

How to Write a Case Report



TSM Guides

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If you plan to apply to a competitive program or a competitive specialty, you'll need to bring into play all of the recommendations throughout this book. In this chapter, we go further and review in detail how to add an extra competitive edge to your application. To begin with, you should make every effort to be published in your field. Such opportunities are available to every student, although they can be difficult to locate. We review how to find these opportunities as well as the process of writing for the medical literature. We also review the topic of research. If you're applying to a competitive field, NRMP data indicate that the vast majority of your competition will have participated in research. We review how to locate research opportunities and how to excel.

Rule # 1 If you're applying to competitive programs, you should make every effort to be published in your field.

In every academic medical center, there are ample opportunities to publish. We meet many medical students who would choose to describe themselves as "self-starters." Opportunities to publish only go to those students who truly are self-starters.

Locating these opportunities is often the hardest step, because there are no hard and fast rules. Different types of opportunities to publish exist at the medical school level, even if you've never been involved in formal basic science or clinical research. A few include:

- The case report of a classic case
- The case report of an interesting case
- A case series
- A review article

The case report is typically the entry point for medical students who lack experience in research. Even if you've researched and published extensively, it can be important to have additional scientific study in your chosen field. This confirms your interests in the specialty and your ongoing commitment to scientific pursuits.

How can a case report strengthen your application?

- By seeking out the opportunity, you've demonstrated your drive and enthusiasm.
- You've confirmed your interest in the specialty.
- You've confirmed your thirst for additional knowledge.

- Just the act of seeking out the opportunity demonstrates commitment to the field.
- Seeking out opportunities to publish provides a professional way in which to speak with or meet residents, faculty, and PDs in the institution.
- On a basic level, you've added to, or at least started, the publication section of your CV.
- By writing the case report, you have become an expert in one specific area.
- Your expertise becomes a potential topic of discussion in interviews.
- Your publication may also act as a point of commonality in interviews that can build rapport. "I'm very pleased to meet you, Dr. Lo. I referenced your work on...when writing my review article on..."
- Writing provides an ideal opportunity to showcase your work ethic, your drive, and your skills.
- By writing the case report in record time and by producing outstanding results, you'll be able to highlight your skills to your attending, an individual who can influence your acceptance to the residency program.
- Faculty members with concrete knowledge of your skills may use this specific example in their rotation evaluation, and in their letters of recommendation.
- Such faculty members can also act as vocal advocates for your candidacy for their own program.

Students who produce outstanding case reports in record time are also more likely to be considered for more substantial research projects or publications. More substantial projects are difficult to locate on the medical student level, but obviously are much more valuable in strengthening your application. An attending who's been asked to write a book chapter for the new edition of a well-respected textbook will only collaborate with individuals of known merit. By showcasing your skills, you've increased your chances of being awarded such valuable opportunities.

Rule # 2 Possibilities for publishing abound.

In general, medical students can be involved in publishing two types of case reports. The first type is what we term "classic" cases. These are typical examples of certain diagnoses, and may be published in a variety of journals in sections entitled "diagnostic puzzles," "clinical pearls," "grand rounds," or others.

The other type of case report describes rare or distinctive clinical findings. "This represents the first case of pseudoporphyria due to the medication sulindac."

If an opportunity to publish has been presented to you by your attending, then they'll typically advise you on journal selection. Certain types of clinical material are appropriate for different journals. However, as we discuss the process of publishing on the medical student level, we'll start with a discussion of opportunities in different journals.

Peer-reviewed and indexed journals are preferred, as they signal a higher level of scientific scrutiny. This information will typically be found in the journal's front pages, or online under the instructions for authors. Journals indexed in PubMed are preferred. If the journal is found when searching on www.pubmed.com, it's indexed on PubMed.

Many options are available within this category of peer-reviewed and indexed journals. However, on a medical student level, an opportunity to publish in any medical journal is significant. Publication in a non-peer reviewed, non-indexed medical journal is still quite an accomplishment, and will be regarded as such.

Your residents and faculty advisors are the best source of suggestions for appropriate sections of journals to which to submit. These may include specialty-specific or non-specialty specific journals. For example, in the field of dermatology alone, we can list a dozen journals that accept classic cases that are published for the education of the reader. These types of classic cases are often seen in a typical week at an academic dermatology outpatient clinic. A case of epidermolysis bullosa acquisita, for example, may not be all that interesting to the dermatology attending, but may prove to be an interesting case for submission to the Photo Quiz section of *American Family Physician*.

We could list many examples of medical journals that students may wish to investigate further. *Journal of Medical Case Reports* is available online without a subscription, and is indexed and peer-reviewed. *Consultant* is a peer reviewed journal which has short features such as "What's Your Diagnosis?" "Photoclinic," Photo Quiz," and "Dermclinic." Other journals to explore include the *American Medical Student Research Journal* and *Student BMJ*. These are simply a few of the many journals that accept case reports of classic or interesting cases. Again, your faculty advisor is the best source for suggestions, particularly for specialty-specific journals. In the table on the next page, we've presented journals to consider for case report submission, organized by specialty. Note that this is not an exhaustive list, but rather a starting point for your own research.

Residents and faculty are very helpful in suggesting clinical material that's appropriate for publication. However, with both the case report of an interesting case and the discussion of a classic case, students can take the lead in suggesting a publication. You may see an interesting case, perform a thorough literature search in order to learn more about the disease, and recognize its potential for publication. You can then suggest the case and ask your resident and attending for their thoughts about its potential acceptance.

Case series are more substantial publications, but will require a faculty member asking you to collaborate using their clinical material. Reviews are articles which are also typically identified by the faculty member. Clinical and basic science research projects require a more formal and in-depth commitment. While there are some one-month clinical and basic science

research electives, many research projects require much more of a commitment. In order to participate in research, you'll need to identify a faculty mentor who can support and educate you about the process. We review research later in this chapter.

Note that we've only focused on opportunities to publish. Many of these opportunities, however, can also translate into opportunities to present a poster at a national meeting, or to make a presentation at a local, regional, or national meeting. Can this case be presented at the monthly meeting of the Atlanta Pediatric Society? Can it be submitted as a clinical vignette for the national American College of Physicians meeting? Your faculty advisor can advise you of any potential opportunities.

Rule # 3 In order to publish, you need to locate an opportunity.

In some departments, students are frequently involved in publishing case reports, case series, review articles, and book chapters, even if they haven't formally participated in basic science or clinical research. In such departments, students will find it easier to locate opportunities to publish, because the path to doing so is relatively clear-cut. They can often locate opportunities just by discussing the situation with their classmates or upperclassmen.

In other departments, it may be uncommon for students to be involved on such a level. While there may not be a track record at your program of students authoring publications, ample opportunities to do can still be found. Students can easily be involved in publishing case reports, which simply describe a clinical case. There are ample cases of interest in any academic medical center. You need to be extremely motivated and ready to work independently, but you can still successfully publish in your field.

How can you identify opportunities to publish? As we mentioned, there are no hard and fast rules, and you really need to exhibit the skills of a self-starter to even be given the opportunity to start writing. Speak to other students, especially in the class ahead of you. They can relay their own experiences, and how they found their opportunities to publish. Speak to the residents, and let them know your interest in strengthening your application. They can identify clinical material that is interesting and appropriate for the medical literature. They can also, most importantly, direct you to the appropriate faculty members.

Certain faculty members are prolific writers, and have an interest in adding to the medical literature. Such faculty may be willing to work with you on case reports. They may have clinical material in their files that is awaiting an eager medical student to perform a literature search and prepare it for publication. Alternately, they may ask you to keep an eye out for interesting clinical cases during your time on the elective. Such faculty members are often asked to collaborate with colleagues in their field. They may have been asked to write a book chapter, or a review article. Such opportunities are ideal for medical student collaboration, and many faculty welcome interest by medical students.

In some institutions, it would be appropriate to send an e-mail to the faculty in your department highlighting your interest in working on a paper.

Depending on your circumstances, you may seek to work on a paper during your elective or at any time during your third year. Many motivated students complete papers during their time on other rotations. Some students arrange time for a research elective, and then search for a faculty member to work with. In these cases, it is also appropriate to schedule a meeting with the chairman or program director to seek their advice.

Another ideal way to locate opportunities to publish is by participating in an away elective. Certain programs are well-known to provide ample opportunities for student participation in such projects, and your away elective can be chosen with this goal in mind. As with much of this section, there's no single best method to locate such programs. You can speak to the residents, your faculty advisor, and the PD. You can participate in online forums, or even scan journals to note which programs publish work with student authors.

Locating an opportunity to write is an accomplishment in and of itself. Congratulations. Now do everything in your power to maximize this opportunity.

Rule # 4 Finish what you've started.

The first and most important point about identifying opportunities to be published in your field is a simple one. Once you've identified an opportunity to write, you need to submit a finished product.

The reason we choose to discuss such an obvious rule is that somehow, despite its obvious nature, students just don't always finish projects. We've witnessed for ourselves many cases in which students don't complete a project. We've heard many negative comments from our colleagues about students who don't complete a project. We've sat in faculty meetings where the inability to complete a project is used as evidence of a student's poor fit for a residency program.

It's not just that you'll have lost out on an incredible opportunity to impress your attending and strengthen your application. Unfortunately, your inability to complete the project will convey a lack of commitment, a lack of dedication, and a poor work ethic.

It's rare that students in this situation actually have a poor work ethic and lack commitment. In many cases, students become paralyzed by their own perfectionism. They're not sure what they're doing, are insecure about the results they've produced and can't bear to turn in a final product that's not perfect. As a student, though, hardly anyone has experience with preparing cases for publication. You need to read extensively, plan to work hard, and move forward. We've outlined the process in more detail here.

Rule # 5 Before you write, you need to read.

A great deal of literature exists on designing and conducting medical research, but not so much when it comes to writing a straightforward case report or review of the literature. We've outlined the process in more detail below.

Learning how to write medical papers starts with reading medical papers. Read the articles in your targeted journal. If you'll be writing a case report, pay close attention to that section. Get a feel for format, sentence structure, and word usage. Move on to articles written in prestigious medical journals. Review articles written in specialty-specific journals. This type of reading provides the foundation for your medical writing.

Rule # 6 It may be one of the most important papers you've ever written, but it's not easy to write an outstanding case report.

Arrange to meet with your attending before you start. You need to obtain several key pieces of information. To which journal will you be submitting the paper? Which section in that journal? What is the anticipated timeline for submission of the paper? How would your attending prefer that you communicate with her? Would an e-mailed first draft be acceptable? If submitting a case report, what makes your case unique and compelling to the readers? Can your attending provide more information on what makes the case worthwhile for publication? These are all critical to the creation of a compelling, publishable report, and we review each of these points in further detail.

Rule # 7 Your publication must include a "hook."

What important point are you trying to convey to your readers? What makes this case unique or compelling to the readers? What is the point of publishing this case?

If you're submitting the case of a patient who presented with the classic features of Wegener's granulomatosis, you are presenting the case for the further education of your readers, so that they can recognize such cases in the future. As we discussed, many journals have sections in which they present examples of classic cases to their readers.

If your case is the first reported case of pseudoporphyria due to sulindac, then your hook is this: "We present this case of pseudoporphyria due to sulindac. While pseudoporphyria often occurs due to NSAIDs, this is the first reported case due to the medication sulindac. Therefore, this medication must be added to the possible causes."

If you're presenting a syndrome or disease that is well-described in the medical literature, then you need to search more deeply for what makes your case either unique or worth publishing. This can be difficult. It may be a

fascinating syndrome, but if there's not a compelling point to make, then many journals won't see what use the information will have for their readers.

The insight and extensive clinical experience of your advisor will be critical in this situation. Was the last reported case of this syndrome 20 years ago? Then a reminder of its features may be useful. Does this case demonstrate a new association? Did the patient respond to a previously undescribed therapeutic measure? Did you note an interesting clinical finding that may serve as a clue to the diagnosis? "This case illustrates a complication of systemic amyloidosis and emphasizes its utility in reaching a timely diagnosis." Your point is that this information has educational or clinical significance for the readers.

Another option is to write a case report and review of the literature. "We present a case of Dowling-Degos disease and review and summarize the medical literature, with an emphasis on clinical and histologic presentations." What is the point of this type of publication? You describe an interesting case and summarize the medical literature to date, so that your readers will be fully educated on all aspects of this condition.

Rule # 8 For extensive projects, you need to establish a timeline.

"What timeline did you have in mind for this project?" If you'll be working on an extensive project, this question becomes very important. In your mind, a review article with over 200 references may take at least eight weeks. Your advisor may expect it in four, especially if she herself was given a deadline for submission. If you have a prior commitment, such as Step 2 in four weeks, then it's important to let your advisor know that you won't be able to meet that deadline. Be specific about your reasons, offer an alternative timeline, and ask if that would be acceptable.

We're going to emphasize an important point here. The date you're given is NOT a deadline. Some students will delay, then work feverishly for the week before, and then turn in a first draft on that date. That represents a wasted opportunity. The date you're given is actually an indication of your advisor's expectations, and is really an opportunity to exceed those expectations. Once you've heard the expected timeline, plan to cut it significantly. Turning in an outstanding finished product that exceeds expectations in terms of both quality and timeliness is an impressive accomplishment.

As a final note, a lack of timeline is not an excuse to delay. Many attendings won't have a timeline in mind. "Just do your best, and we'll work with it." Other attendings will say the same, but are in actuality judging your work ethic.

Note that we specified asking for an expected timeline in the case of extensive projects. Case reports are a different situation, because they should be completed and submitted promptly. Realistically, many case reports can be completed in one very lengthy weekend spent at the library and at your computer. This is particularly true for presentations of a classic case, which take less time to research and write. Submitting a high-quality case report at that speed will get you talked about.

Rule # 9 Model your report on others in your targeted journal.

Find the right journal for your submission. This is easier when your attending has a concrete idea of where your article should be submitted. Find out what journal you'll be submitting to. Seek out the instructions for authors. Seek out prior examples of publications for that section. Model yours using that format.

Rule # 10 You cannot write a strong case report without becoming an expert on your topic.

Perform a thorough literature search. You cannot write a strong case report without becoming an expert on the topic. You should begin by reading the textbooks. You can then move on to online sources such as emedicine (www.emedicine.com), which are regularly updated textbooks. You should then seek out review articles that summarize the literature on the subject. Lastly, you should review prior case reports on the topic.

Some students, when first writing a case report, heavily reference the major textbooks. However, such references are not ideal. For general information on the topic, it would be better to reference a review article, ideally one which is more recent, up to date, and in-depth. Including such a review article is helpful to your readers, as they can use that reference to obtain more information on the topic. However, review articles should never be used as substitution for the primary source of a piece of information. "Pseudoporphyria has been described as occurring due to ibuprofen, naproxen, and diclofenac.¹" While it would be easier to include one reference that summarizes this information, such as a review article, it would be more appropriate, and in some cases more helpful for your readers, to include examples of publications that described each of these cases. "Pseudoporphyria has been described as occurring due to ibuprofen¹, naproxen² and diclofenac.³"

We assume that by this point in your career you've learned to navigate PubMed. You may find it helpful, however, to further maximize your knowledge of PubMed and the various search options available. Our own medical library offers multiple classes on maximizing the use of PubMed, and online tutorials are available as well.

Rule # 11 Write the case.

Once you pinpoint why your case would be compelling to readers, the work of writing the case report becomes more straightforward. For a case report, you'll typically write an introduction, a description of the case, and a discussion. The introduction will be brief, but should capture the reader's attention. Why would they care to read about your case?

In summarizing the clinical features of the case, make sure you review other cases previously published in your target journal. Your description of the clinical features of the case, including the depth of detail included, should be modeled after that type of case report.

In the discussion, just as in a typical college review paper, you will summarize and present the existing literature on this subject, with an emphasis on the important take home points learned from the case. Learning the appropriate focus and level of detail in the report is a skill that can take years to develop. “Should I focus on the clinical features of pseudoporphyria in general, and how to make the diagnosis, or should I just limit myself to a discussion on the prior reports of the NSAIDs that have triggered pseudoporphyria? Do I need to go into the pharmacological details of the different NSAIDs?”

The level of detail included will depend, in large part, on the goals of your advisor and the limitations of the journal. The instructions to authors specify a range of word counts, and it’s very important to adhere to these guidelines. Hopefully, the meeting with your advisor will have clarified the focus of the report. If in writing the discussion, though, you sense that you can go in two directions with your focus, you should contact your advisor for further guidance.

Rule # 12 Even your first draft should conform to the journal’s exact specifications.

The first draft that you turn in to your attending must be perfect. As always, every aspect of your performance is up for scrutiny, and you need to be sending a consistent message throughout the application process. And yes, without a doubt, writing a paper is part of that process. Your message is that you bring excellence to whatever task you perform, and that your attention to detail is impeccable. Proof your paper for grammatical and spelling mistakes, especially with medical terms for which neither you nor your spell-checker are familiar. Submit a title page that adheres to the journal’s specifications. Ensure that the format of your paper adheres to these specifications as well. If the journal requires an abstract for case reports, then submit an abstract of the specified length. Instructions for clinical photos, radiologic or other images, tables, and graphs should all be studied closely. Journals vary in their requirements for listing of references. Follow these requirements exactly.

Since this is a first draft, your content will be revised. Therefore, you should maintain two versions of your first draft. In the draft submitted to your advisor, the references should be formatted according to the instructions of the journal. In many cases, this means that references would be numbered and superscripted as directed, and the references section would include the numbered references in order of their inclusion in the body of the report. In the other draft version, you would note the author after the sentence, and avoid numbering your references at all. The references section would then list the authors in alphabetical order. This way, if your advisor suggests a change in the order of the content, the work required for significant renumbering of your references won’t be as difficult. The second version would be for your use only.

Sulindac has been described as a cause of many different types of cutaneous reactions. (Smith, Jensen).

Rule # 13 The follow through is just as important.

Most students feel a tremendous sense of relief when they can finally turn in a paper and say they're done. However, follow through is just as important. Always offer to make any necessary revisions. Provide explicit instructions on how to reach you in the months to come. "I'll be doing an away elective in the month of February, but please feel free to contact me by e-mail, because I'd like to make whatever revisions are necessary without delay."

Sometimes the revisions suggested by your advisor can be lengthy and painful. Your ability to complete suggested revisions, and to do so promptly, will be noted. If a paper is submitted and subsequently accepted, there are almost always required revisions to be completed before the paper will be published. Be available for these revisions as well.

While your revisions should be submitted promptly, the converse won't always be true. Some attendings may take a great deal of time to respond to your first or second draft of an article. While you should have made it clear that you are available to work on any suggested changes, you cannot do much more than that to speed up the process. Some students, after working so hard on a paper, are understandably impatient for the paper to be submitted, accepted, and published in time to help their application. However, it's easy to annoy an attending when you check in too often on the status of your paper.

Research

In the last section, we focused on being published in your field. Opportunities to publish case reports are easily available to motivated, driven students, and as we outlined, simply publishing a case report can boost your application. In this section, we focus on research opportunities. These can more significantly strengthen your application, but opportunities to participate in research projects are more difficult to locate and complete.

Rule # 14 Many applicants who apply to competitive programs or a competitive specialty will have participated in research. Those applicants will be your competition.

Participation in research can significantly strengthen your application. However, it's not a requirement. A survey of PDs in multiple specialties found that in most fields, published medical school research and participation in research were two of the lowest ranked criteria in the residency selection process.¹ In most fields, many applicants without publications or research experience will still match. In radiology, for example, only 4 of the 125 U.S. allopathic applicants lacking publications failed to match (2014 NRMP Match).²

However, there are several important caveats. If the majority of students applying to your field have research experience, your lack of

experience will make you stand out. While it may be ranked behind factors such as class rank and strength of LORs, research experience will still carry great weight with certain programs. In the fields of pathology and radiation oncology, published medical school research was among the top three academic criteria important to the residency selection process.¹

In many fields, including the highly competitive fields and those considered not as competitive, your competition will have participated in research. In 2014, the NRMP published data on how applicant qualifications affect match success. Included among the data were the percentage of U.S. seniors who had participated in research projects and the percentage with publications. In highly competitive fields such as dermatology, orthopedic surgery, otolaryngology, plastic surgery, and radiation oncology, over 97% of U.S. seniors had participated in research projects. Even in specialties that are not the most competitive, including the fields of anesthesiology, emergency medicine, and radiology, over 85% of U.S. seniors had participated in research projects.