Healthcare Provider Needs for a Shared Decision Aid Navigator System (SEDANS): A Qualitative Study

Brad Morse, Carrie Reale, An T Nguyen, Erin Latella, Hannah Bauguess, Shilo Anders, Pamela Roberts, Spencer L SooHoo, Robert El-Kareh, Andrey Soares, Lisa Schilling

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Abstract

Background: Patient decision aid (PDAs) are important tools that support informed decision-making by the patient based on evidence-based treatment options. PDAs can increase patient knowledge, reduce decisional regret, and engage the provider and patient in meaningful dialog. Despite proven effectiveness in enhancing patient-centered care and improve outcomes, a gap remains of implementing PDAs in routine clinical workflows.

Objective: This qualitative study produced insight into the needs and preferences of health care providers (HCP) using a clinician-facing navigator app that surfaces relevant PDA tools for shared decision making. The Navigator app is a component of the Shared Decision Aid Navigator System (SEDANS) that is embedded in the electronic health record (EHR).

Methods: We conducted 13 semi-structured interviews with HCPs who were recruited from four academic medical centers. Interviews included a demonstration of the SEDANS Navigator app. Questions focused on HCP needs and requirements, the clinician context of use, and affordances and barriers to using the system. Themes were identified through summative content analysis, consensus coding, and data reduction.

Results: We identified three themes: (1) Streamlined functionality may simplify workflow and decrease the burden of shared decision-making, (2) Effective use requires HCP to possess appropriate competencies to use both the Navigator and relevant PDAs, and (3) HCP trust in the Navigator is required to subsequently build patient trust in PDAs. HCPs unanimously shared that SEDANS Navigator should be integrated into the existing workflow. To accomplish this clear priority, clinicians stated that they needed the requisite competencies to successfully use the tool and build trust both with the tool itself and with the patients who would potentially benefit from the use of PDAs and the shared decision-making interaction.

Conclusions: Tools designed and developed to support PDA use must be integrated into the existing workflow efficiently to create an opportunity for uptake of the technology by busy HCPs. If the SEDANS Navigator can operationalize the cumbersome process of documenting the use of PDAs, more HCPs may potentially use PDAs with their patients, given the right context and appropriate PDA.
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ABSTRACT

Background: Patient decision aid (PDAs) are important tools that support informed decision-making by the patient based on evidence-based treatment options. PDAs can increase patient knowledge, reduce decisional regret, and engage the provider and patient in meaningful dialog. Despite proven effectiveness in enhancing patient-centered care and improve outcomes, a gap remains of implementing PDAs in routine clinical workflows.

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BACKGROUND AND SIGNIFICANCE

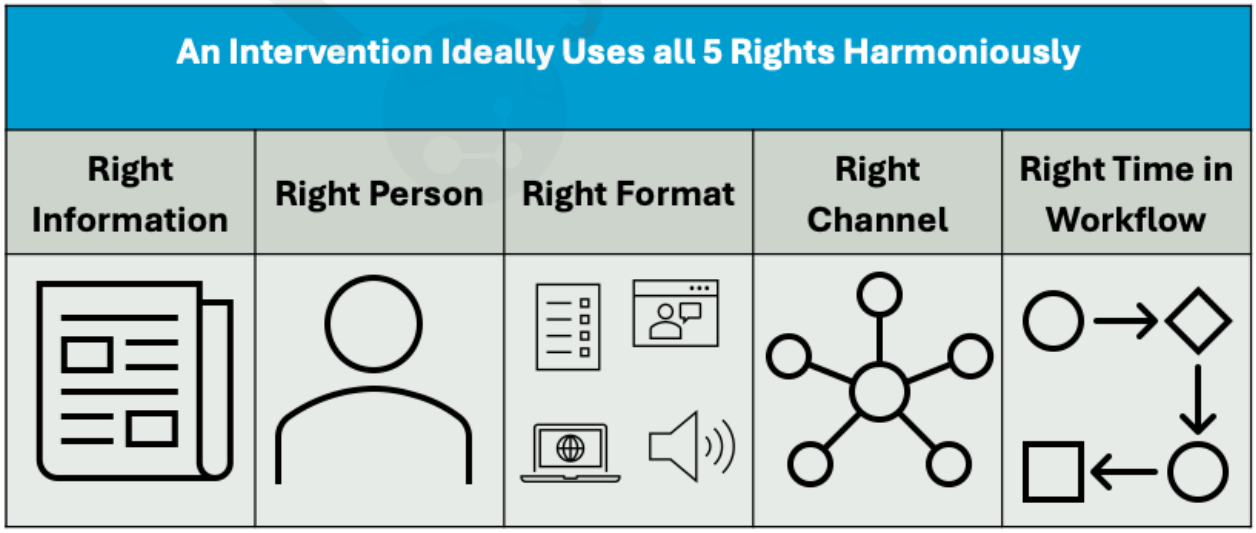
Shared decision-making (SDM) and the use of patient decision aid (PDA) tools improve patient-centered outcomes, specifically greater satisfaction with understanding the risks and benefits of healthcare decisions and less decisional regret.[1–3] SDM is a deliberative process and is defined as: 'an approach where clinicians and patients share the best available evidence when faced with the task of making decisions, and where patients are supported to consider options, to achieve informed preferences".[4] The SDM process is best accomplished with the use of PDAs, which are tools specifically designed to help educate patients to assist them in making informed healthcare decisions. PDAs often elicit a patient's preferences and values, and present evidence-based comparisons that are easily understandable to support clinicians and patients in their discussions and decision-making. A 2017 Cochrane review of 105 studies of PDAs demonstrated that the use of PDAs resulted in increased knowledge, more accurate risk perception, congruency between values and care choices, decreased decisional conflict and regret, and improved communication with physicians and patient satisfaction with their decisions.[5] In some scenarios, patients were less likely to choose major invasive surgery over conservative care and were more likely to start needed medications.[5] PDAs come in many forms including static text, video,[6] interactive websites,[7] and even telenovelas[8], to support various learning preferences, cultures, and attention spans.

It is essential that patients and their care teams can work together to achieve patients' health goals, patient-centered outcomes, and effective, high-value healthcare systems. As a primary process of involving patients directly in their care, SDM is explicitly supported both by the National Academy of Health (NAM) (formerly the Institute of Medicine)[9,10] and the Affordable Care Act.[11,12] For instance, Medicare includes requirements for SDM as a condition of reimbursement for implantable cardiac defibrillator (ICD),[13,14] lung cancer screening[15] , and the left atrial appendage closure (WATCHMAN)

device placement.[14] Like other clinical decision support (CDS) tools, PDAs face many implementation barriers, such as workflow, workload, human factors,[16] and organizational factors.[17] The result is the slow adoption of PDAs and SDM approaches.

For CDS tools, including PDAs, to be effective they must provide the "The 5 Rights of CDS," as seen in Figure 1.[18,19] The "5 Rights of CDS" framework also applies to SDM support. SDM support must ensure that the right information (the right PDA, when one exists) is provided to the right person (right patient or right patient-clinician dyad) at the right time (before the decision has been made), in the right format (best format for the patient given the topic, such as written text or video and the patient's primary language), and in the right channel (within an Electronic Health Record [EHR], patient portal, email, postal mail). Despite the proven clinical benefits of PDAs[5], informatics systems to reduce the barriers that health systems, physicians, and patients face in using PDAs are lacking. Known barriers to PDA use include added burdens to clinicians' workload due to having to locate the right PDA, knowing the quality of the PDA, having to leave the electronic health record (EHR) environment to find and use the PDA, having to manually enter data into the PDA, and documenting the process and results of SDM conversations.[20]

Figure 1. The 5 Rights of Clinical Decision Support (adapted from Osheroff, et al. 2012)



OBJECTIVE

The objectives of this study were to understand Health Care Providers' (HCP) needs and requirements regarding a health information technology (HIT) solution that could facilitate PDA use based on the principles of the 5 Rights of CDS.

METHODS

We conducted semi-structured interviews (SSI) with HCPs identified at four academic medical centers from across the US through purposive sampling.[21,22] After a review of the literature to understand the already reported barriers and potential facilitators to PDA use by clinicians and alignment with the "5 Rights", we (LS, AS, BM) developed an SSI guide to elicit expert insight and ensure the same core questions were asked of all the participants while allowing flexibility to ask probing questions on other topics that arose during the discussion (see Appendix XX). The interview facilitator (BM) asked the participants about their perspectives on using PDAs, barriers to PDA use, and PDA use with patients. The interview protocol also included a demonstration of a preliminary prototype of the HIT solution, the Shared Decision Aid Navigator System (SEDANS) Navigator app. The SEDANS Navigator (referred to as the Navigator henceforth) surfaces relevant PDAs based on a patient's past medical history in the EHR. The demonstration provided context for participants to discuss what potential features could support the use of the system, and PDAs in general. Each interview lasted one hour and was conducted on the Zoom[23] video conferencing platform. Sessions were recorded and professionally transcribed verbatim for analysis.

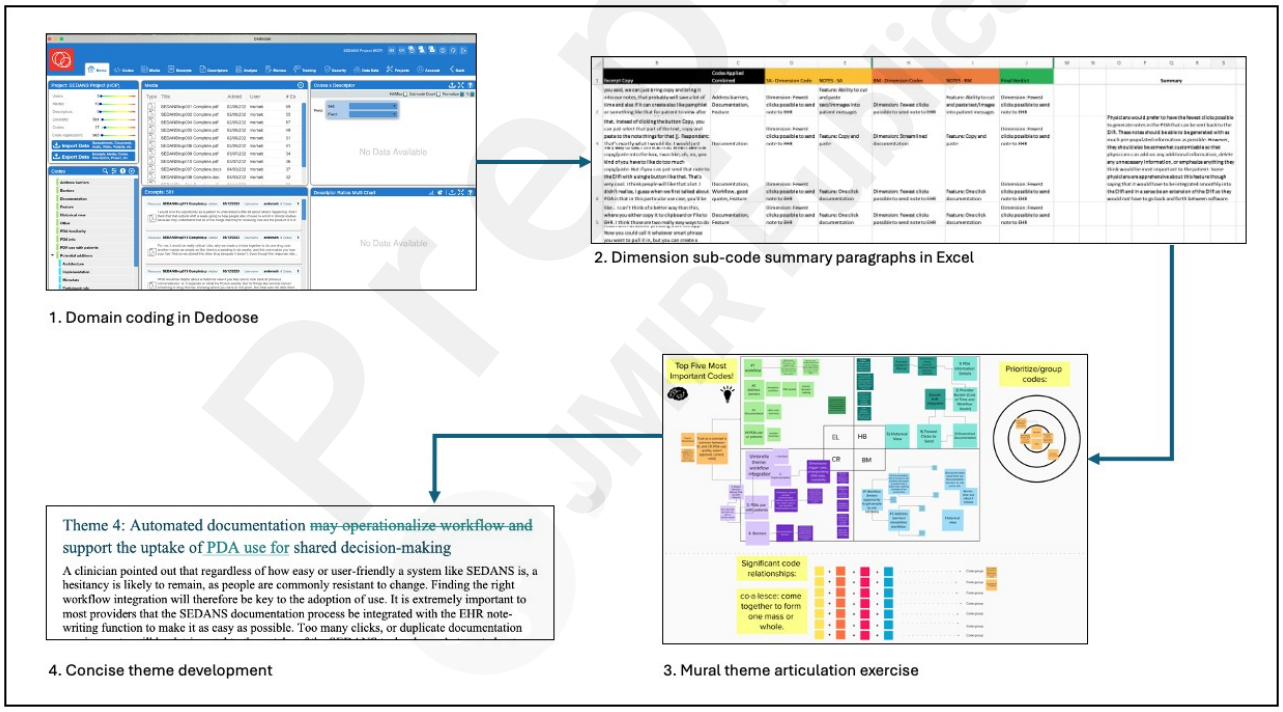
We then conducted summative content analyses using the transcripts.[24,25] Content analysis is a rigorous technique to interpret data from an insider's perspective[26] and is considered a flexible method to analyze textual data. With this method we took a descriptive approach, identifying content that described the context and potential needs of the proposed Navigator tool.

We began with the development of a priori codes that we applied to the interview transcripts.[24] A priori codes are beneficial when coders agree to identify specific predetermined expected phenomena (e.g., barriers to the use of PDAs). These codes represented our conceptual domain codes.[27] Emergent codes, new codes we defined during the analysis, were added to the codebook. Coding was completed by five members of the core qualitative team (AS, AN, CR, SA, BM). Each transcript was coded to consensus[26,27], a process in which discrepancies are discussed until consensus is reached[28] by at least two members of the team[29], increasing the rigor of the coding.[26–28] Once all the transcripts were coded to consensus, the qualitative team downloaded the coded excerpts from the Dedoose[30] qualitative platform and entered them into an Excel spreadsheet for data reduction using the rigorous and accelerated data reduction (RaDaR)[25,31,32] technique. The rapid analysis approach streamlines the application of more nuanced subcodes, aka dimensions, and allows for data reduction.[25,33,34] The dimension subcodes in the RaDaR process represented the more specific and descriptive nuances of the domain. This approach involved reducing all-inclusive data tables, organized by a priori codes and emergent codes/conceptual domain codes, to develop concise data tables.[31] Dimension subcodes were applied independently by at least two core qualitative team members (AN, CR, EL, HB, SA, BM).[29] In addition to the application of the dimension codes, coders also recorded potential system features (i.e., items that a user could use to complete a task, such as filing a clinical note to the EHR) that were identified by our participants either explicitly or indirectly. Discrepancies in dimension subcode application were discussed until a consensus was reached.

Once the final data tables were produced, summative descriptions of each domain-dimension set were written. Themes were then articulated during a Mural board interaction. Each dimension coder (CR, EL, HB, BM) brought their five most important domain-dimension code parings to the team and described how they were related and what story they told. Once themes were articulated,

we moved the themes to the draft manuscript and refined them for accuracy (Figure 2).

Figure 2. Overall Process of Data Reduction from Domain Coding in Dedoose to Concise Theme Text



RESULTS

We conducted 13 SSIs that included a demonstration of the provider-facing Navigator application. Theme 1 describes opportunities identified by the HCP that may support the uptake of technology like the Navigator within an already busy and strained clinical workflow. Themes 2 and 3 describe the needs and requirements, training and trust, respectively, that HCP reported as necessary to use a technology embedded in the EHR to surface relevant PDAs. Table 1 describes the demographics of our participants. Table 2 includes additional exemplar quotes that support the reported themes.

Table 1 – Semi-structured Interview Participant Demographics

Total eligible responses	13
Gender Identity:	**% (N)**
Female	23 (3)
Male	62 (8)
Not reported	15 (2)
Age (in years):	
26 – 32	8 (1)
33 – 40	38 (5)
41 – 49	31 (4)
50+	23 (3)
Race	
Asian	15 (2)
White	77 (10)
Not reported	8 (1)
Specialty	
Cardiology	8 (1)
Emergency Medicine	15 (2)
Family Practice	8 (1)
Geriatrics	8 (1)
Internal Medicine	38 (5)
Pediatrics	15 (2)
Ob GYN-Oncology	8 (1)
Clinical FTE (remainder of time spent on informatics)	
0 – 25%	54 (7)

26 – 50%	23 (3)
51 – 75%	15 (2)
76 – 100%	8 (1)

Theme 1: Streamlined functionality may simplify workflow and decrease the burden of shared decision-making

HCP shared that they feel that PDAs can be redundant and therefore are not worth the time to learn how to use them, especially when they provide little value to themselves and their patients. One HCP exemplified this by saying “physicians are already overburdened. Having to bring up another tool (SEDANS) and explain another decision (PDA) to the patient takes more time.” HCPs also shared that while they believed PDAs can be valuable, they are not as significant an issue to tackle with their patients as there are more urgent problems the patient is experiencing.

According to the HCPs we interviewed, to combat the burdensome barriers and enable more HCPs to utilize PDAs, the Navigator should address the following requirements: integration into the EHR, data collection burden reduction, and documentation burden reduction. CDS tools that centralize patient EHR data, populate required PDA data, allow PDAs to open within the EHR, and facilitate documentation of the SDM discussion in the EHR, are the components that HCP cited as most desirable.

Too many clicks, or duplicate documentation requirements, will be detrimental to the adoption of the SEDANS technology. This concern was expressed by an HCP who asked, “If these tools exist, are they going to be within the existing workflow division or are they going to add extra clicks?” Another HCP warned “all the third-party vendors, try to make it seem like it’s seamless. It never is. And busy HCPs don’t fall for the seamless talk,” expressing the importance of immediately and consistently demonstrating EHR integration in the existing workflow. Another HCP recognized that

automating tasks, e.g. documentation, provides an opportunity for increased patient engagement and enhanced patient-provider relationships, sharing that “The physician should spend time catching up with the patient, asking how they’re doing and having that human aspect to it.”

To overcome common barriers, it is not only important that the Navigator is integrated into the EHR, but that the Navigator documentation process be integrated within the EHR note-writing function to make it as easy as possible. Automated note population of PDA use with patients is strongly preferred. Some physicians stated they document their use of the PDA, including discussing risks with the patients, and what they and the patient decided together. “The report, that would then populate into the note, which I think would be brilliant and is a perfect way to include it in the template.” However, some find it difficult to balance thorough notes that are simple for patients to understand. Additionally, some physicians find it challenging to either write a note with the patient during the visit (which can be very time-intensive) or to remember enough about the visit to write about it later. Templates, or even having the patient come in already engaged with the PDA by entering required data, make the documentation process easier for HCPs.

Theme 2: Effective tool use requires HCP to possess appropriate competencies to use the Navigator and relevant PDAs

The use of a PDA delivery system, like the Navigator, to support SDM involves interaction with complex technology and healthcare information. HCPs must possess the training, knowledge, and skills necessary to use the Navigator to support the use of PDAs. For HCPs, this includes the training required to access appropriate PDAs within the Navigator and integrate its use within fast-paced and time-pressured clinical workflows, as well as possessing sufficient knowledge and experience

with the clinical content of a PDA. Currently, HCPs are overburdened, and learning how to use SEDANS and various PDAs to implement shared decision-making processes into their workflow would be time-consuming. Many HCPs shared that they see dozens of patients in a day and learning a new tool like the Navigator would only add to their busy schedules.

HCPs must assess a PDA for quality and appropriateness for intended patients. They need to determine if the PDA is well designed and evidence-based or rely on others, e.g., a health system governing group or a medical organization, to endorse the PDA. HCPs described the substantial effort expended to adopt a new PDA and stay current on the underlying evidence base. Evidence can change rapidly or be based on studies that are unfamiliar to the HCP. “I have very deep knowledge of the clinical decision support tools that I use and understand how well they were validated and who did the studies and how high quality the studies were…we do journal clubs to talk about these tools…There is a depth of understanding and trust that happens before we apply them in clinical practice.” Another HCP added, “Some of the other barriers that come up are comfort with the data. Like, you must know the material well yourself to be able to use some of these. … And it changes all the time, so you must really be up to date.”

HCP indicated that competency with SEDANS and specific PDAs could be gained through trial-and-error adaptive learning. The opportunity to learn through practice was seen as a strategy to gain the experience and knowledge required to comfortably integrate PDAs into clinical workflows “I think trialability, e.g., using the tool before having to use it with patients, is another way to get over the mental model of adoption.” Trialability will add work to the busy HCP’s schedule, however, “And if you just gave me a new tool (PDA and the Navigator) and say, hey, this is good for head injury patients, I would say, all right, I'll read about it after shift, and I may apply to the future.” Relatedly,

some HCPs expressed excitement about the Navigator's ability to increase their competence and knowledge, stating, "there's a lot of times when not only am I having trouble explaining a complicated decision to a patient, but there's also actually information in these tools (the relevant PDA) that I don't know."

Theme 3: HCP trust in the Navigator is required to subsequently build patient trust in PDAs

A common response to the tool demonstration was that trust in the Navigator is a crucial prerequisite for the successful adoption of PDAs. HCPs are often reluctant to adopt technologies, such as SEDANS, when their benefits are uncertain. Clinicians added that having pre-vetted PDAs populate from within the Navigator would provide a level of trust in PDAs without having to spend time searching for PDA credibility online. One HCP stated that the Navigator could streamline the use of PDAs, and after a few uses, the tool will be easier to use, "…I think after you try these three or four times, then the mental model barrier goes away. You're like, 'Oh, this is kind of helpful. It's not usurping me.'"

Another HCP recognized the importance that streamlining the busy and burdensome clinical workflow may have on impacting the HCPs assessment of the Navigator. Trusting that the Navigator works within the busy clinical workflow is important because an indirect patient assessment of both the HCP and Navigator may result, "…we're dealing with time and trust" of the patient. Violation of this expectation could erode HCP trust in SEDANS. Another clinician pointed out that regardless of how user-friendly a system like the SEDANS is, hesitancy is likely to remain, as people are commonly resistant to change. Finding the right workflow integration will therefore be key to the adoption of use. However, one HCP asserted that to support the uptake of the Navigator tool, HCPs must make a

commitment to the new CDS tool. “I don’t think it’s time; it’s commitment. My clinic runs on time. I see as many patients as everybody else. I’ve just committed to having this (the Navigator) be part of my practice… If we spend the time in the office to do it, I think we help ourselves on the back end.”

Finally, selecting a quality PDA and becoming familiar enough with it to use it effectively during a visit was a concern for clinicians. Physicians feel that they need to establish familiarity with and trust in a PDA in advance of using the PDA during a patient encounter. One HCP shared, “If there were a lot of these (PDAs) and I wasn’t personally familiar with them, deeply familiar, then I would have difficulty…trying to make sure that I'm comfortable that this information applies to their particular case.” While information embedded in the Navigator about a PDA can support this process by providing HCPs with key information, physicians would still have to become familiar with the PDA to trust it enough to put it into practice.

Discussion

While the benefits of patient-shared decision-making tools have been documented, the lag in widespread trust will persist until healthcare technologies can address the multi-level barriers that have hindered prior CDS implementation efforts. The goal of healthcare technology is to provide greater convenience and clinical task efficiency, yet, Manzar et al. (2018) site barriers at technological, individual, and institutional levels that prevent widespread trust in healthcare technology. Issues with compatibility, reliability, usability, training, and governance are some of the barriers cited by Manzar et al. Concerns were shared in interviews that the SEDANS technology would contain these same issues that would need to be addressed before uptake.

Our findings indicate that clinicians and patients may need to acquire new skills and knowledge to

effectively integrate PDA use into existing healthcare workflows. A qualitative analysis of expert interviews in the context of AI[35] described core competencies that clinicians will need to effectively use these types of advanced technological tools within their clinical workflow.[35] The competencies identified include basic knowledge about the purpose and application of the tools; how to evaluate the quality, accuracy, and contextual appropriateness of the tools; how to adapt to changes in roles and workflows resulting from implementation; and the need to participate in continuing education related to use. Similar competencies will be required for PDA use in SDM through a tool like the Navigator. Implementation planning and system training curriculum should account for the additional learning needed to successfully operationalize PDAs in real-world settings. Due to the high potential for ongoing changes to PDA content, as new evidence and care standards emerge, continuing education will also be required. This may prove particularly challenging on the patient side of the equation. While initial clinician training is routinely included in implementation roadmaps, patient-facing education may not be. Allowing that additional workload burden to fall on busy clinical staff without a coordinated patient education plan may create an unacceptable burden for fatigued staff, likely reducing system adoption and PDA use. Likewise, if organizations do not plan for continuing education as PDA content evolves, the resulting knowledge gaps are expected to further decrease end-user adoption and create the potential for errors and misinformation if clinicians fail to maintain competency with changing PDA content.

In relation to the themes presented here, we designed and developed a tool that was responsive to HCP needs and requirements. For example, we operationalized the use of the PDAs by surfacing *Suggested PDA Topics* based on patient's previous health record. We also streamlined the filing of the note to the EHR. To accomplish this objective, we developed a template which included a summary sentence with the patient's name, the PDA used for this discussion, the date of the

interaction, and finally the note generated by the HCP. The standardized sentence read, “PATIENT NAME and I discussed the NAME OF THE PDA on XX/XX/XXXX to discuss [HCP note is entered here].” Our hope is that streamlining workflow supports greater uptake of the Navigator.

Conclusion

PDAs have been shown to be effective in supporting patients who are making important treatment decisions. We found that if tools supporting PDA use are integrated into the existing workflow efficiently, an opportunity might be created for uptake of the SEDANS technology by busy and engaged HCPs. More specifically, we found, that if the SEDANS Navigator can operationalize the documentation process of PDA use, more HCPs may potentially use PDAs with their patients, thereby supporting the 5 rights of clinical decision support. A tool that streamlines the surfacing of relevant PDAs to support a discussion between a patient and a provider might increase the number of shared decision-making discussions.

List of Abbreviations

CDS: Clinical Decision Support
EHR: Electronic Health Record
FHIR: Fast Healthcare Interoperability Recourses
HCP: Health Care Provider
HIT: Health Information Technologist
IOM: Institute of Medicine
PDA: Patient Decision Aid
RaDaR: Rigorous and Accelerated Rata Reduction
SDM: Shared Decision-making
SEDANS: Shared Decision Aid Navigator System
SSI: Semi-structured Interview

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Data Availability

De-identified data will be made available by relevant requests managed by the corresponding author.

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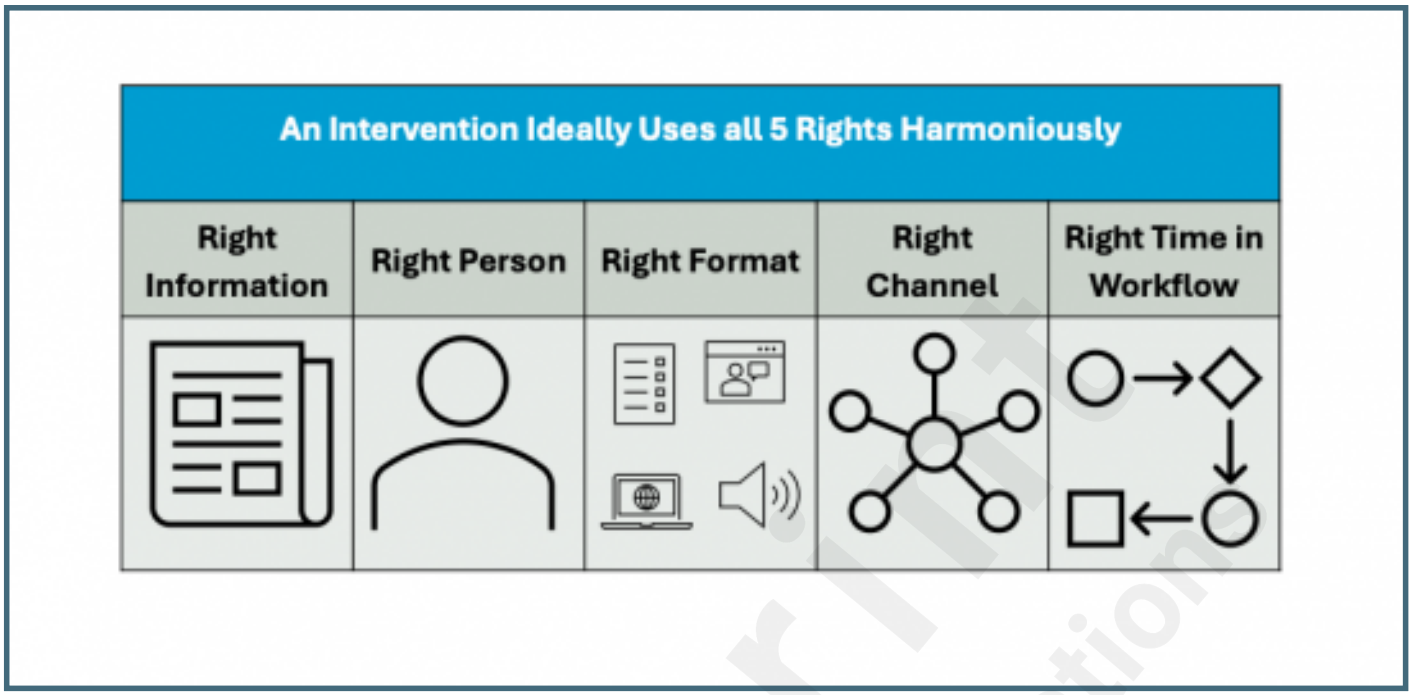
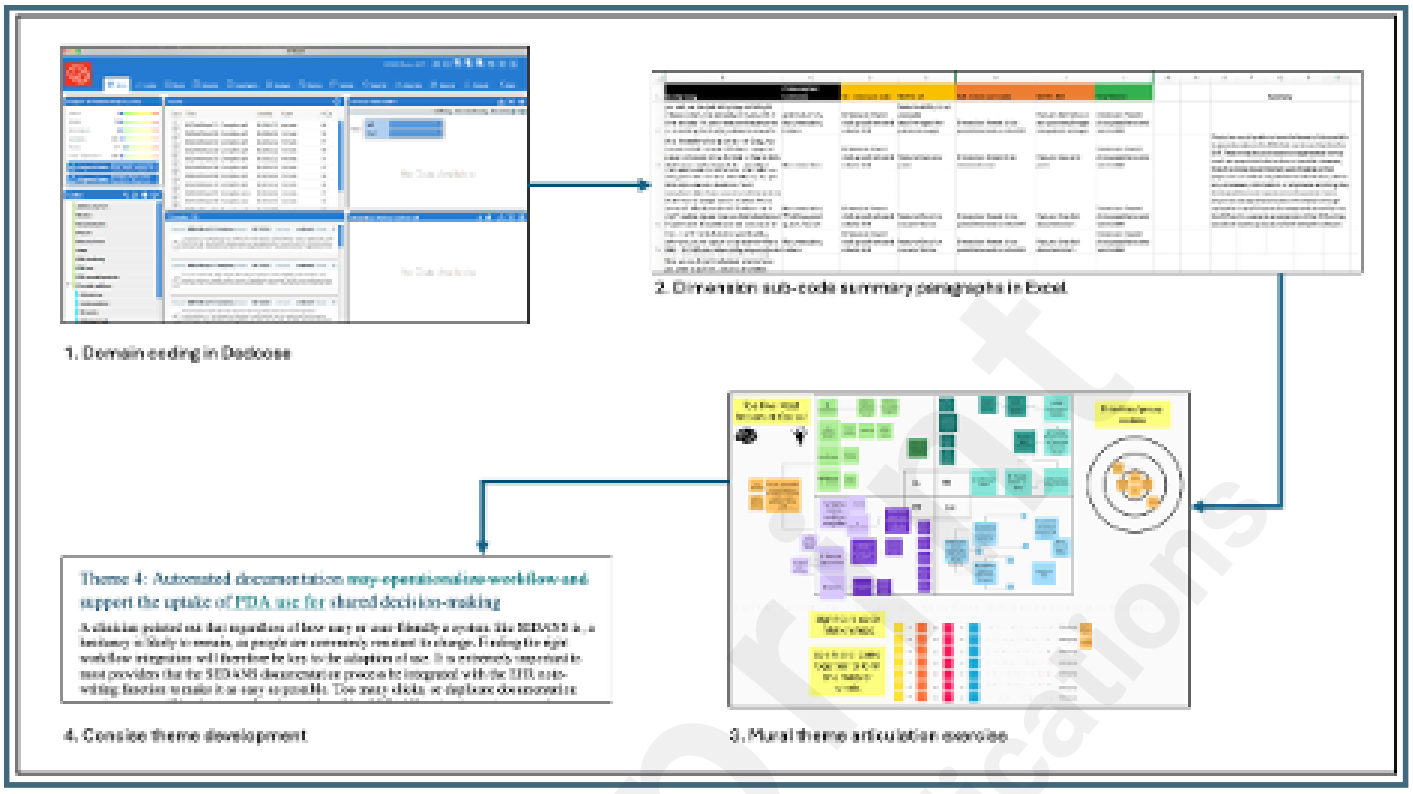
Supplementary Files

Figures

The 5 Rights of Clinical Decision Support (adapted from Osheroff, et al. 2012).



Overall Process of Data Reduction from Domain Coding in Dedoose to Concise Theme Text.



Multimedia Appendixes

SEDANS: Focus Group Guide.
URL: http://asset.jmir.pub/assets/b75a08bd3e929ad138b14edf9ceb1cc5.docx