

Original Publication

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Introducing Trainees to Academic Medicine Career Roles and Responsibilities

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Citation: Fernández CR, Lucas R, Soto-Greene M, Sánchez JP. Introducing trainees to academic medicine career roles and responsibilities.

MedEdPORTAL. 2017;13:10653.
https://doi.org/10.15766/mep_2374-8265.10653

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Abstract

Introduction: The future of academic medicine depends on attracting motivated trainees to the academic career path, but challenges to recruitment include unfamiliarity with academic career options. **Methods:** This workshop comprises a didactic session with small-group case discussion to enable trainees to learn how to: (1) define academic medical center roles and responsibilities, (2) assess the alignment of academic medical center roles with personal goals and interests, and (3) identify factors that support an academic medicine career trajectory. Workshop evaluations were collected at five academic medicine conferences for medical students and residents held across the U.S. **Results:** Among the 139 conference participants who completed an evaluation form, the majority had a statistically significant increase in confidence regarding their building a foundation for a career in academic medicine, and in identifying an academic medicine career role aligning with their own personal and professional interests. The majority strongly agreed or agreed that the workshop objectives were met. Trainees reported that the workshop was “illuminating,” “informative,” and “educational.” **Discussion:** Improved understanding of academic medicine career roles and responsibilities can increase trainees’ awareness of the opportunities in academic medicine and may support development of the next generation of academic physicians.

Keywords

Academic Medicine, Career Development, Academic Track, Career Path

Appendices

- A. Career Roles and Responsibilities Presentation.pptx
- B. Facilitator Instructional Guide.docx
- C. Interests, Talents, and Values Worksheet.docx
- D. Case Scenarios and Worksheets.docx
- E. Evaluation Form.docx
- F. Train the Trainer Video .mp4

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

Educational Objectives

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

1. Define academic medical center roles and responsibilities.
2. Assess the alignment of academic medicine center roles with personal goals and interests.
3. Identify factors that support an academic medicine career trajectory.

Introduction

Attracting new physicians and scientists to academic medicine is crucial to maintaining an adequate workforce of medical school faculty. High rates of physicians leaving academic medicine^{1,2} create an urgency in recruiting the next generation of medical school faculty. Further, there are calls not only to train a more diverse pool of practicing physicians in the U.S.³ but also to create a more diverse faculty to prepare physicians for reducing health disparities and delivering culturally competent care.⁴ Interest in entering academic medicine has been shown to decline over years of residency training^{5,6}; therefore, building knowledge and enthusiasm for an academic career earlier in the medical pipeline may be an important strategy to attract physicians to academia.

Although interest in an academic career may come early in training, lack of understanding of career options and of what is required to succeed as a faculty member can be one barrier to making this choice.⁷ There is tremendous variation of faculty appointment tracks at U.S. medical schools; however, most schools offer at least one research track, one clinical track, and one education track.⁸ Understanding the advantages and disadvantages of serving in a tenure track versus a nontenure track, as well as the common requirements of research, clinical, or education tracks, may help students and residents match

these opportunities to their own strengths and interests. Furthermore, understanding administrative roles such as deans, department chairs, or center directors may help trainees understand career-growth opportunities available in academia.

A large body of literature on career choice in academic medicine^{9,10} has uncovered some factors associated with choosing academic careers (e.g., early exposure to research and good mentors) and disincentives to choosing careers in academic medicine (e.g., politics and lack of autonomy). However, there is no conclusive study on how and why students or trainees choose a career in academic medicine.¹⁰ Social cognitive career theory (SCCT) has been studied in several disciplines, including medicine, as a means of predicting career choice.^{8,11-13} SCCT asserts that self-efficacy (one's belief in one's ability to succeed), outcome expectations (how one anticipates external factors beyond one's control can help or hinder success), and personal characteristics (gender, values, personal predispositions) are all important in developing career interests and choices.¹¹ This could be a useful framework upon which to build efforts to attract physicians and scientists to a career in academic medicine.

Bakken, Byars-Winston, and Wang¹² described potential interventions based in SCCT that could be useful in developing physician scientists. Among these are workshops that emphasize vicarious learning experiences, verbal persuasion, and positive affective reactions; activities that assist trainees in formulating goals; and the establishment of career objectives and benchmarks for those objectives. Searching *MedEdPORTAL* with the terms *career choice*, *academic career*, and *workshop*, we found one career-development resource related to choosing a specialty¹⁴ and another in which career development is part of a yearlong professional identity curriculum.¹⁵ Here, we describe a unique workshop designed to address the lack of understanding of academic career options and faculty tracks that has been identified in trainees who may be interested in an academic career. The workshop's activities are grounded in SCCT. Educating students on career tracks can help them understand the academic environment so that they have reality-based outcome expectations. Through a reflective exercise on their own values, interests, and strengths, students improve self-understanding of their own personal characteristics and how these can influence career choice. Lastly, through case scenarios led by an affirming facilitator, students learn vicariously to increase self-efficacy with regard to a possible academic career.

In 2015, the Building the Next Generation of Academic Physicians (BNGAP) group crafted a collection of workshops to improve trainees' awareness of academic medicine careers. A BNGAP Curriculum Committee of 25 diverse medical education leaders and trainees from across the country developed and/or reviewed the workshops. The Curriculum Committee utilized the Kern model¹⁶ for the workshops' design, implementation, and evaluation. This particular workshop has been designed in the context of that larger curriculum but can also be implemented in a stand-alone fashion. It aims to define academic medicine career roles and the opportunities available during training and posttraining to support an academic medicine career.

Core concepts of academic medical center roles and responsibilities and how well these opportunities fit with personal goals and interests can be applied across health professions (e.g., dental and nursing). If the workshop is being adapted, we recommend using speakers and cases that tune to the respective audience's needs and desires. The goal is to help workshop participants understand different academic medical center roles and to challenge their assumptions and beliefs about the opportunities and experiences necessary to develop an academic medicine career.

Methods

This workshop enlisted two educational strategies: (1) an interactive didactic component to introduce trainees to basic knowledge and concepts related to the various academic medicine roles and opportunities and (2) small-group activities for participants to apply newly acquired knowledge to a mock case of a trainee and her career trajectory. The case enabled the participants to use the knowledge from the didactic component to identify how different research and educational opportunities during training support different academic medicine career possibilities. Small groups were restricted to a maximum of

five trainees per group so participants could discuss how information from the didactic component, combined with personal interests and values, informed the groups' choices for the case scenarios.

Workshop facilitators should review the presentation (Appendix A), facilitator instructional guide (Appendix B), interests, talents, and values worksheet (Appendix C), and case scenarios and associated worksheets (Appendix D) as preparation. Appendix F provides an instructional video for facilitators to accompany the presentation instructions. Facilitators may need 1-2 hours to review the materials, and a run-through session prior to implementing the workshop is recommended. If there are multiple workshop leaders, we also recommend that they meet by phone and/or in person prior to the workshop to discuss the sections of the presentation that each will handle. One person can be the main session moderator while the rest focus on particular areas of the presentation. Below is a list of the contents of the included appendices.

Appendix A: Career Roles and Responsibilities Presentation

The workshop content is featured in this PowerPoint presentation consisting of 45 slides. The presentation outlines the core content for the trainees, including important terms and definitions of different academic medicine career roles; personal interests, values, and talents that may be considered when choosing a career path; and case scenarios to which trainees apply content absorbed from preceding slides.

Appendix B: Facilitator Instructional Guide

This document gives step-by-step instructions on how to facilitate the workshop and what to share about each slide in the PowerPoint Presentation (Appendix A). Facilitators are encouraged to include their own academic medical center's faculty composition on Slide 27 and to discuss their personal experiences and career journey during Slide 28 to create connections between the workshop material and real-world applications. For example, the version of Slide 28 now included in the presentation features a description of the professional journey of lead coauthor Dr. Cristina R. Fernández. It can be replaced by the facilitator's own professional journey—educational experiences, career positions, roles in academic medicine, and future desired roles.

Appendix C: Interests, Talents, and Values Worksheet

This document (Worksheet 1) provides a list of different interests, talents, and values that may be important to participants when considering their career path and potential engagement in academic medicine. The items are broad domains adapted from a survey to gauge medical student interest in academic medicine implemented by Greenberg and colleagues.¹⁷ Participants are encouraged to complete the worksheet on their own and rank the domains as a reflection activity that integrates knowledge from the workshop with participants' personal ideals for their career path.

Appendix D: Case Scenarios and Worksheets

These documents (Worksheets 2-4) include two case scenarios for the facilitator to use during Slides 29-40 of the PowerPoint presentation (Appendix A) that describe research and service opportunities available to a woman named Emma when she is in medical school and then in residency. These case scenarios are discussed during the 40-minute small-group session. Each small group should optimally consist of two to five participants. The two case scenarios for Emma as a medical student and Emma as a resident are distributed to the groups. As an alternative, the groups may choose their own real case or a current project for this activity. Participants are asked to use the worksheets to choose the ideal opportunity for Emma to pursue in medical school and then in residency based on the options provided, and to list and discuss the skills gained with each opportunity. The small groups are then asked to share their answers as a large group—the skills associated with each listed opportunity, the research and service opportunities they selected for Emma to pursue in medical school and residency, and which academic medicine roles are aligned with the selected opportunities. As a large group, the participants can discuss next steps for Emma (or their real case, if one is used) in medical school and residency to continue building an academic medicine career foundation.

Appendix E: Evaluation Form

Workshop participants were asked to answer a set of questions prior to and after the workshop to gauge their awareness of various academic career roles and responsibilities and how these roles align with their personal and professional interests. The questions were as follows:

Using a 5-point Likert scale (0 = *No confidence*, 4 = *Complete confidence*), indicate “How much CONFIDENCE do you have in your ability to. . .”

1. Start building a foundation for a career in academic medicine.
2. Identify an academic medicine career role that aligns with your PROFESSIONAL interests.
3. Identify an academic medicine career role that aligns with your PERSONAL interests.

Using a 5-point Likert scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, 5 = *Strongly Agree*), indicate “A career in academic medicine would. . .”

1. Allow me to serve in a leadership role at a medical school.

Using a 5-point Likert scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, 5 = *Strongly Agree*), indicate “To what extent do you agree that the workshop learning objectives were met?”

1. List academic medical center roles.
2. Assess alignment of academic medical center roles and personal interests.
3. Recognize and name factors that influence career trajectory.

After recording their responses to the aforementioned three learning objectives, participants were then asked to answer two open-ended questions:

1. What did you like about this workshop?
2. What suggestions do you have to improve this workshop.

Appendix F: Train the Trainer Video

This video is a complement to the facilitator guide (Appendix B) and was filmed to reinforce consistency of the workshop across conference sites. This 19-minute video features Dr. Cristina R. Fernández, lead coauthor of this workshop. She highlights the intent of the slides in the presentation, describes how to present the cases and stimulate group discussion, and shares how she provided her own personal and professional anecdotes as an example to facilitators.

Materials

- Pens.
- Audiovisual equipment to show the PowerPoint presentation (Appendix A).
- Chairs or chairs and tables to support two to five participants per small group.
- Flip chart and markers to note small-group comments regarding the cases.
- Printed copies of the interests, talents, and values worksheet (Appendix C), the case scenarios and worksheets (Appendix D), and the evaluation form (Appendix E).

This workshop can be carried out with medical students and/or residents (and even junior faculty). The preferred facilitator would be a faculty member with an MD or DO degree who has experience in trainee and faculty development. One or two facilitators can implement the workshop. If there are two or more cofacilitators, an effort should be made for them to meet and divide the different sections of the presentation equally to promote the different strengths and experiences of each cofacilitator. The optimal timing for the workshop is 90 minutes. It can be shortened by having students complete the preevaluation questions and worksheet prior to the workshop and/or by replacing the small-group discussion of cases with a large-group discussion.

The workshop can be carried out in a larger auditorium or smaller classroom. If using a smaller room or classroom, chairs and/or desks can be assembled in groups of two to five at the beginning in anticipation of the small-group activity. The PowerPoint presentation (Appendix A) should be projected using the audiovisual equipment in a way that makes it visible to all workshop participants.

Results

This workshop has been presented at five regional conferences and facilitated by three single presenters and two pairs of cofacilitators across career levels—assistant professors (two), associate professors (one), and full professors (four). All workshop facilitators were faculty members at an academic medical center.

One hundred thirty-nine trainees have participated in this workshop. Of these 139 diverse participants, 72 (51.8%) identified as women; 60 (43.2%) as men; 30 (21.6%) as lesbian, gay, bisexual, or queer; 38 (27.3%) as Hispanic/Latino; 36 (25.9%) as white; 40 (28.8%) as African-American/black; 28 (20.1%) as Asian; and two (1.4%) as American Indian. Participants comprised 124 medical students and 15 medical residents from 13 different states and Washington, DC.

One hundred eleven (79.9%) trainees responded to the pre- and postworkshop questionnaire, as detailed in Table 1. In every case, the postworkshop response was higher than the preworkshop one, indicating that the workshop enabled trainees to feel more confident in their ability to develop an academic medicine career.

Table 1. Summary of Learner Responses to Pre- and Postworkshop Questions

Question	M		p
	Preworkshop	Postworkshop	
How much CONFIDENCE do you have in your ability to . . .			
Start building a foundation for a career in academic medicine. ^a	1.83	3.31	.000
Identify an academic medicine career role that aligns with your PROFESSIONAL interests. ^a	2.18	3.20	.000
Identify an academic medicine career role that aligns with your PERSONAL interests. ^a	2.14	3.17	.000
A career in academic medicine would . . .			
Allow me to serve in a leadership role at a medical school. ^b	4.28	4.48	.003

The paired-samples *t* test was applied to assess a statistically significant change in confidence ($p < .05$).

^aFive-point Likert scale (0 = *No confidence*, 4 = *Complete confidence*).

^bFive-point Likert scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, 5 = *Strongly Agree*).

One hundred six (76.3%) learners responded to the question, “To what extent do you agree that the workshop learning objectives were met?” The majority agreed or strongly agreed that the objectives were met, indicating consistent alignment between the workshop’s learning objectives and its content. The responses are detailed in Table 2.

Table 2. Learner Responses ($N = 106$) to the Question, “To What Extent Do You Agree That the Workshop Learning Objectives Were Met?”

Objective	n (%)				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
List AMC roles.	73 (68.9)	33 (31.3)	0 (0)	0 (0)	0 (0)
Assess alignment of AMC roles and personal interests.	52 (49.1)	49 (46.2)	5 (4.7)	0 (0)	0 (0)
Recognize and name factors that influence career trajectory.	56 (52.8)	43 (40.6)	6 (5.6)	1 (1.0)	0 (0)

Abbreviation: AMC, academic medical center.

We organized participants' comments by workshop learning objectives for the questions, "What did you like about this workshop?" and "What suggestions do you have to improve this workshop?" below. Participant comments for this workshop were overall positive, with a few suggestions for improvement.

What did you like about this workshop?

- Learning Objective 1: List academic medical center roles.
 - "She went in detail the pros and cons of various roles in academic medical centers."
 - "Very good presentation with good explanation of the paths available in academic medicine."
 - "Loved the simple and concrete break down of a few of the roles that are available in academic medicine. This is very practical and not information we otherwise receive formally."
 - "I found the information about each of the different roles/positions to be incredibly illuminating."
 - "Educational, informative, good summary about roles of different higher ranked faculties."
 - "I really appreciated the summary/comparison tables that were presented as a way to understand the different pathways in academic medicine and administrative roles."
 - "The descriptions of each of the academic medical roles were laid out very clearly! Would love to see this presentation integrated in the medical curriculum."
- Learning Objective 2: Assess alignment of academic medicine center roles and personal interests
 - "Hearing personal stories gives listeners a sense of hope that we can one day fill those positions."
 - "Sample case was really helpful in integrating all objectives. Would love to see this integrated into medical school curriculum. Would like to see more focus on personal qualities, interests and which roles your experiences lend better to that."
 - "I enjoyed the example of Emma because it allowed to see potential paths for my future based on my interests."
 - "I liked the descriptions of different positions in academic medicine. I didn't even know you could be an academic physician without a strong research component, but now I know about clinical faculty. So, thanks!"
 - "Excellent review of terms and I have a better understanding of how to begin to align personal goals with future career projects."
 - "I like how it opened my eyes to all the career option available in academia."
 - "I think I know now which path I want to take: clinical educator."
 - "This lecture really helped me understand all the different paths you can take in academic med and that I can truly tailor academic med to what's important to me."
 - "I learned about different positions in academia. Now I am able to narrow down potential goals in academia due to personal interests."
 - "I liked the fact that the speaker outlined the various opportunities available to students in academic medical settings, specifically comparing for example clinical investigator to clinical educator to clinical faculty roles."
- Learning Objective 3: Recognize and name factors that influence career trajectory.
 - "Encouraged me to think of specific opportunities I can take now to tailor my experience to build a career."
 - "The case study was cool to see the different paths one can take."
 - "I liked the information on how the given pathways can intersect at different points."
 - "I liked the Emma scenario b/c it's less stressful than thinking ahead in my own path."
 - "The workshop was very clear and informative. The detailed discussion of career trajectory was insightful. The explicit layout to define roles helped me understand possible roles to consider in the future. The activity was great to get active participation."

- “The ‘choose your own story’ was a very nice touch to begin discussion about different tracks.”
- “Loved the candid talk about the journey as opportunities for skills to be developed instead of relying on activities themselves to bring them to where they want to be.”

What suggestions do you have to improve this workshop?

- “In-person talks of various roles. Someone who is an academic/clinical educator/investigator/professor and what things influenced their choice.”
- “I would have liked to know what experiences + achievements qualify someone for one career track vs. another.”
- “Steps to get to this role, access to resources to better assess if we want to be the new faces of academia. How these roles apply to where I am now in ways other than deciding to commit as a career.”
- “Activity may be a bit better if residents sit with each other and students with each other.”
- “Would have like to see a ‘timeline’ of from resident/student through those positions, and if it is linear, how translational/easy it is to move through the different roles.”
- “More details/examples of some of the work done by various roles.”
- “More time to allow for completion of interactive activities.”
- “I wish there was more of an emphasis on how to pursue these careers (i.e., outlining more career paths and what exactly should be done in order to become a dean, faculty, etc.).”
- “I would like to learn more about how different project influence your career path. Can you do a career investigator role if you do not do basic science research?”
- “It would be great to have some more specifics what the day to day might look like in the various roles, and to talk more about people who straddle categories (i.e., teach, do research, and see patients).”
- “It would be helpful to include a ‘road map,’ maybe how these different positions in academic medicine are interconnected and how you can progress from one to another.”

Discussion

This workshop provides an important foundation for introducing medical students and residents (and even new junior faculty) to the diversity of career opportunities in a career in academic medicine, and can be offered at medical schools and residency programs across the country. Per the evaluations, this workshop accomplished its goals and objectives, as evidenced by more than 90% of the participants agreeing or strongly agreeing that the workshop realized the learning objectives. Participants highly valued the workshop content and felt confident in applying the learning objectives to their own lives. Based on the open-ended comments, participants considered the workshop “informative,” “illuminating,” “practical,” and “educational” in highlighting the career opportunities and trajectories in academic medicine.

In response to the evaluations, we made adjustments to the PowerPoint presentation (Appendix A) and the case scenarios and worksheets (Appendix D). Feedback requests for a road map with specific experiences necessary for the different academic roles led to creation of Slide 38 in the PowerPoint presentation. Titled “Emma’s Career Journey Options,” this slide presents a delineation of qualities and opportunities that lend themselves to three of the most common academic medicine roles—clinician investigator, clinician educator, and clinical faculty. Also, to aid participants in connecting the opportunities offered in Emma’s case with the specific academic medical center roles discussed earlier in the presentation, we added the following question to Worksheet 3 (in Appendix D): “What type of academic role does this experience best support?” To address questions about the work done by generalists and subspecialists in various academic medicine roles, we created Slide 39 in the PowerPoint titled “Evolving Definition of Scholarly Work,” and listed examples of work products across academic tracks. We also created Slide 40, titled “Emma’s Future . . .,” and added the question found on Worksheet 4 to encourage

participants to consider the personal interests and activities that align with an academic medicine career in general, and specific academic roles in particular.

The selection of workshop facilitators is important to provide inspiration to participants, serve as role models, and encourage interest in an academic medicine career.^{9-10,17} It is recommended, though not required, that facilitators have experience with career development at the medical trainee and/or faculty levels and have participated in faculty hiring and/or promotion activities. These skills and experiences provide insights into academic medicine career pathways that enable facilitators to share real-world examples and function as role models and guides for successful entry into an academic medicine career.

For an enhanced workshop, we recommend that facilitators spend 30 minutes on the didactic lecture (Slides 1-27), approximately 7-10 minutes on the personal professional journey (Slide 28), and the remainder of the time on the case scenarios and group discussions. If there are two cofacilitators, one facilitator can share his/her professional career journey, or both facilitators can, with each speaking for 5 minutes. In response to feedback we received, the facilitators should share specific experiences from medical school and/or residency and posttraining that put them on the path to their current position. They should also discuss day-to-day activities to provide participants with concrete examples of work done by academic medicine physicians in different roles and connect how the current activities prepare for future academic roles and opportunities. Additionally, for the case scenarios, the small groups should be separated into medical students and residents.

On review of the participant evaluations, we identified time as a limitation of the workshop because there is not sufficient opportunity for participants to query facilitators about the transition from one academic medicine role or track to another role or track, or about how the different roles interact in an academic medical center. Incorporating a dedicated Q&A session may allow participants to hear more examples from facilitators and gather specific recommendations on opportunities based on personal interests and goals. Although the workshop is timed to last 90 minutes, if there is a larger group of participants then more time may be required for the case scenarios and group discussions. To save time, facilitators may present the case scenarios and direct a large-group discussion.

We are currently working with leaders representing different specialties to modify this workshop for dental students and prehealth graduate students with an early interest in an academic medicine career.

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Acknowledgments

Thank you to Dr. Jesse Joad and Dr. Ian McNeil for their past participation on the Building the Next Generation of Academic Physicians (BNGAP) Curriculum Development Committee and assistance with the development of the earliest drafts of this workshop presentation.

Disclosures

All authors are members of the Building the Next Generation of Academic Physicians (BNGAP) Curriculum Development Committee.

Funding/Support

None to report.

Informed Consent

All identifiable persons in this resource have granted their permission.

Ethical Approval

The Rutgers New Jersey Medical School, Newark Institutional Review Board approved this study.

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Received: June 25, 2017 | Accepted: October 20, 2017 | Published: November 15, 2017