

The Value of Formal Clinical Research Training in Initiating a Career as a Clinical Investigator

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Abstract: The aim of this study was to determine whether formal clinical research training is of value in the initiation of a successful career as a clinical investigator. We conducted a retrospective review of the career choices of all 25 fellows who entered the Academic Clinical Research Track at Brigham and Women's Hospital since its inception in 1995 and examined the impact of formal clinical research training during their fellowship on their career choice. The primary measure of a successful career as a clinical investigator was the obtainment of external funding for clinical research within 3 years of completion of fellowship. Thirteen of the 25 fellows (52%) received a Master of Public Health (MPH) degree at the Harvard School of Public Health during their fellowship. Ten of these 13 fellows (77%) obtained external funding for clinical research within 3 years of completion of their fellowship. None of the 5 fellows who had already obtained an MPH degree prior to their fellowship and none of the 7 fellows who completed a 7-week summer Program in Clinical Effectiveness but did not complete an MPH degree attempted to receive external funding for clinical research within 3 years of completion of their fellowship. We conclude that formal clinical research training culminating in an MPH degree was extremely valuable in the initiation of a successful career as a clinical investigator.

Keywords

Formal clinical research training, clinical investigator, fellows, gastroenterology, career

Although trainees report a high level of satisfaction with clinical research, many can be discouraged by the current funding environment.¹ Indeed, a recent article stated that federal funding for endoscopic research did not increase between 1972 and 2008.² One of the factors that may hamper funding in clinical research is a lack of formal training in biostatistics, epidemiology, and related disciplines.^{2,3} These disciplines are thought to be very important for the development of the

quantitative and analytic skills necessary for rigorous clinical research. This study sought to determine the impact of formal clinical research training in the initiation of a successful career as a clinical investigator.

Academic Clinical Research Track

The Academic Clinical Research Track (ACRT) at Brigham and Women's Hospital (BWH) was initiated in 1995 to prepare trainees for a career in clinical investigation. During the interview process, faculty explain in detail that the overall mission of the ACRT is to provide a comprehensive educational program that will enable the fellow to achieve a leadership position in clinical research. Faculty also indicate that individuals who apply to the ACRT will be provided with an opportunity to complete a Master of Public Health (MPH) degree during their fellowship.

During their first year of intensive clinical training, all fellows in the ACRT explore options for projects in clinical research and identify a faculty member at BWH or an associated hospital who can serve as a research mentor. The projects that fellows identify are presented at periodic clinical research workshops that are attended by both faculty and trainees; these workshops are held with the specific intent of providing fellows with additional guidance.

During the summer between their first and second years of fellowship, all fellows in the ACRT are enrolled in the Program in Clinical Effectiveness (PCE) at the Harvard School of Public Health (HSPH).⁴ The PCE—which is a joint program involving BWH, Massachusetts General Hospital, Harvard Medical School, and HSPH—is designed to help participants acquire the quantitative and analytic skills needed for a career in clinical research. The program is an intensive, 7-week (15-credit) summer program that includes core courses in clinical epidemiology and biostatistics. All participants also select 2 additional courses; choices include Decision Analysis, Research with Large Databases, Measurement of Health Outcomes, Quality Improvement in Healthcare, and Medical Informatics. This coursework is designed to firmly establish the fundamentals of clinical research. Funding for the PCE as well as for the completion of an MPH degree is provided by 2 endowments that have been established in the Division of Gastroenterology for this purpose.

During the second year of the fellowship, after the completion of the 7-week summer curriculum, a committee comprised of the fellow's research mentor, career mentor, and the codirectors of the ACRT closely monitors the progress of the fellow's clinical research. Fellows who make significant progress in their research project and demonstrate a strong commitment to clinical research are given the opportunity to earn an MPH

degree from HSPH. During the second and third years of the fellowship, additional research time is provided to all fellows (regardless of pursuit of an MPH degree), with the expectation that they will complete their research project, present their work at a national meeting, and prepare a manuscript for submission to a peer-reviewed journal. Clinical fellows who achieved an MPH degree prior to entering the fellowship program are encouraged to take advanced courses to further enhance their foundation in clinical research.

Methods

We conducted a retrospective review to determine the extent of formal clinical research training during fellowship and the career choices of all 25 fellows who entered the ACRT since its inception in 1995. The only other track in our training program is the Academic Basic Science Track, which does not offer a curriculum at HSPH.

Biographical data on each fellow were obtained by reviewing the curriculum vitae provided at the time of the fellow's application to the ACRT. Each curriculum vitae was reviewed to determine the applicant's gender, institution of residency training, and prior training in clinical research, including the procurement of an MPH degree prior to the fellowship.

The primary measure of initiation of a successful career as a clinical investigator was the obtainment of external funding for clinical research within 3 years after completion of the fellowship. Data regarding external funding within 3 years after the completion of the fellowship were obtained by communication with all fellows who completed their training in the ACRT. The designation of an academic career was determined by faculty status in an academic institution with participation in a training program in gastroenterology.

This retrospective study was approved by the Partners Institutional Review Board.

Results

A total of 25 fellows completed their training in the ACRT (Table 1). Ten fellows (40%) were women, and 14 fellows (56%) completed their prior residency training at BWH. Thirteen of the 25 fellows (52%) received an MPH degree at HSPH during their fellowship. Eleven of these 13 individuals pursued academic careers. Ten of these 13 individuals obtained external funding for clinical research within 3 years after completion of their fellowship. Six of the funded individuals received grants from the National Institutes of Health. The remaining 4 individuals who received funding received grants from the American Cancer Society, National Pancreas Founda-

Table 1. Career Choices of Fellows Who Completed Training in the Academic Clinical Research Track at Brigham and Women's Hospital

Fellows	Number
Completed training in the Academic Clinical Research Track	25
Female gender	10/25 (40%)
Completed prior residency training at Brigham and Women's Hospital	14/25 (56%)
Received an MPH degree at HSPH during their fellowship	13/25 (52%)
Pursued academic careers	11/13 (85%)
Obtained external funding for clinical research within 3 years after completion of their fellowship	10/13 (77%)
Received grants from the National Institutes of Health	6/10 (60%)
Received grants from the American Cancer Society, National Pancreas Foundation, American Society for Gastrointestinal Endoscopy, and the American College of Gastroenterology	4/10 (40%)
Obtained an MPH degree prior to their fellowship	5/25 (20%)
Pursued an academic career	1/5 (20%)
Attempted to receive external funding within 3 years of completion of their fellowship	0/5 (0%)
Completed the summer program for clinical effectiveness between the first and second years of their fellowship but did not earn an MPH degree	7/25 (28%)
Remained in academia	3/7 (43%)
Attempted to receive external funding	0/7 (0%)

HSPH=Harvard School of Public Health; MPH=Master of Public Health.

tion, American Society for Gastrointestinal Endoscopy, and the American College of Gastroenterology.

Five fellows had already obtained an MPH degree prior to their fellowship. Only 1 of these individuals pursued an academic career. None attempted to receive external funding within 3 years of the completion of their fellowship.

Seven trainees completed the PCE during the summer between their first and second years of fellowship but did not receive an MPH degree. Three of these individuals remained in academia, but none attempted to receive external funding. Neither gender nor institution of medical residency was associated with career outcome.

Discussion

A major focus of the ACRT in gastroenterology at BWH is to provide formal clinical research training, with the goal of helping trainees initiate a career in clinical investigation. In this program, 10 of 13 fellows (77%) who completed an MPH degree at HSPH were able to secure external funding within 3 years of completing their fellowship.

One noteworthy finding is that the 5 fellows who had already secured an MPH degree prior to their fellowship did not attempt to receive external funding within 3 years of completion of their fellowship. Among 2 prior studies that evaluated the impact of a prior Masters degree on the pursuit of an academic career in gastroenterology, one study reported a significant association.^{1,5} Our study found that obtaining a Masters degree during the ACRT fellowship appears to be more relevant to career decisions than obtaining a Masters degree prior to the fellowship.

Some factors that may have contributed to the success of the ACRT include the recruitment of candidates who derive a high level of satisfaction from clinical research and the commitment of the Division of Gastroenterology to mentorship and protected time for research.^{1,6} The results of this study support a previous report showing that gender is not significantly associated with pursuit of an academic career among fellows.⁷ Additionally, the fact that this study found no difference in the career outcomes of BWH residents compared to residents from other hospitals suggests that close famil-

ilarity with an applicant's record does not facilitate the achievement of a successful clinical research career.

Many factors may have influenced the decisions of the 7 fellows who did not complete an MPH degree during their fellowship; these factors include private family issues, the uncertainty of future research success, and the perceived opportunity of increased financial rewards in private practice.^{4,5,7,8} Other factors such as marital status or the number of children at the end of the fellowship have not been shown to impact career choices among fellows.⁷

Importantly, none of the trainees who completed only the initial 15 credits in the PCE at HSPH achieved external funding within 3 years after completing their fellowship. In comparison, almost all of those who obtained an MPH degree achieved external funding. It is difficult to know to what extent those individuals who chose to pursue an MPH degree during their fellowship were already committed to a career in clinical investigation or whether the curriculum itself was a decisive factor in stimulating their interest in clinical research. In either case, individuals who completed formal clinical research training during their fellowship were very successful in obtaining external funding for clinical research.

Conclusion

Formal clinical research training culminating in an MPH degree during fellowship was extremely valuable in helping fellows initiate a career in clinical research.

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