Interventions to Improve Cancer Screening
Commentary from a Health Services Research Perspective

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Introduction

Based on evidence demonstrating that early detection and treatment can reduce mortality, regular screening for breast, cervical, and colorectal cancers has been widely recommended by most preventive services organizations for the past several decades.[1–3] However, use of mammography, Pap smear, and any of the recommended colorectal cancer screening modalities remains sub-optimal.[4,5] Patients without recent screening tend to be poor, uneducated, minority, or without health insurance or a usual source of care.[6] Lack of understanding of screening benefits, fear of a cancer diagnosis, concerns about inconvenience, and forgetfulness are also associated with less screening.[6] Thus, interventions that address patient barriers to initiating and maintaining regular cancer screening are important public health strategies to reduce cancer morbidity and mortality.

As shown in the systematic reviews conducted by Baron and colleagues[7,8] for the Task Force on Community Preventive Services (the Task Force), many categories of patient-directed interventions are associated with improved screening. The Task Force found sufficient evidence to recommend interventions that increase patient demand for cancer screening, including reminders, small media with educational or motivational information (i.e., videos and printed materials such as letters, brochures, or newsletters), and one-on-one education. The Task Force also found sufficient evidence to recommend interventions that lead to the reduction of structural or economic barriers to cancer screening and the reduction of out-of-pocket costs for at least one type of cancer screening test.[9] This comprehensive information will be valuable for public health professionals and researchers in a variety of settings.

As noted in their analytic framework for assessing interventions, screening is a necessary first step in a process of care, but is not sufficient for early detection and improved outcomes.[7,8] Patients who experience barriers to screening are also likely to have similar barriers throughout the cancer-control continuum, including risk assessment and primary prevention, regular screening, follow-up of abnormal results, diagnosis, primary and adjuvant treatment, and post-treatment surveillance.[6] Understanding the broader healthcare delivery context can help identify challenges to the implementation of demand- and access- enhancing interventions and key areas for future research.

Health Services Research Framework for Evaluating Cancer Screening

Figure 1 adapts and extends behavioral models of access to medical care[10,11] to illustrate the public policy, community environment, and healthcare delivery setting contexts that influence provider–patient interactions leading to the receipt of cancer screening, and ultimately, improved cancer outcomes.[6,12] The federal and state public policy level in the model includes legislation, reimbursement, and regulatory environments, as well as fiscal constraints that may affect healthcare budgets. For example, the CDC-funded and state-based Breast and Cervical Cancer Early Detection Program provides screening and case management services for a portion of low-income uninsured women.[13] State and year-to-year differences in implementation and coordination of the program, and its integration in the community environment and local healthcare delivery and provider network settings will affect local barriers to cancer screening, their potential resolution, and the proportion of eligible women screened. Other national policies, such as practice guidelines and requirements for monitoring cancer screening services for quality of care measurement (i.e., Health plan Employer Data and Information Set [HEDIS]),[14] will also influence the delivery of screening services through other levels of the model, and in particular, factors that influence whether providers make guideline-consistent screening recommendations and ensure that screening has occurred.

The community and social-environment level of the model includes geographic, social, and local health insurance characteristics (e.g., types of employers and their health insurance coverage policies). The local

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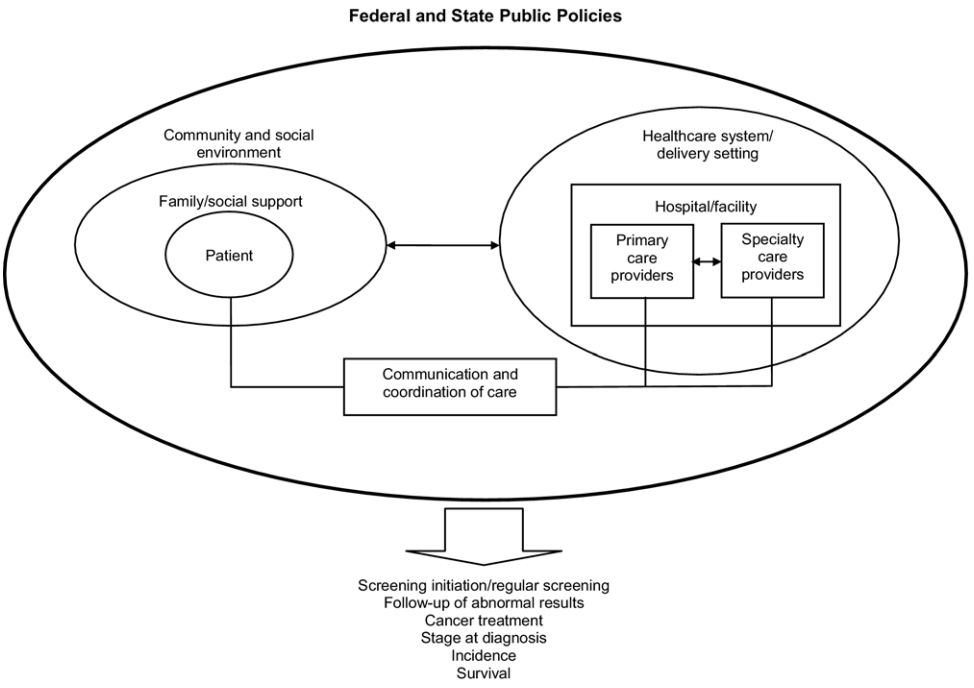

Figure 1. Health services research framework for evaluating cancer screening.

healthcare delivery setting includes health plans, hospitals, and local primary care and specialty provider supply. Outside of a health plan, information systems and patient records are rarely linked across these multiple providers and practice settings. Even within health plans or organized practice settings, tracking and reminder systems for screening are rare,[15] and many failures in the screening process occur during the transitions in care.[16,17]

In the provider level of the model, primary care providers communicate recommendations for screening intervals and follow-up care if any, by referring patients to specialty providers (i.e., radiologists, obstetrician–gynecologists, and gastroenterologists) and coordinating the receipt of recommended care. Importantly, patients with insurance may change providers and health plans, and their medical records may not follow these transitions. For patients without health insurance and/or a usual source of care, navigation of the healthcare system in pursuit of cancer screening is more complex. Finally, as illustrated in Figure 1, demand- and access-enhancing interventions can be evaluated in relationship to the process measures of screening initiation, regular screening, follow-up of abnormal results, guideline-consistent treatment, and outcome measures of the stage of disease at diagnosis, survival, and reduction in mortality. Because regular cervical and colorectal cancer screening and treatment can also eliminate pre-invasive disease,[2,3] reduction in the incidence of invasive disease is another potential outcome of regular screening for these cancers.

Challenges to the Dissemination of Effective Interventions to Improve Cancer Screening

The Task Force identified many important challenges to implementing demand- and access-enhancing interventions[7,8] and suggested that decision makers consider the local context when identifying feasible intervention approaches to improve cancer screening.[9] Adoption of patient-directed interventions to improve screening will also be influenced by factors at multiple levels of federal and state policies, community and social environment, the local healthcare delivery setting, and providers.

As noted in the systematic reviews,[7,8] ensuring access to follow-up care is a challenge to the implementation of interventions to increase screening. Patients with barriers to screening may require additional interventions to ensure the receipt of timely and complete follow-up care for abnormal results and guideline-consistent cancer treatment following a cancer diagnosis. Provider and healthcare delivery system barriers to screening may also require interventions. Linking patient-, provider-, and healthcare system-directed interventions to improve screening with follow-up and treatment interventions at multiple levels is a major challenge to ensuring guideline-consistent care throughout the cancer control continuum.

For categories of interventions that most commonly occur within a health plan or practice—such as patient reminders—ensuring provider recommendations of guideline-consistent screening, system capacity for conducting screening and tracking of results, and the

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