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Primary Care Physicians' Support of Shared Decision Making for Different Cancer Screening Decisions

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Abstract

Background—Despite widespread advocacy, shared decision making (SDM) is not routinely used for cancer screening. To better understand implementation barriers, we describe primary care physicians' (PCPs') support for SDM across diverse cancer screening contexts.

Methods—Mailed survey administered to random sample of US-based PCPs. Using multivariable logistic regression we tested association of PCPs' SDM support with US Preventive Service Task Force (USPSTF) assigned recommendation grade, whether decision pertained to not screening elders, and PCP's autonomous vs. controlled motivation-orientation for using SDM.

Results—PCPs (N=278) were on average aged 52 years, 38% female, and 69% white. 79% endorsed discussing screening benefits as *very important* to SDM, compared to 64% for discussing risks and 31% for agreeing with patient's opinion. PCPs were most likely to rate SDM as *very important* for colorectal cancer (CRC) screening in adults aged 50–75 years (69%), and least likely for CRC screening in adults aged >85 years (34%). Regression results indicated importance of PCPs' having autonomous or self-determined reasons for engaging in SDM (e.g., believing in benefits of SDM) (OR=2.29, 95% CI 1.87, 2.79). PCPs' support for SDM varied by USPSTF recommendation grade (overall contrast, chi-square=14.7, p=0.0054), with support greatest for A-grade recommendations. Support for SDM was lower in contexts where decision pertained to not screening elders (OR=0.45, 95% CI 0.35, 0.56).

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None

Limitations—Unknown whether PCP's perception of importance of SDM behaviors differed by specific screening decision and potential limited ability to generalize findings.

Conclusions—Results highlight need to document SDM benefits and consider specific contextual challenges, such as the level of uncertainty or whether evidence supports recommending/not recommending screening, when implementing SDM across an array of cancer screening contexts.

Keywords

Shared Decision Making; Primary Care Physicians; Cancer Screening

Introduction

The implementation of shared decision making (SDM) in practice—particularly in the context of cancer screening—remains suboptimal (1–5). Clinician reported challenges to SDM include time constraints, and a perceived lack of applicability due to the clinical situation, patient characteristics, or both (6). The US Preventive Services Task Force (USPSTF) and the American Cancer Society (7, 8), while consistently advocating that clinicians use SDM when discussing cancer screening with their patients, also acknowledge the added importance of SDM when individual characteristics and personal preferences are central to determining the value of screening to an individual patient. Furthermore, as of February 2015, Medicare (for the first time) has mandated the use of SDM for coverage of lung cancer screening with low dose computed tomography (9). To our knowledge no prior study has considered how such external pressures for SDM, or specific clinical or patient contexts, impact physician support for SDM in the context of cancer screening.

In the context of cancer screening, not only are the benefits of SDM underexplored empirically (10), but differing levels of uncertainty regarding the balance of benefits and risks from screening exist across clinical contexts. This uncertainty is reflected in the recommendation grades assigned to different screening by the USPSTF. After reviewing the strength of peer-reviewed evidence, and the balance of expected benefits and risks, the USPSTF makes a recommendation—often specific to age-and gender-defined population subgroups—as "A" (strongly recommends), "B" (recommends), "C" (recommendation depends on individual patient), "D" (recommends against), or "I" (insufficient evidence to recommend for or against) (11). While there has been varied support for some of the USPSTF recommendations (most notably the C recommendation for screening mammography before the age of 50 (12)), USPSTF recommendations often serve as the basis for performance reporting metrics and prevention-oriented prompts and reminders. Yet, variability and uncertainty in the evidence base underlying USPSTF recommendations reflect not only the inherent diversity of cancer screening decisions faced in primary care, but also the complexities of those decisions as patients and clinicians are expected to consider benefit/risk tradeoffs, and individual risk factors, values, and preferences.

As Lègarè and colleagues have speculated, clinician-reported barriers to SDM suggest health professionals may decide a priori in which patients or situations to use SDM (6). This may be particularly true in the case of older patients where both patients and clinicians perceive

barriers to elder participation in decision making (13, 14). In the context of cancer screening, the use of SDM among elders may be perceived as additionally challenging as the decision faced is often not to initiate or continue with regular screenings, but instead to discontinue screenings as health and life expectancy decline. Whether PCPs embrace the use of SDM in such scenarios is not known.

Further complicating the adoption of SDM may be a lack of understanding regarding what constitutes SDM (15). As conceptualized by the USPSTF, SDM is a process in which all patients, regardless of the cancer screening decision, are involved as active partners with their clinician to clarify acceptable medical options and decide upon a preferred clinical course (8). Yet, evidence exists that physicians may confuse SDM with counseling techniques such as motivational interviewing, action plans, or other means to encourage patients and their families to accept a clinician's recommended course of action (16, 17). In fact, no singular, agreed upon definition of SDM exists (18, 19), and despite attempts at consensus, not even academic experts can agree on the core competencies needed to implement SDM (20).

Identifying the factors that alter physician's support for SDM across the spectrum of cancer screening scenarios faced in primary care is important to supporting its implementation, particularly as the inherent complexities of such decisions are likely to increase with the expansion of genomics and personalized medicine. In this paper we (1) describe PCPs' beliefs regarding the importance of different communication behaviors to SDM, (2) report PCPs' support for using SDM across 11 specific cancer screening contexts, and (3) test whether that support varies by physician characteristics, including their belief in the inherent benefit of SDM (vs. external pressure to use SDM), and characteristics of the clinical context, as characterized by the USPSTF recommendation grade, and patient context, as characterized by whether the decision is specific to not screening elder patients. Given known time constraints in primary care, particularly in relation to preventive service delivery (21), we anticipated that PCPs may be relatively more inclined to endorse the importance of SDM when, because of either uncertainties or similarities in the expected magnitude of benefits and risk, decisions are likely sensitive to individual patient preferences (i.e., grades "C" and "I") in comparison to those screening contexts where the potential for benefits or risks dominated (i.e., grades "A" and "D").

Methods

Physician Sample and Survey Administration

The target study population was office-based PCPs practicing in the United States. In January 2015, an authorized vendor of the American Medical Association's (AMA's) Physicians Masterfile (22) identified a random sample of family medicine, general internal medicine, and general practice physicians aged 75 years or younger. Using that sample, we administered a mailed survey to N=1,430 PCPs between February and May 2015 (a time period that coincided with Medicare's initiation of coverage for lung cancer screening, but preceded Medicare's formal announcement of that coverage).

Survey administration followed a modified Dillman approach (23). We initially sent a letter of study introduction. Two weeks later, we mailed a survey packet that included a cover letter, survey booklet, pre-stamped return envelope, and a $2 bill. Two weeks after that mailing we sent a reminder postcard to those who had yet to return the survey. Two weeks following the postcard reminder, we sent non-responders a second survey packet. Those who completed the survey received a $10 gift card. We sent all correspondence via US Postal Service, using first class postage stamps and personalized salutations. The Institutional Review Board of the Virginia Commonwealth University approved all aspects of the study.

Survey Content and Analytical Variables

Using a 4-point Likert response scale (i.e., *not at all important, minimally important, somewhat important and very important*), the survey collected information regarding respondents' support for the importance of SDM in the context of 11 specific cancer screening decisions (Table 1). Four of these contexts (e.g., mammography screening among women ≥75 years, cervical cancer screening in previously screened women >65 years, colorectal cancer screening in adults aged 75–85, and colorectal screening in adults >85 years) pertain to recommendations not to screen elders, and therefore likely to a decision to discontinue or not screen an individual who has previously engaged in screening.

The survey used the same 4-point Likert response scale to obtain respondents' beliefs regarding the importance of 11 communication behaviors to SDM. Behaviors assessed were adapted from those described by Makoul and Clayman (18) and included: (1) presenting screening as a choice, (2) discussing testing benefits, (3) discussing testing risks, (4) eliciting patient information preferences, (5) discussing patient barriers to screening, (6) making a screening recommendation, (7) checking patient understanding of screening advantages/disadvantages, (8) discussing "next steps," (9) eliciting patient preference for decision-making involvement, (10) checking to see if screening is agreeable to patient, and (11) encouraging question asking.

The PCP's underlying motivation for using SDM was assessed using 10 items from the Treatment Self-Regulation Questionnaire (TSRQ) (24). First introduced by Ryan and Connell (25), these questions use 7-point Likert response scales to ascertain how true (i.e., *not at all true* to *very true*) a list of reasons is for why the respondent would engage in or change a behavior. The TSRQ includes six autonomous or self-determined reasons (e.g., I would use shared decision making with my patients because: "*I personally believe it is the best thing for my patients' health*" or "*It is important for being as good a doctor as possible*") and four controlled or externally-regulated reasons (e.g., I would use shared decision making with my patients because: *"Others would be upset with me if I did not"* or "*I feel pressure from others to do so.*"). The TSRQ has been validated across a variety of health behaviors and populations (26), but to our knowledge has not previously been used to understand physician behavior. As is typically done with the TSRQ, we constructed two variables that ranged from 1–7. The first represented the average of responses to the 6 autonomous-oriented questions, and the second represented the average of responses to the four controlled-oriented questions.

The survey also ascertained physician characteristics including age, gender, race, and practice size. Information on physician specialty (i.e., general internal medicine, family medicine) and medical school affiliation were ascertained from the AMA Physician Masterfile.

Statistical Methods

We report the percent of PCPs who endorsed each communication behavior by the level of importance endorsed. We also report the percent who endorsed SDM by the level of importance endorsed for each of the specific cancer screening contexts. Prior to conducting multivariable analyses, we collapsed Likert scale responses to "*very important*" vs. other based on the overall lack of variability across responses. To evaluate the physician and screening-context factors associated with PCPs' support for SDM, we fit multivariable logistic regression models with up to 11 repeated observations per physician (i.e., one for each of the 11 specific cancer screening decisions). This was done using generalized estimating equations (GEE) with the PROC GENMOD procedure with REPEATED statements in SAS (27). To test the hypothesis that a physician's likelihood of supporting SDM varied by USPSTF recommendation grade, we tested an overall contrast (using the type 3 analysis of effect chi-square available in SAS), and then, if the overall contrast was significant ($p<0.05$), tested for specific pairwise differences between recommendation grades. We also included a variable reflective of whether or not the screening decision pertained to discontinuing routine screening among elders. Finally, the model controlled for physician-level factors including age, gender, race, specialty, medical school/university affiliation, practice size and the PCP's autonomous and controlled regulation for using SDM.

Results

Sample Characteristics

Of the 1430 PCPs who were mailed a survey, 307 were returned, of which 278 were eligible (i.e., PCP with active office-based practice). After adjusting for ineligible cases, the survey response rate was 24% (28). Among those sent a survey, we compared responders and non-responders in terms of age, gender, specialty, university affiliation, and practice region. We found no statistically significant differences with the exception of specialty: Those who responded to the survey were more likely to be family medicine physicians when compared to non-responders (i.e., 58% vs. 49%).

On average, sample PCPs were 51.9 years of age (sd 10.8). Sixty-nine percent were white (69%) and 38% were female. The sample was equally distributed across solo/partner practices (33%), small practices (3–10 physicians, 37%) and large practices (11 or more physicians, 31%), and 35% were affiliated with a medical school. The mean PCP motivation for using SDM because of its inherent benefits was 6.0 (range=2.3–7.0) while the mean PCP motivation for using SDM due to external pressures was substantively lower at 2.6 (range=1.0–7.0).

Physician Beliefs about Shared Decision Making Behaviors

Primary care physicians varied in their beliefs regarding the importance of different communication behaviors to SDM (Table 2). For example, while 79% endorsed discussing the benefits of tests as *very important* to SDM, this dropped to 64% for discussing the risks associated with tests. Similarly, while 77% endorsed encouraging patients to ask questions as *very important* to SDM, this dropped to 67% for presenting screening as a choice. Fewer endorsed eliciting the patient's preferences for information (53%).

Physician Support for Shared Decision Making

When asked about the importance of SDM for cancer screening in general, 77% of respondents indicated that SDM was *very important*. However, when asked about the importance of SDM for specific cancer screening contexts, substantively fewer endorsed SDM as *very important* (Table 3). At the high end, 69% of PCPs supported SDM as *very important* for colorectal cancer screening among adults aged 50–75 years. At the other extreme, less than half supported SDM as *very important* in the context of mammography screening in women aged 75 years or older (44%), cervical cancer screening in previously screened women over the age of 65 years (42%), colorectal cancer screening among adults aged 75–85 years (40%) and colorectal cancer screening among adults over age 85 years (34%). With the exception of the four scenarios that pertain to cancer screening among the aged (i.e., mammography screening among women aged 75 and older [21.8%], cervical cancer screening among women aged 65 and older [27.4%], colorectal cancer screening among individuals aged 75–85 years [30.6%], and colorectal cancer screening among individuals aged 85 and older [48.6%]), PCPs rarely (<15%) endorsed SDM as either *not at all important* or *minimally important*.

As evidenced by the size of the intra-class correlation coefficient (ICC = 0.33) from the logistic regression model (Table 4), PCPs had a tendency to be either more or less supportive of SDM, regardless of clinical or patient context. However, among the physician characteristics included in the model, none were significant except the PCP's motivation for using SDM: The more PCPs indicated they engaged in SDM because of their belief in the inherent benefits of SDM (i.e., the more they endorsed autonomous or self-determined regulation reasons for engaging in SDM) the more likely they were to support using SDM: for every one-point increase in a PCP's average response on the 7-point Likert scale, he or she was over twice as likely to support SDM as *very important* (Table 4).

Results from the adjusted logistic regression model further indicated that PCPs' likelihood of supporting SDM varied by USPSTF recommendation grade (type 3 analysis of effect chi-square=14.7, p=0.0054). Specifically, PCPs were significantly more likely to support SDM among USPSTF grade A ("Strongly recommends") screening contexts compared to those contexts with other recommendation grades (Table 4). We also tested for each of the other pairwise comparisons, finding only the difference between USPSTF-grade C recommended services in comparison to grade D recommended services (OR=1.19, 95% CI 1.00, 1.42) statistically significant (results not shown). In addition, physicians' support for using SDM was half as likely when the screening decision pertained to not screening elder patients (Table 4).

Discussion

Our results point to variation in PCPs' support for SDM across the diverse cancer screening contexts typically faced in primary care and variation in PCPs' understanding of the behaviors important to SDM. In addition to their beliefs regarding the inherent benefits of SDM, variation in PCPs' support for SDM stems from specific characteristics of the screening contexts, such as the evidence base underlying the screening decision and whether or not the decision pertains to not screening elders.

While it may be unrealistic to expect PCPs to use SDM for the delivery of all cancer screening, a priori, if PCPs were using SDM as commonly advocated, it seems reasonable to expect PCPs to endorse the importance of SDM when there is a high degree of uncertainty or when the expected balance of benefits and risks is similar and thus, when decisions are likely sensitive to individual patient preferences (i.e., recommendation grades "C" and "I"). Instead, we found that PCPs were more likely to support the importance of SDM when there was a strong and certain evidence-base that the benefits of screening outweighed the potential risks (i.e., for those screening decisions with a USPSTF A-grade recommendation). This finding arguably makes sense in the context of colorectal cancer screening among adults aged 50–75 years—a screening context with an A-grade recommendation where deciding among multiple available screening tests is considered a preference sensitive choice. However, given that studies repeatedly have shown that physicians infrequently offer patients a choice among available colorectal cancer screening tests, instead defaulting to one of the available options (29, 30), PCPs' support of SDM in this context also may be due to other factors. For example, support for SDM in the context of an A-grade recommendation is consistent with the prior finding that physicians describe SDM as a process in which they try to convince patients to agree to a physician preferred clinical course of action (16). Others have suggested that physicians may feel a tension between a desire to engage patients and consider their preferences, and the need to adhere to evidence-based practice guidelines (31, 32).

We found consistently less PCP support for SDM in screening contexts where the decision was to discontinue screening among elders rather than to initiate or continue routine screening. It may be that time pressures in combination with pressures to adhere to evidence-based guidelines leave PCPs with little opportunity to raise these screening options with patients. It may also be that such conversations are uncomfortable for PCPs. Others have found that physicians are more likely to discuss tests with patients if they "believe in the test and intend to order it" (2). Regardless of the reason, the consistent void in support for the importance of SDM in these contexts is troubling, as it may, on one hand, lead healthy older adults to not receive appropriate screening, while on the hand lead to unnecessary screening among those with limited life expectancy.

We found that physician beliefs regarding the inherent benefits of SDM, and not external pressure to use SDM, are associated with PCPs' endorsement of the importance of SDM across diverse cancer screening contexts. A recent systematic review found surprising few evaluations of the relationship between SDM and patient outcomes in which both the decision-making process and patient outcome were empirically measured (10). That same

review found that affective-cognitive outcomes, and not behavioral and health outcomes, were both most often studied and found to be impacted by SMD (10). Thus, while there are strong ethical and interpersonal reasons to advocate for SDM, external pressure for clinicians to use SDM may fall upon deaf ears until the outcome benefits of SDM are better understood.

In the context of cancer screening demonstrating these benefits may be especially important: PCPs are likely to feel pressure to adhere to frequently monitored evidence-based screening recommendations and patients rarely consider the risks associated with routine screening (33, 34). Of particular note are our findings regarding PCPs' support for SDM in the context of lung cancer screening—a context for which SDM is now required by Medicare for reimbursement (9). Despite Medicare's tying reimbursement to documented use of SDM, we found barely half of PCPs indicated SDM was *very important* in the context of lung cancer screening. It is important to note, however, that our survey was in the field in the four months immediately following the CMS coverage announcement, and thus PCPs' beliefs may be shifting with time. Nonetheless, such findings suggest that additional training and education of providers likely is necessary to fully realize the benefits of SDM for lung cancer screening, a service with many potential benefits but also clear uncertainties and risks.

In addition to variable support for SDM across cancer screening contexts, we also found variable beliefs regarding the importance of many of the behaviors endorsed as central to SDM. While this lack of endorsement alone is of note, the patterns observed are also worthy of consideration. Clinicians were more likely to endorse the discussion of benefits as *very important* to SDM than they were to endorse a discussion of risks as *very important*. Likewise, they were less inclined to endorse checking that patients understand advantages and disadvantages as *very important*, than they were to support making a recommendation. Such findings are consistent with the idea that PCPs may view SDM as a tool to help convince patients to adhere to guideline recommended cancer screening and thus as having little value when screening is not recommended. Whether PCPs' beliefs regarding the importance of these communication behaviors may vary across different cancer screening contexts deserves further exploration.

Our results illustrate not only the need for education and training in SDM, but also the need for clinical and patient context to be considered within that education and training. For the inherent complexities present in cancer screening decisions to be considered more fully, PCPs need to be willing and able to engage in SDM with their patients across a diversity of cancer screening contexts. These contexts include not only those where patient preferences should play a role in deciding among options of equal clinical effectiveness, but also those where the benefit/risk profile changes as patients age, or where net benefit is low or unclear, and where risks are well known. Given patients often want to seek guidance from their physicians when deciding about cancer screening (35) and the ongoing challenges of incorporating traditional decision aids into clinical practice (36), additional research is needed to identify innovative tools and techniques to support what are increasingly complex cancer screening decisions.

We studied only established SMD behaviors, or those experts in the field of SDM consider important to SDM. There may be other behaviors that PCPs think are important to SDM. Furthermore, we did not collect information about and therefore cannot test whether PCPs' beliefs regarding the importance of different SDM behaviors varies across specific cancer screening contexts or whether some of their reported support for SDM within a given screening context is confounded by their agreement (or disagreement) with the recommendation grade assigned by the USPSTF. In addition, our survey response rate, while comparable to other physician surveys (37), and reflective of well-documented declining PCP responses to mailed surveys (37), raises caution when generalizing findings beyond the current sample.

Contrary to our expectations that time and other constraints might lead PCPs to endorse the importance of SDM relatively more when uncertainties exist or when the balance of benefits and risks are similar, and thus when decisions are sensitive to individual patient preferences, we found PCPs most likely to endorse the importance of SDM when evidence of the benefits outweighed the risks with a high level of certainty. One plausible explanation for this finding, which is consistent with the findings of others (16, 17), is that PCPs may equate SDM with counseling strategies that are primarily used to convince patients to adhere to guideline recommended cancer screening. As such, our findings support ongoing concerns that the inherent complexities of cancer screening decisions are not being addressed in practice (2, 38). For SDM to be more widely implemented, PCPs need to be able to understand the benefits of SDM and what specific communication behaviors contribute to those benefits. Furthermore, educational and other efforts need to help integrate the use of SDM across diverse cancer screening contexts, including those in which evidence for screening use is weak or ambiguous.

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Table 1

US Preventive Services Task Force–Assigned Recommendation Grade and Practice Suggestion by Cancer Screening Decision

Screening Decision	Recommendation Grade	Practice Suggestion
• Cervical cancer screening in women aged 21–65 years • Colorectal cancer screening in adults aged 50–75 years	A High certainty net benefit is substantial.	Offer or provide service
• Lung cancer screening in adults aged 55–80 years, who smoke or recently quit • Screening mammography in women aged 50–74 years	B High certainty net benefit is moderate or moderate certainty net benefit is moderate to substantial.	Offer or provide service
• Screening mammography in women before the age of 50 • Colorectal cancer screening in adults aged 75–85 years	C At least moderate certainty net benefit is small.	Offer/provide for selected patients depending on individual circumstances
• Cervical cancer screening in previously screened, average risk women >65 years • PSA in average risk men • Colorectal cancer screening in adults >85 years	D Moderate or high certainty that the service has no benefit or that the risks outweigh the benefits.	Discourage use
• Mammography in women >=75 years • Skin exam for cutaneous melanoma, basal cell cancer, or squamous cell skin cancer	I Insufficient evidence to assess benefit/risk balance. Evidence lacking, poor quality, or conflicting.	If offered, patients should understand uncertainty regarding balance of benefits/risks

Table 2

Primary Care Physicians' Beliefs Regarding Shared Decision Making Behaviors

Shared Decision Making Behavior	***Very Important***
Discussing benefits of cancer screening tests	79%
Encouraging patient to ask questions	77%
Making a recommendation about screening	73%
Checking with patient to see if screening is agreeable	68%
Presenting screening as a choice	67%
Discuss the risks associated with screening tests	64%
Discussing "next steps" with the patient	61%
Eliciting patient's preference for involvement in decision	61%
Check patient's understanding of advantages/disadvantages of screening	60%
Discussing patient's barriers to cancer screening	58%
Eliciting patient preferences for information	53%

Table 3

Primary Care Physicians' Support for Shared Decision Making by Cancer Screening Decision

Evidence Grade	Cancer Screening Context	*Very Important*
A	Colorectal cancer screening in adults 50–75 years	69%
A	Cervical cancer screening in women 21–65 years	61%
B	Screening mammography in women 50–74 years	60%
C	Mammography in women before the age 50	60%
B	Lung cancer screening in adults 55–80 years	58%
D	Prostate-specific antigen in average risk men	57%
I	Skin exam for cutaneous melanoma, basal cell cancer, or squamous cell skin cancer	56%
I	Mammography in women >=75 years	44%
D	Cervical cancer screening in previously screened women >65 years	42%
C	Colorectal cancer screening in adults 75–85 years	40%
D	Colorectal cancer screening in adults >85 years	34%

Table 4

Factors Associated with Physicians' Support for Shared Decision Making: Adjusted Logistic Regression Results[1]

	Odds Ratio	95% CI
Screening Context		
USPSTF Evidence Grade		
A	1.00	
B	0.74	0.61, 0.91
C	0.76	0.58, 0.99
D	0.63	0.48, 0.83
I	0.72	0.57, 0.91
Decision not to screen elders	0.45	0.36, 0.56
Physician		
Age	0.99	0.98, 1.01
Race		
White	1.00	
Asian	1.05	0.67, 1.64
Other	0.85	0.52, 1.39
Male	1.00	
Female	1.27	0.90, 1.77
Specialty		
Family medicine	1.00	
General internal medicine/other	1.02	0.74,1.39
No university affiliation	1.00	
University affiliation	0.92	0.67, 1.27
Motivation for shared decision making (SDM)		
Benefits of SDM (intrinsic)	2.29	1.87, 2.79
External pressure (extrinsic)	0.94	0.84, 1.05
Practice size		
Solo/partner	1.00	
Small group	0.87	0.59, 1.29
Large group	0.88	0.59, 1.33

[1] Interclass correlation coefficient = 0.33.

USPSTF, United States Preventive Services Task Force.