

ROLE OF PRIMARY CARE PHYSICIAN IN THE PREVENTION AND EARLY DETECTION OF CANCER: AN ONCOLOGIST PERSPECTIVE

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Abstract

Background: It is now recognized that cancer can be preventable, at early premalignant phases that provide further opportunities for intervention. Primary Care Physicians (PCP) play a pivotal role in cancer control by identifying those individuals whose behavior, environment, and/or heredity characteristics place them at increased risk for developing cancer. They are in a unique position to provide life care, which includes recognizing the need for and recommending cancer prevention and early detection when appropriate.

Material and Method: We reviewed the current status of primary care cancer prevention service and science, highlighting barriers against the role of PCPs in prevention and early detection of cancer. Furthermore, we explored approaches that could help primary care program to achieve its full potential in cancer prevention and screening.

Results: Primary care clinicians face competing demands, conflicting guidelines, and lack of systems that support provision of preventive services. The evidence-based data on what works for behavioral counseling is especially weak, because actual adoption of the guidelines into practice has been slow and inadequate, analysis of available literature reported a compliance rate of only 20% to 60%.

Conclusion: The physicians intellectually support the worth of primary prevention, but can not easily insert and/or rationalize it into the culture and expectations of clinical practice. Therefore, a persistent public health objective is to develop and implement strategies to overcome the barriers that deter provision of primary preventive services.

Introduction

Until recently, the practice of oncology has focused principally on intervening to slow or reverse cancer. Insights from molecular biology and molecular and population epidemiology justify interventions within a broadened definition of carcinogenesis that includes the continuum of events from the initial genetic or epigenetic "hit" to the terminal events. It is now recognized that cancer can be a preventable, late stage of the often lengthy disease continuum of carcinogenesis, which has reversible early, premalignant phases that provide further opportunities for intervention.

Family physicians can play an invaluable role in caring for patients. Continuity of care and multigenerational relationships allow a family physician to guide a patient and family through the referral process with a unique knowledge of the patient's values, family issues, and communication style. Because of the close relationship that primary care physicians often have with their patients, they are in a unique position to provide life care, which includes recognizing the need for and recommending cancer prevention and early detection when appropriate. 1

Family physicians play a pivotal role in cancer control by identifying those individuals whose behavior, environment, and/or heredity characteristics place them at increased risk for developing cancer.² The busy primary care physician (PCP) is often knowledgeable about prospective medicine including cancer prevention & early detection, and most feel it is an important part of their practice. However, they find difficulty in integrating the necessary health maintenance measures into a busy office practice.

Background

Primary care plays a central role in promoting cancer prevention to the public but has not achieved its full potential in this regard. We will describe the current status of primary care cancer prevention service and science then explore approaches that could help primary care achieve its full potential in cancer prevention and screening.

The role of health care practitioner includes: Diagnosing, delivering physical care and treatment, educating patients and family members, assessing psychosocial strengths and referring for needed services. In addition, offering emotional support, assisting in maintaining positive outlook, and advocating for best care.³

The current status reveals that most people see their primary care clinician several times a year and many rely on primary care for screening and behavior advice. However, when those who are not up-to-date for cancer screening are asked why? the most common reply is, "my doctor didn't recommend it." Recent studies have enriched our understanding of the processes by which cancer preventive services are provided in primary care. Primary care clinicians face competing demands, conflicting guidelines, and lack of systems that support provision of preventive services. The evidence-based data on what works for behavioral counseling is especially weak. Appropriate models and tools to support delivery of first-rate cancer prevention care are being developed. New laboratories for study called Practice Based Research Networks are in place but widespread adoption lags. Evidence from high quality resources, such as Put Prevention into Practice, Cancer Planet, and recommendations of the US Preventive Services Task Force, are readily available but seldom consulted or applied.⁴

Prevention is defined as the reduction of cancer mortality via reduction in the incidence of cancer. This can be accomplished by avoiding a carcinogen or altering its metabolism, pursuing lifestyle or dietary practices that modify cancer-causing factors or genetic predispositions; and/or medical intervention (chemoprevention) to successfully reverse pre-neoplastic changes.⁵

Much of the promise for cancer prevention comes from observational epidemiologic studies that show associations between modifiable lifestyle factors or environmental exposures and specific cancers. Evidence is now emerging from randomized controlled trials designed to test whether interventions suggested by the epidemiologic studies, as well as leads based on laboratory research, result in reduced cancer incidence and mortality.⁶

While physicians are key to primary preventive care, their delivery rate is sub-optimal. The prevailing PCP model was the "one-stop-shop" physician who could provide anything from primary to tertiary care, but whose provision was dominated by the delivery of immediate diagnoses and treatments, namely secondary care. The secondary/tertiary prevention PCP model sustained the expectation of immediacy of corrective action, cure, and satisfaction sought by patients and physicians alike, and, thereby, de-prioritized primary prevention in practice in favor of the immediate benefits of secondary care.⁷

Barriers Against The Role of PCPs in Prevention and Early Detection of Cancer

The majority of primary care physicians (PCPs) particularly family physicians, concur with the preventive care guidelines and agree that it is their responsibility to deliver preventive care services. However, actual adoption of the guidelines into practice has been slow and inadequate, studies report a compliance rate of only 20% to 60%. Consequently, the lack of preventive care delivery translates to lost opportunities to decrease morbidity and mortality via primary and secondary prevention. Furthermore, spending time to discuss prevention with a patient was perceived by some physicians as not being a prominent element in the role of doctor nor an effective use of physician time, hence, the task of prevention could be delegated to other members of the medical team.⁸

In the case of preventive services guidelines, implementation needs to go beyond traditional

dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care.⁹ These barriers include:

1. Clinicians' ambivalence about whether preventive medicine is part of their job
2. The psychological and practical challenges that patients face in changing behaviors
3. Lack of access to health care or of insurance coverage for preventive services offered to some patients.
4. Competing pressures within the context of shorter office visits and lack of time
5. The lack of organized systems in most practices to ensure the delivery of preventive care recommendation.

The physicians intellectually support the worth of primary prevention, but cannot easily insert and/or rationalize it into the culture and expectations of clinical practice. Therefore, a persistent public health objective is to develop and implement strategies to overcome the barriers that deter provision of primary preventive services. A necessary goal of such strategies would be to raise the perceived worth and priority of primary prevention within the PCP community, furthermore physicians need to expand their self-perceived clinical role to take fuller advantage of their unique position to deliver primary preventive care.¹⁰

Implementation Strategies

The following practice strategies were recommended to help to overcome these barriers:¹

1. Adopt a scientifically based preventive protocol

PCP should be familiar with rational screening criteria,¹¹ together with recommendations of experts and accredited organizations like, Canadian Task Force,¹² American Cancer Society¹³, US preventive services task force,^{14,15} and American College of Physician.^{16,17} Meanwhile, they must establish an evidence-based health-maintenance protocol appropriate to their situation and benefits, with a strong preventive segment that deal with behavioral modifications and early diagnosis for the public. This protocol must contain enough flexibility to accommodate different cohorts of patients having a variety of risk factors. Meanwhile, to be applicable to a wide variety of health care situations including public hospitals, clinics, health centers, as well as group and individuals practices.

2. Development of a Preventive Attitude

Within the physician who in turn could translate it into educating him or her self in preventive and screening procedures. The PCP must learn to communicate with their patients in a positive, enthusiastic way to stimulate them to consider being subjected to cancer control measures and early detection plan.

3. Engage the Patient

Strategies must be developed to have patients as partners to share the responsibility for health maintenance. Using patient's handouts, which can stress this responsibility, and educate them about the preventive protocol. Another tool is the patient's health diaries which contain health maintenance flow charts to be filled by the patient. Recently, at higher technical level portable personalized computer smart cards which are shaped like credit cards, can contain the patient's medical record data.¹⁸

4. Institutionalize Prevention & Early Detection

It means committing time and resources to ensure prevention occurs on a regular basis for all patients. This strategy is the most important and is the one many practices are reluctant to do. Using clear simple guidelines and accurate easy methodology for ensuring periodic evaluation feedback. While, it is mandatory to identify a coordinator and/or auditor responsible for ensuring integrity of the health maintenance tracking system and give feedback about PCP compliance with the recommended practice.

5. Time Management¹⁹

Time saving can be achieved by performing only proven health maintenance procedures, as well as keeping an organized record system, but these steps alone may not be enough. The incorporation of physician assistants and the use of paramedical staff, and nurse practitioners as members of the team can be very helpful.

The Role of Cancer Prevention in Practice

Cancers occur not as a sudden catastrophic events, but rather as a the result of a complex and long-evolving process. Carcinogenesis can take decades to evolve completely, providing time and opportunity to intervene to stop or to reverse its progress either before the clinical appearance of cancer or at its earliest stages. Due to to the continuing burden, public health interventions have focused on prevention and early detection to reduce cancer incidence and mortality.²⁰

Behavior change is a difficult task for both patient and PCP. Physicians believe that implementing patient behavior change required changing the patient's mindset, yet significant barriers were related to physicians themselves.²¹ They acknowledged their lack of training, knowledge, and skill in behavior change process and recommendation conveyance. With participation of both patient and PCP about cancer, in addition to the development of a strong preventive attitude, the stage will be set for the long term appropriate prevention and early detection implementing strategy. For most individuals who are not symptomatic for cancer and in good health, unless a physician suggests their participation in a prevention study, they are likely to remain unaware of this option.

As cancer prevention has matured and proved its role in the science and practice of oncology. The American Society of Clinical Oncology (ASCO) has strengthened its commitment to cancer prevention by establishing its Cancer Prevention Committee (CAPC) in 2002. With the major objectives are to improve preventive interventions, expand these efforts globally, also to collaborate with FDA on regulatory issues involved with preventive drug development.⁶ Another positive mark, was publication of the comprehensive Institute of Medicine report, which offers recommendations to increase the rates of adoption, the reach, and the impact of evidence-based cancer prevention and early detection interventions.⁸

Since cancer can be caused by a variety of different factors and may develop over a number of years, therefore some risk factors can be controlled. Choosing the right health behaviors and preventing exposure to certain environmental risk factors can help prevent the development of cancer. For these reasons, it is important to follow national trends to monitor the reduction of these risk factors which focus on national trends data from two major groups of risk factors: Behavioral and Environmental factors.²²

I. Behavioral Factors

Scientists estimate that as many as 50–75 percent of cancer deaths are caused by human behaviors such as smoking, physical inactivity, and poor dietary choices. Major reduction in cancer incidence are possible through improved nutrition, physical activity, and avoidance of tobacco products. The latter being the only strategy with demonstrated efficacy and broad applicability. Behavioral trends that can help to prevent cancer.

- Tobacco Use:²³

The most consistent finding, over decades of research is the strong association between tobacco use and cancers of many sites. Hundreds of epidemiologic studies have confirmed this association. Further support comes from the fact that lung cancer death rates in the United States have mirrored smoking patterns with increases in smoking followed by dramatic increases in lung cancer death rates, and more recently decreases in smoking followed by decreases in lung cancer death rates in men.

While smoking causes about 30% of all deaths from cancer. Avoiding both smoked and

smokeless tobacco use is the single most important step people can take to reduce the cancer burden. Taking into consideration, age at smoking whether youth or adult smoking, time of quitting, health professional advice and recommendations to quit.

- Diet:²⁴

It has been estimated that dietary factors are responsible for at least one third of cancer mortality. Meanwhile, there is overwhelming evidence that modifiable features of lifestyle most notably nutrition dominate in the disease.²⁵ As a general rule, epidemiologic studies have suggested association between diet and cancer development, but prospective observational or interventional studies have not provided strong support.

PCPs are potentially the most suitable instrument to implement change in diet habits as a strategy to prevent cancer. However, several obstacles are encountered, such as the fact that most physicians are poorly educated in nutrition, also reactive methods of prevention are valued more than proactive modalities. Not surprisingly, standard medical textbooks commonly acknowledge data linking diet with cancer yet underestimate the role of nutrition in cancer prevention.

Based on population-based epidemiologic data, health care professionals should lead a health advocacy strategy to promote for a healthy weight and encourage eating a moderate-fat high fiber diet, with enough fruits and vegetables while limiting consumption of red meat which may help to prevent breast and CRC cancers.²⁶ While avoiding too much alcohol consumption is also an important step in reducing head & neck cancer risk.²⁷ Multivitamin and mineral supplements have been advocated for cancer prevention, but the evidence is insufficient.

It is worth noted that children should be targeted in health promotion campaigns, as studies have shown that counseling parents about nutrition can affect children's food choices.²⁸

- Physical Activity:²⁹

Obesity and physical inactivity cause about 25–30 % of several of the major cancers including colon, breast, endometrial, kidney, and esophageal cancers.³⁰ Obesity is estimated to cause 14 % of cancer deaths in men and 20 % of cancer deaths in women.³¹

Numerous studies have convincingly demonstrated evidence that undertaking and maintaining moderate levels of physical activity rather than hard ones confers protective effects against cancer. In addition, they provide a rationale for incorporating physical activity counseling as part of routine practice in the primary care setting.

Consensus reports have recommended moderate physical activity 30 min a day on most days of the week (3 hrs/wk). Recommendations to health care professionals³² suggested adoption of a physical activity strategy based on an intensive and sustained exercise counseling by visits, calls, and newsletters. Meanwhile to ensure effectiveness of such a policy in the community, involving schools through physical education classes, after hours recreation, availability of play areas, and providing healthy snack foods in school settings. Similarly, promote the availability of equipments and trainers for older individuals. Thus, physical activity counseling should become component of routine practice in the primary care setting.

II. Environmental Factors

Data associated with environmental exposures and their relationship to cancer development are reported, such as second hand tobacco smoke (also known as environmental tobacco smoke), ionizing radiation, ultraviolet radiation, chemical exposures as pesticides & toxins, as well as biological agents. Infections may also be associated with cancer development, HPV infection is a necessary event for subsequent cancer cervix. Likewise, EBV has been associated with Burkitt's lymphoma and *Helicobacter pylori* with gastric cancer.

Prevention can be accomplished by avoiding a carcinogen, or early detection and treatment of

the precancerous lesion through a sustained follow up of individuals known to be at risk. Hence, the role of PCP in the primary care health center.³³

Cancer Risk Assessment and Screening: Facts and Recommendations

For a growing number of preventive services, available data are sufficiently robust to quantify the magnitude of benefits and harms for specific population groups, but this precision gives rise to difficult ethical questions about trade-offs.³⁴ If a preventive service poses potential benefits and harms, some would recommend that avoid making any generic recommendations. Instead uniformly advocate shared decision making, in which the clinician reviews the trade-offs with patients and helps them decide for themselves based on personal preferences. This approach, however, may be impractical and ethically unnecessary except for "close calls" in which judgments about whether benefits outweigh harms fluctuate dramatically based on personal preferences. Even in those cases, a large proportion of patients expects the clinician to give advice.³⁵

Cancer risk assessment begins in the primary care clinician's office. Essential components of that process include:²

1. Documentation of personal and family cancer information.
2. Identification of families at increased risk for cancer.
3. Modification of cancer screening recommendations according to degree of risk.
4. Referral of high-risk individuals to cancer genetics clinics.

The risk assessment criteria would be helpful for physicians such as the one compiled by Hample et al³⁶ that stratify family history into average, moderate, and high genetic risk establishes a threshold for referring patients to cancer genetics clinics. Individuals categorized as average risk should follow general population guidelines for cancer screening. Moderate risk persons require increased surveillance of at-risk organs, whereas high risk groups require cancer genetics counseling as well as increased surveillance protocols.³⁷ (Please refer to disease specific manuscripts in this issue).

Whereby encountered patients whose family histories suggest an increased genetic risk for cancer without meeting criteria for specific hereditary cancer mutations; these individuals may benefit from modified cancer screening protocols and other risk reduction measures. Although most cancer genetic risk manifests in adulthood, identification of families at increased genetic risk for cancer may be lifesaving even in childhood.³⁸

At all levels of cancer risk, families influence adherence to cancer screening and surveillance recommendations. Individuals who test positive for cancer-associated mutation may feel less encouraged to express their feeling within apparent emotions. While, those who test negative may experience survivor guilt. A review of randomized controlled trials involving cancer screening programs revealed that providing patients with an individualized risk estimate, increases the probability that they will participate in these programs.³⁹

Genetic Counseling

For most individuals, a positive family history of cancer confers negligible or only slight additional risk. In some patient, however, the family history suggests a genetic predisposition to cancer that requires modified screening strategies compared with the general population. Rarely, the family history is suggestive of a hereditary cancer syndrome that warrants referral to a cancer genetics specialist. With the promulgation of guidelines for management of persons at increased genetic risk for cancer and the availability of genetic tests to identify those with hereditary cancer syndromes family physicians play an increasingly crucial role in cancer risk assessment and management.³⁴

Considerable research effort is now devoted to potential venues for gene therapy for individuals with genetic mutations or polymorphisms that put them at high risk of cancer. Meanwhile,

genetic testing for high-risk individuals with enhanced surveillance or prophylactic surgery for those who test positive is already available for certain types of cancer including breast and colon cancers.^{40, 41}

Recommendations

Towards achieving the full potential of primary care, the jump from the guideline page to the community practice has been a long overdue. Currently, the evidence is emerging to assure that primary care achieves its potential in cancer prevention and early detection. Medical groups, health plans, and policy makers will need to support evidence based change processes for practices, that subsequently lead to evidence based care processes in the examination room and in the lives of patients.

Proposed standard operating procedures (SOPs) guidelines of the role of PCP in cancer prevention & early detection:

1. First visit documentation of patient's health profile to identify the individual or families at risk for cancer.
2. Proper generation and maintenance of patient records, and make sure to be completed and adequate over time.
3. Annual visit is scheduled on the patient's birthday.
4. PCP must be patient, appreciating of patient's fear, communicate in a positive enthusiastic way.
5. PCP should have enough time to explain and discuss the risk factors for cancer and the role of physical activity, healthy diet, screening tests, chemoprevention, maintenance of health records, and prophylactic surgical procedures.
6. Schedule the patient at risk for the suitable screening workup
7. Assurance of low risk patients
8. Referral of high risk cases for genetic counseling
9. Coordinate referral to curative procedures
10. Referral to dietitian when indicated
11. The support staff may include physician assistants, paramedical personnel, and nurse practitioner. With supply of educational opportunities as well as the time and equipment to address the needs of the patient.
12. Physician assistants can provide continuity and offer health maintenance as part of their job,
13. Nurses and clerical office personnel can play a role in scheduling, referral and reminder calls.
14. Use of handouts, brochures, CDs about the risk factors and preventive measures
15. Auditing within the team to ensure continuity of a high standard program
16. Regular refreshing workshops for the PCP and team to maintain update of evidence-based procedures and protocols.
17. To develop continuous medical educational programs (CME) at all levels to provide for the educational needs of the PCPs who will carry the burden of cancer control in the community.
18. Cancer-control measures must be coordinated with other health services as cardiac, respiratory, metabolic, accidents, and alcohol abuse.
19. Major items of cancer risk reduction using changing lifestyle measures should be part of the routine visit to PCP. The health professional must advice the patient verbally, handle flyers, send newsletters, and supply referral services as part of the main cancer control strategy. The healthy lifestyle recommendations include:
 - A. Make healthy food choices
 - a. Eat foods high in fiber - try to increase the amount of fiber in your diet to between 20 and 30 grams daily. High-fiber foods include whole grains, fruits and vegetables.
 - b. Limit processed foods, sweets and salt.
 - c. Avoid foods high in saturated fats.
 - d. Eat 5 or more servings of fruits and vegetables daily.

- e. Choose foods rich in omega-3 fatty acids.
 - f. Don't overeat. Watch portion size and calories.
 - g. Limit sweets.
- B. Avoid alcohol consumption.
 - C. Maintain a healthy weight.
 - D. Engage in regular physical activity, preferably 45 to 60 minutes five days per week.
 - E. Don't smoke.
 - F. Get regular check-ups and talk to your primary care doctor about regular cancer screenings.
20. Enhance the relationship with policy makers to increase the effectiveness of cancer prevention and control activities nationwide
 21. Expand the use of information technology in cancer surveillance, particularly in cancer registries.
 22. Conducting research designed to help the cancer community better understand the factors that increase cancer risk and identify opportunities to prevent cancer.

Conclusion

It is estimated that 70% or 80% of cancer could be controlled if preventive measures which primarily involve lifestyle modification and early diagnostic procedures could be instituted in all our population.

Clinical preventive medicine for PCPs means offering a comprehensive preventive package for each patient. Cancer prevention is an important part of this package. Integrating prevention into the fabric of primary care practice is an important primary care challenge. Nevertheless, cancer prevention is a major part of this effort. PCPs must adopt an evidence based protocol, engage the patient, and most importantly commit resources to institutionalize clinical cancer prevention and early detection policy. In the past decade, concepts of selective longitudinal health maintenance have replaced the previous teaching that all adults should have a complete annual physical checkup.⁶⁶ It is true that PCPs are advisors, yet they should act as enforcers as regards the of cancer control.

If the patient at risk can be convinced that their lives will be longer, better, and more productive because of prospective health care, at an affordable price, they will be more likely to seek this kind of care and advice from their PCP on a continuing basis.

The PCP's location in the community places him in a unique position to deliver the necessary health measures to control cancer within the community. Family physicians are therefore now more than ever apart of the multidisciplinary cancer care team.

Delegating the task of primary prevention counseling and education to a team which beside the PCP includes as well nutritionists, nurse-educators, health-educators, or other trained medical staff could act as a viable alternative

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