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The Effects of Shared Decision Making on Cancer Screening – A Systematic Review

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Prepared by:
Evidence-based Synthesis Program (ESP) Center
Minneapolis VA Health Care System
Minneapolis, MN
Timothy J. Wilt, M.D., M.P.H., Director

Investigators:
Principal Investigator:
Sarah E. Lillie, Ph.D., M.P.H.

Co-Investigators:
Melissa R. Partin, Ph.D.
Kathryn Rice, M.D.
Angela E. Fabbrini, M.P.H.
Nancy L. Greer, Ph.D.
Sagar S. Patel, M.D.
Timothy J. Wilt, M.D., M.P.H.

Research Associates:
Roderick MacDonald, M.S.
Indulis Rutks, B.S.

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PREFACE

Quality Enhancement Research Initiative's (QUERI) Evidence-based Synthesis Program (ESP) was established to provide timely and accurate syntheses of targeted healthcare topics of particular importance to Veterans Affairs (VA) clinicians, managers and policymakers as they work to improve the health and healthcare of Veterans. The ESP disseminates these reports throughout the VA, and some evidence syntheses inform the clinical guidelines of large professional organizations.

QUERI provides funding for four ESP Centers and each Center has an active university affiliation. The ESP Centers generate evidence syntheses on important clinical practice topics, and these reports help:

- develop clinical policies informed by evidence;
- guide the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- set the direction for future research to address gaps in clinical knowledge.

In 2009, the ESP Coordinating Center was created to expand the capacity of HSR&D Central Office and the four ESP sites by developing and maintaining program processes. In addition, the Center established a Steering Committee comprised of QUERI field-based investigators, VA Patient Care Services, Office of Quality and Performance, and Veterans Integrated Service Networks (VISN) Clinical Management Officers. The Steering Committee provides program oversight, guides strategic planning, coordinates dissemination activities, and develops collaborations with VA leadership to identify new ESP topics of importance to Veterans and the VA healthcare system.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP Coordinating Center Program Manager, at Nicole.Floyd@va.gov.

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EXECUTIVE SUMMARY

INTRODUCTION

Decisions about cancer screening have become increasingly complex. Patients must decide whether to get screened, which screening modality to use, and how often to undergo and when to stop screening. Some cancer screening decisions are considered "preference-sensitive," meaning that, due to closely-balanced benefits and harms, the "right" decision is in part dependent on an individual's values and preferences for particular outcomes. Most organizations publishing clinical practice guidelines for cancer screening now recommend that preference-sensitive cancer screening decisions be made individually, using a process that considers the available evidence on the benefits and harms of particular options, and incorporates patient values and preferences relevant to those options. This approach is sometimes referred to as shared decision making (SDM). The goal of SDM interventions is to facilitate this approach. Adjuncts for the usual counseling for specific decisions, SDM interventions may include: (1) tools to help patients comprehend information about the risks and benefits of options, clarify their personal values related to these options, and participate in decisions consistent with these values and preferences (sometimes referred to as "decision aids") and (2) other interventions to prepare health care providers and/or systems to support this process. SDM interventions differ from many health-related interventions in that they primarily seek to elicit and support patient values and preferences in making health care-related decisions rather than to promote a particular health care strategy per se.

In this review we examine the effects of SDM interventions for cancer screening in adults on constructs from the Ottawa Decision Support Framework, a commonly-used theoretical model of decision making. We examined the constructs of Decision Quality, Decision Impact, and, for studies reporting those outcomes, Decision Action. Decision Quality includes knowledge, values clarity (patients' clarity of their personal values regarding the risks and benefits of decision options), and the patients' participatory role in decision making. Decision Impact includes decisional conflict (personal uncertainty about which course of action to take), use of services (*eg*, consultation length), and satisfaction with the decision. Decision Action includes screening intention and behavior. The ideal SDM intervention would enhance Decision Quality *(ie,* increase knowledge and values clarity) and Impact *(ie,* increase satisfaction, reduce decision conflict, and have minimal impact on service utilization). The desired impact on Decision Action depends on the screening decision. For decisions about how to screen (such as colorectal cancer screening), the ideal SDM intervention would exert the desired effects on Decision Quality and Impact without reducing measures of Decision Action such as screening intention and behavior. For decisions about whether to screen (such as breast, cervical, and prostate cancer in some age groups and risk categories), the goal is to facilitate personalized decision making based on values and preferences. Hence, there are no desired effects on Decision Action per se in this context. We examine patient, provider, system, and multi-level SDM interventions, and therefore do not restrict this review to the most commonly employed SDM intervention of patient-directed decision aids.

This topic was nominated by Linda Kinsinger, MD, MPH, VA Chief Consultant for Preventive

Medicine at the VA National Center for Health Promotion and Disease Prevention (NCP). The evidence review is intended to examine the effects of SDM interventions for cancer screening practices and to inform what types of interventions NCP will disseminate with their cancer screening guidelines.

The key questions and scope were refined with input from a technical expert panel.

Specifically, we addressed the following key questions:

KQ1. In adults, what are the effects of SDM interventions for cancer screening on:
1) Decision Quality;
2) Decision Impact; and
3) Decision Action?

KQ1a. Are there differential effects of the interventions based on:
1) The intervention target (*eg,* provider-focused, patient-focused, system/organizational-focused, multi-level);
2) Key content/elements of the SDM intervention (*eg,* format, values clarification exercise, risk communication method);
3) Patient characteristics (*eg,* race, gender, age, health literacy); and
4) Cancer type (*eg,* breast, cervical, colorectal, prostate, lung)?

KQ2. Within the included studies, what is the receptivity to SDM interventions for cancer screening for:
1) Patients and
2) Providers?

KQ3. Within the included studies, what are the resources required to implement a SDM intervention for cancer screening?

METHODS

Data Sources and Searches

We developed an *a priori* study protocol and analytic framework that included our key study questions, populations, interventions, and outcomes of interest as well as our conceptual framework operationalizing SDM. We searched MEDLINE (Ovid), CINAHL, and PsycINFO for randomized controlled trials (RCTs) and systematic reviews published from January 1, 1995 to July 2014. We limited searches to articles published in the English language. Electronic database search terms included terms for cancer screening, SDM, and the following cancers whereby SDM is likely to have an important role: breast, cervical, colorectal, lung, and prostate cancer. Search strategies are presented in detail in Appendix A. We reviewed additional studies from the reference lists of included and excluded studies and relevant systematic reviews. We searched tables of contents from 12 key journals identified by study investigators. We reviewed studies suggested by technical expert panel members.

Study Selection

Two investigators independently screened abstracts from MEDLINE and reviewed each article identified for full-text review. Abstracts from the CINAHL and PsycINFO searches

were reviewed by a co-investigator. We excluded studies for the following reasons: (1) intervention was not designed for cancer screening; (2) stated goal of the intervention was to promote screening; (3) study was conducted in a non-clinical setting; (4) study was not an RCT comparing an intervention to usual care (UC) or to another intervention; (5) study was conducted in a pediatric population; or (6) study assessed only Decision Action (not Decision Quality or Decision Impact measures). A list of excluded studies can be found in Appendix B.

Data Abstraction and Quality Assessment

One investigator extracted study characteristics, intervention characteristics, and outcomes onto evidence tables and a second investigator verified the extraction. Trained research methodologists rated the risk of bias of individual studies as low, moderate, or high risk. Risk of bias ratings were based the following criteria: allocation sequence generation, allocation concealment, blinding, incomplete outcome data, and selective outcome reporting – a modification of the Cochrane approach to determining risk of bias.

Data Synthesis and Analysis

We organized evidence tables by cancer type and outcome. We critically analyzed and compiled a summary of findings for each key question. Due to heterogeneity of the interventions, outcome measures, and timing of outcomes assessment, few data could be pooled. Therefore, conclusions are largely based on qualitative synthesis of the findings. To facilitate comparisons across studies, standard mean differences and risk ratios were calculated where possible. We assessed the overall strength of evidence for the outcomes of Decision Quality, Decision Impact, and Decision Action using standard methods. The overall evidence was rated as: (1) high, meaning high confidence that the evidence reflects the true effect; (2) moderate, indicating moderate confidence that further research may change our confidence in the estimate of effect and may change the estimate; (3) low, meaning there is low confidence that the evidence reflects the true effect; or (4) insufficient, indicating that evidence either is unavailable or does not permit a conclusion.

RESULTS

Key Messages

1. No studies evaluated SDM interventions for cervical or lung cancer screening.

2. The vast majority of studies evaluated SDM for prostate cancer screening and had moderate risk of bias. Furthermore, results may have limited applicability because they were conducted prior to publication of randomized trials of prostate cancer screening and the subsequently developed clinical practice guidelines.

3. We found moderate strength of evidence that SDM interventions for breast, colorectal, and prostate cancer screening increase knowledge. We found low strength of evidence that these interventions reduce decisional conflict and improve values clarity.

4. We found low to insufficient strength of evidence that SDM interventions for colorectal and prostate cancer screening affect other measures of Decision Quality and Impact such as patients' role in the decision or decision satisfaction. We found insufficient evidence to indicate an effect of SDM interventions for breast cancer screening on these outcomes.

5. We found low strength of evidence for an association between SDM interventions and Decision Action.

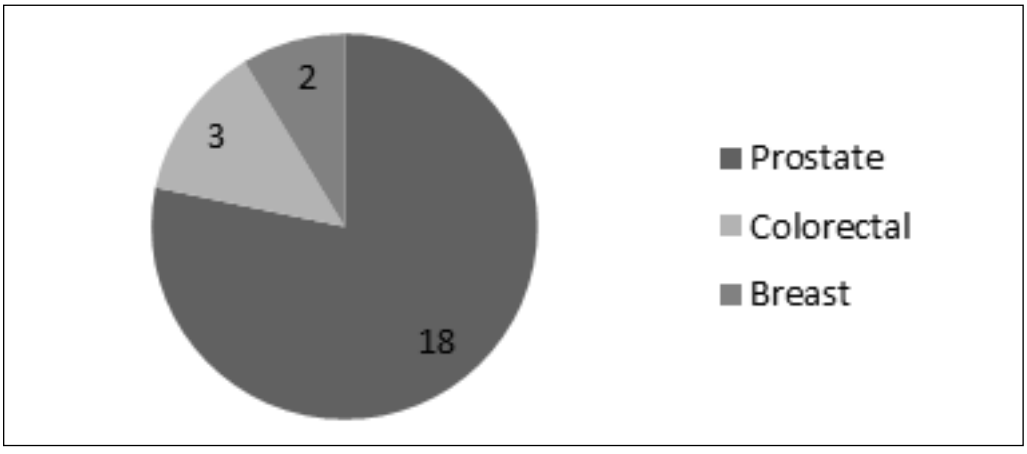
6. We found insufficient evidence regarding the comparative effectiveness of SDM intervention strategies, and whether the effects vary by intervention target population, key SDM intervention content/elements, patient characteristics, or cancer type.

7. Patient receptivity to SDM interventions is positive, as measured by stated opinions and reported reading or viewing of the intervention. We found insufficient evidence on provider receptivity to SDM interventions.

Results of Literature Search

We reviewed 2,368 titles and abstracts from the electronic searches and excluded 2,272 that did not meet our inclusion criteria. We retrieved 96 full-text articles for further review and excluded another 72 references, leaving 24 articles representing 21 unique trials eligible for inclusion. From our hand search we identified 2 studies eligible for inclusion. Thus, this review includes 26 articles representing 23 unique trials. The vast majority (k=18) assessed prostate cancer screening and all but one were judged moderate risk of bias. Two moderate risk of bias studies assessed breast cancer screening; one study evaluated facilitating decisions about whether to be screened for breast cancer in women who are younger than typically recommended, the other study in women who are older than typically recommended. No study assessed screening intervals (*eg,* annual vs biennial) or modalities (*eg,* use of tomosynthesis). Three moderate risk of bias studies assessed SDM for colorectal cancer screening; all assessed screening modalities and none assessed age to start or stop. No studies evaluated SDM for cervical or lung cancer screening. See Executive Summary Figure 1 for a distribution of included RCTs by cancer type and Executive Summary Table 1 for an overview of findings.

Executive Summary Figure 1. Distribution of Included RCTs by Cancer Type



Summary of Results for Key Questions

KQ1. In adults, what are the effects of shared decision making interventions for cancer screening on 1) Decision Quality; 2) Decision Impact; and 3) Decision Action?

Effect on Decision Quality

Overall, SDM interventions had a small but promising effect on most measures of Decision Quality. SDM interventions designed to facilitate decisions about whether to be screened for breast cancer in women who are younger or older than typically recommended for screening improved knowledge (2 of 2 studies). The intervention effect on values clarity was measured a number of ways; clarity was either higher (1 study) or not significantly different (1 study) as a result of the intervention, though indecision about screening mammography was lower (2 studies). SDM interventions to facilitate selection of colorectal cancer screening method increased knowledge (2 of 3 studies), but did not affect other Decision Quality measures of values clarity (1 study) or patients' role in decision making (1 study). SDM interventions to facilitate decisions about whether to receive prostate cancer screening (10 of 14 studies measuring screening behavior with the prostate specific antigen [PSA] test only) consistently increased patient knowledge (14 studies), and either enhanced (6 studies) or had no effect (4 studies) on patient participation in decision making. Intervention groups either had higher scores on measures of values clarity (3 studies) or were not significantly different from comparators (1 study).

Effect on Decision Impact

Overall, SDM interventions had varied effects on Decision Impact. The SDM intervention designed to facilitate decisions about whether women who are older than typically recommended for breast cancer screening should be screened for breast cancer had no effect on its Decision Impact measure of decisional conflict. However, SDM interventions to facilitate selection of colorectal cancer screening method improved Decision Impact, with intervention groups reporting lower decisional conflict (1 study) and higher decision satisfaction (1 study). SDM interventions to facilitate decisions about whether to receive prostate cancer screening either led to lower (7 unique studies, plus half of the participants of a study that separated its study population), or no significant change in (2 unique studies, plus the other half of the study population), decisional conflict. Such interventions also led to higher (1 study) or had no effect on (1 unique study, time 2 of a second study) decision satisfaction. Only one study assessed use of health care services in populations exposed to prostate cancer screening SDM interventions; this intervention had no effect.

Effect on Decision Action

SDM interventions designed to facilitate the choice of screening modality had varied effects on Decision Action. Specifically, SDM interventions to facilitate selection of colorectal cancer screening method either lead to higher colorectal cancer screening intention or behavior (1 study), or had no effect (2 studies). SDM interventions designed to facilitate the choice of whether or not to be screened had varied effects on Decision Action. SDM interventions to facilitate decisions about mammography decreased the proportion of younger women (age 38-45 years) who intended to start screening mammography (1 study) and had no effect on the proportion of older women (age 70-71) who either intended to or actually did stop screening mammography (1 study). SDM interventions to facilitate decisions about whether to receive

prostate cancer screening reported lower screening intention (5 studies) or behavior (7 studies), showed no intervention effect (3 studies and 7 studies, respectively), or, in one case, increased prostate cancer screening behavior.

Executive Summary Table 1. Overview of Findings

Cancer	Decision Quality			Decision Impact			Decision Action	
	Knowledge	Values Clarity	Patient's Role in Decision	Decisional Conflict	Use of Services	Decision Satisfaction	Screening Intention	Screening Behavior
Breast (k=2)	↑ 2	↓ 1[a] ↓ 2[b] ↔ 1		↔ 1			↓ 1 ↔ 1	↔ 1
Colorectal (k=3)	↑ 2	↔ 1	↔ 1	↓ 1		↑ 1	↑ 1 ↔ 2	↑ 1 ↔ 2
Prostate (k=18)	↑ 14 ↔ 1	↑ 3 ↔ 1	↑ 6 ↔ 4	↓ 8[c] ↔ 3[c]	↔ 1	↑ 1[d] ↔ 2[d]	↓ 5 ↔ 3	↓ 7 ↑ 1 ↔ 7

↑ = SDM intervention group had higher outcome measure; ↓ = SDM intervention group had lower outcome measure; ↔ = No effect of SDM intervention on outcome

k=number of studies

[a]Lower scores indicate clearer values

[b]Measure of indecision about intention, lower scores indicate less indecision/clearer values

[c]One study is included in both counts: one study population showed an intervention effect on decisional conflict and the second study population showed no effect

[d]One study is included in both counts: it showed an intervention effect on decision satisfaction at Time 1 and no effect at Time 2

The strength of evidence to indicate an effect of SDM interventions to facilitate breast or colorectal cancer screening decisions on Decision Quality was low; however for prostate cancer screening SDM interventions, strength of evidence was moderate. The strength of evidence for an association between prostate or colorectal cancer screening SDM interventions and Decision Impact was low; however for breast cancer screening SDM interventions, strength of evidence was insufficient. The strength of evidence to indicate an effect of SDM interventions to facilitate cancer screening decisions (prostate, breast, or colorectal) on Decision Action was low. See Executive Summary Table 2 for an overview of the strength of evidence.

KQ1a. Are there differential effects of the interventions based on: 1) The intervention target (ie, provider-focused, patient-focused, system/organizational focused, multi-level); 2) Key content/elements of the intervention (eg, format, values clarification exercise, risk communication method); 3) Patient characteristics (eg, race, gender, age, health literacy); and 4) Cancer type (eg, breast, cervical, colorectal, prostate, lung)?

SDM Intervention Target

Nearly all of the included RCTs (21 of 23 studies) were patient-directed SDM interventions, with 2 exceptions, a clinician-level intervention and a multi-level intervention to facilitate SDM for PSA-based prostate cancer screening. Although we could not compare across interventions targeting different cancer screening decisions, the practitioners in the clinician-level intervention

group had higher knowledge, greater inclination to *not* order PSA, and lower PSA ordering rates after 6 weeks. The multi-level intervention did not affect patient outcomes; physicians appeared more neutral regarding PSA recommendations.

Executive Summary Table 2. Overview of Strength of Evidence (SOE)[a]

Outcome Category	Outcome (# of Studies Reporting)	Risk of Bias of Individual Studies	SOE: Individual Outcomes	SOE: Outcome Categories
Breast Cancer (k=2)				
Decision Quality	Knowledge (2)	Moderate	Moderate	Low
	Values Clarity (2)	Moderate	Low	
	Patient's Role in Decision (0)		Insufficient	
Decision Impact	Decisional Conflict (1)	Moderate	Low	Insufficient
	Use of Services (0)		Insufficient	
	Decision Satisfaction (0)		Insufficient	
Decision Action	Screening Intention (2)	Moderate	Low	Low
	Screening Behavior (1)	Moderate	Low	
Colorectal Cancer (k=3)				
Decision Quality	Knowledge (2)	Moderate	Moderate	Low
	Values Clarity (1)	Moderate	Low	
	Patient's Role in Decision (1)	Moderate	Low	
Decision Impact	Decisional Conflict (1)	Moderate	Low	Low
	Use of Services (0)		Insufficient	
	Decision Satisfaction (1)	Moderate	Low	
Decision Action	Screening Intention (3)	Moderate	Low	Low
	Screening Behavior (3)	Moderate	Low	
Prostate Cancer (k=18)				
Decision Quality	Knowledge (12)	Moderate (11); Low (1)	Moderate	Moderate
	Values Clarity (4)	Moderate	Low	
	Patient's Role in Decision (7)	Moderate (6); Low (1)	Low	
Decision Impact	Decisional Conflict (8)	Moderate (7); Low (1)	Low	Low
	Use of Services (1)	Moderate	Low	
	Decision Satisfaction (2)	Moderate (1); Low (1)	Low	
Decision Action	Screening Intention (7)	Moderate	Low	Low
	Screening Behavior (10)	Moderate (8); Low (2)	Low	

[a] Strength of evidence determined for patient-directed interventions with a usual care or attention control group

Key SDM Intervention Content

The majority of studies included paper-based (14 studies) or web-based (7 studies) SDM interventions; few were face-to-face (3 studies) or telephone (1 study) interventions. More than half of SDM interventions (14 studies) included an explicit values clarification exercise, such as social matching exercises or benefits and harms balance worksheets. The types of values clarification methods varied, with no clear predominate method. RCTs evaluating SDM interventions including a values clarification exercise more often reported a decrease in decisional conflict than those evaluating SDM interventions without a values clarification exercise. For the few SDM trials specifying the method of risk communication, the majority

used pictographs (6 of 8 studies). However, results did not differ for interventions that used pictographs and those that used other risk communication methods.

Patient Characteristics

A number of SDM interventions (10 studies) considered low health literate users in the intervention development stage, testing the intervention and then modifying it to be accessible by a low health literate audience. Only one study tested a SDM prostate cancer screening intervention in a low health literacy site; this study compared use of a SDM intervention in a low health literacy site to use in a high health literacy site, finding increased knowledge for participants at both sites. There were no differential effects for other outcomes. Few studies directly addressed race. A single study targeted black men of African descent for a SDM prostate cancer screening intervention, and another study stratified its sample by race. However, effects did not differ by race. All prostate cancer screening studies included only male participants and all breast cancer screening studies included only female participants; colorectal cancer screening studies ranged from 41% to 48% male, none of which examined differences in effects by gender.

Cancer Type

Breast, colorectal, and prostate cancer screening decisions are different at their core, in their population, timing, and decision type. Thus, included studies are categorized by cancer type and we are unable to compare decision outcomes across cancer types. Both studies of SDM for breast cancer screening evaluated interventions to facilitate decisions about whether to be screened for breast cancer in women who are younger or older than typically recommended. No study assessed screening intervals (*eg,* annual vs biennial) or modalities (eg, use of tomosynthesis). All studies of SDM for colorectal cancer screening evaluated ways SDM interventions facilitate decisions about how to be screened (by what modality) and none assessed age to start or stop. All studies of prostate cancer screening involved SDM on whether or not to undergo prostate cancer screening with the Prostate Specific Antigen (PSA) blood test. As noted no studies assessed SDM for cervical or lung cancer screening.

KQ2. Within the included studies, what is the receptivity to SDM interventions for cancer screening for: 1) Patients and 2) Providers?

Patient receptivity to SDM interventions was generally positive as measured by opinions and reported compliance with reading or viewing of the intervention. Of the included studies, 14 unique studies reported patient receptivity to SDM interventions including use of the interventions (6 studies) or content of interventions (9 studies). SDM intervention use was assessed for prostate cancer screening SDM interventions only, and the majority of patients in all studies reported having read or viewed most or all of the intervention, ranging from 50% (pamphlet format) to 98% (video format). Although one comparative effectiveness trial found a significant difference in SDM intervention use between a web-based and a video decision aid (DA), a separate comparative effectiveness trial found no difference in intervention use between a video DA and a pamphlet. Sociodemographic characteristics associated with SDM intervention use included marital status, level of education, and PSA history.

Patients' ratings of the intervention content reflected positive reactions, and opinions that the intervention materials were easy to understand and balanced. One study included in our review reported provider receptivity; SDM intervention increased providers' receptivity to patient SDM.

KQ3. Within the included studies, what are the resources required to implement a SDM intervention for cancer screening?

Very limited evidence suggests that more resource-intensive interventions were not more effective than less resource-intensive ones. The most human resource-intensive SDM interventions were the provider-level (1 study) and multi-level (1 study) interventions, as well as those involving patient counseling sessions in person (3 studies) or on the telephone (1 study). Interventions requiring administered pre-tests (3 studies) or interviewer- or team member-assessed outcomes (4 studies) were also human resource intensive. One study compared a moderate-cost SDM intervention (mailed video) and a low-cost SDM intervention (mailed pamphlet); the lower-cost intervention either performed similarly or outperformed the moderate-cost intervention. However, we cannot draw conclusions about the relative benefits of additional intervention components from this single study. Technological resource-heavy interventions included web-based SDM interventions (7 studies), which required programmers and bandwidth, and interventions using in-clinic videos and laptops.

DISCUSSION

Limited evidence suggests that SDM interventions for breast, colorectal, and prostate cancer screening improve patient knowledge and may reduce decisional conflict. Focusing on Decision Action, SDM interventions designed to facilitate the decision of whether to be screened *(ie,* breast and prostate cancer screening interventions) have mixed effects (decrease or have no effect) on screening intention or behavior. SDM interventions designed to facilitate decisions about screening modality *(ie,* colorectal cancer screening interventions) also have mixed effects (either increase or have no effect) on screening intention, and have no effect on screening behavior. No studies evaluated SDM interventions for cervical or lung cancer screening.

Overall, SDM interventions were more often paper than web-based; all interventions after 2008 were either exclusively web-based or compared web-based interventions to another format. SDM interventions often used values clarification exercises, though differential effects by patient characteristics were rarely assessed and were non-significant when they were. Patients respond positively to SDM interventions for cancer screening, but evidence regarding physician reactions to SDM interventions for cancer screening included in this review is lacking. Human, financial, and technical resources varied by type of intervention (*eg,* web-based DA versus counseling), but intervention effectiveness did not vary by resource intensity.

Limitations

Our results are limited by the quality, quantity, and consistency of the available literature. Few studies assessed breast or colorectal cancer, none evaluated SDM for lung or cervical cancer, and studies of prostate cancer screening were conducted largely prior to recent findings from screening trials or current clinical practice guidelines. The populations and screening focus of breast and colorectal cancer SDM interventions are assessed in few studies, resulting in insufficient to low strength of evidence for all outcomes of interest except the evidence that SDM interventions for prostate cancer affect knowledge.

Applicability

Findings are likely applicable to the development of future SDM interventions for cancer screening. However, it is worth noting the limits of our key messages' applicability. No studies addressed screening for cervical or lung cancer. Included SDM interventions often did not use the most recent findings from randomized screening trials (especially prostate cancer), modeling studies, or cost effectiveness analyses and thus may not include the most up-to-date evidence or be fully applicable to current screening questions or published clinical practice guidelines. Studies did not address clinically important screening comparative effectiveness decisions, including the value of different screening strategy intensities (*eg,* annual versus biennial mammography, or cervical cancer screening with cytology alone every 3 years versus cytology plus HPV testing every 5 years for women ages 30-65).

Despite these limitations, our findings are relevant to future VA efforts regarding implementation of SDM interventions. Two studies specifically targeted a VA population. Though both studies evaluated SDM interventions for prostate cancer screening, they can be seen as a template upon which to guide current and future efforts, such as lung cancer screening. This outline of the effects of and required resources (specifically the human resource requirements) for SDM cancer screening interventions to date would help guide VA use and development of such interventions.

Future Research

Gaps remain in the field of SDM cancer screening intervention research. These involve the methodological rigor of SDM studies as well as the populations, cancers, and screening strategies studied. A list of future research priorities connected to our key questions might include:

(1) SDM interventions for cervical and lung cancer screening;
(2) PSA interventions incorporating the newest evidence;
(3) Effect of SDM interventions on decision quality measures other than knowledge;
(4) Effect of SDM interventions on decision impact measures other than decisional conflict;
(5) Variation in effects of SDM interventions by intervention targets and patient characteristics;
(6) Provider receptivity to SDM interventions for cancer screening; and
(7) Relative importance of key intervention content to overall effects.

Conclusions

There is moderate evidence that SDM interventions for prostate cancer screening improve knowledge, but low evidence of effects on other measures of Decision Quality, Impact, or Action *(ie,* cancer screening intention and behavior). There is low to insufficient evidence that SDM interventions for breast and colorectal cancer screening affect measures of Decision Quality, Impact, or Action. No studies evaluated SDM interventions for cervical or lung cancer screening. Little information exists regarding the comparative effectiveness of SDM intervention strategies, or whether the effects vary by intervention target population, key SDM intervention content/elements, patient characteristics, or cancer type. While SDM is widely viewed as an important patient-centered approach to preference-sensitive decisions, current evidence does not clearly demonstrate that studied approaches have consistent effects beyond increasing patient knowledge. Additional research is needed to identify interventions that can effectively and efficiently improve patient Decision Quality and Impact across a wide range of cancers and screening strategies.

ABBREVIATIONS TABLE

CRC	Colorectal Cancer
DA	Decision aid
DCS	Decision Conflict Scale
DRE	Digital rectal examination
FOBT	Fecal occult blood test
GP	General practitioner
IPDAS	International Patient Decision Aids Standards
ODSF	Ottawa Decision Support Framework
PSA	Prostate specific antigen
RCT	Randomized controlled trial
SDM	Shared decision making
UC	Usual care