

Primary Care Physicians' Use of an Informed Decision-Making Process for Prostate Cancer Screening

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ABSTRACT

PURPOSE Leading professional organizations acknowledge the importance of an informed decision-making process for prostate cancer screening. We describe primary care physicians' reports of their prescreening discussions about the potential harms and benefits of prostate cancer screening.

METHODS Members of the American Academy of Family Physicians National Research Network responded to a survey that included (1) an indicator of practice styles related to discussing harms and benefits of prostate-specific antigen testing and providing a screening recommendation or letting patients decide, and (2) indicators reflecting physicians' beliefs about prostate cancer screening. The survey was conducted between July 2007 and January 2008.

RESULTS Of 426 physicians 246 (57.7%) completed the survey questionnaire. Compared with physicians who ordered screening without discussion (24.3%), physicians who discussed harms and benefits with patients and then let them decide (47.7%) were more likely to endorse beliefs that scientific evidence does not support screening, that patients should be told about the lack of evidence, and that patients have a right to know the limitations of screening; they were also less likely to endorse the belief that there was no need to educate patients because they wanted to be screened. Concerns about medicolegal risk associated with not screening were more common among physicians who discussed the harms and benefits and recommended screening than among physicians who discussed screening and let their patients decide.

CONCLUSIONS Much of the variability in physicians' use of an informed decision-making process can be attributed to beliefs about screening. Concerns about medicolegal risk remain an important barrier for shared decision making.

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INTRODUCTION

The US Preventive Services Task Force recently updated its recommendation about screening for prostate cancer to a D recommendation (the harms of screening for prostate cancer based on prostate-specific antigen [PSA] outweigh the benefits) while acknowledging that men will continue to request screening and physicians should engage their patients in making an informed choice.¹ The updated 2010 American Cancer Society guideline is more specific: asymptomatic men with at least a 10-year life expectancy should have an opportunity to make an informed decision with their clinician about prostate cancer screening, and screening should not occur without an informed decision-making process whereby the potential uncertainties, risks, and potential benefits are considered.² The latter recommendation in particular presents a challenge for primary care physicians within the context of the many competing demands in clinical practice.^{3,4} Although most primary care physicians



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screen for prostate cancer,⁵ little is known about their use of prescreening discussions of the risks and benefits of screening⁶; this knowledge is a key component of an informed decision-making process.⁷⁻⁹

Using telephone focus groups, Purvis Cooper et al¹⁰ explored the practice styles of primary care physicians regarding PSA testing and identified 2 practice patterns: routine and nonroutine screening. Most physicians, more than 80%, were routine screeners, automatically ordering PSA tests for men aged 50 years and older with a 10-year life expectancy, without discussing the potential harms and benefits of testing. For routine screeners, this practice pattern was supported by personal and professional experience related to PSA testing, perceived patient expectation to be screened, a belief in scientific evidence showing benefit from PSA testing, community norms favoring screening, awareness of American Cancer Society guidelines, belief that PSA testing is part of comprehensive medical care, and concerns about malpractice for not ordering the test. In contrast, one-fifth of the physicians were described as nonroutine screeners, who did not automatically order PSA testing for their patients. Regardless of the practice pattern, all the physicians noted that they ultimately screened most of their eligible patients for prostate cancer.¹⁰

The current study examines the use of prescreening discussions regarding the potential benefits and harms of prostate cancer screening by physicians in a large, national primary care research network. It further explores the role of physicians' beliefs about the efficacy of prostate cancer screening and contextual factors related to whether they discuss these harms and benefits.

METHODS

Survey Participants

Study participants were physician members of the American Academy of Family Physicians National Research Network (AAFP NRN). Trainees were excluded. Established in 1999, the network is a voluntary research association of primary care clinicians who collaborate on studies to describe and improve primary care practice. Comparisons show that AAFP NRN members are similar to the broader AAFP membership on clinical practice variables, but they differ on percentage of time spent in direct patient care (lower among NRN members).¹¹

Survey Instrument

We used a single-item indicator from a previous study by our group¹² to classify responding AAFP NRN physician-members on the basis of their self-reported

approach to prostate cancer screening for age-appropriate men with no other risk factors. The 5 approaches were as follows: (1) order the PSA test without discussing the potential harms and benefits (screen without discussion); (2) discuss the harms and benefits and then recommend the test (discuss, recommend screening); (3) discuss the harms and benefits and then let the patient decide (discuss, let patient decide); (4) discuss the harms and benefits and then recommend against the test (discuss, recommend against); and (5) neither discuss the harms and benefits nor order the test (don't discuss or recommend). An "other" category was also included. We had previously determined that the practice style indicator had good criterion-related validity against reported prostate cancer-screening rates.¹²

We then drafted statements espousing prostate cancer-screening-related beliefs to reflect the primary and secondary themes identified by Purvis Cooper et al¹⁰ and other themes found in the literature. A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used for each indicator. The questionnaire was assessed for overall layout, flow, clarity, and time to administer. Redundant indicators were combined, and poorly worded indicators were dropped. A core set of 17 belief indicators was retained for the finalized survey (see Supplemental Appendix, available at <http://annfam.org/content/11/1/67/suppl/DC1>).

Information on the number of years in practice, sex, and clinical practice type (academically affiliated) for each responding physician was obtained from the NRN membership survey conducted by the AAFP.

Data Collection

Data collection was launched in July 2007 with the final reminder mailed in January 2008. We used a 2-pronged strategy for data collection: e-mail and postal mail. If an e-mail address was available, an invitation was e-mailed to the member from the AAFP NRN research office that contained an electronic link to the online survey. The link uniquely identified each member for tracking purposes. Two e-mail reminders were sent at 3-week intervals to nonrespondents. The second strategy targeted members without e-mail addresses, whose e-mail invitation was returned undeliverable, or who did not complete the online version. Letters of invitation from the network director were posted to these members along with a copy of the questionnaire and a self-addressed postage-paid return envelope. One reminder letter with the questionnaire and a return envelope was sent to nonrespondents. By participating in the study (returning the mailed questionnaire or answering questions online) the physicians consented to the study. This study was reviewed and



approved without restrictions by the AAFP and Baylor College of Medicine institutional review boards.

Statistical Analysis

Two coding schemes were used in our analysis of the physicians' responses regarding the belief indicators on prostate cancer-screening practices. The first was the 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The second was an either-or coding system: Likert scale responses 1, 2, and 3 were coded as not endorsing the belief; responses 4 and 5 were coded as endorsing the belief. All belief indicator responses were retained in their original direction and orientation and were not reverse coded to create uniform indicator interpretations as, for example, supportive of or antagonistic to a particular screening practice style.

Bivariate statistics in the form of χ^2 or Fisher exact tests were calculated between the practice style indicator, physician characteristics, and each belief indicator. Physician characteristics and belief indicators displaying a relationship with practice style ($P < .10$) were retained in multivariate, multinomial, logistic regression modeling.

Multivariate, multinomial, logistic regression modeling was conducted using practice style as each model's dependent variable and the belief indicators as the primary independent variables. The physician characteristic variables of sex and years in medical practice, as well as academically affiliated practice, were treated as control variables and retained in all models tested. Models were then configured and tested after omitting, one at a time, belief indicators with nonsignificant effects in relation to physician prostate cancer-screening practice style.

Models were assessed in 3 ways for overall adequacy of fit. A χ^2 -based -2 log-likelihood test was conducted to compare a model estimated to a null model (intercept only); $P < .05$ indicated adequate model prediction. Nominal group classification accuracy was also assessed. Finally, using Nagelkerke's pseudo R^2 statistic, an estimate of the proportion of variance explained by a model was obtained. Final models provided odds ratio estimates per belief indicator; the preselected referent was the physicians' group reporting a practice style of discuss, let patient decide.

RESULTS

Study Flow and Population

Our 2-pronged (e-mail and postal mail) sampling strategy resulted in an overall participation rate of 57.7% (246 of 426 members; Figure 1). About 43% of questionnaires were completed online; 57% were completed and returned by mail. Nearly one-half of the respondents to the online survey were from academically affiliated practices compared with about one-third of respondents to the mailed survey ($P = .037$). Physicians in our study had been in practice for a slightly longer period of time but were otherwise similar to physician-members responding to the NRN membership survey (Table 1).

Physicians' Prostate Cancer-Screening Practice Styles

Three physicians did not respond to questions about their practice style for prostate cancer screening, leaving 243 questionnaires for further analysis. Nearly one-half of the 243 physicians discussed screening and let their patients decide about testing, almost one-fourth discussed and recommended testing, and another one-fourth ordered the test without discus-

Figure 1. Flow chart showing participation of American Academy of Family Physicians National Research Network members.

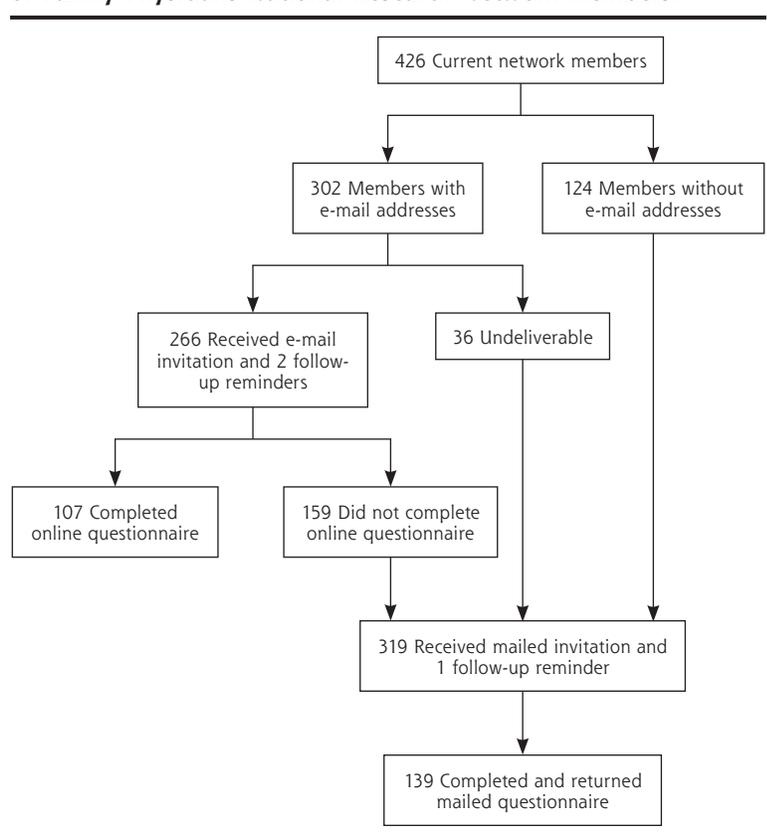


Table 1. Characteristics of Participating Physician Members

Characteristic	Membership Survey (n = 209) ^a	Study Sample Survey (N = 246)		P Value ^b
		Online (n = 107)	Mailed (n = 139)	
Years in practice, mean (SD) ^c	16.4 (8.5)	19.4 (8.6)	19.4 (9.1)	.991
Sex, male, % (n) ^d	71.3 (149)	74.3 (78)	69.4 (93)	.406
Academically affiliated practice, % (n)	37.3 (78)	48.4 (46)	34.8 (48)	.037

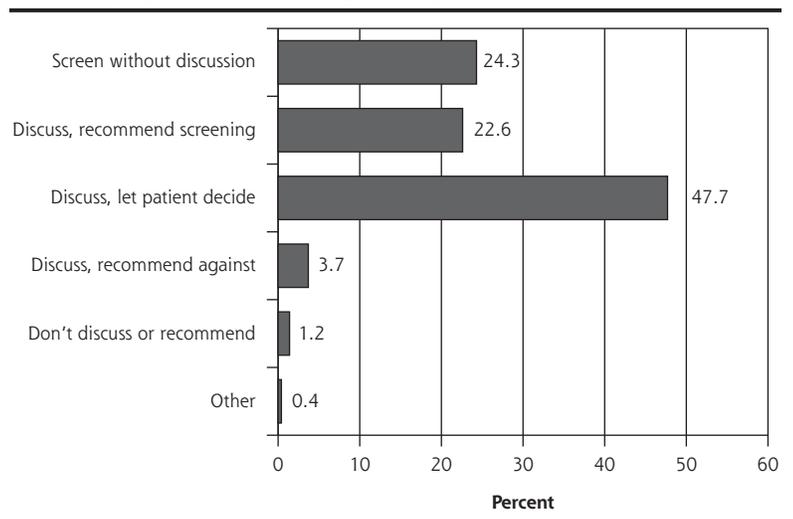
^a The American Academy of Family Physicians National Research Network membership survey is not completed by all member physicians.

^b Online survey vs mailed survey.

^c Includes 104 online and 138 mailed respondents; data missing on 4 others.

^d Percentages are not based on full sample because of missing responses.

Figure 2. Practice styles for prostate cancer screening among American Academy of Family Physicians National Research Network physician members (n = 243).



sion (Figure 2). The remaining 5% of respondents discussed and recommended against the PSA test, neither discussed it nor recommended it, or selected the "other" response option.

For subsequent analysis, we retained only the 3 most reported practice styles (n = 230 physicians): discuss, recommend screening; discuss, let patient decide; and screen without discussion.

Beliefs About Screening and Physician Practice Styles

The mean length of time in practice did not differ significantly across the 3 most common practice styles: screen without discussion, 21.4 years (SD = 7.3 years); discuss, then recommend, 19.5 years (SD = 11.3 years); discuss, let patient decide, 19.3 years (SD = 8.5 years); *P* = .148). The distributions of other physician characteristics and responses to the belief indicators across the 3 selected practice styles are shown in Table 2. The

distribution of sex did not differ significantly across the practice styles. Compared with physicians who discussed the potential harms and benefits of prostate cancer screening and either recommended the test or let the patient decide, physicians who screen patients without discussion were less likely to practice at an academically affiliated site. Fifteen of the 17 belief indicators were significantly associated with practice style (Table 2). The 2 nonsignificant belief indicators were in regard to professional experience with prostate cancer and personal experience with the disease.

Results From Multinomial, Logistic Regression Modeling

Physicians endorsing discuss, let patient decide were compared with physicians who endorsed screen without discussion and then physicians who endorsed discuss, recommend screening. The final multinomial logistic regression model included 7 belief indicators, each of which had a significant independent effect (Table 3). The effects were adjusted for years in practice, sex of physician, and clinical practice type (academically affiliated practice). The model had favorable fit characteristics: adequate model predic-

tion compared with the null model (*P* < .001), adequate group classification (across-group average was 76.6%), and a high proportion of variance explained by the model (Nagelkerke pseudo *R*² = 0.67).

The style-specific significance of the belief indicators varied by which practice styles were compared (Table 3). Compared with physicians who ordered PSA testing without discussion, physicians who reported discussing the harms and benefits and then letting their patients decide about screening were more likely to endorse beliefs that scientific evidence does not support routine screening, that patients should be told about the lack of evidence, and that patients have a right to know the implications of screening. These physicians were also less likely to endorse the belief that there was no need to educate patients because the patients want to be screened. On the other hand, compared with physicians who discussed and then recommended screening, physicians who discussed and let their patients decide

Table 2. Distribution of Physician Characteristics and Responses to Screening Beliefs Indicators, by the 3 Most Common Clinical Practice Styles for Prostate Cancer Screening

Variable	Score for Beliefs Indicators, Mean (SD) ^b	Practice Style and Belief Endorsement, % ^a			P Value ^c
		Screen Without Discussion (n = 59)	Discuss, Recommend Screening (n = 55)	Discuss, Let Patient Decide (n = 116)	
Physician characteristics					
Sex, male		75.9	73.6	68.7	.577
Academically affiliated practice		3.6	41.5	56.6	<.001
Beliefs indicators					
Screening/treatment efficacy					
The benefits of prostate cancer screening outweigh the risks	3.40 (1.00)	76.3	69.1	16.5	<.001
I have wondered if treatment for prostate cancer is worth it for some patients	3.65 (0.97)	50.8	64.8	87.9	<.001
Scientific evidence					
There is clear evidence that prostate cancer screening saves lives	2.52 (0.99)	30.5	30.9	1.7	<.001
My clinical experience is more important than research studies in how I handle screening	2.96 (1.21)	25.4	25.9	3.4	<.001
The scientific evidence does not support routine screening for prostate cancer	3.31 (0.88)	20.3	23.6	71.6	<.001
Evidence-based medicine orientation					
I would describe myself as someone who practices evidence-based medicine	3.97 (0.53)	71.2	87.3	90.5	.003
Professional experience					
I have lost patients to prostate cancer who might have been saved if they had been screened with PSA	2.51 (1.08)	27.6	27.8	16.4	.119
Personal experience					
I have lost close family members or friends to prostate cancer	2.34 (1.29)	28.8	25.9	22.4	.638
Prescreening discussion					
Patients should be told that it has yet to be proven that prostate cancer screening saves lives	3.82 (0.95)	35.6	61.8	90.5	<.001
Patients' rights					
Patients have a right to know the implications of prostate cancer screening before they are screened	4.20 (0.70)	52.5	92.7	98.3	<.001
Patients' expectations					
There is no need to educate patients about prostate cancer screening because in general they want to be screened	2.42 (1.11)	54.2	22.2	6.9	<.001
My patients frequently request the PSA test	3.87 (0.79)	83.1	73.6	63.8	.026
Patient anxiety					
Discussing harms and benefits of prostate cancer screening causes unnecessary anxiety in my patients	2.62 (0.96)	32.2	25.5	14.8	.024
Regret					
There have been times when I have regretted ordering a PSA test for a patient	2.96 (1.21)	25.4	39.6	56.9	<.001
Malpractice concerns					
Not ordering a PSA test puts a physician at risk for malpractice liability	3.82 (0.90)	76.3	87.3	63.8	.004
Community standards					
Prostate cancer screening is a standard of care in my community	4.02 (0.75)	94.8	90.9	64.7	<.001
Time barriers					
I do not have time to discuss the harms and benefits of prostate cancer screening with my patients	2.67 (1.06)	42.4	18.2	22.4	.005

PSA = prostate-specific antigen.

^a Percentage endorsing the item with an agree or strongly agree response on the original 5-point Likert scale.

^b Mean from original 5-point Likert response scale, where 1 is strongly disagree and 5 is strongly agree.

^c P values are from χ^2 and Fisher exact tests.

Table 3. Multinomial Logistic Regression Analysis of Screening Beliefs Indicators Predicting Clinical Practice Style for Prostate Cancer Screening

Beliefs Indicators ^a	Discuss, Let Patient Decide vs Screen Without Discussion		Discuss, Let Patient Decide vs Discuss, Recommend Screening	
	OR ^b	P Value	OR ^b	P Value
The benefits of prostate cancer screening outweigh the risks	–	–	0.269	.009
There is clear evidence that prostate cancer screening saves lives	–	–	0.092	.012
The scientific evidence does not support routine screening for prostate cancer	3.628	.046	2.713	.040
Patients should be told that it has yet to be proved that prostate cancer screening saves	6.073	.003	–	–
Patients have a right to know the implications of prostate cancer screening before they are screened	10.535	.015	–	–
There is no need to educate patients about prostate cancer screening because in general they want to be screened	0.122	.001	–	–
Not ordering a PSA test puts a physician at risk for malpractice liability	–	–	0.271	.025

OR = odds ratio.

Effects are adjusted for years in practice, sex of physician, and academically affiliated practice. Dashes are used for nonsignificant beliefs indicators.

^a Belief indicators are scored as endorsed (ie, agree or strongly agree) or not endorsed (neutral, disagree, or strongly disagree).

^b Interpreted as the ratio of the odds of endorsing a belief indicator among physicians who reported a prostate cancer screening practice style of discuss, let patient decide vs the odds of endorsing the same belief indicator among physicians who reported the practice style of screen without discussion (first column) or discuss, recommend screening (second column).

were more likely to endorse the idea that scientific evidence does not support screening; they were also less likely to endorse the beliefs that not screening puts a physician at medicolegal risk, that the benefits of screening outweighed the risks, and that the evidence clearly indicates that screening saves lives.

DISCUSSION

In this study of physician members of the AAFP NRN, we observed considerable variability in self-reported approaches to engaging patients in discussions about the harms and benefits of prostate cancer screening and how decisions are made. Many physicians appear to order PSA testing for asymptomatic men within the recommended age range for screening without first discussing the potential harms and benefits of testing with their patients.

There is another, larger, group of physicians who report engaging patients who are candidates for prostate cancer screening in discussions about the harms and benefits, but these physicians differed in the degree to which they encourage patient autonomy in making the decision. Some of the physicians recommend screening, and others let the patient decide. This distinction is important, as it suggests that some physicians, while attempting to use an informed decision-making process, may actually be using an informed consent process involving a discussion of risks but still wanting their patients screened. Whether these physicians consider their practice

style consistent with screening guidelines would be an interesting question to explore.

Physicians who reported engaging patients in pre-screening discussions of the harms and benefits of PSA testing and allowing their patients to decide differed from physicians who reported other practice styles in several important ways. First, the belief about scientific evidence not supporting routine screening was more likely to be endorsed by the former group than the latter. With the subsequent release of the large European Randomized Study of Screening for Prostate Cancer (ERSPC),¹³ US Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial results,¹⁴ and several recent systematic reviews,^{15,16} the belief that scientific evidence does support routine screening may continue to be challenged. Yet, it is unclear whether the trial evidence or changes in guidelines will have a major impact on prostate cancer-screening rates.^{17,18}

Second, the beliefs that patients should be told about the lack of evidence supporting screening and that patients have a right to know this information were more often endorsed by the physicians who discuss and let patients decide than by the physicians who order the PSA test outright. Conversely, physicians who ordered the test without discussion were more likely to believe that their patients want testing and that education is not needed. These observations offer an interesting juxtaposition of concerns about patient autonomy and the right to know important medical information and the pragmatic argument that education has no impact on screening preferences. A focus

on the decision as opposed to the decision-making process appears to distinguish these 2 practice styles.

Finally, there is the provocative finding that physicians who discuss the harms and benefits and recommend the test more often endorsed concerns about the medicolegal risk associated with not screening compared with physicians who discuss and let the patient decide. These concerns have been highlighted by others and appear to have some impact on PSA testing rates.¹⁹⁻²¹

Patient decision aids may be one solution for physicians who believe limited time with a patient is a barrier to the informed decision-making process and for those who have concerns about the medicolegal risks of not routinely screening men. Decision aids used before the clinical encounter may prepare patients for the informed decision-making process and lessen the process burden on the physician. In a study using mock trials, Barry and colleagues²² found that almost all jurors agreed that a physician who provides an aid and documents that the patients has reviewed the aid in the medical chart would meet the standard of care. Some legal opinions suggest that a shared decision-making process using decision aids may also help "satisfy the legal requirements of disclosure of risks, benefits, and alternatives," and also establish a higher burden of proof for patients who attempt to claim that they were not adequately informed of risks or alternatives.²³

Despite a participation rate similar to that from other surveys of the AAFP NRN membership,¹¹ our study has several limitations. We do not know how well the reported practice styles related to actual physician-patient interactions and to the use of an informed decision-making process, and we might expect that discussions about prostate cancer screening occur less frequently than physicians reported.²⁴ Our study was limited to family physicians, so the applicability of the findings to other clinicians (eg, general internists and nurse practitioners) is not known. Another limitation of the survey was that we did not ask physicians whether they used patient decision aids. Finally, we conducted the survey before the results of the ERSPC¹⁴ and the US PLCO Cancer Screening Trial¹³ were published in March 2009, which showed minimal mortality benefit from screening (only in the European trial) and raised increasing concerns about overdiagnosis of prostate cancer.

We observed considerable variability in primary care physicians' use of an informed decision-making process for prostate cancer screening. Much of the variability in these practice styles can be attributed to beliefs about screening, and some of these beliefs may be amenable to change. Currently, there are few negative sequelae for physicians who routinely screen

patients for prostate cancer.²⁵ As the scientific evidence continues to grow regarding the limited benefits of screening with PSA testing and practice guidelines more strongly recommend preference-based decision making, we may expect physicians who do not engage their patients in discussions about the potential harms and benefits of screening to consider changing their practice styles. Efforts to educate physicians about the shared decision-making process should include countering the beliefs that perpetuate routine screening.

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Key words: prostatic neoplasms; decision making; physicians, primary care; early detection of cancer

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