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# Shared Decision-Making for Medical Practice Variations in Elective Surgeries and Tests

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## Abstract

One of the motivations for developing patient decision aids is to improve decision quality and reduce unwarranted practice variations. Patient decision aids are designed to help patients discuss treatment options with their clinicians and make specific, deliberative choices. At a minimum, interventions meet the definition of patient decision aids if they make explicit the decision to be made, provide information on options including benefits and harms, and help patients clarify their values for outcomes of options.

Patient decision aids appear to improve decision quality by increasing knowledge of the facts about options, enhancing realistic expectations of outcomes of options, and improving agreement between patients' values and the chosen option. Patients exposed to decision aids have lower decisional conflict, participated more actively in decision making, and were less likely to remain undecided. At the same time, patient decision aids reduce practice variation by decreasing uptake of elective surgical procedures or screening tests when baseline rates are higher than what would be expected. However, they may also increase uptake of elective surgical procedures when baseline rates are lower than what would be expected.

Current practice is inadequate for ensuring quality decisions and minimizing practice variations. Patient decision aids support patients in making evidence-informed choices and may be able to inform benchmarks for the "right" rate of elective surgical procedures and screening tests.

This chapter examines shared decision making as an approach for preference-sensitive medical practice variations in elective surgery and screening tests.

# Introduction

Treatment decisions with scientific evidence on outcomes can be classified as “black” (harmful, harms far outweigh benefits) or “white” (effective, benefits far outweigh harms) or “gray” (close call/values sensitive, best choice depends on how patients value benefits versus harms or inadequate evidence) (Wennberg [2002](#); **Clinical Evidence** [2010](#)). The goal in evidence-based medicine is to improve decision quality which in turn will help reduce the overuse of black zone treatments and improve the under-use of white zone treatments (Wennberg [2002](#); O’Connor et al. [2003b](#); Sackett et al. [2000](#)). For gray zone decisions, it is more difficult to judge overuse and under-use of options. However, the rates of uptake of these treatments vary remarkably. In contrast to white zone surgical procedures with little regional variation (e.g., surgery for hip fracture or colon cancer), the uptake of gray zone surgical options (e.g., hip replacement or surgery for prostate cancer) can vary two- to fivefold (Wennberg [2002](#); The Dartmouth Atlas of Healthcare [1998](#)). Other examples include hysterectomy for uterine bleeding, prostatectomy for benign prostate enlargement, surgery for herniated disk, mastectomy for breast cancer, or coronary bypass for stable angina. The International Patient Decision Aid Standards Collaboration ( [www.ipdas.ohri.ca](http://www.ipdas.ohri.ca)) benchmark for gray zone decisions: when clinicians judge that patients are eligible for gray zone treatments, their uptake should be consistent with the distribution of informed patients’ values (Elwyn et al. [2006](#)).

The question is: How can one obtain informed patient values and, in turn, the optimal rate of a procedure? Studies show that clinicians are poor judges of patients’ values and patients often have unrealistic expectations of treatment benefits and harms (Mulley et al. [2012](#); Stacey et al. [2011](#)). Therefore, two types of experts are needed to judge options: clinicians to provide technical information on options, outcomes, and probabilities and patients to judge the value of good and bad outcomes (e.g., does potential relief of symptoms warrant the risks of complications?). Only a surgeon can judge whether a patient is a candidate for the surgical option of hysterectomy but only a patient can judge whether her uterine bleeding problems are bad enough to warrant the risks of hysterectomy. The approach by which patients together with their clinician discuss and reach agreement on options has been labeled “shared decision making” (Makoul and Clayman [2006](#)). Thus, communication techniques that enable the patient to adequately weight the risks and benefits associated with their choices are essential skills for shared decision making (Edwards and Elwyn [1999](#)). Shared decision making takes account of patients’ individual circumstances in which their values/preferences are sought and their opinions valued. Shared decision making is consistent with a shift away from passive-informed consent to “evidence-informed choice,” and, in fact, the consent legislation for Washington State requires demonstration of shared decision making for elective surgical decisions (2007).

To facilitate shared decision making, evidence-based patient decision aids have been developed as adjuncts to consultation to prepare people to participate in decision making (Stacey et al. [2011](#)). They differ from conventional education programs by presenting balanced, personalized information about options in sufficient detail so that patients are better able to judge their value. The aim of a decision aid is to improve decision quality and to reduce unwarranted practice variations by providing facts about the condition, options, outcomes, and probabilities; clarifying patients’ values (the outcomes that matter most to them); and guiding patients in the steps of deliberation and communication so that a choice can be made that matches their informed values. As detailed in Box [1](#), key elements include: making explicit the decision, facts on options (benefits, risks), risk communication, values clarification, structured guidance, and balanced display. There are hundreds of patient decision aids registered in the Cochrane Collaboration Inventory ( [www.ohri.ca/decisionaid](http://www.ohri.ca/decisionaid)). Decision aids are delivered as self-administered or clinician-administered tools. The media of delivery vary (e.g.,

booklet, audio-guided booklet, video/DVD, decision board), and many developers are moving toward Internet-based presentations.

Patient decision aids can address the major gaps in the quality of decisions. Following standard counseling, patients score “D” on knowledge tests and “F” on their understanding of the probabilities of benefits and harms. Moreover, there is a mismatch between the benefits and harms that patients’ value most and the option that is chosen. Patients participate in decision making less than they prefer and some have high levels of decisional conflict which is an independent predictor of downstream dissatisfaction, regret, and the tendency to blame their doctor for bad outcomes (Alston et al. [2012](#); Gattellari and Ward [2005](#); Sun [2004](#)). Decisional conflict is defined as personal uncertainty about a course of action when options involve risk, loss, regret, or challenge to personal values (O’Connor [1995](#)). The underlying mechanisms explaining poor decision quality with standard counseling are patients’ difficulties recalling facts and understanding the probabilistic nature of evidence regarding each available option (benefits and harms) and clinicians’ difficulties judging the values that patients’ place on benefits versus harms (Stacey et al. [2011](#)). There is a clear need to improve the way patients are prepared to participate in decision making and the way clinicians counsel patients about options.

#### *Box 1: Patient Decision Aid Elements*

**Decision** to be made is explicitly identified.

**Evidence-based information** on the options, benefits, and harms which should include the chances of outcomes and the level of scientific uncertainty.

**Values clarification** to ascertain which benefits, harms, and scientific uncertainties matter most to the patient.

**Guidance and coaching** in the steps of deliberating and communicating with a clinician.

This chapter discusses evidence-based methods to help patients become involved in shared decision making as one approach for addressing preference-sensitive medical practice variations. Specific questions include: (a) Should patients participate in decision making? (b) What is the quality of the decisions in current practice? (c) What is the quality of the current decision-making process? (d) What approaches support patients’ making decisions? (e) What impact does decision aids have on surgery and screening rates and quality of decisions and the decision-making process? (f) What are strategies for using decision aids in clinical practice?

## Search Methods

The evidence comes from the Cochrane systematic review of 86 randomized trials of patient decision aids when patients were randomized to receive “usual counseling” (Stacey et al. [2011](#)). The obvious limitation of the data is that trial participants may not be similar to non-trial participants.

Nevertheless, until data from more representative cohorts are published, data from trials provide some insight into patients’ decision-making-related behaviors when facing diverse surgical and screening decisions. Table 1 describes the criteria used for selecting trials to be included in the Cochrane

Review of patient decision aids (Stacey et al. [2011](#)). **Table 1**

Criteria for considering randomized controlled trials for this review

Participants	People making decisions about screening or treatment options for themselves, for a child, or for an incapacitated significant other
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Intervention	Decision aids defined as interventions to help people make specific choices among options (including the status quo) by providing (at a minimum) information on the options and outcomes relevant to a person's health status and including implicit methods to clarify values
Comparison	Decision aids compared to no intervention, usual care, alternative interventions, or a combination
Outcomes	Primary outcomes included attributes of the decision (e.g., knowledge, accurate risk perceptions, value congruence with chosen option) and attributes of the decision-making process (e.g., decisional conflict, patient-clinician communication, participation in decision making, satisfaction)

The Cochrane systematic review of 86 trials of decision aids found 14 trials of patients who were facing major elective surgical treatment options: 2 coronary artery disease, 2 benign prostate hypertrophy, 5 breast cancer, 2 menorrhagia, 1 prostate cancer, 1 orchiectomy, and 1 herniated disk or spinal stenosis. The Cochrane Review is based on a search from 1966 to December 2009 of the following electronic databases: MEDLINE, Cochrane Central Register of Controlled Trials, EMBASE, CINAHL (to September 2008 only), and PsycINFO. These data are supplemented with evidence from other systematic reviews (Kiesler and Auerbach [2006](#); Makoul and Clayman [2006](#); Legare et al. [2012](#); Legare et al. [2010b](#)) and several nonrandomized controlled trial studies.

## Findings

### Should Patients Participate in Decision Making?

Yes, patients want to be involved in making decisions about their health. The majority of patients in the United States of America (USA), Canada, the United Kingdom (UK), South Africa, Japan, and Germany want to participate in decision making with few preferring physicians making the decision on their behalf (e.g., passive role ranged from 10 % in South Africa to 3 % in Germany) (Alston et al. [2012](#); Magee [2003](#)). However, there was wide variation in the proportion of patients who report that surgeons made the decision in the Cochrane Review of patient decision aids; 8 % of men for decisions about prostate surgery in the UK (Murray et al. [2001](#)), 29.6 % for decisions about breast cancer in Germany (Vodermaier et al. [2009](#)), 33 % for decisions about prostate cancer surgery in Canada (Davison and Degner [1997](#)), 42 % for adults deciding about cardiac revascularization in the USA (Morgan et al. [2000](#)), and 73 % for men deciding about prostate cancer treatment in Finland (Auvinen et al. [2004](#)). For decisions about tests in the USA, 18.7 % of physicians made the decision for prostate cancer screening (Krist et al. [2007](#)) and 14.0 % of physicians made the decision for colon cancer screening (Dolan and Frisina [2002](#)). These findings are consistent with a multi-country comparison (Canada, Australia, New Zealand, Germany, the UK, the USA) in which just over half of participants reported having been exposed to healthcare professionals who involved them in treatment choices (Coulter [2006](#)). Intention to engage in shared decision making is a modifiable behavior in both physicians and patients (Legare et al. [2009](#)). The determinants differ between physicians and patients. For example, patients with low literacy are less willing to engage in shared decision making principally because they do not feel that they have the necessary self-efficacy to do so. However,

engagement of patients in decision making is modifiable even for those who lower literacy (Stacey et al. [2011](#); McCaffery et al. [2012](#)).

Moreover, patients who participate in decision making have better outcomes. A review of 22 studies found that 34 %–80 % (median 60 %) of patients experienced a role in decision making that matched their preferred role, and when mismatches occurred, patients had wanted more active roles (Kiesler and Auerbach [2006](#)). Furthermore, when there was a match between their preferred and perceived level of involvement, patients were more satisfied and less depressed; but mismatches resulted in poorer outcomes for patients (e.g., depression, fatigue, less satisfaction, anxiousness after consultation). Regardless of preferred role in decision making, two studies found that patients do better when they are actively engaged in the decision-making process (Hack et al. [2006](#); Gattellari et al. [2001](#)). Unfortunately, at the time of diagnosis and without decision support resources, patients may be less likely to participate in decision making.

## What Is the Quality of the Decisions in Current Practice?

Current quality of decisions is inadequate based on patients receiving standard counseling in the Cochrane Review of patient decision aids. According to the International Patient Decision Aid Standards Collaboration ( [www.ipdas.ohri.ca](http://www.ipdas.ohri.ca)) (Elwyn et al. [2006](#)), decision quality is defined as (a) informed (knows key facts about options and has realistic perceptions of the probabilities of positive/negative outcomes) and (b) based on patients' values (option chosen matches the benefits/risks that the patient values most). In the 35 trials of decision aids that evaluated how informed the patients were, those who received usual discussion about options had mean knowledge scores from 31 % for prostate-specific antigen screening in the USA to 85 % for endodontic surgery in the USA (Stacey et al. [2011](#)). For perceptions of the chances of benefits/harms, the proportion of patients in the 14 usual care groups who were accurate ranged from 10 % for the decision about autologous blood transfusion for open heart surgery in Canada and 10 % for prostate cancer-specific antigen screening in Australia to 66 % for breast cancer genetic testing in the USA. Agreement between values and choice in the 8 usual care groups ranged from 1.5 % for colorectal cancer screening in Australia to 65 % for genetic testing in pregnancy in Australia.

## What Is the Quality of the Current Decision-Making Process?

Current quality of the process of decision making is limited as indicated by using measures of decisional conflict and satisfaction with the process. Nineteen trials of decision aids that measured decisional conflict in patients receiving usual counseling indicated that the degree of decisional conflict ranged from 40 % for women with menorrhagia considering surgery and men with benign prostatic hypertrophy considering surgery to 15 % for women considering surgery for breast cancer (Stacey et al. [2011](#)). Furthermore, for every one unit increase in decisional conflict, patients were 3 times more likely to fail a knowledge test, 23 times more likely to delay their decision, 59 times more likely to change their mind about the chosen option, 5 times more likely to regret their decision, and 19 % more likely to blame their doctors for poor outcomes (Gattellari and Ward [2005](#); Sun [2004](#)). Overall, patients were satisfied with the usual counseling when considering surgical options; satisfaction scores ranged from 70 % to 77 % across three trials (Stacey et al. [2011](#)). This satisfaction could be due to their satisfaction being strongly influenced by the relationship with the clinician and/or patients unaware of the decision support they did not receive.

To date, research findings suggest that physicians and patients who consult them have not adopted shared decision-making processes (Makoul et al. [1995](#); McKinstry [2000](#); Godolphin et al. [2001](#); Elwyn et al. [2003](#); Davis et al. [2003](#)) and that they experience difficulty doing so (Elwyn et al. [1999](#); Godolphin et al. [2001](#)). For example, in an analysis of 271 videotaped clinical encounters, Makoul et al. observed that in less than 20 % of the consultations, the patient had the opportunity to express their thoughts about a prescription medication (Makoul et al. [1995](#)). During group interviews, general medical residents reported having tried to influence the patient's decision if they were convinced it was the best decision (Elwyn et al. [1999](#)). In an analysis of 186 taped encounters of 22 clinicians, Elwyn et al. observed a weak performance in shared decision making: mean score of physicians =  $16.9 \pm 7.7$  on a scale from 0 (no shared decision making) to 100 (optimal shared decision making) (Elwyn et al. [2003](#)).

## Summary of Current Practice

It is clear that there are serious gaps in the current approach to counseling patients about options. The majority of patients have unrealistic expectations of benefits and harms and about a third have high levels of decisional conflict leading to higher regret and tendency to blame others. Most clinical encounters result in patients not being involved in the decision-making process. Complications and poor outcomes are a reality of surgery and patients' expectations need to be realigned with the evidence. Harms can also arise from uninformed screening decisions. This does not mean that patients should not "hope for the best," but they do need to be "prepared for the worst." From a legal perspective, the biggest predictor of lawsuits is not bad outcomes but a combination of bad outcomes with poor communication (Tamblyn et al. [2007](#)). More effective methods are needed to improve clinician-patient communication and deliberation about treatment options.

## What Approaches Support Patients Making Decisions?

When there is no clearly indicated "best" therapeutic option, "shared decision making" is perceived as the optimal process of decision making between clinicians and patients. Shared decision making is the process by which clinician(s) interacts with patients to consider two or more reasonable options (including status quo or watchful waiting) and arrives at an informed, values-based choice (Makoul and Clayman [2006](#); Legare et al. [2011](#)). Shared decision-making programs also known as patient decision aids are standardized, evidence-based tools intended to facilitate that process. They are designed to supplement rather than replace patient-clinician interaction (Collins et al. [2009](#)). Decision aids help prepare patients to discuss the options by providing information, values clarification, and structured guidance in the steps of collaborative decision making (see Box [1](#)). The goal of these interventions is to improve the quality of the decision-making process by addressing the suboptimal intermediary modifiable determinants of decision making. This decision-making process does not aim at the adoption of a decision determined a priori by the clinician. It seeks to ensure that the decision made together with the patient is informed by the best evidence and consistent with the patient's values.

Patient decision aid development has been guided by several different decision theory, transactional, and risk communication frameworks from economics, psychology, and sociology (Stacey et al. [2010](#); Durand et al. [2008](#)). They have been delivered using diverse print, video, or audio media, but there is a current shift toward Internet-based delivery systems. Decision aids are self-administered or clinician-administered. Most are designed to prepare patients for personalized counseling; however,



the timing of their integration into the process of care depends on clinicians' usual counseling practices and feasibility constraints.

There are three key elements common to their content:

1.

**Information and Risk Communication.** Decision aids include high-quality, up-to-date information about the condition or disease stimulating the need for a decision, the available healthcare options, the likely outcomes for each option (e.g., benefits, harms, inconveniences), the probabilities associated with these outcomes, and level of scientific uncertainty. The information is clearly presented as a "choice situation," in a balanced manner so as not to persuade the viewer toward any particular option and in sufficient detail to permit choosing among the options.

2.

**Values Clarification.** Various methods are used to help patients sort out their "values" for outcomes of options (i.e., the personal desirability/undesirability of different features of the available options). For example, patients are better able to judge the value of options when they are familiar and easy to imagine. Therefore, decision aids describe what it is like to experience the physical, emotional, and social consequences of the procedures involved and the potential benefits/harms. Some decision aids directly engage patients in explicitly revealing their values using rating techniques such as balance scales or trade-offs. In balance scales, patients use the familiar "0 to 5 star" rating system to deliberate about the degree of personal importance associated with each of the possible benefits and harms. Visual ratings like this also help family members and the clinician understand "at a glance" which benefits and harms are most/least salient to the patient in the specific decision.

3.

**Structured Guidance or Coaching in Deliberation and Communication.** Decision aids are designed to improve patients' confidence and skills by guiding them in the steps involved in decision making. This involves helping them become informed, weighing their specific options, and showing them how to communicate values and personal issues to families and clinicians. Personal coaching by nurses or other professionals can also be used to prepare patients to deliberate and communicate with their surgeon (Stacey et al. [2012](#)). Once patients understand what is at stake in a "close call" situation and appreciate the importance of clarifying their personal values, they can meaningfully determine a preference and communicate whether they wish to be actively involved in the healthcare decision.

**A decision aid template that could be populated with evidence (Appendix A).** It guides patients to prepare for discussing decisions with their clinicians by assessing their individual decision-making needs and comparing their options. The steps include: (a) verifying the decision – options, rationale, timing, and stage in decision making; (b) clarifying the patient's preferred role in decision making; (c) reviewing the options being considered (including relevant pros and cons for each option) and clarifying their values by rating the importance they attach to each outcome using a "0 to 5 star" rating system; (d) assessing current decision-making needs and uncertainty using the Decisional Conflict Scale; and (e) planning the next steps.

Patients can be encouraged to share their completed Ottawa Personal Decision Guide with their clinician as a way to communicate knowledge and values associated with a health-related decision "at a glance." Alternatively, the guide can be completed together with the clinician to structure the process of decision making. This guide is being used as part of the process of care in the USA, Australia, the UK, and Canada and a similar guide was adapted for use when decisions are shared with the patient and a family member.

This Decisional Conflict Scale, used within this decision guide (see Appendix [A](#)), was developed to determine whether a patient is experiencing uncertainty about the best course of action to identify the modifiable factors contributing to decisional conflict (e.g., feeling uninformed, unclear about values, unsupported in decision making) (O'Connor [1995](#)). Decisional conflict is a state of uncertainty about the course of action to take and is frequently characterized by difficulty in making a decision, vacillation between choices, procrastination, being preoccupied with the decision, and having signs and symptoms of distress or tension. The four-item SURE screening test in English and French is available for monitoring decisional conflict in patients (see Table [2](#)) (Legare et al. [2010a](#)). In pregnant women, SURE correlated negatively with the DCS ( $r = -0.46$ ;  $p < 0.0001$ ), and in patients considering treatments, it discriminated between those who made a choice and those who had not ( $p < 0.0001$ ). **Table 2**

SURE test to screen for decisional conflict

Acronym	Items
Sure of myself	Do you feel SURE about the best choice for you?
Understand information	Do you know the benefits and risks of each option?
Risk/benefit ratio	Are you clear about which benefits and risks matter most to you?
Encouragement	Do you have enough support and advice to make a choice?

Yes response = 1; No response = 0; A total score <4 indicates decisional conflict

## What Impact Do Decision Aids Have on Surgery and Screening Rates, and Quality of Decisions and the Decision-Making Process?

**Rates of uptake of different options.** Of the 86 trials in the Cochrane Review of patient decision aids, 11 measured rates of different procedures involving major elective surgery (see Table [3](#)). Seven of these 11 trials demonstrated 21–74 % reductions in the use of the more invasive surgical option in favor of more conservative surgical or medical options, without adverse effects on health outcomes. For example, the rates of mastectomy declined in favor of breast conserving surgery. The underlying mechanism of this effect is likely in moderating expectations and communicating values. When patients face a major health issue, their first inclination is to “cut it out” or “get rid of” the offending organ. When they begin to appreciate that there are alternatives and that there are potential harms associated with the aggressive procedures, some decide on the simpler procedure. The remainder stay with their original view, but their expectations are more realistic. They place more value on the peace of mind from removing the organ than the potential complications and side effects. In the case of the hysterectomy study, a video decision aid alone did not have an effect on rates of procedures as much as the combination of the video with nurses’ coaching to encourage patients to clarify and communicate to their surgeon: (a) the value they placed on keeping their uterus and (b) the role they wished to take in decision making. Therefore, in this arm of the study, surgeons’ follow-up counseling about options was enhanced with better communication of what informed women valued most and their preferred role in decision making. For screening decisions, meta-analysis of seven trials found a



15 % statistically significant reduction in uptake of prostate-specific antigen screening, mixed results for uptake of colorectal cancer screening (2 increase; 3 no difference), and no significant difference in uptake of genetic testing in four trials (Stacey et al. [2011](#)). **Table 3**  
Effect of decision aids on rates for major elective surgeries (intention to treat analysis)

Decision (country)	Decision aid group		Comparison group		Weight (%)	Relative risk (95 % CI)
	N	% choosing option	N	% choosing option		
<b>Decision aid versus usual care</b>						
Breast cancer surgery (Canada)	94	6.4	107	24.3	5.2	0.26 (0.11, 0.61)*
Coronary revascularization (Canada)	120	37.5	120	52.5	14.7	0.71 (0.54, 0.95)*
Coronary revascularization (US)	65	38.5	53	52.8	12.0	0.73 (0.49, 1.09)
Hysterectomy (UK)	300	27.3	298	33.9	15.7	0.81 (0.63, 1.03)
Hysterectomy (Finland)	184	53.2	179	49.2	16.7	1.08 (0.89, 1.32)
Hysterectomy (UK)	72	9.7	72	4.2	2.5	2.33 (0.63, 8.67)
Orchiectomy (Finland)	104	57.7	106	85.8	17.1	0.67 (0.56, 0.81)*
Prostatectomy (US)	104	7.7	123	13.0	5.5	0.59 (0.26, 1.33)
Prostatectomy (UK)	57	10.5	55	1.8	1.1	5.79 (0.72, 46.54)
Prophylactic mastectomy (US)	100	18.0	114	13.2	7.6	1.37 (0.73, 2.57)
Breast cancer	39	5.1	41	12.2	1.8	0.42 (0.09,

treatment (Germany)						2.04)
						Pooled RR 0.80 (0.64, 1.00)*

\*  $p < 0.05$

Do patient decision aids always dampen patients' enthusiasm for surgery? In Table 3, one trial showed a significant increase in rates of prophylactic surgery for women carriers of the BRCA1 or BRCA2 gene and nonsignificant trend toward increasing the rates of surgery in three other studies (prostate surgery and uterine surgery). The one study that showed significant increase had low rates of surgery in the control group (13 %). This observation suggests that decision aids may promote uptake in surgery when rates are arguably "too low." Therefore, decision aids may address both under-use and overuse of options, thereby reflecting the true underlying distribution of informed patients' preferences (Wennberg 2002; Wennberg and Peters 2004).

**Impact on quality of the decision and process.** The Cochrane Review of 86 randomized controlled trials of decision aids shows that decision aids facilitate active participation and are more likely to lead to informed values-based decisions (Stacey et al. 2011). When decision aids are used as adjuncts to counseling, they have consistently demonstrated superior effects relative to usual practices on decision quality and the decision-making process (see Table 4). More specifically, patients exposed to decision aids improve their knowledge, have more realistic perceptions of the chances of benefits and harms, and improved agreement between patients' values for outcomes of options and the chosen option. A cohort study by Barry et al. (1988) also showed that men who were especially bothered by their urinary symptoms are seven times more likely to choose surgery for benign prostate disease than those who are not. Men who were especially bothered by the prospect of sexual dysfunction as a complication of surgery are one-fifth as likely to choose it compared to as those who are not (Barry 1988). **Table 4**

Summary of the impact of patient decision aids

Outcome	Number of trials	Number of participants	Pooled weighted differences (95 % CI)	Interpretation
Option chosen				
Surgery over conservative option	11	2507	RR 0.80 (0.6, 1.0)	Reduced uptake of surgery by 20 %*
Prostate-specific antigen screening	7	2690	RR 0.85 (0.74, 0.98)	Reduced uptake by 15 %*
Colon cancer screening	5	1180	RR 1.20 (0.90, 1.61)	No significant difference overall

Breast cancer genetic testing	4	949	RR 1.01 (0.83, 1.22)	No significant difference overall
Decision quality outcomes				
Knowledge of options and outcomes (0–100 scale)	26	5105	WMD 13.8 (11.4, 16.2)	Improves by 14 points*
Realistic expectations of outcomes with and without treatment	14	3695	RR 1.7 (1.5, 2.1)	Improves 74 %*
Match between choice and patients' values (benefits/harms that matter most)	8	1940	RR 1.3 (1.03, 1.5)	Improves by 30 %*
Decision-making process outcomes				
Decisional conflict – perceived uncertainty and related deficits in knowledge, values clarity, and support (0–100 scale)	19	3960	RR -5.66 (-7.7, -3.6)	Reduces decisional conflict by six points*
Proportion remaining undecided	10	2487	RR 0.57 (0.4, 0.7)	Reduces patients who are undecided by 43 %*
Participation – clinician controlled	11	1928	RR 0.61 (0.5, 0.8)	Reduces patients passive in decision making by 39 %*

CI confidence interval

RR relative risk (relative risk of 1 = no difference between proportion (risk) on test decision aids and comparator, >1: greater proportion on test decision aids. CI above/below 1 implies significant increase/ reduction in “risk”)

WMD weighted mean difference (average value on test decision aids minus average value on comparator, adjusted for variation in each group. WMD = 0: no difference between test decision aids and comparator.)

\*  $p < 0.05$

These improvements in decision quality were accomplished without deleterious effects on patient satisfaction or anxiety (Stacey et al. [2011](#)). Moreover, the amount of time spent by the physician and

nurse counseling patients during the initial consultation and/or follow-up visit in nine trials was about 2.5 min longer for patients who used the decision aids compared to usual care (range -8 min to +23 min).

## What Are Strategies for Using Decision Aids in Clinical Practice?

Clinicians are essential for clarifying the decision, identifying patients in decisional conflict or requiring decision support, referring patients to the appropriate resources including decision aids as part of the process of care, and following up on patients' responses in the decision aids to facilitate progress in decision making. Patients prefer face-to-face contact with a clinician to individualize the information and guide them in decision making (O'Connor et al. [2003a](#); Collins et al. [2009](#)). Decision aids are designed to enhance this interaction rather than replace it.

To use decision aids in practice, the following five steps can be followed:

- Step 1: **Clarify the common decisions** including specific options the patient needs to consider.
- Step 2: **Refer patients to a decision aid.** Endorsement of patient information from one's personal clinician is highly valued by patients (O'Connor et al. [2003a](#)). Direct patients to the A to Z inventory of decision aids ( [www.ohri.ca/decisionaid](http://www.ohri.ca/decisionaid)) to access decision aids quality rated using international standards (Elwyn et al. [2006](#)) or provide them with copies. If no decision aids exist for specific health decisions, the Ottawa Personal Decision Guide can be combined with quality patient education resources.
- Step 3: **Explain how the decision aid is used in practice.** Ask the patient to complete the decision aid in preparation for a follow-up discussion. Some online decision aids have summary forms that provide a succinct report on patient's understanding of their options, values associated with outcomes of options, preferred option, and remaining questions (Stacey et al. [2008](#)).
- Step 4: **Refer to the decision aid at follow-up discussion.** It is important that the clinician acknowledge patients' responses to their decision aid. It can serve as a communication tool to focus the patient-clinician dialogue. At a glance, one can learn how the patients see the decision (Stacey et al. [2008](#)).
- Step 5: **Screen for residual decisional conflict.** Based on what is currently known on the downstream effects of patients presenting with decisional conflict, clinicians would benefit from rescreening for any residual decisional conflict and its sources before arriving at a final decision. After using decision aids, most patients have unresolved needs for advice and continued uncertainty, that only gets resolved by following counseling with their surgeons.

These steps can be completed by the individual clinician or shared among team members. In the absence of staff to help with this process, referral to nurse call centers or patient information services may be an option to prepare patients. Decision aids can also be used by patients when discussing their preferences with important others such as a spouse, family member, or friend.

Three systematic reviews have been conducted to better understand barriers and facilitators to providing shared decision making and interventions to facilitate adoption of shared decision making in clinical practice (Legare et al. [2008](#), [2010b](#), [2012](#)). In review of 38 studies, the three most common facilitators of shared decision making including the use of decision aids were clinician motivation, having a positive impact on the clinical process and improving patient outcomes (Legare et al. [2008](#)). In two other systematic reviews of five studies using third-party observer instruments (Legare et al.

[2010b](#)) and 21 trials of patient-reported involvement (Legare et al. [2012](#)), interventions found to improve adoption of shared decision making by health professionals were the combination of interventions targeting the clinician (e.g., educational meetings, decision aids used within the consultation) and those targeting the patient (e.g., decision aids).

Given that care is increasingly planned and delivered through interprofessional teams and knowing that most decisions are made by patients with more than one healthcare professional, a new interprofessional model of shared decision making was developed to acknowledge the involvement of multiple players (Legare et al. [2011](#)). Consequently, an interprofessional approach to shared decision making has the potential to improve the quality of decisions made by patients and their healthcare teams by fostering integrated healthcare services and continuity of care (Haggerty et al. [2003](#)) across health sectors and the continuum of care. This in turn could increase quality of care, reduce practice variations, and improve the fit between what patients want and receive.

## Conclusions

Based on systematic review evidence, patients facing health decisions, as well as their clinicians, need help beyond standard counseling. Decision aids have the potential to reduce unwarranted practice variations and are proven to improve the quality of patient decision making, facilitate the integration of patient values into evidence-based medical practice, and enhance the clinician-patient interaction. The challenge is developing best practices for implementing decision aids as part of the process of care that will lead to better evidence-based decision making that matches patients' values. Needless to say, interprofessional approaches to shared decision making are needed to acknowledge and mobilize a more comprehensive approach to supporting patient involvement in health decisions.

## Appendix A: Example of a Decision Aid Template That Could Be Populated with Evidence

# Ottawa Personal Decision Guide

For People Facing Tough Health or Social Decisions

You will be guided through four steps: 1 2 3 4



## 1 Clarify your decision.

What decision do you face?

What is your reason for making this decision?

When do you need to make a choice?

How far along are you with making a choice?

- Not yet thought about the options  
 Thinking about the options

- Close to making a choice  
 Already made a choice

## 2 Explore your decision.



### Knowledge

List the options and main benefits and risks you already know.



### Values

Use stars (★) to show how much each benefit and risk matters to you. 5 stars means that it matters "a lot". No stars means "not at all".



### Certainty

Consider the option with the benefits that matter most to you and are most likely to happen. Avoid the options with the risks that matter most to you.

	Reasons to Choose this Option (Benefits / Advantages / Pros)	How much it matters Use 0 to 5 ★s	Reasons to Avoid this Option (Risks / Disadvantages / Cons)	How much it matters Use 0 to 5 ★s
Option #1				
Option #2				
Option #3				

Which option do you prefer?

#1

#2

#3

Unsure



### Support

Who else is involved?

Which option do they prefer?

Is this person pressuring you?

Yes

No

Yes

No

Yes

No

How can they support you?

What role do you prefer in making the choice?

Share the decision with...

Decide myself after hearing views of...





Someone else decides...

Who?



---



**3 Identify your decision making needs.**


	<b>Knowledge</b>	Do you know the benefits and risks of each option?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<b>Values</b>	Are you clear about which benefits and risks matter most to you?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<b>Support</b>	Do you have enough support and advice to make a choice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<b>Certainty</b>	Do you feel sure about the best choice for you?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

The SURE Test © 2008 O'Connor & Légaré.

People who answer "No" to one or more of these questions are more likely to delay their decision, change their mind, feel regret about their choice or blame others for bad outcomes. Therefore, it is important to work through steps two  and four  that focus on your needs.


**4 Plan the next steps based on your needs.**

**Decision making needs**     ✓ **Things you would like to try**

 **Knowledge**


If you feel you do NOT have enough facts

- Find out more about the options and the chances of the benefits and risks.
- List your questions.
- List where to find the answers (e.g. library, health professionals, counsellors):

 **Values**

If you are NOT sure which benefits and risks matter most to you

- Review the stars in the balance scale to see what matters most to you.
- Find people who know what it is like to experience the benefits and risks.
- Talk to others who have made the decision.
- Read stories of what mattered most to others.
- Discuss with others what mattered most to you.

 **Support**

If you feel you do NOT have enough support

- Discuss your options with a trusted person (e.g. health professional, counsellor, family, friends).
- Find help to support your choice (e.g. funds, transport, child care).

If you feel PRESSURE from others to make a specific choice

- Focus on the opinions of others who matter most.
- Share your guide with others.
- Ask others to complete this guide. Find areas of agreement. When you disagree on facts, agree to get information. When you disagree on what matters most, consider the other person's opinion. Take turns to listen to what the other person says matters most to them.
- Find a neutral person to help you and others involved.

Other factors making the decision DIFFICULT

List anything else you need:

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