Primary Care–Based Staff Ideas for Implementing a Mammography Decision Aid for Women 75+: a Qualitative Study

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BACKGROUND: We previously developed a pamphlet decision aid (DA) on mammography screening for women ≥ 75 years. However, implementing DAs in primary care may be challenging and may require support from non-physician healthcare team members.
OBJECTIVE: To learn from primary care administrators, nurses, and staff their thoughts on how best to implement a mammography DA for women ≥ 75 years in practice.
DESIGN: Qualitative study entailing in-person individual interviews using a semi-structured interview guide.
PARTICIPANTS: Thirty-two non-physician healthcare team members (69.6% of those approached) participated from 8 different primary care practices (community and academic) in the Boston area or in Chapel Hill, NC.
APPROACH: Participants were asked to provide feedback on the DA, their thoughts on ways to make the DA available to older women, and factors that would make it easier and/or harder to implement.
KEY RESULTS: Participants felt the DA was clear, balanced, and understandable, but felt that it needed to be shorter for women with low health literacy. Most participants felt that as long as use of the DA was approved and supported by clinicians that women ≥ 75 years should receive the DA before a visit from staff (usually medical assistants) so that patients could ask their clinicians questions during the visit. Facilitators of DA use included its perceived helpfulness with decision-making, its format, and that existing systems (panel management, electronic medical record alerts) could be accessed to get the DA to patients especially at Medicare Annual Wellness visits. Participants perceived a need for training, albeit minimal, to provide the DA to patients. Barriers of DA use included competing demands on clinician and staff time.
CONCLUSIONS: Participants felt that as long as use of the mammography DA for women ≥ 75 years was supported by clinicians, it would be feasible to implement with minimal refinements to existing healthcare system processes.

KEY WORDS: older women; mammography screening; decision aids; implementation.

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INTRODUCTION

The population of women ≥ 75 years is rising rapidly and the incidence of breast cancer, the most common life-threatening cancer in women, increases with age.[1, 2] While mammography screening is associated with a 19% relative risk reduction in breast cancer mortality in women < 75 years,[3, 4] its effectiveness in women ≥ 75 years is uncertain since none of the screening randomized controlled trials (RCTs) included these women.[5] Meanwhile, the harms of screening include pain, anxiety, false positives, and overdiagnosis (diagnosis of tumors that otherwise would not have caused problems during a woman's lifetime) resulting in overtreatment.[6] Therefore, guidelines recommend that older women be informed of the benefits and risks of mammography before screening.[7–10]

To help inform women ≥ 75 years of the benefits and risks of mammography, we previously developed a pamphlet mammography screening decision aid (DA) for women ≥ 75 years.[11] In a pilot study, receipt of the DA was associated with women ≥ 75 years being more knowledgeable about mammography and with fewer women intending to be screened.[12] The American Cancer Society (ACS) and experts recommend use of decision aids to help older women make more informed, preference-sensitive, screening decisions.[7, 13] However, implementing DAs in practice, particularly in primary care, is challenging.[14–16] Relying on primary care physicians, nurse practitioners, or physician assistants (herein referred to as PCPs) to give patients DAs results in inconsistent delivery and may not be feasible or sustainable.[15, 16] Instead, engaging other

members of the healthcare team to provide DAs may increase implementation.[17, 18] Little is known about non-PCP healthcare team members' thoughts on implementing DAs. Therefore, we aimed to use qualitative methods to learn from primary care administrators, nurses, and staff their thoughts on how best to implement our mammography DA.

METHODS

Design and Setting

We conducted a qualitative study using in-person interviews with primary care–based administrators, nurses, medical assistants (MAs), and practice assistants (e.g., front desk staff). We approached potential participants from 11 primary care practices that are participating in a large randomized controlled trial testing the efficacy of a mammography screening DA for women ≥ 75 years.[19] The 11 practices include a large Boston-based academic internal medicine practice and geriatrics practice, 7 Boston-area community-based practices, and an academic internal medicine practice and family medicine practice in Chapel Hill, North Carolina (NC). None of the non-PCP staff approached for this study were involved in the trial since research assistants (RAs) identified eligible patients and gave them the DA during the trial. During the timing of this qualitative study, patients participating in the RCT were being followed via chart abstraction to see whether or not they underwent screening mammography.

For this study, we sent non-PCP staff recommended by physicians at each practice a personalized email and/or letter (depending on the practice) informing them of the study. The letter explained that the study involved meeting with an RA for approximately 30 minutes to provide feedback on and to discuss barriers and facilitators to implementing a mammography screening DA for women ≥ 75 years. Participants were offered a $50 incentive and were informed that their medical director approved of the study, that their comments would be confidential, and that participating would not affect their employment.

Data Collection

Interviews were audio-recorded and conducted between July 2016 and January 2017 in private office space by one of three RAs (2 in Boston, 1 in NC) trained in qualitative methods. Initially, the RA asked participants to read the DA and to complete a structured questionnaire on the DA's length, balance, clarity, and to report their demographics (sex, race/ethnicity, years in practice, age, and professional role). Then, using a semi-structured questionnaire, the RA asked open-ended questions about what they liked about the DA, suggestions for improvement, and their thoughts on how to make the DA available to older women (see online appendix for questionnaire). The RA probed participants to learn their thoughts on how use of the DA would affect their workload and about any training that they would need. The interview guide was modified as interviews were conducted to explore emerging themes.

Analysis

Interview audio recordings were transcribed verbatim by a professional transcriptionist and analyzed using NVivo 11 (QSR International) qualitative software. We conducted a thematic analysis to identify themes in our data.[20, 21] All investigators read the first 5 interviews and coded phrases, sentences, or longer segments of text.[20, 22] Codes were generated inductively (i.e., they emerged from the text). After the open coding process, our team met to organize codes into larger categories to reflect major themes (axial coding). Disagreement about the meaning of themes or codes was discussed by the research team and resolved by consensus. Once a codebook was established, subsequent interviews were read by at least 4 investigators and were coded in detail by at least 2 investigators. Differences in coding were reconciled by consensus until 100% agreement was reached. As new themes emerged, we developed new codes and recoded previously coded interviews. Ultimately, six iterations of the codebook were used. We stopped interviewing participants when no new themes emerged from interviews and thematic saturation was reached.[20] During interpretive analysis, we re-grouped transcripts by participants' professional role and re-read them to see if themes varied by professional role.[23] We present direct quotes from the data to illustrate themes that emerged. The study was IRB approved at the Beth Israel Deaconess and University of North Carolina Medical Centers.

RESULTS

At least one staff member and/or nurse participated from 8 of 11 practices participating in the randomized controlled trial of the DA. Of 46 non-PCP staff approached, 69.6% ($n = 32$) agreed to participate; 8 never responded and 6 refused to participate. Of the 32 participants, 68% ($n = 21$) worked in the Boston area, 34% ($n = 11$) worked at community practices, and 53% ($n = 18$) had been in their position for ≥ 10 years. Participants' professional roles varied: 22% ($n = 7$) were administrative supervisors, 31% ($n = 10$) were nurses, 16% ($n = 5$) were medical assistants, and 31% ($n = 10$) were practice assistants. Of the 32 participants, 88% ($n = 28$) were female and 59% ($n = 19$) were non-Hispanic White (see Table 1 for our sample's characteristics).

DA Feedback

Overall, 68% ($n = 21$) of participants thought the DA's length was just right while 32% ($n = 10$) thought it was too long (1 did not respond). Approximately half (53%, $n = 17$) thought the DA was balanced, while 25% ($n = 8$) thought it was slanted towards not getting a mammogram and 22% ($n = 7$) thought it

Table 1 Sample Characteristics ($n = 32$)

Characteristic	*n* (%)
Site*	
Boston academic practices	11 (34%)
Boston area community practices	11 (34%)
North Carolina academic practices	10 (31%)
Female	28 (88%)
Age*	
20–39 years	13 (41%)
40–59 years	13 (41%)
60–69 years	6 (19%)
Race*	
Non-Hispanic White	19 (59%)
Black/African American	10 (31%)
Other	3 (9%)
Role	
Practice assistant (e.g., front desk staff)	10 (31%)
Administrative supervisor	7 (22%)
Clinical nurse	10 (31%)
Medical assistant	5 (16%)
Years at role	
< 10 years	14 (44%)
11–20 years	7 (22%)
> 20 years	11 (34%)

**Values do not add to 100 due to rounding*

was slanted towards getting a mammogram. In open-ended comments, participants felt that the DA would help older women with screening decisions, that it was informative, and that it was easy to understand. "It is written very well, it is very respectful, and it's not talking over anybody's head." They also liked that the health score made it "specific to the person." However, some felt that the pictographs in the DA would be confusing to women with low health literacy.

Facilitators to DA Use

Several themes emerged regarding facilitators to using the DA which we grouped into three categories: motivators for use, ease of use, and factors that would facilitate its reach to more patients (see Table 2). Motivators included that participants felt it was important for older women to make a personal choice about mammography screening. "I would suggest that it becomes available to all women in that age range to help people make the decision." Participants also felt that a medical director's approval and a champion within the practice would serve as motivators. In addition, they felt it would be helpful if the DA was recommended by a trusted physician, if guidelines supported its use, and if it was considered standard of care. "[It would help] if your doctor said this is what we are now doing, I want you to read it carefully."

In terms of ease of use, most felt that existing systems could be used to implement the DA and felt that for MAs, delivering the DA was analogous to tasks they were already doing. In terms of reach, participants noted that older patients are seen more frequently and that Medicare Annual Wellness Visits (AWVs) would be an opportune time for the DA to be delivered. They also felt it would be helpful if the DA were available in a "variety of ways" (e.g., on the web, the electronic medical record, a patient portal, and on paper).

Table 2 Facilitators and Barriers to DA use

Facilitators	Example quotes
Motivators	
Important for decision-making	"Getting information would be helpful because then they can decide whether or not."
Administrative approval	"If the Medical Director decides (it) is one of the priorities, then the staff will get trained on it and it would become something we do."
Standards	"You have to look at what the national standards are."
	"Patient choice would have to be counted by insurance companies so we did not get dinged"
Ease of providing the DA	
Use of existing systems	"We stock our rooms with a lot of pamphlets."
Minimal burden on staff workflow	"I do not see that it would affect the flow of our daily work."
Doctor-patient relationship	"It really helps if a trusted provider gives the information."
	"Always let the doctor do it, the patients are very attached to them."
A champion	"You have to have somebody assigned to oversee it."
Reach	
Annual Wellness Visits	"It should start with their primary during their annual wellness."
Older adults have more visits	"The chances of capturing is higher because they are here more."
Multiple formats	"You need to saturate -posters, handouts, mailings, all that stuff.
Barriers	
Deterrents	
Staff pro-mammogram bias	"I'll keep going [for a mammogram] as long as I live. Why not?"
Perceived as rationing	"The suspicion is going to be who is trying to save money."
Difficulties in providing DA	
Minimal training needed	"Just a little training, nothing too extreme."
Staff burden	"We give them (MAs) so much to do."
Identifying eligible patients	"If we do not have a standardized way of knowing who needs packets and how to hand them out, it will not happen."
Needs restocking	"MA stocks every week."
Difficult to track use	"If we did it with the whole population this age we would have to keep a list."
Form fatigue	"MA's would look at it as ugh yet one more [form]".
Reduced reach	
Question if patients would read it	"It's like reading over homework, did patients actually read it."
Only in English	"You need to have it in different languages."

Barriers to DA Use

Several themes also emerged regarding challenges to using the DA and factors that would lower motivation and limit its reach (see Table 2). MAs and practice assistants thought that delivering the DA may increase their workload slightly. "It might take a few more minutes because they might have a few more questions." Administrators were also concerned about overburdening staff, especially MAs. Participants felt that staff would need some training, albeit minimal, to deliver the DA. Specifically, staff would need to be informed of the DA's purpose and given a brief script to introduce the DA and to respond to patient questions. Participants also felt that it may be challenging to identify appropriate patients to receive the DA, to keep the DA stocked, and to track its use.

While participants commented that Medicare AWVs would trigger the DA's use, participants also noted that patients already received a lot of paper work during these visits. Others also questioned whether patients would actually read the DA. "They may just take it, throw it in their bag and never look at it again." A couple of participants noted that the DA was only in English.

MAs and practice assistants tended to be more confused about the DA's purpose then administrators or nurses. "I am assuming the point of the pamphlet is to get women to have a mammogram." Some MAs and practice assistants recognized that the DA diverged from how they were usually trained to think about screening which generally focused on increasing uptake, "it makes me think about all the outreach that we're doing, getting patients in for mammograms." They questioned whether patients would perceive the DA as the government trying to ration care. "It raises the suspicion that someone wants to save money." Along this line, a few participants also questioned why the DA focused on stopping screening rather than on tapering screening.

Ideas for Implementation

Table 3 presents participants' suggestions for implementing the DA. Since "doctors may all have a different idea of what is the best" and since "you are talking about a reduction in medical care," most staff felt, regardless of role, that a patient's PCP would need to approve the DA and support its use with individual patients. "I feel strongly that if the physician agrees with this and s/he wants to educate their patient it's a great tool."

Nearly all participants felt that older women should read the DA in the waiting or exam room before discussing mammography with their PCPs. Thus, many participants brainstormed ways to have patients come early to visits. However, they acknowledged that this can be challenging and noted that even if a patient does come early the PCP may be ready for her and the patient may not have time to read the DA. They also noted that it can be difficult to identify appropriate patients to receive the DA before a visit. Therefore, participants also suggested that the DA be given to patients at the end of a visit either by the PCP or by staff to be read at home before the next visit. However, in these cases, participants were concerned that women would forget.

Table 3 Ideas for Implementing the DA

Ideas	Example quotations
Before visits	"Before a visit with their primary so they can ask questions."
At check-out	"Patients receive after a visit to take home."
Clinician gives during visit	"Most patients will still want to have a discussion with their PCP and make a decision based on his/her opinion." "I would push it with the physician because I know over the years what has been effective."
Mail to women ≥ 75 or before 75th birthday	"At your annual wellness when you turn 74, take this home, read it, and we are going to talk about it next year."
Use patient portal	"Have on the portal."
Health educator	"If we had one of the nurses go over it with them so that before they left they were confident in their decision."
Group visits	"Could even design a group meeting."
Make available at other clinics	"Why would this not be part of Radiology or OB-GYN?"
Website	"A website, some people are always on the internet."
Video	"Maybe a little video."
Medical record alerts	"Change the alert after a certain age."

Participants tended to present ideas for implementing the DA related to their professional role. For example, practice assistants suggested that women receive the DA while in the waiting room and MAs suggested women receive the DA while being "roomed." Nurses suggested that the DA be used during group preventive health visits or with a health educator, especially for those with low health literacy. "Even for those with less [education], someone could be guided through it."

Administrators and nurses tended to review the pros and cons of multiple methods of delivering the DA including population health approaches such as mailing the DA to all women at the time of their 75th birthday, or to all women ≥ 75 years before a Medicare AWV, or that it be sent to patients through a patient portal. Even in these cases participants emphasized the importance of having a PCP approve and support use of the DA, "If you mailed it to them have a cover letter supported by their physician." Participants also recommended that the DA be made available at mammography suites; however, they realized that mammography generates revenue for radiology which may be a conflict. "You have to make sure it's not taking away from the company." Other suggestions included making the DA available for viewing or printing from the web, through the electronic medical record, and/or to make a video. Within medical records, participants noted that existing alerts could be changed to accommodate the new practice and be used to identify patients who should receive the DA and to document its use. "You change the alert after a certain age rather than just eliminating it."

DISCUSSION

Primary care–based nurses, administrators, MAs, and practice assistants felt that a mammography screening DA for women

≥ 75 years was readable, clear, and would help older women with mammography screening decisions. To facilitate implementation, they felt it would be best if the DA was approved for use by PCPs in their practice and that it be given, typically by an MA, before a visit—especially before a Medicare Annual Wellness Visit. Due to the strength of the patient-PCP relationship, staff also felt it would help if PCPs encouraged its use with individual patients. Staff noted that systems needed to be developed to identify appropriate patients to receive the DA, to keep it stocked, and to document its use. They also felt that staff would need to be informed of the purpose of the DA and given a brief script to introduce it to patients and on how to respond to patients' questions. While their comments were focused on how to implement a specific DA, their thoughts may be helpful when considering implementing other DAs.

The need to figure out how best to implement DAs in practice is increasingly necessary as national policy is progressively more supportive of shared decision-making. Specifically, the Affordable Care Act includes several provisions on shared decision-making,[24] the National Quality Forum is developing quality metrics for use of decision tools,[25] and the Centers for Medicare and Medicaid Services have been adding shared decision-making requirements before providing coverage for medical interventions with uncertain benefit to risk ratios (e.g., lung cancer screening[26]). We and others foresee a time when Medicare would require shared decision-making before provision of mammography screening for women ≥ 75 years since most guidelines already recommend individualized decision-making.[27, 28] However, few studies have examined implementation strategies to increase adoption of DAs in primary care[29] and we are unaware of studies focused on the perspectives of non-PCP primary care team members' even though several studies have recommend engaging non-PCP team members in DA implementation.[17, 18] Barriers to DA implementation identified in other studies include time constraints, insufficient provider training, lack of applicability, lack of patient understanding, and inadequate clinical information systems[16, 30–32]; facilitators include provider motivation and the positive impact on patient outcomes.[16] Participants in our study brought up these barriers and facilitators; however, most felt the DA was clear and applicable to women ≥ 75 years and felt that they would need minimal training to provide the DA. While system-based approaches result in more patients receiving DAs[15, 33–35] and many of our participants suggested system-based approaches; they also stressed that regardless of who delivered the DA that it would need to be approved and its use supported by a patient's PCP.

Participants in our study felt that MAs were the best suited members of the healthcare team to deliver DAs. Yet, administrators were concerned about increasing MA workload. With PCP shortages and an aging population, MAs are increasingly being utilized.[36] However, MAs generally receive minimal training and have a continuously expanding scope of responsibilities.[37] In this context, the benefits of adding new tasks to MAs will need to be weighed against the cost of expanding their duties. Reassuringly, MAs in our study felt it would be feasible for them to implement the DA as long as they had the support of the PCPs they were serving.

Based on our study's findings, to increase the likelihood of successful implementation of our DA, we plan the following. First, we have made the DA available online for viewing or printing.[38] Once we made the DA available online, we realized that it would be better if the DA were available at a website more familiar to clinicians. Therefore, we are now developing a tab within the widely used ePrognosis website for links to DAs like this one that consider patient prognosis. Since participants in our study felt it would be helpful to have a brief explanation of the DA's contents, its purpose, and an example script to use when providing the DA, we will include this information on ePrognosis. We also recently had this DA professionally translated to Spanish due participants' concerns that it was only in English. We further recommend that practices print some DAs in color and store them where other health educational materials are kept. We also recommend that healthcare systems planning to implement the DA create a medical record alert to flag patients who may be appropriate to receive the DA and space to document its use. Since participants felt that Medicare AWVs would be the ideal encounter for older women to receive the DA, provision of the DA should be incorporated into processes for implementing these visits.[39, 40] It may also be innovative to think of ways to incorporate group visits to cover the health educational component of Medicare AWVs.[41, 42] In addition, our DA will need to be endorsed by professional organizations, since staff suggested it would be important for the DA to be considered standard of care. Such endorsement would also likely lead to approval by individual PCPs.

While our DA was written at a 6th grade reading level using low literacy principles,[11, 43] many participants felt that it was too long and some felt that the pictographs would be hard for older women with low health literacy to understand. While the pictograph is the graphical format most recommended for patients with low literacy,[44, 45] few DAs have been developed specifically to meet the needs of vulnerable populations and it may be that even pictographs are too challenging for older adults with low literacy.[46] We are currently developing and testing an even lower literacy version of the DA without pictographs.

Our study has several limitations that must be acknowledged. First, our findings are based on participant self-report rather than experience providing the DA. However, conducting qualitative research to determine how best to implement an intervention is a recommended first step for successful implementation.[47] Due to purposeful sampling, participants may be more satisfied in their work and thus likely to be supportive of implementing DAs than non-participants. Also, staff, especially MAs and practice assistants, may not have felt comfortable expressing a lack of motivation to deliver the DA. Our sample size was too small to examine difference in perceptions by participant age, geography, or sex. As a next

step, we will be surveying PCPs to learn their thoughts on implementing the DA.

This is one of the first studies to interview non-PCP healthcare team members on how best to implement a DA in primary care. Based on their comments, there is likely no one-size-fits-all approach to implementing this or other DAs. However, most non-PCP staff felt that as long as use of the DA was approved and supported by PCPs that women should receive the DA before a visit from staff (usually medical assistants) so that patients could ask their PCP questions during the visit. Non-PCP healthcare team members also shared many insights to help DA developers think about what they can do to increase DA implementation (e.g., make it available in multiple formats, in multiple languages, and at multiple literacy levels, and to seek endorsement from professional organizations). They also reported that small modifications of existing systems could increase the likelihood of implementation (e.g., medical record alerts to identify appropriate patients and space for documentation). These insights are timely and needed to increase implementation of high-quality DAs.

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Compliance with Ethical Standards:

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Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

REFERENCES

1. **Smith BD, Smith GL, Hurria A, Hortobagyi GN, Buchholz TA.** Future of cancer incidence in the United States: burdens upon an aging, changing nation. J Clin Oncol. 2009;27:2758–65.
2. Age-Specific SEER Incidence Rates, 2009-2013. Cancer of the Breast (Invasive). https://seer.cancer.gov/csr/1975_2013/browse_csr.php?sectionSEL=4&pageSEL=sect_04_table.11.html. Accessed 13 June 2019.
3. **Pace LE, Keating NL.** A systematic assessment of benefits and risks to guide breast cancer screening decisions. JAMA. 2014;311:1327–35.
4. **Nystrom L, Andersson I, Bjurstam N, Frisell J, Nordenskjold B, Rutqvist LE.** Long-term effects of mammography screening: updated overview of the Swedish randomised trials. Lancet. 2002;359:909–19.
5. **Nelson HD, Fu R, Cantor A, Pappas M, Daeges M, Humphrey L.** Effectiveness of Breast Cancer Screening: Systematic Review and Meta-analysis to Update the 2009 U.S. Preventive Services Task Force Recommendation. Ann Intern Med. 2016;164:244–55.
6. **Walter LC, Schonberg MA.** Screening mammography in older women: a review. JAMA. 2014;311:1336–47.
7. **Oeffinger KC, Fontham ET, Etzioni R, et al.** Breast Cancer Screening for Women at Average Risk: 2015 Guideline Update From the American Cancer Society. JAMA. 2015;314:1599–614.
8. **Siu AL.** Screening for Breast Cancer: U.S. Preventive Services Task Force Recommendation Statement. Ann Intern Med. 2016;164:279–96.
9. Practice Bulletin Number 179. Breast Cancer Risk Assessment and Screening in Average-Risk Women. Obstet Gynecol. 2017;130:e1-e16.
10. Practice Bulletin No. 179 Summary. Breast Cancer Risk Assessment and Screening in Average-Risk Women. Obstet Gynecol. 2017;130:241–3.
11. **Schonberg MA, Hamel MB, Davis RB, et al.** Development and evaluation of a decision aid on mammography screening for women 75 years and older. JAMA Intern Med. 2014;174:417–24.
12. **Schonberg MA, Birdwell RL, Bychkovsky BL, et al.** Older women's experience with breast cancer treatment decisions. Breast Cancer Res Treat. 2014.
13. **Keating NL, Pace LE.** Breast Cancer Screening in 2018: Time for Shared Decision Making. JAMA. 2018;319:1814–5.
14. **Elwyn G, Scholl I, Tietbohl C, et al.** "Many miles to go …": a systematic review of the implementation of patient decision support interventions into routine clinical practice. BMC Med Inform Decis Mak. 2013;13(Suppl 2):S14.
15. **Brackett C, Kearing S, Cochran N, Tosteson AN, Blair Brooks W.** Strategies for distributing cancer screening decision aids in primary care. Patient Educ Couns. 2010;78:166–8.
16. **Legare F, Ratte S, Gravel K, Graham ID.** Barriers and facilitators to implementing shared decision-making in clinical practice: update of a systematic review of health professionals' perceptions. Patient Educ Couns. 2008;73:526–35.
17. **Friedberg MW, Van Busum K, Wexler R, Bowen M, Schneider EC.** A demonstration of shared decision making in primary care highlights barriers to adoption and potential remedies. Health Aff (Millwood). 2013;32:268–75.
18. **Lin GA, Halley M, Rendle KA, et al.** An effort to spread decision aids in five California primary care practices yielded low distribution, highlighting hurdles. Health Aff (Millwood). 2013;32:311–20.
19. **Schonberg MA KC, Nekhlyudov L, Fagerlin A, Davis RB, Wee CC, Marcantonio ER, Lewis CL, Hamel MB.** Evaluation of a mammography screening decision aid for women aged 75 and older: protocol for a cluster-randomized controlled trial. J Clin Trials. 2014;4:191.
20. **Crabtree F, Miller WL, eds.** Doing qualitative research. Newbury Park: Sage Publications; 1992.
21. **Braun v CV.** Using thematic analysis in psychology. Qual Res Psychol. 2006;3:77–101.
22. **Strauss A, Corbin J.** Basics of qualitative research: grounded theory procedures and techniques. Newbury Park: Sage; 1990.
23. **Sargeant J.** Qualitative Research Part II: Participants, Analysis, and Quality Assurance. J Grad Med Educ. 2012;4:1–3.
24. H.R. 3590- 111th Congress. 2010. Patient Protection and Affordable Care Act; 2010.
25. National Quality Forum. National Standards for the Certification of Patient Decision Aids. Washington DC: National Quality Forum; 2016.
26. Decision Memo for Screening for Lung Cancer with Low Dose Computed Tomography (LDCT). https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=274. Accessed 13 June 2019.
27. **Merchant FM, Dickert NW, Jr., Howard DH.** Mandatory Shared Decision Making by the Centers for Medicare & Medicaid Services for Cardiovascular Procedures and Other Tests. JAMA. 2018.
28. **Keating NL, Pace LE.** Breast Cancer Screening in 2018: Time for Shared Decision Making. JAMA. 2018;319: 1814–5.
29. **Rim SH, Hall IJ, Massetti GM, Thomas CC, Li J, Richardson LC.** Primary Care Providers' Intended Use of Decision Aids for Prostate-Specific Antigen Testing for Prostate Cancer Screening. J Cancer Educ. 2018.
30. **Stapleton H, Kirkham M, Thomas G.** Qualitative study of evidence based leaflets in maternity care. BMJ. 2002;324:639.
31. **Feibelmann S, Yang TS, Uzogara EE, Sepucha K.** What does it take to have sustained use of decision aids? A programme evaluation for the Breast Cancer Initiative. Health Expect. 2011;14(Suppl 1):85–95.
32. **Holmes-Rovner M, Valade D, Orlowski C, Draus C, Nabozny-Valerio B, Keiser S.** Implementing shared decision-making in routine practice: barriers and opportunities. Health Expect. 2000;3:182–91.
33. **Miller KM, Brenner A, Griffith JM, Pignone MP, Lewis CL.** Promoting decision aid use in primary care using a staff member for delivery. Patient Educ Couns. 2012;86:189–94.
34. **Belkora JK, Teng A, Volz S, Loth MK, Esserman LJ.** Expanding the reach of decision and communication aids in a breast care center: a quality improvement study. Patient Educ Couns. 2011;83:234–9.
35. **Belkora JK, Loth MK, Volz S, Rugo HS.** Implementing decision and communication aids to facilitate patient-centered care in breast cancer: a case study. Patient Educ Couns. 2009;77:360–8.

36. **Alssid JL, Goldberg M.** "The rise of the medical assistant and five other frontline and nonclinical healthcare jobs that are growing in number, complexity, and importance." Workforce Strategy Report. Hooksett: College of America; 2013.
37. **Chapman SA, Blash LK.** New Roles for Medical Assistants in Innovative Primary Care Practices. Health Serv Res. 2017;52(Suppl 1):383–406.
38. **Schonberg, MA.** Should I continue having mammograms? https://www.bidmc.org/research/research-by-department/medicine/division-of-general-medicine-and-primary-care-section-for-research/research-faculty/mara-a-schonberg-md-mph. Accessed: July 31, 2019.
39. **Beran MS, Craft C.** Medicare annual wellness visits. Understanding the patient and physician perspective. Minn Med. 2015;98:38–41.
40. **Bluestein D, Diduk-Smith R, Jordan L, Persaud K, Hughes T.** Medicare Annual Wellness Visits: How to Get Patients and Physicians on Board. Fam Pract Manag. 2017;24:12–6.
41. **Housden L, Browne AJ, Wong ST, Dawes M.** Attending to power differentials: How NP-led group medical visits can influence the management of chronic conditions. Health Expect. 2017;20:862–70.
42. **Kirsh SR, Aron DC, Johnson KD, et al.** A realist review of shared medical appointments: How, for whom, and under what circumstances do they work? BMC Health Serv Res. 2017;17:113.
43. **Elwyn G, O'Connor A, Stacey D, et al.** Developing a quality criteria framework for patient decision aids: online international Delphi consensus process. BMJ. 2006;333:417.
44. **Fagerlin A, Zikmund-Fisher BJ, Ubel PA.** Helping patients decide: ten steps to better risk communication. J Natl Cancer Inst 2011;103:1436–43.
45. **Garcia-Retamero R, Galesic M, Gigerenzer G.** Do icon arrays help reduce denominator neglect? Med Decis Mak. 2010;30:672–84.
46. **McCaffery KJ, Holmes-Rovner M, Smith SK, et al.** Addressing health literacy in patient decision aids. BMC Med Inform Decis Mak. 2013;13(Suppl 2):S10.
47. **Grol RP, Bosch MC, Hulscher ME, Eccles MP, Wensing M.** Planning and studying improvement in patient care: the use of theoretical perspectives. Milbeank Q. 2007;85:93–138.