

Scholarship Opportunities for Trainees and Clinician Educators: Learning Outcomes from a Case Report Writing Workshop

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INTRODUCTION: Publishing a case report demonstrates scholarly productivity for trainees and clinician-educators.

AIM: To assess the learning outcomes from a case report writing workshop.

SETTING: Medical students, residents, fellows and clinician-educators attending a workshop.

PROGRAM DESCRIPTION: Case report writing workshop conducted nine times at different venues.

PROGRAM EVALUATION: Before and after each workshop, participants self-rated their perceived competence to write a case report, likelihood of submitting a case report to a meeting or for publication in the next 6–12 months, and perceived career benefit of writing a case report (on a five-point Likert scale). The 214 participants were from 3 countries and 27 states or provinces; most participants were trainees (64.5 %). Self-rated competence for writing a case report improved from a mean of 2.5 to 3.5 (a 0.99 increase; 95% CI, 0.88–1.12, $p < 0.001$). The perceived likelihood of submitting a case report, and the perceived career benefit of writing one, also showed statistically significant improvements ($p = 0.002$, $p = 0.001$; respectively). Nine of 98 participants published a case report 16–41 months after workshop completion.

DISCUSSION: The workshop increased participants' perception that they could present or publish a case report.

KEY WORDS: case reports; education; medical; educational measurement/methods; faculty; medical; internship and residency; internal medicine/education; mentors; program development; publishing; research/education; staff development; writing; writing/standards.

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INTRODUCTION

Developing a case report is important for residents and clinician-educator faculty. Presenting a case report at a meeting or publishing a case report in a peer-reviewed journal is, for residency programs, a way to demonstrate scholarly productivity¹. The Accreditation Council on Graduate Medical Education (ACGME) requires scholarship activity during training; the ACGME defines scholarly activity as “original research, comprehensive case reports, or review of clinical and research topics”². For clinician-educators, publishing clinical reviews or observations, such as case reports, is one approach to document scholarship in a teaching portfolio³.

Case presentations have been used in innovative ways in medical education, such as root-cause analysis⁴, development and validation of a feedback tool⁵, and a way to teach competencies during medicine clerkships⁶. Case reports highlight important aspects of teaching, disease processes, patient care, and sometimes can identify future research opportunities^{7–9}.

Writing a case report seems straightforward; however, barriers may exist¹⁰. Resident interest, faculty mentoring, and technical support are often lacking and are commonly cited as barriers¹. Resources are available on how to write a case report^{10–12}, but we are not aware of any formal training designed to improve such skills.

AIM

We developed and conducted a workshop aimed at improving case report writing skills. Our objective was to assess the impact of a case report writing workshop.

SETTING

Between March 2005 and April 2008, we conducted nine workshops at annual academic general internal medicine meetings (four national, two regional) and at three academic

institutions. Attendees were clinician-educators and trainees (medical students, internal medicine residents, and fellows). The study sample was a convenience sample of attendees who chose to attend the workshop and completed the questionnaires described below.

PROGRAM DESCRIPTION

Case Report Writing Workshop

The interactive workshops focused on identifying essential elements of a case report (learning objectives, format) and assisting attendees with preparing an outline of their first draft for publication. The broad content and organization of the workshop remained the same with small variations between the individual workshops. The workshop included a 10-min presentation focusing on an overview of the writing process, manuscript requirements of a case report (also known as case vignette), resources for publication, and tentative target journals. The format of the workshop had many of the characteristics of an effective continuing medical education intervention utilizing adult learning principles¹³.

Attendees worked in small groups of five to ten. The small groups worked independently for 20–35 min with one to four faculty facilitators. The tasks for each group were: (1) select a case from their own clinical experiences or from a case report abstract; (2) discuss the case presentation, select the major teaching points, prepare an outline, and provide specific suggestions for manuscript preparation; (3) discuss whether submitting the case for presentation to a meeting or publication was appropriate; and (4) identify tentative journals and the target audience. During the last 20 min of the workshop, a spokesperson from each group succinctly presented the key findings to the general audience; then, the entire audience and faculty provided feedback and discussed strategies to enhance likelihood of publication. Each workshop lasted between 60 and 90 min. The handout outlining the overall structure of the workshop is available in the Online Appendix.

Workshop Faculty

Workshop faculty included ten clinician-educators from three academic medical centers. Individual faculty conducting each workshop varied, and all workshops were structured similarly. Faculty had experience in publishing case reports, mentoring trainees or other faculty in writing case reports, experience reviewing case reports for peer-reviewed journals, and some were Deputy Editors for case reports in the *Journal of General Internal Medicine* (reviewing approximately 180 submissions/year).

PROGRAM EVALUATION

Measurements

At the start of each workshop, we obtained baseline information from attendees on their trainee status, professional affiliation, prior experience in submitting or presenting case reports at a meeting, and prior experience in submitting or publishing case reports in medical journals (see Online Appendix). We also assessed participants' self-rated: (1) competence to write a case

report (one item; 1=low, 3=medium, 5=high), (2) likelihood of submitting a case report to a meeting or for publication in the next 6–12 months (two items; 1=very unlikely, 3=neutral, 5=very likely), and (3) career benefit from sharing a case report through a meeting or publication (two items; 1=disagree, 3=neutral, 5=agree). Each question was rated using a five-point Likert scale. At the end of the workshop, we again assessed participants' self-ratings on competence, likelihood of submission and career benefit; participants also graded their overall workshop learning experience on a five-point Likert scale ("During the workshop I learned...;" 1=little, 3=some, 5=much). The form was printed on two sides of a single sheet of paper, and it took approximately 2 min to complete. Including their name and contact information on the form was optional; a list of all people who attended the workshop was not available.

We assessed whether a case report was subsequently published by searching the US National Library of Medicine (PubMed) 16–41 months after the workshops had been completed; we searched the names of participants who provided their names from seven workshops conducted between May 2005 and May 2007.

Our institutional review board approved the analysis of the data; informed consent was not deemed necessary (evaluation of existing educational data).

Analysis

We compared before and after mean ratings using the paired or unpaired Student's *t*-test as and when appropriate. Using the McNemar's test, we also compared the percentage of participants rating >3 for perceived competence, career benefit, and likelihood of submission (we chose a cutoff of >3 as it indicates a positive outcome as compared to a negative or a neutral outcome). We used a level of significance of $p=0.05$.

RESULTS

A total of 214 participants from 3 countries (USA, Canada, Japan) and 27 states or providences were included. Pre- and post-questionnaires were completed by 95% of participants; 63% included a legible name. Participants' characteristics and experience in presenting or publishing a case report are shown in Table 1. Most participants were trainees (64.5 %; students, residents, fellows).

Perceived Competence

Perceived competence increased significantly after the workshop. The mean rating increased from 2.5 to 3.5 (a 0.99 increase; 95% CI, 0.88–1.12; $p<0.001$) (Table 2). The percentage of participants self-reporting a rating >3 increased from 12.0% (24/200, pre) to 50.0% (100/200, post), $p<0.001$.

Likelihood to Submit and Publication

The likelihood to submit a case report to a meeting or for publication in the next 6–12 months also increased significantly after the workshop. The mean rating increased from 3.8 to 4.1 ($p<0.001$) for likelihood to submit to a meeting and from 3.8 to 4.0 ($p<0.001$) for the likelihood to submit for publication (Table 2). The percentage of participants self-

Table 1. Baseline Participant Characteristics (N=214)

Variable	n (%)
Academic status	
Residents	101 (47.2)
Clinician-educators	61 (28.5)
Students	29 (13.6)
Fellows	8 (3.7)
Others	7 (3.3)
Unknown	8 (3.7)
Professional affiliation	
University-based	127 (59.3)
Community-based	45 (21.0)
Other	6 (2.8)
Unknown	36 (16.8)
Case vignette experience at meetings	
Submitted	
0	92 (43.0)
1-5	95 (44.4)
>5	12 (5.6)
Unknown	15 (7.0)
Presented	
0	86 (40.2)
1-5	88 (41.1)
>5	9 (4.2)
Unknown	31 (14.5)
Case vignette manuscripts	
Submitted	
0	147 (68.7)
1-5	41 (19.2)
>5	3 (1.4)
Unknown	23 (10.7)
Published/ accepted for publication	
0	152 (71.0)
1-5	31 (14.5)
>5	3 (1.4)
Unknown	28 (13.1)

reporting a rating >3 increased from 65.3% (128/196, pre) to 74.5% (146/196, post) for likelihood to submit to a meeting in the next 6–12 months and from 64.0% (126/197, pre) to 74.1% (146/197, post) for likelihood to submit for publication (both $p=0.002$).

Among workshops conducted between May 2005 and May 2007, 10 of 98 participants published 11 case reports 16–41 months after workshop completion, 7 of whom were residents and 3 were clinician educators^{14–24}.

Career Benefit and Learning

The perceived career benefit of submitting a case report to a meeting or for a publication also increased significantly after the workshop; the mean rating increased from 4.2 to 4.4 ($p<0.001$) for submission to a meeting and from a mean of 4.5 to

4.7 ($p=0.001$) for submission for publication (Table 2). The percentage of participants self-reporting a rating >3 rose from 77.7% (157/202, pre) to 87.6% (177/202, post) for career benefit of presenting at a meeting and from 86.9% (173/199, pre) to 96.5% (192/199, post) for publication (both $p<0.001$).

At the end of the workshop, participants also graded their learning experience on a five-point Likert scale (“During the workshop I learned...” 1=little, 3=some, 5=much); the median learning experience was 4.0 (Q1, Q3: 4.0, 5.0).

DISCUSSION

The case report writing workshops had significant and measurable improvements on self-reported competence to write a case report. Albeit small, we also observed statistically significant improvements in the likelihood of submitting a case report to a meeting or publication, and perceived career benefit from presenting or publishing a case report.

Trainees and faculty prepare and present case reports at academic meetings. However, writing and submitting for publication are often times not done. In our experience, common reasons are lack of motivation, lack of skill on how to write a case report, lack of awareness of relevant journals, lack of perceived career benefit and lack of belief that they are capable of writing the case report (i.e., self-efficacy). For the learner, the process of manuscript preparation is beneficial. Developing a manuscript allows one to conceptualize an idea, organize information, define clear teaching points, interpret data, review the literature, and write for a scientific audience¹¹. During the process, authors develop a deeper understanding of the specific disease process and patient care⁷. Certainly, not all case discussions warrant publication. Our case report writing workshop was designed to overcome barriers and encourage trainees and clinician-educators to critically assess the potential educational value of their case report for a wider audience - thus, providing the first steps for drafting a manuscript.

Case reports are one method by which residency programs fulfill the ACGME scholarship requirement. Residency program directors cite significant barriers for conducting scholarly activities; barriers include lack of faculty time, faculty mentors, funding, resident interest, and technical support¹. Importantly, these barriers are more significant among non-university-based programs. Trainees at non-university-based programs are less likely to publish in peer-reviewed journals as compared to trainees at university-based programs (5% vs. 10%)¹. When compared with other study designs, case reports are relatively easy to complete, are inexpensive^{25,26}, and do not require extensive training or infrastructure. As such, case

Table 2. Impact of the Workshop on Participants' Perceptions

Outcomes*	Before mean (SD)	After mean (SD)	Paired difference (95% CI)	P value
Perceived competence to write a case report	2.5 (1.0)	3.5 (0.8)	0.99 (0.88–1.12)	<0.001
Likelihood to submit a case report to:				
Meetings	3.8 (1.2)	4.1 (1.0)	0.24 (0.13–0.34)	<0.001
Publications	3.8 (1.1)	4.0 (0.9)	0.22 (0.10–0.33)	<0.001
Perceived career benefit of a case report when:				
Presented at a meeting	4.2 (0.9)	4.4 (0.8)	0.23 (0.14–0.33)	<0.001
Published	4.5 (0.7)	4.7 (0.5)	0.16 (0.08–0.25)	0.001

*Measurements on a five-point Likert scale; competence (1=low, 3=medium, 5=high), likelihood to submit (1=very unlikely, 3=neutral, 5=very likely), career benefit (1=disagree, 3=neutral, 5=agree)

reports are well suited for trainees and may be less subject to those barriers. Our case report writing workshop and its list of resources may assist program directors fulfill the ACGME scholarship requirement - especially among residency programs with limited resources.

Academic advancement among clinician-educators is an important mission for academic medical centers. However, studies suggest that, compared to clinician-scientists, clinician-educators' academic rank is lower, promotion takes longer to achieve, and they are more likely to be in a non-tenured track position¹. The Society of General Internal Medicine and others provide detailed examples to document scholarship for promotion of clinician-educators^{3,27-30}. Proposed documentation of productivity includes areas relevant to teaching, mentoring and supervision, educational and administrative service, and scholarship of dissemination³¹. Some examples include participating in clinical research, publishing in books and peer-reviewed journals, developing curriculum and presenting at academic meetings²⁷⁻³⁰. Interestingly, not all participants agree that presenting at a meeting or publishing in a medical journal would help one's career. We acknowledge that publishing a case report does not have the same significance as other publication types. We submit that publishing case reports fulfills criteria for scholarship productivity and may assist clinician-educators in their academic advancement.

The study has some limitations. We did not have a control group, participants self selected to attend the workshops, and measurements were self reported. However, we believe that improvement in self-efficacy is a necessary first step for manuscript submission.

In summary, the case report writing workshops increased participants' perception that they could present or publish their work. This program was feasible, not dependent on any single individual, and could be implemented in a variety of training programs. Publishing case reports fulfills the ACGME requirement of scholarly activity for residency programs, and it may assist clinician educators in demonstrating scholarly productivity. Residency programs and faculty development programs across institutions should consider incorporating workshops like this to help trainees and clinician educators with limited experience meet ACGME requirements and advance their careers.

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