

Original Publication

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Fellow as Clinical Teacher (FACT) Curriculum: Improving Fellows' Teaching Skills During Inpatient Consultation

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Abstract

Introduction: Multiple barriers, including time constraints, a demanding teaching environment, and lack of longitudinal relationships with residents, make it challenging for fellows and learners to engage in effective teaching during consultation. **Methods:** The Fellow as Clinical Teacher (FACT) curriculum was developed to overcome such barriers and improve fellow teaching in the setting of inpatient consultation. The FACT curriculum consists of two 45- to 60-minute small-group sessions designed for subspecialty fellows. The first session focuses on overcoming barriers to teaching and application of the principles of adult learning theory. The second introduces the PARTNER (partner with resident, assess the learner, reinforce positives, teaching objectives, new knowledge, execute recommendations, review) framework for teaching during consultation and uses video examples to model the application of this framework, allowing fellows to practice its implementation through role-play. **Results:** Previously, the FACT curriculum was shown to improve teaching skills of rheumatology and pulmonary/critical care fellows as evaluated by objective structured teaching exercises. Here, the curriculum has been expanded to 51 internal medicine and pediatrics fellows in 15 different training programs. The curriculum improved fellow teaching skills as assessed by self-assessment surveys. It was highly rated by participants, and fellows reported being more likely to teach during consultation following this educational intervention. **Discussion:** The FACT curriculum can be integrated into subspecialty training programs to improve the teaching skills of internal medicine and pediatrics fellows in the setting of inpatient consultation. Ultimately, improved teaching from fellows may have broad-reaching effects for residents, patients, and the fellows themselves.

Keywords

Fellowship, Consultation

Educational Objectives

By the end of this curriculum, learners will be able to:

1. Identify and overcome barriers to teaching residents and students in the setting of inpatient consultation.
2. Describe and apply the principles of adult learning theory that guide effective teaching during consult interactions.
3. Apply the PARTNER framework for effective and efficient teaching during consultation.

Introduction

In postgraduate medical education, physicians learn predominantly in a work-based setting.¹ Maximizing educational experiences in the workplace is becoming increasingly important to achieving a balance between service and education during postgraduate training.² With the growing complexity in diagnosis and treatment decision making, consultations have become an integral aspect of inpatient clinical care.^{3,4} Resident-fellow interactions during consultations create an important opportunity to further education on the wards and to enhance trainees' teaching skills.

Teaching is an important aspect of effective consultation that can have a positive impact on fellows, residents, and patient care.⁵⁻⁷ Fellows are increasingly interested in clinician-educator careers and may enhance their clinical skills and knowledge through teaching experiences.^{8,9} Teaching in the setting of

Appendices

- A. Session 1 Facilitator Guide .docx
- B. FACT Precurriculum Survey .docx
- C. FACT Curriculum Session 1 .ppt
- D. Session 2 Facilitator Guide .docx
- E. FACT Curriculum Session 2 .ppt
- F. Interaction 1.wmv
- G. Interaction 2.wmv
- H. PARTNER Approach to Consult Teaching.docx
- I. FACT Role-Play Fellow and Intern Instructions.docx
- J. FACT Postcurriculum Survey.docx

All appendices are peer reviewed as integral parts of the Original Publication.

consultation provides an opportunity to enhance fellows' teaching skills, thereby potentially improving teaching skills of future faculty. At academic medical centers, residents contact subspecialty fellows on a daily basis to request consultations, during which two physicians at different stages in their training discuss a patient's diagnosis and management in detail. This interaction presents an important teaching opportunity that encompasses several key aspects of adult learning principles.¹⁰ However, both residents and fellows face a number of barriers to effective teaching and learning during inpatient consultation.^{5,11,12} System-based factors such as the established process of requesting consults, primary team structure, resident and fellow workload and familiarity, and culture of the subspecialty division have been previously described as potential barriers.⁵ Personal factors such as fellow pushback against consult requests and resident and fellow willingness to engage in teaching interactions, as well as their perceptions of one another, are also barriers to teaching during consultations.⁵

We previously described the development of the Fellow as Clinical Teacher (FACT) curriculum, which aimed at training fellows to overcome these inherent obstacles and to teach effectively and efficiently in the setting of consultation.^{5,13,14} The FACT curriculum was developed by two of the current authors (Eli M. Miloslavsky and Jakob I. McSparron) based on findings from qualitative studies describing barriers to effective resident-fellow interactions.^{5,15} The curriculum was evaluated among rheumatology and pulmonary/critical care fellows, demonstrating an improvement in self-perception of fellows' teaching skills as well as in performance on the objective structured teaching exercise (OSTE) of consult teaching.^{13,14} A brief description of the curriculum has been previously published.¹⁴ Here, we expand on our previous work by describing the dissemination of the FACT curriculum to other internal medicine and pediatrics subspecialties, providing previously unpublished resources to enable the implementation of the FACT curriculum in subspecialty programs, and discussing lessons learned during curriculum implementation.

Methods

Our two-session workshop was held near the beginning of the academic year for internal medicine clinical subspecialty fellows at all training levels. We feel the optimal timing for the workshop is in August or early September as previous experience working on the consult service enriches the participants' experience during the sessions. There may be benefits to administering the workshop to fellows in the same specialty at a given time since the curriculum involves specialty-specific role-playing and developing strategies to overcome barriers, some of which may be specialty specific. While the two sessions can be held consecutively, we typically separated them by several weeks in order to reinforce the concepts discussed during the first session in the second session. Due to scheduling constraints, we have also administered the curriculum as one 90-minute session in several programs with similar results. Both sessions required a room with PowerPoint projection capacity. Session 2 also required a room with video and audio capacity.

Session 1 focused on recognizing and overcoming barriers to in-person teaching interactions between fellows and residents. Materials included the session 1 facilitator guide (Appendix A), precurriculum survey (Appendix B), and PowerPoint presentation with instructor notes (Appendix C), which the instructor reviewed ahead of the session. Prior to the session, the facilitator administered the precurriculum survey. The PowerPoint in Appendix C was presented and used as a guide to facilitate the first session. The session goals and objectives were first introduced. The instructor then proceeded to facilitate discussion among the fellows regarding their experiences interacting with fellows when they were residents. The conversation was directed towards discussing the importance of teaching during consultation. The instructor elicited responses from the fellows regarding what factors they saw as barriers to teaching in the setting of consultation. The instructor filled in any barriers that the fellows did not mention and proceeded to lead a discussion on the solutions to overcome these barriers. After discussing these barriers and solutions, the instructor introduced principles of adult learning theory¹⁰ and indicated which principles were most applicable to teaching during inpatient consultation. Lastly, a summary of the session highlighted the importance of teaching during consultation, barriers to teaching, strategies for overcoming these barriers, and applicable principles of adult learning theory.

Following session 1, which focused on breaking down barriers to set up a teaching interaction, session 2 concentrated on enhancing the teaching interaction itself. Materials included the session 2 facilitator guide (Appendix D), PowerPoint with instructor notes for session 2 (Appendix E), videos 1 and 2 (Appendices F & G, respectively), handout on the PARTNER approach to consult teaching (Appendix H), FACT role-play fellow and intern instructions (Appendix I), and postcurriculum survey (Appendix J). Instructor preparation involved reviewing the PowerPoint presentation in Appendix E and becoming familiar with the videos and role-play exercises.

Similar to the start of session 1, session 2 began with an introduction to its goals and objectives. The PowerPoint presentation was projected and utilized as a guide to structure this second session. Fellows read the clinical case in slide 3, which was the basis for the video examples. Then, learners watched video 1, which demonstrated a realistic but suboptimal consultation interaction. In video 1, the fellow was rushed and did not assess the learner, therefore making his teaching ineffective. He did not answer the intern's questions nor did he explain the rationale behind his recommendations. Fellows were asked to describe positive aspects of this interaction as well as components that could have been improved to facilitate the intern's learning. The instructor pointed out that although this interaction was suboptimal, it was likely a realistic representation of everyday resident-fellow interactions. Next, video 2 was shown, and the group discussed how that interaction differed from video 1, as well as specific positive and negative aspects of the observed interaction. Video 2 demonstrated the PARTNER framework for teaching. The PARTNER framework, which has been published previously, is a structured approach for instructors to create a positive learning environment, rapidly assess learners' knowledge, effectively teach key concepts, and deliver recommendations in the setting of inpatient consultations.¹⁴ The components of the PARTNER framework include the following: partner with resident, assess the learner, reinforce positives, teaching objectives, new knowledge, execute recommendations, and review. The fellows came up with many components of the PARTNER framework through discussion of the video prior to the instructor formally introducing the framework. The instructor then distributed the handout and introduced the PARTNER framework. The participants discussed the PARTNER framework while keeping in mind that teaching interactions during inpatient consultation must often take place in limited time, anywhere from 3-7 minutes on average.

The next component of session 2 involved practicing the application of the PARTNER framework through role-play. The fellows broke out into groups of two. One fellow in each group played the role of a fellow, and the other played the role of an intern. Appendix I contains fellow and intern instructions for each subspecialty. Two of the nine included cases have been previously published.¹⁴ The fellows were given 5 minutes to role-play the cases. The 5-minute time frame was selected to simulate the average length of a teaching session during inpatient consultation, based on our experience. The instructor and learners then regrouped and debriefed how role-playing had gone for both the acting fellow and intern. Finally, the instructor facilitated a discussion on the concept of higher order questioning, which involves working at the top of Bloom's taxonomy^{16,17} to ask open-ended questions that elucidate learners' thought processes throughout a clinical case discussion, using examples from the role-play exercise. The instructor summarized how to utilize the PARTNER framework and ask effective questions to enhance teaching during inpatient consultations. Following session 2, the postcurriculum survey (Appendix J), which has been previously published, was administered to evaluate the curriculum.¹⁴

We implemented a flexible approach to the role-playing exercise in session 2. The instructor evaluated whether it would be appropriate for fellows in their session to carry out the role-playing exercise. If the instructor decided that a particular group of fellows would not benefit from the role-play, the group read the fellow instructions for their subspecialty role-playing exercise and discussed as a group how they would apply the PARTNER framework for teaching. During this alternative group exercise, the fellows worked together to come up with questions that they would like to ask the intern during the teaching interaction.

Results

Since the original description and evaluation of the FACT curriculum, it has been implemented in multiple training programs. Here, we describe our experience with its implementation among five internal medicine subspecialties at the Massachusetts General Hospital and the Brigham and Women's Hospital. All first-year fellows were invited to participate in the curriculum. The curriculum was also implemented at Boston Children's Hospital, where all fellows from eight specialties were invited to participate. A previously published postcurriculum survey, which included a retrospective precurriculum assessment, was utilized to evaluate the impact of the FACT curriculum.

Fifty-one fellows from 15 programs participated in the FACT curriculum during the 2017-2018 academic year. All participants completed the postcurriculum survey.

Participants' performance in all self-assessment items improved significantly after participating in the FACT curriculum (see the [Table](#)). Participants reported improved confidence in teaching during consultation after the curriculum (2.88 vs. 3.84 on a 5-point scale, $p < .001$). All specific skills that were assessed, including the ability to assess the learner, identify teaching objectives, teach within time constraints, and give feedback to the learner, also improved after the curriculum. The FACT curriculum was rated highly (4.22 on a 5-point scale), with 97.6% of fellows stating that they planned to incorporate more teaching into their consult interactions after participating in the curriculum.

Table. Pre- and Postcurriculum Survey Results

Skill	Precurriculum	Postcurriculum	<i>p</i>
Ability to teach during consultation	2.88	3.84	<.001
Assess the learner	3.73	4.33	<.001
Identify teaching points	4.00	4.49	<.001
Teach within time constraints	3.35	4.20	<.001
Give feedback	3.55	4.33	<.001

The postcurriculum survey contained open-ended questions whereby learners could provide feedback. Comments focused on the importance of the topic, the interactive nature of the workshops, the utility of the PARTNER framework, and the debriefing of video examples as particular strengths of the curriculum. Representative comments included the following:

- “The PARTNER mnemonic and the video examples were very useful.”
- “Case examples were helpful.”
- “The session provided tips and techniques for better interactions with residents.”

Discussion

The FACT curriculum was developed as an educational intervention to improve the teaching skills of fellows in the setting of inpatient consultation. We previously demonstrated that the curriculum enhanced fellows' teaching skills as measured by self-assessment surveys and OSTEs in three training programs. We now report on the expansion of the FACT curriculum to both internal medicine and pediatrics specialties in 15 programs. Our results mirror those of our previous studies, demonstrating that fellows who participated in the curriculum were more likely to teach and reported having improved efficiency and quality of their teaching in the setting of consultation.

While several fellow-as-teacher initiatives have been described,¹⁸⁻²² no prior intervention focused on enhancing fellow teaching skills in the particular setting of inpatient consultation. The strengths of the FACT curriculum lie in its ability to engage fellows in a discussion regarding these barriers, teach the most applicable principles of adult learning theory, introduce the PARTNER framework for teaching, and allow time for practicing the utilization of this framework, all within two 45- to 60-minute sessions. The hospital environment often makes it challenging for fellows to have effective teaching encounters with residents, with time constraints and lack of familiarity with the residents as potential limiting factors.⁵ The FACT curriculum provides its learners with tools, such as the PARTNER framework, to overcome these barriers.

In our experience implementing the FACT curriculum across multiple subspecialties, we have made several observations. First, we have found that learners tend to be very engaged in the discussion, suggesting the importance of this topic in their daily work. When the workshops are held in August or September, after fellows have had a chance to work on consult services, the discussions are more relevant and effective than when sessions are held during orientation. We have observed that the majority of fellows across fields want to teach more frequently but that time constraints and other barriers prevent them from doing so. The workshops are effective not only at giving learners strategies to overcome these barriers but also at bringing the importance of teaching in the setting of consultation to the fore, thus reminding fellows that teaching is a priority. We received especially positive feedback on the video examples of consultation interactions and the PARTNER framework and how these were helpful in the fellows' reflection on their own teaching styles. Therefore, when we have had to condense the curriculum into one 90-minute session rather than two 60-minute sessions, we have limited the time devoted to discussion of barriers rather than the time devoted to debriefing video examples and exploring the PARTNER framework. Finally, we have observed that the curriculum is more effective when program directors and core faculty continue to provide fellows with feedback on their teaching throughout the year, offering an opportunity to return to the themes of the curriculum.

Our study has several limitations. We utilized a self-assessment survey as the primary outcome measure in this study. However, previous studies of the FACT curriculum demonstrated that the curriculum improved not only fellows' self-reported confidence in their teaching skills and attitudes towards teaching but also their teaching skills as measured by performance on OSTEs. The survey results from the current study are similar to survey results from the previous studies.^{13,14} We were not able to assess the impact of the curriculum on participants' teaching on the wards or interactions with primary teams. This should be the focus of future studies. The generalizability of the FACT curriculum also warrants mention. While the themes covered in the curriculum are relevant to all specialties, different institutions and departments may face different barriers to teaching during consultation. The learner-driven design of the discussions should enable different divisions and specialties to focus on the barriers and solutions that are most relevant. In addition, the curriculum concentrates on the importance of in-person interactions, which may not be possible for some specialties and institutions. However, the concepts and tools included in the curriculum can be adapted to other settings, such as telephone interactions.

In summary, we describe the successful expansion of the FACT curriculum to internal medicine and pediatrics specialties. We believe that the FACT curriculum offers a unique opportunity for trainees to learn how to optimize their teaching during inpatient consultation and that, when implemented, the curriculum may have far-reaching positive effects on medical education and patient care.

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Ethical Approval

Reported as not applicable.

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