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Original Article

"We Want to Build a Network": Professional Experiences of Case Managers Working With Military Families

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Robyn Englert, MPH[1,2], Renee Dell'Acqua, MPH[1,2], Shannon Fitzmaurice, MPH[1,2], and Abigail Marter Yablonsky, PhD,[1,3]

Abstract

Optimizing case management (CM) services increases service member readiness at home and abroad. However, little research has been conducted on the experiences of case managers providing services to military families within the Military Health System. Semistructured qualitative interviews were conducted to explore the professional experiences of case managers to identify factors that may affect care to military families. A total of 53 case managers from military medical treatment facilities (MTFs) varying in size, location, and branch of service were interviewed by telephone to explore their perspectives. Qualitative content analysis was performed. Case managers serve a variety of functions, but specific roles vary between MTFs. Factors that affect CM services for military families were identified: (1) need for pediatric specialization, (2) heavy workload, (3) appropriate staff, (4) patient handoffs, and (5) the role of CM. Recommendations for improving CM services to facilitate the well-being of military families are discussed.

Keywords

military, case management, children, pediatric, special health care needs

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In response to the rapidly escalating costs of medical care, visionary health care leaders have used creative strategies to simultaneously maintain high standards of quality, while adhering to strict budgetary and resource constraints.[1] Over the past few decades, health care systems have adopted case management (CM) models that "[emphasize] the benefit of client-centered, coordinated, and comprehensive care."[2(p57)] Research in civilian settings has shown that CM services positively affect patient and organizational outcomes.[3] These outcomes include increased patient satisfaction rates, improvements in self-reported health status,[4] reductions in length of hospital stay,[5] and decreases in total number of outpatient and emergency department visits.[6,7] Studies have also shown that provision of CM services often results in significant institutional cost savings.[8,9] CM strategies focus on holistic approaches to patient care that benefit individual patient outcomes. However, CM models also recognize that complex medical issues have a significant impact on families, especially when the patient is a child.[10]

Many of the duties performed by military case managers are similar to those of their civilian counterparts, but the unique demographic makeup of the Military Health System (MHS) creates challenges in managing complex medical issues for families. Research has shown that an estimated 23% of children within the MHS have special health care needs,[11] which parallels data from civilian population estimates.[12] However, the military population is much younger than the US civilian population. Estimates from the US Census Bureau show that 21% of the US population is between the ages of 19 and 34.[13,14] In contrast, 73% of enlisted service

[1]Naval Health Research Center, San Diego, CA, USA
[2]Leidos, San Diego, CA
[3]Naval Medical Center San Diego, San Diego, CA

Corresponding Author:
Robyn Englert, Naval Health Research Center, 140 Sylvester Rd., San Diego, CA 921106, USA.
Email: robyn.m.englert.ctr@mail.mil

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members are between 18 and 30 years of age, and 59.7% of enlisted members' spouses are 30 years of age or younger.[15] Military members also tend to marry and have children earlier than their civilian counterparts[16,17] The 2003 National Assessment of Adult Literacy reported that 33% of respondents between age 16 and 24 had "basic" or "below basic" health literacy scores.[18] This suggests that young families may be more likely to have medical knowledge deficits. The health literacy of young service members and their families may be further compromised by the nomadic nature of military life, consisting of reassignments every 2 to 4 years, usually in locations far from their families of origin.[19,20] This geographic fluidity of the military lifestyle also translates to potential difficulties in maintaining continuity of health care for military families.

The Department of Defense (DoD) defines CM as "a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes."[21] This comprehensive definition demands that case managers perform and facilitate a wide variety of clinical and social services to meet the needs of patients and their families on a day-to-day basis. While case managers play an important role in quality care within the MHS, it can be difficult to describe their relative value. Military health services do not follow the typical business model of civilian medical facilities. The priority of military case managers has been to optimize the health and readiness of service members and their families, with less emphasis on reduction of medical costs. As a result, military CM services are not evaluated in the same way as civilian programs are, where performance guarantees drive process improvement. Past research on CM in military settings has been focused on description and evaluation of services for wounded warriors,[22-24] and transitions from MHS to care within the Department of Veterans Affairs system.[25] There is very little research on CM within the MHS and no research on the provision of CM services to military families from the perspective of the case manager.

A qualitative study was conducted to describe and explore the experiential factors identified by case managers that hinder or enhance the provision of their services to military families. Health promotion experts assert that active involvement of the target population is essential for accurate problem definition and appropriate change strategies.[26] The professional perspective of case managers was purposely sought, with the intent to identify areas of strength in the current MHS environment, as well as areas for improvement. The primary objectives of this study were to (1) describe experiential factors identified by CMs that affect their delivery of services to families within the MHS, and (2) develop recommendations based on the professional experiences of MHS CMs for optimization of CM services provided to pediatric patients and their families.

Methods

Interview Development

We collaborated with the CM office at a large West Coast MTF (medical treatment facility) to develop an interview guide. The goal was to capture both quantitative and qualitative data pertaining to military CM. The interview guide included both open-ended (qualitative) questions intended to elicit professional experiences of CMs (eg, "Do pediatric case management services work differently than case management for adults, and if so, in what way are they different?") and close-ended (quantitative) questions intended to provide descriptive context (eg, "How many years have you worked in case management services?"). The interview guide was piloted with 5 clinicians at various MTFs throughout the country. Pilot feedback was discussed among the research team, and minor revisions were made to clarify the interview content. The final semistructured interview guide is available as supplemental material (available online).

Participants and Recruitment

We used one-on-one semistructured interviews with case managers to learn more about CM services provided to MHS families. An official list of MTFs, stratified by size, region, and service branch, was obtained from TRICARE's website (https://tricare.mil/). TRICARE is the MHS health care program for all uniformed service members, including active duty, National Guard/Reserve retired, and their families. Using a purposive sampling method, CM offices were contacted with the intention of identifying 1 case manager from each of the 186 US-based MTFs (Army, n = 52; Air Force, n = 65; and Navy, n = 69; medical services for Marine Corps personnel are provided via the Navy medical system). Potential participants were contacted via telephone and/or email to solicit study participation. Potential participants were identified by contacting the MTF CM office. Thereafter, study personnel asked to speak with the designated MTF "case manager" or CM department supervisor (if the MTF was large enough to have one). Participants endorsed that they were a case manager as the first question in the interview. The sole

inclusion criterion was that the participant self-identify as a case manager currently working within the MHS; there were no exclusion criteria.

Procedure

Prior to the start of each interview, research staff obtained verbal informed consent from the participants. Interviews lasted between 45 and 60 minutes. All interviews were professionally transcribed, and personally identifiable information was removed. Each participant was assigned a participant identification number (eg, P1-P57) for anonymized analysis. Interviews were conducted from April 1 to July 31, 2016.

Ethical Approval and Informed Consent

The interview guide was approved through the DoD, and the study was approved by a military institutional review board (NHRC.2014.0041). Human subjects participated in this study after giving their free and informed consent. Prior to the start of each interview, research staff obtained verbal informed consent from the participants, and this was recorded in research staff notes. A waiver of signed consent was granted by the institutional review board, because the study was classified as minimal risk and involved no procedures for which written consent would normally be required outside of the research context.

Analysis

Interviews were analyzed using conventional qualitative content analysis. This approach is often used when existing theory or research literature on a phenomenon is limited,[27] as is the case with our knowledge of the professional experiences of CMs in relation to services they provide to families within the MHS. The initial intention of this study was to examine the perspectives of case managers as they related specifically to pediatrics, but during the course of interviews, case managers provided rich data regarding both pediatric CM and CM in general. To accurately depict the experiences of case managers, an ad hoc decision was made to include all interview data (whether specific to pediatric populations or not) within our coding and analysis scheme.

Study staff immersed themselves in the data, reading each transcript several times.[28] Open coding was used to inductively capture new insights.[29] Twenty transcripts were read before code saturation was reached. A codebook was compiled that contained code definitions and example excerpts. Study staff randomly selected 15 transcripts for an initial round of coding in which they consolidated similar codes and resolved discrepancies through negotiated consensus. After the coding of all transcripts was completed, study staff summarized findings in analytic memos.[30] Study staff discussed similarities and differences in their memos and created group analytic memos for each code. In further analysis, study staff grouped individual codes into organizational categories[31] and, from this process, derived major themes. The research team interpreted the data through the lens of health care quality improvement, which influenced what they considered most important and shaped the articulation of the major themes.

Interrater Reliability

Interrater reliability (IRR) was assessed using Krippendorff's α.[32] IRR analysis after initial coding revealed inadequate agreement between individuals ($\alpha = .58$). Study staff met to discuss the codes and refine the codebook. IRR analysis was repeated, and the subsequent Krippendorff's α ($\alpha = .72$) indicated substantial agreement between individuals.[33]

Results

Sample

The initial study sample consisted of 57 participants serving at a variety of MTFs (n = 54), differing by geographic region, branch of service, and institution size (see Table 1). Responses for 4 participants were removed before final analysis, resulting in a final study sample of 53. Two participants requested that their responses be removed from analysis. Responses for the other 2 participants were removed from analysis because it was revealed during the first question of the interview that although they worked in the CM department, they were not case managers. Nearly all participants (94.3%) stated that their official job description was "case manager"; 3.8% stated that their titles were "case manager and administrator"; and 1 participant stated that although their official job title was "utilization manager," they were a registered nurse (RN) and saw patients as a case manager.

Most participants (90.7%) were female, and the majority of case managers (73.5%) reported 1 to 10 years of CM experience (mean [SD] = 8.3 [±5.2]). The remainder of the sample (26.5%) reported more than 10 years of CM experience (mean [SD] = 15.1 [±4.0]). Most of the case managers (77.4%) had been at their current MTF for 5 years or less, 18.9% had been there for 6 to 10 years, and 3.8% had been there for 11 or more years. All respondents worked within the CM department, and 80.4% of

Table 1. Participant Distribution by TRICARE Region, Branch of Service, and Facility Size[a].

TRICARE Region	Branch of Service	Military Medical Treatment Facility Size			
		Small	Medium	Large	Total
North	Navy	1	1	2	4
	Air Force	2	2	0	4
	Army	3	1	0	4
	Total	6	4	2	12
South	Navy	2	3	0	5
	Air Force	6	1	1	8
	Army	2	1	1	4
	Total	10	5	2	17
West	Navy	0	2	2	4
	Air Force	13	0	1	14
	Army	1	5	0	6
	Total	14	7	3	24
Total		30	16	7	53

[a]Medical treatment facility size designations are determined by TRICARE (https://tricare.mil/).

participants reported that all CM office staff were RNs; the remaining 19.6% reported staff included RNs and social workers. The proportion of case managers successfully contacted and consented was highest at medium MTFs (55.2% medium, 46.7% large, 21.0% small) and in Air Force MTFs (38.8% Air Force, 26.9% Army, 19.1% Navy). We recruited 1 participant per MTF (with the exception of 2 large MTFs where 2 participants each were recruited). The team experienced some recruitment challenges, primarily in the initial outreach to participants. In many cases, we were unable to identify an accurate CM point of contact, despite repeated attempts. This challenge was echoed by CMs in their interviews, when they discussed the process of patient handoffs between facilities. Our challenges with recruitment also parallel reported difficulties in attaining high response rates in telephone interviews.[34]

Emergent Themes

On completion of qualitative content analysis, 5 major themes emerged to describe factors affecting the provision of CM services to military families. These included (1) need for pediatric specialization: "It's a whole different ballgame," (2) heavy workload: "I'm just always treading water," (3) appropriate staff: "Teams work really well," (4) patient handoffs: "Each duty station handles transfers differently," and (5) the role of case management: "An open continuum."

Need for Pediatric Specialization: "It's a Whole Different Ballgame" (P55). Since every MTF "is structured to meet the mission requirements of the community served," each has a different CM model based on the resources available at that location.[35] Small MTFs, for example, may have a single case manager who is a patient care generalist, providing care for all patients across the life span. Large MTFs, on the other hand, may have several case managers who specialize in specific patient populations such as pediatrics, obstetrics, or behavioral health. Many of the participants agreed that the process of "assess, plan, implement, [and] evaluate" (P9) is the same regardless of patient population. However, most also agreed that pediatric CM is "a bigger challenge than adult case management . . . because you have more players . . . and you have a lot more emotions involved" (P55). There is also a different, more expansive focus of care in pediatric CM; "It's more family related than it is patient specific" (P36). This becomes more challenging when there are knowledge and experience deficits because "families are very young and . . . brand new to the military" (P5). Besides addressing the psychosocial needs of families, case managers must also educate the parents on their child's disease process, "especially with the special needs children because a lot of the parents are overwhelmed" (P54).

Participants also explained that working with pediatric populations is "more intensive" (P19) because "a lot of times they're just so much sicker" (P16). Due to critical shortages of military pediatric specialists, case managers often have to send their pediatric patients outside the MTF network and sometimes far out of the local area, to receive appropriate care. One participant explained, "Most of the adults don't need to leave [the MTF], but for the pediatric population, it's a huge amount of durable medical equipment, and referrals to

therapy, resources, programs, and nursing care" (P9). Another participant explained that while "an adult may have 1 or 2 [referrals] . . . the really sick children . . . have had 6 or 7 different referrals" (P2). Across many of the participants, it was clear that pediatric CM involved in-depth communication, sustained involvement over time, and an ability to connect families to outside resources. When discussing communication between specialists, primary care providers, and parents to coordinate care, one participant stated, "We're like the glue that holds them all together" (P36).

Since managing the care of children with complex medical needs requires extra time and specialized knowledge, multiple participants advocated for utilizing case managers who specialize in pediatric populations. Several echoed the statement: "If you have a pediatric clinic you should have a pediatric case manager" (P37). One participant explained that case managers should not have to "[search] to find out what you need to do for a pediatric patient because that's not your specialty. You would not [have] a pediatric nurse . . . work in an intensive care unit" (P34). Besides the benefit of increased medical knowledge familiarity for the case manager, having specialized pediatric case managers "would really, really help the families" (P37).

Heavy Workload: "I'm Just Always Treading Water" (P25). One of the most commonly reported challenges for case managers was a heavy workload. Many participants echoed the statement: "Everybody is overworked and there's all this information out there, and a lot of times people are so busy they don't have time to do anything with the information they do have" (P50). The practice of hiring case managers based on the number of patients empaneled to an MTF, instead of on patient acuity or complexity, was identified as a root cause of these problems: "They're staffing just for numbers—not for acuity" (P19). Without factoring in patient complexity, "it looks like my 30 case managed patients are nothing [ie, very easy to take care of]" (P23). There is also pressure to regularly discharge patients from CM services. One participant stated, "I close 20 a month. Who do I pick? Do I pick the kid who's on a vent? . . . [or] a kid who just has leukemia?" (P18). Another case manager noted that because of the rapport she has built with her families, "Even when I discharge them . . . they still call me or email me with questions" (P9), so she is taking care of more patients than workload metrics indicate.

Workload challenges are further compounded "because primarily most case managers are contract workers" (P25) who are employed through temporary contracts that may change as often as every 6 months. This results in high turnover rates of CM personnel in an environment that is already strongly affected by the nomadic nature of military service. One participant explained that case managers are intended to be "the one steady thing [military families] have" (P18) within the MTF. Instead, high turnover and gaps in service affect trust and rapport between case managers and the families they serve. "If you're here and then gone, and then back, you don't build a rapport with patients" (P42), and that negatively affects the CM workload.

Appropriate Staff: "Teams Work Really Well" (P29). Although many of the participants noted that they are chronically understaffed, several stated that they did not necessarily need another case manager. Instead, many endorsed the concept of CM teams. One case manager stated, "I think teams work really well, like a nurse and a social worker" (P29). Another explained that the addition of social workers would be helpful because "Quite a few of the cases that we have, social issues are a big part of their care and you cannot heal if you have all these other things hanging around you" (P34). Many case managers noted that, in order to take care of families, they often had to search for nonmedical resources, such as housing, financial services, community resources, day care, school programs, and emotional support groups. Since case managers within the military system are primarily responsible for clinical medical issues, having to identify and coordinate social services is beyond the scope of their job duties and takes time away from clinical patient care. The addition of dedicated social workers to the care management team would allow case managers to focus their expertise on providing medical services to patients and families.

Behavioral health clinicians are another critical element of effective care management teams, particularly for pediatric populations. One participant stated, "We definitely need embedded behavioral health in [the] pediatric medical home" (P29). Another participant stated, "It's very difficult trying to find behavioral health services for the pediatric population; there is a deficiency in the behavioral health area" (P34). Failure to embed behavioral health into military pediatric clinics often results in increased referrals to civilian providers who may be located hundreds of miles away from the service member's duty station, and may have long waiting lists before a child can be seen. Several participants also noted an acute need for help with daily tasks that could "easily be done by an administrative assistant" (P42). One case manager explained that large portions of their day were spent completing tasks that did not require medical training or experience, such as filing, copying, and faxing: "I mean it sounds stupid, but . . . those things take up a lot of time" (P40).

Patient Handoffs: "Each Duty Station Handles Transfers Differently" (P36). Verbal handoff of patients from one case manager to another ensures that patients receive necessary services as quickly as possible on arrival at a new duty station. The goal of patient handoffs is that "everything is set up to go so [patients] just jump right in and pick up where they left off" (P40). Some case managers reported smooth handoff procedures and experiences, but most explained that due to a maze of widely varying acceptable handoff practices, "All you can do is give it your best shot" (P9). When describing the differences between expectations for handoffs, one case manager said, "One place you call, they want a boatload of information . . . and in the next place, it's a matter of a couple emails back and forth" (P1). Several participants stated that they often do not receive any notification that a patient is incoming at all. One participant stated, "I think maybe in my 4 years I've been contacted twice from other case managers" (P46). Failure to perform a verbal handoff can cause patients to "slip through the cracks" (P49), resulting in a crisis situation that requires rapid resolution because "when they get here they are kind of in a panic" (P11). CM in the MHS consists of rotating patient populations that require rapid establishment and reestablishment of health care networks to ensure continuity of care, and when handoff procedures are not uniform, this can lead to negative patient outcomes.

Across all regions, service branches, and facility sizes, participants consistently stated that one of the largest barriers to effective patient handoffs was an inability to contact CM staff at other MTFs because of inadequate and outdated phone lists. When describing the process of transitioning a patient to another MTF, one case manager stated, "I wish we had a better way to reach out . . . it's just, a lot of times, I don't know who I'm supposed to call at the next duty station" (P56). Another case manager explained that even with a phone list, they "can go through names and pages but good luck finding somebody, or a working phone number" (P8). The process of making "5 and 6 calls to get to the person that [case managers] actually need" (P31) is not only frustrating, but also takes up valuable time that could be spent on patient-centered care.

The Role of Case Management: "An Open Continuum" (P34). Several participants discussed the importance of ensuring that providers and staff are properly educated regarding the roles and responsibilities of case managers within the MHS. Many participants felt that medical staff did not always understand their role: "It's always challenging to get them to understand what case management does; sometimes we are underutilized . . . and a lot of people fall through the cracks" (P36). On the other end of the spectrum, many participants reported being overtasked with duties not specific to CM because staff "don't understand how complex case management is" (P16), or how much time and energy is required to care for complex pediatric patients.

Despite these challenges, many participants also discussed successful team partnerships between themselves and the medical staff. They reported a "willingness to work together to meet the needs of individuals and families" (P32), and felt that "the work I do is valued by the ones I work with" (P50). Case managers agreed that positive patient and family outcomes required an interdisciplinary approach, including a variety of stakeholders from within and outside of the MTF; as one case manager noted, "We want to build a network" (P38). These relationships needed to be continuously developed and nurtured because "it's hard with people coming and going so much in a military treatment facility" (P29). Several CM departments had actively implemented informal educational and marketing strategies, such as briefing new employees, handing out fliers, and speaking at various departmental meetings to educate others on the role of case managers. One participant explained that they needed to "sit down with the different clinics and educate the staff about what [they] do and direct them and let them know that we're here to support them . . . so we really had to educate them and we're continuing" (P34). However, many participants explained that despite these educational outreach efforts, it was difficult to see lasting change because "the turnover of primary care doctors [in the MTF system] is so rapid, it's just like starting all over again every few months" (P14).

Discussion

In this qualitative study, we investigated the professional perspectives of case managers regarding how CM services are provided to military families caring for children with complex medical needs. Five major themes emerged from the interviews, all of which affect the facilitation of CM services to military families: need for pediatric specialization, heavy workload, appropriate staff, patient handoffs, and the role of CM. To our knowledge, this is the only empirical study on military CM to provide the professional perspectives of case managers.

The positive impact of CM on patient care efficiency and health outcomes has been documented extensively in the civilian literature.[3,5,36] However, CM research in the MHS is scant and has focused almost exclusively on the care of seriously wounded service members and their transition to the Veterans Affairs health network. This past important research has shown that the adaptation of

civilian CM models to military health care requires careful planning, collaborative partnerships between providers, and considerable leadership support.[25,37,38] While research on injured service members supports the value of CM within the MHS for a specific patient population, our study reveals that there are several opportunities for improvement as it relates to the clinical care of service members' families.

Based on our analysis of 53 semistructured interviews with case managers at various MTFs and the themes that emerged, we recommend the following:

- *Pediatric specialization.* Pediatric populations require specialized clinical knowledge, excellent interpersonal skills, and long-term relationship building. We recommend that each MTF that has a dedicated pediatric clinic should also have a dedicated pediatric case manager. If this is not possible, CM staff should receive additional training and education on the management of pediatric populations.
- *Heavy workload.* We recommend that staffing decisions be based on an acuity model rather than a finite patient number determined by MTF size. Since many case managers are civilian contract personnel, future staffing decisions should evaluate how contract lengths may impact workload, patient care, and the stability of military CM offices.
- *Appropriate staff.* We recommend that teams of nurses, social workers, behavioral health providers, and administrative personnel work in CM offices. These teams would provide a multidisciplinary perspective and would allow for specialized services to optimize patient care and mitigate heavy workloads.
- *Patient handoffs.* We recommend that all MTFs use standardized verbal patient handoff procedures to optimize smooth transitions and avoid gaps in patient care. Additionally, a searchable DoD-wide CM contact list should be developed and regularly maintained. This list should include the name, email address, phone number, location, and patient population specialty for case managers working at all MTFs across all service branches of the military.
- *The role of case management.* We recommend DoD lead efforts to deploy marketing strategies and education on the role of case managers to all CM offices for dissemination to MTF staff. In addition, hospital-wide marketing regarding CM services would ensure that incoming MTF staff gain the knowledge they need to utilize these clinicians appropriately, while giving case managers more time to provide specialized services to their patients.

There are a few important limitations to this study that should be considered. Attempts were made to ensure that our sample reflected all MTF configurations (ie, small, medium, and large military hospitals), but participation in some areas was smaller than in others. We interviewed 53 participants, but this is a small percentage of the total military CM community, and recruitment and CM identification at all MTFs was difficult. Our challenge with contacting case managers was reflected by participants during the interview process. Even case managers reported difficulty identifying and contacting each other. This further supports our recommendation that an updated contact list of all case managers in the MTF system should be maintained. Since this was a volunteer sample of case managers, our participants may have overrepresented certain characteristics that would not have been meaningful if all MTF case managers had been queried. For example, if case managers had strong feelings regarding their job satisfaction or workload, they may have been more willing to participate. The study was also limited to case managers working at MTFs in the United States and did not characterize the experiences of those working at MTFs abroad.

Our findings specifically describe factors that case managers report affect the facilitation of CM services to pediatric populations within the MHS. While there may be parallels between civilian and military CM models, it is beyond the scope of this study to determine if these lessons can be transitioned into the civilian setting. We do know that military families seek care from civilian providers, both during active service and after transition to veteran status. It is important for civilian providers to be informed regarding additional stresses that military families may experience when they are required to navigate 2 complex medical systems in order to take care of their children. This understanding may provide them with better perspective of patient care history, ultimately allowing them to tailor their services to the specific needs of each family as they transition between civilian and military care. Additionally, having a greater familiarity with the MHS may help civilian case managers communicate with their military counterparts more effectively.

This exploratory study lays the groundwork for guiding future research, and there is still much to learn. Future efforts should focus on how specific refinements to the military CM system may affect quality of patient care and case manager role satisfaction. Additional efforts incorporating the perspective of military families would be innovative, examine families' perceptions of

the CM support they receive, and elicit recommendations for improvement. Considering how often military children with complex medical needs are required to seek care at civilian facilities, researchers should also explore how transitions between military and civilian medical systems affect care of these families. In addition, future research could examine how lessons learned within the civilian CM system can be adapted for use in military settings.

Conclusion

In civilian settings, "the renewed interest in case management as a strategy to address fragmentation in health care delivery has put it on the front lines" of medical care.[39] MTF case managers are often unsung heroes on the front lines of the MHS, providing continuity, support, and care for patients and military families within a dynamic and complex environment. Our findings confirm that there are multifactorial elements that affect the provision of CM services; these must be addressed to further advance quality health care for active duty personnel and their families.

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Author Contributions

R.E contributed to conception and design, analysis and interpretation, drafting of the manuscript, critically revised the manuscript, and gave final approval.
R.D.A contributed to conception and design, acquisition, analysis and interpretation, drafting of the manuscript, critically revised the manuscript, and gave final approval.
S.F contributed to conception and design, analysis and interpretation, drafting of the manuscript, critically revised the manuscript, and gave final approval.
A.M.Y contributed to conception and design, acquisition and analysis, critically revised the manuscript, and gave final approval.

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ORCID iD

Renee Dell'Acqua https://orcid.org/0000-0002-3176-0462

Supplemental Material

Supplemental material for this article is available online.

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