

Internal Medicine Residents' Perceptions of Writing and Presenting Case Reports

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ABSTRACT

Background: The Accreditation Council for Graduate Medical Education (ACGME) requires all residents participate in scholarly activity during residency. Case reports provide trainees an opportunity to engage in scholarly activities. This study assesses internal medicine residents' perceived benefits of writing and presenting case reports and barriers to this process.

Methods: A survey was disseminated to internal medicine residents at a tertiary academic center. The survey questionnaire aimed to assess residents' perceptions about benefits and barriers to writing and presenting case reports. Responses were obtained on a 5-point Likert scale, and the data were analyzed as respective frequencies and percentages.

Results: Forty-three (34%) of the 125 eligible internal medicine residents completed the survey. Fifty-eight percent reported never having presented a case report. Ninety-six percent believed that finding an interesting case was an important factor in facilitating writing a case report, while 81% perceived finding a good mentor as equally important. Perceived barriers to case report writing included lack of training in reviewing scientific literature (59%), lack of adequate time (58%), lack of formal training in identifying and writing case reports (56%), and lack of a mentor (54%).

Conclusions: Our study showed that the majority of residents had not written or presented case reports. While case reports provide a myriad of educational value, various barriers exist that include lack of proper training, adequate time, and a mentor. Our findings suggest that additional institutional resources should be dedicated to designing a curriculum to address these perceived barriers.

INTRODUCTION

Internal medicine residency training programs are challenged to expose their residents to a myriad of scholarly activities, while also preparing them for rigorous clinical careers and potential subspe-

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cialty training. The Accreditation Council for Graduate Medical Education (ACGME) requires all accredited internal medicine residency training programs in the United States to facilitate resident scholarly activities. The Residency Review Committee for Internal Medicine (RRC-IM) established a requirement in 1994 that residents must complete "original research, comprehensive case reports, or review of clinical and research topics."¹ As part of the requirement for resident scholarly activity, the ACGME outlines its criteria to "advance residents' knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care."² The ACGME also specifies, "the sponsoring institution and program should allocate adequate educational resources to facilitate resident involvement in scholarly activities."²

Currently, there is no standard definition used by RRC-IM to assess scholarship in ACGME-accredited residency programs. Although there is no uniform definition, activities that can be categorized as meeting the criteria for scholarly activity vary widely. Examples include formulation and implementation of an original research question leading to subsequent publication in a peer-reviewed journal; quality improvement projects; composition of review articles; and case report writing and presentation at local, regional, and national conferences.

Case report writing provides educational value with the description of a diagnostic or therapeutic problem experienced by one or several patients and offers an opportunity for the learners to engage in scholarly pursuit. The overarching purpose of these writings is to spread knowledge among medical, scientific, and educational

groups.³ Case reports and clinical vignettes are especially useful when considering rare disorders by helping the medical community understand the etiology, pathogenesis, natural history, and treatment of these disorders.⁴ In addition to providing a forum for sharing new and unique medical findings, case report writing is a valuable educational exercise. The benefits of writing a case report include sharpening critical thinking skills, improving understanding of patient-centered care, and promoting scientific writings.⁵ Additionally, presenting scholarly work provides residents with an opportunity to expand their professional network, improve presentation skills, and engage in discussions with colleagues from around the country, which may foster further expansion of their research. Writing case reports and delivering poster or oral presentations provides opportunities to learn 2 different skill sets. On a broader perspective, they fall into a spectrum of scholarly pursuit that encompasses concept development, presentation in local or national meetings, and manuscript writing. Case reports that have not been presented or published still encourage the development of these same skills. Thus, writing and presenting case reports should not be taken as isolated forms, but rather as a coalescence resulting in a meaningful work or contribution to science.

Although case reports can be an effective teaching tool with multiple potential educational benefits, there is limited knowledge on residents' perceptions regarding writing case reports and presenting them at meetings. This study endeavors to highlight the implications of their perceptions by surveying internal medicine residents and assessing perceived benefits, challenges, and barriers regarding writing and presenting case reports.

MATERIALS AND METHODS

Study Design, Setting, and Participants

A voluntary online survey was conducted between November 1 and November 16, 2017 among internal medicine residents—excluding chief residents—at the Medical College of Wisconsin (MCW), a tertiary care academic medical center in the United States. The study was approved by the MCW Institutional Review Board (IRB), and the survey utilized an informed consent process in which an informational letter was sent to participants via email explaining the nature and expectations of the study and potential risks to the participants, along with a link to the survey. All possible steps were taken by the research team to maintain the anonymity of the participants.

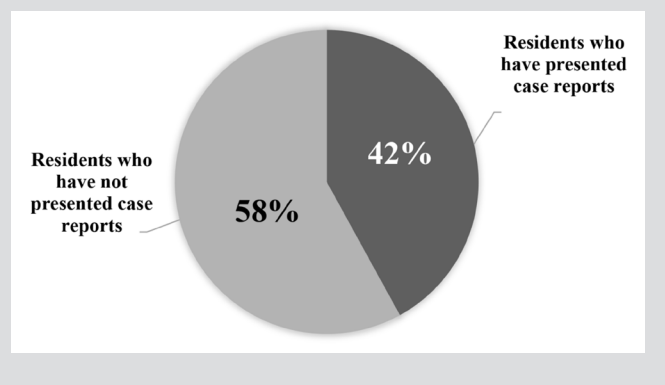
Data Collection, Survey Elements, and Data Analysis

The survey was conducted using the Qualtrics online-based survey platform (www.qualtrics.com). The survey link was sent through an invitation email to 125 internal medicine residents (interns through third-year residents, excluding chief residents). The survey questionnaire aimed to assess whether residents have ever presented case reports, their perceived barriers and potential benefits to writing case reports, and factors that facilitate this process.

Table. Survey Questions and Corresponding Responses From Internal Medicine Residents Regarding Writing and Presenting Case Reports

Survey Questions	Strongly Agree/Agree
Factors that facilitate writing and presenting case reports?	
Finding an interesting case	96%
Finding a good mentor	81%
Having financial assistance	33%
Lectures and workshops	31%
Benefits of writing and presenting case reports?	
Improves presentation skills	100%
Improves scientific writing skills	98%
Enhances CV and secures fellowship position	91%
Improves critical thinking	88%
Networking and collaboration	72%
Barriers to writing and presenting case reports?	
Lack of training in reviewing scientific literature	59%
Lack of adequate time during residency	58%
Lack of formal training in identifying and writing case reports	56%
Lack of mentor(s)	54%
Lack of opportunities/venues to present	46%
Lack of financial assistance	32%

Figure 1. Percentages of Residents Who Indicated They Have and Have Not Previously Presented Case Reports



Responses were obtained on a 5-point Likert scale. Descriptive statistics were used to summarize the responses with the use of respective frequencies and percentages. Analyses were conducted using SAS version 9.4 (SAS Institute, Cary, NC, US).

RESULTS

Forty-three out of 125 residents completed the survey, with a response rate of 34%. The majority of residents who completed the survey (N=25 residents, 58%) indicated they had not previously written and presented a case report (Figure 1). Only 18 residents (42%) indicated they had previously presented a case report at a regional or national meeting.

Ninety-six percent (63% strongly agreed, 33% agreed) indicated that finding an interesting case was an important factor in facilitating writing and presenting a case report, while 81% said finding a good mentor was equally important (Table, Figure 2). Other facilitating factors included financial assistance (33%) and lectures and workshops (31%).

Figure 2. Resident Perceptions Regarding Factors That Facilitate Writing and Presenting Case Reports

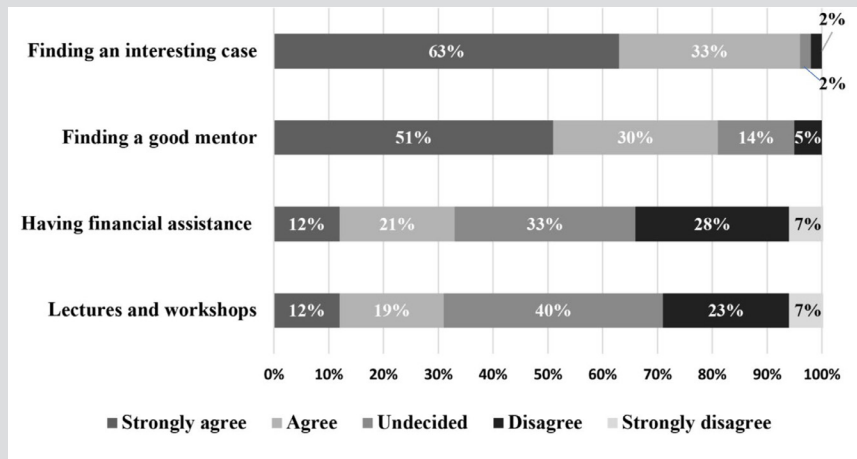


Figure 3. Resident Perceptions Regarding Benefits of Writing and Presenting Case Reports

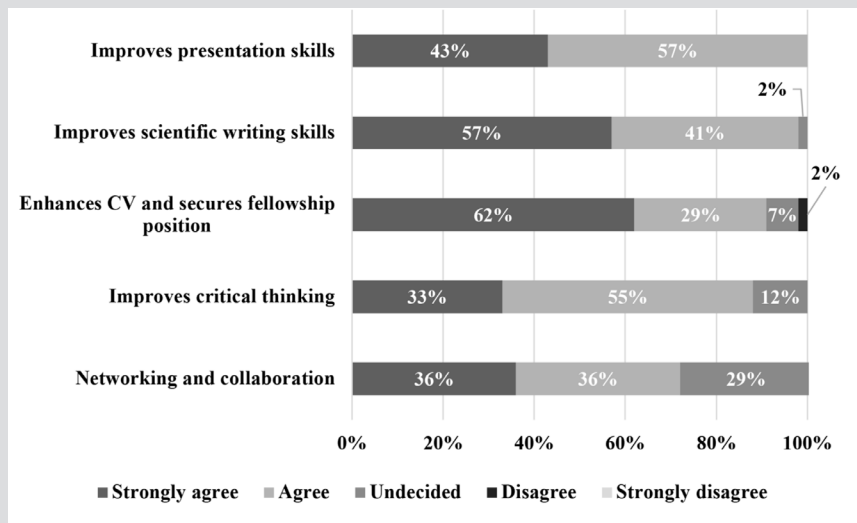
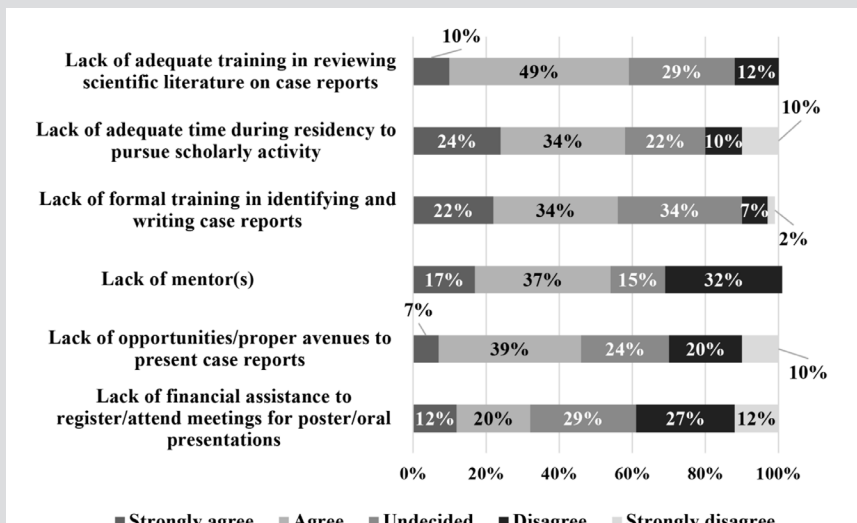


Figure 4. Resident Perceptions Regarding Barriers to Writing and Presenting Case Reports



Regarding benefits, 100% of respondents perceived (43% strongly agreed, 57% agreed) that writing and presenting case reports improved presentation skills (Table, Figure 3). Similarly, 98% said they improved scientific writing skills. Other perceived benefits included enhancing curriculum vitae (CV) and securing fellowship positions (91%), improving critical thinking (88%), and enhanced networking and collaboration (72%) (Table, Figure 3).

The main barrier to writing and presenting case reports, as perceived by 59% of the respondents (10% strongly agreed, 49% agreed), was a lack of adequate training in reviewing scientific literature on case reports (Table, Figure 4). Lack of adequate time during residency to pursue scholarly activity was another commonly perceived barrier (58%). Other perceived barriers to writing and presenting case reports included lack of formal training in identifying and writing case reports (56%), lack of mentor(s) (54%), lack of opportunities/proper venues to present case reports (46%), and lack of financial assistance to register/attend meetings (32%) (Table, Figure 4). On the subgroup analysis, the major barrier perceived by respondents who had not previously presented case reports was a lack of training in reviewing scientific literature on case reports (67%). On the other hand, a lack of financial assistance was the major barrier perceived by residents who had previously presented case reports (59%).

DISCUSSION

Our study shows that the internal medicine residents at a tertiary medical center perceive many benefits of case report writing for both career advancement and advancement of scientific literature. However, this study also identified commonly perceived barriers to case report writing, many of which residency programs can work to address. The majority of survey respondents indicated their belief that scholarly activity through case reports is beneficial, as it improves presentation and critical thinking skills, enhances CVs, and increases chances

of getting into a desired fellowship program. The importance of completing multiple scholarly projects is evident by fellowship match data, which show that those who matched into different subspecialty fellowship positions (allopathic) had a greater number of abstracts, presentations, and publications since their last completed degree compared to those who did not match.⁷

Presenting case reports at regional and national meetings also provides residents an opportunity to network and collaborate. Case reports are particularly important for community-based residency programs with more limited research opportunities. Aside from benefiting the writer, training residents in case report writing serves as a way for residency programs to meet ACGME accreditation requirements and thus avoid citation. Up to 10% of internal medicine residency programs reported being cited for failing to comply with the scholarly activity requirement since it was initiated in 1994.⁸ Additionally, citation for the lack of scholarly activity predicts a decreased cycle length between visits by the ACGME.^{8,9} This is important to consider as visits by the ACGME require significant preparation and resources.⁹ Writing and presenting case reports is a quick, easy way to present and publish scholarly projects to meet ACGME requirements.

Residency programs across many different specialties have attempted to avoid citation for lack of scholarly activity by a variety of methods, and most have centered on improving residents' access to resources and knowledgeable mentors. For example, a family medicine residency program implemented a scholarly activity curriculum that involved allocating contractual time for faculty members to serve as mentors for residents.¹⁰ The program's success is supported by the 24 presentations at national and international meetings and 15 publications in peer-reviewed medical journals by 111 residents who participated in the program.¹⁰ Another residency program implemented a residency research program that involved dedicated research time during ambulatory blocks and access to research assistants, nurses, and biostatistics support personnel, in addition to a resident research director who provided mentorship.¹¹ Perhaps the most striking benefit of such a program is the impact on fellowship matching. This program saw the percentage of residents who were accepted into fellowships increase from 33% preimplementation to 49% postimplementation.¹¹

Despite the clear benefits to writing case reports, only 42% of surveyed residents in our study reported presenting a case report. Reported barriers were a lack of training, adequate time, and a mentor. Fifty-nine percent of respondents reported a lack of training in reviewing scientific literature as a challenge, whereas 58% reported a lack of protected time for scholarship as a barrier. A recent study found strikingly similar results among 4th year medical students: 67% reported not having written or presented a case report, yet felt case reports have many educational and professional benefits.⁶ Findings from these studies highlight the need for innovation in curriculum and institutional support to promote scholarly productivity.

Lack of adequate time for scholarship was reported as a barrier to completion of scholarly projects by 58% of the residents in our study. This appears to be a persistent issue, given a prior study reported that 79% of residents deemed lack of time as a barrier.¹² While original research projects traditionally have been seen as superior to other forms of scholarly activity, they take a significant amount of time. Original research conducted by internal medicine residents takes approximately 200 hours to complete, while preparing to present a clinical vignette takes only 50 hours.¹² This time constraint essentially binds the resident to completing only 1 scholarly activity during their residency. Given that lack of adequate time to complete scholarly work was identified as a barrier by the residents in our study, case report writing may be a more time-conscious way for residents to contribute scholarship. It not only affords residents the opportunity to explore multiple areas of interest and scholarly projects, but also supports development of their CV and fellowship application.

Scholarship and mentorship are crucial for academic advancement and professional development for both the learners and teaching faculty members. In our study, 81% of respondents reported that finding a good mentor is an important component for completing a scholarly project, while 96% reported finding an interesting case as a facilitating factor. Faculty experienced in mentoring learners can help residents identify and write up a case for presentation at meetings and possible publication. While mentoring is important, most teaching faculty have received little training in mentoring students and residents and often are challenged by different clinical and nonclinical responsibilities.¹³ Prior research has shown that the mentor's research productivity, specifically the number of publications and federally funded grants, is a significant predictor of residents' success in completing a scholarly project.¹⁴ This aligns with our study, which concluded that finding a good mentor was a barrier to case report writing.

Additionally, programs should develop an environment in which residents are encouraged to self-initiate mentorship rather than being assigned a mentor. This has been explored in a recent study that demonstrated that residents had a more positive experience with scholarly projects when they sought out their own mentors.¹⁵ Providing faculty with the necessary training and time to mentor residents is an investment that not only serves the current resident population but can also effect change on future generations of residents. Those who have an influential mentor are more likely to mentor other learners in the future.¹⁶ Young et al found that only 1.5 faculty members per medical school-based program have the necessary protected time for successful research productivity.¹⁷ In order to facilitate mentorship, faculty members must have not only the appropriate training, but also protected time to serve as mentors. Residents who have experience writing case reports are more prepared to take mentorship roles as faculty.

Several limitations of this study should be considered. Our

study had a suboptimal response rate, as is common among survey-based studies. Our survey was limited to a single institution, but larger comparative studies done in multiple institutions would be necessary for the results to be generalizable. Our study findings also may lack direct generalizability to community-based programs. Since access to faculty involved in research highly correlates with resident involvement and publication, residents from community-based programs may have different perceptions on case report writing and publication.¹⁸ These results might only be applicable to academic-based internal medicine residency programs. Our study did not include residents' perceptions on other types of scholarly activity. Additionally, we did not include the respondents' year of residency in our survey. This information would be valuable in future studies as it can help assess the impact longitudinally after adequate curricular changes have been implemented to address reported barriers.

These findings necessitate future studies to determine how perceived barriers may vary by program year, differences in perceived barriers based on specialty, comparisons among multiple academic-based residency programs, and changes in residents' perceptions after adequate changes are made in the curriculum to address various barriers.

CONCLUSION

Our results demonstrate perceived benefits of case report writing by residents and have identified concrete barriers. Residency programs can facilitate an environment conducive to scholarship and mentorship. Structured mentorship, protected time, and appropriate training in scientific writings are specific ways for internal medicine residency programs to prepare residents for success. This may, in turn, reflect positively on the program through increased scholarship and fellowship match rates. Experience in case report writing during residency prepares residents for future scientific writings and serving as a faculty mentor.

Acknowledgement: The authors wish to acknowledge Ms Jenifer Klub for the administrative help with this study.

Financial Disclosures: None declared.

Funding/Support: None declared.

REFERENCES

- Levine RB, Hebert RS, Wright SM. Resident research and scholarly activity in internal medicine residency training programs. *J Gen Intern Med.* 2005;20(2):155-159. doi:10.1111/j.1525-1497.2005.40270.x
- Specialty-specific references for DIOs: resident/fellow scholarly activity. Accreditation Council for Graduate Medical Education. Updated July 2019. Accessed October 1, 2019. [https://www.acgme.org/Portals/0/PDFs/Specialty-specific Requirement Topics/DIO-Scholarly_Activity_Resident-Fellow.pdf](https://www.acgme.org/Portals/0/PDFs/Specialty-specific%20Requirement%20Topics/DIO-Scholarly_Activity_Resident-Fellow.pdf)

- Florek AG, Dellavalle RP. Case reports in medical education: a platform for training medical students, residents, and fellows in scientific writing and critical thinking. *J Med Case Rep.* 2016;10:86. doi:10.1186/s13256-016-0851-5
- Carey JC. The importance of case reports in advancing scientific knowledge of rare diseases. *Adv Exp Med Biol.* 2010;686:77-86. doi:10.1007/978-90-481-9485-8_5
- Packer CD, Katz RB, Iacopetti CL, Krimmel JD, Singh MK. A case suspended in time: the educational value of case reports. *Acad Med.* 2017;92(2):152-156. doi:10.1097/ACM.0000000000001199
- Jha P, Thakur A, Klumb J, Bhandari S. Perceptions of fourth-year medical students on writing and presenting case reports. *Cureus.* 2018;10(3):e2341. doi:10.7759/cureus.2341
- National Resident Matching Program. Charting outcomes in the match, Specialties Matching Service, Appointment Year 2018: characteristics of applicants who matched to their preferred specialty. National Resident Matching Program. 2nd Ed. Published October 2018. Accessed October 22, 2019. <https://mk0nrmp3oyqui6wqfm.kinstacdn.com/wp-content/uploads/2018/10/2018-Charting-Outcomes-SMS.pdf>
- Levine RB, Hebert RS, Wright SM. Factors associated with citation of internal medicine residency programs for lack of scholarly activity. *Teach Learn Med.* 2005;17(4):328-331. doi:10.1207/s15328015tlm1704_3
- Beasley BW, Scrase DR, Schultz HJ. Determining the predictors of internal medicine residency accreditation: what they do (not what they say). *Acad Med.* 2002;77(3):238-246. doi:10.1097/00001888-200203000-00014
- Carek PJ, Dickerson LM, Diaz VA, Steyer TE. Addressing the scholarly activity requirements for residents: one program's solution. *J Grad Med Educ.* 2011;3(3):379-382. doi:10.4300/JGME-D-10-002011
- Rothberg MB, Kleppel R, Friderici JL, Hinchey K. Implementing a resident research program to overcome barriers to resident research. *Acad Med.* 2014;89(8):1133-1139. doi:10.1097/ACM.0000000000000281
- Rivera JA, Levine RB, Wright SM. Completing a scholarly project during residency training. Perspectives of residents who have been successful. *J Gen Intern Med.* 2005;20(4):366-369. doi:10.1111/j.1525-1497.2005.04157.x
- Jha P, Quinn B, Durbin S, Bhandari S. Perceptions of junior faculty in general internal medicine regarding mentoring medical students and residents in scholarly projects. *J Gen Intern Med.* 2019;34(7):1098-1099. doi:10.1007/s11606-019-04937-4
- Palacio A, Campbell DT, Moore M, Symes S, Tamariz L. Predictors of scholarly success among internal medicine residents. *Am J Med.* 2013;126(2):181-185. doi:10.1016/j.amjmed.2012.10.003
- Amonoo HL, Barreto EA, Stern TA, Donelan K. Residents' experiences with mentorship in academic medicine. *Acad Psychiatry.* 2019;43(1):71-75. doi:10.1007/s40596-018-0924-4
- Steiner JF, Curtis P, Lanphear BP, Vu KO, Main DS. Assessing the role of influential mentors in the research development of primary care fellows. *Acad Med.* 2004;79(9):865-872. doi:10.1097/00001888-200409000-00012
- Young RA, Dehaven MJ, Passmore C, Baumer JG. Research participation, protected time, and research output by family physicians in family medicine residencies. *Fam Med.* 2006;38(5):341-348.
- Crawford P, Seehusen D. Scholarly activity in family medicine residency programs: a national survey. *Fam Med.* 2011;43(5):311-317.

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