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REVIEW

Research Mentorship Models in Hospital Medicine: A Narrative Review

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Abstract

Aims/Background Mentorship is crucial to research success, but a detailed assessment and evaluation of the different types of mentorship models in hospital medicine have not been conducted. We sought to identify and define research mentorship models in hospital medicine. We also assessed the effectiveness of each model for the identified studies that met this narrative review's criteria.

Methods Narrative review of peer-reviewed, USA-published literature on hospital medicine research mentorship. Articles from 1996 to 2023 with selected search terms on hospitalists' mentorship in research were searched in PubMed, Scopus and Embase. Finalized articles obtained from the search were approved by the Society of Hospital Medicine's Research Committee.

Results Ten articles published between 2008 and 2023 were identified and assessed by the Society of Hospital Medicine's Research Committee members. Three major research mentorship models were identified: (1) traditional mentor-mentee dyad, (2) peer mentorship, and (3) research coaching. Some hospital medicine groups combined mentorship models. All articles reported successful implementation with positive faculty receptivity and/or research output. However, the studies had small sample sizes and short evaluation periods.

Conclusion Hospitalist research mentorship is essential to bolstering and enhancing research in hospital medicine. Further studies with larger samples, extended time frames, those conducted outside the USA, and frequent reassessments are urgently needed to determine the sustained effectiveness of any model.

Key words: hospitalists; coaching; mentors; mentoring; research

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Introduction

Mentorship has been described as "The process whereby an experienced, highly regarded, empathic person (the mentor), guides another individual (the mentee) in the development and re-examination of their own ideas, learning, and personal and professional development" (Steven et al, 2008).

Hospital medicine in the USA is at a critical juncture: the lack of mentorship for hospitalists pursuing careers as physician-scientists threatens the sustainability. The scarcity of mentorship limits scholarly output and contributes to disengagement from research. This impedes career growth in academic settings dependent on scholarly productivity and grant funding.

In 2001, shortly after hospital medicine was recognised as a unique discipline, hospitalists had already taken on new research roles (Wachter and Goldman, 2002). By 2007, the first national survey in the USA to assess the state of mentorship in hospital medicine was conducted (Harrison et al, 2011). The results showed an urgency among hospitalist leaders to have programs rich in academic rigour to advance individual and group research goals. The survey also noted that most of the few extant hospitalist researchers received mentorship from non-hospitalists.

Furthermore, contextual factors, including access to research training programs and senior research faculty, may influence the types and effectiveness of different mentorship models across various settings. Available hospitalist research training programs are on the decline. In a 2018 USA-based survey, only 12% of hospitalists (192/1586) received research funding, and just 18% (5/28) of programs had research training or fellowship programs (Chopra et al, 2019). In 2022, a follow-up survey of hospital medicine programs (49 out of 102 responded for a 48% response rate) ~29% (14/49) had research fellowship or training programs (Pappas et al, 2023). Over 40% of programs attributed the lack of hospitalist fellowships to a limited supply of research mentors. Mentorship models outside of the USA are also lacking. An international study suggested that research mentorship is essential not only for the positive of mentees, but it can catalyse mentees becoming mentors (Cole et al, 2016). Furthermore, a survey of hospitalists in Korea revealed a strong correlation between career satisfaction and having a research mentor, though a specific research mentorship model was not noted (Song et al, 2025).

This USA-based narrative review describes different research mentorship models in hospital medicine and examines their efficacy. The review aims to: (1) describe and define research mentorship models in hospital medicine and (2) review the effectiveness of these models.

Given the dearth of research mentorship models in other countries outside of the USA, this narrative review may serve as a catalyst for exploration into mentorship models on a global level.

Methods

The methods, structure, and reporting of our narrative review were based on work conducted by others (Bressman et al, 2023; Green et al, 2006).

Search Strategy

We searched available articles on mentorship in hospital medicine published between 1996 (the year the term “hospitalists” was first published and described) and 31 December 2023 from PubMed (https://pubmed.ncbi.nlm.nih.gov/), Scopus (https://www.scopus.com/), and Embase (https://www.embase.com/). Search terms, including “hospitalists”, “hospital”, “hospital medicine”, “medicine”, “mentor”,

Table 1. Database usage with search terms, references, and hits.

Database	Search terms	Number of hits
PubMed	Hospitalists AND mentors AND research	38
PubMed	Hospitalists AND mentors	69
PubMed	Hospitalists AND mentorship	57
PubMed	Hospitalists AND peer	96
PubMed	Hospital AND medicine AND mentors	2978
PubMed	Hospital AND medicine AND mentorship	2157
Scopus	Hospitalists AND mentors AND research	18
Scopus	Hospitalists AND mentors	28
Scopus	Hospitalists AND mentorship	23
Scopus	Hospitalists AND peer	73
Scopus	Hospital AND medicine AND mentors	576
Scopus	Hospital AND medicine AND mentorship	256
Embase	Hospitalists AND mentors AND research	52
Embase	Hospitalists AND mentors	27
Embase	Hospitalists AND mentorship	50
Embase	Hospitalists AND peer	106
Embase	Hospital medicine AND mentors	1147
Embase	Hospital medicine AND mentorship	2133
Total references included		122

"mentorship", "peer", and "research", identified articles describing mentorship models in hospital medicine. We reviewed the reference lists of selected articles and found additional articles missed from the initial search, also known as the pearl-growing approach (Table 1) (Hadfield, 2020).

Inclusion and Exclusion Criteria

The included articles were limited to research mentorship in hospital medicine. Only publications from peer-reviewed sources were included (Scopus, Embase and PubMed). We excluded non-research mentorship, including onboarding, clinical teaching, and student/resident/fellowship/trainee mentorships. We also excluded non-hospitalist disciplines and non-English manuscripts.

Data Extraction

Two reviewers (EB and CMH) from the Society of Hospital Medicine's (SHM) Research Committee extracted key information for each article, including author and year, title and journal, mentorship model, mentor-mentee processes, study description, results, conclusions, and challenges or barriers to implementation. Discrepancies between the two reviewers could be brought before additional committee members until a consensus on which articles to include or exclude was met.

Defining Mentorship Models

Once articles were identified, the SHM Research Committee met to discuss the different types of research mentorship models and separated them into groups based on the literature.

Results

All articles that met the study criteria originated from the USA. Ten articles published between 2008 and 2023 met the inclusion criteria and were selected for analysis (Table 2). Nine articles resulted from the original database search; one was found through a reference review of the original results. Five were original research (Abougergi et al, 2011; Cumbler et al, 2016; Kirsch et al, 2018; Nagarur et al, 2018; Patel et al, 2016), 3 were quality improvement/innovation (Howell et al, 2008; McKinney et al, 2019; Sehgal et al, 2011), and 2 were perspective pieces (Eid et al, 2024; Morrison et al, 2023).

Based upon the review of the ten included articles, the SHM Research Committee identified three research mentorship models: traditional dyad mentorship (mentor-mentee), peer mentorship (consisting of peer-to-peer and peer-facilitated mentorships), and research coaching. Definitions are as follows:

Traditional Dyad Mentorship—Classic vertical dyad relationship. Senior and experienced mentors offer guidance, resources, support, and feedback to less experienced junior mentees (Healy and Welchert, 1990).

Peer-to-Peer Mentorship—Horizontal relationships in which individuals with similar academic ranks or research experience give or receive mentorship from each other. It may consist of one-on-one or group meetings (Abdoler and Santhosh, 2022).

Peer-Facilitated Mentorship—Individuals of similar academic rank meet to discuss academic goals and give feedback. A senior or more experienced mentor facilitates meetings, thus linking the traditional dyad and peer-to-peer models (Choi et al, 2020; Lin et al, 2023).

Coaching—We applied Chopra's definition, which states that a coach "[t]eaches people how to improve in a particular skill or subject. Although some use the terms coach and mentor interchangeably, coaches are distinct because they focus on performance related to a specific issue rather than growth in multiple dimensions (Chopra et al, 2018)".

Article Findings by Mentorship Models

Traditional Dyad Mentorship Model Structures

Five Articles Reported Traditional Dyad Models as the Primary Means of Mentorship

Howell's model consisted of a single non-hospitalist mentor experienced in research and with a robust publication track record. This mentor served all twelve hospitalist physicians in the group and conducted annual meetings and regular follow-ups with mentees (Howell et al, 2008). Mentees were allotted 30% protected time

Table 2. Publications of mentorship models.

Author, year, and country	Title and journal	Mentorship model	Mentor-mentee process	Study description	Positive results or conclusions	Challenges/barriers and limitations
Howell et al, (2008, USA)	An innovative approach to supporting hospitalist physicians towards academic success. *Journal of Hospital Medicine*, 3(4), 314–318. https://pubmed.ncbi.nlm.nih.gov/18698605/	Traditional mentor-mentee	A single non-hospitalist mentor internal to the primary institute The mentor with extensive experience/success in publications Protected time for mentees (30%) and mentors (20%)	Needs assessment of hospitalists and hospital leadership Development of a scholarly support program	After two years of program implementation, there was an increased number of peer-reviewed publications, grants, progress to promotions, and national leadership	A single mentor may be overstretched in handling the needs of a large group Concern that a single mentor can meet the individual needs of each mentee
Nagarur et al, (2018, USA)	Supporting Faculty Development in Hospital Medicine: Design and Implementation of a Personalized Structured Mentoring Program. *Journal of Hospital Medicine*, 13(2), 96–99. https://pubmed.ncbi.nlm.nih.gov/29069117/	Traditional mentor-mentee	Mentorship program provided 3 training sessions for both mentees and mentors over 9-month Mentors were paired with 1–2 mentees and matched by scholarly interests Mentees had >0.5 Full-Time Equivalents and ≤ 3 years of experience as a hospitalist Mentor physicians had ≥ 7 years of experience in hospital medicine	A pilot study to determine the efficacy of a structured 9-month mentorship program Pre- and post-program intervention anonymous surveys completed by junior faculty mentees and senior mentors	Mentees reported increased satisfaction in career planning, self-reflection, professional relationships, research skills, and mentoring techniques The structured mentorship program was able to be implemented was associated with participant satisfaction in career goals Challenges that mentors and mentees perceived prior to the intervention lessened by the end of the program Mentees felt supported after the intervention	Small sample size Small sample size Single center Short follow-up period Low survey responses Lack of control group Most mentors were clinician educators who had research experience Concern for the Hawthorne effect Mentee satisfaction was not statistically significant for scholarly activities, finding an area of expertise, job satisfaction, or work and family-life balance

Table 2. Continued.

Author, year, and country	Title and journal	Mentorship model	Mentor-mentee process	Study description	Positive results or conclusions	Challenges/barriers and limitations
Cumbler et al, (2016, USA)	Visiting professorship in hospital medicine: An innovative twist for a growing specialty. *Journal of Hospital Medicine*, 11(10), 714–718. https://pubmed.ncbi.nlm.nih.gov/27334568/	Traditional mentor-mentee (inter-institutional)	Mentor was external to the primary institute of the mentee (visiting professor program) Goal to facilitate inter-institutional academic collaboration	Mid-career faculty hospitalists (mid to late assistant professors and early associate professors w/in 1–2 years of promotion) travel to outside hospitals to mentor early-career hospitalists (instructors or early assistant professors) -note: host institute also included 2 residents pending to get hired and 1 associate professor as a mentee The exchange was followed by a program evaluation survey within a month of each visit, which was completed by the faculty A one-year follow-up survey was also conducted	Well received by participants to enhance academic success Effective for professional development of mid-career hospitalists Gave mentees access to mentors from external sites to advance their academic goals and careers Also, the mentors-visiting professors benefited by having an opportunity to obtain letters of support from external hospitalists for career advancement Both internal and external sites gained by sharing access to innovative academic/research initiatives	Limited participatory mentor sites Required a commitment from visiting professors to continue the mentorship relationship after the visit The five hospitals in the study may differ from other hospitals Selection bias of the visiting professor (VP) and institution
Eid et al, (2024, USA)	Enhancing professional development and promoting collaboration in hospital medicine through the visiting professor exchange program. *Journal of Hospital Medicine*, 19(5), 424–428. https://pubmed.ncbi.nlm.nih.gov/37602533/	Traditional mentor-mentee (inter-institutional)	Mentor was external to the primary institute of the mentee (visiting professor program) visiting professor (VP) 1–2 day visit at external hospital VP can benefit as a mentor and mentee at the external hospital, with the potential for longitudinal relationships	Perspective Pilot of 11 hospital medicine programs From 2016–2019, twenty-two VPs finished 43 exchanges 18 of 22 VPs completed post-program surveys	The majority of VPs responded favorably to the experience Many VPs reported significant career development and academic advancement opportunities (such as national talks, promotions, networking, and support letters for promotion)	Just over half of VP respondents reported that their participation in the program was useful to foster mentor-mentee relationships Less than half of VP respondents reported favorably about mentoring junior faculty during visits Less than half of VP respondents reported favorably about receiving mentorship from senior faculty during visits

Table 2. Continued.

Author, year, and country	Title and journal	Mentorship model	Mentor-mentee process	Study description	Positive results or conclusions	Challenges/barriers and limitations
Kirsch et al, (2018, USA)	Career-Focused Mentoring for Early-Career Clinician Educators in Academic General Internal Medicine. *The American Journal of Medicine*, 131(11), 1387–1394. https://pubmed.ncbi.nlm.nih.gov/30076827/	Traditional mentor-mentee	Hospitalists All mentors received a 90-minute training session prior to participation Mentors and early career faculty met for scheduled mentoring discussions, individual development plans, and professional development programming Focused on improving teaching skills and scholarly productivity to advance toward meeting institutional promotion	Developed a Career Mentor Program Mentees completed pre- and post-surveys on self-efficacy in career management, job satisfaction, job burnout, and mentoring satisfaction; Scholarly output prior to and after program participation was assessed: peer-reviewed publications, national presentations, and principal investigator/co-investigator status on a grant	After one year: Improvements in overall 7 of 11 career management self-efficacy items There was also satisfaction with the mentorship received No change in burnout or job satisfaction mean number of peer-reviewed publications per faculty member, and mean number of grants as principal or co-investigator per faculty member	Mainly clinical educator focus, but consisted of requisite research training for promotion Single center Lack of control group
Sehgal et al, (2011, USA)	Investing in the future: building an academic hospitalist faculty development program. *Journal of Hospital Medicine*, 6(3), 161–166. https://pubmed.ncbi.nlm.nih.gov/21387552/	Mixed model mentorship-though termed "Coaching" (formal peer-to-peer and also included Work in progress sessions: peer-facilitated with a traditional model organised by the research director)	Multi-component faculty development program that included peer-to-peer mentorship Paired each new hospitalist with a more senior hospitalist (e.g., 3 years on faculty) Specifically labelled as "Coach" Also organised a "peer mentoring" session Included Work in Progress forums	Post-program implementation survey to assess the mentee's benefit	Compared to the prior year (before program implementation), new first-year faculty gave more talks to trainees, had greater involvement in hospital committees, more actively participated in quality and safety projects, and submitted more abstracts to regional or national meetings	Mainly facilitated faculty development for junior hospitalists, but consisted of scholarly training guided by a research coordinator (Work in Progress (WIP) sessions) Small sample size Single center Partially completed surveys Multi-component: other factors aside from mentorship/coaching could have contributed to new faculty success

Table 2. Continued.

Author, year, and country	Title and journal	Mentorship model	Mentor-mentee process	Study description	Positive results or conclusions	Challenges/barriers and limitations
Abougergi et al, (2011, USA)	Research in progress conferences for hospitalists provides valuable peer mentoring. *Journal of Hospital Medicine*, 6(1), 43–46. https://pubmed.ncbi.nlm.nih.gov/21241039/	Peer group mentorship (peer-facilitated)	The presenter (mentee) at research-in-progress meetings received feedback from peers, near-peers, and senior mentors Presentations were about research projects at any stage	Research in Progress (RIP) every 3 to 4 weeks meetings Evaluation forms were completed by presenters and their peers after each meeting	Well received and resulted in academic productivity in the hospital medicine division 6 of 15 projects published as 1st or senior authors (may be ideal for hospital medicine programs with limited access to senior mentors)	Single center Small sample size Although there was a good turnout for Research in Progress meetings, not all eligible faculty participated The study did not compare the effectiveness of the Research in Progress conference with other peer-mentorship models Lack of control
Patel et al, (2016, USA)	Implementation and evaluation of a "works-in-progress" session to promote scholarship in an academic hospitalist group. *Journal of Hospital Medicine*, 11(10), 719–723. https://pubmed.ncbi.nlm.nih.gov/27294477/	Peer group mentorship (peer facilitated)	Work in Progress (WIP) Weekly meetings to present research (mix senior and junior faculty, fellows, dedicated researchers, residents/students offer feedback) Mentees may be research and non-research faculty who present; the moderator leads discussions (a primary reviewer offers the main feedback) Feedback given on current research/Quality Improvement medical education, global health projects, and grant applications	Presenters surveyed on WIP's effectiveness Kirkpatrick's 4-level training hierarchy: Participant reaction, satisfaction, knowledge, and application of skills, and results of projects Researcher hospitalists (n = 26) were compared to non-researcher hospitalists (n = 35)	Regularly scheduled, researcher-led WIP sessions within a largely clinically oriented hospital medicine division provided a venue for feedback that may promote progress and practical training in scholarly projects Researchers attended WIP more often than non-researchers (though well attended by both) In addition to robust career mentorship programs and protected time, a WIP can be an adjunct to improve scholarly output among academic hospitalists WIP presenters were largely satisfied WIP was well received by both non-researchers and researchers A large number of publications were previously presented in WIP	Single center Small sample size Lack of control group Long-term success (promotion, publication record) was not assessed Non-researchers reported greater benefit in the mentorship model than researchers

Table 2. Continued.

Author, year, and country	Title and journal	Mentorship model	Mentor-mentee process	Study description	Positive results or conclusions	Challenges/barriers and limitations
Morrison et al, (2023, USA)	Fostering a sustainable interinstitutional peer mentorship groups to support professional goals in hospital medicine. *Journal of Hospital Medicine*, 18(8), 761–764. https://pubmed.ncbi.nlm.nih.gov/36583263/	Peer group mentorship (peer-to-peer) (inter-institutional)	Peers from different academic institutions convened monthly meetings Meetings consisted of brainstorming research ideas, offering feedback for grant proposals and discussing work-life integration issues	Perspective	Addresses insufficient number of peers at one's home institute Allows opportunity for multi-site research and resource collaboration Among 12 pediatric hospital medicine researchers, all applied for career developmental awards-and over half were awarded	Finding new peers at other institutes with shared goals to form a peer group may be difficult
McKinney et al, (2019, USA)	An Academic Research Coach: An Innovative Approach to Increasing Scholarly Productivity in Medicine. *Journal of Hospital Medicine*, 14(8), 457–461. https://pubmed.ncbi.nlm.nih.gov/30986187/	Research Coach	A full-time coach with strong research methods, project implementation, and interpersonal skills were consulted to assist participants (hospitalists and internists) in reaching scholarly goals The coach would also co-host Work in Progress sessions	Pre- and post-quality improvement	The program was highly utilised, well-regarded, and delivered substantial, tangible, and academic output The coach was able to engage hospitalists at any stage of scholarship (from the conception of a research idea to submission, data analysis, grant, and manuscript submissions) Employing a dedicated health services researcher as part of a faculty development program is an effective way to engage clinically oriented faculty in meaningful scholarship Lack of a clinical background did not seem to hinder the coach's ability to coach clinicians	Requires funding for coach salary/resources Lacked pre- and post-intervention metrics of scholarly productivity Lacked control A coach needs to connect by having strong interpersonal skills and teaching ability Task-oriented lacked the standard developmental relationships of mentor to mentee Faculty generally received support soon after their requests, but there were occasional wait times, which may have delayed some projects

for research without external funding. Two years after implementation, publications increased from 0.5 per person per year to 1.3 per person per year, and external grant acquisition rose from 4% per Full-Time Equivalent to 15% per Full-Time Equivalent. Mentor-mentee satisfaction with the program was not assessed. However, a single mentor may not be able to meet the personalised needs of each trainee.

In contrast, in Nagarur's model, hospitalist mentors and mentees were matched based on shared interests (Nagarur et al, 2018). The study consisted of 12 mentors and 16 mentees. Four mentors had two mentees each, and the remaining eight had a single mentee. Most (91%) mentors were clinician educators with some research experience, and all mentors and mentees received structured mentor-mentee training. Approximately 90% of mentors and mentees were satisfied with their matches. Nine months post-intervention, significant improvements in composite satisfaction scores were observed, including feeling supported by their hospital group, job satisfaction, scholarly productivity, professional connectedness, finding expertise, and work-life balance. However, the study did not mention the number of research articles published or grants obtained.

Kirsch et al (2018) developed a career mentoring program (CMP) in 2013 to improve scholarly productivity and professional advancement for hospitalists designated as clinician educators. The program consisted of eight associate or full professor mentors and 30 mentees identified as assistant professors. Mentors received formal mentor training. Mentees were encouraged to participate in professional development offerings, such as research and scholarship boot camps in quality improvement and grant writing.

Twenty-two mentees (77%) completed the post-intervention survey items on research; mean scores increased one year after program implementation for the following statements on a Likert scale (1-strongly disagree to 5-strongly agree): "I understand the research, teaching, and service expectations for my promotion" (3.27 ± 1.03 vs. 4.18 ± 0.85, $p = 0.01$) and "I have a clearly identified, well-focused content area for my research/scholarship activities" (2.86 ± 0.94 vs. 3.77 ± 0.75, $p = 0.01$).

For scholarly results, two points were compared (time point 1: composed of data 2 years before [2011] and the year the CMP was conducted [2013] vs. time point 2: data 3 years after the CMP [2014–2016]). After three years, an increase in peer-reviewed publications (mean per mentee [SD]: 1.3 [2.1] vs. 3.5 [5.2]), national presentations (1.0 [1.6] vs. 2.1 [3.6]), and being a principal investigator/co-investigator on a grant (2.0 [4.1] vs. 3.4 [5.5]) was observed.

In a variation of the models described above, the Cumbler's visiting professor (VP) model was the first to forge inter-institutional mentor-mentee relationships (Cumbler et al, 2016). VPs/mentors were late assistant or early associate professors. They were invited to present and engage in mentoring activities at external institutions. Twenty-nine mentees at five hospitals received mentorship from seven VPs at two institutions. Likert scale surveys were used to assess the program. A first survey was sent to mentees immediately after the VP's visit. Most participants agreed that the program promoted cross-institutional dissemination of innovations and collaborations and advanced mentees' academic careers. A follow-up survey

for mentees and VPs was conducted one year after the initial intervention. Thirteen mentees and three mentors responded. Eight of the 13 mentees (62%) reported having at least one follow-up discussion with their mentors. On a 5-point Likert scale, mentees rated the professional utility of the VP program at 3.5; the perceived utility trended higher with the number of mentor-mentee follow-ups. Mentors rated the professional utility at 4.7. Fifty percent of all mentees and mentors (8/16) saw evidence of cross-institutional dissemination of innovations. Ninety-four percent (15/16) saw a benefit to continuing the program.

In a perspective piece, Eid et al (2024) reported the results of a pilot study that expanded the VP program nationally among 11 hospital medicine programs between 2016 and 2019. Goals of the pilot included: (1) offering an opportunity for VPs to present at outside institutions, (2) allowing VPs to meet with external leadership and learners, and (3) exposing VPs to innovative programs at the hospitals they visited. There was also an opportunity for the VP to give and receive mentorship from senior hospitalists at the external hospitals. Upon completing the program, eighteen of 22 VPs (82%) completed surveys. Close to 90% (16/18) of VPs noted value in site visits. Approximately 94% (17/18) of the VPs had favourable interactions with leadership and junior faculty. However, only 44% (8/18) felt they had adequate opportunities to offer and receive mentorship when visiting sites. All 18 respondents thought the program was excellent for networking with colleagues and sharing interests.

Peer Mentorship Models

One Article Reported a Peer-to-Peer Mentorship Focus

In a perspective piece, Morrison et al (2023) reported creating a team of 12 junior faculty pediatric hospital medicine researchers from nine different hospital systems. This team met monthly and focused on developing a sustainable interinstitutional peer mentorship group. At the start of the project, three participants received internal career development awards. After three years, over half of the team received awards, and three transitioned from career development to independent funding. Moreover, participants found the group provided a valuable platform for networking, support, and guidance for hospitalists at different career stages. This peer mentorship model was also reported as sustainable and cost-effective.

One Article Described a Mixed-Model Peer Mentorship Approach

Sehgal et al (2011) conducted a combined traditional and peer-to-peer mentorship/coach model. New hospitalist mentees matched with hospitalists with >3 years of experience to serve as the primary mentors. Additionally, dedicated peer-to-peer mentoring sessions among new faculty were arranged. Of note, the authors wrote: "*We chose to call them 'coaches' rather than mentors because, in the first year, we felt a new faculty member needed 'nuts and bolts' support from a 'big sibling' more than they needed formal academic mentoring*." This did not specifically fall within our definition of coach as described by Chopra et al (2018). Further, some form of the peer-facilitated method was likely given in Work in Progress (WIP) sessions. The study compared faculty (n = 11) before program development

to new faculty after program implementation (n = 6). Following one year of program intervention, new faculty were more likely to participate in quality improvement projects (33% vs. 67%) and submit abstracts (27% vs. 50%). New faculty felt more comfortable than pre-intervention faculty in using non-clinical time to enhance their academic success (54% vs. 67%).

Two Articles Described Peer-Facilitated Mentorship Approaches

Abougergi's work focused on implementing and measuring the impact of a peer-facilitated Research in Progress (RIP) conference for hospitalists (Abougergi et al, 2011). Monthly conferences served as platforms for peer mentorship, with a mix of junior faculty and a senior faculty member (typically a professor seasoned in research) facilitating discussions. The study evaluated presenter and audience responses to RIP sessions over one year. A total of 15 faculty members presented their RIP work, and all 15 completed surveys. All presenters reported feeling tremendous support during the sessions. Almost all mentees, 86% (13/15) felt the RIP sessions improved their projects. Of 143 total RIP attendees, 86% (123/143) thought the sessions were very valuable, and 96% (138/143) believed the sessions kept them informed about projects their colleagues were working on. Before this study was accepted for publication in September 2010, 40% (6/15) of presenters had publications in peer-reviewed journals. However, 26% (4/15) of projects were halted due to a low likelihood of academic success. The study found that the RIP conferences provided valuable mentorship and support for hospitalists' research projects, increasing participants' scholarly productivity.

Patel et al (2016) studied the implementation of peer-facilitated WIP sessions as part of their academic hospitalist group's regular meetings between 2010 and 2013. They found that the WIP sessions fostered collaboration and enhanced hospitalist research skills. In contrast to Abougergi's RIP sessions, WIP sessions were weekly instead of monthly and had full-time researchers in attendance. Fifty-one percent of presenters completed surveys (70% response rate). Respondents included researchers (clinician-investigators) and non-researchers (clinical faculty). All respondents were satisfied with WIP and would recommend it to others. However, more non-researchers than researchers thought that WIP would change their future projects (49% vs. 13%; $p = 0.01$). Furthermore, more non-researchers thought that WIP provided good mentoring and peer support compared to researchers (69% vs. 31%; $p = 0.01$).

Research Coaching Model

One Article Featured Research Coaching

McKinney et al (2019) utilised a research coach to advance scholarly work for hospitalists and internists over 18 months. In this article, a mentor was distinguished from a coach in that: "*The role was deemed that of a coach instead of a mentor because the coach was available to all division members and involved task-oriented consultations with check-ins in facilitating projects, rather than a deeper more developmental relationship that typically exists with mentoring*". The definition seemed in line with Chopra's in giving a focal point of interest instead

of multiple factors to foster ongoing research growth. The program selected one coach with a PhD in epidemiology and ten years of extensive experience developing and publishing research projects. The program's division created a one-year, 0.5 Full-Time Equivalent (FTE) position for the coach. The intervention involved 30 hospitalists and 19 non-hospitalist internists. During 18 months, the coach supported the development of 20 manuscripts and 11 abstracts. Moreover, the coach facilitated four grant submissions, three of which received funding. On a 5-point Likert scale (1 = completely disagree; 5 = completely agree), faculty reported that the research coach improved the quality of their work (4.5 ± 0.9), and they were satisfied with the coach's involvement (4.6 ± 0.7). Respondents also agreed their division should continue offering research coaching (4.9 ± 0.4).

Discussion

In this narrative review, we identified ten peer-reviewed articles on research mentorship models published between 2008 and 2023. Three different research mentorship models were identified: (1) traditional dyad mentorship, (2) peer mentorship, and (3) research coaching. Mixed model approaches that incorporated elements of these three mentorship models were also observed. All models improved scholarly productivity (such as publications, conference abstracts, and grants) or enabled the development of research expertise.

Implementation of mentorship models within hospital medicine programs will vary depending on available resources at each institution, the ratio of available mentors and faculty interested in building research careers, leadership support allowing time and training as research mentors, and institutional commitment to grow the research careers of interested faculty in hospital medicine. Traditional dyad mentorship models improved scholarly productivity in several studies using non-hospitalist mentors (Howell et al, 2008), hospitalist mentor-mentee pairing based on shared interests (Nagarur et al, 2018), clinician-educator mentees (Kirsch et al, 2018), or mentors at external institutions (Cumbler et al, 2016; Eid et al, 2024). Although senior faculty in these models offer the advantage of having research experience, undue influence, intimidation, and limited academic freedom might result in contrast to peer mentorship (Morrison et al, 2023).

Peer mentorship improved teaching skills in clinician educators and advanced career development in academic hospitalists (Choi et al, 2020; Lin et al, 2023). Morrison et al (2023) reported a similar benefit of peer-to-peer mentorship for clinician-researchers. As hospitalists continue to face challenges with burnout, securing research funds, and furthering research, peer mentorship may empower hospitalists and drive overall improvements in patient care and outcomes. Large multi-site peer-to-peer mentorship initiatives should be considered to tackle the urgent demand for enhanced mentorship. By expanding the focus beyond individual institutions, these programs strive to facilitate the exchange of a wide array of insights, resulting in robust and thorough mentoring experiences in hospital medicine research. Research coaching models are also associated with successful publications and grant applications (McKinney et al, 2019).

Table 3. A call to action: Implementing research mentorship models in hospital medicine.

Hospital medicine leaders/administrators	Research mentors	Hospital medicine mentees (clinician educators/researchers)
Assess which research mentorship model is most feasible in your program (traditional dyad, peer, coaching, or mixed model)	Create time and training opportunities to serve as mentors	Create time and training opportunities to become an effective mentee
Establish clear measures of success for the mentorship model (e.g., increase in publications, grants, networking, promotion, national recognition)	Individualise goals and expectations of mentorship for each mentee	Establish clear goals and expectations from mentorship
Once a model is selected, regularly distribute qualitative studies (focus groups and/or surveys) to obtain feedback from mentors and mentees on which components of the model are effective or ineffective	Offer feedback and suggestions on how to improve the mentors' and mentees' roles	Offer feedback and suggestions on how to improve the mentors' and mentees' roles
Create infrastructure to train and support mentees and mentors (e.g., support the creation of courses on research methodology, build a team of grant managers/statisticians/scientific writers, data managers/coordinators)	Allow flexibility (e.g., virtual meetings, accommodate for differences in schedules or time zones if inter-institutional mentorship)	Pair clinical and research faculty to allow complementary skills in research studies and improve feasibility
Create intramural seed grants and early career funds to learn grant writing and secure pilot data for larger grants	Align mentor-mentee by shared research interests, personalities, and attitudes	Have multiple mentors
Learn from research mentorship models at other institutions and from other specialities within the institution	Regularly check in with mentees to assess their progress/challenges	Follow up with mentors to reach mutual goals and deadlines

A cornerstone of a successful mentorship program is the thorough training and coaching of mentors and mentees. Mentors should undergo training tailored to improve guidance and feedback skills, enabling them to foster the professional growth of mentees (Guston, 1993; Neal, 2011). Mentees should also acquire skills to maximise the benefits of mentorship, like establishing clear goals, actively seeking feedback, and engaging in self-directed learning. Notably, the pool of available mentors could substantially increase by preparing mentees for future mentoring roles. This cyclical mentorship strategy will ensure sustainability and cultivate a culture of ongoing learning and mutual support within the hospital medicine community.

As the fastest-growing medical speciality, hospital medicine's research footprint must match its clinical growth. The limited availability of research mentorship models in hospital medicine threatens research sustainability, hinders scholarly output, and impedes career growth. Investment in research mentorship models by institutional leaders and professional societies such as SHM will bolster the foundations of hospital medicine and yield tangible gains—securing grants and promoting clinical and research excellence. We propose specific strategies for hospital medicine programs seeking to implement research mentorship models (Table 3).

Our study has several limitations. First, while valuable for broad insights and expert perspectives, narrative reviews carry certain biases stemming from the authors' expertise or intentions and the possibility of interpreting and selecting studies. Several common limitations arise related to the nature of evaluations, like small sample sizes, non-robust survey design, short follow-up periods, and selection bias. This absence of rigorous scrutiny can lead to the inclusion of studies of varying quality, further impacting the review's objectivity and reliability. Second, the generalizability of findings from narrative reviews is limited due to the specific inclusion criteria, which might not adequately represent the broader research. Our narrative review only included studies based in the USA, which may further limit generalizability. However, this was due to a lack of publications of research mentorship models in hospital medicine outside the USA, despite the exclusion of non-English publications. One study in the United Kingdom, for example, described the benefits of mentorship for newly appointed consultants but did not focus on research mentorship and was not restricted to hospitalists (Harrison et al, 2014). Additionally, Song et al (2025) in Korea did not provide details about their hospital medicine research mentorship model. Finally, publication bias skews outcomes, presenting overly optimistic views of the evidence. To address these limitations, we performed a rigorous literature review using a priori criteria and a systematic search strategy, ensuring the inclusion of high-quality studies representing diverse perspectives. Furthermore, we critically evaluated the included studies to assess their quality and minimise potential bias.

Conclusion

Different mentorship models and coaching are productive in advancing research in hospital medicine and are well-received by mentees and mentors. However, the long-term impact of such models is unknown. More extensive, longitu-

dinal studies and international studies with control arms are needed to better determine the effectiveness of any of the described models for research in hospital medicine.

Key Points

- A significant deficit of hospitalist research mentors jeopardises the growth and impact of research in hospital medicine.
- Types of research, mentorship and coaching models in hospital medicine have not been extensively studied.
- The mentorship and coaching models we identified were noted to be effective but limited by small sample sizes and short evaluation periods.
- Thus, these mentorship models' sustainability, reproducibility, and efficacy remain unclear.
- The Society of Hospital Medicine Research Committee proposes a call to action to inject and bolster research mentorship into hospital medicine programs.

Availability of Data and Materials

All the data of this study are included in this article.

Author Contributions

NR, VMV, EB, BPG, FAK, AK, JDH, JMP, MTP, and CMH were responsible for the conceptualisation and design of the work. CMH drafted the manuscript. All authors contributed to the important editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

Not applicable.

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Conflict of Interest

Payments made to Brigham and Women's Hospital for performing clinical endpoints sponsored by various entities including serving on the trials committee; payments from Medscape and WebMD (editor-in-chief of JCOM), and Advisory Board fees from Gilead and Novartis. There were non-compensated efforts in consulting through OSG, CaptiOX, and volunteer board work. All outside the submitted work. Dr. Rohatgi reports payments from the National Institutes of Health/NHLBI and NIAID, Veralox Therapeutics, Roche/Genentech, and Apple, Inc. (all contracts made to Stanford Medicine) and payments for serving as Editor-in-Chief for JMIR Perioperative Medicine (all unrelated to the submitted work). Other authors declare no conflict of interest.

References

Abdoler E, Santhosh L. Leadership & professional development: Coach, mentor, sponsor…peer? Cultivating a successful peer mentorship. Journal of Hospital Medicine. 2022; 17: 192–193. https://doi.org/10.1002/jhm.2772

Abougergi MS, Wright SM, Landis R, Howell EE. Research in progress conference for hospitalists provides valuable peer mentoring. Journal of Hospital Medicine. 2011; 6: 43–46. https://doi.org/10.1002/jhm.865

Bressman E, Kohn R, Song H, Greysen SR. Geographic cohorting by clinical care team: a narrative review. Annals of Palliative Medicine. 2023; 12: 855–862. https://doi.org/10.21037/apm-22-1400

Choi JJ, Evans AT, McNairy ML. Facilitated Peer Mentoring: Filling a Critical Gap in Academic Hospital Medicine. Journal of Hospital Medicine. 2020; 15: 563–565. https://doi.org/10.12788/jhm.3371

Chopra V, Arora VM, Saint S. Will You Be My Mentor?-Four Archetypes to Help Mentees Succeed in Academic Medicine. JAMA Internal Medicine. 2018; 178: 175–176. https://doi.org/10.1001/jamainternmed.2017.6537

Chopra V, Burden M, Jones CD, Mueller S, Gupta V, Ahuja N, et al. State of Research in Adult Hospital Medicine: Results of a National Survey. Journal of Hospital Medicine. 2019; 14: 207–211. https://doi.org/10.12788/jhm.3136

Cole DC, Johnson N, Mejia R, McCullough H, Turcotte-Tremblay AM, Barnoya J, et al. Mentoring health researchers globally: Diverse experiences, programmes, challenges and responses. Global Public Health. 2016; 11: 1093–1108. https://doi.org/10.1080/17441692.2015.1057091

Cumbler E, Herzke C, Smalligan R, Glasheen JJ, O'Malley C, Pierce JR, Jr. Visiting professorship in hospital medicine: An innovative twist for a growing specialty. Journal of Hospital Medicine. 2016; 11: 714–718. https://doi.org/10.1002/jhm.2625

Eid SM, Press VG, Kato H, Vaughn VM, Jenkins AM, Soong C, et al. Enhancing professional development and promoting collaboration in hospital medicine through the visiting professor exchange program. Journal of Hospital Medicine. 2024; 19: 424–428. https://doi.org/10.1002/jhm.13191

Green BN, Johnson CD, Adams A. Writing narrative literature reviews for peer-reviewed journals: secrets of the trade. Journal of Chiropractic Medicine. 2006; 5: 101–117. https://doi.org/10.1016/S0899-3467(07)60142-6

Guston D. Mentorship and the Research Training Experience. 1993. Available at: https://www.ncbi.nlm.nih.gov/books/NBK236193/ (Accessed: 2 January 2025).

Hadfield R. Pearl growing as a strategy in systematic literature searches. 2020. Available at: https://www.mediwrite.com.au/medical-writing/pearl-growing/ (Accessed: 3 January 2025).

Harrison R, Anderson J, Laloë PA, Santillo M, Lawton R, Wright J. Mentorship for newly appointed consultants: what makes it work? Postgraduate Medical Journal. 2014; 90: 439–445. https://doi.org/10.1136/postgradmedj-2013-132333

Harrison R, Hunter AJ, Sharpe B, Auerbach AD. Survey of US academic hospitalist leaders about mentorship and academic activities in hospitalist groups. Journal of Hospital Medicine. 2011; 6: 5–9. https://doi.org/10.1002/jhm.836

Healy CC, Welchert AJ. Mentoring Relations: A Definition to Advance Research and Practice. Educational Researcher. 1990; 19: 17–21. https://doi.org/10.3102/0013189X019009017

Howell E, Kravet S, Kisuule F, Wright SM. An innovative approach to supporting hospitalist physicians towards academic success. Journal of Hospital Medicine. 2008; 3: 314–318. https://doi.org/10.1002/jhm.327

Kirsch JD, Duran A, Kaizer AM, Buum HT, Robiner WN, Weber-Main AM. Career-Focused Mentoring for Early-Career Clinician Educators in Academic General Internal Medicine. The American Journal of Medicine. 2018; 131: 1387–1394. https://doi.org/10.1016/j.amjmed.2018.07.028

Lin D, Schmidt RM, Shah C, Caruso A, Huang X, Staggers KA, et al. A Facilitated Peer Mentoring Program With a Dedicated Curriculum to Foster Career Advancement of Academic Hospitalists. MedEdPORTAL. 2023; 19: 11366. https://doi.org/10.15766/mep_2374-8265.11366

McKinney CM, Mookherjee S, Fihn SD, Gallagher TH. An Academic Research Coach: An Innovative Approach to Increasing Scholarly Productivity in Medicine. Journal of Hospital Medicine. 2019; 14: 457–461. https://doi.org/10.12788/jhm.3194

Morrison JM, Cotter JM, Jenkins AM, Kyler KE, Girdwood SCT. Fostering sustainable interinstitutional peer mentorship groups to support professional goals in hospital medicine. Journal of Hospital Medicine. 2023; 18: 761–764. https://doi.org/10.1002/jhm.13040

Nagarur A, O'Neill RM, Lawton D, Greenwald JL. Supporting Faculty Development in Hospital Medicine: Design and Implementation of a Personalized Structured Mentoring Program. Journal of Hospital Medicine. 2018; 13: 96–99. https://doi.org/10.12788/jhm.2854

Neal T. How To Be a Good Mentee. 2011. Available at: https://www.psychologicalscience.org/observer/how-to-be-a-good-mentee (Accessed: 3 January 2025).

Pappas MA, Jenkins AM, Horstman MJ, Rohatgi N, Press VG, Prochaska MT, et al. State of research in adult Hospital Medicine: Updated results of a national survey and longitudinal analysis of national data. Journal of Hospital Medicine. 2023; 18: 519–523. https://doi.org/10.1002/jhm.13096

Patel H, Fang MC, Harrison JD, Auerbach A, Kangelaris KN. Implementation and evaluation of a "works-in-progress" session to promote scholarship in an academic hospitalist group. Journal of Hospital Medicine. 2016; 11: 719–723. https://doi.org/10.1002/jhm.2618

Sehgal NL, Sharpe BA, Auerbach AA, Wachter RM. Investing in the future: building an academic hospitalist faculty development program. Journal of Hospital Medicine. 2011; 6: 161–166. https://doi.org/10.1002/jhm.845

Song SY, Han HY, Park SY, Kim J, Park KM, Kyong T. Current Status of Hospitalist Practice and Factors Influencing Job Satisfaction in Korea. Journal of General Internal Medicine. 2025; 40: 302–308. https://doi.org/10.1007/s11606-024-08910-8

Steven A, Oxley J, Fleming WG. Mentoring for NHS doctors: perceived benefits across the personal-professional interface. Journal of the Royal Society of Medicine. 2008; 101: 552–557. https://doi.org/10.1258/jrsm.2008.080153

Wachter RM, Goldman L. The hospitalist movement 5 years later. JAMA. 2002; 287: 487–494. https://doi.org/10.1001/jama.287.4.487