

Three-Year Outcomes of a Longitudinal Department of Medicine Fellow as Medical Educator Training Program Pilot

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ABSTRACT

Background: Developing the next generation of physician educators is an important priority and persistent challenge for academic medical centers, and dedicated educator training is highly desired by physicians in training. To address this need, our Department of Medicine launched a longitudinal fellow-as-medical-educator (FAME) program.

Methods: We implemented the FAME program over a 3 year period in a midsized Department of Medicine, offering faculty-led didactic sessions, fellow-led journal clubs, mentorship, and structured opportunities for direct observation and feedback. Program engagement, perceived relevance of sessions, and self-assessment of teaching skills were evaluated annually through attendance logs, session evaluations, and a modified System for Evaluating Teaching Qualities tool.

Results: Participation increased among both fellows and volunteer faculty across the 3 years. Faculty-led sessions were consistently rated as highly relevant, with an average score of 3.7 out of 4.0. Self-assessment of teaching skills improved across multiple domains each year, with gains demonstrated in 11 of 25 domains across the implementation period.

Discussion: Despite limited resources, the FAME program was well received and associated with improved self-assessed teaching skills among physician fellows. Ongoing refinements aim to optimize synchronous participation and enhance program sustainability.

BACKGROUND

Developing the education workforce in medicine is a perennial challenge; having capacity for our students, residents, fellows, and other health profession trainees to learn from qualified educators is critical. Physician fellows are attuned to the need for profes-

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sional development in education and have a strong interest in medical education training.¹

In early 2021, we conducted a department-wide needs assessment to inform development of our fellow-as-medical-educator (FAME) program. Among respondents to the survey of leaders were 8 program directors, 6 associate program directors, and 7 program coordinators (21 responses total); there were 24 fellow respondents. Nearly two-thirds of program leaders indicated having a current or recent fellow interested in a medical education training track and reported having variable resources they could offer that fellow. Most program leaders reported being asked about such opportunities during fellowship interviews. Most responding fellows had at least some training in teaching during fellowship, and more than 80% indicated

they would be at least somewhat likely to participate in medical education training if offered.

To meet the needs of our fellowship leaders and trainees, we developed a longitudinal educator development program—the FAME program—which is administered across the Department of Medicine. We implemented a multimethod approach to educator training and have improved the program iteratively over the 3-year pilot period. We aimed to develop instructional skills as well as skills in education scholarship and program building.

METHODS

Setting

Our curriculum was developed and implemented in an academic Department of Medicine in a midsized medical school in the

Midwest. The department trains 80 to 90 fellows each year across 17 divisions, with 23 active fellowships.

Curriculum Design and Implementation

In the needs assessment, fellows ranked the following components in decreasing order of importance as preferred curriculum elements, which informed our curricular offerings:

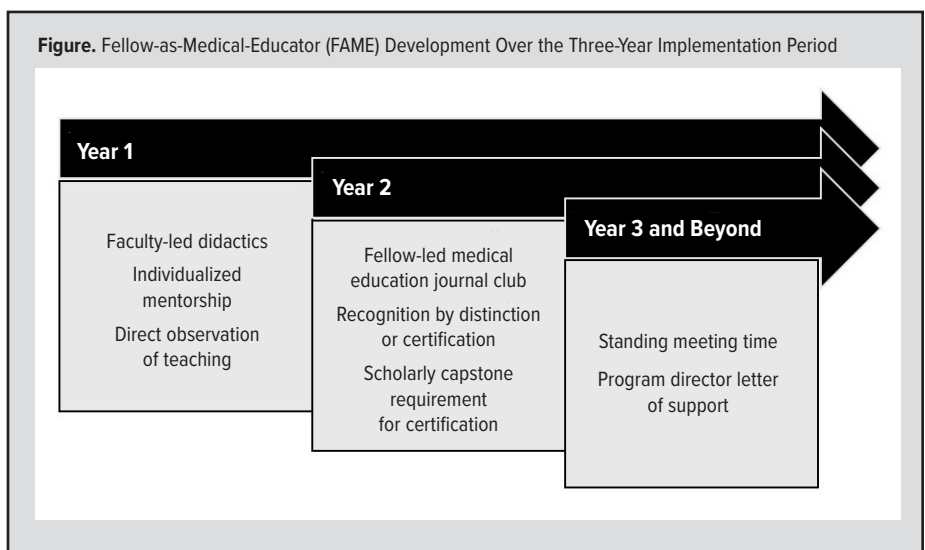
1. Developing instructional skills
2. Learner feedback and assessment
3. Mentorship
4. Educational leadership skills
5. Curriculum design
6. Technology use in instruction
7. Learning theory
8. Program evaluation
9. Critical appraisal of education research
10. Education research skills

We applied Kern's 6-step model for curriculum development² to design the FAME program. Using recommendations by Ramani et al³ and the priority areas identified by the 2021 survey of fellows, we constructed the FAME content. The program's main objectives are to:

1. Develop instructional skills in all venues relevant to medical education.
2. Provide learners and peers with high-quality feedback.
3. Gain a working knowledge of evidence-based curriculum design and program evaluation.
4. Remain up to date on advances in medical education literature.
5. Critically appraise medical education literature.
6. Develop a toolbox for designing, conducting, and disseminating a scholarly education project.
7. Appreciate the many career paths in medical education and begin defining individual career goals relevant to medical education.
8. Articulate a teaching philosophy.

Our program grew in a scaffolded manner over the first 3 years (Figure). In year 1, we implemented faculty-led didactic sessions with expert educators that focused on teaching skills and educational theory. We also paired fellows with a faculty mentor for career advising and for direct observation and feedback of teaching.

In year 2, we added fellow-led medical education journal clubs. We established the expectation that fellows address issues of diversity, equity, and inclusion in medical education during journal club. We also introduced a tiered recognition program, whereby fellows could graduate with "distinction" or "certifica-



tion," depending on engagement level. Certification required an education scholarship component.

In year 3, we instituted a standing meeting time and requested letters of support from fellowship program directors to enhance accountability and promote regular attendance. All sessions were held over the noon hour on weekdays. Some were virtual only, but most were hybrid, with in-person attendance incentivized with lunch. One or 2 sessions were held monthly from September to May; half were didactic sessions and the other half fellow-led journal clubs. Most faculty didactic sessions rotated on a 2-year calendar. Support with calendar invites and web conferencing was provided by Department of Medicine education staff.

Volunteer faculty mentors were solicited via email and during a standing fellowships meeting. Faculty and fellows were paired based on a fellow's desire to have mentorship within or outside their division; no faculty members were assigned more than 2 fellow mentees at any one time. Direct observation and feedback were encouraged in a variety of clinical and classroom venues; use of a direct observation and feedback tool developed by the Department of Medicine Education Committee was encouraged to ensure a minimum standard of feedback. In many cases, faculty outside FAME were sought for mentorship on education scholarship, often aligning with scholarly endeavors in their home fellowship program.

Program Evaluation

We employed multiple evaluation methods, including self-report of activity completion, attendance, fellow evaluation of faculty sessions, open-ended program feedback, and self-assessment of teaching skills⁴ conducted at the beginning and end of the academic year (Table).

Resources

Resources dedicated to FAME are limited, with reliance on time volunteered by faculty members and program leaders. In year 2,

Table. Self-assessment of Teaching Skills at Baseline to Year-end Across the First Three Years of the Fellow-as-Medical Educator (FAME) Program

	2021-2022 (N=5)		2022-2023 (N=7)		2023-2024 (N=8)	
	Baseline Mean (SD)	Year-end Mean (SD)	Baseline Mean (SD)	Year-end Mean (SD)	Baseline Mean (SD)	Year-end Mean (SD)
In my role as a fellow teacher, I generally...						
Encourage learners to participate actively in discussions	6.000 (0.577)	6.286 (0.488)	6.000 (0.707)	6.600* (0.548)	5.625 (0.518)	6.250* (0.463)
Stimulate learners to bring up their problems	5.714 (1.113)	6.143 (0.690)	5.200 (1.095)	6.200 (0.447)	5.500 (1.069)	6.000 (0.756)
Motivate learners to study further	5.857 (0.690)	5.714 (0.951)	5.400 (0.894)	6.000 (0.000)	5.125 (1.126)	5.750 (0.707)
Stimulate learners to keep up with the literature	5.571 (0.976)	5.571 (0.787)	4.400 (0.894)	5.600* (1.140)	4.500 (0.926)	5.500* (0.756)
Prepare well for teaching presentations and talks	6.429 (0.535)	6.000 (0.816)	5.800 (1.304)	6.800 (0.447)	5.375 (0.744)	6.250* (0.707)
Teach learners the full spectrum of care relevant to my specialty	5.857 (1.574)	5.429 (1.718)	4.600 (1.673)	6.000 (0.707)	5.125 (1.126)	5.875* (0.354)
Listen attentively to learners	6.143 (0.690)	6.429 (0.787)	5.600 (1.140)	6.400* (0.894)	6.250 (0.707)	6.625 (0.518)
Am respectful toward learners	6.429 (0.535)	6.571 (0.535)	6.400 (0.548)	6.600 (0.548)	6.500 (0.535)	6.625 (0.518)
Am easily approachable while on call	5.714 (0.951)	6.429* (0.535)	6.200 (0.447)	6.000 (0.707)	6.250 (0.707)	6.375 (0.744)
Am easily approaching for discussion during routine daytime work	6.286 (0.488)	6.286 (0.488)	6.400 (0.548)	5.800 (0.447)	6.125 (0.641)	6.375 (0.744)
Clarify learning goals for the learning session	5.429 (0.976)	6.000 (1.000)	4.800 (1.304)	5.600 (0.548)	5.000 (1.069)	5.625 (0.518)
Match learners' and supervisors' learning expectations	5.286 (0.756)	6.000 (1.000)	5.200 (0.837)	5.400 (0.548)	4.875 (1.126)	5.750* (0.463)
Provide learners responsibility based on their abilities	5.429 (0.535)	6.143* (0.690)	5.600 (0.548)	6.200 (0.447)	5.750 (0.886)	6.000 (0.756)
Teach learners how to deal with competing personal/professional demands	5.143 (0.690)	5.571 (1.272)	5.400 (0.548)	5.000 (0.707)	4.875 (1.246)	5.750 (0.463)
Evaluate learners' specialty knowledge regularly	4.857 (1.215)	5.571* (1.272)	4.600 (1.140)	5.200 (1.304)	4.875 (0.991)	5.750 (0.463)
Evaluate learners' analytical knowledge regularly	4.000 (0.816)	5.429* (1.272)	4.400 (0.894)	5.000 (1.225)	5.000 (0.756)	5.250 (0.463)
Evaluate learners' application of knowledge in daily practice regularly	5.000 (1.155)	5.000 (1.826)	5.000 (0.707)	5.200 (1.483)	5.250 (0.463)	5.625 (0.744)
Evaluate learners' procedural skills regularly	5.286 (2.289)	4.714 (2.059)	4.800 (2.280)	6.000 (2.345)	5.375 (2.722)	6.625 (2.200)
Give positive feedback to learners	6.000 (0.816)	6.429 (0.535)	6.200 (0.447)	6.000 (0.707)	6.500 (0.535)	6.500 (0.535)
Give corrective feedback to learners	5.143 (1.215)	5.857 (0.378)	5.200 (1.095)	5.200 (1.304)	4.875 (1.458)	5.750 (0.463)
Explain why learners are (in)correct	5.429 (0.787)	5.286 (1.380)	5.000 (0.707)	5.200 (0.837)	5.625 (0.916)	6.000 (0.535)
Offer suggestions for improvement	5.143 (0.690)	5.857* (0.900)	5.800 (0.837)	5.800 (0.837)	5.625 (0.744)	6.125* (0.354)
Teach learners how to deal with colleagues with questionable or inappropriate practice	5.000 (1.633)	5.429 (1.718)	4.800 (1.643)	5.800 (1.643)	4.500 (1.852)	4.750 (1.488)
Teach organizational aspects of my specialty practice	5.286 (1.604)	5.571 (1.272)	4.800 (0.837)	6.200 (1.924)	5.125 (1.246)	5.625 (0.518)
Create awareness of economic aspects of medical care	4.571 (1.618)	5.286 (2.059)	4.400 (1.817)	4.600 (1.673)	4.500 (1.195)	4.375 (0.744)

Responses possible are totally disagree (1), disagree (2), somewhat disagree (3), neutral (4), somewhat agree (5), agree (6), totally agree (7), or not applicable/cannot judge. Bold text and * indicate *P* values < .05.

we were afforded a small budget for food to optimize in-person attendance. After year 3, we received additional administrative support to manage emails, calendar invites, food orders, attendance, and requirement tracking.

RESULTS

In year 1 (2021-2022), 10 fellows participated in FAME and were paired with 10 faculty mentors. In year 2 (2022-2023), 6 fellows continued, 2 fellows were added, and 8 faculty served as mentors. In year 3 (2023-2024), 2 fellows continued, 13 fellows were added, and 13 faculty mentors volunteered.

Regarding engagement, fellows in 2021-2022 (n=5 evaluations returned) attended an average of 3 to 4 sessions, 1 to 2 sessions asynchronous sessions, and participated in 1.8 instances of direct observation and feedback with their faculty mentor. In 2022-2023 (n=6), fellows attended 4 to 5 synchronous sessions, 1 to 2 asynchronous sessions, and averaged 2.8 observation/feedback encounters.

In 2023-2024 (n=9), fellows attended 3 to 4 synchronous sessions, 2 to 3 asynchronous sessions, and averaged 1.6 observation/feedback encounters. Faculty session evaluations were very favorable. Across all years, the mean score for the question, “How relevant was this session to your development as an educator? Was greater than 3.7 on a 4-point scale (with 87 evaluations collated).

Open-ended feedback emphasized the need for scheduling accommodations to maximize attendance increased opportunities for direct observation with mentors and other faculty. One fellow suggested “providing schedules to fellowship coordinators to maximize fellow availability for sessions.”

Strengths identified were the engaged and supportive faculty, the high-quality didactic sessions, and the flexibility afforded by the hybrid format and asynchronous viewing option. Fellows commented, “It was helpful to stream the sessions so that I could attend remotely,” and “I specifically like having a 1:1 mentor and sessions that are observed.”

Self-assessment of teaching skills, measured with a modified System for Evaluating Teaching Qualities (mSETQ), improved in many domains each year (Table). The largest gains occurred in years 1 and 3, likely reflecting the onboarding of a larger group of new fellows in those years compared with year 2.

DISCUSSION

FAME addresses the educator development needs of Department of Medicine fellows and fellowship programs with limited resources, demonstrating improvements in self-assessed teaching skills and sustainability over the 3-year pilot period. The longitudinal nature of the curriculum is relatively unique fellow education training curricula and fosters community-building among fellows and faculty across the department. Further, it allows brief sessions to be scheduled across time, minimizing disruptions to clinical schedules that may come with more intensive teaching courses that require longer, uninterrupted blocks of time.⁵ We expect—though have not measured—that relationships built through FAME may benefit patient care by improving familiarity and communication within clinical teams.

Interpretation of specific skill improvements is limited by statistical power. However, gains in evaluation and feedback skills likely relate to our curricular emphasis on these areas through didactics, direct observation, and structured feedback. The addition of a journal club in year 2 may have contributed to improved self-assessed ability to stimulate learners to keep up with the literature. While few components of the mSETQ improved significantly, the greater gains in years 1 and 3 coincide with onboarding more fellows into the program for the first time, suggesting that fellows may benefit more during their first year of participation than in subsequent years.

Our work builds on previously published curricula designed to develop fellow educator skills⁵⁻⁹ but is unique in offering multiple methods of skill development over 1 to 2 years, concurrent with clinical fellowship. We are aware of only 1 other centralized departmental curriculum in the literature,¹⁰ which was delivered over a shorter period and lacked the scholarship component expected of FAME graduates. Most existing curricula offer only a small number of sessions or workshops and lack the longitudinal component present in FAME.⁷⁻⁹ One aspirational program provides a 1 year-long fellowship in which participants are largely protected from clinical duties.⁶ Meanwhile, our program offers the benefits of a longitudinal curriculum and interdisciplinary learning community, while affording the flexibility to complete it during a busy clinical fellowship.

As with any education innovation, there are several limitations. First, we cannot measure higher-level learner outcomes and the impact of educator development on patient care. Nonetheless, we are confident in FAME's success based on our multipronged evaluation strategy. Integrating the program into the workday supports work-life integration but sometimes limits synchronous atten-

dance, particularly for fellows at off-site locations or on demanding clinical rotations. Finally, with the program's growth, tracking fellows progress has become more challenging. Future iterations will require increased administrative and faculty support.

A resource-limited, department-wide fellow-as-medical-educator program can successfully improve self-assessed teaching skills. We are using these early successes to advocate for increased program support and buy-in from fellowship program directors to ensure FAME fellows are equipped with the time and resources needed to fully engage with the curriculum.

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