REVIEWS

Implementing Clinical Practice Guidelines About Health Promotion and Disease Prevention Through Shared Decision Making

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Clinical practice guidelines aim to improve the health of patients by guiding individual care in clinical settings. Many guidelines specifically about health promotion or primary disease prevention are beginning to support informed patient choice, and suggest that clinicians and patients engage in shared discussions to determine how best to tailor guidelines to individuals. However, guidelines generally do not address how to translate evidence from the population to the individual in clinical practice, or how to engage patients in these discussions. In addition, they often fail to reconcile patients' preferences and social norms with best evidence. Shared decision making (SDM) is one solution to bridge guidelines about health promotion and disease prevention with clinical practice. SDM describes a collaborative process between patients and their clinicians to reach agreement about a health decision involving multiple medically appropriate treatment options. This paper discusses: 1) a brief overview of SDM; 2) the potential role of SDM in facilitating the implementation of prevention-focused practice guidelines for both preference-sensitive and effective care decisions; and 3) avenues for future empirical research to test how best to engage individual patients and clinicians in these complex discussions about prevention guidelines. We suggest that SDM can provide a structure for clinicians to discuss clinical practice guidelines with patients in a way that is evidence-based, patient-centered, and incorporates patients' preferences. In addition to providing a model for communicating about uncertainty at the individual level, SDM can provide a platform for engaging patients in a conversation. This process can help manage patients' and clinicians' expectations about health behaviors. SDM can be used even in situations with strong evidence for benefits at the level of the population, by helping patients and clinicians prioritize behaviors during time-pressured medical encounters. Involving patients in discussions could lead to improved health through better adherence to chosen options, reduced practice variation about preference-sensitive options, and improved care more broadly. However, more research is needed to determine the impact of this approach on outcomes such as morbidity and mortality.

KEY WORDS: shared decision making; practice guidelines; patient–clinician communication.
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BACKGROUND

Clinical practice guidelines are "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances".[1] These guidelines provide evidence-based recommendations based on rigorous systematic reviews and synthesis of published research in academic, government, and private sectors. Research is then interpreted by expert groups, evidence summaries are generated, and guidelines are developed by organizations such as the Department of Health and Human Services and its affiliates (e.g., National Institute of Health, Agency for Healthcare Research and Quality), or individual medical organizations (e.g., American Medical Association, American Heart Association, American Cancer Society, American College of Obstetrics and Gynecology).[1,2] Guidelines are expected to improve patients' health—and subsequently improve the health of the public—by assisting practitioner and patient decisions about appropriate health care. However, they are not easily implemented in practice for a number of reasons, including the complexity of some guidelines, lack of clinician knowledge about changing guidelines, limited time or resources available to support implementation, and structural and organizational barriers to implementation.[3]

Guidelines specifically focused on *health promotion and disease prevention* face their own set of unique implementation challenges. Patients often feel healthy and might perceive interventions as unnecessary (particularly interventions involving unpleasant side effects or procedures, such as the preparation for colorectal cancer screening). In addition, disease prevention guidelines are developed based on population-level data, and are thus focused on meeting

the health needs of most individuals under most circumstances. Unlike clinical treatment guidelines, which often use risk algorithms or nomograms, prevention guidelines do not capture individual variation in risk factors, health history, family history, and personal preferences. This personal information is often necessary for individuals and clinicians to determine which recommendations are most important for the patient,[2] and to develop individual health plans that are tailored to the patient's specific needs and circumstances.[4] However, health promotion and disease prevention guidelines generally do not address how to translate population-level evidence to individuals. In addition, they often fail to reconcile patients' preferences and social norms with the best evidence.[2,4]

Many guidelines for health promotion or primary disease prevention in the U.S. and globally are beginning to support informed patient choice, and suggest that clinicians and patients engage in collaborative discussions about these recommendations to determine how best to tailor guidelines to individuals' own health risk and behavioral profile. For example, guidelines for colorectal cancer screening suggest that average-risk individuals talk to a clinician about colonoscopy, sigmoidoscopy, or fecal occult blood testing starting at age 50, to determine which screening test might be right for them.[5] Guidelines for breast cancer screening suggest that average-risk women talk to their doctors starting at age 40 about when to start mammography screening and how often to get mammograms.[6] Guidelines about timing of initiation of screening and frequency of screening can change for those at elevated risk based on personal or family history. Recommendations for primary prevention of cardiovascular disease and stroke emphasize aspirin use for individuals at high risk, but experts differ on how to stratify patients by level of risk.[7,8] Thus, guidelines require individuals and clinicians to discuss options, individuals' preferences for options, and how patients' unique context (family history, personal health history, and values) influences their choice. Yet, few guidelines include suggestions to clinicians on ways to engage in these complex discussions in clinical practice.[9,10]

Shared decision making (SDM) can be one solution to bridge guidelines about health promotion and disease prevention with clinical practice. SDM describes a collaborative process between patients and clinicians in order to make health decisions that involve uncertain risks and benefits, or preference-sensitive trade-offs between risks and benefits of options.[11] The process helps inform patients about which interventions are most effective under specific circumstances, incorporates patients' preferences into discussions, and aims to improve the patient–clinician conversation about choices.[11,12] Moreover, SDM provides guidance on how to communicate evidence derived at population levels to the level of individuals to support decisions. This paper will discuss: 1) a brief overview of SDM; 2) the potential role of SDM in facilitating the implementation of practice guidelines about health promotion and disease prevention for both preference-sensitive and effective care decisions; and 3) avenues for future empirical research to test how best to engage individual patients and clinicians in these complex discussions about prevention guidelines.

OVERVIEW OF SHARED DECISION MAKING (SDM)

Shared decision making (SDM) is a process during which clinicians and patients work together to make choices about a patient's care, taking both the clinical evidence as well as patients' informed preferences into consideration.[11,13] When a decision is identified, SDM provides a framework for clinicians to present and discuss options (including their associated risks and benefits based on the best available evidence), communicate about the probabilistic nature of evidence, and verify patients' understanding. Clinicians and patients work together to clarify the patients' values and preferences, select a decision, and agree on a follow-up plan to evaluate the decision.[14] For example, a clinician engaging in SDM with a patient about the prevention of coronary events through lowering one's cholesterol could present options such as lifestyle changes with or without medication such as a statin. He/she would describe the potential risks (e.g. side effects of statins) and benefits (e.g. reduction in likelihood of coronary events, health benefits from lifestyle changes). Patients would have the opportunity to ask questions about the information and express preferences, and clinicians could explore potential challenges implementing the options. After a choice is made, the two would discuss when to re-check the patients' cholesterol and/or when to check the patients' liver function if a statin is chosen. The clinician might choose to use a decision support intervention (DESI), such as the Mayo Clinic's *StatinChoice* tool[15] or Cardiff University's Option Grid,[16] to enhance the conversation.

SDM is consistent with goals of ethical clinical practice through its emphasis on evidence-based medicine, patient-centered care, and informed consent. SDM is likely to take on greater importance in upcoming years, given the increasing focus of SDM in health care policies in the U.S.[17] and globally.[18,19] Although SDM can help improve patients' knowledge, generate more realistic expectations about options, lower decisional conflict, increase patients' activation, and help patients clarify their preferences for options during preference-sensitive decision making,[12,14] less is known about how to translate clinical practice guidelines about health promotion and disease prevention through SDM. Below we describe the potential role of SDM in translating these public health initiatives into clinical practice.

We will focus on the process of SDM vs. specific components of SDM, such as patient DESIs. There are few tailored or targeted DESIs that incorporate individual risk factors and clinical characteristics as well as individual preferences into health promotion or disease prevention recommendations. In addition, DESIs are intended to be used as adjuncts to clinical conversations.[12,20] Clinical conversations are key components of patients' health decisions.[20]

THE ROLE OF SDM IN FACILITATING THE IMPLEMENTATION OF CLINICAL PRACTICE GUIDELINES ABOUT HEALTH PROMOTION AND DISEASE PREVENTION

The Role of SDM During Discussions About Guidelines for Preference-Sensitive Decisions

SDM is often described as being most relevant for *preference-sensitive* decisions, in which there is no best option from an evidence standpoint and patient preferences are central to the choice. There are many instances in which individual patient preferences and characteristics are directly relevant to health promotion and disease prevention practice guidelines. SDM can provide a structured approach to incorporating these individual preferences and characteristics when implementing these guidelines. For example, guidelines suggest that men under the age of 75 with a life expectancy of 10 years or more should have a discussion with their clinicians about prostate specific antigen (PSA) testing, including the uncertainties associated with it.[21] For some situations and some patients, PSA testing could be unnecessary or even harmful, based on individual risk factors and preferences.[21] Other men might choose to undergo PSA testing based on their family history of prostate cancer and/or desire for information, despite the uncertainty of the test. The honest and open dialog that SDM facilitates is one way providers can establish the rapport necessary for patients to trust that choosing to forgo screening is not about rationing, but about balancing potential harms against benefit.

SDM might also help reduce unwarranted variations in preference-sensitive practice that can lead to improved individual and public health. In the US, the quality of health care and frequency of utilization of health care services vary widely across different geographic areas and populations.[22,23] Much of the geographic variation cannot be explained by illness, access, or patient preferences, and could be attributed to differences in physician practice style.[22,23] For instance, primary care physicians in high-spending areas in the U.S. are more likely to recommend screening tests with uncertain benefit (e.g., PSA screening for prostate cancer, computed tomography (CT) screening for lung cancer) than primary care physicians in low spending regions.[24] SDM might help reduce some of this unwarranted practice variation about some preference-sensitive guidelines.[23,25] More research on the impact of SDM on unwarranted variation in preference-sensitive care is needed to determine whether and how SDM can improve both individual and population health in these contexts.

The Role of SDM During Discussions About Guidelines for Effective Care

SDM can also be applied to patient–clinician discussions about guidelines for *effective care* in which the evidence on a population level strongly favors a health behavior. There are many sources of uncertainty that can arise when translating evidence-based population-based risk/benefit estimates to individual patients in real-world practice.[26–28] Recommendations based on tightly controlled randomized trials in highly selected patient populations might not all apply at the individual patient level. For example, although guidelines for colorectal cancer screening suggest that individuals receive either colonoscopy, sigmoidoscopy, or fecal occult blood test (FOBT) beginning at the age of 50,[5] for some individual patients, one test could be superior to another. Some patients might not feel able to follow proper colonoscopy preparation, or might not have access to a clinician adequately trained to perform colonoscopies. Other patients might have a history of bleeding and might not want FOBT where they might risk getting multiple false positive results, requiring additional follow-up procedures. Patients over the age of 75 or with less than a 5 year life expectancy might choose to forgo screening altogether due to the uncertainty about its benefit.[29] In addition, interventions such as vaccinations have substantial population impact, but may have less impact for an individual depending on the incidence of the disease, the severity of the disease, and the overall vaccine efficacy.[30] Even seemingly benign health behaviors, such as taking aspirin for the primary prevention of cardiovascular disease, are riddled with uncertainty about individual risk and benefit information, and policy groups can differ on how to stratify individuals into risk categories.[7,8]

Although some fear that communicating the difference between population and individual estimated risk or benefit might discourage patients from engaging in recommended practices, communicating this information through SDM can actually benefit clinicians and patients when discussing guidelines. By providing patients with information about risks and their associated uncertainty, and acknowledging the limitations of epidemiologic data as applied to individuals, clinicians can help patients make sense of the wealth of prevention data available as they work together to make individual decisions about their health.[13,31] Patients can be more satisfied with their care and the patient–clinician

relationship if data and its uncertainty are expressed and managed openly.[32,33] Patients might be more willing to adhere to the mutually agreed-upon plan if they have a better understanding of their options.[13,34] SDM supports a tailored clinician–patient discussion about evidence, rather than placing the burden on patients to resolve uncertainty on their own.

In addition to providing a model for communicating about uncertainty at the individual level, SDM can provide a platform for engaging in a conversation that addresses patients' and clinicians' expectations about health behaviors.[31] For example, patients might reference anecdotes about heavy smokers who never develop lung cancer, or exercisers who eat balanced diets and follow recommended guidelines for the prevention of cardiovascular disease but eventually suffer from heart disease. SDM can help providers to acknowledge that some personal experiences might deviate from expected evidence, yet behaviors such as not smoking or quitting smoking, engaging in physical activity, managing one's weight, and eating a healthy diet are still evidence-based prevention strategies with numerous health benefits.

For effective care guidelines, SDM also provides a way to understand patient priorities about recommended health practices.[31] Given the short length of time most clinicians have to discuss a myriad of guidelines, particularly in primary care, SDM can help patients and clinicians prioritize discussions based on patient preferences and concerns. For example, a patient might acknowledge that physical inactivity is likely harmful to her health, but she might not be ready or motivated to increase her activity. However, she might feel ready and motivated to quit smoking. Thus, SDM can help patients and providers choose from among a set of priorities and engage in a more focused discussion of one behavior (or several behaviors) at a time. After a patient-centered preference-sensitive decision is made about prioritizing one (or more) health practices or guidelines, a clinician can then engage in techniques such as motivational interviewing to help the patient change his/her health behavior through collaborative goal setting and encouragement about the mutually-agreed upon plan to change a behavior.[35] SDM can complement these change strategies by helping elicit preferences and establish a patient-centered plan, while change strategies can help implement the selected behavior change.

Table 1 summarizes benefits of engaging in SDM during discussions about preference-sensitive guidelines and discussions about effective care guidelines.

Table 1. Shared Decision Making About Preference-Sensitive and Effective Care Health Promotion/Disease Prevention Guidelines

	Guidelines about preference sensitive decisions	Effective care guidelines
Advantages for the patient–clinician discussion	• Patients' self efficacy across potential actions is valued and explored • Patients are involved in decisions that are preference-sensitive such that decisions are not guided by clinicians' biases or preference	• Patients' self efficacy across potential actions is valued and explored • Clinicians can communicate several recommended guidelines and work with patients to prioritize among them based on patient preferences, risk profile, and patient readiness to engage in behaviors
	• Discussions can improve knowledge about options, reduce decisional conflict, and help patients make sense of complex data as it applies to them	• Patients may feel more comfortable being honest when they are not willing to make a recommended change
	• Barriers to implementing value-based choices can be openly discussed and managed	• Barriers to implementing effective care guideline can be openly discussed and managed • Behavior change strategies can follow and enhance the shared decision making process once a choice is made
Examples	PSA screening for prostate cancer CT screening for lung cancer	Weight loss counseling Smoking cessation counseling

CHALLENGES IN USING SDM TO IMPLEMENT CLINICAL PRACTICE GUIDELINES ABOUT HEALTH PROMOTION AND DISEASE PREVENTION

Although SDM can help support the implementation of many types of health promotion and disease prevention recommendations, there are challenges that relate to the bridging of these approaches. First, practice guidelines and SDM do not always define effective implementation of recommendations the same way. Some guidelines focus on increasing adherence of individuals to recommendations, while SDM emphasizes informed, value-based choices.[11,13] Clinicians might feel they should suggest or strongly encourage effective care recommendations such as vaccination, smoking cessation, or physical activity guidelines for ethical or practical reasons.[31] Some might argue that effective care guidelines could still be preference-sensitive (e.g., a patient should still feel supported in discussing his/her fears about vaccines, even if his/her fears are unsubstantiated in empirical evidence, and a clinician should still feel comfortable discussing empirical evidence with patients to support the decision). However, a clinician is much less likely to present these recommendations as "options," as they might worry they are undermining robust population-based evidence. Patients' choices to forgo positive health behaviors—even if a patient makes this decision in an informed way—could have substantial negative public health impact.

This tension between recommending a guideline and supporting an individual decision is not irreconcilable. In these situations where evidence strongly points in favor of a recommendation whose effectiveness might not vary as much on an individual level, SDM could provide a framework for clinicians to support informed patient choice by describing recommendations, communicating empirical evidence, and involving patients in discussions. Clinicians could then still encourage an option based on strong empirical data after a patient is presented with evidence. In cases when patient preference-driven decisions do not conform to guidelines, SDM could provide a patient-centered framework for revisiting the decision during subsequent encounters. Based on evidence about the impact of SDM,[12] clinicians could see an increase in underused behaviors beneficial for most, and a reduction in options overused and not necessarily beneficial for most individuals.[25,36] Although there is not yet strong evidence that SDM improves outcomes such as morbidity or mortality, there are some studies showing a trend for improved outcomes in the mental health domain.[37]

Other challenges that cannot be ignored stem from clinician or system-level constraints when implementing SDM in clinical practice. In a systematic review of barriers to SDM implementation,[38] time was the most often cited barrier for implementing shared decision-making in clinical practice. Evidence about the time required to engage in the SDM process in practice is conflicting; some find that SDM could save time or has no effect on clinical consultation length.[12,39] However, time for clinicians to train in SDM, time to describe options, risks, benefits, uncertainties, and clarify patients' values, and time to meet for follow-up visits to evaluate decisions could impact the already-pressured clinical setting. We suggest that SDM could help patients and clinicians prioritize discussions about specific guidelines based on patient preference and motivation; this process could make it more likely that prioritized guidelines are followed and implemented.

In addition, clinicians sometimes perceive that SDM is not applicable to specific patients,[38] because of demographic factors such as culture and age that can influence patients' desired level of involvement in SDM in some clinical situations.[40] This suggests that clinicians might be screening patients a priori to determine which patients are appropriate for SDM, thinking of patients' preferences for involvement in decision making as a trait. However, research has demonstrated that patients' desired level of involvement in decision making is often state-specific. Decision making preferences often vary across health conditions and clinical circumstances.[40] DESIs can also increase patients' desire to participate in their medical decisions, through empowering them with information to support patient involvement.[12] Thus, clinicians could misjudge whether specific patients or clinical situations can benefit from SDM.[41,42]

Research evaluating these patient, clinician, and system level barriers is necessary in order to implement SDM. Focusing on one preference-sensitive choice at a time might facilitate clinical practice guideline implementation through SDM.

CONCLUSIONS AND AVENUES FOR FUTURE RESEARCH

SDM can provide transparency about evidence, and can help patients make decisions about population health recommendations as they apply to individual risk profiles and contexts. SDM can provide a structure for clinicians to discuss clinical practice guidelines about health promotion and disease prevention with patients in a way that is clear (based on latest standards in risk communication and health literacy) and patient-centered, incorporating patients' preferences. Public health at the level of the population is quite different from clinical practice at the level of the individual.[27,43] Although guidelines can make strong recommendations about population impact (even if some of the recommendations include statements about discussing options with a clinician), clinical practice is much more nuanced and involves personalizing care to individuals. SDM can help support this individualized approach to practice guidelines.

For effective care situations in which there is evidence supporting specific health promotion/disease prevention actions, SDM can complement other change strategies, such as motivational interviewing as clinicians work on implementing these guidelines in practice. SDM can provide a platform for clinicians and patients to: 1) discuss evidence; 2) explore patients' risk profile; 3) clarify patient preferences and priorities for specific health behavior changes out of the numerous possible behaviors to discuss in any given clinical visit; 4) establish collaborative goals; and 5) create plans to evaluate the decision and discuss other guidelines during subsequent visits. Change strategies such as motivational interviewing can then help patients to implement the behavior they choose to address, based on their preferences, risk profile, and readiness to engage in the suggested practice.[35]

For preference-sensitive care situations, DESIs[44] could help supplement conversations about practice guidelines for health promotion and disease prevention, if the intervention developers carefully consider ways to link a personalized approach to decision-making about these options with the clinical encounter.[45] For example, interventions such as OPTION grids[46] or targeted decision support interventions that address the limitations of evidence as applied to particular groups of individuals[29] could be used to support patients' deliberation about options. Conversational strategies during the clinical visit can then offer choices, summarize options (referring back to DESIs that provided a more detailed review of evidence), check understanding,

elicit preferences, and offer time to review options.[14] We chose to focus our discussion on the use of conversational strategies because DESIs are intended to be used as adjuncts to clinical conversations,[12,20] clinical conversations are key components of patients' health decisions, and there are few (if any) DESIs available to support the implementation of clinical practice guidelines. More research should explore whether and how to design DESIs to support the implementation of health promotion and disease prevention guidelines.

SDM has been described as an ethical imperative,[47,48] often because of the uncertain evidence that complicates most health decisions[26] and patients' rights to accept or deny interventions that can affect their health and functioning.[48] However, there are implications for society of involving patients in recommendations with strong evidence if individuals do not make choices that are optimal for their health and/or the health of the public. We argue that withholding evidence in these contexts is also wrong from a SDM and informed consent perspective, and that the ethical approach in clinical practice is to focus on the decision making needs of the individual to support an informed, value-based decision. Involving patients in decisions could lead to improved public health through better adherence to chosen options, reduced practice variation about preference-sensitive options, and improved care more broadly. However, research is needed to determine the impact of this approach to practice guidelines.

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