

Original Publication

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A Curriculum to Teach Learners How to Develop and Present a Case Report

Gina Luciano, MD*, Kathryn Jobbins, DO, Michael Rosenblum, MD

*Corresponding author: gina.luciano@sphs.com

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Abstract

Introduction: Residents are required by the Accreditation Council for Graduate Medical Education to complete a scholarly project during residency, but they may not have dedicated time or instruction to be able to successfully achieve this goal. **Methods:** In 2013 at Baystate Medical Center, we developed the Case Report Curriculum to guide internal medicine interns through the process of writing and presenting a case report. Core faculty and chief residents facilitate six sessions, which are scheduled throughout the year. Sessions combine large- and small-group discussion with facilitated independent work as well as postsession assignments and timely feedback from course facilitators. Topics include selecting a case report, crafting learning objectives, writing a discussion, authorship and creating a title, generating a poster, and presenting a poster. At the culmination of the conference series, interns present their completed case reports at an institutional academic day where judges critique and score their posters. **Results:** Over the past 4 years, 95%-100% of our interns have participated in the required curriculum and presented their posters. We found that the majority of interns go on to present additional scholarly works at regional and national meetings during their second and third postgraduate years. Due to the success of the curriculum, interns from additional programs within the institution now attend the conference series. **Discussion:** The Case Report Curriculum is a successful conference series that guides interns through the process of writing a case and can inspire additional scholarship during residency.

Keywords

Resident Scholarship, Case Report, Scholarly Activity, Clinical Vignette

Appendices

- A. Session 1 Selecting a Case .pptx
- B. Session 2 Creating Learning Objectives.ppt
- C. Session 3 Writing a Discussion.pptx
- D. Session 4 Authorship and Creating a Title.ppt
- E. Session 5 Creating a Poster .ppt
- F. Poster Template.pptx
- G. Session 6 Presenting Your Poster.ppt

All appendices are peer reviewed as integral parts of the Original Publication.

Educational Objectives

By the end of this activity, learners will be able to:

1. Identify a clinical case appropriate for presentation.
2. Develop learning objectives that emphasize the main teaching points of the case.
3. Illustrate the learning objectives through a well-formulated discussion.
4. Develop a poster based on the written case report.
5. Plan a 3- to 5-minute elevator pitch that summarizes the clinical case and emphasizes the main teaching points for presentation.

Introduction

The Accreditation Council for Graduate Medical Education requires residents to engage in scholarship during the course of their residency.¹ However, many residents struggle to complete a scholarly activity during training. Our residents at Baystate Medical Center felt that there were a number of hurdles to overcome in order to successfully complete a scholarly activity: lack of clear expectations as to what constitutes scholarship, little dedicated and/or protected time, and few opportunities for facilitated instruction and guidance in completing a project.^{2,3} Indeed, scholarship during residency can be more easily promoted by providing the context and culture to encourage it. Rothberg described a number of key factors to facilitate scholarship during residency: stimulating interest, affording protected time, and providing mentorship.⁴ In addition, scholarship during residency can lead to improved satisfaction with residency training and enhanced mentorship.^{5,6}

In 2013, residency leadership created the Case Report Curriculum (CRC), based on Society of General Internal Medicine submission criteria,⁷ to overcome the aforementioned barriers, to engage interns in a form of scholarship to help them hone practical and essential doctoring skills (synthesizing a case, learning from clinical encounters, and sharing knowledge with colleagues), and to potentially spur future scholarly endeavors.⁸ We believed that as a result of this curriculum, interns would develop proficiency in the process of writing and presenting a case and would go on to pursue additional scholarly activities later in residency. We decided that the minimum acceptable form of scholarship would be completion of a case report as well as presentation of that case at our local academic day poster competition. Our goal was to ensure that every intern had both the opportunity and instruction to engage in scholarship and present their work.

In contrast to other curricula that outlined one or two sessions to guide learners through a case report,^{9,10} we chose to design the curriculum as a spaced, experiential conference series in which learners work through the entire case report process from selecting a case to presenting a poster under the expert guidance of core faculty. We were confident that this approach would facilitate protected time for interns to independently work on their cases and foster stepwise feedback from faculty leaders at each stage of the case-writing process, thus mitigating many of the barriers to scholarship during residency. Adequate time between each of the sessions would encourage learners to more thoughtfully engage in the process and avoid it being an overly onerous or burdensome task.

The initial curriculum was delivered over four sessions and included these topics: (1) selecting a case, (2) creating learning objectives, (3) writing a discussion, and (4) editing and submitting. A description of that curriculum with related results describing completion rates and ongoing scholarly work has been previously published.¹¹ Based on feedback from learners, we modified the curriculum by removing the editing session, as this process was ongoing throughout the experience, and added three additional sessions: authorship and creating a title, creating a poster, and presenting a poster.

Methods

The curriculum was initially targeted at internal medicine interns who had minimal experience in writing or presenting case reports and was designed as a progressive, step-by-step series. We divided our curriculum over six 1-hour sessions throughout the academic year. We incorporated these sessions into our protected academic half-day in order to capture all of our interns and to fully engage them in the writing process. Facilitators were experienced chief residents or faculty versed in presenting, writing, assessing, and editing case reports.

Each session of the curriculum tackled an essential step in the process of writing and presenting a case report. The appendices listed below contain the PowerPoint slides for each session as well as the assignments related to each topic. The final slide for each session includes resources that may be helpful to both facilitators and learners. In general, the first session occurred early in the academic year, with the second session taking place at least 2-3 months later to allow participants adequate time to identify a case that would be their work-in-progress. The remainder of the sessions were spaced 4-6 weeks apart so that participants could complete assigned work between sessions, submit that work to their facilitator, and receive and incorporate specific and timely feedback. Sessions were composed of short, interactive, large-group didactics and discussion; small-group work; and guided independent work. We selected this combination of adult learning modalities in order to ensure that learners would not only build an understanding of the case report writing process but also have the time, opportunity, and feedback to apply and synthesize their understanding through the creation of their own independent project.¹²

It is helpful to have sessions in a conference room set up to accommodate group discussion. A computer, projector, and screen should be made available for each presentation, and a whiteboard can be useful for

the learning objective session. In addition, encouraging participants to bring a laptop or mobile device can facilitate independent work that is built in to Sessions 3 and 5. The six sessions are outlined in [Table 1](#).

Table 1. Overview of the Six Case Report Curriculum Sessions

Session	Objectives	Educational Format	Assignment
1. Selecting a Case (Appendix A)	Recognize the benefits of writing a case report. Discuss characteristics that make a case appropriate for write-up. Describe the components of a case report.	Facilitated large-group discussion.	Identify a case that would be amenable to a presentation and provide a rationale. Once the case is approved for write-up, create a first draft.
2. Creating Learning Objectives (Appendix B)	Identify the components of an appropriate learning objective. Create 2-3 learning objectives for your case.	Facilitated large-group discussion, small-group discussion, and independent work.	Refine 2-3 learning objectives. Search for articles that address each learning objective.
3. Writing a Discussion (Appendix C)	Describe the goal of a discussion. Begin to write your own discussion during the session.	Facilitated large-group discussion followed by independent work.	Create a draft of the discussion, and include appropriate references.
4. Authorship and Creating a Title (Appendix D)	Identify who should be included for authorship. Identify characteristics of an appropriate title. Create a title.	Facilitated large-group discussion, independent work, and small-group discussion.	Finalize the case, completing all edits.
5. Creating a Poster (Appendices E & F)	Identify strategies to create an award-winning poster. Compare and contrast poster styles. Begin to structure your poster.	Facilitated, large-group discussion followed by independent work.	Create a first draft of a poster. Prepare to discuss the poster in small groups.
6. Presenting a Poster (Appendix G)	Discuss strategies to craft a 3- to 5-minute presentation of your poster. Practice your presentation. Discuss potential questions that judges/reviewers may ask about your poster.	Facilitated large-group discussion followed by small-group work.	Practice the elevator pitch. Finalize the poster.

In Session 1: Selecting a Case (Appendix A), interns received an overview of the curriculum including dates and topics for each session, the expectation that assignments should be completed after each session, and a description of the poster presentation competition. Following the introduction, facilitators led the group through a discussion on the importance of writing a case report, characteristics that make a case appropriate for presentation or write-up, and the components of a case report. We illustrated the above objectives with case exemplars and then opened the session up for a group discussion on recent interesting cases our interns had encountered. The discussion reinforced the importance of characteristics that lend a case to presentation or write-up. Of note, we did not include a discussion of institutional review board (IRB) approval for each resident's individual case report as this was not a requirement at our institution. Facilitators wanting to replicate this curriculum should check with their IRB's policies in order to follow institutional expectations. For this session's assignment, we asked learners to send us cases that were amenable to presentation as well as a preliminary draft of the case itself (no title, discussion, references, etc.). We edited their cases and provided constructive feedback and comments through an email back to each learner.

Session 2: Creating Learning Objectives (Appendix B) focused on creating learning objectives. In this session, learners came prepared with the edited first drafts of their cases. We began with a brief introduction covering what a learning objective was and why specific and measurable learning objectives were of critical importance in writing a case report. Small groups created learning objectives for an exemplar case, and as a large group, we discussed the merits and diversity of each of the objectives. Finally, learners had facilitated independent time to work on their own cases. As facilitators, we helped define and refine learning objectives for each intern. The assignment following this session was to further refine the one or two learning objectives relevant to each learner's case as well as to search for articles that addressed each objective.

Session 3: Writing a Discussion (Appendix C) described the purpose of a discussion and linked this process directly to the learning objectives created in Session 2. We asked learners to come to this session with a computer or tablet. After a brief introduction, we used case exemplars to highlight the importance of

a discussion and how each discussion should relate very specifically to the learning objectives for that case. The remainder of the session was dedicated to facilitated independent work. We concluded by asking learners to send us their discussion drafts and references for ongoing feedback and editing.

Session 4: Authorship and Creating a Title (Appendix D) helped learners identify who should be included for authorship and also defined components of an appropriate title. We discussed examples of case report titles with the group and then allowed learners to independently work on creating their own titles. In small groups, learners critiqued each other's titles to further refine their work. The assignment following this session was to edit and finalize the entire case report.

Session 5: Creating a Poster (Appendix E) focused on the process of creating a poster and included strategies on how to create a first-rate poster, a discussion on the elements of a poster, and a facilitated conversation comparing and contrasting the merits of posters created by former participants in the curriculum. Also included here is a template (Appendix F) that learners can use to construct their own poster. Facilitators should use examples of posters by past residents or faculty that have won awards at national meetings as exemplars. For this session, we asked interns to bring a computer (or hold the session in the computer lab) so that independent work could be accomplished. Learners were asked to complete and send the first draft of their poster for feedback.

Session 6: Presenting Your Poster (Appendix G) guided learners through creating a 3- to 5-minute presentation, or elevator pitch, about their poster and gave them an opportunity to practice presenting it prior to the scheduled competition. We utilized a sample format to direct learners through the process as well as discuss best practices. For the remainder of the session, groups of three practiced their brief presentations, gave each other feedback, and considered potential questions that poster judges and attendees might pose. The concluding assignment was to complete the final draft of the poster and refine the presentation.

After the sixth session, near the end of the academic year, we invited all of the interns to present their work at a local forum within the institution. As our institution sponsors an academic week each year, we were able to obtain free access to the digital e-boards that had already been rented by our academic affairs department for the week. In this way, we were able to provide our interns with both a forum and a medium for presenting their posters. For our forum, we recruited academic faculty within the department of medicine to be poster judges. All presenters were given 3-5 minutes in which three assigned judges would evaluate their poster and presentation. Judges were given an evaluation form adapted from the Society of General Internal Medicine.¹³ At our annual end-of-the-year awards ceremony, we presented an award to the highest-rated poster. All participants were then encouraged to submit their posters to professional meetings the following year and to write and present additional cases if they were so inclined. However, presentation at our local poster session satisfied the residency scholarly requirement, and residents were not obligated to pursue additional scholarship on a regional or national level.

We administered a survey in October 2017 to our last two classes of learners who had participated in the modified six-session curriculum: the current PGY2 and PGY3 residents. In the survey, we asked them to measure their confidence in the components of writing and presenting a case. As additional scholarship was not required past the local presentation during their intern year, we also asked them whether they had presented additional case reports after they had completed the curriculum. Finally, we assessed whether they believed the curriculum had an impact on their interest in pursuing additional case reports. The Baystate Medical Center IRB deemed that this curriculum and corresponding survey were not human subjects research and thus did not require further approval.

Results

The CRC was implemented in 2013 and has continued yearly since then. Each year, 95%-100% of our internal medicine interns (18-22 interns yearly) participated in the required curriculum, completed a case report, and presented it at our local poster forum.

Eleven of 18 (61%) current PGY2 residents and 15 of 21 (71%) current PGY3 residents (all of whom had completed the CRC during their intern year) responded to the survey. Table 2 depicts the percentage of residents who presented posters at local, regional, or national conferences prior to and after the case report. Presentations at our local poster competition were not included. Although the CRC satisfied our residency's scholarly activity requirement, most residents chose to go on to present additional work at future meetings.

Table 2. Percentage of Residents Who Presented Posters Before and After the Case Report Curriculum

Residents	PGY2 % (N = 11)	PGY3 % (N = 15)
Residents who presented a poster at a local, regional, or national conference:		
PRIOR to participating in the case report	55	40
AFTER completion of the case report (not including the local presentation included in the curriculum)	72	73

Most residents agreed or strongly agreed that the CRC enabled them to hone essential case report skills (Table 3).

Table 3. Percentage of Residents Who Felt They Could Perform Specific Skills Associated With Writing and Presenting a Case Report as a Result of the Case Report Curriculum (PGY2: N = 11, PGY3: N = 15)

Statement	PGY2 %/PGY3 %				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can identify a clinical case that would be appropriate for write-up.	0/0	0/0	0/6.7	63.6/40.0	36.4/53.3
I can create learning objectives that emphasize the main teaching points of my case.	0/0	0/0	0/0	45.5/46.7	54.5/53.3
I can write a discussion that highlights my learning objectives.	0/0	0/0	0/0	63.6/46.7	36.4/53.3
I can develop a poster based on my written case report.	0/0	0/0	0/0	63.6/46.7	36.4/53.3
I can present the summary of my findings orally at a poster competition.	0/0	0/0	9.1/13.3	45.5/40.0	45.5/46.7

Residents felt that the CRC was a valuable contribution to their residency training (Table 4) and remarked that the sessions were quite useful. Illustrative quotes included "PowerPoints, previous examples and Baystate Medical Center academic half-day all were very helpful in understanding the process and becoming involved in research" and "great curriculum." Suggestions for improvement included instruction in writing a case series and additional opportunities for oral presentation practice.

Table 4. Percentage of Residents Who Found the Case Report to Be a Valuable Contribution to Their Residency Training (PGY2: N = 11, PGY3: N = 15)

Question	PGY2 %/PGY3 %				
	Not at All	Little	Somewhat	Much	A Great Deal
Did you find the case report to be an important addition to your residency training?	0/0	0/0	27.3/26.7	36.4/13.3	36.4/60.0

Over the past 2 years, other programs (medicine-pediatrics and psychiatry) have asked to have their interns included, which we have enthusiastically accommodated. This academic year (2017-2018), we are piloting the CRC with third-year medical students at an additional institution.

Discussion

Our CRC was successful in a number of ways. We were able to engage our interns in scholarship through the process of writing and presenting a case report and, more importantly, were able to inspire them to continue to pursue and present their work later in training. The academic day competition has developed into a robust showcase for learners to present their cases to faculty and administrators across the institution.

While similar curricula included one or two instructional sessions, we found that expanding our set of seminars over time improved the conference.^{9,10} At implementation, the curriculum consisted of only the first four topics. Over time, we modified the topics based on feedback. The additions of authorship, creating a title, crafting a poster, and presenting a case report were helpful in developing a more robust and comprehensive curriculum. Parsing the curriculum into additional seminars allowed us to cover specific topics in more detail and helped to mitigate time pressure. This modification enhanced opportunities for discussion and increased time for facilitated independent work during the sessions. In addition, the expanded conference series made for more manageable amounts of postconference assignments for our interns and more specific and directed feedback from our facilitators.

Limitations to implementing the curriculum include finding dedicated time for learners and for facilitators. We were fortunate to have a protected academic half-day in which we were able to incorporate the conference. A lesson learned was that engaging two or three facilitators in the overall process allowed for more meaningful feedback as the amount of work required from each facilitator was more manageable. Critiquing case reports at each step requires patience, dedication, and a level of expertise. Larger programs may wish to have more than one facilitator in order to provide enough instruction and feedback to each participant. We found that one facilitator for every eight to 10 interns was a reasonable ratio. Although the time dedication is substantial, we believe the results are well worth the effort. We were also fortunate to be able to borrow resources from the academic affairs department to provide a free poster forum for our interns. Other programs that choose to replicate this curriculum could consider printed posters or a case report day in which participants take turns presenting their posters on a large screen. This curriculum has been implemented in one institution and may not be generalizable to other contexts. However, as we have incorporated other programs' interns and now another institution's medical students into the curriculum, we believe the CRC could easily be replicated with interns in other programs, medical students, learners in other medical disciplines, and junior faculty.

One opportunity to enhance the experience is to involve past graduates of the curriculum to help facilitate or mentor new case report learners. In this way, graduates of the curriculum can further hone their skills and develop mentorship relationships with early learners. In addition, providing more time for practicing presentations, potentially with mock judging, could be useful to future learners.

Gina Luciano, MD: Associate Program Director, Department of Medicine, Mercy Medical Center

Kathryn Jobbins, DO: Interim Medical Director, Palmer Medical Center, Baystate Health Wing

Michael Rosenblum, MD: Program Director, Department of Medicine, Mercy Medical Center

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Ethical Approval

The Baystate Institutional Review Board approved this study.

References

1. ACGME Common Program Requirements. Accreditation Council for Graduate Medical Education website. http://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRs_2017-07-01.pdf. Updated July 1, 2017. Accessed September 27, 2017.

2. Ledford CJW, Seehusen DA, Villagran MM, Cafferty LA, Childress MA. Resident scholarship expectations and experiences: sources of uncertainty as barriers to success. *J Grad Med Educ*. 2013;5(4):564-569. <https://doi.org/10.4300/JGME-D-12-00280.1>
3. Rivera JA, Levine RB, Wright SM. Completing a scholarly project during residency training. *J Gen Intern Med*. 2005;20(4):366-369. <https://doi.org/10.1111/j.1525-1497.2005.04157.x>
4. Rothberg MB. Overcoming the obstacles to research during residency: what does it take? *JAMA*. 2012;308(21):2191-2192. <https://doi.org/10.1001/jama.2012.14587>
5. Takahashi O, Ohde S, Jacobs JL, Tokuda Y, Omata F, Fukui T. Residents' experience of scholarly activities is associated with higher satisfaction with residency training. *J Gen Intern Med*. 2009;24(6):716-720. <https://doi.org/10.1007/s11606-009-0970-4>
6. Hebert RS, Levine RB, Smith CG, Wright SM. A systematic review of resident research curricula. *Acad Med*. 2003;78(1):61-68. <https://doi.org/10.1097/00001888-200301000-00012>
7. Clinical vignette submission information. Society of General Internal Medicine website. <http://www.sgim.org/meetings/annual-meeting/call-for-abstracts-vignettes-ime-cpi/vignette-submission-info>. Accessed September 27, 2017.
8. Kidd MR, Saltman DC. Case reports at the vanguard of 21st century medicine. *J Med Case Rep*. 2012;6:156. <https://doi.org/10.1186/1752-1947-6-156>
9. Moore K. A medical writing curriculum for internal medicine residents: using adult learning theory to teach formal medical writing and publication of case reports. *MedEdPORTAL*. 2015;11:10073. https://doi.org/10.15766/mep_2374-8265.10073
10. Sridhar ARM, Willett LL, Castiglioni A, et al. Scholarship opportunities for trainees and clinician educators: learning outcomes from a case report writing workshop. *J Gen Intern Med*. 2009;24(3):398-401. <https://doi.org/10.1007/s11606-008-0873-9>
11. Besharatian B, Velez J, Rosenblum M, Stefan M, Luciano G. A case report curriculum to promote scholarship. *Clin Teach*. 2017;14(6):412-416. <https://doi.org/10.1111/tct.12580>
12. Taylor DCM, Hamdy H. Adult learning theories: implications for learning and teaching in medical education: AMEE Guide No. 83. *Med Teach*. 2013;35(11):e1561-e1572. <https://doi.org/10.3109/0142159X.2013.828153>
13. Willett LL, Paranjape A, Estrada C. Identifying key components for an effective case report poster: an observational study. *J Gen Intern Med*. 2009;24(3):393-397. <https://doi.org/10.1007/s11606-008-0860-1>

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