Guidebook on Scientific Publishing

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HSPRN
health system performance research network

CAHSPR ACRSPS
Canadian Association for Health Services and Policy Research
l'Association canadienne pour la recherche sur les services et les politiques de la santé

Guidebook on Scientific Publishing

Advice for students and young investigators in the field of Health Services and Policy Research

The Canadian Association for Health Services and Policy Research (CAHSPR)
Student Working Group (SWG)

The Health System Performance Research Network (HSPRN)

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About this guidebook

There are many published resources available to help graduate students learn about the process of publishing scientific papers in peer-reviewed journals. However, in our experience, much of the best advice we receive during our studies is passed on to us from our peers and mentors who teach us the unwritten "tricks of the trade" when it comes to publishing in our field.

Given this reality, this guidebook aims to provide students and young researchers involved in health services and policy research (HSPR) with helpful, practical information on the various stages of the publishing process. Much of this information has come directly from students and several of the top researchers in the HSPR field. Our hope is that this guide demystifies the publishing process and helps to make your publishing experience more positive and successful.

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General publishing advice for trainees new to the field

"...and curiosity often leads to trouuuubbllle... oof! Well, after this I should think nothing of falling down stairs" (Alice, as she falls down the rabbit hole in 'Alice in Wonderland')

If you're reading this guide, then chances are your curiosity has caused you to tumble down the rabbit hole and enter the wonderfully peculiar and stimulating field of research that is Health Services and Policy Research, or HSPR for short. If you didn't plan on ending up here, you're certainly not alone! HSPR is comprised of members with a dizzying array of backgrounds. If we gravitate to this field, it's because we fundamentally share one belief: that we can improve people's health and well-being through changes to our health care system and health policies.

For those who are new to the field, defining the boundaries of HSPR can be challenging. Box 1.1 provides two definitions of HSPR. The first comes from the Canadian Association for Health Services and Policy Research (CAHSPR) and the latter from AcademyHealth, which is the main HSPR association in the United States.

Box 1.1 Definitions of HSPR

HSPR defined by CAHSPR:

"...a problem-oriented field into which people enter from a wide range of disciplinary backgrounds to work together to find ways that health care can best be organized, financed, and delivered."[1]

HSPR defined by AcademyHealth:

"...the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizing structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations."[2]

The following excerpt[3] also offers a good description of the HSPR membership:

"...health services research can be done by those who don't really consider themselves health services researchers. The topic (e.g., quality) and the goal of the study (e.g., better quality) determine whether someone is doing health services research. Those of us who consider ourselves health services researchers must recognize that our chosen field is not a closed shop where one needs a union card before they can work."

Indeed, many fields of study have ties to HSPR and make up the broader universe of this field (see Figure 1 for examples):

Figure 1. Wordle of HSPR-related fields

Regardless of whether you're a self-identified member or just a 'dabbler' in the field, the diverse and fluid nature of the HSPR membership has implications with respect to the publication of our ideas and discoveries.

What are these implications? Well, as mentioned, much of the research conducted in HSPR is highly collaborative in nature. You'll routinely work and publish within teams composed of people that may have very different ideas, professional training, experiences, skills, and expectations with respect to publishing. Understanding and communicating the "rules" for effective teamwork in this context is important for successful publishing efforts. It's also common that your research collaborations expose you to many different research topics and types of research that extends to a wide-ranging audience. Accordingly, knowing your particular audiences and the best vehicles to reach them is another important skill that HSPR researchers must develop.

Why is it important to publish?

As a trainee, you may find yourself pursuing studies in a setting where little emphasis is placed on publishing in peer-reviewed journals. This might happen because of the kind of research that's being carried out in your team or because of the philosophies or personalities of your supervisor or colleagues. In such situations, it's important to consider the following arguments in favour of adopting a more pro-publishing approach throughout your studies:

- When we publish, we grow the existing knowledge base in our field. In an applied and problem-oriented field such as HSPR, the potential impacts of publishing aren't trivial, as our work may have relevance to people facing similar problems across the country and even around the world. Publishing your research allows others to benefit from your hard work and reduces the likelihood that they will carry out redundant projects and waste valuable resources.

- Publications are a critical component of how academic scientists are evaluated. As a trainee, your publication record will be evaluated when you apply for studentships or and other awards. Indeed, the weight accorded to your publication history increases as you progress in your studies (for example, as one moves from a master's student to a doctoral student to a post-doctoral fellow). For junior and senior investigators, your ability to obtain a faculty position, grants, promotions, tenure, and so on is commonly and largely contingent on your publication track record. In other words, your publication record is an indicator of your competence, commitment, and potential as a researcher.

- Much of the research we do is funded by agencies and organizations that receive their funding from public sources. Given the role that taxpayer money plays in supporting our discoveries, some argue that we have an obligation to publish and share our findings with the public.

- Publishing also helps us grow as researchers. Every publishing opportunity is a learning experience and provides us with an opportunity to receive an outside opinion on the relevance, rigour, and impact of our work. Even the occasional rejection can ultimately lead us to doing better research.

- Finally, it's a fun thing to do! It can be very exciting to see the fruits of our labour appear in print or on the Internet, and psychologically it helps us move on to the next project or phase in our research.

Even though there are many good reasons to publish, it doesn't seem to stop people from finding just as many excuses not to publish! Common excuses include being too busy, having poor writing skills, not having any ideas or results worth sharing, preferring to place greater emphasis on building relationships with research partners or pursuing other forms of scientific communication, etc. While any of these reasons may be valid for postponing publication efforts, it's risky for researchers to have a publication drought for an extended period of time. Doing so may lead to job insecurity, lack of funding to pursue or complete projects, or an inability to pay salaries for team members down the road. In our view, trainees and researchers facing barriers must at some point find ways to overcome their challenges and adequately communicate the results of their work.

What are the general expectations for HSPR trainees with respect to scientific publishing?

Since publishing factors into your evaluation as a researcher, it's helpful to have a sense of what's expected of you in terms of publishing at different stages of your studies and research careers. Please note, however, that publishing standards in research are rarely easy to pin down and that career paths in HSPR vary widely. The researchers we spoke to in writing this guidebook sometimes had divergent views on what the standards should be. That being said, here's an attempt to present some general guidance for students at different stages of their training (Box 1.2):

Box 1.2. General publishing expectations (may vary by specific field of study)

For master's level trainees:

Students entering an HSPR-related master's program typically have little publishing experience. If you do, you're ahead of the curve but if you don't there's no reason for concern at this point! Your other research experiences, grades, skills, and training environment are more important in your initial evaluation. As you pursue your degree, however, you hopefully will be in a position to contribute to one or several papers as an author. Publishing a paper as a first author on the topic of your master's project is considered a major plus in evaluations as it suggests that you're able to finish what you started.

For PhD students:

Similar to master's students, trainees applying for a PhD are not expected to have extensive publication records. However some experience with writing and publishing is desirable. If you've got a first-author publication in a decent journal then you may be in good shape when it comes to seeking a doctoral award of some kind.

Many PhD programs offer students the option of writing a traditional thesis or an article-based thesis. If you're interested in an academic career, you should consider the latter as the work involved has greater resemblance to what you'll be asked to do later as an independent researcher. You'll also potentially complete your PhD with at least two or three papers as a first author, which will hopefully set you up for success at the post-doctoral or junior researcher levels. A productive PhD student may finish his/her degree with 5 to 10 publications, with the majority as first author.

For post-doctoral fellows and junior researchers:

For young researchers seeking a career in academia, evaluators look for a certain level of productivity that's maintained over time. Productive researchers might publish several articles per year, with most published as first author and at least some in higher impact journals. At this level, showing you can establish new collaborations and publishing with different research groups or partners are viewed in a positive light.

Final Words

Over the past decades, the HSPR field has grown in leaps and bounds and now occupies an important place in the Canadian research landscape. As the field matures, standards for research quality and performance understandably rise as well. Many trainees we have interviewed for this guidebook say that they often feel as though there is enormous pressure on them to publish, be productive, always perform at a high level, etc. However, students shouldn't be preoccupied with chasing the trendy topic or trying to publish work they don't care about to pad their CV. The value in publishing comes from sharing your discoveries and the research findings that you feel will contribute to the field and make a difference in some way. Hopefully the rest of this guidebook will provide helpful information that demystifies the publication process and allows you to share the fruits of your labour with the rest of us in the HSPR community.

Chapter 2

Trainee-mentor relationships and scientific publishing

As a young researcher, you're bound to encounter obstacles and uncertainties as you go through the publication process. In order to ensure that you have the support you need to advance your work in a timely and pain-free manner, it's critical that you build strong relationships with your supervisors and other individuals who can guide you.

A supervisor's role is to guide and support your development, help you build your independence, and maximize your potential in accordance with your educational and life goals. In most cases, your supervisor has acquired extensive experience with respect to publishing; often they'll be able to provide you invaluable information and advice about the 'ins and outs' of scientific writing and publishing. However, some supervisors are unable to devote sufficient time to working with their students to help them develop these key skills.

Whether your supervisor makes this form of mentorship a priority or not, it's useful to broaden your perspective about who can act as a mentor regarding publishing issues. Potential mentors can be your peers, especially other graduate students who are more advanced in their studies, as well as other researchers in your program or institution who have strong publication track records. Mentors might also be people that you meet at scientific conferences or training events that seem especially open to providing occasional advice and constructive criticism. Establishing a diverse personal network of formal and informal mentors can help safeguard against a lack of support that might hinder the progress of your research or publishing efforts.

How can mentors help us?

Mentors typically share two types of expertise: explicit/technical expertise and more tacit expertise. Explicit/technical expertise relates to things such as your mentors' knowledge about literature on a particular topic or about methodological techniques that they have acquired through their studies and careers (e.g. knowing that a particular report was written on a topic relevant to your study). Tacit expertise refers to the more personal lessons, insights, and practices that mentors have acquired through their experiences in academia (e.g. knowing how to frame arguments in a paper so that it appeals to a specific journal). Spending quality time with your mentors and tapping into both types of mentor expertise can be critical to your own development and success.

Here are some specific examples of how mentors can help you when it comes to scientific publishing:

- **Setting a standard:** Mentors can set the standard for excellence within their teams, pushing team members to achieve the same levels of timeliness, rigour, scientific integrity, and performance as they do.

- **Teaching you the conventions:** Mentors have learned how the research process works and they're able to teach you about how to go about the "usual business" of doing research and publishing your results. For example, your mentors can help teach you what to expect during the publishing process or how to interact respectfully with other co-authors.

- **Providing moral support:** Occasionally, mentors can be there to provide moral support when you encounter difficulties or criticism in your research. Helping you deal with failed attempts at securing funding or the rejection of papers is a key role that all mentors should play. Indeed, the trainee-mentor relationship is like any other relationship, and good mentors will be open to discussions about the challenges you face and to devising strategies to motivate you.

- **Providing employment opportunities and financial support:** Through their research projects or funds, mentors can provide you with opportunities to get involved in research or in the preparation of manuscripts.

- **Helping you manage time and priorities:** Time management and learning to prioritize your activities are two skills that are essential to research and to publishing. Many supervisors argue that these are key areas where students often initially struggle. Mentors are typically very sensitive to how valuable time is and can work with students to develop their skills, focus their activities, and limit hours lost to less important tasks.

What are our responsibilities when it comes to our mentors and publishing?

While your mentors will likely play an influential role in your academic career, you're ultimately responsible for getting the most out of your educational experience. With this in mind, it's important to consider the following advice:

- **Select your mentors wisely:** You should consider many factors before selecting your mentors (especially your supervisors). For example, you should inquire about your mentor's track record, their availability, their relationships with past mentees, their alignment with your skills and interests, and their ability to help you develop collaborations with other mentors outside of your relationship. When possible, it's helpful to ask others what they think of your mentorship options and discuss the above issues directly with potential mentors before making a final decision. Don't be afraid to ask blunt questions or describe your needs honestly when you're interviewing potential supervisors. Such meetings are not a time to hold back or misrepresent yourself for the purposes of making a good impression.

- **Take an active role:** As a trainee, it's crucial that you assume ownership over your studies and allow your supervisors and mentors to help you consider the options rather than choose a direction for you. It's up to them to suggest a path but up to you to blaze your own trail!

- **Handle your business:** A pet peeve of many supervisors is when students find ways to have others do their work for them. Whether it's doing the necessary reading, collecting the data and crunching the numbers, or drafting a paper section, you need to be resourceful and work at becoming as independent as possible.

- **Seek clarification where needed:** As resourceful as you may be, they are still likely to be times when you get stuck or are uncertain about what your mentors may be asking of you. It's important to be proactive and seek clarifications when you need them. Reaching out and having a clear understanding of what needs to be done is important to avoid unnecessary delays and frustrations.

- **Utilize peer mentors where possible:** Peer mentors can be a valuable resource for any trainee. You're likely to spend a lot of time with your peers (e.g. over lunch, in the lab) and often they're in a good position to provide you with honest feedback about your research or offer heartfelt encouragement. Interestingly, one study[4] found that trainees who worked with other students in a group writing setting benefited from a sense of responsibility, comfort, and encouragement, and many were able to use healthy and productive peer competition to their advantage.

- **Pay it forward:** As you progress through your career, it's a great experience to take on mentorship roles for peers or more junior students. This helps you just as much as it helps others and puts you on the path of learning to become a good mentor in your own right!

What can be done to make the trainee-mentorship relationship work well when it comes to publishing?

We put this question to two senior health services researchers, Dr. Kim McGrail from the University of British Columbia and Dr. Sharon Straus from the University of Toronto. Box 2.1 presents their advice.

Box 2.1. Advice on trainee-mentor relationships

Kim said:

- For students, they should learn about the policies around publication in their research team early on and understand who can be what type of author in what circumstances.
- For mentors, it's important to provide students with opportunities but not become so involved in manuscripts to the point that the student's own voice is lost. Mentors need to know themselves and gain a sense of their own style so they can partner effectively with students.

Sharon said:

- For students, it's about learning to set objectives and sticking to them. Learning to manage time and competing priorities effectively are essential skills that supervisors may need to assist their students with.
- For mentors, it's about realizing that different people have different needs and thus may require different types of assistance. Mentors must determine what a particular student needs so they can help them access the appropriate guidance or support. When it comes to publishing, mentors should provide lots of feedback and constructive criticism because writing and publishing is often a challenge for young researchers.

Final Words

Good mentorship is associated with a variety of positive benefits[5], and it's important that you make serious efforts to interact with your mentors and build those relationships. However, even the best mentors can't reasonably provide you with all the guidance you need on every front. So seek out multiple mentors and role models that can help you navigate different problems. If you're not getting what you need from the mentors in your surroundings, then it's your duty to bring that to your supervisor's attention and see how they can help. No one should be shy to meet with their supervisor and discuss mentorship issues, and your supervisor will likely appreciate being more aware of your needs. However, it's also important to not rely too much on your mentors for everything. Indeed, it's up to you to steer the ship, and allow your mentors to be the wind in your sails.

Commonly encountered authorship issues

Authorship issues are important because it is through authorship that we assign responsibility and give credit for intellectual work[6]. Authorship issues have implications for personal and professional reputations, career advancement and research funding, and even the reputations of institutions. Being an author on a newly published paper often provides a satisfying, even exciting feeling. However, for some people the publication experience is unfortunately bittersweet or frustrating because they perceive that their efforts in the research or on the paper have not been adequately acknowledged.

The collaborative nature of HSPR means that we're often writing and publishing papers as a team. If there are miscommunications and disagreements around authorship, it can negatively influence the relationships between and reputations of those involved. As such, it's very important to openly discuss authorship issues early on in the research process so that everyone involved is on the same page and negative experiences are avoided. Below we describe who should be considered an author on a paper and we explore several authorship issues that you're likely to encounter as a trainee and young researcher.

Who should be considered for authorship on a scientific manuscript?

It used to be that different research groups would have very different policies with respect to who could be considered an author on a paper. Talk to some of the more senior researchers around you and we're sure that they could share a few horror stories of unfair practices!

Increasingly though, there's a growing consensus regarding what elements are necessary to constitute authorship on a paper. One of the reasons for this has to do with the work by certain groups to establish criteria for authorship in biomedical journals. A good example is the Vancouver system developed by the International Committee of Medical Journal Editors[7]. The Vancouver rules for authorship, as they're commonly known, have been adopted by over 500 journals, and they state that:

"Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3."[7]

The rules further state that participation solely in data collection or analysis doesn't justify authorship, nor does simply providing general supervision over the publication process. While not all HSPR journals subscribe to these criteria, they can serve as the foundation for an authorship policy within individual research teams. Also, an increasing number of journals require that authors be very clear about the contributions of each author on the paper, in some cases publishing this information.

Even with clear criteria, it can sometimes still be a challenge to know whether to include some people as authors in certain circumstances (see Box 3.1 for some tricky authorship situations). Furthermore, one limit of the Vancouver and other authorship criteria is that they don't often cover the occasionally tricky issue of authorship order. The ins and outs of this issue are discussed next.

Box 3.1 Tricky authorship situations (discuss these with your mentors and peers!)

Scenario 1: When Roxanne was doing her master's degree, she proposed to her supervisor to write an article around some data her supervisor had acquired but did not plan to exploit. Roxanne made a plan for the paper, did the analyses and began drafting the manuscript. Unfortunately, she could not complete the paper before graduating and finding employment outside of the health field. Two years later, Billy, a new PhD student, became aware of the data and began the same process adopting a similar angle. Roxanne's paper, though incomplete, inspired Billy and made writing his own paper much easier. When Billy completed the manuscript, he wondered whether he should include Roxanne as a co-author. He tried to contact Roxanne but was unable to reach her. What should he do?

Scenario 2: Marvin is a young researcher who has been leading a research project with two other collaborators. Wendy is one of these collaborators and is also a good friend of Marvin. Wendy is also a young researcher but her implication in the project has been limited because she's been overwhelmed with teaching responsibilities. She initially facilitated the recruitment of subjects for the project but has been largely unavailable since that time. Marvin has advanced the project enough to write a first paper on results he's particularly interested in. He decides to send Wendy the paper for her comments, even though she has little expertise in the area focused on in the paper. Wendy returns the paper, with minor corrections to spelling. However, Wendy asks Marvin if she could be identified as last author on the paper because doing so would likely help her be promoted in her next tenure evaluation. Wendy's actions wouldn't ordinarily merit authorship but she is a good friend and future collaborator. What should he do?

Does authorship order matter?

You bet it does! And for many reasons. It's commonly assumed that the first author on an article is the person who has made the greatest intellectual contribution, including taking on most or all of the writing and contributing significantly to the research itself. Often, the ideas and arguments featured in a particular paper are credited largely to the first author, a habit reinforced by the fact that this author's name often appears in the text of other articles whenever the paper is cited. Assigning credit to the first author has implications for academic evaluation, and young researchers may have major difficulties acquiring jobs or research funding if they have no first-author publications to their name. Also, from a practical standpoint, being the first author also means taking the lead on a variety of publication tasks that the other authors won't be responsible for (see the next section).

Another common convention is to see a more senior researcher occupy the last spot in the authorship order. This spot can be coveted since this person may be considered the driving force intellectually and financially for the research[8]. In some universities and funding agencies, the number of last-author publications is considered an important metric in evaluations as it provides evidence of mentorship and leadership. Such publications are not only important for more established researchers but also young investigators who are in the process of building their career and research team.

Aside from the first or last author, does it make a difference where your name may appear in the list of authors? Given that many researchers associate authorship order with degree of contribution, it may be better, though the tangible benefits of authorship are virtually the same for authors ranked anywhere other than first or last. The two exceptions are when multiple authors are identified as the lead authors on a paper or when authors publish as a group (e.g. the CAHSPR Student Working Group), but these situations don't happen too often and some journals don't permit them.

What responsibilities and consequences come with being the first author and corresponding author?

If you want the glory that comes with being a first author – caution! All that glitters may not be gold. In addition to fulfilling the authorship criteria, he/she is generally expected to take on a number of additional responsibilities. Importantly, the first author is expected to act as a leader within the authorship team when it comes to issues like obtaining ethics approval, assigning authorship, establishing writing deadlines, compiling revisions from co-authors, etc. Basically, the first author should be the one doing the most work! It's also important to recognize that, while the first author is usually the first to receive credit from fans, they're also the first to receive criticism or blame. No author wants to read, "YOUR LAST NAME et al. were totally wrong in their analysis of …". This example may seem a bit harsh, but it's provided to highlight the fact that, as first author, you really do assume more responsibility for the final product than other authors. Furthermore, you're responsible for protecting the reputations of your co-authors, so taking the time to ensure that your product meets high scientific standards is time well spent.

Although the specific expectations vary by journal, in general, the corresponding author is the individual who assumes responsibility for receiving and responding to inquiries about the article before and after it's published. He/she must submit the article, receive the responses from the editorial board, facilitate communication among the co-authors about the feedback, submit any revisions, and work with the editorial office after the paper has been accepted to approve proofs and finalize the manuscript. All done? Not necessarily. Inquiries about the paper may come from readers (in the form of online commentaries or emails) or even from the media. Again, it's the responsibility of the corresponding author to inform the co-authors about any inquiries and ensure they're addressed promptly.

Who, then, should be named as corresponding author? In many cases, the first author takes on the responsibility of being the corresponding author. This is a natural role for the first author since he/she presumably already has an intimate relationship with the article (and is therefore in the best position to address questions) and has already facilitated communication among the authors during the preparation of the manuscript. It isn't unusual, however, for the senior author to take on the role of corresponding author, especially when the first author is a junior student (e.g., Master's-level). This is because senior authors may be more comfortable communicating effectively with the journal and co-authors and would likely be more experienced in dealing with post-publication inquiries. On the other hand, more senior students (e.g., PhD-level) could gain valuable experience from taking on this role. Since learning how to effectively communicate with a range of individuals (authors, readers, media) is a critical skill for any upcoming researcher, this may be a perfect opportunity to develop such important abilities while support from mentors is readily available.

What are the advantages/disadvantages/issues of solo authorship vs. group authorship?

Up until the 1950s, sole authorship was the norm for scientific writing. Since then, there has been such a rise in multi-authored papers that sole authorship has become the exception rather than the rule. This trend is partly attributed to increased pressure on researchers to accumulate as many publications as possible; this pressure is felt even at the earliest stages of one's training. Without a doubt, multi-authorship enables us all to be involved in more publications. However, there are also a number of additional benefits. For example, being a contributing member of a multi-authored paper can be a sign to a future employer or collaborator that you work well as part of a team. Also, having your name published alongside established researchers may grant you a certain level of credibility. Offering opportunities for authorship to other researchers may also lead them to extend the same offer to you in the future. The concept of multi-authorship can be advantageous within a research group as it can help foster cooperation (rather than competition) among its members – when a piece of work is published, everybody wins!

Perhaps the most important benefit of being part of a multi-authored paper for students is that it allows them to contribute to larger scale research early in their careers. Today, sole authored papers tend to be published only by well-established researchers, usually in commentary or editorial form. Students typically don't have the resources (e.g. data) to produce an original research manuscript or even execute a high-quality review paper completely on their own. Furthermore, it's generally understood that trainees benefit from the expertise of at least one senior collaborator.

Having said that, solo authored papers are not completely out of reach to students, one must simply think a little "outside-the-box." For instance, students read a lot, especially in their area of expertise, and may feel compelled to respond to one of these articles in the form of a commentary or debate article. A well-argued, insightful debate article or commentary may not only demonstrate initiative and passion, but may also help prove that your ideas and expertise exist independently of your mentors'. For other ideas for potential publishing opportunities, see Chapter 10.

What are the most common authorship problems that arise and what can be done about them?

Given that multi-author papers have become the norm, it's not surprising that conflicts around authorship have become more frequent. Here are some of the more common problems that can arise[9]:

- **Disputes over first authorship and authorship order:** Probably the most common disputes occur because of disagreements over who should be the first author on a manuscript or the order in a list of authors. It may happen, for instance, that a more senior researcher insists on being a first author even though a trainee or more junior researcher has made a greater intellectual contribution to the work.

- **Lack of recognition:** This occurs when someone's name does not appear in the list of authors despite him/her having made an important contribution to a study. A common example is when research assistants (RAs) do much of the 'grunt work' around data collection or analysis but are then not consulted during the paper writing process. If you're an RA, you should clarify your position with your employer and ensure that if you want to be an author of a paper, that you can be placed in a position to meet all the agreed-upon requirements.

- **Inappropriate co-authorship:** This can occur in a variety of situations. More senior researchers may assume that all publications originating within their research team should have their names on them, regardless of their involvement in the research or manuscript. Authors may decide to grant authorship strategically to people who don't truly merit it as a gift to show respect or as a means of making the paper seem more legitimate (thinking that the "big name" will help get the paper accepted).

- **Ghostwriting:** In this case, someone is hired to contribute substantially to the writing of a paper and is (deliberately or not) left out of the author list for that paper. While it's normal to have someone help with the editing of a manuscript, ghostwriting becomes unethical when writers are paid to write the very substance of a paper and then pass it off as someone else's work without being adequately acknowledged. The practice is particularly scandalous if the ghostwriter is a professional that is sponsored by an organization that stands to gain from the publication (a pharmaceutical company for instance).

There are a myriad of other factors that may lead to authorship disputes, including conflicting personalities, power struggles or inequalities, hidden agendas, and so on. When working with a group of authors for the first time, being explicit at the very beginning of the project about the plan for authorship is essential. Everyone should be candid about his or her interests in getting involved and the role they would like to play in the process. The more open and honest people are right from the start, the more likely it is that everyone will avoid uncomfortable situations later on down the road. In the event that an uncomfortably situation finds you and you're stuck, it's usually best to try to work out problems 'in house' before reaching out for help from other mentors or leaders in your graduate program.

Final Words

From a student perspective, we understand that it can sometimes be uncomfortable to discuss authorship issues with your supervisor or with other senior researchers. However, if ever the authorship policies in your research team or group are unclear, it's important to put your shyness aside and spark a conversation on the topic before the research advances too far or you invest a significant amount of time in a project. Our motto is: "No surprises!" Make no assumptions about the authorship policies in effect and ask about them directly. More often than not, you'll find that people are happy to discuss different scenarios are very open to having students contribute to publications. If ever the policies are not what you expected, at least you'll know in advance and will be able to adjust your involvement accordingly.

Targeting journals for publication

As mentioned in Chapter 1, the HSPR field is multidisciplinary in nature and as such there is often a large number of journals to choose from when seeking publication. Identifying journals that might be most suitable for your research is an important step and best done early on in the publication process. There are many reasons for this. A practical reason is that manuscript guidelines vary across journals. Therefore, selecting a potential journal early helps to set the structure of your paper (e.g. type of paper and length, number of tables or figures allowed, etc.). It's also important to select a potential journal earlier than later because: 1) it forces you to think about what your contribution represents and who your target audience should be, and 2) there are important consequences for you and others tied to your choice of journal. We expand on these points below.

How can we know how important our contributions are?

A story:

In the mid-1990s, a research team from Quebec initiated a project studying health problems among homeless youth in Montreal. Their study intended to examine rates of HIV infection but after several participants in their cohort died during the study, the research team decided to add mortality rates to the list of collected variables. After a few years of data collection, a master's student who was part of the research team analyzed the mortality data and shared it with her supervisor, who replied "You know what? What we just found is worthy of publication in JAMA." The master's student wrote up the findings, submitted it to JAMA and it was accepted! The paper[10] was a major coup for the research team and especially its first author, the master's student.

How did the student's supervisor know that the findings were of such importance? For inexperienced researchers, it can sometimes be difficult to know what your scientific contribution represents and what relevance your work has for your field. It may be that you've been working on something for a long time and you become overcritical of your work or you simply underestimate (or overestimate) the importance of a finding from your studies.

Here are four questions you can ask yourself to help you assess your work's importance[11]:

- Am I asking a highly original research question OR has my research question been addressed in previous studies (perhaps in different settings or with different populations)?
- Are my methods innovative or at the cutting edge of rigour OR are there important methodological limitations in my study?
- Do my methods allow me to be confident that I have actually answered my research question OR are my methods misaligned with my research questions in some way?
- Will my research lead to a significant advance to our understanding of the research problem or impact people in an important way OR are the impacts of my research more modest?

Working out the answers to these questions can help you assess the importance of your work and give you an initial sense about the potential journals you should be targeting for publication. Finding the right journal fit for your paper saves time in the publication process and optimizes the benefits of your work for yourself and others.

What's an "Impact Factor" and how important is it?

"Like nuclear energy, the impact factor is a mixed blessing"[12]

The term "impact factor" is one that most researchers are usually exposed to fairly early in their careers. A journal's impact factor (IF) is a measure of the frequency with which the average article in the journal has been cited in a particular year or period[13]. The higher the number, the higher the perceived impact of the journal. Box 4.1 provides the formula that Thomson Reuters uses to calculate a journal's IF for its annual Journal Citation Reports publication.

Box 4.1. How impact factors are calculated, using the Canadian Medical Association Journal (CMAJ) as an example

CMAJ's impact factor (IF) for 2010:

A = the number of times articles published in CMAJ in 2008 and 2009 were cited by indexed journals during 2010

B = the number of substantive articles (or "source items") published by CMAJ in 2010 (in this case, substantive articles would include things like original research or review articles but not editorials, news reports, Letters-to-the-Editor, etc.)

IF of CMAJ in 2010 = A / B = 9.02*

* This IF ranked CMAJ as the 9th most impactful journal in the category of general medical journals.

The impact factor was intended as a means to rank and evaluate the importance of journals for the research community while eliminating biases due to certain journal characteristics (for example the amount of content they put out, their frequency of publication, their age). Journals with high IFs are generally viewed as more prestigious and so not surprisingly the IF has become a widely used measure in academic evaluation, including for the assessment of trainees and young researchers.

However, the IF and its use in evaluating researchers are not devoid of controversy, particularly in the health services and policy field. Consider two post-doctoral fellows in HSPR, Bob and Liz. Bob published a paper on the epidemiology of and service needs for a rare form of cancer in the journal Cancer Research (IF = 8.23, ranked 12th in the field of Oncology) whereas Liz published the results of participatory action research project with policymakers in the journal Health Policy and Planning (IF = 1.38, ranked 6th in the field of Health Policy). When we evaluate the achievements of these two post-docs, we can be pretty sure that Bob's research and paper will be more impactful than Liz's, right?

Not so fast! A first point to remember is that journal IFs vary by field of research. For example, journals focusing on cancer research tend to have much higher IFs than journals publishing health policy research. Secondly, a journal's IF is not a prediction of how many times a specific author's article will be cited, so Liz's article could well be cited 10 times per year following its publication while Bob's cited only twice per year.

In a similar vein, one should be cautious about making assumptions about the quality of research based on publication within a particular journal. The participatory action research project led by Liz may have been carried out with exceptional rigour and may very well be as or more impressive than Bob's epidemiological analysis. Finally, the concept of "impact" captured by the journal IF is clearly very narrow, in that it's related solely to journal publications. However, your research can have many other types of impact, such as on clinical practice, patient behaviours or outcomes, policymaking, etc. Given the applied nature of HSPR, it seems prudent to keep this bigger picture in mind when evaluating different journals and papers.

Despite its drawbacks, it's clear that the IF is here to stay for at least the foreseeable future. Why?

- Because it's easily accessible for a wide range of journals.
- Because researchers are familiar with it and many consider it the best metric currently available for measuring impact.
- Because when used properly, it provides us with a quick and general sense of both the journal's prestige and how difficult it may be get an article published under its title.

Aside from the IF, what other metrics of impact are out there? Two other citation-based metrics are the Eigenfactor and the h-index. The Eigenfactor distinguishes itself from the IF by not only considering the number of times articles are cited by referenced journals but also the influence of the journals doing the citing[14]. The h-index is not applied to journals but rather assesses the quantity and quality of a researcher's scientific output[15]. The metric takes into account two main pieces of information: (1) the number of articles that the person has published, and (2) the number of times each article has been cited. For example, if Bob has published 10 research papers, among which 5 have been cited 10 times or more, then Bob's h-index is equal to 5.

It's also worth mentioning that, as more and more journals provide online platforms, an increasing number of web-based metrics are being developed, including the number of online article views and even twitter tweets or "tweetations"! All of the alternative measures named above have their strengths but also important weaknesses. Therefore, it's worth gaining some familiarity with these metrics so that you can better assess how your journal choice will impact others' perception of your research and publishing record.

What factors other than IF should influence our choice of journal?

When we asked several well-known HSPR researchers this question, the overwhelming response was target audience. In other words, who needs to know about your research findings? To whom are you really speaking in your paper? It's wonderful to think that your findings have relevance for doctors, nurses, administrators, policymakers, researchers, patients, the general public, and so on... and this may really be the case! Some journals do have broader readerships than others and so it may be possible to expose your work to multiple stakeholders at the same time. However, most of the time you'll probably have to focus on a particular stakeholder group or two and tailor your message to that specific audience. To paraphrase Kim McGrail from the University of British Columbia, if you want your paper to actually be read by physicians in Canada, you'd better publish in the Canadian Medical Association Journal, because that's largely what they read! Usually, a journal's website provides information about its readership. Readership can also usually be discovered by asking your supervisors, colleagues and mentors.

Identifying your target audience is also critical as it will likely influence how you write the paper itself, including how you introduce your topic, the types of arguments you choose and findings or ideas you emphasize, etc. This is another reason why it's ideal to target your journal early in the publication process before too much writing gets done.

But what do you do if you're looking at two journals that have similar IFs and similar target audiences? What other factors may you look at to help you pick the right journal? Here are a few ideas:

- **Local or international:** Let's say your research has implications for the clinical practice of general practitioners (GPs). Is it important that Canadian GPs be aware of your research or is your work relevant to a broader group of GPs in many other countries? If you want your message to specifically reach Canadian GPs, you should target a Canadian journal such as Canadian Family Physician, as opposed to an appropriate-sounding (but poorly targeted) journal like the Journal of Primary Health Care, which specifically targets GPs in New Zealand!

- **Manuscript types and guidelines:** Different journals accept different types of papers (see Chapter 9) so you will probably target journals according to what you think is the best vehicle for your message. Also, guidelines on aspects such as manuscript length, number of tables or figures allowed, or ability to attach additional files alongside your article may justify targeting one journal over another.

- **Turnaround time:** There are significant between-journal differences in the time it takes from the moment a paper is submitted until the paper is reviewed and sent back to the authors. This information can be found either on the journal's website or through contacting the editors. However, you should avoid contacting editors for information that can be found on their website. Turnaround time may be a very important factor to consider if it's important that you have a paper reviewed or accepted before a particular deadline (e.g. a studentship, grant, or job application).

- **Acceptance rate:** Tailoring a manuscript to a specific journal requires time and effort, therefore it's best to minimize the number of times required to do this for any particular manuscript. If a paper has been rejected several times, you may begin to consider journals with a higher acceptance rate so that the paper has a better chance of getting published. It's not usually a good idea to give up too soon on a quality paper but financial or time pressures may make this metric an important one to consider.

- **Promotion of your paper:** Some journals are more active than others at promoting the articles they publish. For instance, some journals increase articles' visibility by highlighting them on their website or promoting them via social media. These efforts can allow your work to reach new or broader audiences.

Finally, we think it's extremely important to consider whether the journal's content is freely accessible to all readers, accessible only to its subscribers, or something in between. The reasons for this are outlined in the next section.

What is an "Open Access" journal?

Raise your hand if this has happened to you: you're doing a literature review for a paper or project and you happen to fall upon the reference for a recent article that is clearly related to your topic of interest. However, when you try to access the full text of the article, the journal restricts your access to the paper, unless of course you're willing to fork over a handsome fee for access!

Frustrating! Why can't we just freely access all journals' content at any time? Well, the simple reason is that journals are not established with the intention of being revenue neutral. To make a net profit, journals adopt various business models, some of which involve restricting access to journal contents. In Table 4.1, we present three main journal types, referred to here as the "reader pays", "author pays" and "hybrid" models, and outline their key differences. Below, we discuss the implications of these journal types for you and your choice of journal to submit to.

Table 4.1. Differences across three basic journal types

	"Reader pays" (Traditional)	"Author pays" (Open Access)	Hybrid
Journal examples	JAMA, CMAJ, Health Affairs	PLOS Medicine, BMJ, Open Medicine	Lancet, Healthcare Policy
Journal media formats	Usually print and web-based formats	Often web-based formats only	Print and/or web-based formats
Ownership of rights for intellectual content	Rights transferred from the authors to the journal	Authors retain rights over their work	Rights often transferred to the journal unless the authors choose open access option
Permission requests for use	Must pass through the journal or publisher	Must pass through the corresponding author	Usually the journal but sometimes the author
Publication fees	Covered by institutions/ individuals who must purchase access to the journal	Covered by authors, through their institution, research funds or other sources	Covered by institutions/ individuals and possibly the authors as well
Access fees for readers	Readers pay to access articles unless covered by their institution's subscription	None – articles are free to anyone worldwide	Readers pay unless fees are covered by their institution or an open access option was chosen by authors
Timeliness of access	Usually yes if your institution holds a subscription or the reader is willing to pay a fee for access; some journals though don't publish prior to publication date	Yes – content is immediately available on web often in form of "ahead-of print" articles	Depends – can be immediately available or available freely after a delay (which can be waived if readers pay a fee)
Article formatting	Restrictions on length of articles and number of tables/figures	Typically no restrictions to article length and number of tables/ figures	Typically restrictions on length of articles and number of tables/ figures
Post-publication use and dissemination	Restrictions on use (e.g. making your paper available on a website) and dissemination (e.g. may need to ask permission to share copies of the paper)	No restrictions over ability to use, disseminate, transform, or self-archive publications	Restrictions vary by journal, specific journal editorial policies should be consulted
Scientific quality and prestige	Comparable quality and prestige across journal models		

Why should you care to which type of journal you submit your manuscripts? As can be seen in Table 4.1, there are considerable differences between the three journal types and each has important implications for authors. Traditional or "reader pays" journals are sold on subscription to institutions. Access to journal articles is restricted to journal subscribers and paying customers. As a student, you may be able to freely access journal content through your institution's library but this access isn't really free, it comes with a licensing cost to your institution. When you publish in these journals, you transfer copyrights of your work to the journal, which may limit your ability to self-archive or disseminate your papers (e.g. distribute your articles when teaching). More importantly, individuals or institutions that have difficulty paying subscriptions or article access fees will not be able to immediately access your work.

In Open Access or "author pays" journals, you retain copyrights over your work, journal content is usually immediately made freely available online to anyone in the world after paper acceptance, and you are unrestricted in your ability to disseminate or transform (e.g. translate into another language) your work. The ease of access means that your paper may ultimately have a broader visibility and impact than if it had been published in a traditional journal. However, the Open Access journal will ask that you pay a publication fee prior to publication that can be upwards of several hundreds (or even thousands) of dollars. While this open access fee may seem like a disincentive to students especially, some universities have already reached agreements with publishers to allow affiliated students and researchers to publish at reduced or no cost. In some cases, journals may even waive this fee for students depending on their financial circumstances.

With hybrid journals, you may or may not get the best of both worlds, it ultimately depends on the journal. Your article can be published following the traditional route or, for an up-front fee, be made available freely on the web with some or little restrictions on post-publication use. All students should develop the habit of reading the editorial policies of the journals they are considering so that they fully understand the consequences of publishing in those journals.

Final Words

As students, it's important to learn how to craft a clear message when sharing your ideas and research findings. Selecting a journal to publish in is actually a key part of that process. Journals are one vehicle by which your message gets to your target audience. For any given paper there may multiple journals from which to choose and arriving at a final choice isn't always easy. With experience, you'll learn to find the right "fit" for your papers and cut down on the time it takes for them to find a home and leave their mark.

Commonly encountered writing issues

There are many resources to help students learn how to write scientific articles. However, studying "The Elements of Style"[16] or adhering to other guides on the technical aspects of scientific writing can usually only take you so far. More often than not, a variety of other issues influence whether your paper writing experience is positive or negative.

This chapter addresses some of these other challenges that can make the actual writing phase so daunting, especially for students who are new to the process.

What is proper etiquette when writing papers collaboratively?

Your supervisor and colleagues are likely pretty busy people. Usually, they're not only involved in their research but also in teaching, supervising, requesting funding, doing committee work, etc. When working with them on a paper, and especially when you expect to be first author on the paper, it's important to follow a certain etiquette that demonstrates respect for them and promotes a fair, collaborative writing process. Box 5.1 presents some rules of etiquette with respect to writing a paper in a team context.

Box 5.1 – Five rules of etiquette when writing collaboratively

1. Communicate your role as first author to all co-authors involved in the paper and lead an early discussion around authorship. This discussion can occur during a meeting and an agreement should be reached early.

2. Provide the other authors with a timeline so that they know when you'll be sending the manuscript to them for feedback and when you plan to submit for publication.

3. When seeking their feedback, provide a deadline. You need to give them enough time to read the paper and provide feedback, but also give yourself enough time to incorporate their feedback (minimum 2-3 weeks). If necessary, don't be shy to send out a friendly reminder as deadlines approach. If your deadline passes and you still haven't heard from some authors, try to speak to them directly in person or by phone to discuss whether you submit without their feedback.

4. Do your best to gather and incorporate feedback from each co-author. If you disagree with proposed changes, be sure to defend your position openly and respectfully. Once you've incorporated their feedback, send a final version of the paper you want to submit to all co-authors at least two weeks before your expected date of submission.

5. When you get a decision from the journal, make sure you share the news with your co-authors and keep them engaged as you prepare your response. As with the initial submission, you need to give them sufficient time to send feedback, if they have some, before re-submitting to the journal.

How can you find time to write?

A major challenge faced by many young researchers is effectively managing the competing demands on their time and finding the time to put words to paper. Here are five helpful strategies that students and senior researchers have used to help them meet this challenge and boost their productivity:

- **Writing every day:** Some people make writing an everyday activity, even if it means only writing for an hour or two per day. By writing every day, progress can be made slowly but surely and a consistent rhythm can be achieved. Another advantage is that it can prevent you from falling into the trap of "waiting for the perfect moment to write", a moment that, for all sorts of reasons, usually never comes.

- **Consolidating activities in our schedule:** For people who have teaching, clinical, or other duties to carry out on top of their research work, it may be possible to reorganize your activities to free up a few hours a week to devote to writing. This may require approval of supervisors or employers and possibly give rise to one or more intense workdays each week, but for some students it's a step that's needed to create protected time to focus on writing.

- **Blocking out time for writing:** When possible, it can be helpful to reserve a series of consecutive days devoted completely to writing. We know of some senior researchers taking entire months off their work every year in order to concentrate on writing papers. A similar, smaller-scale approach is to devote a full week or two to paper writing every couple months or so. These "retreats" can even take place outside of your work settings (e.g. at a summer cottage). The advantage of such approaches is that you can focus deeply on your work and avoid distractions from colleagues or others.

- **Giving yourself self-imposed deadlines:** Many people (the procrastinators!) are better at making time to do things when there is a clear deadline for achieving them. In the case of studentships or grant applications the deadlines are usually externally imposed and clear. However, when writing a paper it's very easy to put off writing and feel that there are no consequences to this. A better approach is to self-impose deadlines for your papers and commit to sending manuscript drafts to your supervisor or colleagues by certain dates. The pressure of keeping your commitments is a great motivator to putting time into your manuscripts and keeping the process moving along.

- **"Shut up and write":** This is not rude advice but an actual technique[17]! The technique involves inviting a group of writers to a location (e.g. a cafe or library), spending a few minutes chit chatting over coffee, and then deciding to shut up and write for a pre-determined period of time (usually 30 to 60 minutes). After that, people take a break and then either stop or repeat the process. The group dynamic can help facilitate the writing process and provide participants with a support system as soon as each writing period expires.

Not every approach listed here will be ideal for everyone. The trick is to discover approaches that work for you and allow you to find that special "groove" that helps you to see a paper through from beginning to end.

How can you go about crafting a clear message?

Every article should tell a story. For inexperienced authors, deciding what that story is can be a challenge. How then do we determine what main messages to share? A first step is to make sure that you know the literature well and that you're familiar with some of the main narratives being circulated by other authors. Next, you can look at your objectives and especially your main results and ask yourself, "To whom is my paper really going to be speaking ?" Knowing this helps you tailor your language and key messages to a particular stakeholder group. Once your audience is nailed down, you may try to find the "killer graph" (or in qualitative research, the "killer quotes") that helps build your story and outlines the rest of the paper. When you've decided what main findings to focus on, you can sketch out an outline of the article in point-form, always keeping in mind the one or two main messages you think are most important.

A common dilemma arises when you have lots of data to present and you have to decide whether to lump all your findings into one paper or split these findings into multiple publications. On the one hand, an article that presents several important and related findings may be more likely to find a home in top-tier journals and be considered a major contribution to the field. Such papers can be challenging to write, however, and it may be difficult to focus the paper around one or two clear messages. On the other hand, breaking down the paper into smaller pieces (also referred to as "Least Publishable Units"[18]) can potentially lead to several publications that, while more focused, may be less impactful. While this approach has its benefits, such as being able to go into more details on specific topics or provide additional contextual information, it also opens you up to criticisms for emphasizing quantity over quality.

So, to lump or not to lump? The answer to the question depends on your circumstances and those of the research project. For students early in their graduate studies, a single publication in a respected journal can be considered a major accomplishment and valued as much as or more than multiple low-impact publications. Drafting these types of articles forces you to determine the essential key messages in your research and be concise, all critical skills in your development as a good writer. As you progress and become a post-doctoral fellow or young investigator, it may begin to be appropriate to consider a mix of approaches where you pursue major publications but also smaller ones that are a little easier to produce and which keep you writing and regularly contributing to your field. Such a hybrid approach may allow you to live up to the noble ideals of academia, while also recognizing its pressures and realities.

What are the qualities of a good abstract?

Some people treat their paper's abstract as an afterthought. This is a mistake as abstracts are important and writing a good one is one of the most difficult things for any researcher to do. Abstracts must be clear and concise, and convey your entire paper in just a few words. The abstract is what attracts readers to your paper and helps them decide if they should read the full text. They also outline your main messages and help readers remember your key findings. In addition to being clear and brief, the best abstracts are able to capture readers' interest and keep their attention. Your abstract is your first, and maybe only, opportunity to persuade journal editors that your paper deserves to be considered for publication.

Good abstracts are[19]:

- **Accurate:** The content and purpose of your paper should come across clearly, and only information that actually appears in your paper should be described.

- **Concise:** Each sentence of your abstract should be carefully crafted to present the full merits of your paper. Being concise involves:

    1. Rephrasing ideas from the article to condense the meaning
    2. Giving information only once (not repeating yourself)
    3. Avoiding sentences that contain no real information (if a sentence doesn't move the reader toward your purpose, leave it out).
    4. Writing in clear and dynamic prose.

- **Self-contained:** Except for standard abbreviations (for example, vs. for versus), all abbreviations and acronyms should be defined. If unfamiliar or technical words are necessary, define them too.

- **Non-evaluative:** An abstract is not the place for personal opinions about the value of your work.

- **Easy to read:** Abstracts should be understandable to people who aren't experts in your field. To make your abstract more readable, you can:

    1. Avoid jargon and use complete, short sentences. If possible, don't omit articles or other small words in order to save space
    2. Vary your sentence structure to avoid choppiness
    3. Use the past tense when describing what was done, but where appropriate use active rather than passive verbs
    4. Check the transitions between sentences to ensure the flow is good.

Don't forget about your abstract! Allow enough time to produce a good one. Write a rough draft, edit it for weakness in organization, delete unnecessary information and wordiness, add important information that is missing, strengthen your transitions, read your abstract out loud, and check and double check the grammar, spelling, and punctuation. Also, have your supervisor, mentors, or a non-expert read it at least once. Your abstract shouldn't be seen as a tedious chore in the publication process, but rather as an integral part of the paper you've written.

When is a manuscript ready to submit?

The sooner the better! It's so easy to let an article languish while you tinker with details (or take care of other priorities that have firmer deadlines). Unfortunately, manuscripts do not age well.

So you've finished your analysis and adhered to your self-imposed writing deadlines. You've also given some thought to which journal you'd like to target. It's time to tie up loose ends (see Box 5.2 for a checklist) and send it off.

Of course, there are always some weaknesses in the study you wish you could address, but you can't cover everything in a single manuscript. If you have good reasons why you couldn't address limitations in your analysis, describe them clearly, but don't let worrying about them keep you from clicking "submit." They might even give you ideas for another paper!

Box 5.2 - Getting your manuscript ready to submit

Gather the information you need:

- Check journal requirements for format, length, and accompanying materials.
- Familiarize yourself with the submission process (usually online but in some cases via email).

Finalize the manuscript:

- Have at least one person who hasn't been working on the manuscript read it through for clarity and typos. It really helps to have fresh eyes!
- Triple-check all tables, figures, or quotations. Make sure that numbers that should add-up, do.
- Make sure abbreviations or acronyms are explained at first occurrence (or eliminated if possible).
- Check that page numbering, margins, line spacing, font, headers/footers, and the inclusion of identifying information are consistent with journal requirements.
- Ensure any tables and figures are in the correct file formats and are either included within the manuscript or as accompanying files, as required. Check that the content is clearly explained in captions, legends, and notes.
- Check the format of all references. Reference management software is a huge help, but there will be errors that can only be caught by hand.

Collect materials for submission:

- Prepare your cover letter (see Chapter 7).
- Identify relevant key words. It may be helpful to look at Medline MESH subject headings (see the US National Library of Medicine website[20]) or key words used in the literature you cite.
- Identify potential reviewers (if required). Your supervisors or co-authors may have suggestions, or the authors of papers you cite may be good candidates.
- Some journals ask for a section describing key messages or what your study adds.

Take a deep breath, and send it off!

As the illustrious Dr. Robert Evans once said, "Dissertation papers are never finished, only abandoned." You shouldn't be anxious about letting go of a paper, even if you feel it's not perfect. Indeed, at some point there are diminishing returns to additional investments of effort in your manuscripts. Learn to let go and let peer reviewers do their job and provide feedback for further improvement. And when you finally do submit, celebrate a little and enjoy the fact that this is off your plate, at least until the glowing reviews come back!

What are other useful DO's and DON'Ts?

Here are several other useful tidbits passed on to us from HSPR students and researchers:

DO read closely some of the best articles in your topic area. Breaking down a classic paper and studying what makes it great is a simple but effective way to improve your own writing.

DO make it a habit of jotting down your ideas as soon as they come and then working at developing them further as much as you can. Good ideas can come at any time so be ready!

DON'T worry about what order you write the paper in. Some experts argue that it's best to write out sections in a certain order, e.g. objectives, results, methods, introduction, discussion, abstract and title. However, writing is a highly personal process and few among those we interviewed adhered to a single approach. There's no right or wrong way to do it.

DO pay significant attention to how your paper is written and presented. Even articles on excellent research run high risk of rejection if they are poorly written or not persuasive enough.

DON'T submit a paper without having read very carefully the instructions for authors. We can't tell you how much editors hate it when people ignore journal guidelines, so avoid this mistake!

DO become a reviewer yourself during your graduate studies. This option is particularly appropriate for more senior trainees who are confident in their expertise and want to learn more by critiquing others.

Final words

Not every student is a gifted writer or can easily express themselves in words. Trouble organizing your ideas or conveying a clear message are common difficulties encountered by young writers. Oftentimes though, an inability to put a paper together in a timely way will relate less to your skill as a writer and more to your own uncertainties or inexperience dealing with some of the issues discussed in this chapter. It's important to treat each writing project as a learning experience that helps build your competence and knowledge around publishing. Learning some of the tricks of the trade can make the process less stressful and hopefully more efficient, fun, and successful.

Chapter 6

An overview of the peer review process

During your graduate school experience and future career (academic or not) you'll have the opportunity to submit manuscripts to journals and research proposals to granting agencies. In each case, the "peer review" process will be used to judge and rate your proposed project or completed research. This chapter focuses on the peer review process used by journals to select articles for publication, but some of it will apply to the peer review process for grant proposals as well.

Keep reading for some insight into why the peer review process is used, the main steps involved, why it can take longer than you expect, how you can speed up the review process, and what reviewers are looking for.

Why peer review?

Have you ever wondered why your research, and that of well-established academics, has to undergo scrutiny by a number of your peers? The quick answer is that it's the primary way to ensure quality so that the research we reference and use as foundation for our own research is original, valid, and of high quality[21, 22]. The peer review process has been the standard for more than 300 years. Without it, we couldn't be as confident in the quality and relevance of papers published by a journal.

As much as we may dread having our research and writing critiqued, without peer review we'd miss out on receiving valuable feedback that ultimately improves our work. With peer review, your final accepted manuscript may be considerably different from the initial one you submitted for review. This is okay. Scrutiny by your peers often increases the relevance and reliability of your research, and hence your confidence in the finished product.

What are the main steps in the review process? Why can it take so long?

Just because it's been around for centuries doesn't mean that the peer review process is speedy or familiar to us. The process can be broken down into three main stages. Let's look at each stage as a manuscript goes from initial submission to final publication.

Stage 1 (submission): This stage begins once you've submitted your manuscript. Assuming you've followed all submission guidelines for the journal, your manuscript will be assigned to an editor. The editor may decide to reject it immediately or to send it for full review. Some journals require agreement from more than one editor to reject a manuscript at this stage.

If your manuscript is not rejected immediately, the editor must find two to four peer reviewers to critique your paper. This stage usually takes from a week to a month, depending on the manuscript's topic, the availability of reviewers, and whether you have suggested potential reviewers in your cover letter. Editors usually strive to find at least two researchers (preferably more) to review the manuscript but can also approach other experts or policymakers. It's important to keep in mind that potential reviewers are doing this on a volunteer basis. They're often busy people and, depending on the journal, topic, or methodologies used, there may not be a large pool of reviewers to approach.

Stage 2 (peer review): Once reviewers have been chosen, your manuscript moves to Stage 2, which begins once the manuscript is sent to peer reviewers (the journal may send you a notification when your manuscript enters this stage). Most journals give reviewers a deadline and ask for a confirmation that the reviewer can complete the process within that timeframe. If not, the editors will approach another reviewer. Even so, reviewers may take longer to send in their comments.

Once all reviews are complete and received, the editors meet to go over the individual reviews and come to a decision. Editors consider not only how good the paper is now, but also how good it might become after revision[23]. The possible decisions are "accept" (a rare outcome at Stage 2), "accept with revisions", "revise and resubmit", or "reject" (see Chapter 7).

Larger, more popular journals (such as the BMJ) generally have fast turnaround times, whereas smaller, more specialized journals usually take longer. It typically takes up to four to six months (but sometimes even a year) from the time you submit your article to find out whether it's accepted or, more commonly, in need of revisions (Stages 1 and 2). Rejections are often communicated more quickly. Turnaround times depend on the journal (how strict it is with timelines) and on reviewers (their availability and how busy they are). You can contact the journal editor or ask colleagues who have submitted to your chosen journal to get an idea of its turnaround time.

Stage 3 (revision to publication): This final stage begins once you're notified of the reviewers' decision. If the manuscript is rejected you can choose to submit it to a different journal. If revisions are necessary, you'll have to make the appropriate changes, write a letter to the editor that responds to all the reviewer comments and points of change, and send the revised manuscript back to the editor (see Chapter 7 for more about interacting with the editor during this time). The editor will review the revised manuscript and accompanying letter. If the revisions are not acceptable, the manuscript can be rejected (but this shouldn't happen if you have addressed the reviews adequately). If the revisions are complete, the manuscript will be accepted, sent for copy-editing, and then published at some future time.

Stage 3 can take three months or longer, depending on the extent of revisions needed, time to make revisions, and the time to publication. If the review of your paper is taking an unusually long time (compared to the length of time they said it would take), contact the editors, inquire about the status of your paper, and explain why it would be important for you to hear back from them sooner rather than later.

Adding up the time required for each stage reveals that it can sometimes take more than 9 months from the time you submit your manuscript until you see it in print (longer if you have to make major revisions or have submitted to a journal with particularly long timelines).

For a flow chart of the peer review process, check out the CMAJ website (www.cmaj.ca/site/authors/ed_process.xhtml). The chart is specific to the CMAJ, but gives you a general sense of the process your manuscript will go through.

How can we accelerate the review process?

Authors can take several practical steps to help accelerate the review process:

- **Target the right journal for the right reasons:** You can decide whether your manuscript is appropriate for a journal by reading about the journal's scope or consulting its mission statement. Choosing the right journal for your manuscript will help you avoid a mismatch and speed up the process of getting your work published (see Chapter 4).

  Also some researchers have submitted manuscripts at an early stage just for the review and feedback, completely aware that their papers will be rejected[24]. Don't do this. You shouldn't waste editors' and reviewers' time in this way and delay the publication of other completed, quality research.

- **Follow submission guidelines:** They're called guidelines for a reason and are available on the website of any journal. Follow them exactly - this can't be emphasized enough. Editors are amazed at how many manuscripts are submitted that do not meet the submission guidelines. These manuscripts are often immediately rejected simply because they do not follow journal requirements around word limits, formatting, citation style, and other submission guidelines.

- **Be thorough:** Editors and reviewers notice flaws so don't be sloppy. Make sure that have cleaned up any language errors or formatting changes appearing in your paper. Check your tables and figures, make sure they match your text and vice versa. These may seem like small details, but when there are enough of them it can to lead to rejection.

- **Prepare a good cover letter:** A key element to your submission is your cover letter. You can indicate your rationale for choosing the journal you're submitting to; it may not be immediately apparent for some research topics (new methodology in an existing field, cross-discipline research, etc.). Your cover letter can even suggest potential reviewers to choose (or not choose); which can help speed up the review process (see Chapter 7).

- **Make revisions a priority:** Some delays in the review process are out of your control, but responding to editors' or reviewers' comments isn't among these. If your paper isn't rejected, one of the best ways to accelerate the review process is to make your revisions a priority and get the revised paper back to the editors as quickly as possible. Establish timelines for your co-authors and stay on them so that you can incorporate their feedback and resubmit quickly.

- **Get examples of successful submissions:** Journal editors suggest that students and new researchers find examples of a submitted manuscript, the editorial response, the author's letter in response to the editor, and the final manuscript with revisions. Good examples of these steps in the peer review process are priceless. It's very helpful to see how experienced authors respond to editors. A well-organized and well-written response letter can help revised manuscripts get accepted more quickly. Ask your supervisor, mentors, and peers with publications for these examples.

What do reviewers look for when reviewing a manuscript?

You can also speed up the review process (and make reviewers happy) by knowing what reviewers will be assessing. Some basic elements that reviewers look for are originality, relevance, significance, generalizability, clarity, and contribution to the target topic[25]. A summary of questions considered by reviewers are provided in Box 6.1[26].

Box 6.1 Questions considered by reviewers of your manuscript

- Is the title informative? (Use a simple, yet descriptive, title)
- Does the introduction frame the area of the research accurately and adequately by discussing the extant (yet current) literature? Is any literature not considered? Are conflicting findings/viewpoints omitted?
- How original and important is the research? Does it contribute something novel to the field? (Be specific in your introduction, explain what your research contributes)
- Is the experimental design rigorous? What are its strengths and weaknesses?
- Is the data high quality?
- Are the appropriate statistical analyses used?
- Is the interpretation of the data appropriate?
- Does the discussion of the data provide valuable insights?
- Are the arguments sound, and the conclusions appropriate and valid?
- Does the manuscript stay within the word limits?
- Is the writing clear and concise?
- Are the figures and tables easy to understand, accurate, and complete?
- Are there any ethical issues not addressed?

Final words

This quick overview of the peer review process hopefully sheds light into why it's done, how it's done, and what you can do to succeed in it. Use this chapter as a guide, but don't hesitate to talk to other researchers for more advice. Try to become a reviewer (every journal has different ways of recruiting potential reviewers) and learn how to do it. If you can constructively critique the work of others you will be better able to see the gaps and flaws in your own research and writing.

Interacting with editors and reviewers, and dealing with criticism

Throughout your time as a student and during your career, you will have significant interaction with editors and reviewers of academic journals. These interactions can unfortunately be a minefield; this chapter outlines how to successfully navigate it. It will present the important points of how and how not to interact with both reviewers and editors, what to do when you disagree with a reviewer's assessment, and how to handle the rejection of a manuscript.

What should I include in my cover letter to the editor?

Cover letters are usually between a half page to a full page in length. To know what to include in your letter, start by checking the journal's requirements, as most journals will be explicit about what's needed. Generally, your letter will need to include the following elements:

- Name, address, and contact details for the corresponding author.
- A description of your study.
- Information about the importance of your study and what it adds to the existing literature.
- A summary of your objectives, methods, and your most important results.
- A brief statement about why your study is important to the journal's specific audience.
- Confirmation that all study co-authors read and approved the final version of the article.

You may be asked to include a conflict of interest declaration, signed by the corresponding author only, or by all study authors. Some journals also ask that you submit a list of potential reviewers with your cover letter. Be strategic about who you suggest. They should be knowledgeable about the specific area your work falls within. However, if you choose an expert in the field, it's possible he/she will pass the review on to a student, and students are more likely to be overzealous in their criticisms!

If you're submitting a paper that has been previously rejected elsewhere, you can consider including previous reviews in your cover letter because they can be helpful to the next set of reviewers, reduce duplication of comments, and demonstrate how you have improved the manuscript since your last submission. If not formally requested, it's a good idea to check with the editor about whether you should include them or not. If you choose not to include previous reviews, it can be valuable to comment upfront on weaknesses identified from a previous reviewer with the goal of pre-empting potential criticism by the new reviewers. For example, perhaps a reviewer pointed out that you used a measurement tool that he/she doesn't like and suggested that you use a different tool instead. In your next submission, include a paragraph about why you selected your tool and not the initial reviewer's preferred measure.

Lastly, although it can be tempting to do so, avoid duplicating your abstract in your cover letter. Journal editors will read your paper (or at least your abstract) before sending if off to peer review, and the duplication will be both obvious and irritating.

I submitted my paper and haven't heard anything. Now what?

Peer review can be slow, often lasting several months (see Chapter 6). It will likely take much longer than you hope it will. If you're unsure about average turnaround times and this information is not available on the website, you can email the journal directly to know what to expect. Once you've submitted, the journal may send you a confirmation notice indicating that your article has been passed on to peer reviewers; you can use this opportunity to inquire about the journal's average turnaround times.

Lastly, there's nothing wrong with contacting a journal editor to politely inquire about where your paper is in the peer review process and when you may expect a response. For journals with an online submission process, this information is usually easily available once you log in to the system.

What kind of response can I expect?

As mentioned in Chapter 6, you can expect the following responses:

- **Accept:** It's exceptionally rare for a journal to accept an article as is on its first submission. Even when an article is commissioned, revisions are typically requested. Thus, you shouldn't go into a submission process expecting any journal to accept your initial submission.

- **Accept, with revisions:** Receiving an acceptance with revisions from a journal is cause for celebration. If this happens, you should focus on those revisions as soon as possible because your chances of successfully publishing your work are now very high. If you revise your article as per the editors' request, it will be published, yay! In this case, the peer reviewers are unlikely to see your article again. Instead, you'll communicate directly with the journal's editors who will handle your revisions.

- **Revise and resubmit:** If more substantial revisions are required, you may receive a request to resubmit your article. Publication in the journal is not guaranteed, but your chances are still good. As with an acceptance with revisions, you should focus on getting the requested revisions completed as soon as you can. Aim to have the revision done within a month or two at most. Typically, once your revisions are complete, your article will be sent back to the original reviewers, who will have been asked to re-review the article. If you've addressed all their criticisms, your article will be accepted and published. In some cases, however, the editors will elect to send the article to a new set of reviewers or will review your revisions themselves. It's in your best interest to ask the editor whether your article will be sent back to the same reviewers. Editors or a new set of reviewers will likely be more lenient about whether you've integrated all the comments from the original review.

  You're not obligated to resubmit your article, especially if you feel that the reviewer's comments are not reasonable or feasible to address. However, it's almost always in your best interest to resubmit when you're given the opportunity to do so. Your chances of successfully publishing the article with the original journal are much higher than if you start from scratch with a new journal.

- **Reject:** No one likes to hear that their paper has been rejected, but it happens to everyone, including the most respected scholars. Suggestions for why your paper might have been rejected are discussed below. You have two options when dealing with the outright rejection of a paper. If you disagree with the reviewers' criticisms, you're free to write the editor back and request a re-review (very uncommon but an option if there really is no other journal match for your paper). Alternatively, you can choose to submit your article to another journal (the more common response).

My paper has been accepted! What now?

First thing's first: Congratulations! You should definitely do something fun to celebrate your success! The journal will send you a proof, which is a draft of how your paper will appear in the journal. Read the proof carefully! This is your last chance to make minor changes and fix any typos. You may also be asked to sign a conflict of interest waver at this time if you haven't done so already. Also, if you're publishing along the traditional route you and your coauthors may be asked to sign a copyright transfer agreement, so you'll have to collect some signatures. Plan ahead for this step if you're publishing with people working in different geographic locations, as original signatures are usually needed. Lastly, and most importantly, update your curriculum vitae (CV) right away. You'll thank yourself for being vigilant with CV updates the next time you're applying for a studentship or grant.

How do I respond to requests for minor or major revisions?

At first glance, a reviewer's suggested revisions may look daunting. It can be helpful to create a table or spreadsheet with a list of all the revisions, the difficulty level of each request (from easy to challenging), and your plan to tackle them (see Table 7.1). Begin by rereading the paper and making some of the easier revisions. This will help you re-familiarize yourself with the article you likely haven't looked at for several months and will make tackling some of the more challenging revisions just a little bit easier.

When you are responding to reviewers' comments, make sure you address each point completely! In the cover letter that accompanies your re-submission, address each comment in sequence and indicate specifically where in your paper (page, paragraph, sentence) you have made the necessary adjustments. Make it easy for the editor and reviewer to see exactly where and how you've responded to the reviews. It may also be helpful to share your revised paper with colleagues to gain insight on whether you've adequately addressed reviewers' concerns.

Table 7.1. Example of 'Response to Review Table' for two reviewers (A, B)

Reviewer comments	Difficulty	Response
A.1: This is an interesting article that addresses a topic of importance to the field. One important concern I have however is that the objectives are poorly worded and the true purpose of the paper is unclear. The results the authors present do not seem to match the intentions they lay out in their introduction.	Easy	Currently the paragraph containing our objectives reads: "Our aims with this study were to...". This paragraph has been revised, and now reads: "The first objective of this study was to..."
A.2: The two scales the authors used to measure health service quality seem to produce contradictory results. How do the authors explain this?	Easy	The following sentence has been added to the discussion section: "The two scales used to measure service quality have been shown in previous studies to assess somewhat different aspects of quality, with the first measuring..."
B.1: This is an interesting study. However, the authors seem to only have used patient reported data for their assessments of service quality. Given the authors' close links with service providers, couldn't medical records be used to verify the accuracy of patient reports?	Challenging	The following sentence was added to the discussion section: "One limitation to our study is that indicators of service quality were based solely on patient reported data..."

Box 7.1. Special case: "Your article is too long"

It's not uncommon for an editor to request that you shorten your paper significantly. This can sometimes be a challenging task, especially since addressing reviewers' questions and concerns often involves lengthening sections of the article. So, how can you tackle this?

- **First:** Do a read-through exclusively for economy of language, reformulating sentences and cutting down wherever possible.
- **Second:** Consider eliminating a nonessential paragraph in its entirety. Typically, the Discussion and Background sections are the best places to do this.
- **Third:** Your references in the text sometimes count as words, so take a look at them and make sure you're not citing papers unnecessarily.
- **Fourth:** Pass your article to a colleague and ask them to identify additional sections or sentences they feel aren't essential to the article.
- **Fifth:** Once you've shortened the paper, read it through carefully to ensure that the paper's flow remains intact.

What if the reviewers are wrong?

Remember that peer reviewers are volunteers, and they're human (most of them anyways!). Mistakes are made. So, be on your best behavior when writing your response to the reviews; be polite and thankful even when you completely disagree with a reviewer's comments. If you disagree with a change request, but the request is minor, easy to implement, and does not affect the science of your manuscript, it's probably best to acquiesce and make the change.

That said, you're not obliged to incorporate every change suggested by the reviewers. For instance, if you fundamentally disagree with a reviewer's suggested change and elect not to accept it, you should explain thoughtfully why that aspect of your paper should go unchanged and support your argument with evidence. If there isn't any evidence, seek out the advice of an expert in your field, and cite that communication as evidence. It's also more polite to validate the reviewer's point of view before you make a case for your position (e.g., "The reviewer's point is well taken; however, we feel strongly that..."). In your letter to the editor, you must explain how you responded to each of the reviewers' comments. It's one thing to disagree with a suggestion or two, but dismissing every comment from a reviewer shows a close-mindedness that isn't usually appreciated by journal editors.

Why was my paper rejected?

There are many reasons why a journal may reject a paper. Before your article is even sent to peer review, an editor may reject it on the grounds that it isn't relevant to their journal's readership, hasn't been prepared according to their guidelines for submission (for example, it's over the length limits), or because they feel it doesn't make enough of a substantive contribution to the knowledge base for the journal's field.

Once it has been sent on to peer review, your article may be rejected for a host of different reasons. Most of these revolve around inappropriate or incomplete methodology. This includes incorrect use of statistical methods, a small or biased sample, flaws in the study design, inappropriate instrumentation, or the over-interpretation of results. Additional flaws include lack of clarity around study objectives, an inadequate or outdated literature review, insufficient data presentation, poor figures or tables, or generally poor writing.

My paper has been rejected. What now?

As mentioned above, when your paper is rejected, you generally have two choices: you can write the journal editors to appeal the original decision and ask for a new review, or you can submit elsewhere. It's very unusual for editors to grant re-reviews, so unless you're extremely confident that the original reviewers were incorrect or biased in their criticisms, the best option is to improve your article and submit it elsewhere.

Make sure you consider all the comments made by the reviewers before you submit your article again. We often feel a knee-jerk reaction to dismiss comments that we feel are off-base or ill-informed. However, if a reviewer in your field doesn't understand your paper, then there is likely room for you to clarify your writing. Indeed, incorporating revisions into a rejected paper usually dramatically improves its quality! And there is always the possibility that the same reviewer will be asked to referee your article, even when you submit to a new journal. Health services and policy research in Canada is a small community after all!

Final words

As a student and a researcher, you'll interact with editors and peer-reviewers on a regular basis throughout the publishing process. This overview covers a few of the most common issues and questions related to how best to manage these interactions, thereby increasing the likelihood of your paper being accepted for publication. Remember that almost every paper will require revisions before it's finally accepted, and most will face a rejection or two. Don't be discouraged! Take feedback seriously, and respond thoughtfully and courteously to editors and reviewers. You won't always like what reviewers have to say about your work, but there's almost always something you can learn from their comments.

Publishing qualitative research

If you're newly entering an HSPR-related training program, you'll typically meet little resistance if you decide to pursue a qualitative research approach for your research project. You may not realize that it wasn't too long ago that such approaches were widely dismissed as less rigorous or even unscientific! Nowadays, attitudes have begun to change due to serious advocacy efforts and education around qualitative traditions and methods. However, despite this evolution in attitudes, qualitative researchers still face some unique issues when seeking to publish their work.

What's different when publishing qualitative research?

The basic steps involved in publishing qualitative research are no different than those involved in publishing quantitative work. You must do the research, target a journal, write your paper, submit it, and revise it based on the comments made by reviewers.

Several issues, however, may make the experience of publishing results from your qualitative study qualitatively different compared to publishing other forms of research. Here are a few examples:

- **Contribution considerations:** Our research can allow us to contribute to our fields in a number of ways. We can advance knowledge or theory, invent new methods, or provide potential solutions to recurring challenges. When doing qualitative research, we often also delve deeply into unexplored, complex problems and get to know the people facing these problems. We may feel obligated to expose unfair practices, emancipate oppressed individuals or groups, or try to evoke an emotional response in readers that may lead to positive actions[27]. Try and remember that you may not be able to accomplish each of these goals at once and that you should determine what main purpose your paper serves prior to writing it.

- **Targeting a journal:** Over the past two decades an increasing number of journals have opened their doors to qualitative research. However, while you may not have a hard time finding a mainstream HSPR-related journal that accepts qualitative research papers, getting your work published in these journals, especially highly ranked ones, is usually a whole other story. Recent studies examining journal publication rates have revealed that between 1998 and 2008 qualitative articles accounted for less than 10% of original research articles in HSPR and management journals and between 1 and 6% of articles in the top general medical journals![28, 29] These numbers indicate that positivist worldviews still predominate the publishing landscape and that qualitative research remains somewhat marginalized in medical and HSPR communities.

  Publishing in some mainstream HSPR journals can also be a challenge because of the nature of qualitative articles, which often aim to provide rich, contextual descriptions of people or things, or in-depth explorations into events or people's experiences. It can be hard for authors, especially novice ones, to fit these details into their papers when a journal imposes a relatively low word limit for its articles (e.g. 2500 to 3500 words). Similarly, if you use a methodological approach that may be less common (e.g. phenomenology, meta-synthesis), you'll need to use valuable space to describe the approach to readers unfamiliar with it. Open access journals having no word limits are an attractive option for qualitative papers, but paying the fees for publication can pose problems for some authors. Taken together, authors of qualitative research articles may have fewer options available to them when it comes to finding the right journal for their papers.

- **Crafting a clear message:** Settling on one or two main messages to build your article around can be a significant challenge for qualitative researchers, especially inexperienced ones. With all your interviews or focused groups completed, documents analyzed, and/or observations and personal reflections jotted down, you're now faced with mountains of paper to sift through and interpret. As most people who have done qualitative research can attest to, you'll likely discover so many new and interesting things during the process that everything seems important and worth reporting about! Synthesizing your findings and extracting the key messages can be really tough and time-consuming and usually requires assistance from your mentors. Similarly, making decisions about whether to report findings as a single article or multiple ones is also a routine challenge. If you decide to divide your papers up, draft a good, detailed plan for each one in advance so that you're sure that they each report something original and meaningful without overlap.

- **Reviews and revisions:** While many journals are now able to access reviewers with expertise in qualitative research, if you've adopted a design or approach that may be less commonly applied in HSPR it may take longer to find a reviewer with knowledge of that approach and it's probably unlikely that they'll be experts in your specific research topic on top of that. Similarly, some qualitative methods are new and evolving (e.g. realist reviews, meta-syntheses) and it can be challenging for some journals to understand these methods, provide quality reviews, and ultimately publish your paper.

  If your paper does receive an appropriate peer review, it can happen that you'll be asked to plunge back into your data, make new interpretations, and bolster arguments or areas of your paper that were weak. If the delay between the times you submitted your paper and received your review is long, it can be difficult to get back into the right 'mindset' to make the appropriate revisions. Such revisions may be time-consuming as well if your data isn't well organized and you have to search for themes or quotes among dozens of participants. If you target a journal with longer turnaround times for your qualitative paper, you might want to touch base with your data every so often so that your analysis stays fresh in your mind.

What are some common mistakes authors make when trying to publish qualitative research?

Perhaps the single most important reason why we might have difficulty publishing qualitative research stems from our own lack of competence with qualitative epistemologies and methods. Learning from more experienced researchers about their experiences in publishing qualitative studies can improve our knowledge and help us avoid common mistakes. Below we present such wisdom as well as advice from the broader literature:

- **Don't try to go it alone (from Joan Sargeant):** Doing qualitative research can be a long and sometimes tricky process. The process is made even longer and trickier when the proper supports are not available to us when we have questions or encounter difficulties. It's important that trainees inexperienced with qualitative research have a mentor they can reach out to in such situations. Even those with previous qualitative research experiences should have such a person available to them as each new project presents its own unique challenges. It's a good habit to seek out others who are doing qualitative research and engage them in discussion about their work and your own. Not only might you establish a mentoring relationship but you could also become involved in other new projects.

- **Be clear about your methods (from Wendy Sword):** First, right from the beginning of your research, you should have a clear idea as to the type of methodology you plan to use in your study and the theoretical perspective that informs this methodology. For example, is your study a case study? Are you doing ethnographic or grounded theory research? Is your worldview constructivist, postmodern, or realist? It's important that your methodology is clearly stated and that your theoretical approach matches your research questions and methods. Making statements such as, "A qualitative method was used..." in a paper is insufficient; your study design should be explicitly stated (e.g. constructivist grounded theory).

  Second, not only is it important to provide details about the methodology and theoretical framework you've used but you must also clearly indicate other information about methods, such as recruitment and sampling strategies, approach to data collection and analysis, sample interview questions, etc. Without such information, no other researcher is able to replicate your study.

- **Don't present data without context or interpretation (from Wendy Sword):** Thorne wrote, "Data do not speak for themselves."[30] Indeed, trainees can sometimes find it a challenge to integrate quotes and other forms of qualitative data effectively in a paper. In a results section, for example, it's not ideal to overuse quotes while providing little interpretation or assume that a particular quote "says it all." Rather, quotes need to be placed in context and each should serve to illustrate a point being made. Authors must provide sufficient context and interpretation to allow readers to gain a deeper understanding of what the participants are saying and how it sheds light on the research topic of interest.

- **Do your homework (from Marilyn MacDonald):** As mentioned, not all journals publish qualitative research. It's very disheartening and time-consuming to write a manuscript and submit it to a journal only to find that they do not accept reports from qualitative studies or that you have not met their guidelines in some way. It's critical to read the guidelines for authors of all of the journals you're thinking of targeting and also helpful to look through the contents of the journals to see how often qualitative research studies are published. Finding studies similar to your own published in a particular journal is a good sign that your paper is appropriate to submit and that the journal editors have reviewers with the expertise to peer-review your work.

- **Stay 'cool' about criticism (Sara Kirk):** You've spent countless hours reading transcripts, meticulously organizing and analyzing data and writing a thoughtful paper... only to be harshly criticized by a reviewer of the journal you submitted your paper to. Doing qualitative research can be a very personal process and criticism and rejection can hurt in these circumstances. While this feeling is understandable, it's important not to let this feedback deter you. We need to be open to such feedback both before and after submission so that our work can be deemed an important contribution to people other than just ourselves.

- **Write clearly and creatively:** Several authors have argued for greater clarity and creativity in reporting results from qualitative research[31, 32]. Language and flow take on added importance in a qualitative research article and it's important to present your results in a logical manner to build your arguments and make your findings more convincing. Adopting a first-person voice that allows your personality to shine through and does justice to your study participants is often desirable and helps readers connect with your text.

Final Words

Rather than beginning with a hypothesis to be tested or proven, qualitative research typically begins with an idea or topic and moves toward a hypothesis as the research progresses, gathering a significant amount of information along the way. Such research helps us gain a better understanding of the complex world we live in. Similarly, HSPR often begins with a problem and moves toward a potential solution. Qualitative research has much to offer the HSPR field and high-quality papers deserve a place among the most highly ranked journals in our field.

Publishing within research project life cycles

As in other academic disciplines, life as a health services or policy researcher tends to have a certain cyclical flavour to it. On a regular basis, researchers must generate ideas for new research projects, identify collaborators, apply for funding, wait for decisions, manage the award, carry out the project, and ensure that the results are disseminated effectively. As projects wind down, the cycle begins again in the hopes of achieving new goals, generating new knowledge, and effecting new change. Fair or not, publishing plays a pivotal role in making these cycles happen. Until recently, the norm was for scientific communications to occur mostly at the end of each cycle. Today, however, with increased competition in publishing and funding, many of the top researchers have become adept at publishing different types of papers at different stages of the project life cycle. The purpose of this chapter is to explore how creativity and planning can open up similar possibilities for trainees and help you gain more experience with publishing and enhance your productivity.

What types of articles are available to us in the HSPR field?

Publishing the results of original research is the predominant form of publishing in peer-reviewed journals. However, it's a mistake to think that one necessarily needs to have research results, hard data of some kind, to be able to publish. There are many alternatives to consider that can allow you to get your publishing feet wet. A list of the most common types of scientific articles is provided in box 9.1.

Box 9.1. Common types of scientific articles

Original research articles: These are papers presenting original results of quantitative or qualitative studies that generate new knowledge (as opposed to synthesizing existing knowledge) on a particular topic. They're the most common type of article.

Brief reports: These reports can be similar to original research articles, only shorter! They can be ideal for validation studies or when presenting secondary findings of a research project.

Literature reviews: Review papers synthesize findings from other studies and are thus very valuable in the HSPR field. Reviews can take many forms, including narrative reviews, systematic reviews, meta-analyses, scoping reviews, rapid reviews, realist reviews, meta-syntheses of qualitative research, etc. One expert in the field, Jeremy Grimshaw of the Cochrane Effective Practice and Organization of Care Group, encourages every HSPR student to learn how to carry out a high-quality review at some point during their graduate studies.

Discussion/Essays: These papers may include reviews of the literature, but aim primarily to make arguments, convince readers of a particular point of view, present ideas on a topic, or suggest areas for future research.

Commentaries: These papers typically take two forms: 1) a short paper that accompanies another article in the journal issue and contextualizes that article and helps readers to interpret its findings and/or 2) an opinion piece that presents an author's arguments about an important or controversial issue in health care. Some journals publish commentaries by invitation only but others welcome unsolicited texts.

Study protocols: This type of paper, which is becoming increasingly common, presents details of proposed or ongoing research. Such articles are great for students because you're typically asked to write detailed protocols for your projects anyway as part of your graduate studies.

Meeting reports: These papers report key messages or outcomes of a scientific conference, conference event, or research meeting. Such papers can also be terrific for students participating in interesting training activities, such as research practicums or summer institutes.

Debate articles: These are articles that usually ask authors to defend a position on a controversial issue. In some journals, debate articles presenting opposite views are published side-by-side, sometimes called "point-counterpoint" articles. These papers represent interesting opportunities for trainees to pair together for a publishing experience.

Editorials/Letters to the editor/Replies: Editorials are usually short reports that authors are invited to write by the journal editors. Their purpose is typically to comment on one or several articles published in that journal issue. Letters to the editor and replies are usually reactions to articles that have recently been published; if accepted, they can be published rapidly after being received by the journal.

Case reports: Case reports can take many forms, including a description of a specific research experiences (e.g. implementing a new practice in a hospital), an unusual or interesting patient care experience, or an event that sheds light on an issue or provides practical or educational lessons for others.

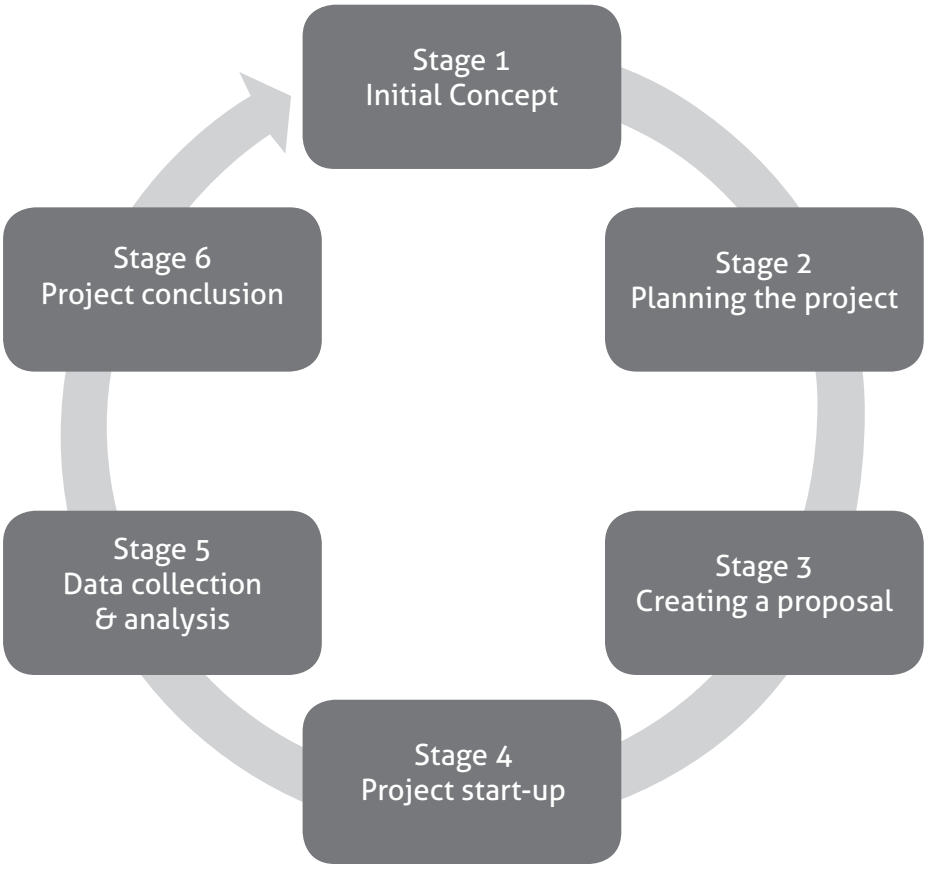
Theory/Methods papers: These papers showcase unique contributions to advancing theory or research methodology.

Amazingly, the list of article types in box 9.1 is far from exhaustive. There's a wide range of journals available to us in HSPR and, depending on the particular journal, various other types of articles can be solicited. It's really helpful for students to familiarize themselves with the range of journals that publish in their topic areas so that they can understand more fully the publishing opportunities that exist for them.

What are some strategies for publishing within project cycles?

A typical research project life cycle has six main stages (Figure 9.1). In contrast to most descriptions of research cycles where the idea of publishing or disseminating results is presented at a final stage in the cycle, we feel that publishing has the potential to happen at every stage of the process.

Figure 9.1. Project life cycle stages



Stage 1: The first stage of the research cycle is where you usually try to identify a problem and an idea for a project that helps address that problem. To help put these problems and ideas into context and get a sense as to their importance, you typically seek out background information on them. This can be done by searching the literature or speaking with your peers, other experts, or people directly affected by the problem (e.g. patients). As much as possible, you want to deepen your knowledge of the problem, refine your ideas, and begin formulating some initial research questions and/or hypotheses.

Potential strategies: This first stage of the cycle lends itself well to a variety of article types, including:

- Review papers: This is an obvious choice because literature searching and synthesis is a key step in the process of contextualizing a research problem and refining our ideas and research questions. Full-blown systematic reviews (quantitative or qualitative) are usually time-consuming and labour intensive, but can be extremely helpful in shedding light on a specific topic area and providing insights into next steps. Such reviews are essentially studies in themselves; as such, adequate expertise, time and resources are needed to carry them out. Learning to conduct high quality reviews is a great tool for students to have in their toolbox. An additional benefit is that review papers are often cited even more than original research articles. Other types of reviews, such as rapid reviews and scoping reviews, should be explored as well. In some cases, these may be more feasible and appropriate.

- Commentaries/Letters to the editor: These papers also lend themselves well to Stage 1 of the cycle because we can write about how a previously published paper has left some questions of interest unanswered or how some issue in health care has received insufficient research attention. These papers are also sometimes used to expose research problems more fully and present research agendas that communities of researchers in particular fields should consider working on.

- Debate: Is the problem you're interested in polarizing or unappreciated for some reason? If so, perhaps you can write a debate article in which you provide your scholarly perspective on the issue and defend why the problem is of particular importance.

- Case reports: Ideas for research projects can come from a variety of sources. If yours came from a specific patient experience or event that highlighted a larger important issue, writing a case report may be for you.

Stage 2: In the planning stage, we seek out collaborations and engage potential partners in our research, we work on refining our research questions and focusing our objectives, and we begin designing the study and choosing the right methods to carry it out. In some cases, we may need to acquire new skills before we take on a project or else we may try to conduct pilot work or a feasibility study to facilitate the planning process. In essence, we're trying to gain a clear understanding of what we're trying to do and how we're going to do it.

Potential strategies: Any of the strategies proposed for Stage 1 can also be applied here. In addition, some other interesting possibilities for publishing may present themselves at this second stage in the cycle:

- Meeting reports: does your research project bring together an interesting group of collaborators? If so, perhaps a research day could be organized where members share their expertise and ideas for future steps; this information could serve as the foundation of a group publication. Similarly, if a conference you attended comes to an important conclusion about a problem or leads directly to a new project, a meeting report could be an appropriate option for sharing this information with a broader audience. Finally, students who participate in special training activities can sometimes team up with other students or researchers and describe the experience and lessons learned from their activities.

- Theory/methods papers: If the projects you begin to develop are innovative in their theoretical or methodological approach or perhaps apply existing theories or methods to new problems in an interesting way, it can be very valuable to share this information by publishing a detailed account of the innovation.

- Brief report: If you have some preliminary data that you can share or can conduct a validation study of a tool or technique, a brief report may be an ideal vehicle for publishing early in the research cycle.

Stage 3: Creating a proposal begins with identifying potential sources of funding, crafting a research project proposal with the input of collaborators and colleagues, and preparing the research proposal for submission by gathering all the additional attachments required for the evaluation process (e.g. CVs, letters of support, signatures, etc.).

Potential strategies: Writing research proposals is intensive work and can leave the main people drafting the proposals with little time to do anything else. However, funding competitions have the benefit of providing hard deadlines that push researchers, not only to submit projects on time, but also to move their potential publications forward. As such, all of the publishing options mentioned above are in play during this stage and can potentially benefit from the presence of motivated individuals and the pressure to complete writing projects before a certain date.

Stage 4: After a proposal or two has been submitted and you're slowly emerging from your post-submission stupor, it's time to wait (and wait and wait) for a funding decision. If the results are positive and the project is funded, there are usually lots of things to do to get started, including hiring or training personnel, acquiring equipment, and making whatever other project arrangements are necessary. This last step usually includes seeking approval for the project from all relevant ethics committees. At this stage, a clear picture of how the project will actually be conducted usually starts to form and students in particular may have a good idea as to what their contribution may be.

Potential strategies: The wait time between proposal submission and funding decisions is usually a good time to continue to gather data or information about the project and work on papers that have already been started. In the event of grant rejection, such advancements improve the potential for success the next time around. Once a project receives funding, has become better defined, and has received ethics approval, one type of article is worth pursuing if possible:

- Study protocols/descriptive articles: Writing a study protocol for your master's, doctoral, or post-doctoral projects is valuable because it forces you to think about many of the details of your projects and provides you with a road map for completing these projects a timely manner. In many graduate programs, these protocols are evaluated formally and so being able to publish the protocol is an easy bonus that can also lead to additional helpful comments from external reviewers. A growing number of HSPR journals accept protocols and so students should assess whether their papers are eligible. In addition to student protocols, papers that describe larger research projects and their methodology are useful to publish early on as they can introduce the project to the research community and serve to cut down on descriptions of the project and its methods in later publications. Even papers that provide details on how non-researcher collaborators may have gotten engaged with the project (e.g. policymakers, health providers, patient populations) are increasingly valued in the HSPR field.

Stage 5: In this stage, data collection begins and eventually we're able to analyze this data, interpret it, and make some preliminary conclusions based on the results. Depending on the project, the data collection and analysis processes could be very short or, alternatively, could carry on for several years. Similarly, the available data set could be relatively small or could instead be a huge database containing years of data to examine.

Potential strategies: It's during Stage 5 that data begin to be transformed into new knowledge. As such, the research team can typically begin to produce original research articles and brief reports that reflect their research objectives. As in other stages, most other publishing options remain available (including reviews that include findings from your project, commentaries based on insights arising from your research, or validation studies that required your data to be collected). In addition to paper publications, it's common for students and researchers to present early research findings at scientific conferences in the form of posters and oral presentations and gather feedback from their peers about the relevance of and enthusiasm for their work. In some cases, the abstracts from these conferences are published, providing an extra boost to your CV!

Stage 6: In Stage 6, you typically try to create consensus on your final results and work to communicate these results as effectively as possible. Depending on your project, there may be lessons learned that require immediate action and collaboration with partners. At this stage you also reflect on the project, assess what worked and what didn't, and evaluate the potential for another study that builds off of it.

Potential strategies: Publishing papers detailing the results of original research is what is expected at the end of the research cycle. Publishing original research articles is critical to sharing the knowledge we've generated, advancing science and potentially making an impact somewhere in our health system or on people's health. Other types of papers can and maybe should be carried out during this stage (e.g. discussion papers influenced by our findings, debate pieces that incorporate our data, or brief reports on more peripheral research findings); however, publishing original research shows that we can finish what we start and is vital to obtaining new funding and sparking new research cycles.

What publishing opportunities exist outside of our research projects?

While we've hopefully made it clear that you have a wide range of opportunities available to you regarding publishing within research project cycles, it's important to mention as a final note that you don't even need to wait to be part of a specific project before getting involved in publishing. Opportunities that you can capitalize on may also arise while you're doing your graduate coursework or outside of your studies, for example.

Gillian Hanley, a post-doctoral fellow and former Chair of the CAHSPR SWG, suggests that students always keep their radar on alert for publishing opportunities. If a course you take requires that you produce a literature review or an essay on a given topic, why not try to turn that into a publication? It will probably require more time and elbow grease, but the results could be well worth it. For Jennifer Zelmer, Editor-in-Chief of the journal Healthcare Policy, a paper she wrote as a student for a course she was taking became one of her most cited papers! As her story shows, when you're prepared, creative, and open to new possibilities, it becomes much more likely that the scientific community hears your voice.

How do we balance writing projects that are related versus unrelated to our graduate studies?

Writing papers can be fun, and having a few articles to our name is clearly beneficial for our career. That said, there is a risk to being overzealous, pursuing every opportunity that comes our way, and devoting too much time and energy to writing projects outside the scope of our own research studies. When given the opportunity to contribute to a paper, it can be hard to say no, especially if there's a clear payoff in terms of building our resume, gaining experience, or even being financially compensated.

Remember this though: every opportunity has an opportunity cost. Not focusing on our own research projects can sometimes have serious consequences that may not be fully apparent to us at the time of our decision. No matter how knowledgeable we are about a topic or how simple a writing project seems, writing always takes time – a valuable and limited resource for researchers and students alike. Writing projects can also go off the rails and fail to make it to publication. It's thus essential that students learn to weigh the pros and cons of getting involved in writing projects unrelated to their own graduate studies. Here are some questions to ask yourself when facing that decision:

- How much time might it take to complete the writing project and how intensely (hours per day or per week) will I need to work on it?
- Will I be financially compensated for my work?
- What's the main benefit that I might obtain from participating in this writing project (e.g. learning new things, new collaborations, better resume, etc.)?
- What might be the potential impact (positive or negative) of the writing project for others (e.g. colleagues, other researchers, clinicians, policymakers, patients, etc.)?
- If the writing project doesn't pan out or takes 2-3 times longer to complete than expected, how screwed am I? What's the opportunity cost?

If after asking yourself these questions the pros don't significantly outweigh the cons, it's likely that passing on the current writing project and waiting for the next opportunity is the best choice. Otherwise, it may be all systems go with a new publishing experience. Whichever the case, it's important for you to develop good judgment and learn when to open the door when opportunity knocks and, importantly, when to keep the door shut.

Final words

As young researchers, we're not immune to the realities of the current research environment. Many of us feel pressure to publish, especially those of us who are more advanced in our studies. Publishing isn't the be-all and end-all of science, but we can't deny its importance either. The good news is that there are many journals out there and more opportunities to publish than we're usually aware of. With a little thought and sometimes the support of a mentor or peer, we can find ways to gain valuable experience and even become productive in our own right.

Digital tools and scientific communication

By Rob Fraser

What is social media?

There's no need to get worried about what is or isn't social media. The term can seem a bit vague, which makes sense. It's fairly new, and there are a lot of definitions being suggested for it. Wikipedia's Social Media article[33] was revised over 2,000 times since it was first started. One of the simplest definitions to grasp is the 2009 definition of social media:

"primarily Internet- and mobile- based tools for sharing and discussing information."[34]

Simply taking off the first five words of that definition allows us to include everything from stone tablets and hieroglyphics up to the latest mobile phones and web services. People have been inventing ways to improve and expand the way we share information for millennia. Technology has always been creating newer and faster ways to send, record, transmit, copy, and edit information.

Social media is not a new invention, it's really an evolution of digital tools.

Although the term social media may be a fad, mobile and web-based tools are here to stay. Therefore, young researchers can maximize the impact of their work by leveraging any and all tools available to them. In addition, these tools add significant value to teams of senior researchers that may not be familiar with emerging technologies and how they can be applied to research and knowledge translation.

What digital tools are available to health services and policy researchers?

The tools available are continually expanding and changing. Rather than getting lost in the details of the specific company or website providing a tool, researchers should focus on the function that it supports. Table 10.1 below focuses on the various applicable categories and functions of tools, and the third column lists only a few of the potential examples for the tools.

Table 10.1. Digital tools relevant to HSPR researchers[35]

Category	Digital tool	Example
Communication	Blogging Microblogging Geolocation Social networking Aggregators	Wordpress, Blogger Twitter, Yammer Foursquare, Facebook Places Facebook, LinkedIn Feedly, Netvibes
Collaboration	Voice/Videoconference Wikis Social bookmarking Reference managers/Social bibliography Social news Social documents Project management	Skype, Google Hangouts, GoToMeeting Medpedia, PBWorks, Wikia Delicious, Diigo, BibSonomy CiteULike, Mendeley, Zotero Reddit, Digg, Newsvine Google Docs, Zoho Basecamp, Huddle, SharePoint
Media Sharing	Photographs Video Live streaming Presentation sharing File sharing	Flickr, Picasa YouTube, Viddler, Vimeo Justin.tv, Livestream, Ustream Scribd, Slideshare, Sliderocket Dropbox, Box

These tools and services range in cost. Many have a "Freemium" model, which allows basic functionality with limitation on certain features at reduced or no cost. This can allow you to keep costs low and, if the tools' premium features add significant value, then upgrading is always possible.

Which tools are most useful during the publication process?

Research phase:

Scanning the environment: RSS (real simple syndication) feeds allow you to subscribe to organizations, blogs, research journals, news sources or search results. Many people are aware of email newsletters, but might not help the feeling of being overwhelmed when your email inbox is already overloaded. RSS provides a feed that can be collected and displayed using RSS Feed Readers, like Feedly. This allows you to skim over new articles and decide if you want to read them or visit the site, rather than spending a lot of time visiting individual sites to check if there are any updates. There are also many mobile applications for smartphones and tables that allow you to check your RSS feeds while on the go.

Building partnerships: Working with multiple institutions, professions, and partners from different geographic locations is becoming more important. When trying to work with people that are no longer from the same organization or even in the same city, the use of digital tools can have significant value. Considering the price of postage, shipping files, or even long distance calling, the cost of collaboration can add up. Using videoconferencing tools can like Skype can keep voice calls free. Google Hangouts now allow multiple people to videoconference at no cost. These types of services greatly reduce the barriers geography used to create, and make it easier to get feedback and participation from partners.

Using paper is not a very timely or efficient method of communication and tracking document versions over email can be challenging too. Collaborative document editing through services like Google Docs can allow multiple individuals to: view, comment, and edit a spreadsheet or manuscript at the same time. This can allow parallel processes instead of sequential ones, meaning that two contributors can concurrently work on the same thing, rather than having to wait a week until someone has completed their changes. These types of time saving help meet deadlines and accelerate research.

Writing phase:

Organizing information: When transitioning to writing, finding references and information sources is critical. Using services that allow you to archive and sort information can be a significant advantage to researchers. Adding a tag to a blog post, reference, or social bookmark allows you to associate it with particular keywords, which help with retrieval. Social bookmarking allows you to save references to websites and add tags. Delicious and Diigo are examples of social bookmarking services that allow you to organize interesting references you come across on the web. This can help you see what others have found, organize what you come across, and then pass your work along to others. Using the search function on Delicious to search "diabetes" for example would return websites most commonly tagged with this term. This helps identify quality and reduces search time.

For students, organizing articles and references is a challenge. Significant amounts of time and effort can be wasted trying to find an old reference you know you had somewhere. Having multiple computers (home/work, desktop/laptop) can make this worse. Mendeley is one example of a reference manager that allows you to store, organize, annotate, and share research articles. You can also sync your research library across multiple computers. This means you easily find your papers. Additionally, you can create public references lists, so others can see what you're working on, which helps others and can lead to new collaborations. For example, during presentations, provide a link to your shared reference list. This creates a social resource that does not go out of date after the presentation, allowing others to find your current shared reference list regardless of when they check the list.

Collaborating with others: Sharing files and research resources is another way to make collaboration easier. Whether its small files such as drafts of manuscripts or larger files, such as datasets, images or movies, file sharing services like Dropbox or Box can allow you to quickly and easily transfer and share files and folders, especially ones that are too large for email transfer, with colleagues. Tools for managing your own research libraries like Mendeley can also allow you to share folders with other researchers. This means that when they add a file to a folder or collection you automatically have it too. Using these tools can help you reduce unnecessary email and having to repeatedly search through your email archives.

Sharing phase:

Digital tools reduce the barriers to publishing and sharing information. Personal computers and printers are much cheaper than a printing press. The addition of the web means now a computer with an Internet connection allows you to share your work globally. For the price of a laptop, access to the Internet, and a bit of time, anyone can publish a blog or website. Producing audio and video material is also possible at dramatically reduced costs. High Definition (HD) video cameras come as cheap as a few hundred dollars and video hosting sites like YouTube allow you to post files for free. Decreased prices create new opportunities for individuals to create and publish information, especially when your publications are open access. This allows you to share what you're working on, and spread quality research faster. Whether it's your education, experience, or time spent gathering and analyzing resources, individuals at all levels can contribute something that can help others. Publishing and sharing ideas develops a personal brand, establishes credibility, and creates opportunities that may not be possible or happen otherwise.

How can we share our ideas and research effectively?

- **Start by sharing useful resources:** Feeling reluctant to create content or share isn't unusual. The easiest way to get begin is to start simply and with small steps. For example, think about the time you invest in reading the latest issue of a journal. There may be 15 articles, but you only find three that are well-written and useful to your field of work. Taking those and sharing their links on Twitter or LinkedIn can save others time, promote research, and develop your professional image.

- **Use built in social media functions:** Once the idea of sharing becomes more natural, look for ways to make it easier. Many blogs, news sites, and growing numbers of academic publishers are adding comment sections as well as sharing functionality. These buttons allow you to share and comment with a simple click of a button.

- **Create and share content:** Think about what you work on or what you study. Often you're not the only person working on the topic. This means many people are doing similar work. So your professional perspective and work can be tremendous value to others, especially in niche fields. There are many ways to share and develop you own ideas by regularly writing on a professional blog. Most research starts with some form of literature review, if you take time to do this, why not share some findings with others? Using social bibliography tools like Mendeley can allow you to share a research folder, or others may choose to use their website or blog to do this.

- **Use appropriate content channels:** Focus on creating content that reflects your skills and interest. If you're not a great writer, consider using video or audio. Posting what you make on the appropriate hosting services allows others to better find it. There are services for sharing photos (Flicker, Picasa, etc.), videos (YouTube, Vimeo, etc.), and documents (Scribd, Slideshare, etc.) that make it easy to create content channels for others to subscribe to. Using these features allows you to consistently release materials and develop significant resources others will share.

- **Create your own webpage:** There are various ways to do this, with little or without cost. One of the simplest ways is to use http://about.me, which allows you to create a landing page linking to the social media sites you want others to find. A more sophisticated website that could allow you to post updates is a blogging service, like Wordpress.com. This is a convenient way to help share, and you can use the "about" page for your biography. For the really bold, look into a service that allows you to buy a domain name, as well as create and host a website like http://squarespace.com.

- **Find places to connect:** Next you can explore different social media sites to see what's happening on them. For example, if you were on LinkedIn search groups for "Health Policy Research." Using the built in search functions for a social media service can allow you to find the relevant discussion and evaluate if a tool might be right for you.

How can I create a strong online presence?

Creating an online presence may seem complicated, but it's really about taking simple and deliberate steps. Building a brand is no longer only a concern for a company. Young researchers need to explore their interests and skills and be willing to put themselves in places where they can find, participate, share, and be found. The Internet landscape will continue to evolve and change. Researchers should choose the direction they want to go and test the use of new services to help them get there. The following are some specific ways you can begin to establish yourself online.

Where to begin:

Think about your values, interests and passions - these should drive what you focus your time on and how you act online. Any time you open your browser you can get lost in the noise; spend time thinking about what is important and of interest to you before you go online.

Come prepared:

- **Gather your information:** Create a document that has an appropriate photo (only you in the picture, clear enough to recognize you) of you or an avatar (if you're not comfortable create your own avatar http://www.doppelme.com). Write out a short bio (a few sentences, a medium bio, and a longer version). Use this document any time you create a profile.

- **Pick a username:** Although it's an easy step to skip, usernames are important in social media, it's how others will (or will not) remember you. Try to make it descriptive (name - Rob, profession - nurserob, and avoid numbers - iforget1986) so others can learn about you and remember. Use http://namechk.com to test usernames across multiple sites so you do not have a different username for every service.

- **Start with an end in mind:** Think about what you want to accomplish or learn. This is crucial to remember and it's important to routinely evaluate how you're spending time. Hopefully you can self-identify when you're purposefully investing in your career versus avoiding work you seriously need to do.

Get started:

LinkedIn is an excellent place to start (www.linkedin.com).

- **Create a profile:** Start by completing your profile - some people leave it half finished (or worse) filled with spelling errors, typos, or duplications. If the intent is to create a positive reputation and put your best foot forward, you just failed! It takes a small upfront investment of time to gather and complete this information, however, once this is done you only need review occasionally.

- **Connect with people you know:** Build your network by searching for people and groups (e.g. CAHSPR) that you know. Remember though that sending out blanket invites is strongly discouraged. Indeed, online tools are an extension of offline social norms. How do you feel when someone walks up to you and makes a request without at least saying hello? Take time to address the individual by name, remind them who you are, and be polite!

- **Keep it up to date:** Remember to update your profile quarterly. A simple calendar reminder every 4-6 months to spend 15 minutes to update your profile is helpful. This prevents time rushing by and soon your profile says "recently began a undergraduate" when you're wrapping up a post-doctorate fellowship.

Another easy service to get started with is Twitter. It requires less information than Linkedin. All you need is a picture, user name, and a brief bio before you start to look for others and share with people or organizations that are interesting to you.

Participate:

- **Use the comment section:** Your comments don't have to be long responses or in-depth critiques of some material. Simply providing feedback to the content creator that their work is valuable can be encouraging. A perfect example of when to use the comment section is when you want to build on an idea, ask for clarification, or continue the discussion. This can benefit your own learning and expands dialogue on the topic of interest.

- **Use your name and social information:** Many comment sections allow you to login with various social media accounts (Twitter, LinkedIn, etc.). Using these allows the author and other viewers to link back to your profile. This is helpful because it allows them to know your background, interests and expertise. This should also keep you accountable. Using your name or social media profiles forces you to respond in a professional manner. This is important because many people think anonymous comments allow freedom to ignore general manners and professionalism. As a general rule, if you wouldn't say it to the person face-to-face than it doesn't have a place online either.

- **Participate in online discussions:** Social media allows for continual sharing of information and conversations. After setting up your profiles, you should look for opportunities to engage in online discussions and conversations related to your field. Look for others that are influencers and thought leaders in your field. If you see a research or policy leader in your area using Twitter, follow them and respond to their posts or mention them when reading their articles. You can also use a hashtag, which is a tag used on twitter by putting a # in front of a word or accronym. For example, #hcsmca is used on twitter to discuss issues related to Health Care Social Media in Canada (HCSMCA). There may be a hashtag for a conference you're attending, which is a terrific way to see who and what is being said about presentations. There may also be scheduled times when discussions are held by a group, like #hcsmca, which hosts a one hour discussion on topics submitted by participants. If you don't see a topic that interests you, consider creating one!

Measure your effort:

Time is a scare resource, and there are a lot of different ways to spend it. If you value your time, you'll want to know how you're spending it, so look for ways to measure where you're investing your time. These don't have to be exact measurements, only a rough proxy allowing you to make comparisons over time. Something as uncomplicated as views of a video or presentation you share can work. There are many types of data, regardless of what you decide to use, make a point to reflect on it regularly.

- **Set goals and priorities:** If you have goals, it's easier to evaluate whether or not your efforts are helping you to reach them. Overemphasis on a single measure is dangerous, because it's possible to detract from the overall goal by focusing on that particular measure. Goal-focused behaviour should use multiple sources of information to gauge success. For example, if you share a reference list, perhaps you may not get many return visitors to a web-page, but you might get numerous comments or sharing of the page through Twitter. Another reason to focus on your goals is that metrics aren't perfect. For instance, you may find out a video you shared was used in a class. That video would only have 1 additional "view" on the website you shared it, despite the fact there may be 10-200 students in the classroom. Sometimes you might get other forms of feedback, such as an email or text message. These can all validate your strategy for achieving your goals, but might not be part of regularly scheduled evaluation.

- **Use built-in metrics:** Many social sites now provide account owners some sort of metric, like views (YouTube, Slideshare, etc.) or Likes (Facebook). These are a perfect start. If you have a website, you can use a free tool called Google Analytics to measure your website traffic behaviour. Engagement can also be measured by comments on your site or public discussion on sites like Twitter.

- **Collect the unexpected:** As previously mentioned you may get emails, text messages, or other forms of feedback. Try to find a place to copy and save these. That way as time goes by you can keep a record, and use it as evidence. Perhaps you start a social presence for your organization or your research group, this can all help justify the time expense and validate the groups' work.

Final words

Digital and social tools create a significant shift in communication by changing it from one-way to multi-directional conversation. Instead of getting lost in the ever-expanding web of services available online, researchers need to focus on the bigger trend. Like it or not, changes to how we can communica offer new opportunities to accelerate and enhance partnerships, collaboration, and knowledge sharing. These tools can offer new possibilities and advantages to students and researchers that learn about their potential early and how to leverage them in order to advance their research and its impacts.
These services are also creating new opportunities to work across traditional professional, institutional, and geographic boundaries. Hopefully they'll help us continue to evolve our understanding of healthcare in our country and abroad, perhaps even allowing us to tear down the traditional silos that our system regularly laments.

This chapter is not a comprehensive guide, only a starting point. These strategies are meant to provide some basic perspective on how social media is relevant to HSPR. Although it may not offer you a perfect road map for your own circumstances, hopefully it helps you start your journey. There's a lot to learn, and we can all help by sharing the various ways these tools help enhance our research and accelerate knowledge sharing in health care.

Conclusion

When we asked Peter Norton, Professor Emeritus at the University of Calgary, about his early publishing experiences and factors related to his success, he responded that early on he sometimes just stumbled through things, learning along the way with each new experience. In reading this guidebook, we hope to have provided you with some information and advice that helps you stumble a bit less on your own journey.

The idea of journey is an important one. When we first tumble down the rabbit hole and emerge in an HSPR-related field, whether it's as a graduate student, postdoctoral fellow or young researcher, we don't all start at the same place with the same skills and baggage. You needn't worry, however, if you don't immediately conduct your research and write your papers with the same eloquence as some of the giants in the field. There are many resources out there to help you and many opportunities for you to learn and evolve. Through each publishing experience, you can learn the tricks our trade, find your own unique voice, and hopefully leave your mark on the health system and the health of Canadians.

References

1. Canadian Association for Health Services and Policy Research. Resources - What is "HSPR"? 2013; http://www.cahspr.ca/en/resources.
2. AcademyHealth. About us - What is HSR? 2013; http://www.academyhealth.org/About/content.cfm?ItemNumber=831&navItemNumber=514.
3. Phillips CD. What do you do for a living? Toward a more succinct definition of health services research. BMC Health Services Research. 2006;6:117.
4. Shah J, Shah A, Pietrobon R. Scientific writing of novice researchers: What difficulties and encouragements do they encounter? Academic Medicine. 2009;84(4):511-516.
5. Gagliardi AR, Perrier L, Webster F, et al. Exploring mentorship as a strategy to build capacity for knowledge translation research and practice: protocol for a qualitative study. Implement Sci. 2009;4:55.
6. Harvard Medical School. Authorship Guidelines. 2013; http://hms.harvard.edu/about-hms/integrity-academic-medicine/hms-policy/faculty-policies-integrity-science/authorship-guidelines.
7. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals: Ethical considerations in the conduct and reporting of research: Authorship and contributorship. 2013; http://www.icmje.org/ethical_1author.html.
8. Tscharntke T, Hochberg ME, Rand TA, Resh VH, Krauss J. Author sequence and credit for contributions in multiauthored publications. PLoS Biol. Jan 2007;5(1):e18.
9. Claxton LD. Scientific authorship. Part 2. History, recurring issues, practices, and guidelines. Mutation Research. 2005;589(1):31-45.
10. Roy E, Haley N, Leclerc P, Sochanski B, Boudreau JF, Boivin JF. Mortality in a cohort of street youth in Montreal. JAMA. 2004;292(5):569-574.
11. Aarssen LW. Judging the quality of our research: a self-assessment test. Web Ecology. 2010;10:23-26.
12. Garfield E. The agony and the ecstasy - The history and meaning of the journal impact factor. Paper presented at: International Congress on Peer Review and Biomedical Publication; September 16, 2005, 2005; Chicago, IL.
13. Reuters T. The Thomson Reuters impact factor. 2013; http://thomsonreuters.com/products_services/science/free/essays/impact_factor/.
14. Bergstrom C. Eigenfactor: Measuring the value and prestige of scholarly journals. C&RL News. 2007:314-316.
15. Hirsch JE. An index to quantify an individual's scientific research output. Proceedings of the National Academy of Sciences. 2005;102(46):16569-16572.
16. Strunk Jr. W, White BE. The elements of style (4th edition). New York: Bartleby.com; 1999.
17. The Thesis Whisperer. Shut up and Write! 2011; http://thesiswhisperer.com/2011/06/14/shut-up-and-write/.
18. Wikipedia. Least publishable unit. 2013; http://en.wikipedia.org/wiki/Least_publishable_unit.
19. Cameron University. Center for Writers - Abstracts. 2013; http://www.cameron.edu/~carolynk/Abstracts.html.
20. U.S. National Library of Medicine. Introductin to MeSH - 2013. 2013; http://www.nlm.nih.gov/mesh/introduction.html.

References

21. Elsevier. Peer review. 2013; http://www.elsevier.com/about/publishing-guidelines/peer-review.
22. Wikipedia. Peer review. 2013; http://en.wikipedia.org/wiki/Peer_review.
23. Nature Chemistry. Editorial process. 2013; http://www.nature.com/nchem/authors/editorial_process.html - peer-review.
24. Hewlett K. How to publish your journal paper. Monitor on Psychology. 2002;33(8):50. http://www.apa.org/monitor/sep02/publish.aspx.
25. Healthcare Policy. For reviewers - Review guidelines. 2013; http://www.longwoods.com/pages/reviewers-hpolicy.
26. Rockwell S. Ethics of peer review: A guide for manuscript reviewers. 2011; http://ori.hhs.gov/yale-university.
27. Loseke DR, Cahill SE. Publishing qualitative manuscripts: Lessons learned. In: Seale C, Gobo G, Gubrium JF, Silverman D, eds. Qualitative research practice2004.
28. Weiner BJ, Amick HR, Lund JL, Lee SY, Hoff TJ. Use of qualitative methods in published health services and management research: a 10-year review. Med Care Res Rev. Feb 2011;68(1):3-33.
29. Gagliardi AR, Dobrow MJ. Paucity of qualitative research in general medical and health services and policy research journals: analysis of publication rates. BMC Health Serv Res. 2011;11:268.
30. Thorne S. Interpretive description. Walnut Creek, CA: Left Coast Press, Inc.; 2008.
31. Gilgun J. Grab and good science: Writing up the results of qualitative research. Qualitative Health Research. 2005;15(2):256-262.
32. Sandelowski M, Leeman J. Writing usable qualitative health research findings. Qualitative Health Research. 2012;22(10):1404-1413.
33. Wikipedia. Social media. 2013; http://en.wikipedia.org/wiki/Social_media.
34. Wikipedia. Social media. 2009; http://en.wikipedia.org/w/index.php?title=Social_media&direction=next&oldid=266389214
35. Cann A, Dimitriou K, Hooley T. Social media: A guide for researchers2011.