Practice Changes Associated with the Department of Veterans Affairs' Family Care Collaborative

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BACKGROUND: The Department of Veterans Affairs (VA) provides rehabilitation for veterans with moderate to severe war injuries through four regional Polytrauma Rehabilitation Centers (PRCs). To standardize and improve care provided to these veterans' family members, health services researchers partnered with program leaders and rehabilitation specialists to implement a family care quality improvement collaborative.

OBJECTIVE: To describe practice changes associated with the Family Care Collaborative's intervention.

DESIGN: Cross-site, mixed-method evaluation.

PARTICIPANTS: Rehabilitation interdisciplinary team members (n=226) working at the four participating sites.

INTERVENTIONS: The collaborative developed and implemented in a 6-month pilot a web-based tool to standardize and promote family-centered care.

OUTCOMES: Provider survey of family care, satisfaction with family care, and perceived competence in working with families; specific practice changes at each site; provider and facilitator perceptions of the collaborative work; and a validated measure to predict likelihood of success of the selected intervention.

MAIN RESULTS: Family-centered practices and satisfaction improved at sites with lower baseline scores ($P<0.05$) and was equivalent across sites after the pilot. Providers initiated specific family-centered practices that often began at one site and spread to the others through the collaborative. Sites standardized family education and collaboration. Providers believed that the collaborative produced a "culture change" from patient-centered to family-centered care and viewed program leadership and health services researchers' involvement as crucial for success. Scores on the measure to predict successful implementation of the intervention beyond the pilot were promising.

CONCLUSIONS: Collaboratives that bring together clinicians, program leaders, and researchers may be useful for fostering complex change involving interdisciplinary teams.

KEY WORDS: rehabilitation; family-centered care; veterans; collaborative; attitude of health personnel; patient care team; implementation evaluation; polytrauma; practice change.

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BACKGROUND

The Department of Veterans Affairs (VA) is providing specialized rehabilitation services through the Polytrauma System of Care to US Service Members who sustain injuries during the current wars in Iraq and Afghanistan¹. After evacuation from Iraq or Afghanistan to Landstuhl Regional Medical Center in Germany, those with moderate to severe injuries requiring rehabilitation are treated at one of four regional specialized inpatient rehabilitation centers, called Polytrauma Rehabilitation Centers (PRCs). Patients' family members often meet them in Landstuhl and accompany them to the US and the PRC for rehabilitation. A chart review study found that the majority of PRC patients with war injuries had at least one family member who was involved in the inpatient rehabilitation process, and many of these family members received services to address their own emotional and support needs². Prior to the wars in Iraq and Afghanistan, the VA provided limited services to families³. Thus, the level of family involvement and service need among these new veteran families presented challenges to the clinical teams responsible for rehabilitating the war injured. Additionally, providers were faced with meeting the needs of families in the context of a system of care that was rapidly evolving and undergoing public scrutiny^{4,5}.

In the absence of a system-wide approach to working with families (hereafter referred to as "family care"), each PRC had developed its own methods of family education and collaboration, leading to variations within and across the PRCs, and in some instances, family dissatisfaction with the care plan^{6,7}. However, while the need for change was clear, there was no evidence base to guide clinician's efforts to involve families in rehabilitation. Consequently, the VA had to improve family care without the benefit of scientifically established "best practices."

To address the urgent need for system-wide improvement in family care, health services researchers partnered with clinicians and VA operations leaders to form the Family Care Collaborative (FCC), based on the Institute for Healthcare Improvement (IHI) model⁸⁻¹⁰ and Ovrevit's recommendations for effective collaboratives¹¹. The FCC differed from the IHI model in that a health services researcher (HSR) served as the project facilitator (Facilitator), it included fewer participating sites¹², and all participants, including the HSR Facilitator,

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were from a single, integrated health care delivery system (the VA). In addition, this collaborative was tasked with developing and implementing improved practices, whereas, in general, IHI collaboratives implement an evidence-based practice^{8,9}.

After review of diverse literature related to family caregivers^{5,13–26}, the FCC determined that the PRCs needed to embrace the principles of family-centered care^{27–30}. Family-centered care respects the unique characteristics of each family and the dignity of each family member. It includes families as partners in care delivery and clinical decision making^{19,27}. To include families as partners in patients' rehabilitation, the FCC developed a web-based tool based on the work of the Vermont Oxford Network Neonatal Intensive Care Quality Improvement (QI) Collaborative³¹. The PRC web-based tool, referred to as the Family Care Map (FCM), was designed to help families understand and actively participate in their loved one's care according to their individual preferences and circumstances. A web-based tool was selected for accessibility to families and clinicians and because it could be readily modified over time.

The FCM website includes a diagram that depicts the phases of rehabilitation in six steps beginning with planning for admission and continuing through discharge (Fig. 1). Events recognizable to family members, such as arriving at the PRC, mark the transition between steps. Table 1 presents the content of the FCM diagram, including what families can do and expect as rehabilitation progresses, as well as guidance for families on how to prepare for the next step. The website also includes a tab that links to family educational material and other resources.

The FCM website was implemented during a 6-month pilot. The pilot included adopting family-centered practices within the PRCs and making the website available to clinicians and family members. In this manuscript, we describe the practice changes associated with the FCM pilot. We also describe factors that may have contributed to these changes and usefulness of the collaborative for practice improvement from the providers' and Facilitator's perspectives. The data were obtained as part of the collaborative's process and summative evaluation. Collaboratives have been increasingly used to improve practice in health care organizations^{8,32,33}. However, evidence for their effectiveness is mixed, and there is a lack of data concerning the specific factors that lead to a collaborative's success³⁴. Findings from the FCC help illustrate the circumstances under which a collaborative can be a useful vehicle for improving practice.

METHODS

Collaborative Work

The Institutional Review Board at each PRC classified the evaluation component of the collaborative as QI. Figure 2 presents the timeline for the collaborative work and the points at which evaluation data were collected through provider surveys, weekly provider reports (conference calls and emails among collaborative members), and the Facilitator site visits.

The FCC began as an advisory group that consisted of two representatives (change leaders) from each PRC designated to lead the collaborative work at each site, the Facilitator, and the National Director of the Physical Medicine and Rehabilitation Program. The advisory group convened weekly conference calls

to review the literature on family care and current practice within each PRC. After selecting the web-based tool described above, the advisory group convened a meeting that included external experts in family-centered care. Following this meeting the PRC teams were expanded to include up to six interdisciplinary team members. These action teams developed the content of the FCM diagram through iterative cycles of local testing among families and staff and modification, followed by a review among all teams until consensus was reached. The current version of the website, which reflects modifications based on the pilot, is publically available (see www.hsrd.minneapolis.med.va.gov/FCM).

Staff education and training were integral to the collaborative work. First, to ensure that the action teams had skills to lead their PRCs to make practice changes, training in leadership and QI methods was incorporated into an early face-to-face meeting, and the Facilitator was available as needed for coaching. Next, prior to the pilot, the action teams educated staff within the PRCs and hospital administration about the FCM project. During the pilot, the action teams provided PRC staff with training in use of the FCM diagram and family-centered care.

Procedures and Measures

Family Care Survey. The research staff developed an anonymous survey to assess provider perceptions of: (1) family-centered care within the PRCs, (2) satisfaction with family care, and (3) competence in delivery of family care. The change leaders distributed the surveys before and after implementation of the FCM pilot to all PRC staff members. Potential respondents were provided with return envelopes addressed to research staff external to the clinical teams.

The measure that assessed family-centered care was comprised of 12 statements. Clinicians indicated the degree to which they agreed with each statement on a four-point scale (Appendix). The family-centered care items were drawn from the work of Law et al.^{29,30} at the Centre for Childhood Disability Research, but modified for relevance to the PRC context. The 12 items were summed to create a single Family-Centered Care score, with higher values indicating more family-centered care. Surveys with three or more missing items ($n=4$) were deleted from these analyses. Scale internal consistency as measured by Cronbach's coefficient alpha was 0.78. Item-total correlations ranged from 0.38 to 0.72.

Satisfaction with family care was assessed by responses to three statements about family educational material, clinical tools to work with families, and the way family members are included in care delivery. Responses to the satisfaction questions were dichotomized into satisfied (responses of very or somewhat satisfied) or not satisfied (responses of somewhat dissatisfied or very dissatisfied).

A single item assessed perceived competence in working with families on a five-point scale ranging from poor to excellent. Responses were dichotomized so that responses of poor and fair constituted the low family care skills group and responses of good, very good, and excellent constituted the good family care skill group.

Organizational Change Manager. We used the Organizational Change Manager (OCM) to examine the likelihood of successful implementation of the FCM website beyond

Polytrauma Rehabilitation Centers (PRCs)

FAMILY-CENTERED CARE MAP

Click ☆ s below to see “Looking Ahead” information.

Figure 1. FCM.

pilot testing. The OCM is an instrument used to predict successful implementation of QI initiatives^{35,36} and guide managers' implementation efforts.³⁷ In accordance with standard administration instructions, the Facilitator administered the OCM to six to ten providers at each site who represented different disciplines and roles on the teams. Respondents were instructed to be “brutally honest” when answering “yes” or “no” to four questions for 15 factors (60 items). Anonymously completed surveys were mailed to the research staff for processing.

The OCM uses a multiplicative Bayesian model to generate a score, ranging from -10 to 10 that indicates the likelihood of success or failure of a given change initiative. A score of -2, for example, means that the project is roughly two times more likely to fail than succeed, whereas a score of 2 indicates that the project is roughly two times more likely to succeed than fail. The OCM has been used extensively by the Network for Improvement of Addiction Treatment (NIATx) in the US and was also adapted for use in the Swedish Healthcare System^{38,39}. The development, content, and predictive validity of the OCM are detailed elsewhere^{35,36}.

Specific Practice Changes. The FCC change leaders tracked specific practice changes during the pilot and discussed them together during weekly reports. The Facilitator collected this

information and confirmed the accuracy of her documentation during site visits and phone calls.

Near the end of the pilot, the Facilitator conducted site visits to observe interdisciplinary team meetings and interview a purposively selected sample of 28 clinical staff (4 to 10 at each site). Nine of the 28 had leadership roles within their team, including unit Medical Director (1), nurse manager (2), lead psychologist (3), and lead social worker (3). The interview protocol included three topics: (1) changes that have resulted from the FCM initiative, (2) barriers and facilitators to project success, and (3) perceived value of the FCC for implementing the changes in family-centered care, including the FCM. The Facilitator documented her observations and provider comments in field notes, which were summarized and shared with the collaborative teams for verification.

Data Analysis. Data analysis focused on the Family Care Survey. First, we used multiple linear regression analysis to examine Family-Centered Care score change across sites from baseline to the end of the FCM pilot, controlling for provider characteristics. Family-Centered Care Scale summary scores at both time points were the dependent variable. Independent variables included provider characteristics (age, professional title, years working at a PRC), PRC site, time of administration (pre-implementation baseline, post-implementation follow-up),

Table 1. Content of the Family Care Map Diagram

Rehabilitation process	What families can do and expect	Looking ahead: Anticipatory guidance for families
Step 1 First contact and introduction: PRC care team	1. Getting to know your PRC team before admission 2. Preparing for your arrival	Travel may be stressful for you and your injured family member. Unexpected delays or diversions are common. Plan for your own comfort during your trip
Step 2 Welcome and settling in to PRC	1. Settling in 2. Learning about the rehabilitation process 3. Setting up a communication plan	1. Think about the ways you want to be involved in the care of your family member 2. Think about the information you feel is important to share with the PRC team during the assessment process 3. Begin to think about short- and long-term rehabilitation goals for your family member 4. The Family Care Map can help you become more familiar with the Polytrauma System of Care
Step 3 Developing a treatment plan	1. Completing the initial patient and family assessments 2. Establishing your role in the rehabilitation process 3. Sharing your expectations	1. Prepare to participate in meetings throughout the rehabilitation process. It is helpful to keep a list of your questions, concerns, and goals 2. Remember, it is important to take care of yourself while caring for your family member
Step 4 Rehabilitation: working toward goals	1. Building your knowledge and skills 2. Maintaining communication with the PRC team 3. Focusing on family wellness and self care 4. Allowing yourself to consider that roles may change for you and your family members	Ask about support and resources in your home community. How would you use these resources to help you and your family member transition to the next level of care?
Step 5 Moving forward	1. Preparing for life beyond the PRC 2. Connecting with the next level of care and community resources	Think about what you have learned that will help to smooth the transition for you and your family
Step 6 Staying connected	1. Continuing to be the champion of your family's needs 2. Caring for yourself is one of the best ways to care for your family member	Keep in mind there are ups and downs in life after traumatic injury. Be patient with yourself. Celebrate accomplishments no matter how small

and the Site $\times$ Time interaction. Next, separate logistical regression analyses were used to examine change in satisfaction ratings with time, site, and the Time $\times$ Site interaction as the independent variables. We did not include provider characteristics because they were not associated with satisfaction scores. Last, we used logistic regression to examine changes in perceived family care skills. This analysis included time, site, and the provider characteristics significantly associated with perceived competence in working

with families (years working at a PRC and gender). We dropped the Time $\times$ Site interaction for the analysis on perceived competence because it was not significant.

Participants. One hundred nine providers completed the Family Care Survey during the 1-month baseline, and 117 completed the survey after implementation of the FCM (approximately 9 months later). Based on information

Figure 2. Timeline of FCC. Bold lines represent collection of outcome data. Each square of the timeline represents 1 month. LS: Learning session. OCM: Organizational Change Manager. PRC: Polytrauma Rehabilitation Center.

provided by the teams on staffing at the time of data collection, we estimate that at least 54% of the full and part-time staff working within the PRCs completed the provider Family Care Survey.

Forty-six of the provider participants at the post-implementation assessment had completed the same survey at baseline. Due to anonymity, we were not able to link individual surveys across time points. Family-Centered Care scores, satisfaction ratings, and perceived skill post-care map implementation did not differ among providers who had completed the survey at baseline and those who had not.

Characteristics of the providers who completed the Family Care Surveys at each time point are presented in Table 2. Gender, professional title, and years providing polytrauma rehabilitation within the VA did not differ across assessment time periods. There were no differences in professional title and years providing polytrauma rehabilitation across sites. However, one site (site 2) had fewer female clinicians than the others [χ^2 (3, N=202) = 10.89, $p=0.01$]. Characteristics of staff completing the OCM and participating in site-visit interviews are also listed in Table 2. The roles of staff completing the OCM included administration/management (n=4), clinical (n=21), frontline/support (n=3), and other (n=2).

RESULTS

Family Care Survey

The multiple linear regression model predicting Family-Centered Care Scale scores was significant ($F=4.73$, $df_1=15$, $df_2=168$; $P<0.001$, $R^2=0.30$). There was a significant Time $\times$

Table 3. Family-Centered Care Scores Before and After Family Care Map Implementation by Site

	Site 1 (N=50)	Site 2 (N=53)	Site 3 (N=34)	Site 4 (N=47)
Time	Mean ^a (SE)	Mean ^a (SE)	Mean ^a (SE)	Mean ^a (SE)
Baseline	34.44 (1.27)	30.22 (1.07)	36.51 (1.13)	37.50 (1.04)
Post-care map	37.75 (0.98)	38.27 (0.98)	40.38 (1.56)	38.82 (1.15)
t-value	2.42†	6.17‡	2.24†	0.94

N=184

^aMeans are least square means from multiple regression models with provider characteristics, time, site, and Time $\times$ Site predicting Family-Centered Care scores

† $P<0.05$; ‡ $P<0.001$

Site interaction ($F=4.39$, $df_1=3$, $df_2=168$, $P=0.005$). Post-hoc comparisons demonstrated that Family-Centered Care scores increased from baseline to post FCM implementation at three out of the four sites (Table 3). The site where it did not increase (site 4) had the highest Family-Centered Care scores at baseline. Family-Centered Care scores were equivalent across sites after the pilot.

Each of the three logistic regression analyses predicting satisfaction with educational materials, clinical tools, and family involvement yielded significant Time $\times$ Site interactions ($P=0.04$, 0.03 , and 0.04). As depicted in Table 4, there was a significant increase from baseline to post-FCM implementation in the proportion of providers who were satisfied with family educational material, clinical tools, and family involvement in rehabilitation after FCM implementation at one PRC. The baseline scores at this PRC (site 2) were lower than at the other sites. At baseline, approximately half of the providers at this site were satisfied with family educational material, clinical tools, and involvement in rehabilitation. This proportion increased to a level comparable to that in the other sites after implementation of the FCM pilot.

Perceived competence in working with families did not change from baseline to post-FCM implementation. At baseline, 70% of the 106 providers who answered the question rated their skill level as fair or poor; after implementation of the FCM, 68% of the 113 providers who answered the question rated their skill level as fair or poor. However, the logistic regression analysis predicting perceived family care skills yielded effects for site, years working at a PRC, and gender. Female providers were more likely to rate their family care skills as good compared with their male counterparts [χ^2 (1, N=195)=4.14, $P=0.04$]. Post hoc contrasts revealed that, adjusting for covariates, providers at sites 2 and 3 were more likely to rate their skills as good compared with those at sites 1 and 4 [χ^2 (1, N=195)=6.34, $P=0.01$] and that those with less experience providing polytrauma rehabilitation within the VA were more likely to report good family care skills [χ^2 (1, N=195) = 8.07, $P=0.004$], suggesting increased perceived family care skills among new hires.

Specific Practice Changes

The specific practice changes discussed during weekly reports are listed in Table 5. Some changes involved integrating the

Table 2. Provider Characteristics

	Baseline (N=109)	Post-care map implementation (N=117)	OCM‡ (N=31)	Site visits (N=28)
Characteristics	n (%)	n (%)	n (%)	n (%)
Site				
1	21 (19)	36 (31)	6 (19)	9 (32)
2	31 (28)	43 (37)	10 (32)	10 (36)
3	24 (22)	11 (9)	7 (23)	4 (14)
4	33 (30)	27 (23)	8 (26)	5 (18)
Gender				
Female	83 (76)	81 (69)	3 (10)	24 (86)
Male	15 (14)	23 (20)	26 (84)	4 (14)
Missing	11 (10)	13 (11)	2 (6)	–
Professional title				
Nurse	50 (46)	40 (34)	9 (29)	8 (29)
Psychologist	6 (6)	6 (5)	3 (10)	4 (14)
Social worker	4 (4)	10 (9)	3 (10)	4 (14)
Physician	2 (2)	3 (3)	2 (6)	3 (11)
Therapist ^a	38 (35)	37 (32)	11 (35)	3 (11)
Missing	9 (8)	21 (18)	3 (10)	2 (7)
Years providing polytrauma rehabilitation in VAS				
<1 year	31 (28)	39 (33)	4 (13)	NA†
1 to <2 years	20 (18)	18 (15)	7 (23)	NA†
2 to 4 years	22 (20)	23 (20)	12 (39)	NA†
>4 years	33 (30)	24 (21)	8 (26)	NA†
Missing	3 (3)	13 (11)	–	NA†

^aTherapists include speech, recreational, occupational, physical, and vocational rehabilitation specialists

†NA = Not assessed; ‡OCM = Organizational Change Manager; §VA = Department of Veterans Affairs

Table 4. Proportion of Providers Expressing Satisfaction with Family Educational Materials, Clinical Tools, and Involvement in Rehabilitation over Time by Site

	Time		Odds ratio (95% CI)
	Baseline	Post-care map implementation	
	Proportion satisfied	Proportion satisfied	
<i>Satisfaction with family educational materials</i>			
Site 1	0.81	0.77	0.77 (0.20 – 2.94)
Site 2	0.47	0.88	8.00 (2.46 – 26.90) [†]
Site 3	0.83	0.82	0.95 (0.15 – 6.17)
Site 4	0.90	0.93	1.34 (0.21 – 8.68)
<i>Satisfaction with clinical tools to work with families</i>			
Site 1	0.90	0.79	0.41 (0.08 – 2.17)
Site 2	0.48	0.85	6.22 (2.04 – 19.00) ^b
Site 3	0.87	0.82	0.68 (0.10 – 4.77)
Site 4	0.84	0.88	1.42 (0.31 – 6.59)
<i>Satisfaction with family involvement in rehabilitation</i>			
Site 1	0.86	0.88	1.25 (0.25 – 6.24)
Site 2	0.55	0.93	10.43 (2.65 – 41.13) ^b
Site 3	0.83	100	Computational Issues ^a
Site 4	0.91	0.85	0.60 (0.12 – 2.93)

Ns per Site ranged from 21 to 31 at baseline and from 11 to 41 post-care map implementation

^aComputational issues due to all providers at Site 3 expressing satisfaction post-care map implementation

Site 3 logistic regression was not significant ($P=0.96$)

^b $P \leq 0.001$

FCM diagram into standard practice; others involved developing new care processes to engage the families in rehabilitation. Most changes were initiated at one site and disseminated to other sites through the sharing of information during conference calls. All changes were consistent with the principles of family-centered care. For example, the Registered Nurse competency assessment PRCs used for orientation and annual review were modified to include standards for collaboration with families, such as “actively engages the patient and family as part of the interdisciplinary team.” Integration of the FCM diagram into weekly interdisciplinary planning led to collaborative goal setting among the patient, family and clinical team. When the patient/family and rehabilitation team did not agree on achievable goals, both sets of goals were included in the rehabilitation plan.

These practice changes were congruent with the comments providers made to the Facilitator during the site visit interviews. Across sites, the dominant theme across interviews was that the FCM initiative produced a change from patient-centered to family-centered care. The term “culture change” was used by five providers at two of the four sites. One change leader summarized this concept by stating that through the FCM project, the PRC moved from “professional centered to patient centered to patient and family centered.” In addition to the practices listed in Table 5, providers described an improved ability to anticipate the needs of family members and facilitate their adaptation to their loved one’s transition across care settings. They also believed that the FCC helped them find a common language and approach toward family care and thereby work more effectively with families as a team and a system of care. They discussed how the FCM website simplified training new staff to use family-centered practices.

Implementation Success Beyond the Pilot and Perceived Success Factors

The OCM yielded an overall project likelihood score of 3.9, indicating that the FCM was almost four times more likely to be used in practice than not after the pilot phase. The individual site scores were 3.6, 2.3, 5.0, and 5.6 at sites 1 through 4, respectively.

During the site visit, providers described perceived success factors, including the fact that the collaborative brought together clinicians, operations-level leadership, and health services researchers for a common purpose. According to providers, the program leadership established the credibility and importance of the FCM initiative and the Facilitator structured and facilitated the work. Clinicians were particularly appreciative of the Facilitator’s role in convening the group, conducting the literature reviews, and managing the evaluation, thereby freeing their time to develop and implement the FCM website and associated practice changes. Not surprisingly, time and competing demands were the most commonly cited barrier to the collaborative work.

Table 5. Specific Practice Changes by Polytrauma Rehabilitation Center Site

Practice change	Site			
	1	2	3	4
1. Standard set of resources and educational material for family members available through the Family Care Map website	*	*	*	*
2. Family Care Map diagram provided to families in notebook form with worksheets and reference materials	‡	†	‡	‡
3. Measure of Registered Nurse competency modified to include indicators of family-centered care skills	†	‡	‡	‡
4. Family Care Map website incorporated into new staff orientation	‡	‡	†	‡
5. PRC admission procedures modified to accommodate family preferences for the timing of initial assessments	‡	‡	†	‡
6. Procedures implemented to ensure that each family has a staff point of contact for questions and concerns	‡	‡	‡	†
7. Family support services expanded to include recreational therapy, wellness opportunities, and additional help with benefit and logistics	*	*	*	*
8. Family peer support groups expanded and modified in accordance with family preferences and needs	†	‡	‡	†
9. Staff interactions with family documented in medical record using a designated note title			†	
10. Family Care Map diagram incorporated into weekly interdisciplinary care plan meetings	‡	‡	‡	†
11. Educational template created to document and track use of Family Care Map diagram			†	
12. Interdisciplinary treatment plan template updated to include Family Care Map diagram			†	
13. Family goals for patient incorporated into patient’s treatment plan	*	*	*	*
14. Goals for patient posted in patient’s room	†			‡
15. Centralized location in each patient’s room for educational material and white board for exchange of information between staff and families			†	
16. FCC expanded to include representatives from military and VA transitional care units	*	*	*	*

PRC = Polytrauma Rehabilitation Center; VA = Department of Veterans Affairs, * = concurrent implementation, † = primary site at which practice started, ‡ = sites to which practice spread

It was the Facilitator's observation that the political context of polytrauma rehabilitation heightened awareness of the need for change in family care among the clinical teams, clinical managers, and administrative leadership and hence provided a strong motivation for the collaborative work. At the same time, the need for change also accelerated the timeline for implementation of the FCM pilot, creating a challenge for project evaluation. Echoing clinicians, the Facilitator also observed the critical role of leadership at the operations level, within the PRCs, and in each collaborative action team. In particular, the action team leaders played a crucial role in motivating and mobilizing the teams to make practice changes. Last, the Facilitator observed that facilitation required a range of functions beyond project management, including addressing the clinical teams' need for opportunities to become more cohesive and to hone QI and leadership skills.

DISCUSSION/CONCLUSIONS

PRC providers and managers were faced with the need to quickly improve family care without the benefit of scientifically established "best practices." To address this dilemma, clinicians and program leaders as well as health services researchers partnered to form a collaborative that developed and piloted a web-based tool to reduce variation and spread family-centered practices. The VA FCC created and implemented a web-based tool within 8 months of its first face-to-face learning session.

Providers believed that the FCM led to a "cultural change" from patient-centered to family-centered care within the PRCs. They experienced the FCC as fostering the ability of each interdisciplinary rehabilitation team to work collaboratively with patients' family members as well as with each other in the area of family care. Consistent with this assessment, during the FCM pilot, the PRCs implemented a range of specific practices that reflected the principles of family-centered care. These changes emerged out of the collaborative organically and were not developed by the researchers.

There were indicators of the sustainability of these practice changes and commitment to continued spread of family-centered care for families of the war injured. The overall and site-specific OCM scores were promising with regard to the likelihood of continued use of the FCM website as a tool to engage families in rehabilitation beyond the pilot phase. The collaborative plans to re-administer the OCM 1 year after the last assessment as one element in an evaluation to determine sustained use and identify barriers to continued use of the FCM. At the time of this writing, the Facilitator had a much less central role in the collaborative, which has opted to continue meeting for the purpose of sustaining and augmenting the improvements in family care. Additionally, the collaborative has expanded to include stakeholders within the military as well as clinicians who provide rehabilitation after PRC discharge.

Three out of four sites reported more family-centered care, and one site had a higher rate of provider satisfaction with family care after the FCM was implemented. The pattern of sites with lower scores at baseline improving over time suggests possible ceiling effects using the selected measures or that the FCC may have been particularly useful to the teams that had the greatest room for improvement in family care. Regardless, family-centered care scores and satisfaction did not vary by site after the FCM pilot.

There are limitations to this evaluation. First, this was a QI project and did not use randomization or a phased roll-out of the intervention. In the absence of a control group, we cannot know definitively that the FCC intervention led to the observed practices changes. Indeed, there were likely other changes that occurred simultaneously with the FCM that may have contributed to some or all of the changes. Second, PRC clinicians implemented the data collection for the project evaluation. They did not have research staff to track nonresponders. This may have lowered our response rate and compromised our ability to compare responders and nonresponders. At the same time, this approach was consistent with the partnership inherent in the collaborative whereby the clinicians were active participants in all phases of the project from problem definition and solutions development through implementation and revision^{9,40-42}. Last, the data on specific practice changes were obtained through provider self-report. More objective measures, including measures of fidelity and intensity of implementation, are preferable but require additional time and resources. It would also be important to collect data from patients and families on their view of PRC family-centeredness. Challenges to the collection and use of data from patients and families include the small number of war-injured patients who receive PRC rehabilitation (each unit has 12 dedicated beds and length of stay is highly variable) and the fact that family-centered care is not routinely evaluated as part of VA performance measurement.

Prior researchers have proposed that collaboratives may be particularly useful when there are unwanted variations and clinicians have a shared commitment^{9,10}. Our work extends these observations by identifying other contexts in which QI collaboratives may be useful for practice improvement. First, our experience suggests that collaboratives may be useful for improving practice in areas of medicine for which evidence is limited, a problem that is not specific to family care for the war injured⁴³. Second, our findings suggest that collaboratives may be useful when there is the need for a "culture change" or a change in philosophy of care. Investment in a collaborative may not be needed when the desired practice change is fairly finite, as in administering a specific medication, and progress can be easily measured and provided as feedback. Conversely, a collaborative may be particularly well suited for fostering complex change involving interdisciplinary teams.

Future research should identify the components of effective collaboratives. Participants in this collaborative believed that active and visible participation of leadership was crucial. This is consistent with previous work demonstrating the importance of leadership support in change initiatives^{9,44-46}. The role of the Facilitator, which included project management, team building, training, coaching, and planning for sustainability, was also highly valued. The observations of the Facilitator suggest that attention should also be paid to social and political factors outside the collaborative that may influence the motivation and timeline for change. Last, our observations and participant comments suggest that researchers should measure team functioning or team efficacy as part of the evaluation of collaborative projects.

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APPENDIX

Provider Satisfaction with Family Care

These questions ask about family care in your PRC. Because there have been so many changes in the PRCs, please focus on the last three months including today:

Rate how strongly you agree or disagree with the following statements:

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
1. It is routine practice for PRC staff members to ask patients to identify family members or other support people who will participate in their care.	☐	☐	☐	☐
2. It is routine PRC practice for staff to ask families how they want to be involved in the planning and delivery of care in the PRC.	☐	☐	☐	☐
3. In the PRC where I work, family members are always welcome to be with the patient, in accordance with patient preferences.	☐	☐	☐	☐
4. PRC staff members have difficulty figuring out how to involve family members in rehabilitation.	☐	☐	☐	☐
5. PRC staff members do not always give families information that is consistent from person to person.	☐	☐	☐	☐
6. Staff or volunteer support is available to ensure that visits by children are positive experiences.	☐	☐	☐	☐
7. There is adequate space for staff to work efficiently and collaboratively with patients and their families.	☐	☐	☐	☐
8. PRC staff members have adequate training in how to include PRC patient families in the patient's rehabilitation.	☐	☐	☐	☐
9. PRC staff members have difficulty communicating to visitors about the work they do with families.	☐	☐	☐	☐
10. The PRC where I work helps families to connect with each other to exchange information, resources and support.	☐	☐	☐	☐
11. I have access to the resources I need to help me prepare families for a patient's discharge.	☐	☐	☐	☐
12. There is significant inconsistency in the way the four PRCs work with families.	☐	☐	☐	☐