participate in fecal immunochemical (FIT) testing, which may have diluted the impact of the EHR intervention.⁵⁵ An “active choice” EHR intervention giving PCPs the option to order or cancel colonoscopy and/or mammography for overdue patients during office visits demonstrated a 12% increase in orders for both tests compared with control practices. Screening completion rates were significantly greater for colonoscopies but not for mammography.⁵⁶

Of importance, many investigators have conducted studies of reminder systems in practices caring for low socioeconomic and minority populations. Although the magnitude of the impact varies depending on the number and intensity of interventions included, reminder systems are generally found to be very effective in practices serving these communities. Another way to look at these data is that usual care is often woefully inadequate to promote screening. Some practices can achieve remarkable increases in screening rates by using reminders with or without other interventions.^{57–59}

Audit and Feedback

One method of promoting population management is to use data from the EHR to both report screening rates for the panels managed by individual clinicians and to provide

the clinician with lists of patients who are overdue for screening. Two systematic reviews found that provider audit and feedback is linked to improved screening rates for breast and cervical cancer and for fecal occult blood (FOBT) CRC screening. There was insufficient evidence for colonoscopy.^{60,61} More recently, a cluster-randomized trial of providing lists of patients due for FOBT screening to PCPs every 4 months for a year led to slightly greater screening rates in the intervention arm (32.9% vs 31.2%).⁶² In a practice-level controlled study in which PCPs received rosters of patients due for CRC screening linked to the option of either a reminder letter or outreach by a delegate, test ordering was significantly higher in the intervention practices (88% vs 80.5%), as was screening completion (81 vs 78%).⁶³ The small absolute improvement was likely due to the very high baseline screening rate in these academic practices. In a setting with much lower baseline screening rates, a similar CRC screening intervention had a much greater impact; PCPs in the intervention practices received lists of overdue patients and were prompted to either see, telephone, or email their patients. The outreach could be conducted by either PCPs or assistants. The CRC screening completion rate was 33.5% among intervention patients, compared with 19% in the control arm. Of note, there was no difference based on PCP or assistant contact, supporting the effectiveness of involving nonphysicians in the screening process.

Patient Outreach and Reminders

One aspect of population management is to conduct various forms of outreach to patients who are due for cancer screening. Outreach can also be referred to as patient reminders. Outreach can take a variety of forms, ranging from mailed outreach, phone calls, or texts. In the case of colorectal cancer screening, mailings can include FIT tests as well. Outreach messages can be general or tailored. Tailoring can be based on expressed patient preferences and/or evidence of culturally appropriate messages proved to be motivating. Numerous studies of patient outreach have been conducted, and evidence of effectiveness is incontrovertible, although the magnitude of the intervention effect varies between cancer screens being targeted and between specific interventions. For colorectal cancer, patient reminders alone can increase screening rates by about 20%.⁶⁴ A review of text reminders reports increases in screening from 0.6% to 15% for several cancers.⁶⁵ A systematic review of a range of CRC screening interventions found that pre-FIT and post-FIT reminders demonstrated modest efficacy with median 4.1% and 3.1% improvement in CRC screening, respectively. The review also found that mailed FIT outreach was consistently effective with a median improvement in CRC screening of 21.5% across the 10 studies evaluating this intervention.⁶⁶ Other investigators have reported variable benefit, with mailed FIT outreach depending on how the program is designed and executed.^{67,68}

Comparative Effectiveness of Strategies to Improve Cancer Screening Rates

Primary care practices may need to choose how to start a quality improvement project to increase screening. A systematic review from 2001 examined physician reminders, mailed patient reminders, or combined physician-patient strategies to increase breast and cervical cancer screening. It found that patient-based strategies increased screening rates by 10% overall; physician-based strategies increased screening by 6% to 40%; and combined strategies increased screening by 5% to 35%. The investigators concluded that the most effective strategies were physician-based strategies and that computerized and manual reminders were more effective than audits with feedback.⁶⁹ A 2002 meta-analysis included 108 trials evaluating strategies to improve mammography, cervical, and CRC screening rates and calculated odds ratios (OR) for

effectiveness compared with usual care. The strategies, in descending order of effectiveness, included organizational change (OR 2.5–17.6); patient financial incentives (OR 1.8–2.8); patient reminders (OR 1.7–2.75); provider education (OR 1.7–3.0); provider reminders (OR 1.4–1.7); patient education (OR 1.3–1.4); and provider feedback (OR 1.1–1.8).⁷⁰

Screening Navigation

Most of the interventions reviewed here only modestly increase screening rates, and none are sufficient to achieve the highest level of screening possible. Using screening navigators who take responsibility for many of the interventions described here has been demonstrated to help overcome even the most daunting barriers to screening.^{71–75} The defining aspect of screening navigation is that team members in the practice are specifically trained to promote cancer screening. Practices may hire individuals who exclusively serve as navigators or may carve out time for existing team members to work as navigators. Navigators may be assigned to help organize management of chronic diseases, such as diabetes, in addition to screening navigation.

Screening navigation increases screening rates, and the incremental increase in rates is greatest in individuals facing the greatest barriers to screening. A study by Percac-Lima and colleagues in community health centers focused on patients facing multiple barriers, including poverty and language challenges, found that 10.2% of patients randomized to receive navigation services were up to date for all recommended cancer screens compared with 6.8% of control patients. Effect size for individual cancers was higher, with the intervention group being from 6% to 8% more likely to be up to date for each individual cancer, including screening for breast cancer, colorectal cancer, or cervical cancer.⁷⁶ A CRC screening navigation program in rural Georgia found a 4-fold increase in CRC screening among navigated patients compared with controls (43% vs 11%).⁷⁷

The primary challenge confronting practices that want to institute screening navigation is being able to afford the service. The National Colorectal Cancer Roundtable produced a tool addressing this important issue providing specific suggestions on how to afford navigation. Specific strategies include demonstrating value to health systems, insurers, and employers; participating in pay for performance contracts; seeking grants; and using creative new staffing models.⁷⁸

Combining Interventions

One of the consistent findings across all studies of quality improvement to increase screening rates is that single interventions only modestly increase screening rates. Almost invariably, combining multiple interventions is required to achieve very high rates. Overall, studies suggest that the greater the number of interventions, the greater the impact on cancer screening rates. In a Canadian PCP survey linked to CRC screening rates, for example, practices that reported using 4 to 5 strategies had rates 27% higher than those reporting using 0 to 1 strategy.⁷⁹ Most multicomponent interventions have yielded greater improvements in screening rates than has been reported for PCP reminders alone. At the low end of effectiveness, an intervention using a before-after design that incorporated pay-for-performance incentives and patient and provider reminders yielded a 5% increase in mammography rates and a 6% increase in Pap tests, both statistically significant.⁸⁰ At the other end of the spectrum, interventions involving patient reminder letters, provider education, patient education, and/or practice workflow alterations, along with PCP reminders, have yielded screening rate increases of 32% to 37%.⁸¹

A ROADMAP TO INCREASING SCREENING RATES

Every adult primary care practice and every health system that provides primary care services is obligated to achieve the highest cancer screening rates possible. Failure to invest in the people and interventions required to overcome the numerous barriers to cancer screening will inevitably result in excess incidence of preventable cancers and avoidable cancer mortality. Along with continuing to reduce rates of tobacco use, increasing evidence-based cancer screening defines the nation's best opportunity to reduce suffering and death from cancer. Systems should follow these 10 steps to improving screening rates.

1. Count on leaders and champions: leaders of the system and/or individual practices should unambiguously endorse the value of cancer screening and set it as a major priority. A champion or champions should be identified who can spearhead a coordinated effort to increasing rates.
2. Measure progress and report regularly: utilizing the practice EHR, a system to easily measure and report screening rates for all 5 recommended cancers for which screening is recommended, should be developed. Screening rates should become part of the quality dashboard and reported regularly, preferably monthly, to the entire practice.
3. Harness the EHR capacity: many modern day EHRs have the capacity to support many of the steps necessary to support screening. EHR manufacturers have the obligation to include these elements at no additional cost or, at least, at minimal cost. Practices need to use the full scope of supportive features, from risk assessment, to reminders, to measurement, and to population management to maximize screening rates.
4. Create empowered teams with defined roles: everyone in the practice should be accountable for achieving the outcome of higher screening rates.
5. Screen at every visit: although wellness visits are particularly good opportunities to promote screening, too few patients participate in preventive visits. Recommend cancer screening at every opportunity.
6. Implement multiple interventions: a large array of interventions increase screening rates, but no one intervention is likely to be sufficient. Combine multiple interventions.
7. Measure the effect of every step: use the Plan-Do-Study-Act model to continuously work to push screening rates higher.
8. Manage the whole population: many patients do not come in to the office regularly. Institute population outreach.
9. Find a way to provide screening navigation: Screening navigators help overcome the most difficult barriers to screening.
10. Celebrate success: whether or not the practice has a financial incentive to improve screening, success should be widely shared and celebrated as a team.

Increasing cancer screening is very hard work but few interventions in all of primary care prevent more deaths. In the United States, what does or does not occur in the primary care setting is a major determinant of the screening rates we achieve. Evidence-based interventions illuminate the pathway to higher screening rates.

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