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Decision Aids: The Role of the Patient in Perioperative Safety.

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Background.

The Institute of Medicine (IOM) published two reports that are influential to the practice of anesthesiology and all of medicine, *To Err is Human: Building a Safer Health System* and *Crossing the Quality Chasm: A New Health System for the 21st Century*^{1,2}. Both focus on improving patient safety in the healthcare field by minimizing medical errors and advancing quality in patient care^{1,2}. According to the IOM, healthcare must be (1) safe, (2) effective, (3) patient-centered, (4) timely, (5) efficient, and (6) equitable². In an era of fast-evolving medical treatments, increasingly complex technologies and health care team models, the notion of patient-centeredness in healthcare is paramount. In the scramble to fight disease, individual patient concerns can be overlooked.

The IOM promotes patient-centered healthcare in which “patient values guide all clinical decisions”². It allows patients to express their requests and beliefs for a more personalized healthcare service. For patients to select their ideal healthcare treatment, they must be properly educated with evidence-based data and have their voices heard throughout the decision-making process. To help achieve this quality of care, patient education decision aids have been implemented.

Patient Decision Aids.

Patient decision aids are defined as a form of media (i.e. websites, videos, print) that inform patients of evidence-based healthcare options, encourage participation during decision-making, and help patients evaluate their preferences and values in their healthcare choices³. These educational supplements assist patients in their medical decisions by describing choices that need to be made, alternative options, risks and benefits, and potential outcomes^{4,5}. According to the International Patient Decision Aid Standard (IPDAS) Collaboration, patient decision aids “are designed to support patients” and “help them to arrive at informed choices” in the healthcare setting⁴. However, the aids do not aim to influence patients to make one choice over another. They are used to complement, not to

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replace, physician consultation to reach the best possible decision for the patient⁴. When patients' values and preferences are reflected in their healthcare decision, decision quality and quality of care improve^{2,6}.

Shared Decision-Making.

Shared decision-making is a process in which clinicians and patients collaborate to choose interventions based not only on clinical evidence but also on the patient's informed preferences³. Patients can have open communication with their providers about their treatment options, while preserving physicians' guidance and professional judgement with evidence-based information^{7,8}. Shared decision-making is appropriate when there is no medically "best" choice. The best choice among medically appropriate options for each patient depends on individual preferences, including the patient's unique weighing of various risks, benefits and treatment goals ('preference sensitive')^{2,7,8}.

Researchers have attempted to make create approaches for promoting shared decision-making, including the Ottawa Decision Support Framework (ODSF). The ODSF (Table 1) defines shared decision-making framework and the components needed to help patients decide on their healthcare plans⁹. This framework was derived from psychological and socioeconomic concepts and has been used to develop and evaluate decision aids and educational tools for quality decision-making⁹. The ODSF follows three steps: (1) determine the patients and clinicians' needs for decision-making; (2) assist patients in making choices; and (3) analyze the outcomes⁹. With proper education and clinical guidance as described by the ODSF, patients and their families can choose a treatment plan that best fits their preferences. The combination of patient decision aids and proper patient-physician interaction satisfies the steps for quality decision-making.

In addition, the Agency for Healthcare Research and Quality (AHRQ) and the Informed Medical Decisions Foundation (IMDF) are promoting and funding multiple institutions in their shared decision-making research¹⁰. These institutions include the University of Washington, Dartmouth-Hitchcock Medical Center, New York University, and Massachusetts General Hospital¹⁰. In 2007, the Washington State Legislature passed a bill to implement shared decision-making and patient decision aids in the clinical setting¹¹. The University of Washington presented 8 steps to implement shared decision-making in the healthcare setting (Table 2)¹². In addition, the University described potential barriers to shared decision-making: "competing initiatives, availability of resources, sophistication of EMR, and changing the habits of clinicians and staff"¹³. The studies performed at the University of Washington are establishing a framework from which other medical centers can implement patient decision aids and large-scale shared decision-making programs. A recent paper by Urman *et al.* describes a comprehensive format to develop high-quality patient decision aids and provides a step-by-step process that any institution can use (Table 3)¹⁴.

Current Research on Patient Decision Aids.

Overall, the outcomes of patient decision aids have been well documented. The most recent Cochrane Database systematic review showed that patients using decision aids were less conflicted about their choices¹⁵. The study also showed that patients' preference indecision decreased, participation in the decision-making process improved, and they felt equally or more content with their choices and the overall decision-making process¹⁵. A systematic review by Trevena et al. demonstrated an increased understanding of healthcare choices, more accurate expectations, decreased decisional conflict, and lower passive decision-making in patients using these educational supplements¹⁶.

Today, patient decision aids have been used in various specialties of medicine and surgery. They range from helping patients in their struggles with post-traumatic stress disorder to management of osteoarthritis¹⁷⁻²⁸. Several studies point to successful patient-centered care delivery with the use of decision aids. Patients choosing treatments for valve replacement, diabetes and prostate cancer felt better informed^{17,18,23} and had increased knowledge^{17,18,23,26} of their medical options due to decision aid use. Patients found the aids to be useful^{20,21,24-26} and helpful in increasing shared decision-making^{18,20,25}. Anxiety and depression decreased for patients making medical decisions^{17,18}. Parents needing consultation on the difficult topic of prematurity reported reduced decisional conflict when using decision aids²⁵. Watts *et al.* also found that patients who use patient decision aids are more likely to choose evidence-based therapy and have superior outcomes²⁷.

In the *ASA Monitor* article, "Improving Patient-centered Care Delivery in 2017: Introducing Pre-Anesthesia Decision Aids," the authors maintain that anesthesia services are making strides to offer patients patient-centered care delivery, especially by means of patient decision aids⁸. Various anesthesia management options are available in the perioperative setting including the use of regional blocks, spinal and epidural anesthesia, monitored anesthesia care (MAC), and general anesthesia. Educating patients about the various perioperative anesthesia options is critical in their decision-making, yet accessible resources about anesthesia procedures are limited. Though few decision aids exist for the field of anesthesia, research has shown favorable outcomes for their use. In 2015 Posner *et al.* describe the effects of patients using regional anesthesia decision aids. Patients using the aids were shown to have increased discussion and participation in anesthetic planning²⁹. More importantly, the aids did not increase anxiety or uncertainty in their decision-making process²⁹.

Deficiencies in shared decision-making can lead to poor decision quality in the perioperative setting. A study by Ankuda *et al.* shows that over one-third of preoperative patients had deficits in their preoperative decision-making³⁰. Mitigating factors include varying education levels, language barriers, and patient value systems as well as shortcomings in the informed consent process (13% of patients)³⁰. Further, poor comprehension stems from patients' discomfort in the hospital setting and anxiety about the imminent procedure³⁰. In order to evaluate the quality, Ankuda *et al.* utilized the Donabedian model for analysis (Table 4.)³⁰. In this paper, the structure, process, and outcome of decision-making processes are considered. The structure encompasses the patients' understanding of the procedure,

including risks, benefits, and alternatives. Informed consent is included in this domain. The process is concerned with the actual steps in making a healthcare decision, such as treatment plans, procedures, and surgeries. Finally, the outcome of the decision and the patient's comprehension of the information is analyzed.

A paper by Cooper *et al.* further described patient factors that lower decisional quality in the perioperative setting. Non-white races, the elderly, and patients with lower educational levels are at risk of low decision quality³¹. In addition to the socioeconomic parameters, patients exhibiting denial were at high risk of knowledge deficits in the face of medical decision-making³¹. Given time constraints during the perioperative period, clinicians are often limited in their ability to communicate important decisional concepts with patients.³² The aids provide better knowledge of the healthcare options, leading to better understanding during informed consent. They open the conversation for patients to discuss their situation, preferences, and goals for therapy, while establishing shared decision-making with the patients, their loved ones, and physicians. Patient engagement and shared decision-making is believed to lead to higher decision quality, elevated number of positive surgical outcomes, and less inappropriate procedures³². Addressing these areas of weakness is key to improving decision quality and employing patient decision aids is pivotal in the fight against healthcare disparities.

Two anesthesia patient decision aids, Epidural and Spinal Anesthesia and Peripheral Nerve Blocks, were created by the American Society of Anesthesiologists (ASA) Committee on Professional Liability³³. Recently, the ASA Committee on Patient Safety and Education created a new decision aid for Monitored Anesthesia Care (MAC) following the requisite steps in "Concepts for the Development of Anesthesia-Related Patient Decision Aids"¹⁴ by (1) creating the decision aid, (2) vetting the decision aid, and (3) beta testing the decision aid at Beth Israel Deaconess Medical Center (BIDMC), Boston, MA³⁴.

Urman *et al.* expressed concern that "current dissemination of guidelines and educational materials have been more inclined to assist physicians and healthcare professionals rather than patients"¹⁴. It has been found that "more interactive formats such as computerized versions appear to have a greater effect size compared to paper booklets or audio-booklets"¹⁶. To address these issues, Shapiro and colleagues at BIDMC customized a computer application (LAMP™) that allows easy access to the MAC decision aid for patients. This innovation provides a digital version that may be accessed from patient mobile phones and allows easy access to up-to-date medical knowledge. Studies will be performed to show how effectively the MAC decision aid helps patients make a quality decision, as well as overall patient satisfaction with the aid and its dissemination.

Conclusion

Shared decision-making between physicians, patients and their families is essential for patient-centered care. However, implementing the concept in the perioperative setting can be challenging. Studies have shown that patients feel better informed, have better knowledge, and have less anxiety, depression, and decisional conflict after using patient decision aids. Patient education decision aids can support patient-centered care delivery, especially in the

field of anesthesia. Further investigations into quality and patient satisfaction endpoints of the newly developed anesthesia patient decision aids are needed to improve decision outcomes globally.

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Table 1.

The Ottawa Decision Support Framework (ODSF)

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1. Determine the patients' and clinicians' needs for decision-making
 2. Assist patients in making choices
 3. Analyze the outcomes
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⁹ Adapted from O'Connor *et al.*, 2006.

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Table 2.

The Foundation for Informed Medical Decision Making's 8-step implementation process.

1. Engage Providers and Staff
2. Target Individuals or Populations
3. Identify Conditions
4. Distribute Decision Aids
5. Encourage Viewing
6. Provide Support
7. Measure Impact
8. Provide Feedback

¹²Adapted from Renz *et al.*, 2010.

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Table 3.

The checklist for developing perioperative patient decision aids.

1. Synthesis
a. Creation of multidisciplinary team.
b. Literature review of major databases.
c. Creation of focus groups.
d. Drafts of the patient decision aid.
2. Analysis
a. Alpha testing.
b. Beta testing.
3. Implementation
a. Dissemination of the educational material.
b. Continuous analysis and evaluation.

¹⁴Adapted from Urman *et al.*, 2018.

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Table 4.

Categories of the Donabedian Model.

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1. Structure
 - Understanding the procedure and its risks and benefits.
 2. Process
 - Discussion about surgery and anesthesia care.
 - Shared decision-making.
 - Patient support.
 3. Outcome
 - Advance directives.
 - Quality of decision.
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³⁰Adapted from Ankuda *et al.*, 2014.

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