

Early Career Outcomes following a Quality Improvement Leadership Track in Graduate Medical Education



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INTRODUCTION

Select graduate medical education (GME) programs have created training pathways in quality improvement (QI).¹ The goal of these pathways is to provide residents interested in QI and leadership with training, mentorship, and education to prepare them for QI careers. While career outcomes following GME training pathways in other areas have been described, outcomes following QI pathways are unknown.^{2,3,4,5} We aimed to describe the early career outcomes and professional activities of graduates of a residency-based QI leadership track.

METHODS

Penn Medicine's Healthcare Leadership in Quality (HLQ) track was created in 2010 as a 2-year pathway embedded within residency training. While initially limited to Internal Medicine residents, the track opened to trainees from all residency programs beginning in 2012. The track consists of four components: classroom-based learning, leadership development, a capstone QI project, and engagement in a local quality team.¹

In October 2019, HLQ graduates who completed their GME training by 2018 were anonymously surveyed using a web-based platform. The survey instrument was adapted from an existing career outcomes survey of medicine-pediatrics residents, and pilot tested with five 2019 HLQ graduates not included in the study.⁶ For comparison, graduates were stratified into two cohorts based upon year of GME completion, 2012–2016 and 2017–2018. Stratification is based on authors' hypothesis that graduates with at least 3 years of post-GME professional activities would be more likely to foster the necessary skills, experiences, and connections to be considered for positions of leadership. Data were analyzed using descriptive statistics and chi-square tests. The study was

reviewed and approved by the University of Pennsylvania Institutional Review Board.

RESULTS

Fifty-seven of 76 graduates responded (75% response rate). Demographics are outlined in Table 1. Thirty-eight graduates (67%) work for a hospital or healthcare system, of which 28 (76%) work at an academic medical center (AMC), 4 (11%) at a teaching affiliate of an AMC, and 5 (14%) at a community hospital. The remaining graduates work at private practices (10, 18%), governmental agencies (4, 7%), pharmaceutical and biotechnology companies (2, 4%), and other healthcare settings (3, 5%).

Forty-seven graduates (87%) report engagement in QI and over half of these individuals receive financial support for their QI work (Table 2). QI engagement occurs through project work (81%), leadership roles (45%), teaching (38%), research (32%), and consulting (9%) (graduates were able to select all that apply). Among the 47 graduates engaged in QI, 30% have published QI work in a peer reviewed journal and 40% have shared QI work at a national conference (Table 2). Thirty-five graduates (63%) hold a leadership role, with the largest percentage of leadership positions at the departmental level (Table 2).

Table 1 Demographics of Graduates from the Healthcare Leadership in Quality Track, University of Pennsylvania Graduate Medical Education, 2012–2018

Variable	No./total. no* (%)
Gender	
Male	29/50 (58.0)
Female	21/50 (42.0)
Race/ethnicity	
White	39/49 (79.6)
Asian	8/49 (16.3)
Black/African American	1/49 (2.0)
Hispanic/LatinX	1/49 (2.0)
Specialty of training	
Internal medicine	21/50 (42.0)
Emergency medicine	9/50 (18.0)
Family medicine	7/50 (14.0)
Obstetrics/gynecology	5/50 (10.0)
Neurology	2/50 (4.0)
Physical medicine and rehabilitation	2/50 (4.0)
Psychiatry	2/50 (4.0)
Anesthesiology	1/50 (2.0)
Radiology	1/50 (2.0)

*Missing responses were excluded from the denominator of each calculation of percentage of total responses. Missing responses include the following: gender (7), race/ethnicity (8), specialty of training (7)

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Table 2 Quality Improvement and Leadership Engagement of Graduates from the Healthcare Leadership in Quality Track, University of Pennsylvania Graduate Medical Education, 2012–2018

Variable	Overall (N 57)	2012–2016 Graduates (N 29)	2017–2018 Graduates (N 28)	Chi-squared test
	No./total. no* (%)	No./total. no* (%)	No./total. no* (%)	p value
Involvement in quality improvement				
Involved in QI	47/54 (87.0)	24/27 (88.9)	23/27 (85.2)	0.69
Financial support for quality improvement				
Presence of financial support	26/47 (55.3)	18/24 (75.0)	8/23 (34.8)	0.006
Source of financial support				
Salaried	16/26 (61.5)	11/18 (61.1)	5/8 (62.5)	0.02
Grant	5/26 (19.2)	2/18 (11.1)	3/8 (37.5)	
Bonus/stipend payment	3/26 (11.5)	3/18 (16.7)	0/8 (0)	
Industry support	2/26 (7.7)	2/18 (11.1)	0/8 (0)	
Scholarly activity in quality improvement				
Published in a peer-reviewed journal	14/47 (29.8)	6/24 (25.0)	8/23 (34.8)	0.46
Presented at a national conference	19/47 (40.4)	11/24 (45.8)	8/23 (34.8)	0.44
Leadership roles				
Presence of leadership role	35/56 (62.5)	20/28 (71.4)	15/28 (53.6)	0.17
Level of leadership role				
Hospital/system	6/35 (17.1)	4/20 (20.0)	2/15 (13.3)	0.51
Department	15/35 (42.9)	7/20 (35.0)	8/15 (53.3)	
Division	9/35 (25.7)	4/20 (20.0)	5/15 (33.3)	
Program	1/35 (2.9)	1/20 (5.0)	0/15 (0)	
Medical education	2/35 (5.7)	2/20 (10.0)	0/15 (0)	
Physician association	1/35 (2.9)	1/20 (5.0)	0/15 (0)	
Industry	1/35 (2.9)	1/20 (5.0)	0/15 (0)	

*Missing responses were excluded from the denominator of each calculation of percentage of total responses. Missing responses included the following: involved in QI (3), presence of leadership roles (1)

When comparing the two cohorts of graduates (2012–2016 vs. 2017–2018), participation in QI activities ($p=0.69$), scholarship ($p=0.44$ – 0.46), and leadership roles ($p=0.17$) was similar. However, 2012–2016 graduates reported higher rates of financial support for QI work ($p<0.01$).

DISCUSSION

This is the first study that describes the early career outcomes of graduates of a residency track in QI leadership. We observed high degrees of engagement in QI (87%) and leadership roles (63%), which suggest the HLQ track is achieving its intended goals. Furthermore, this helps to demonstrate the track's value to the sponsoring health system.

Our findings are similar to prior studies that describe career outcomes following GME training pathways in areas including global health, medical education, research, and rural medicine.^{2,3,4,5} These findings suggest that completion of a training pathway in a selected focus area during residency is associated with continued engagement in that area and may be useful for GME programs and their partner sponsoring institutions who wish to promote careers in specific areas.

When comparing 2012–2016 and 2017–2018 cohorts, earlier graduates had significantly higher rates of financial support for QI activities, a logical finding given that compensation for non-clinical activities often comes to those with more time to demonstrate skills and accrue experience.

This study has several limitations. Importantly, it lacks a control group, which would be helpful to elucidate the

incremental impact of the HLQ track on career outcomes. Additionally, it represents a single institution. Furthermore, respondents had the option to skip questions, leading to a small amount of missing data, which may skew results.

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