



Mentorship, Productivity, and Promotion Among Academic Hospitalists

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BACKGROUND: United States academic hospitals have rapidly adopted the hospitalist model of care. Academic hospitalists have taken on much of the clinical and teaching responsibilities at many institutions, yet little is known about their academic productivity and promotion.

OBJECTIVE: We sought to discover the attitudes and attributes of academic hospitalists regarding mentorship, productivity, and promotion.

DESIGN: We performed a web-based email survey of academic hospitalists consisting of 61 questions.

PARTICIPANTS: Four hundred and twenty academic hospitalists.

MAIN MEASURES: Demographic details, scholarly production, presence of mentorship and attitudes towards mentor, academic rank

KEY RESULTS: Two hundred and sixty-six (63%) of hospitalists responded. The majority were under 41 (80%) and had been working as hospitalists for <5 years (62%). Only 42% of academic hospitalists had a mentor. Forty-four percent of hospitalists had not presented a poster or abstract at national meeting; 51% had not been first author on a peer-reviewed publication. Factors positively associated with publication of a peer-reviewed first author paper included: 1) male gender, AOR=2.38 (95% CI 1.30, 4.33), 2) >20% "protected" time, AOR=1.92 (95% CI 1.00, 3.69), and 3) a better-than-average understanding of the criteria for promotion, AOR=3.66 (95% CI 1.76, 7.62). A lack of mentorship was negatively associated with producing any peer-reviewed first author publications AOR=0.43 (95% CI 0.23, 0.81); any non-peer reviewed publications AOR=0.45 (95% CI 0.24, 0.83), and leading a teaching session at a national meeting AOR=0.41 (95% CI 0.19, 0.88). Most hospitalists promoted to the level of associate professor had been first author on four to six peer-reviewed publications.

CONCLUSIONS: Most academic hospitalists had not presented a poster at a national meeting, authored an academic publication, or presented grand rounds at their institution. Many academic hospitalists lacked mentorship and this was associated with a

failure to produce scholarly activity. Mentorship may improve academic productivity among hospitalists.

KEY WORDS: mentorship; hospital medicine; faculty development; survey.

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BACKGROUND

United States teaching hospitals have rapidly adopted the hospitalist model of care.^{1,2} Academic hospitalists perform numerous clinical roles including: staffing traditional housestaff teaching teams, covering non-teaching services and performing medical consultation. Simultaneously, an expectation often exists to pursue scholarly endeavors and fulfill publication requirements in order to achieve promotion. It is unclear if sufficient guidance and resources exist to ensure the academic success of junior hospitalists. We sought to explore these issues by performing a survey of academic hospitalists to assess mentorship, scholarly productivity and promotion.

Prior research revealed that promotion among academic internal medicine physicians is associated with identifying career mentors, meeting with supervisors about promotion at least yearly, devoting 30% of work to research efforts, working more than 60 hours per week and feeling satisfied at work.³ Mentorship is a traditional element of academic life and has been shown to contribute to academic success^{4,5} across an entire academic career.⁶ An academic mentor may fill the roles of teacher, sponsor, advisor, agent, role model, coach, and confidante.⁷ Effectively mentored junior faculty report higher rates of research skills and preparation.⁸ Medical faculty with mentors report more publications, more time spent on research activity, and higher levels of confidence in their academic roles.⁹⁻¹¹ Thus, we predicted that a failure of academic hospitalists to obtain adequate mentorship may result in a failure in scholarly endeavors. We sought to benchmark the scholarly productivity of hospitalists who had been promoted to the level of associate and full professor and identify features of productive and successful academic hospitalists and their work environment.

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METHODS

Participants and Data Collection. In order to make this email-based survey feasible it was necessary to gather the valid email addresses of active U.S. academic hospitalists. By consensus as well as information and input from the SHM Academic Hospitalist Committee and the SGIM Academic Hospitalist Task Force, the authors identified 25 established academic hospitalists groups covering a broad geographic distribution. The leaders of these hospitalist groups received an invitation to participate in the study which described the purpose of the survey, asked for permission to contact their physician staff, and requested a list of accurate email addresses. The leaders of 20 programs agreed to participate. Our initial study population consisted of 420 hospitalists. Data collection occurred during the calendar year 2008. The survey protocol was approved by the Colorado Multiple Institutional Review Board.

Survey Instrument. The web-based email survey consisted of 61 questions encompassing demographics, work environment, mentorship and scholarly productivity. In developing this survey, we drew heavily from previous surveys on mentors and promotion.¹¹⁻¹⁵ Mentorship was defined as “a dynamic, reciprocal, relationship between an advanced career incumbent (the mentor) and a junior person (the protégé) aimed at fostering the development of the protégé.”¹¹ Questions addressed the presence, structure and desired traits of the mentor-mentee relationship. Scholarly productivity was assessed through self-report of the number and type of publications and presentations as well as the amount of time protected for non-clinical activities. After the initial email survey the system automatically generated up to four automatic reminders for non-responders.

Statistical Analysis. Simple statistics were used to describe responses, with bi-variable statistics used to compare key groups (such as respondents versus non-respondents).

We constructed multivariable models to determine factors associated with reports of academic productivity. Covariates were selected for inclusion in models if they were associated with our outcomes (academic productivity) at $p < 0.05$, face validity, or because of observed confounding. All analyses were performed using SAS 9.1 (SAS Institute, Cary NC).

RESULTS

Respondent Characteristics and Job Descriptions (Table 1). Two-hundred and sixty six of the 420 hospitalists responded to the survey (63%). Demographic and other characteristics of respondents are shown in Table 1.

Mentorship (Tables 2 and 3). Fewer than half of the respondents (42%) identified a mentor as defined in the study. Among those who identified a mentor, 37% reported a

Table 1. Demographics N=266 Respondents (Unless Otherwise Specified)

Gender, N (%)	Male	140 (53%)
	Female	126 (47%)
Age	≤30	26 (10%)
	31–40	185 (70%)
	41–50	47 (18%)
	>50	5 (2%)
Years as a hospitalist (N=265)	<1	32 (12%)
	1–2	66 (25%)
	3–4	65 (25%)
	5–6	43 (16%)
	7–8	18 (7%)
	9–10	16 (6%)
Academic rank	>10	25 (9%)
	Instructor	86 (33%)
	Assistant professor	139 (53%)
	Associate professor	27 (10%)
	Professor	11 (4%)
	Adjunct faculty	1 (0.1%)
Primary academic role	Clinician–investigator	32 (12%)
	Clinician–educator	167 (63%)
	Clinician–administrator	34 (13%)
	Clinician–non-teaching	33 (12%)
Percent of hours “protected” for scholarly or administrative duties (N=264)	≤10%	111 (42%)
	11%–20%	40 (15%)
	>20%	113 (42%)
Percentage of clinical time spent with patient care on non-teaching services (N=265)	≤20%	104 (39%)
	21%–40%	39 (15%)
	41%–60%	27 (10%)
Percent of clinical time spent in direct patient care with trainees (N=265)	>60%	95 (36%)
	≤20%	80 (30%)
	21%–40%	59 (22%)
Primary hospital where majority of clinical time is spent (N=261)	41%–60%	40 (15%)
	>60%	86 (32%)
	University	214 (82%)
	County	14 (5%)
Primary hospital where majority of clinical time is spent (N=261)	Community teaching	19 (7%)
	Community non-teaching	10 (4%)
	Other	4 (2%)

single mentor; 34% had two; and the remainder reported three or more. Of primary mentors, half were 41–50 years of age and most (76%) were male. Only 20% of mentees had their primary mentor assigned. Fifty-two percent of hospitalists were mentored by hospitalists. Among academic hospitalists with mentors, nearly half (48%) reported a working relationship with their primary mentor of fewer than two years. The majority (58%) of hospitalists had four or fewer meetings with their primary mentor in the last year with the average meeting lasting less than an hour for 57% of those surveyed.

The value of mentorship in academic career development was rated as “excellent” and “very good” by 46% and 30%, respectively, among hospitalists with a primary mentor. Among all academic hospitalist respondents, the highest rated mentorship trait was “enthusiasm for mentoring” (97%) followed by the “ability to give career advice,” (97%), and the “ability to inspire the mentee,” (93%). Hospitalists with mentors (compared to those without) assigned a higher importance to professional reputation (93% vs. 82%, $p = 0.008$), the ability to give career advice (70% vs. 52% rated highly important, $p = 0.01$), and the value of mentorship to success in academic medicine general (63% vs. 44% rated highly important, $p = 0.009$).

In the multivariate analysis and after adjusting for years in academic medicine, academic role, and percent of time spent with patient care on non-teaching services, the lack of

Table 2. Mentorship

Survey Question	Answer	N (%)
Do you have a mentor? (N=266)	Yes	112 (42%)
	No	154 (58%)
Do you mentor academic hospitalists? (N=255)	Yes	78 (31%)
	No	177 (69%)
Number of mentors (N=112)	1	41 (37%)
	2	38 (34%)
	≥3	33 (29%)
Primary* mentor's gender (N=111)	Male	84 (76%)
	Female	27 (24%)
Primary mentor's approximate age (N=111)	<30	0 (0%)
	31-40	22 (20%)
	41-50	55 (50%)
	>50	34 (31%)
Primary mentor assigned? (N=111)	Yes	22 (20%)
Primary mentor's specialty (N=111)	Internal medicine	93 (84%)
	Medicine subspecialty	13 (12%)
	Med-peds or Pediatrics	5 (5%)
Is your mentor also a hospitalist? (N=110)	Yes	57 (52%)
	No	
Primary mentor's academic rank (N=112)	Instructor	1 (1%)
	Assistant professor	15 (13%)
	Associate professor	41 (37%)
	Professor	53(47%)
	Unknown	2 (2%)
Number of meetings with primary mentor in last year (N=112)	None	4 (4%)
	1-2	30 (27%)
	3-4	30 (27%)
	>4	48 (43%)
Length of average meeting with primary mentor (N=109)	<30 minutes	34 (31%)
	31-60 minutes	68 (62%)
	>60 minutes	7 (6%)
Rating of primary mentor in academic career development (N=112)	Excellent	51 (46%)
	Very good	34 (30%)
	Good	19 (17%)
	Fair or Poor	8 (7%)

mentorship was negatively associated with having produced any peer-reviewed first author publications AOR=0.43 (95% CI 0.23, 0.81); any non-peer reviewed publications AOR=0.45 (95% CI 0.24, 0.83), and leading a teaching session at a national meeting AOR=0.41 (95% CI 0.19, 0.88). Investigators were more likely to have mentors than educators OR=3.41 (95% CI 1.33, 8.75)

Scholarly Productivity (Table 4). Nearly half of all respondents (44%) had not presented a poster or abstract at a national meeting and 51% had not been first author on a peer-reviewed

Table 3. Values Placed on Specific Traits of Mentors by Hospitalist with Mentors (N=112)

Quality	"Highly Important" N (%)	"Important" N (%)
Enthusiasm for mentoring	85 (76%)	24 (21%)
Ability to give career advice	77 (69%)	31 (28%)
Importance of a mentor to being successful in academic medicine	71 (63%)	36 (32%)
Ability to inspire me	68 (61%)	35 (31%)
Helping me network	48 (43%)	50 (45%)
Knowledge	48 (43%)	60 (54%)
Availability	40 (36%)	64 (57%)
Professional reputation	40 (36%)	64 (57%)
Providing emotional support	23 (21%)	45 (40%)

Table 4. Publication Productivity

Survey Question	Answer	N (%)
Number of oral abstracts or posters presented at national meetings (N=266)	0	117 (44%)
	1	26 (10%)
	2	32 (12%)
Number of 1st author peer-reviewed publications (N=264)	≥3	91 (34%)
	0	134 (51%)
	1	52 (20%)
	2	32 (12%)
Number of senior author peer-reviewed publications (N=262)	≥3	46 (17%)
	0	214 (82%)
	1	20 (8%)
	2	6 (2%)
Number of non-peer-reviewed publications (books, chapters) (N=264)	≥3	22 (8%)
	0	138 (52%)
	1	44 (17%)
	2	24 (9%)
Given medical grand rounds at own institution (N=265)	Yes	58 (22%)
	No	69 (26%)
Given medical grand rounds at another academic institution (N=265)	Yes	63 (24%)
Led a teaching session at a national meeting (N=266)	Yes	67 (25%)

publication. A minority of academic hospitalists (26%) had given medical grand rounds at their own institution.

Associate professors had produced a higher mean number of first author peer-review publications (four to six) than their instructors or assistant professor counterparts (one to two) after the same number of years in academic medicine. Hospitalists who had been promoted to full professor had published a mean of more than seven first author publications in the five or more years they had been in academic medicine. In the multivariate analysis, four factors were positively associated with publication productivity: 1) Male gender, AOR=2.38 (95% CI 1.30, 4.33); for any peer-reviewed first author papers and AOR=2.00 (95% CI 1.07, 3.73) for any abstracts; 2) 20% or more "protected" time, AOR=1.92 (95% CI 1.00, 3.69); for any peer-reviewed first author papers; 3) Better-than-average understanding of the criteria for promotion, AOR=3.66 (95% CI 1.76, 7.62) for any peer-reviewed first author papers) and AOR=2.80 (95% CI 1.41, 5.56) for any abstracts) and 4) Working at a university hospital, AOR=4.04 (95% CI 1.72, 9.48) for any abstracts.

DISCUSSION

We surveyed academic hospitalists regarding mentorship, productivity and promotion. We found the majority of academic hospitalists lacked mentorship and this was associated with failure to produce publications and lead national teaching sessions. Many academic hospitalists had never presented a poster at a national meeting, published a manuscript, or presented grand rounds. The few academic hospitalists who had been promoted to the level of associate professor after seven or more years had been first author on an average of four to six peer-reviewed publications.

In academic medicine, mentorship has been positively associated with promotion,³ grant funding^{8,16}, job satisfaction,¹³ time spent on research,¹¹ and publication success⁹. Forty-two percent of academic hospitalists surveyed had mentors, consistent with the 19%–54% rate found in previous

studies of other select populations in academic medicine.^{3,8,9,11,17} The majority of hospitalists with mentors in our study met with them four or fewer times a year for less than an hour. We found clinician–investigators (CI) were more likely to have mentors available than clinician–educators (CE), consistent with other investigators who have suggested that clinician educators may be less likely to have mentorship than clinician investigators but that such mentorship may be especially important.^{14,18,19} Of all previous studies of mentorship and promotion, the prospective study of academic department of medicine faculty by Beasley et al. in 2006 likely represents the most similar study population to our own.^{3,20} The participants in their study were 35% female, 49% had >10% protected time, and 46% had a mentor. The participants in our survey were 46% female, 58% had >10% protected time, and 42% had a mentor. Their study identified three variables that were independently associated with promotion: 1) Working more than 60 hours per week, 2) Having a career mentor, and 3) being in the \$130,000 to \$149,000 salary bracket.

Seventy-six percent of hospitalists with a primary mentor rated the value of mentorship in academic career development as “excellent” or “very good.” Traits that hospitalists valued in mentors include “enthusiasm,” “ability to give career advice,” and “ability to inspire me.” These traits are similar to the attributes associated with excellent attending role models as identified by Wright et al. in 1998 which included spending more time with house staff, enjoying teaching, and building relationships.²¹ The least valued trait identified in our survey was “providing emotional support.” Beyond perceived value, we identified objective scholarly outcomes adversely affected by a lack of mentorship. In the multivariate analysis, a lack of mentorship had significant detrimental effects on production of both first-author peer-reviewed and any non-peer reviewed publications. Lack of mentorship was also associated with a failure to lead a teaching session at a national meeting. These findings are consistent with Steiner’s findings among primary care fellows that “influential and sustained mentorship” was associated with the outcome of academic productivity.¹¹ Possible explanations for the lack of mentorship include the relative infancy of the field of hospital medicine, a lack of seasoned role models, lack of funding and competing clinical demands as identified by other investigators.²² Despite the challenges, creating a structured mentorship program has been shown to be a cost-effective way to improve education and research skills and retention of faculty in academic medicine.¹⁰ In comparison with increasing protected non-clinical time, establishing effective mentorship relationships may be less expensive way to help improve young faculty’s publication success and subsequent chances for promotion.

Academic hospitalists appeared to be slow to start scholarly production. Nearly half of academic hospitalists had not produced an abstract or poster or written a first-author paper and only a quarter had presented grand rounds at their institution. Academic hospitalists with 20% or more protected time from clinical duties and a better understanding of promotion criteria tended to be more academically productive, even after adjusting for the hospitalist’s career focus (e.g. research vs. clinician educator). As suggested by previous studies, we also observed that a better than average understanding of the criteria for promotion was associated with production of any peer-reviewed first author papers.²⁰ This would suggest that the faculty members who understand what

is required are more likely to produce what is necessary. Alternatively, it may be that those faculty members who are active and participating in the intellectual work of the university also tend to know the rules by which the system functions. It remains unclear why male academic hospitalists in our survey are more likely to produce peer-reviewed first author papers. Our data offer no suggestion of the origin of this gender difference. It is an unexpected result that suggests areas for further research regarding academic roles, gender, academic productivity, and promotion.

While it is difficult to assess “success” or “failure” with regard to promotion, we quantified first author publications by year and academic rank. At year seven and beyond, physicians who had been promoted to associate professor had produced on average four to six first-author peer-review publications. Assistant professors at the same stage had averaged only one or two—consistent with Beasley’s findings that the number of first authored papers is “the strongest independent predictor of promotion.”³ Expectations vary widely among institutions with respect to publications and promotion criteria although teaching skill and particularly teaching awards are among the most important elements for clinician educators.²³ Curiously, mentoring is itself viewed by promotion committees as a valued contribution from a clinician–educator.²⁴ In agreement with previous studies, our findings suggest that each academic hospitalist would be well served by requesting protected time for scholarly pursuits and making first-author papers their primary academic objective.²⁵

There are several limitations in our study. In order to make this study feasible, the process of identifying our survey population required a number of steps. By consensus among the authors, we identified a convenience sample of 25 larger, well established academic hospitalist programs in the United States. We did not define strict criteria and thus there is potential for bias in this initial selection. More successful or higher reputation programs may have received attention while smaller programs were not included. Of the 25 group leaders contacted, only 20 agreed to participate and share the email contact information for their hospitalists. There may have been some element of self selection for larger or more successful groups. Our methods, though imperfect, allowed us to survey many academic hospitalists and achieve a high response rate. A database or hospitalist society-level initiative may allow future researchers to ask these same important questions of a larger study population.

Sixty-three percent of academic hospitalists surveyed are clinician–educators. Promotion committees use a wide variety of methods to evaluate clinician–educators including but not limited to written scholarship and clinical research.²⁴ We elected to use the production of posters, abstracts and papers because it was a tangible objective measure of academic success. This is a narrow measure and ignores excellence in teaching, clinical, or administrative work, which is also used by promotion committees in evaluating physicians defined as clinician–educators and thus we may have missed relevant contributions. Hospitalist positions in academic medical centers are often staffed by two separate populations of young physicians; doctors choosing the field with intentions of a long career in academic medicine and recent residency graduates who spend a few years as hospitalists prior to beginning a subspecialty fellowship who are typically more transient within academics. Although we were able to differentiate between new

faculty (less than six months on the job) and others, we were not able to separate out the hospitalists who were intending an academic career from those fulfilling a short-term staffing need. This may have biased our data with regards to academic productivity as the transient hospitalist may be less motivated to create academic publications than her career counterpart.

The leadership in academic hospital medicine would be well served to review and act upon the findings of this survey. Fewer than half of academic hospitalists surveyed had a mentor and a lack of mentorship is associated with a failure to produce quantifiable academic work. Facilitating the development of mentoring relationships among new and seasoned physicians may be an inexpensive way to improve academic success.

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