

Washington University School of Medicine

Digital Commons@Becker

Open Access Publications

2020

Challenges and solutions for the implementation of shared decision-making in breast reconstruction

Terence M. Myckatyn

Rajiv P. Parikh

Clara Lee

Mary C. Politi

Follow this and additional works at: https://digitalcommons.wustl.edu/open_access_pubs

Challenges and Solutions for the Implementation of Shared Decision-making in Breast Reconstruction

Terence M. Myckatyn, MD,
FRCS, FACS*
Rajiv P. Parikh, MD, MPHS*
Clara Lee, MD, MPP†
Mary C. Politi, PhD‡

Background: Patient-centered care is a hallmark of quality in healthcare. It is defined as care that is respectful of, and responsive to, individual patient preferences, needs, and values, while ensuring patients are informed and engaged in the treatment decision-making process.

Methods: We reviewed the literature and drew upon our own experiences to study the implementation of tools intended to facilitate shared decision-making in breast reconstruction.

Results: For women with breast cancer, decision-making about breast reconstruction is often a challenging and perplexing process. The variety of choices available regarding timing and type of reconstruction and the unique individual patient and clinical treatment variables to consider can further complicate decisions. Accordingly, strategies to facilitate the decision-making process and enable patients and clinicians to make high-quality decisions about breast reconstruction are an essential component of comprehensive breast cancer care. Shared decision making is one proposed model to support informed and preference-sensitive decision-making in line with the principles of patient-centered care. Despite an emerging level of interest in shared decision making, there remains a lack of clarity regarding what the process involves and how to effectively implement it into clinical practice.

Conclusions: Thus, widespread adoption of shared decision making remains lacking in clinical practice for women considering postmastectomy breast reconstruction. To address these gaps, this article reviews the principles of shared decision making, explores ways shared decision making can be utilized for patients who are candidates for breast reconstruction, and provides a practical overview to facilitate implementation of shared decision making into clinical practice. (*Plast Reconstr Surg Glob Open* 2020;8:e2645; doi: [10.1097/GOX.0000000000002645](https://doi.org/10.1097/GOX.0000000000002645); Published online 6 February 2020.)

INTRODUCTION

A 52-year-old woman presents with a new, left 2.0-cm invasive ductal carcinoma. She has a history of left ductal carcinoma in situ treated with breast conservation therapy. Her breast remains indurated with predominantly superomedial volume loss, nipple-areolar distortion, and malposition. The new breast cancer is located

in the inferolateral quadrant. The left breast is estimated to weigh ~800 g and the right ~1,000 g. The patient is a nonsmoker, has a body mass index (BMI, kg/m²) of 32, travels 3 hours each way to see her plastic surgeon, and has had a laparotomy and left lower quadrant colostomy from a traumatic injury. Her surgical oncologist has recommended bilateral mastectomies. The patient requests immediate prepectoral implants following nipple-sparing mastectomy based on a friend's experience. You are

From the *Division of Plastic and Reconstructive Surgery, Department of Surgery, Washington University School of Medicine, St. Louis, Mo.; †Department of Plastic and Reconstructive Surgery, Ohio State University, Columbus, Ohio; and ‡Division of Public Health Sciences, Department of Surgery, Washington University School of Medicine, St. Louis, Mo.

Received for publication September 25, 2019; accepted December 17, 2019.

Copyright © 2020 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 \(CCBY-NC-ND\)](https://creativecommons.org/licenses/by-nc-nd/4.0/), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: [10.1097/GOX.0000000000002645](https://doi.org/10.1097/GOX.0000000000002645)

Disclosure: Research reported in this publication was supported by the Siteman Cancer Center through a Siteman Investment Program Pre-R01 Award, funded by the Cancer Frontier Fund through the foundation for Barnes-Jewish Hospital and Siteman Cancer Center. Dr. Myckatyn is a consultant and received investigator-initiated grant funding from Allergan Medical and RTI Surgical on topics unrelated to the content of this article. Dr. Politi formerly (2017–2019) received funding from Merck pertaining to subject matter unrelated to this article. Drs. Politi, Lee, and Myckatyn currently have an Agency for Healthcare Research and Quality award (R18 HS026699) to implement a breast reconstruction decision aid into the electronic health records of several institutions.

running behind in clinic this afternoon and still have 6 other new patients to see in the next 2 hours.

THE ROLE OF SHARED DECISION-MAKING IN BREAST RECONSTRUCTION

Patients, physicians, administrators, insurance companies, and policy makers are committed to supporting high-quality postmastectomy breast reconstruction that produces favorable outcomes with minimal complications. These individuals recognize the importance of these goals overall, but may differ in how they are prioritized. Shared decision-making (SDM) engages women and their plastic surgeons to consider whether, when, and how to reconstruct the breast following mastectomy. Patient decision aids (DAs) can provide a framework that supports the SDM process for women considering the option of postmastectomy breast reconstruction.¹⁻⁵ In theory, SDM, is a necessary component of the preoperative interaction between plastic surgeons and their patients considering reconstruction. Indeed, many plastic surgeons report that they already engage in an SDM process, in spirit, if not by name. In practice, however, several barriers can derail a well-intentioned plastic surgeon from engaging in effective SDM.

In the case example above, immediate reconstruction, elevated BMI, and former radiation are all associated with increased reconstructive failure rates. Immediate, implant-based reconstruction is particularly problematic in the setting of radiation and obesity.⁶ Application of an evidence-based approach to this case favors delayed reconstruction following skin-sparing mastectomy with autologous flaps. Her previous history of abdominal surgery requires thigh-, buttock-, latissimus-, or lumbar-based autologous flap options. These strategies stand in contrast, however, with the patient’s initial preference for direct-to-implant reconstruction immediately following nipple-sparing mastectomy.

SDM is ideally suited to this clinical situation. Although the outcomes of each reconstruction option might not be completely equivalent given the patient’s history and clinical characteristics, several treatment choices are available to this patient. This patient may not fully understand the pros and cons of each option. Engaging the patient in a review of treatment options while exploring her preferences can help the surgeon and patient arrive at an informed, preference-concordant decision. Ultimately, the patient’s individual risk factors and clinical characteristics will need to be balanced with her preferences and goals to make a high-quality treatment decision.

Table 1. SHARE Approach to SDM*

Step	Description
1	Seek patient’s participation
2	Help patient explore and compare treatment options
3	Assess patient values and preferences
4	Reach a decision with the patient
5	Evaluate patient’s decision

*The Agency for Healthcare Research and Quality SHARE Approach to SDM.⁹

FIVE STEPS OF SDM

The Agency for Healthcare Research and Quality proposes the “SHARE” Approach to SDM based on 5 essential steps (Tables 1 and 2).^{7,8} These steps can be tailored to suit a particular patient encounter and represent a practical and efficient way to engage patients in SDM. Most patients prefer a collaborative approach over deferring treatment decisions to their clinician.¹²⁻¹⁴ In many cases, however, patients are aware of a power differential in the patient-physician relationship and may be reticent to initiate a 2-way conversation regarding breast reconstruction.¹⁵ For this reason, the plastic surgeon should begin the SDM process. For example, the surgeon can state “It is helpful for you to share what is important to you so we can make the best treatment together.” In the second stage of SDM, plastic surgeons describe reconstructive treatment options and each option’s pros and cons. The third step of SDM involves assessing patients’ preferences and prioritizing and contextualizing those preferences in the setting of breast reconstruction. For example, the relative importance of breast aesthetics or the degree to which a women’s perceived identity is defined by them, fear of surgery or the medical community in general, socioeconomic concerns, impact on occupation or family, and travel distance can impact a patient’s approach to decision-making. The relative merits of available reconstruction options are then juxtaposed with an individual patient’s preferences to reach a decision in the fourth step of SDM. The fifth and final step of Agency for Healthcare Research and Quality’s SHARE approach is to consider next steps that facilitate implementing the decision. For breast reconstruction, this can involve coordinating with the surgical and potential medical and radiation oncology providers. Furthermore, it may involve giving patients the appropriate amount of time to consider their options, discuss with family/friends/other patients, and weigh any social and economic influences on the decision (ie, support at home, time off work, etc.).

CHALLENGES AND SOLUTIONS FOR IMPLEMENTING SDM

Although an SDM approach to breast reconstruction is favored by most plastic surgeons in theory, several barriers can limit its implementation in practice.

Finding Time to Engage in SDM

Foremost among the barriers to SDM is allotting adequate time to the SDM process: (1) time to explore reconstructive options and to make sure that patients understand the discussion; (2) time to understand a patient’s preferences; (3) time to review information or a patient’s initial thoughts in the face of a condensed runway from consultation to surgery, an advanced tumor that mandates rapid intervention, and busy schedules. We have previously shown that implementation of a high-quality DA before a face-to-face visit can improve breast reconstruction quality by reducing knowledge gaps without prolonging length of visit.¹⁶ Patients can use a DA at home, where there can be more time and family support

Table 2. Challenges and Solutions with the SHARE Approach to SDM

Challenge	Solution
Patient reticent to engage in SDM.	Identify reasons for reluctance such as lack of awareness of SDM or power dynamics. Involve patient in SDM to the degree they are comfortable. Ask patients about their preferences and check to make sure the treatment plan aligns with those preferences, even if the patient desires less engagement. Example language: “Every patient has different goals, and there is more than one choice of surgery. I want to make sure the surgery plan we choose is consistent with your goals of care.”
Patient having difficulty understanding treatment options.	Reduce the use of jargon. Create or obtain DAs and educational materials with an accessible reading level. When language is a barrier, use a translator to aid the discussion. Consider using pictures or photographs.
Patient is clinically a reasonable candidate for both autologous and implant options, but is having a hard time deciding between them.	Use a DA to help review patient preferences and goals. Specific concerns include time off work, number of surgeries, aesthetic outcome, concerns about implants, flap donor sites, or social and economic circumstances (eg, travel distance, family or job stressors). Incorporate these aspects into the discussion.
Despite the physician engaging the patient in SDM, exploring treatment options, and learning their preferences, the patient remains reluctant to make a decision about type of reconstruction.	Confirm that the patient is comfortable with their decisions leading up to the type of reconstruction (ie, mastectomy versus BCT versus screening imaging for prophylactic cases, or immediate versus delayed timing). Provide the patient a written summary of the SDM discussion. Ask them to make a second appointment before which they can consider their options.
Socioeconomic barriers including perceived time off work and anticipated out-of-pocket costs are a primary driver of the patient’s decision-making.	Inform the patient of when you anticipate that they can resume their day-to-day functions independently and get back to work. Provide referrals for financial resources to enable them to learn what their insurance deductible payments will be in advance. Provide information regarding financial assistance available through hospital- and community-based charities. ^{10,11} Resources to provide insurance coverage, help pay deductibles, cover medication costs, assist with travel or provide physical therapy may be available. ¹¹
The patient wants the surgeon to decide how to proceed.	Make a recommendation that is based on your understanding of the patient’s preferences to the extent that it is congruent with their risk profile. Outline how the recommendation is based on their characteristics and preferences so they may weigh in.
A patient with numerous major risk factors for complications (eg, smoking, obesity, diabetes, COPD) advocates for immediate implant breast reconstruction despite strong evidence to suggest she is at risk for complications.	This patient is at high risk for complications regardless of chosen reconstructive technique. Delayed reconstruction and use of an autologous flap in a radiated field are both strategies strongly supported by evidence, and personalized risk communication might facilitate an evidence-informed choice. In addition to delaying the reconstruction, help the patient with weight loss, smoking cessation, and/or blood sugar regulation, with set goals and follow-up appointments to discuss this plan and barriers to it. Consider referral to another plastic surgeon to reinforce the safest reconstructive approach.

BCT, breast conservation therapy; COPD, chronic obstructive pulmonary disease.

to review new, complex information, or in a waiting room or clinic room before the start of a consultation for those without Internet access or those preferring to review the information on-site. For the surgeon, this patient can be better prepared with evidence-based information and some initially formed preferences before the conversation with the surgeon. Alternatively, a DA can be used to reinforce physician–patient communication and potentially diffuse a time-pressured interaction by administering it in the postconsultation phase.¹⁷ Next, it is imperative that the plastic surgeons spend adequate time with their patients to develop trust and ensure that they have a handle on the medical and social variables that may impact breast reconstruction. Instructional videos as used in some patient education materials,¹⁸ initial discussions with an experienced nurse, nurse practitioner, or PA, and informational brochures can supplement the plastic surgery clinic experience and provide support using an interprofessional team-based approach to SDM.¹⁹

Quality of Information That Supports SDM

The information plastic surgeons use to define various reconstructive options may also represent a barrier to SDM. The quality and level of evidence to describe clinical and patient-reported outcomes has improved, but continues to have limitations. A DA can implement risk prediction into the SDM process to address some of

these evidence limitations. As an example, a DA we previously developed and evaluated, the *Breast Reconstruction Education and Support Tool* (BREASTChoice), combines a risk prediction model derived from analysis of 17,000 patients undergoing surgical treatment for breast cancer and uses clear, standardized visual tools to communicate risk.²⁰ Reported risks are derived from a wide breadth of providers, patients, and care settings to improve their generalizability. By inserting evidence-based clear risk prediction into the SDM process, consistent information can be communicated to patients. Regardless of the exact construct of the DA, incorporation of a risk prediction model that accounts for patient’s clinical characteristics (eg, BMI, smoking status, hypertension, lung disease, previous radiation therapy, diabetes, medications) and communicates it clearly can improve patient understanding of the likelihood of complications with reconstruction options.

Of equal importance is the availability of information that a particular patient perceives as relevant to them. The Surveillance, Epidemiology, and End Results database has been effectively leveraged to identify barriers to reconstruction including overall access and availability of information, most prominently for women from racial and socioeconomically marginalized groups.^{21–23} Indeed, we have noted that women often perceive race- or age-related biases with information sharing.¹³ Patient materials need to include images that represent the breadth of skin tones,

BMI, and ages of women who seek breast reconstruction.^{13,16} Breast reconstruction studies that have emerged to address quality of life, unique preferences and needs of potentially marginalized communities, and factors such as social support, time to heal, and travel distance can be extremely important for patients.²⁴

Quality of Communication between Plastic Surgeons and Their Patients

How plastic surgeons and patients communicate with each other significantly impacts SDM and can be influenced by dynamics of the doctor–patient relationship. This will vary from 1 case to the next, influenced by variables such as race, socioeconomic status, religion, health literacy and numeracy, age, and the length of the patient–clinician relationship. The plastic surgeon must be aware of his/her own biases and the perception of a power imbalance that a patient may have when interacting with their surgeon. These factors impact the physician–patient interaction, possibly impeding a patient’s willingness or confidence to openly communicate her values and preferences. Fortunately, several strategies can be employed to optimize communication. First, the plastic surgeon must recognize that barriers to communication may exist and not make assumptions about whether this is the case based on a particular patient’s profile. The plastic surgeon can ask open-ended questions and avoid medical jargon. Information exchange between patients and their plastic surgeons can occur despite potential barriers to communication with the implementation of a clinical DA. To broaden the generalizability of a DA, it is critical that they be written with broadly accessible language; standards suggest a seventh-grade reading level or below.²⁵ The plastic surgeon can modulate the level of complexity discussed thereafter, taking great care to be understandable on the one hand, but not condescending on the other. Data regarding risks can be presented as percentages and proportions to facilitate patient understanding and the surgeon can seek to confirm a patient’s understanding using the teach-back technique (“tell me your understanding of what we just talked about”). All of these strategies are aimed at improving physician–patient communication.

Precision of Medical Information Used to Predict Risk

The quality of research that generates the data used to inform risk prediction algorithms with postmastectomy breast reconstruction is critically important. However, these algorithms are only accurate if complete and accurate data for a particular patient are entered. Incomplete or inaccurate data can generate false assessments of risk prediction that can have more negative repercussions than using no risk prediction model at all. Manual data entry is an option, but this can be both resource and time intensive, and a clear barrier to broad adoption of a clinical DA. One solution is to auto-populate the risk prediction model algorithm through customized programming of the electronic medical record. This approach also serves to integrate the clinical DA into the patient medical record and can serve to provide a dynamic risk assessment

as a patient’s circumstances change (ie, quit smoking, lost weight, now require radiation therapy).

A Fluid Approach to Accommodate Evolving Oncologic Care and Complications

Critical pieces of information that may impact decision-making for reconstructing a newly diagnosed breast cancer are often unavailable when a patient first meets their plastic surgeon. Information on margins, tumors markers, lymph node status, distant metastases, additional imaging, and genomic and genetic testing is usually pending but can have profound impact on the overall multidisciplinary management strategy. Occasionally, the plastic surgeon is required to react to circumstances not necessarily anticipated during the initial consultation and alter the reconstruction conversation. For example, reexcision of the skin envelope due to positive margins may expose the originally placed immediate implant and mandate conversion to tissue expander or an autologous flap. It is critical that the surgical oncologist be included in decisions throughout the SDM process. Complications that develop over time will also affect, sometimes dramatically, the initially prescribed treatment strategy. Optimizing strategies to treat and prevent the recurrence of breast cancer will always be the priority. This dynamic process requires a fluid and flexible approach to SDM. For example, an implant-based reconstruction may have been favored by the patient and a reasonable option based on risk assessment at the outset; however, a compromised skin envelope due to an unforeseen explanation or unexpected need for radiotherapy will typically trigger a change of plan, whereby the autologous flap is now the favored option. Discussing this openly with the patient so she can prepare for possible outcomes is paramount to the SDM process and a patient-centered approach to care.

Ideally, the concept of reconstruction is introduced by the breast surgeon/surgical oncologist who needs to have a working understanding of the procedures, their risks, and how these are scheduled around other oncologic interventions. A surgical oncologist sensitive to the evidence that favors 1 reconstruction over another based on factors such as stage, likelihood or radiation, and breast size may preemptively refer the patient to a plastic surgeon capable of offering the most clinically appropriate options. In our practice, we have engaged in SDM and administered our DA between the surgical oncology and plastic surgery visits. However, we have encountered rare circumstances where the plastic surgeon is seen before the surgical oncologist. This most commonly occurs when a patient has had their original workup and made the decision to have a mastectomy with 1 oncologist, but then has sought a second opinion at our institution. To expedite scheduling and intervention, the plastic surgeon may be seen before the surgical oncologist. As such, not only the clinical circumstances that inform it but also the timing of its implementation needs to be fluid and adaptable in the SDM process.

To accommodate the dynamic breast reconstruction cycle of care, a malleable approach to SDM that is responsive to evolving circumstances and relevant patient data is required. As such, plastic surgeons need to remain

committed to the SDM process through all of their patient interactions. They need to have the expertise and knowledge to recognize what procedures best suit a particular patient at a given time and have the ability to offer a breadth of reconstructive options that, based on available evidence, would be most appropriate for the patient. If unable to offer a particular indicated procedure, they must have the insight to refer the patient on to a plastic surgeon who does offer a particular indicated procedure for the good of the patient. Engagement in SDM throughout the course of breast reconstruction requires patience, tenacity, time, insight, technical expertise, and wisdom.

SDM and Scope of Practice

Several practical considerations may temper a plastic surgeon's enthusiasm for engaging in SDM or using a DA. One practical consideration is that some plastic surgeons may not offer all available reconstructive techniques. For example, not all plastic surgeons offer autologous flap reconstructions that involve microsurgery and not all plastic surgeons offer prepectoral breast reconstruction techniques despite increasing evidence to support this approach.^{26–28} A surgeon may be reluctant to engage in a SDM process, or utilize a DA, that they are aware is likely to suggest a particular procedure that they do not offer. This reluctance may be borne of several factors. A plastic surgeon may not have received training with a particular technique or performs it so infrequently that they are uncomfortable with it. Furthermore, the expenditure of resources required to perform some techniques in particular may not be warranted in other practices whose infrastructure focuses on the performance of other types of procedures. In some health-care systems, access to the operating room is limited and may deter plastic surgeons from offering microvascular breast reconstructions and encourage them to offer reconstructive procedures that take less time to perform or that can be more expeditiously scheduled to accommodate immediate postmastectomy breast reconstruction. Similarly, institutional or system-based factors may penalize or discourage providers from utilizing an acellular dermal matrix in breast reconstruction (a key component of prepectoral reconstruction techniques).

There are several strategies that can improve the generalizability of the SDM process and DA tools in breast reconstruction for all plastic surgeons who offer breast reconstruction. In most cases, there are several reasonable options for reconstructing a breast following mastectomy. It is critical that the SDM process and accompanying decision support tools include all of these options so long as they can be supported by evidence. By expanding the scope of reasonable reconstructive options for a particular patient, the SDM approach becomes accessible to a broader cohort of practitioners. As plastic surgeons, we cannot dismiss both the science and art of our specialty. The success of a reconstruction can vary based on subtle nuances of technique and approach, derived from years of a surgeon's experience, that are not identified by analysis of large datasets. The value of evidence-based medicine cannot be denied, but neither should the value of a particular plastic surgeon's experience.

In some cases, patients will be confronted with very few reasonable reconstructive options. Under these circumstances, it is imperative that the plastic surgeon be able to identify these cases and counsel patients appropriately. The SDM process retains value in these cases as it can support a difficult decision to perform a potentially involved surgical procedure or justify referral to another plastic surgeon specialist. Barriers to referral from 1 plastic surgeon to another need to be overcome to ensure full engagement in the SDM process and minimize delays in treatment or performance of unnecessary procedures that are unlikely to work. A plastic surgeon who does not commonly perform microsurgery, for example, may refer their patient for a stacked perforator flap to a surgeon proficient in these techniques. At the same time, a complex postreconstructive asymmetry in a patient who has voiced some dissatisfaction with their outcome may be best served with a referral to another plastic surgeon experienced in breast reconstruction to reinforce the complexities of a particular patient's circumstances, limitations of available corrective techniques, and to provide a second opinion on what are realistic expectations. The referring plastic surgeon needs to feel comfortable that they can send their patient, with whom they have developed a trusting relationship, to someone who will continue to provide the compassionate care that has been provided to that point. The accepting plastic surgeon needs to make time to see these referrals, commend the referring plastic surgeon for making decisions that most benefit the patient, and refer the patient back to the original plastic surgeon for additional procedures if this is the preference of the referring plastic surgeon.

Ensuring that the breadth of breast reconstructive options is available to patients in the future also depends on the quality of breast reconstruction education offered by residency training programs. Most plastic surgeons will perform at least some breast reconstruction during their careers and the vast majority will not do fellowship training in breast reconstruction. Plastic surgeons who can confidently offer the breadth of breast reconstruction options either themselves, or via a partner, are more likely to engage in the SDM process.

CONCLUSIONS

SDM is an essential part of patient-centered care for women with breast cancer. In this article, we reviewed the principles of SDM and delineated the challenges, and potential solutions to these challenges, of implementing the SDM process into routine clinical care. As we strive to improve the quality of care provided to women pursuing breast reconstruction, it is our hope that the strategies outlined herein provide a practical guideline for plastic surgeons aiming to implement SDM in their clinical practices.

Terence M. Myckatyn, MD, FRCSC, FACS
 Division of Plastic & Reconstructive Surgery
 Department of Surgery
 Washington University School of Medicine
 1020 North Mason Rd., Suite 110, Building 3
 St. Louis, MO 63141
 E-mail: myckatyn@wustl.edu

REFERENCES

1. Causarano N, Platt J, Baxter NN, et al. Pre-consultation educational group intervention to improve shared decision-making for postmastectomy breast reconstruction: a pilot randomized controlled trial. *Support Care Cancer*. 2015;23:1365–1375.
2. Luan A, Hui KJ, Remington AC, et al. Effects of A novel decision aid for breast reconstruction: a randomized prospective trial. *Ann Plast Surg*. 2016;76:S249–S254.
3. Manne SL, Topham N, D’Agostino TA, et al. Acceptability and pilot efficacy trial of a web-based breast reconstruction decision support aid for women considering mastectomy. *Psychooncology*. 2016;25:1424–1433.
4. Sherman KA, Shaw LK, Winch CJ, et al; BRECONDA Collaborative Research Group. Reducing decisional conflict and enhancing satisfaction with information among women considering breast reconstruction following mastectomy: results from the BRECONDA randomized controlled trial. *Plast Reconstr Surg*. 2016;138:592e–602e.
5. Parkinson B, Sherman KA, Brown P, et al. Cost-effectiveness of the BRECONDA decision aid for women with breast cancer: results from a randomized controlled trial. *Psychooncology*. 2018;27:1589–1596.
6. Wilkins EG, Hamill JB, Kim HM, et al. Complications in postmastectomy breast reconstruction: one-year outcomes of the mastectomy reconstruction outcomes consortium (MROC) study. *Ann Surg*. 2018;267:164–170.
7. Makoul G, Clayman ML. An integrative model of shared decision making in medical encounters. *Patient Educ Couns*. 2006;60:301–312.
8. Wilmore DW. From cuthbertson to fast-track surgery: 70 years of progress in reducing stress in surgical patients. *Ann Surg*. 2002;236:643–648.
9. The SHARE Approach. Available at: <https://www.ahrq.gov/health-literacy/curriculum-tools/shareddecisionmaking/index.html>. Accessed September 19, 2019.
10. Barnes Jewish Hospital Billing and Financial Assistance. Available at: <https://www.barnesjewish.org/Patients-Visitors/Billing-and-Financial-Assistance>. Accessed November 23, 2019.
11. Gateway to Hope. Available at: <https://www.gthstl.org>. Accessed November 23, 2019.
12. Politi MC, Dizon DS, Frosch DL, et al. Importance of clarifying patients’ desired role in shared decision making to match their level of engagement with their preferences. *BMJ*. 2013;347:f7066.
13. Hasak JM, Myckatyn TM, Grabinski VF, et al. Stakeholders’ perspectives on postmastectomy breast reconstruction: recognizing ways to improve shared decision making. *Plast Reconstr Surg Glob Open*. 2017;5:e1569.
14. Bruera E, Willey JS, Palmer JL, et al. Treatment decisions for breast carcinoma: patient preferences and physician perceptions. *Cancer*. 2002;94:2076–2080.
15. Nimmon L, Stenfors-Hayes T. The “handling” of power in the physician-patient encounter: perceptions from experienced physicians. *BMC Med Educ*. 2016;16:114.
16. Politi MC, Lee CN, Philpott-Streiff SE, et al. A randomized controlled trial evaluating the BREASTChoice tool for personalized decision support about breast reconstruction after mastectomy. *Ann Surg*. 2020;271:230–327.
17. Lam WW, Chan M, Or A, et al. Reducing treatment decision conflict difficulties in breast cancer surgery: a randomized controlled trial. *J Clin Oncol*. 2013;31:2879–2885.
18. Heller L, Parker PA, Youssef A, et al. Interactive digital education aid in breast reconstruction. *Plast Reconstr Surg*. 2008;122:717–724.
19. Dogba MJ, Menear M, Stacey D, et al. The evolution of an interprofessional shared decision-making research program: reflective case study of an emerging paradigm. *Int J Integr Care*. 2016;16:4.
20. Olsen MA, Nickel KB, Fox IK, et al. Comparison of wound complications after immediate, delayed, and secondary breast reconstruction procedures. *JAMA Surg*. 2017;152:e172338.
21. Morrow M, Li Y, Alderman AK, et al. Access to breast reconstruction after mastectomy and patient perspectives on reconstruction decision making. *JAMA Surg*. 2014;149:1015–1021.
22. Alderman AK, Hawley ST, Waljee J, et al. Correlates of referral practices of general surgeons to plastic surgeons for mastectomy reconstruction. *Cancer*. 2007;109:1715–1720.
23. Alderman AK, Hawley ST, Janz NK, et al. Racial and ethnic disparities in the use of postmastectomy breast reconstruction: results from a population-based study. *J Clin Oncol*. 2009;27:5325–5330.
24. Grabinski VF, Myckatyn TM, Lee CN, et al. Importance of shared decision-making for vulnerable populations: examples from postmastectomy breast reconstruction. *Health Equity*. 2018;2:234–238.
25. Coulter A, Stilwell D, Kryworuchko J, et al. A systematic development process for patient decision aids. *BMC Med Inform Decis Mak*. 2013;13:S2.
26. Copeland-Halperin LR, Yemc L, Emery E, et al. Evaluating postoperative narcotic use in prepectoral versus dual-plane breast reconstruction following mastectomy. *Plast Reconstr Surg Glob Open*. 2019;7:e2082.
27. Parikh RP, Tenenbaum MM, Yan Y, et al. Cortiva versus alloderm ready-to-use in prepectoral and submuscular breast reconstruction: prospective randomized clinical trial study design and early findings. *Plast Reconstr Surg Glob Open*. 2018;6:e2013.
28. Sbitany H, Piper M, Lentz R. Prepectoral breast reconstruction: a safe alternative to submuscular prosthetic reconstruction following nipple-sparing mastectomy. *Plast Reconstr Surg*. 2017;140:432–443.