Post-training Shared Decision Making Barriers and Facilitators for Pediatric Healthcare Providers: A Mixed-Methods Study

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ABSTRACT

OBJECTIVE: To assess barriers to and facilitators of shared decision making (SDM) for pediatric healthcare providers (HCPs) after they have been trained in SDM.

METHODS: A mixed methods study using triangulation of data sources. Pediatric HCPs with SDM training who worked at a Canadian tertiary care pediatric hospital were eligible. Participants completed a validated SDM barriers survey (n = 60) and a semi-structured interview (n = 11). We calculated descriptive statistics. Univariate and multivariable ordinary least squares linear regression models determined predictors of HCPs' intention to use SDM. Interviews were audiotaped and transcribed verbatim. We analyzed qualitative data using deductive and inductive content analyses and organized categories according to the Ottawa Model of Research Use.

RESULTS: Intention to use SDM was high (mean score = 5.6/7, *SD* = 0.78) and positively correlated with SDM use (RR = 1.46, 95% CI 1.18-1.81). However, 52% of survey respondents reported not using SDM after training. HCPs identified factors influencing SDM at the levels of innovation, adopter, environment, and training. Insufficient time (barrier) and buy-in and agreement with SDM (facilitators) were most commonly cited. To improve SDM use, HCPs want a more team-based approach to SDM training, continuing education, and implementation.

CONCLUSIONS: Despite training and positive intentions, many HCPs report not subsequently using SDM and identified numerous post-training barriers to its use. To overcome SDM barriers and improve uptake, HCPs recommend creating a socially supportive environment through a team-based approach to SDM training and implementation. These findings can inform SDM training and implementation interventions at pediatric health care centers.

KEYWORDS: barrier; facilitator; healthcare provider; pediatrics; shared decision making

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WHAT'S NEW

Despite training and good intentions, shared decision making (SDM) was rarely used in our pediatric clinical setting. This study identifies the factors associated with the use of SDM among pediatric health care providers who have been trained in SDM.

ALTHOUGH CHILDREN AND parents want an active role in health decision making, they are insufficiently involved.[1,2] Shared decision making (SDM) is a collaborative decision making process between healthcare providers (HCPs), patients, and family members.[3,4] This approach is particularly useful when there is more than one reasonable treatment option or the best decision depends on what matters to most the patient and family (ie, preference-sensitive decision).[5] By exchanging information about the evidence (options, risks, and benefits) and the family's preferences and values, HCPs, patients, and family members can deliberate to determine the best treatment plan.

SDM training experts have identified relational skills and risk communication of options, benefits, and harms as minimal SDM competencies for HCPs.[6] The most commonly used instrument for measuring HCPs' SDM competencies is the Observer OPTION instrument (http://www.glynelwyn.com/observer-option-instrument.html).[7] Multiple studies using OPTION have reported that many HCPs exhibit low levels of patient involvement behaviors and lack the

skills needed for engaging patients in SDM.[8] A Cochrane review has suggested that SDM training combined with patient-targeted interventions is likely to increase HCPs' use of SDM.[9] A recent environmental scan identified 148 SDM training programs targeting HCPs.[10] Although evidence supporting most training programs is lacking, the Ottawa Decision Support Tutorial (https://decisionaid.ohri.ca/odst/)pairedwitha3-hourskillbuildingworkshopwasfoundto improve HCPs' knowledge of and skill in SDM.[11] This SDM training program teaches HCPs evidence-based decision support strategies (eg, patient decision aids [PtDAs] and decision coaching).

Despite pediatric regulatory organizations' recommendations for using SDM,[12] the routine use of SDM is limited. To promote SDM in our pediatric hospital, we trained HCPs in SDM using the Ottawa Decision Support Tutorial and 3-hour skill building workshop. The purpose of this study was to evaluate the pediatric HCPs' SDM use and factors influencing use after this SDM training. Outcomes were the HCPs' intention to use SDM, self-reported SDM use, and SDM barriers and facilitators. Barrier and facilitator assessments promote the implementation of healthcare innovations and can improve professional practice.[13]

METHODS

DESIGN

We conducted a mixed-methods study using triangulation of survey and interview data. This design uses multiple methods to gather and cross-verify data for the purpose of providing a rich and robust account of SDM barriers and facilitators in pediatric clinical practice, increasing validity of the findings, and enhancing understanding of the phenomena under study.[14]

We used the Ottawa Model of Research Use (OMRU) as our guiding framework.[15] The OMRU seeks to explain implementation of evidence in healthcare and recommends barrier and facilitator assessments at the level of the innovation (ie, SDM), potential adopters (ie, SDM-trained HCPs), and practice environment (i.e., pediatric hospital). Our hospital's Research Ethics Board approved this study, and each participant provided informed consent. We followed the STROBE guidelines,[16] which include a checklist of 22 items considered essential for accurate and complete reporting of observational studies (https://www.strobe-statement.org/index.php?id=available-checklists).

SETTING AND PARTICIPANTS

This study was conducted at a Canadian tertiary pediatric academic hospital that offers inpatient and outpatient services to approximately 600,000 children and youth aged 0 to 18 years. SDM training was offered between 2012 and 2016 as part of a research-funded program. Invited HCPs were primarily from clinical units that expressed interest in SDM.

Eligible participants were pediatric HCPs who had completed the SDM training program (ie, Ottawa Decision Support Tutorial and 3-hour skill building workshop) offered within our hospital by our research program. HCPs were excluded if they were no longer employees/consultants at our hospital or were on extended leave. Sixty-eight HCPs met the inclusion criteria and were invited to complete the survey. For interviews, we purposefully sampled HCPs to ensure a range of disciplinary perspectives (eg, physicians, nurses, and allied HCPs).

DATA COLLECTION PROCEDURES

The online survey was built using REDCap software and distributed using the Dillman mixed-mode guidelines (ie, online and paper).[17] First, we sent the HCPs an introductory letter, $5 cash (for compensation), and a request to participate. Two days later, we sent a personalized invitation e-mail, consent letter, and link to the online survey. Nonrespondents received a reminder e-mail 5 business days after the invitation email. Fifteen days later, nonrespondents received a paper-based survey and postage-prepaid envelope. A final reminder was sent 5 weeks after the initial invitation. All surveys were coded to ensure no duplicate responses. HCPs could defer study participation by not responding. HCPs were invited via e-mail to participate in an interview, which was audio-recorded, conducted in a private hospital conference room or office, and lasted between 20 and 90 minutes.

DATA COLLECTION TOOLS

Our survey consisted of five sections: (A) introduction, consent, and SDM definition; (B) items asking about SDM use; (C) the Continuing Professional Development (CDP) Reaction Questionnaire[18]; (D) items specific to SDM barriers and facilitators[19]; and (E) demographic information.

Following a study introduction, invitation to participate, and consent, we provided the following definition to ensure that survey respondants understood the target behavior being assessed: "SDM is when HCPs, patients, and/or parents collaborate in decision making by exchanging medical information and the family/patient's values and preferences. Together they determine the best treatment decision for the patient." Then the survey posed 7 questions to probe HCPs' current use of SDM.

Next, the survey posed the 12 questions in the CDP Reaction Questionnaire, for which validating evidence was gathered for a purpose, and within a clinical context, similar to our study.[18] This theory-based instrument evaluates the impact of continuing professional development activies on HCPs' intention to change their clinical behavior. The questions, rated on a 7-point Likert scale, evaluate 5 contructs: intention, beliefs about capabilities, beliefs about consequences, moral norm, and social influences. This questionnaire has good test-retest reliability, with weighted κ values of 0.4 to 0.6 and Cronbach α coefficients of 0.79 to 0.89. Exploratory factorial analysis showed the presence of 5 constructs, with the proportion of variance explained by each factor superior to 5%.[18] The CDP Reaction Questionnaire also has been shown to

be acceptable to HCPs, responsive, and predictive of subsequent behavior change.[20]

We then assessed HCPs' perceived SDM barriers and facilitators using selected items from an adult SDM survey, originally developed using the OMRU and a literature review, and modifying it for our context (ie, pediatrics).[21] These items asked about child and family decision making involvement (4 items), SDM training (4 items), SDM use among SDM-trained colleagues (2 items), access to SDM resources (1 item), time for SDM (1 item), support for SDM (3 items), and SDM acceptability (2 items). Items were rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree), plus the option of no response. Open-ended questions asked respondents to list up to 3 main pediatric SDM barriers and facilitators. These survey items have been used in previous studies assessing barriers and facilitators related to SDM interventions.[22–24] Finally, demographic questions inquired about professional discipline, years of experience, age, gender, education level, and SDM training. Our survey questionnaire was reviewed for content validity by a panel of pediatricians, SDM experts, and knowledge translation experts (n = 6) and was pilot tested with pediatric HCPs (n = 2) to assess response processes. Based on the feedback, we changed the order of the questions.

Our semistructured interview guide was based on systematic reviews of SDM barriers and facilitators in adult medicine, HCP behavior change theories, and previous interview guides for assessing barriers to clinical guideline implementation.[19,22,25] Questions elicited information about demographics, SDM use, and SDM barriers and facilitators. We asked interview participants to describe their understanding of SDM and corrected misperceptions to be consistent with the definition provided above. We pilot tested the interview guide with pediatric HCPs (n = 2) and subsequently made minor changes (eg, order of questions to improve flow). Consistent with a semistructured approach, the interviewer used these questions as a guiding framework to explore SDM barriers and facilitators, while allowing participants to discuss new ideas.

Analysis

Raw survey data were exported from REDCap and transferred to SAS for Windows version 9.4 (SAS Institute, Cary, NC). We calculated univariate descriptive statistics for all quantitative data. We assigned a construct score for the CDP Reaction Questionnaire by calculating the mean ± standard deviation of items within each construct. Associations between theoretical constructs and intention to engage SDM were calculated using univariate (unadjusted) and multivariable (adjusted) ordinary least squares linear regression models. We calculated a coefficient of determination (R^2) to determine the proportion of variance between the theoretical constructs and intention to use SDM. On an exploratory basis, we used a linear regression model to examine whether HCPs' characteristics predicted the intention to use SDM and a log-binomial regression model to measure the association between intention to use SDM and self-reported SDM use.

Open-ended survey responses were collated in Excel (Microsoft, Redmond, Wash) and interviews were transcribed verbatim. We imported qualitative data into NVivo 9 software (QSR International, Melbourne, Australia) for analysis. Two reviewers independently analyzed all data using deductive and inductive approaches for content analysis.[26] Deductive analysis was based on the OMRU and informed by the SDM barrier and facilitator taxonomy.[15,19] We conducted inductive analysis to identify new categories using 6 iterative steps: reviewing transcripts, creating a code book, coding, establishing consensus, modifying the code book, and final coding.[26] We organized categories according to the OMRU barrier constructs and added a fourth category, "training," to reflect our analysis.

Our rate of missing data was low. Thirty items (67%) had no missing data, 14 items (30%) were missing 1 or 2 cases, and 1 item (ie, children prefer SDM) was missing 4 cases (2%). Given the low risk of bias from missing items, we did not impute data and used case-complete analysis.[27]

Results

Participants

Of the 68 eligible HCPs, 60 responded to the survey, for a response rate of 88%. Among those 60 HCPs, 11 also completed an interview. The typical participant was a woman aged 51 to 60 years who worked full time, had 20+ years of clinical experience, and completed the SDM training in 2014 or 2015 (Table 1).

Intention to Use SDM

After training, 43% of the survey respondents agreed that they intended to use SDM. The CPD Reaction Questionnaire ratings for intention to use SDM post-training was 5.6 out of 7 (Table 2). Unadjusted associations showed that all theoretical constructs were significantly associated with intention to use SDM. However, adjusted analysis revealed that only social influence and beliefs about capabilities were significant predictors of intention to use SDM. Overall, inclusion of all constructs accounted for approximately 47% of the variation in intention to use SDM ($R^2 = 0.47$). Compared with physicians, allied HCPs had significantly less intention to use SDM (0.48 points lower, 95% confidence interval [CI], −0.93 to −0.04); however, there was no difference between physicians and nurses (−0.30 points lower; 95% CI −0.83 to 0.22). There were no significant differences in respondent demographic characteristics (eg, gender, experience level) and intention to use SDM. All 11 interviewees reported that they intended to use SDM posttraining.

SDM Use

Survey respondents reported using SDM at the following frequencies: not at all, 52%; occasionally, 38%; frequently, 8%; or were unsure, 2%. In the last 2 weeks, HCPs reported using decision coaching not at all, 38%; 1 or 2 times, 32%; 3 to 5 times, 18%; 5 to 10 times, 5%;

Table 1. Characteristics of the Survey and Interview Respondents

Characteristic	Survey (n = 60), n (%)	Interview (n = 11), n (%)
Profession		
Medical doctor	17 (28)	3 (27)
Nurse	15 (25)	4 (36)
Allied healthcare provider	33 (55)	4 (36)
Years of experience		
1–5	7 (12)	2 (18)
6–10	6 (10)	1 (9)
11–19	18 (30)	2 (18)
20+	29 (48)	6 (55)
Full time equivalent		
Full time	50 (86)	10 (91)
Part-time	8 (14)	1 (9)
Age, y		
21–30	3 (5)	2 (18)
31–40	9 (15)	1 (9)
41–50	30 (50)	4 (36)
≥51	18 (30)	4 (36)
Prefer not to disclose	1 (2)	0
Gender		
Man	9 (15)	1 (9)
Woman	49 (83)	10 (91)
Transgender	1 (2)	0
Highest education level		
High school	1 (2)	0
College	3 (5)	0
Undergraduate	11 (18)	5 (45)
Masters	27 (45)	3 (27)
Doctoral	7 (12)	1 (9)
Professional degree	13 (22)	2 (18)
Year completed SDM training		
2011	2 (3)	1 (9)
2012	2 (3)	1 (9)
2013	5 (8)	0
2014	16 (27)	5 (45)
2015	20 (33)	4 (36)
Do not remember	17 (28)	0
Use SDM occasionally or not at all	52 (87)	6 (55)

SDM indicates shared decision making.

Table 2. Association Between Theoretical Constructs and HCPs' Intention to Use SDM

Construct	Score, mean ± SD	Univariate Regression Coefficient	95% CI	Multivariate Regression Coefficient	95% CI
Intention	5.6 (0.78)	...	...	...	...
Social Influence	3.6 (1.12)	0.39	0.24–0.54	0.28	0.11–0.43
Beliefs about capabilities	5.7 (0.71)	0.56	0.31–0.81	0.34	0.10–0.60
Beliefs about consequences	6.3 (0.66)	0.42	0.12–0.72	0.19	−0.14–0.52
Moral norm	6.3 (0.61)	0.54	0.24–0.85	0.09	−0.30–0.50

HCP indicates healthcare provider; SDM, shared decision making; SD, standard deviation; CI, confidence interval.
*The CDP Reaction Questionnaire assesses the impact of educational activities on HCPs' behavioral intentions in clinical practice.[21]

more than 10 times, 2%; and unsure, 5%. Similarly, HCPs reported using PtDAs not at all, 73%; 1 or 2 times, 17%; 3 to 5 times, 3%; more than 10 times, 3%; and unsure, 3%. Of the interview respondents, 55% reported routine SDM use, 46% reported occasional SDM use, and 9% reported no SDM use.

Of the 26 (43%) survey respondents who intended to use SDM, 21 (81%) reported using SDM. Intention to use SDM was positively correlated with SDM use (risk ratio, 1.46; 95% CI, 1.18–1.81).

BARRIERS AND FACILITATORS

INNOVATION LEVEL (IE, SDM)

Ninety-two percent of survey respondents reported that SDM was useful. Interview respondents identified that they could try SDM, which facilitated its use (Table 3).

ADOPTER LEVEL (IE, HCPS)

Most respondents (survey and interview) agreed with SDM and thought it was the right thing to do. However,

Table 3. Innovation- and Adopter-Level SDM Barriers and Facilitators Identified by Pediatric HCPs

Categories	Example Quotes From Interview or Survey	Interview Response, Qualitative (n = 11)		Survey Response, Qualitative (n = 60)		Survey Response, Quantitative (n = 60)	
		Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Innovation level							
SDM is trialable	• I think the pilot [SDM program] was a useful way to test the waters.		√				
Adopter level							
Attitudes							
Agreement with SDM	• I think it is [SDM] 100% of what we should do.		√		√		
Applicability of SDM	• A very urgent decision that must be made right away. . .sometimes the decision has already been made because of time or because of urgency. (B) • I found it [SDM strategies] very useful for families facing decisions about starting growth hormone. (F)	X	√	X			
Beliefs about capabilities							
Self-efficacy	• I think the basics are there but I haven't really taken it [SDM] as far as it could go. . ..so lack of confidence of actually being able to sit down and do it. (B) • It [SDM] gives you the knowledge, and the opportunity to think it through and then you feel more confident in your decision. (F)	X	√	X			
Most trained HCPs can engage parents in SDM						4 (8%)	46 (92%)
Most trained HCPs can engage children in SDM						20 (33%)	39 (65%)
Beliefs about consequences							
Patient/family outcomes	• Some colleagues. . .don't believe it [SDM] facilitates or helps a family. (B) • We know it [SDM] can produce positive outcomes. . .it reduces regret, it reduces blame, those positive outcomes make people able to live with the decision they make. (F)	X	√		√		
SDM improves parent involvement						1 (2%)	59 (98%)
SDM improves child involvement						7 (12%)	52 (87%)
Reinforcement	• [SDM is] causing undue upset within the department and that's causing people to be unsettled. (B) • 99% of the time they [the family] say 'yes it's been helpful. (F)	X	√		√		
Memory and attention							
Forgetting and reminders	• It is difficult to remember to incorporate this new element into my existing clinical practice; I would say the barrier is simply that I haven't used the tools learnt in the workshop and have somewhat forgotten. (B) • Prompts in the [electronic medical record] would be excellent. (F)		√	X	√		

B indicates barrier; F, facilitator; X, barrier; √, facilitator; HCP, healthcare provider; SDM, shared decision making.

interview respondents thought the appropriateness of using SDM often depended on the clinical setting or situation (eg, SDM was less applicable to urgent decisions) (Table 3). Quantitative survey data showed that most respondents believed that trained HCPs could involve parents in decision making, although they were less confident in involving children. Sixty-four percent of interview respondents expressed a lack of confidence about their ability to use SDM. Most respondents (survey and interview) agreed that SDM would improve patient and family outcomes (eg, improved involvement, reduced uncertainty about a decision). Although some interview respondents described negative experiences resulting from using SDM (eg, conflict within the healthcare team), most expressed positive experiences (eg, satisfied patients and families).

Environment Level

The most frequently reported barrier was insufficient time for SDM due to workload, feeling overwhelmed, other priorities, patient caseloads, and clinic workflow inefficiencies (Table 4). However, some respondents thought that allocating additional time to consultations could facilitate SDM, thus improving consultation efficiency by reducing repeat visits.

Survey and interview respondents cited characteristics of other stakeholders that helped or hindered SDM. Frequently reported barriers by stakeholder type were the HCP's clinical experience, the parent's preference for noninvolvement in decision making, and the child's age and competence. The parent's and child's preferred involvement in decision making was also a commonly reported facilitator. HCPs indicated that support from the organization, management, and other leaders or champions facilitated SDM, whereas lack of support from these groups hindered it.

Respondents reported several social factors that impacted SDM. The mean social influence score on the CPD questionnaire (3.6 out of 7) was lower than that with other theoretical constructs (range, 5.7−6.3 out of 7). Qualitative data showed that social barriers included conflicts among stakeholders, power imbalances, lack of buy-in from other stakeholders, and social norms (eg, the doctor makes the decision). Facilitators included buy-in from stakeholders, cultural and practice norms consistent with SDM, the HCP's professional role as a patient advocate, and team cohesion and support.

Survey respondents agreed that they had access to the resources needed for SDM (77%), particularly onsite access to SDM experts, decision coaches, and SDM tools. Most respondents thought PtDAs and decision coaching facilitated SDM by providing a structured approach or improving families' acquisition of medical information; however, some characterized PtDAs as difficult to use and improperly tailored for children and noted a lack of pediatric condition−specific PtDAs. Interview respondents also cited limited funds supporting the SDM program as a barrier.

Training Level

Sixty-two percent of survey respondents agreed that additional training would improve HCPs' ability to use SDM (Table 5). This was echoed by interview respondents who suggested booster sessions, team-based retreats, and lunch-and-learns to enhance SDM knowledge and skills. Respondents reported that not completing the SDM training with their clinical team hindered their ability to use SDM in clinical practice. To promote SDM use, interview respondents wanted a team-based approach to training and protected time with their clinical team to practice SDM and develop an implementation plan that suited their clinical context. Survey (3%) and interview respondents (36%) thought patients and families should also receive SDM education through awareness campaigns, provision of PtDAs, and encouragement to ask for and use SDM tools.

Discussion

This study used mixed methods to evaluate pediatric HCPs' intentions to use SDM, their actual SDM use, and barriers to and facilitators of SDM, after SDM training. Although HCPs had positive intentions to use SDM, approximately only one half of the survey respondents reported using SDM in clinical practice. Despite training, HCPs reported numerous factors influencing their ability to use SDM in pediatric clinical practice. Our results lead us to the following observations.

After training, most pediatric HCPs had a positive intention to use SDM in clinical practice. Nonetheless, the HCPs reported disappointing levels of SDM use. This finding is consistent with known intention-behavior gaps between evidence and clinical practice, as well as literature documenting slow uptake of SDM interventions.[9,28] However, higher intention scores were correlated with self-reported SDM use. Furthermore, social influences and personal beliefs about capability were significant predictors of intentions to use SDM. This was supported by qualitative data showing that HCPs believe that positive social influences (i.e., buy-in from other stakeholders) facilitate SDM. Therefore, interventions designed to promote SDM should emphasize the social acceptability of SDM.

Beyond the trialability of SDM, HCPs reported few influential factors at the innovation level (ie, SDM), suggesting their satisfaction with SDM itself. At the level of the adopter (ie, HCPs), HCPs reported doubts about their ability to use SDM after training, yet maintained a positive attitude, as shown by their agreement with the principles of SDM and belief that SDM can improve patient and family outcomes. Implementation interventions could focus on improving HCPs' self-efficacy for SDM with continuing education while capitalizing on positive attitudes among HCPs to drive cultural change and a socially supportive environment for pediatric SDM.

Insufficient time was the most commonly reported barrier to SDM overall and at the level of the environment. Although this perceived barrier is widespread among HCPs,[19] a Cochrane review suggests that the evidence supporting the claim is limited, but more research is

Table 4. Environmental-Level Barriers to and Facilitators of SDM Identified by Pediatric HCPs

Categories	Example Quotes From Interview or Survey	Interview Responses, Qualitative (n = 11)		Survey Responses, Qualitative (n = 60)		Survey Responses, Quantitative (n = 60)	
		Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Environmental level							
Time							
	• The hard sell is time...the people...providing care every day who are busy, overwhelmed, and are struggling with all sorts of other priorities. This is just yet again another thing... (B) • More time allocated to meet with families and children. . .and more staff in order to have the time to spend with families and children [would facilitate SDM]. (F)	X	√	X	√	31 (52%)	29 (48%)
Characteristics of other stakeholders							
HCPs' experience	• I think this [SDM] is difficult for new grads to do. I don't think they would feel confident enough doing it. (B)	X					
HCPs who think they do SDM, but don't	• Often HCPs will say, 'yes, we do SDM' and in fact when you watch them, when you listen to them, and when you talk to them about it. . .what they describe is not SDM. (B)	X		X			
HCPs' motivation	• It is motivation to want to learn, hear, change, read things. . .we set up a website with the tools as in the guideline, parent handouts, the decision aid, the choice cards. There's many, many who've never gone to it, never looked. (B)	X		X			
HCPs lack knowledge of SDM	• Lack of knowledge and training [is a barrier to SDM] (B)	X		X			
Parent SDM preferences	• Some parents and patients prefer not to be involved in the decision making process. (B) • I find that most of the time the parents do want the kids to have a say. (F)	X	√	X		8 (13%)	52 (87%)
Parent negative emotion	• It's very easy to be paternalistic when you've got frightened parents who just want you to tell them what to do. (B)	X					
Parent culture and language	• They [the family] were from a different culture and in that culture the father has a lot of say. And the girl-. . .was 9 years old and so she was giving honest answers but then the father got mad because he said, 'you're putting words in her voice and we know what is best thing for her'. (B) • No language barriers [facilitates SDM]. (F)	X		X	√		

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Table 4 (*Continued*)

Categories	Example Quotes From Interview or Survey	Interview Responses, Qualitative (n = 11)		Survey Responses, Qualitative (n = 60)		Survey Responses, Quantitative (n = 60)	
		Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Parent availability for SDM	• In general, there's one parent there. . .so then you're not getting all the stakeholders involved. (B) • Both parents in attendance for decision making. (F)	X		X	√		
Child age and competence	• The age... some people will say no [children can't participate in decision making] when they're 12. (B) • I think you [engage a child in SDM] as soon as the child's capable of making an informed decision... if the child has the capacity to participate in decisions they should be part of it. (F)	X	√	X	√		
Child SDM preference						21 (36%)	37 (62%)
Support from leadership							
Managerial support for SDM						23 (38%)	37 (62%)
Organizational support for SDM						20 (33%)	43 (72%)
Involvement of leaders/ champions	• There's been no headway in some teams [for implementing SDM] and constant resistance in leadership from the top of that team. (B) • We wouldn't have been able to do what we've done so far without having the key people in the management team who embraced this [SDM]. (F)	X	√		√		
Social influences							
Conflict	• When there is conflict within the interprofessional team about the decision to be made, the options on the table and the risks and benefits of each option. This presents a problem when trying to communicate with the family. (B)	X		√			
Power and empowerment	• They [HCPs] are not able to let go of control enough to do it [SDM]. (B) • Most parents say that this [SDM process] enabled them to listen to their child or youth and recognized that that was critically important in making the right decision. (F)	X	√				
Buy in	• The lack of buy-in from all team members has affected implementation. . .for those who haven't [bought into SDM]. . . it's a barrier, and those people are vocal. (B) • Buy-in from the nurses and the people in the delivery room and elsewhere has been well received. (F)	X	√	X	√		
Team cohesion and support	• Lack of full team using a SDM approach. (B) • Team approach [facilitates SDM]. It cannot be successfully implemented if not shared and supported by everyone. (F)	X	√	X	√	23 (38%)	37 (62%)

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Table 4 (*Continued*)

Categories	Example Quotes From Interview or Survey	Interview Responses, Qualitative (n = 11)		Survey Responses, Qualitative (n = 60)		Survey Responses, Quantitative (n = 60)	
		Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Relationships	• I think that if they're new patients, springing the concept of SDM...is difficult when they're not patients that you know. (B) • A trusting relationship between the family and child and HCP [facilitates SDM]. (F)	X	√	X			
Norms	• The other big barrier is the culture of the hospital or of the people working in it. For one, people don't like change. (B) • It [SDM] supports the inclusion of families as partners in their children and infants' care so it fits within the vision and mission of [our hospital]. (F)	X	√	X	√		
Professional role model	• Patients come to them [HCPs] to make decisions and that's what they perceive as their job. (B) • As a nurse being an advocate for the patient and family obviously is a key role. (F)	X	√	X	√	10 (17%)	18 (30%)
Other trained HCPs use SDM with parents						26 (43%)	24 (40%)
Other trained HCPs use SDM with children						42 (70%)	17 (28%)
SDM tools and strategies (infrastructure)							
Patient decision aids	• With some kids. . .the ranking somehow [on the patient decision aid] needs to be a little more [appropriate] for young people. (B) • The rigorously developed and current decision aids support the SDM discussion. (F)	X	√	X	√		
Resources and funding							
Funding and tools	• We're now looking at wanting to get the promised hospital funding [for the SDM program]...and that hasn't materialized yet ...we've got to go back to depending on [research] grants for sustainability. (B) • From taking the course and knowing the different tools that I can use...I have resources [for SDM]. (F)	X	√	X	√	14 (23%)	46 (77%)

B indicates barrier; F, facilitator; X, barrier; √, facilitator; HCP, healthcare provider; SDM, shared decision making.

Table 5. Training-Level Barriers to and Facilitators of SDM Identified by Pediatric HCPs

Categories	Example Quotes from Interview or Survey	Interview Responses, Qualitative (n = 11)		Survey Responses, Qualitative (n = 60)		Survey Responses, Quantitative (n = 60)	
		Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Training level							
Skill building and continuing education	• Not enough learning opportunities [was a barrier to SDM]... We still never had any dedicated time to develop tools or we never actually practiced it [SDM]. (B) • I don't know if there's more courses to take or anything else to sort of give us that refresher. (F)		√	X	√	19 (32%)	37 (62%)
Team approach	• Not everyone on the clinical team has had the SDM training so we're not always all speaking the same language. (B) • We need protected time to get together with the team and choose a decision, populate the decision aid and decide as a team how we're gonna [sic] roll this out in our clinic. (F)	X	√	X			
Educate patients and families	• Having families push for this [SDM] and doing workshops with families directly so that they show up with the tools ready to review with the docs [sic]. (Facilitator)		√		√		

B indicates barrier; F, facilitator; X, barrier; √, facilitator; HCP, healthcare provider; SDM, shared decision making.

needed.[29] Future studies should prospectively evaluate the impact of SDM on consultation efficiency and process, including in pediatrics. Similarly, many HCPs cited the child's age as a barrier to SDM, with more difficulty involving younger children in decision making about their own health, yet most studies are unable to link age with decision making competence.[30] Instead, competence depends on multiple dynamic factors, including developmental stage, the child's experience with the disease, clinical circumstances, and decision type.[31] As such, implementation interventions need to debunk commonly held misconceptions about SDM and emphasize how SDM can be tailored to various situations and patients.[32] For example, training interventions could focus on how SDM uses the decision making time differently by having patients and families come prepared for SDM after reviewing a PtDA with a decision coach.[33]

At the training level, HCPs offered ideas to promote SDM based on the perceived barriers. Most notably, HCPs suggested a team-based approach to SDM training, continuing education, and implementation. Such an approach could incorporate the social influences perceived to facilitate SDM uptake and is consistent with the American Academy of Pediatrics' guiding principles for team-based care.[12] This document provides guidance on creating effective support systems and partnerships to address children's and families' health needs. In addition, the *Quality Chasm* report describes a future healthcare system characterized by cooperation and teamwork, including recommendations to train HCPs to work in teams.[34] A key component of fostering a collaborative environment is training individuals from various disciplines together.[35] One study has suggested that team-based SDM training helps HCPs legitimize and use SDM in their practices.[36] Nonetheless, more work is needed in this area. An inventory showed that only 10 of 148 SDM training interventions (7%) focused on the interprofessional team.[10] Given that many health decisions require interprofessional collaboration, our findings suggest that team-based approaches should be reflected in SDM training program content and delivery.

Educational interventions designed to change HCPs' behavior are promising but show mixed effects.[9,37,38] In our case, SDM training alone was insufficient for achieving routine SDM use among HCPs. Mapping prospectively assessed barriers to implementation strategies has been shown to improve uptake,[13] but determining specific interventions to address barriers remains a challenge. Our findings suggest that a multifaceted implementation strategy, with a focus on team-based approaches to training, self-efficacy, and social acceptability, could improve SDM uptake. Specifically, HCPs could benefit from completing the SDM training within their interprofessional team. An overview of systematic reviews showed that multiprofessional collaboration and teamwork can facilitate HCP practice changes.[38] To improve self-efficacy, HCPs could be granted protected time to practice SDM skills (eg, role play) using audit and feedback techniques.[9] Social acceptability could be fostered by leveraging the high rates of buy-in from leaders and other champions to create changes

in the social context around SDM (eg, SDM promotion campaigns).[39] Finally, helping HCPs reframe commonly (mis)perceived barriers (eg, insufficient time for SDM) could promote implementation.[32] The effectiveness of such an intervention would need to be evaluated.

Our study should be considered within the context of its strengths and limitations. We used methodological triangulation to provide a rich account of HCPs' perceived barriers to SDM and facilitators in pediatrics and to strengthen the use of quantitative and qualitative data. There was no divergence in categories resulting from our data; however, some barriers and facilitators were described differently between phrasing in the survey questions and respondents' qualitative responses. For example, respondents' quantitative data indicated that SDM would improve parent and child outcomes. Qualitative data added insight regarding what outcomes they believed would result from SDM (eg, less regret or blaming of HCPs for undesired outcomes), demonstrating the strength of a mixed-methods approach. Our survey also included a measure for which relevant validity evidence had been collected. We also gathered evidence for content validity of the complete survey questionnaire and for clear response processes. Our survey had a high response rate (88%), which reduced the likelihood of nonresponse bias. Although characteristics of the survey and interview respondents were similar, differences in SDM use might reflect a selection bias whereby those who accepted the interview were champions or early adopters of SDM. Finally, this study was conducted in a single pediatric hospital with HCPs who completed a specific SDM training program, potentially limiting the transferability of the findings to other contexts, training programs, or populations.

In conclusion, our study suggests that knowledge and skill-based training alone are insufficient to achieve routine use of SDM in pediatric clinical practice. Despite good intentions, 52% of our trained HCP respondents reported limited SDM use. HCPs identified numerous factors that were perceived to influence SDM use. To improve SDM uptake, implementation strategies should focus on creating a more socially supportive environment for SDM and team-based approaches to SDM training, continuing education, and implementation. HCPs also require additional opportunities to enhance their self-efficacy for SDM. To further advance the field, future studies are needed to develop, describe, and evaluate interventions to implement SDM in pediatric clinical practice. Our findings can inform such SDM training and implementation efforts at our hospital, in pediatrics, and at other centers.

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