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Quality Improvement of Single-Institution Craniofacial Center Multidisciplinary Meetings Using Standardized Meeting Guides

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ABSTRACT

Objectives: The American Cleft Palate Association-Craniofacial Association (ACPA-CPF) recommends regular multidisciplinary team meetings for comprehensive craniofacial patient care, yet standardized meeting guidelines are lacking. Lack of standardization may result in varying quality of care within and between institutions, as well as difficulty in creation of new multidisciplinary craniofacial teams at institutions without one. This study sought to assess craniofacial multidisciplinary team meetings and determine the utility of a meeting guidance tool in such meetings. It was set in a single institution's craniofacial center, and participants included multidisciplinary team members.

Methods: This project used the Plan-Do-Study-Act quality improvement method, completed in two phases. In the project's first phase, craniofacial team members assessed their current meetings with an evaluation instrument previously created. The evaluation results identified areas needing improvement, and a new meeting guide was created and implemented over four meetings. Team members also completed a survey comparing historical versus new meeting structures.

Results: Initial meeting quality was perceived positively, but evaluation with a standardized instrument revealed deficiencies, particularly in case presentation topics. Implementing a custom guide improved the provision of current and historical patient information and treatment plan summarization, although excessive repetition persisted. Adjustments to the custom meeting guide led to further quality enhancement, particularly in case presentation efficiency and meeting effectiveness.

Conclusion: Multidisciplinary team meetings are vital for comprehensive craniofacial care, but ensuring consistent quality is challenging. Our study demonstrates the value of utilizing standardized meeting guides to evaluate and create custom guides leading to quality improvement. Ongoing refinement is essential to address persisting issues and optimize patient outcomes.

Level of Evidence: 5.

Meeting Information: The Triological Society, Combined Otolaryngology Spring Meetings, Chicago, IL, May 15–19, 2024.

1 | Introduction

The incidence of cleft lip with or without cleft palates (CL/P) is approximately 1 in 1000 in the United States [1], presenting significant challenges to patients and their families due to its impact on feeding, speech, hearing, dental health, and mental well-being. Cleft lip and palate may occur independently or in association with specific syndromes or sequences, including van der Woude syndrome, 22q11.2 deletion syndrome, and Pierre Robin sequence [2]. These complex craniofacial differences often necessitate specialized care, with multidisciplinary teams (MDTs) playing a crucial role in addressing the multifaceted needs of affected individuals [3]. The American Cleft Palate Craniofacial Association (ACPA) emphasizes the importance of MDTs in providing comprehensive care and has outlined parameters to guide their formation and operation [4].

In addition to providing guidance about MDT composition, team member qualifications, and team responsibilities, the ACPA recommends that multidisciplinary team meetings (MDTM) be held regularly and face-to-face to discuss findings and coordinate care [4]. For craniofacial and other MDTs, such meetings have been vital in caring for complex patients [3, 5–8]. As many institutions switched to and remain using a virtual format, caution has been taken to ensure that quality remains high [9–11].

Despite the recognized benefits of MDT in craniofacial care and other fields, often oncology, ensuring consistent quality and effectiveness in their functioning remains a challenge. In their study of an oncologic MDT, Hahlweg et al. noted that differences in team dynamics and information exchange during meetings can lead to variable decision-making quality and treatment plans, affecting patient outcomes [12]. The first step toward improving MDTM is assessing their quality to identify strengths and weaknesses, which most often occurs via survey of team members and/or patients [13, 14]. Changes based on survey results may include creating and implementing standardized tools, either for ongoing MDTM assessment or to restructure MDTM [15]. For example, Lamb et al. created a discussion checklist to ensure comprehensive but efficient case discussions, which received positive reviews from oncologic MDT members [16].

There is little research about assessing and improving craniofacial MDT, but similar issues to those encountered in oncologic fields likely also occur in craniofacial care. To address such issues, our prior research group created a craniofacial meeting evaluation instrument (henceforth referred to as the CF-MEI) by evaluating craniofacial provider interview data on optimal team meetings [17]. The instrument consists of two parts: a case evaluation guide (Table 1) and a meeting evaluation guide (Table 2). Following the Plan-Do-Study-Act (PDSA) framework, we aim to assess a single institution's craniofacial MDTM using the CF-MEI and then improve areas of weakness by creating and implementing a custom meeting guide. By using the CF-MEI and a custom guide to address the needs and preferences of craniofacial MDT members, we aim to enhance high-quality care delivery further.

2 | Methods

The institution's Office of Human Research Ethics (IRB #22-1766) approved this study.

This study was conducted at a craniofacial center within a single, large academic institution. The MDT consists of team/clinic coordinators, otolaryngologists, pediatric dentists, orthodontics, plastic surgeons, oromaxillofacial surgeons, speech-language pathologists, and psychiatrists/psychologists. The center operates in person once weekly, seeing approximately 20 patients daily. All specialties evaluate each patient during clinic visits, and subsequent team meetings are held to review each case and develop care plans. Historically, the meeting structure followed an unwritten format based on leadership-established practices aligned with ACPA guidelines. No written framework is strictly followed in the meetings, and meeting flow and content may vary.

The study followed the PDSA quality improvement framework and occurred in two phases: evaluation and implementation (Figure 1). The evaluation phase focused on assessing the current quality of MDTM, while the implementation phase tested the impact of a newly developed meeting guide. Team members volunteered to participate in the assessment portions of the study and informed consent was obtained. Participation in one phase did not require participation in the other. Contextual elements contributing to the study's conduct were not formally measured, though considered when making method adjustments. Since all data gathered were self-reported by participants, it is inherently subjective, and so, accuracy cannot be assessed. The duration of meetings was not formally assessed as it can be influenced by several factors unrelated to our interventions, most notably patient volume and complexity.

Detailed information about the following methods can be found in the Supporting Information (Methods Details).

2.1 | Evaluation Phase

During the evaluation phase, participants completed a pre-survey assessing current MDTM quality, focusing on factors such as meeting efficiency, the presentation of relevant information, patient-centered discussion, and team dynamics (Table S1). The CF-MEI was used to track meeting performance, with participants checking off covered topics during meetings. Importantly, participants were instructed not to alter their typical meeting behaviors to adhere to the CF-MEI topics unless it was their standard of practice. Following each meeting, participants completed a post-survey that gathered feedback on the CF-MEI's usefulness, including its strengths and weaknesses.

The pre-survey allowed us to determine baseline opinions of meeting quality without the influence of a standardized tool. Pre-survey questions were formatted as multiple-choice or sliding-scale questions, with higher numerical values indicating more favorable responses. Numeric scores were summed for individual participants and for individual questions across all participants. To clearly determine areas needing action, numeric

TABLE 1 | Craniofacial meeting evaluation instrument (CF-MEI): Case evaluation guide.

Craniofacial meeting evaluation instrument: case evaluation guide									
Case presentation			**Case discussion**						
History	**Current context**	**Guiding goal/specific question**	**Patient perspective**	**Psychosocial context**	**Medical updates and recommendations**	**Surgical updates and recommendations**	**Dental updates and recommendations**	**Allied health medical updates and recommendations**	**Case summary**
☐Age	☐Current stage of development/ phase of care	☐Ex: Does this patient need a speech surgery or optimization of medical interventions?	☐Preferences and values	☐Social considerations such as barriers to care, potential resource needs, geographic challenges, etc.	☐Medical care received since last clinic visit and/or team meeting	☐Surgical care received since last clinic visit and/or team meeting	☐Dental care received since last clinic visit and/ or team meeting	☐Care received since last clinic visit and/ or team meeting *For each allied health discipline on the team	☐Clear and concise verbalization of plan including final plans from all disciplines giving attention to the sequence and timing of recommended treatments
☐Primary Diagnosis	☐Current patient/family concerns	☐If known, provide patient perspective on the guiding goal/specific question	☐Concerns	☐Psychiatric considerations such as psychiatric diagnoses, current status of coping, surgical trauma, etc.	☐Review of relevant physical exam, labs, imaging, studies	☐Review of relevant physical exam, labs, imaging, studies	☐Review of relevant physical exam, labs, imaging, studies	☐Review of relevant physical exam, labs, imaging, studies	☐Verbalization of how the proposed plan interfaces with the patient perspective
☐Significant medical history including underlying syndrome(s)	☐Current symptoms and related studies to review		☐Opinion on progress and treatment thus far	☐Current or upcoming significant life events (i.e., soccer tournament this summer, parents divorcing, etc.)	☐Any local provider progress or recommendations (i.e., PCP/GP)	☐Any local provider progress or recommendations	☐Any local provider progress or recommendations	☐Any local provider progress or recommendations	☐Team has considered how plan will be communicated to family
☐Craniofacial procedures + other pertinent surgical hx if present ☐Any intervention requiring revisions/ takeback ☐Any interventions performed outside of current institution ☐Concerns from last visit Comments:	☐Brief intro to major psychosocial considerations (financial hardship, geographic, difficulty with treatment adherence, surgical trauma)	☐*Displayed photo of patient and/or family during presentation if available*		☐Any relevant input from patient's community support system (family, teachers, faith system, counselor, coach, etc.)	☐Recommendation to address current symptoms/progress through current phase of care	☐Recommendation to address current symptoms/progress through current phase of care	☐Recommendation to address current symptoms/progress through current phase of care	☐Recommendation to address current symptoms/progress through current phase of care	☐Team has considered how plan will be communicated to local care providers

Note: This lists different topics, themes, and content points that should be covered in craniofacial multidisciplinary team meetings, specifically relevant to case presentations and discussions.

TABLE 2 | Craniofacial meeting evaluation instrument (CF-MEI): Meeting evaluation guide.

Craniofacial meeting evaluation instrument: meeting evaluation guide		
Team dynamics	**Team lead**	**Virtual format**
Team displayed most of the following behaviors throughout the meeting: ☐Established welcoming environment by encouraging all to participate ☐Remained engaged while others contributed to discussion ☐Demonstrated some enjoyment in participating ☐Exhibited respectful communication ☐Handled criticisms/disagreements in a professional manner ☐Maintained efficiency ☐Sought diverse opinions to contribute to group discussion ☐Demonstrated some understanding and gratefulness of the roles fulfilled by colleagues ☐Team members displayed preparedness by appearing to have reviewed cases prior to meeting, brought and knew how to display relevant supplemental media (radiographs, video, etc.), anticipated absentees adequately communicated recommendations to present team member	Lead efficient discussion: ☐Provided organized and concise presentation ☐Focused the meeting on patient specific concerns *(discouraged discussion of administrative concerns or academic and social minutia not contributing to patient care)*	**Team optimized the virtual format by displaying most of the following behaviors:** ☐Team members optimized how they are displayed: camera on and framed to have the participant's head and shoulders centered in view, room lighting supports view of participant's face, professional background (measures taken to use a neutral background with use of virtual background or blur feature if necessary or preferred) ☐Team members optimized their audio: sitting in close proximity to microphone, use of headphones if background noise is expected, adjusts volume on their own computer for other loud/quiet speakers but quickly comments in the chat if having difficulty hearing another speaker ☐Technological mishaps did not appear to slow progression of the meeting ☐Methods of nonverbal engagement (chat feature, icons) were utilized to facilitate seamless flow of conversation *(speaker periodically checks the chat and/or an individual may have been assigned to monitor the chat)* ☐Team appeared to be familiar with features of their web conferencing platform (mute/unmute easily, transfer screensharing capability, optimizing view to see team members and presentation screen, etc.) ☐Team members displayed active listening in the virtual format (gesturing, icons, chat comments)
Team avoided displaying the following behaviors: ☐Inequality among disciplines in contributing to discussion ☐Multitasking during patient presentations and team discussions ☐Allowed one strong voice to dominate and dismantle healthy discussion ☐Disagreements were minimized without addressing the issue ☐Team dedicated excessive amount of time discussing a decision that could not be made without absent team members input	**Encouraged equality among disciplines:** ☐Encouraged all disciplines to contribute ☐Prevented any one team member from dominating the conversation ☐Established environment where all team members feel comfortable expressing their opinions ☐Recognized and shut down minimization of other disciplines ☐**Synthesized information and verbally summarized the plan**	
Comments:		

Note: This lists different topics, themes, and content points that should be covered in craniofacial multidisciplinary team meetings, specifically relevant to overall meeting quality.

scores were categorized into quintiles correlating to poor, fair, average, good, and excellent.

The rate of CF-MEI topic coverage was assessed for each participant and across all meetings. Therefore, results could determine the consistency with which topics were covered. Comments provided on the CF-MEI were evaluated qualitatively to determine common themes. The frequency at which each theme was mentioned was recorded.

The post-survey (Table S2) assessed opinions of the CF-MEI, therefore establishing its credibility to become the basis of the following study phase. It consisted of open-ended questions and one multiple-choice question: "Do you think periodic use of this instrument as a meeting guide would be helpful to improve your team meetings?" The answer options were yes, yes but only with significant changes, and no. Results of the multiple-choice question were analyzed with descriptive statistics whereas open-ended questions responses were analyzed qualitatively and quantitatively based on common themes, similar to the CF-MEI comments.

2.2 | Implementation Phase

Based on the evaluation phase findings, areas for improvement in MDTM were identified. To address these areas, a custom

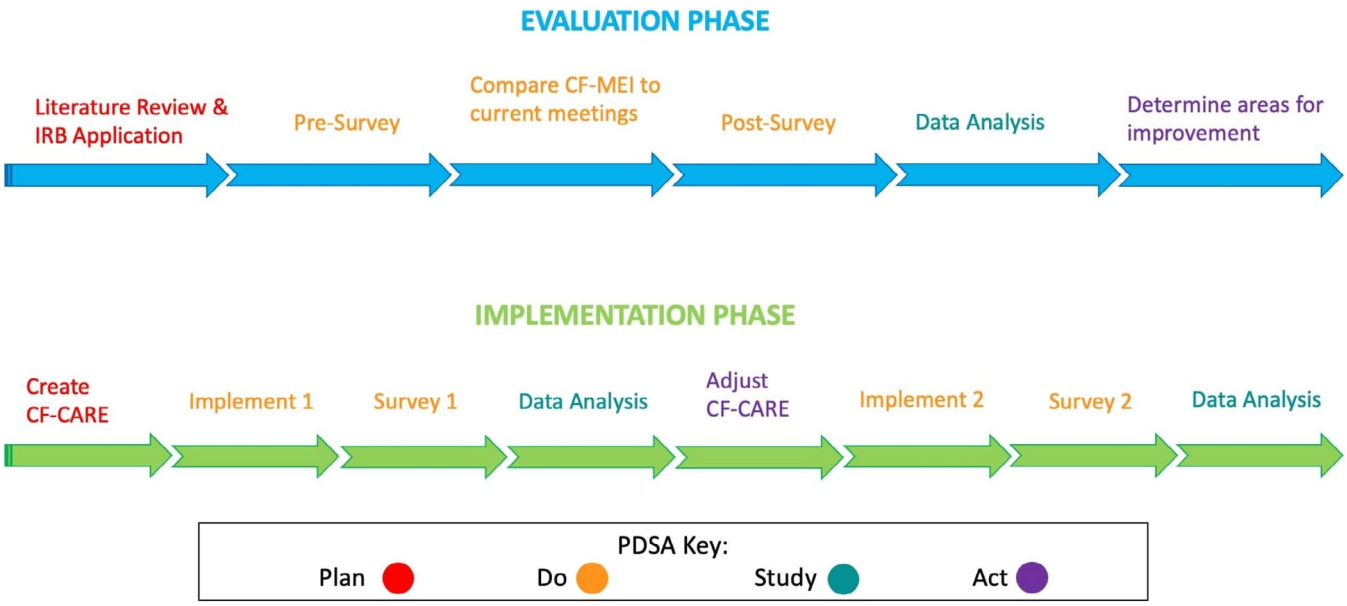

FIGURE 1 | Map of phases and steps correlating with PDSA stages.

meeting guide, the Craniofacial Case Assessment and Review (CF-CARE), was developed, providing a standardized list of topics to be covered during case presentations (Table 3). The CF-CARE was implemented during two consecutive meetings, after which team members completed a survey comparing these meetings to historical ones (Table S3). A comparative survey was used to improve the ease of participation, as there was more limited participation when using the CF-MEI in the evaluation phase. Descriptive statistics were used to analyze multiple-choice results, while mixed qualitative and quantitative analysis was conducted on the open-ended responses to identify themes and the frequency of their mention.

Following these initial two meetings, minor adjustments were made to the CF-CARE based on survey results to create the CF-CARE 2.0 (Table 4). Two subsequent meetings used the CF-CARE 2.0, after which another survey was distributed to evaluate the impact of changes (Table S4). This survey included an additional open-ended question asking specifically about the perceived value of the adjustments. The results of the survey were analyzed using the same methods as in the previous survey.

3 | Results

3.1 | Evaluation Phase

Six team members participated across seven meetings. One participant participated twice but did not fill out the pre-survey on subsequent participation. Participants represented the following four departments, out of eight that comprise the MDT: otolaryngology, pediatric dentistry, speech-language pathology, and administration.

Pre-survey total scores for all participants were greater than or equal to 67. Five of six scores fell into the "good" quality range (62–78), and one fell into the "excellent" quality range (79–95). Of the 11 multiple-choice questions, 10 (90.9%) scored in the 21–25 range, corresponding to "good" quality, and one (9.1%) scored in the 26–30 range, corresponding to "excellent" quality. All four sliding scale questions fell into the 36–47 range, corresponding to "good" quality (Table 5).

Overall, an average of 76.5% (SD 12.3%) of topics listed on the CF-MEI was covered during the meetings. Case presentation topics (ex—primary diagnosis, current stage of development/phase of care, patient concerns) were addressed 70.0% (SD 14.1%) of the time, while meeting quality topics (ex—maintained efficiency, encouraged all disciplines to contribute) were addressed 86.2% (SD 12.3%). Of the case presentation topics, 12 were addressed 6–7 times, corresponding to "no improvement needed," while 29 were only addressed 3–5 times, corresponding to "maybe needs improvement." Of the meeting quality topics, 19 were addressed 6–7 times, corresponding to "no improvement needed," while eight were only addressed 3–5 times, corresponding to "maybe needs improvement" (Table S5). Four participants wrote multiple comments on the CF-MEI, covering five themes. Different themes and how many times they were mentioned include lack of psychosocial discussion (4), lack of summary of plans (3), need for more case history (1), participant multitasking (1), and participant camera off (1).

In the post-survey, five participants (83.3%) thought the periodic use of the CF-MEI would help improve team meetings. One participant (16.7%) thought it could be useful but would need significant changes. Different themes and how many times they were mentioned include issues with content match between meetings and the CF-MEI (2), technical difficulties in accessing the CF-MEI electronically (2), difficulty in multitasking (1), and the benefit of the CF-MEI as a reminder for all patient care aspects (3).

3.2 | Implementation Phase

Eight participants completed the survey after using the CF-CARE for two consecutive team meetings. The following six specialties

TABLE 3 | The craniofacial case assessment and review.

Craniofacial case assessment and review (CF-CARE)	
General instructions	**Each case presentation should occur as follows 1. Team lead gives patient introduction 2. Each specialty presents information 3. Team lead summarizes the plan(s)**
1. Patient introduction (team lead)	• Display picture of patient (if possible) • Patient age • Primary diagnosis • Significant medical history • Past craniofacial procedures or other pertinent surgeries • Revisions • Surgeries outside of UNC • Concerns from last visit
2. Specialty information	• Current stage of development/phase of care • Any care received since last clinic visit including local provider recommendations • Current patient/family concerns, preferences, and opinions on treatment thus far and treatment moving forward • Current symptoms • Any recent exam findings, labs, or other relevant studies • Plan moving forward • Questions, comments, or concerns from the group
3. Summary (team lead)	• Highlight patient/family concerns and plan to address them • Highlight important treatment plans from each specialty

Note: This instrument provides a framework to guide case presentations, including checklists of topics that different team members should cover.

TABLE 4 | The craniofacial case assessment and review 2.0.

Adjusted craniofacial case assessment and review (CF-CARE 2.0)	
General instructions	**Each case presentation should occur as follows 1. Team lead gives patient introduction 2. Each specialty presents information 3. Team lead summarizes the plan(s)**
1. Patient introduction (team lead)	• Display picture of patient (if possible) • Patient age • Primary diagnosis • Significant medical history • Past craniofacial procedures or other pertinent surgeries • Revisions • Surgeries outside of UNC • Concerns from last visit
2. Specialty information	• Any care received since last clinic visit including local provider recommendations • Current patient/family concerns, preferences, and opinions on treatment thus far and treatment moving forward • Current symptoms • Any recent exam findings, labs, or other relevant studies • Plan moving forward
3. Summary (team lead)	• Highlight patient/family concerns and plan to address them • Highlight important treatment plans from each specialty

Note: This instrument is a slightly adjusted version of the CF-CARE. Similarly, it provides a framework to guide case presentations, including checklists of topics that different team members should cover.

were represented: dentistry, psychology, administration, speech-language pathology, otolaryngology, and clinic coordinator. The majority thought the following topics were better or significantly better than before: necessary historical patient information, necessary dental information, clarity of treatment plan, case presentation efficiency, and meeting quality. The majority thought that the following topics were the same as before: necessary current patient information, encouragement of patient-centered discussion, patient/caregiver perspective representation, psychosocial context, allied health information, and equality of contribution from all disciplines. There was an even split in the majority between the percentage of subjects who thought the following topics were better or significantly better and the same as before: necessary medical information, surgical information, promotion of good team dynamics, and overall meeting efficiency. Topics that had any votes for worse than previous meetings included providing historical patient information, encouraging patient-centered discussion, dental information, case presentation efficiency, overall meeting efficiency, and meeting quality (Table 6).

Themes of the responses to the open-ended questions about the benefits of using the CF-CARE (and how many times they were mentioned) included better relevant patient history (3), better clarity of treatment plans (1), and better assessment of patient perspectives/needs (2). Themes of the responses to the open-ended questions about the drawbacks of using the CF-CARE (and how many times they were mentioned) included standardized format not being valid for all specialties (1), excessive repetition of background information (1), and excessive discussion by providers of topics outside their specialty (2). Additionally, three providers noted an increased length of the meetings when using the CF-CARE but felt that this increase was necessary to provide excellent patient care.

The CF-CARE was adjusted, creating the CF-CARE 2.0, to address continued areas of weakness in hopes of further

TABLE 5 | Evaluation phase pre-survey questions and results.

Question *N* = 6	Total score	Qualitative categorization
Multiple-choice questions		
Describe the overall efficiency of your team meetings.	24	Good
Our team's case presentations (history/intro/background) provide all necessary information in a concise manner.	23	Good
Our team's case presentations (history/intro/background) encourage a patient centered discussion.	24	Good
How well is the patient perspective (preferences, values, concerns, and opinion on progress and treatments) represented in your team meetings?	23	Good
How well is the patient's psychosocial context represented in your team meetings?	23	Good
The treatment plan is clear by the end of each case discussion and all team members are aware of their action items and next steps for the care of the patient.	25	Good
The contributions of all disciplines are equally acknowledged and valued at our meetings.	25	Good
Our team has a diversity that matches the needs of our patient population (can be diversity of disciplines, experience, ethnicity, socioeconomic status, etc.).	21	Good
The team leader/discussion leader plays an active role in improving the quality of meetings in real-time.	23	Good
Our team displays behaviors that indicate good team dynamics (i.e., welcoming, remain engaged, respectful, prepared, etc.).	22	Good
Describe the efficiency of your team meetings when held in the virtual format.	26	Excellent
Sliding scale questions (0 = *low quality*, 10 = *high quality*)		
Rate the quality of discussion surrounding medical information.	45	Good
Rate the quality of discussion surrounding surgical information.	42	Good
Rate the quality of discussion surrounding dental information.	44	Good
Rate the quality of discussion surrounding allied health information	57	Good

Note: Six participants completed this pre-survey. The total score was calculated by summing each participant's score per question. Multiple-choice questions could have total lowest and highest possible scores of 6 and 30. Qualitative categorization for multiple-choice questions was based on the following quintiles: Poor (6–10), fair (11–15), average (16–20), good (21–25), and excellent (26–30). Sliding scale questions could have total lowest and highest possible scores of 0 and 60. Qualitative categorization for sliding scale questions was based on the following quintiles: Poor (0–11), fair (12–23), average (24–35), good (36–47), and excellent (48–60).

improvement. These adjustments included removing the prompt for specialists to restate the current stage of development/phase of care, thereby reducing the repetition of information already presented by the team leader. The prompt for specialists to ask for questions, comments, or concerns from other providers at the end of their presentations were also removed, thereby reducing excessive provider discussion of topics outside their specialty. Instead, team members were instructed to express any concerns about topics outside of their specialty to appropriate providers before the meeting, ideally while the patient was still in the clinic so that appropriate providers could assess and address the issue with the patient.

Seven participants completed the second comparison survey after using the CF-CARE 2.0 in two consecutive team meetings. The following specialties five were represented: dentistry, psychology, speech-language pathology, otolaryngology, and plastic surgery. The majority thought the following topics were better or significantly better than before: historical patient information, current patient information, patient-centered discussion, patient/caregiver perspective, surgical information, allied health information, clarity of treatment plan, good team dynamics, and meeting quality. The majority thought the following topics were the same as before: psychosocial context, medical information, dental information, equal contribution from all disciplines, and overall meeting efficiency. There was an even split in the majority between the percentage of subjects who thought that case presentation efficiency was significantly better or better and the same. Only two topics had any votes for being worse than before: case presentation efficiency and overall meeting efficiency (Table 7).

The themes of responses to the open-ended questions about the benefits of using the CF-CARE 2.0 (and how many times they were mentioned) were similar to those previously given and included better relevant patient history (2), better clarity and summary of treatment plans (3), less repetition (2), and better assessment of patient perspectives/needs (1). Themes of responses to the open-ended questions about the drawbacks

TABLE 6 | Implementation phase comparison survey 1 results.

How does new meeting structure compare to old meeting structure in term of... *N* = 8	Significantly better (%)	Better (%)	Same (%)	Worse (%)	Significantly worse (%)
Providing all necessary HISTORICAL patient information	12.5 [*n* = 1]	62.5 [*n* = 5]	12.5 [*n* = 1]	12.5 [*n* = 1]	0 [*n* = 0]
Providing all necessary CURRENT patient information (i.e., information gathered at today's visit)	12.5 [*n* = 1]	25 [*n* = 2]	62.5 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Encouraging patient-centered discussion	25 [*n* = 2]	12.5 [*n* = 1]	50 [*n* = 4]	12.5 [*n* = 1]	0 [*n* = 0]
Adequately representing the patient/caregiver perspective	12.5 [*n* = 1]	25 [*n* = 2]	62.5 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately representing psychosocial context and issues	12.5 [*n* = 1]	25 [*n* = 2]	62.5 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing medical information	12.5 [*n* = 1]	37.5 [*n* = 3]	50 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing surgical information	12.5 [*n* = 1]	37.5 [*n* = 3]	50 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing dental information	12.5 [*n* = 1]	37.5 [*n* = 3]	37.5 [*n* = 3]	12.5 [*n* = 1]	0 [*n* = 0]
Adequately discussing allied health information (including local provider recommendations)	0 [*n* = 0]	25 [*n* = 2]	75 [*n* = 6]	0 [*n* = 0]	0 [*n* = 0]
Clarity of the treatment plans (e.g., clear next steps)	12.5 [*n* = 1]	50 [*n* = 4]	37.5 [*n* = 3]	0 [*n* = 0]	0 [*n* = 0]
Case presentation efficiency—please consider other factors that affect efficiency including patient complexity and new team members	12.5 [*n* = 1]	37.5 [*n* = 3]	25 [*n* = 2]	25 [*n* = 2]	0 [*n* = 0]
Promoting equal contribution of all disciplines	12.5 [*n* = 1]	12.5 [*n* = 1]	62.5 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Promoting good team dynamics	25 [*n* = 2]	25 [*n* = 2]	50	0 [*n* = 0]	0 [*n* = 0]
Overall meeting efficiency—please consider other factors that affect efficiency including patient complexity and new team members.	0 [*n* = 0]	37.5 [*n* = 3]	37.5 [*n* = 3]	25 [*n* = 2]	0 [*n* = 0]
Overall meeting quality	12.5 [*n* = 1]	37.5 [*n* = 3]	25 [*n* = 2]	25 [*n* = 2]	0 [*n* = 0]

Note: Most participants thought that topics were covered better or the same compared to prior meetings.

of using the CF-CARE (and how many times they were mentioned) included excessive repetition of background information (2) and excessive discussion by providers of topics outside their specialty (1). Additionally, three providers noted an increased length of the meetings when using the CF-CARE 2.0. This time, only two felt that this increase was necessary to provide excellent patient care, while one thought the increased time was a detriment given the providers' busy schedules. Several providers also suggested ideas for further improvement of the craniofacial MDTM, including that the discussion leader should speak directly with team members who repeat information unnecessarily, implementing a method to allow providers to bring up issues outside of their specialty before the meetings, and use of a comprehensive history and physical section in the electronic medical record to avoid repetition.

4 | Discussion

The American Cleft Palate Craniofacial Association's (ACPA) parameters underscore the necessity for a longitudinal treatment plan that evolves alongside craniofacial growth, treatment outcomes, and therapeutic advances. Achieving this standard requires MDTs to conduct regular meetings, significantly benefiting patient care [3]. This study sought to evaluate and enhance a single institution's craniofacial team meetings by utilizing

TABLE 7 | Implementation phase comparison survey 2 results.

How does new meeting structure compare to old meeting structure in term of... *N* = 7	Significantly better (%)	Better (%)	Same (%)	Worse (%)	Significantly worse (%)
Providing all necessary HISTORICAL patient information	0 [*n* = 0]	71.43 [*n* = 5]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]
Providing all necessary CURRENT patient information (i.e., information gathered at today's visit)	14.28 [*n* = 1]	57.14 [*n* = 4]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]
Encouraging patient-centered discussion	0 [*n* = 0]	71.43 [*n* = 5]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]
Adequately representing the patient/caregiver perspective	0 [*n* = 0]	71.43 [*n* = 5]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]
Adequately representing psychosocial context and issues	0 [*n* = 0]	42.86 [*n* = 3]	57.14 [*n* = 4]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing medical information	0 [*n* = 0]	28.57 [*n* = 2]	71.43 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing surgical information	14.28 [*n* = 1]	42.86 [*n* = 3]	42.86 [*n* = 3]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing dental information	14.28 [*n* = 1]	14.28 [*n* = 1]	71.43 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Adequately discussing allied health information (including local provider recommendations)	0 [*n* = 0]	57.14 [*n* = 4]	42.86 [*n* = 3]	0 [*n* = 0]	0 [*n* = 0]
Clarity of the treatment plans (e.g., clear next steps)	14.28 [*n* = 1]	57.14 [*n* = 4]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]
Case presentation efficiency—please consider other factors that affect efficiency including patient complexity and new team members	0 [*n* = 0]	42.86 [*n* = 3]	42.86 [*n* = 3]	14.28 [*n* = 1]	0 [*n* = 0]
Promoting equal contribution of all disciplines	0 [*n* = 0]	42.86 [*n* = 3]	57.14 [*n* = 4]	0 [*n* = 0]	0 [*n* = 0]
Promoting good team dynamics	0 [*n* = 0]	57.14 [*n* = 4]	42.86 [*n* = 3]	0 [*n* = 0]	0 [*n* = 0]
Overall meeting efficiency—please consider other factors that affect efficiency including patient complexity and new team members.	0 [*n* = 0]	14.28 [*n* = 1]	71.43 [*n* = 5]	0 [*n* = 0]	0 [*n* = 0]
Overall meeting quality	0 [*n* = 0]	71.43 [*n* = 5]	28.57 [*n* = 2]	0 [*n* = 0]	0 [*n* = 0]

Note: Most participants thought that topics were covered better or the same compared to prior meetings. Improvement occurred specifically regarding current patient information, patient-centered discussion, patient/caregiver perspective, surgical information, allied health information, and good team dynamics.

specific, standardized tools to ensure thorough case discussions and foster a cohesive approach to patient care.

Key findings in the evaluation phase included the initial positive perceptions of current meeting quality despite standardized evaluation with the CF-MEI revealing several areas for potential improvement. Areas of deficiency were most common relative to case presentations and included the presentation of case history, the inclusion of patient perspective, psychosocial needs, and summarization of plans. This opposing dynamic highlights the need for continuous evaluation, ideally anchored to a standardized reference. It becomes challenging to assess deficiencies objectively without a reliable reference point, such as the CF-MEI. The use of a standard provides a framework for improvement and fosters discussion and strategic development to thus promote good practice, as creating meaningful change without a reference point is often challenging and arbitrary [18].

The deficiency in addressing psychosocial needs and lack of patient-centered discussion identified in our study mirrors a broader issue in healthcare, though especially recognized in complex care like oncology [19–25]. Research consistently links

addressing psychosocial factors with improved clinical outcomes, yet many healthcare teams still fall short [26, 27]. Hahlweg et al. and Walraven et al. identified similar gaps in oncology MDTs, suggesting that even specialized care settings struggle to prioritize these needs [12, 28]. Allocating more time and resources to psychosocial care and representation of patient preferences within MDTs, including in this study, is critical to improving overall patient outcomes.

Variations in team dynamics and information presentation can impact decision-making, potentially impeding the formation of a longitudinal treatment plan [12, 29]. In this study, team dynamics were well-rated and consistent across meetings, while areas of improvement were relevant to case information presentation. While standard guides or assessment tools such as the CF-MEI provide a helpful starting point, customization for specific team needs is essential for successful adoption and sustainable implementations of interventions. Like Lamb et al.'s approach to improving team meetings by creating a discussion checklist, we created the CF-CARE [16].

Overall, the implementation phase showed improvement in multiple areas relevant to case presentations, including patient history, current patient concerns, and patient-centered discussion. Healthcare providers tend to use a disease-centered model of care based on the biomedical model of illness [25, 30, 31]. While biomedical information is essential to providing appropriate care, patient opinions and concerns must be considered, especially in complex conditions. Given the common theme of minimal patient-centered discussion among multidisciplinary groups and healthcare realms, it is heartening to see that this area improved explicitly when using the CF-CARE. This is likely because coverage of such information is explicitly stated in the "Specialty Information" portion of the CF-CARE, reminding providers to refocus on patient-centered instead of disease-centered discussion.

Improvement in patient history details also likely improved because providers were referencing the CF-CARE directly, which listed exactly what information should be presented. Having such a structure meant avoiding any assumptions that all providers know each patient's history, which may prompt skipping of pertinent information.

Despite improvement in several topics, feedback about the CF-CARE also identified a few issues with its use, including the length of meetings, repetition of information, and excessive discussion of issues outside of a provider's realm of expertise. Though not directly measured, using the CF-CARE resulted in perceived longer meeting times. Some participants attributed this to larger patient volumes, with more complex patients being seen on days when the CF-CARE was used, while others thought the use of the CF-CARE directly caused the increased duration. Interestingly, those commenting on meeting duration often qualified their statements, expressing their appreciation of the benefits of the CF-CARE and deeming increased time a necessity for improvement in patient discussion. As in all of healthcare, time is valuable, but efficiency should not undermine quality. Multidisciplinary teams should set appropriate expectations surrounding time investment and aim to better balance the two.

Concerns regarding repetition and excessive discussion were mildly improved by adjustments made in the CF-CARE, such as removing the prompt for each specialty to state the stage of development. Though a complete resolution was not reached, participants offered further possible solutions, including creating a communication system to express cross-specialty concerns before team meetings or before the needed provider saw the patient, thus giving providers a comprehensive understanding of current concerns and allowing each to address them if necessary. As for repetition, this was relevant primarily to repeating patient history, and participants suggested changing note formats in the clinic to include a brief, standardized historical summary for each patient before and during team meetings, allowing providers to refer to it as needed. The expression of such ideas after use of the CF-CARE again highlights the usefulness of a standardized assessment or guide not just in leading meetings but in prompting avenues for improvement.

A limitation of this study is the low participation rate of team members, specifically in the evaluation phase and completion of implementation phase surveys. The team experienced some turnover throughout the project cycle, resulting in some new or leaving members being unable to participate. Additionally, team members were not forced to be involved in the assessment portions of the project and several did not participate for unknown reasons. Nonetheless, representation from a significant portion of the specialties that make up this institution's craniofacial MDT was maintained, ensuring diverse perspectives were captured. Additionally, we recognize the inconsistent nature of assessing the meetings and intervention—first using the CF-MEI and then using a survey to evaluate CF-CARE implementation. This change was made to improve team member participation, as the surveys took less time to complete. The surveys used to assess the CF-CARE intervention were made to reflect all major elements of the CF-MEI and, therefore, help maintain internal validity.

Limitations to generalizability exist, as this study was only conducted with a single craniofacial MDT. However, publishing these findings aims not to have other craniofacial MDTs institute changes based on our results directly but to advertise the CF-MEI and CF-CARE as applicable, standardized tools and offer a framework to encourage regular assessment and improvement. Lastly, this study did not evaluate the impact of meeting content or process changes on actual patient care or outcomes.

5 | Conclusion

This study demonstrates the usefulness of standardized tools like the CF-MEI and CF-CARE in enhancing the quality of MDTM for craniofacial care. By providing a structured framework for evaluating case presentations, this work offers a valuable starting point for other teams seeking to improve their meeting processes or for institutions aspiring to start a craniofacial multidisciplinary team. While our results may not be universally generalizable due to the study's focus on a single MDT, they highlight the broader, systemic issue of insufficient psychosocial focus within complex care settings. The implementation of standardized assessments has the potential for sustainability and can be adapted to other contexts, especially when tailored to the specific needs of individual teams.

The implications for practice are clear: regular assessment and use of tools like the CF-MEI and CF-CARE can drive meaningful improvements in patient discussions and care planning. However, the challenge remains to balance thoroughness with efficiency, as concerns about meeting length and repetition suggest the need for refinement. Future studies should explore the direct impact of these interventions on patient outcomes.

Next steps include refining these tools to reduce inefficiencies, enhancing participation from all team members, and further investigating the integration of psychosocial care in MDT settings. Ultimately, greater time and resources should be dedicated to fostering continuous improvement in multidisciplinary care, ensuring that all aspects of patient care, including psychosocial needs, are adequately addressed.

Conflicts of Interest

The authors declare no conflicts of interest.

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