Rhetorical Elements Involved During the Review Process of Two Gundersen Research Manuscripts

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ABSTRACT

The study of scientific writing genres reveals rhetorical elements involved in research and publication processes of research. Current scholarship in Rhetoric of Science (RoS) and technical communication (TC) is shifting to practical application of these concepts in research contexts to promote ethical and strategic research reporting (St. Amant & Graham, 2019). Drawing on well-established frameworks and considering practical application of these concepts, my research is a case study of the review and revision process of two research reports authored by Gundersen Health System Professionals from La Crosse, WI. My analysis showed that the stakeholder exchanges during the review process influenced rhetorical choices made by the authors and editors of these manuscripts. This research shows the value of interdisciplinary collaboration in research teams and can be used as a tool to implement and strengthen research strategies.

INTRODUCTION

Writing has long been studied as a social and rhetorical activity (Adler-Kassner & Wardle, 2015) and a writer's purpose drives the way they employ their repertoire of genres and audiences in their writing choices. However, scientific writing was traditionally separated from this view, simply acting as a conduit for reporting objective facts and observations until theories in the 1970s emerged to explain the decisions that scientists, as writers, make. Founding theorists include Michael Halloran, Bruno Latour, Charles Bazerman, Alan Gross, and many more. Studying scientific writing uncovers the influences that deem research worthy of publication by a particular knowledge-producing institution, therefore, having the authority to contribute new or further knowledge in a field of study. Contributing to the understanding of scientific rhetoric is Jeanne Fahnestock (1986; 1988), who outlined broad rhetorical systems to explain conventions in scientific writing genres. Also building on several scholars' work in RoS is Greg Myers, who studied how the exchanges among stakeholders during the review and revision process of two biologists' work impacted the knowledge claims and reporting style that are reflected in the published versions (1990). More than 30 years following the development of this scholarship have yielded the view of science as a social and rhetorical enterprise. Now, scholarship in RoS and TC is shifting to the practical application of these concepts in research contexts to promote ethical and strategic research reporting (St. Amant & Graham, 2019). Drawing on these well-established frameworks and considering current scholarship, my research takes the form of a case study, examining the review process of two research manuscripts authored by Gundersen Health System professionals from La Crosse, WI. One will be published in the final edition (Volume 11, issue 1) of *Gundersen Medical Journal (GMJ)* and the other was published in *Open Forum Infectious Diseases (OFID)* in 2020. With this approach, I seek to consider how scientific writing phenomena are present in these particular cases and how I can use this knowledge in my future work in RoS and TC.

REVIEW OF LITERATURE

Extensive research on writing in the sciences demonstrates that research settings reproduce standard conventions for doing and reporting research. Decisions that writers in the sciences make can be understood in part through textual analysis, which provides background to the exchanges that happen during the review and publishing process. Fahnestock describes rhetorical choices that scientists make in their writing as they relate to the audiences of scientific writing. Conventional research reports, which are those that describe a study conducted, mostly consist of forensic discourse, concerning the "nature and cause of past events" (Fahnestock, 1986, p. 278). The reasons for this style of discourse can be accounted for in part by stasis theory. This theory, first developed by ancient Greek rhetoricians, covers four areas of inquiry at which an argument finds commonality in the audience's values: fact, definition, quality, and procedure (significance or application). Fahnestock & Secor separate questions of cause into their own stasis as they are often found in scientific rhetoric (1988). This is because research reports are primarily written for technical audiences who are concerned with the validity of the research and can infer, in the case of the

manuscripts I studied, the clinical significance of the findings. This is not to say discussion of quality and significance is ignored completely in scientific reporting because a reason for the research must be established, but these appeals are typically more prevalent in public discourse, such as news outlets, whose audiences seek how to interpret and respond to the technical information.

Regarding the knowledge being produced by scientific reports, Fahnestock builds on Latour and Woolgar's (1979) five-level scale of statement types. Hedges, or "modalities" (Latour, 1979) in knowledge claims situate research findings into a greater body of literature and allow the research to be expanded upon and tested. Type 5 statements have the highest certainty, and are often self-evident, fact-like claims, while the lowest-certainty statements are type 1, which are purely speculative claims. Type 2 and 3 statements are typically found in forensic discourse, which suggest that the claim is not "indisputable" (Fahnestock, 1986). These modalities do not necessarily mean that the research did not produce new insights or is of lesser value because of uncertainty, but rather, is part of the conventional way of situating research among existing scholarship while leaving room for further research to test and expand on reported findings.

Perhaps the most important part of doing research is disseminating research findings to others if any impact is to be made. Greg Myers (1990) followed two biologists as they tried to get their work published, first, in prestigious, interdisciplinary journals, where they were rejected, and finally, to the journals where they were accepted for publication. Each author's manuscript went through four reviews (and several rewritten versions) before it was accepted for publication. Myers refers to the process of review and revision of a research report as the "negotiation of the status that the scientific community will assign to the text's knowledge claim" (p. 64-65) where knowledge claims are "assertions of new knowledge for which the author is to be credited" (p 65). In order for research to be published where the intended audience will be able to access and use the information, the research manuscript must be evaluated by an institution's editorial and/or review board to determine whether it is of interest to the readership that the institution identifies with. During this process, reviewers assess whether the author(s)' claims are appropriate based on what is already known in the field and the limitations of the study design. In Myers' research, however, the biologists' attempts to publish their work also revealed that despite the validity of their research, a particular journal may reject it for publication if the reviewers do not feel it is "appropriate" for the scope of that journal's discipline(s) (Myers, 1990). These standards for publication are important for researchers to recognize not only when designing their research report, but also when considering what audience its claims will be of interest to.

The challenges that scientists face in reaching the right audience with their work is an important application of the work that RoS and TC scholars do. Building on Latour's (1987) work in epistemology, St. Amant and Graham describe successful research as a matter of "resonance" (2019). Research must provide some valuable contribution that resonates with the disciplinary audience, which also allows it the potential for utility in other fields. The achievement of resonance usually has to do with the scope of research that a particular journal publishes. For journals with broader audiences, reviewers want to see research that has applications to several different fields, whereas journals with limited audiences are more likely to publish smaller-scale or niche research studies. St. Amant and Graham categorize these trends into four "spheres of resonance": "local," in which research resonates with an institution and departmental home, "domain," in which research resonates with a discipline and area of inquiry, "sector" in which research resonates with overall academia, and "societal" in which research resonates with greater society (2019). Considering the importance of resonance, my research combines the work of preceding scholars with practical application to work in my field. Doing this, as noted by St. Amant and Graham (2019) is necessary for extending RoS and TC scholarship, and in doing so, will continue to justify the value of interdisciplinary collaboration in research teams.

Research Aims and Questions

The purpose of my research is to analyze the impact of exchanges during the review process of these manuscripts leading to publication, and consider practical application of this knowledge for research teams.

- *RQ1*: How does the review process influence the decisions that the authors, as writers, make in the *GMJ* and *OFID* articles?
- *RQ2:* What rhetorical choices made by the authors and editors are reflected in the published versions of the manuscripts in this study?
- *RQ3:* What modes of communication mediate the review process for *GMJ* and *OFID*?

Background on Journal Articles

Cathy Fischer has been with Gundersen in various roles for nearly 20 years and now fills the specialized role of Scientific Writer and Editor at Gundersen, so she helps write, revise, edit, and find appropriate journals to submit

research reports by Gundersen professionals. She is serving as the Managing Editor for *GMJ*. Dr. Agger, who authored one of the articles, is a recently retired seasoned infectious disease doctor. He now serves as Editor in Chief of *GMJ*. I am serving as Assistant Editor for this edition of *GMJ.* In this role, I have made editorial changes to Dr. Hayashi-Tanner et al.'s manuscript. My revisions to Hayashi-Tanner's manuscript were approved for publication by Cathy and Dr. Agger aside from final proofreading and formatting to *GMJ*'s style. My role is present in this manuscript but not in Agger et al.'s.

I chose to work with these research articles because they were convenient to me; Cathy provided the artifacts and background information I needed to study these manuscripts.

Agger et al. This report, titled, "Increased Incidence of Giant Cell Arteritis After Introduction of a Live Varicella Zoster Virus Vaccine" by Agger et al. was research done at Gundersen Health System in La Crosse. Initially, the article was submitted to the journal, *Clinical Infectious Diseases (CID)* and was rejected upon review. However, the reviewers at *CID* recommended the manuscript be submitted to another Infectious Diseases Society of America (IDSA)-affiliated journal. The Gundersen authors accepted this offer; thus, their manuscript was automatically transferred to *Open Forum Infectious Diseases (OFID)* with the same information submitted to *CID*. In December 2020, the article was published in *OFID*.

Hayashi-Tanner et al. This research report was a retrospective study by Hayashi-Tanner et al. using patient data from Gundersen in La Crosse, WI, titled, "Management of Severe Postpartum Anemia." It was submitted to and rejected by five journals before it was provisionally accepted for publication in *GMJ* with proposed changes after internal review by a Gundersen professional.

MATERIALS

Each article provided me with unique artifacts offering insights into the exchanges that occurred during the review processes, respectively.

Materials: Agger et al.

The artifacts I used for my analysis were three drafts of the report reflecting tracked changes from one of the authors specializing in statistics, Cathy's editorial changes, and Cathy's incorporation of Dr. Agger's hard-copy revisions. I also used the decision letter with reviewer comments from *CID*, the decision letter from *OFID* requesting revisions to address *CID* comments, and the authors' response letter to reviewer comments.

Materials: Hayashi-Tanner et al.

The artifacts available for my analysis were six drafts of this research report, submitted first to *Obstetrics & Gynecology,* then to *American Journal of Hematology (AJH),* transferred by *AJH* to a sister journal, *Thrombosis* (under the same publisher, Wiley) then to *International Journal of Gynecology & Obstetrics (IJGO),* then a final attempt to *Wisconsin Medical Journal* before review by *GMJ*. Because five of the drafts were rejected from the external journals, I only used the most recent draft to note changes made for publication in *GMJ*. I also used email communication between stakeholders, one decision letter from *IJGO*, and the reviewer comments from the Gundersen reviewer.

METHODS

First, I coded the content of the reviewer comments and electronic communication between stakeholders (the authors, reviewers, and editors) into three categories: claims, evidence, and style pertaining to each research article. I chose this coding scheme to reflect the majority of the content in the stakeholder exchanges. For my study, claims pertain to the assertions of knowledge that the authors take credit for in their research (Myers, 1990), evidence pertains to the data and results that provide grounding for the knowledge claims, and style refers to the writing and structural choices that the authors make in their reports.

A reviewer comment I coded that pertains to an article's "claim" is from Reviewer 2 for Agger et al.'s article: "The discussion of the evidence for VZV in GCA is very one-sided and ignores a large literature that refutes the association. This is essential to the argument that VZV is involved (even as the vaccine strain) on GCA." This comment concerns the confidence level of the claim Agger et al. make based on what is known in the field. Other comments like this that address the authors' claims based on expectations of the confidence level were coded as "claim."

A comment I coded as "evidence" is also from Reviewer 2 for Agger et al.'s article: "It is stated that the relationship to ZVL is signifcant [sic] for biopsy-based diagnosis, but the data and level of significance are not given." In this comment, the reviewer notes missing data to ground the reported findings.

A coded comment on "style" is from the reviewer of Hayashi-Tanner et al.'s report: "[T]his reviewer would encourage this data to be published only as a preliminary report and hopes that, through time, further data collection along with the correction of some of the weakness noted above, this could be expanded into a full manuscript." Here, this reviewer is saying the authors should frame the research report as preliminary to indicate that the study will be expanded on at a later time.

After analyzing reviewer comments and stakeholder communication, I noted where these comments were addressed in the research reports from the drafts and tracked changes leading to the published version.

Throughout my analysis of stakeholder exchanges and the subsequent revisions, I observed the use of technologies used for the process of review, revision, and communication among participants. These technologies included reviewer forms, manuscript submissions with tracked changes from the authors and editors, and email communication between the stakeholders. Although I did not focus on the impact of these technologies for the purposes of my project, these artifacts may contribute to the understanding of how the system of communication constrains and influences this process.

RESULTS

Results: Agger et al.

Accompanying the decision letter from *CID* were several comments from two reviewers. In the paragraphs preceding the reviewer comments, an interesting note was made to explain the rejection: "Our decision is based on a number of considerations including the quality of the manuscript, its appropriateness for the journal, and its level of interest to our general readership. Due to increasing numbers of submissions and the limited space in our journal, we are forced to reject many manuscripts of high quality." This note provides background for why the editorial board at *CID* thought the manuscript could be worthy of publication elsewhere.

Once transferred to *OFID*, the manuscript was provisionally accepted as the reviewers at *OFID* agreed with the reviewers at *CID,* stating in their decision letter to Dr. Agger, "We agree with the comments and suggestions of the reviewers and would like to give you an opportunity to revise your work." Despite agreement with the *CID* reviewers, *OFID* reviewers believe that Agger et al.'s research is worth publishing.

Two reviewers from *CID* reviewed this manuscript. Appendix A, which contains Table 1, shows the coded comments for both reviewers. Reviewer 1 believes that the main revisions needed are correcting pathological definitions of the virus and adding discussion points that reflect the current state of research more comprehensively (Table 1, Reviewer 1, Claim #2). Most of this reviewer's comments regard how the research is situated into what is known rather than how the study was done. In fact, Reviewer 1 warrants little concern about the evidence, with the only comment I coded under this category being, "statistical methods appear accurate and limitations are addressed in the discussion" (Table 1, Reviewer 1, Evidence). Along with the status of the claims, much of this reviewer's comments related to the reporting style (Table 1, Reviewer 1, Style).

Regarding the claims, Reviewer 1 cites other literature that raises the question of whether the zoster vaccine can be attributed to the incidence of GCA, as found by Agger et al., or to other pathological responses (Table 1, Reviewer 1, Claim #1). The reviewer suggests more discussion points are necessary to situate the knowledge claims appropriately (Table 1, Reviewer 1, Claim #2). This comment is not questioning the evidence provided by Agger et al, but rather, is negotiating how the knowledge claims are derived from the data and situated in existing literature.

Reviewer 2, on the other hand, mainly takes issue with the relationship between the statistical evidence and associated claims, but not as many comments about the reporting style were noted as with Reviewer 1. This reviewer makes several comments about the statistical analyses, such as suggesting the age range of patients in the data pool be amended due to the vaccine licensure (Table 1, Reviewer 2, Evidence #1). Doing this would change the outcome of statistical analyses, but it is warranted to better represent the exposure of interest to the study rather than to address the legitimacy of the evidence provided by Agger et al. This reviewer also notes potential bias in the matching of the groups (Table 1, Reviewer 2, Evidence #5) which affects the claims being made about the data. This reviewer also notes missing data to confirm findings (Table 1, Reviewer 2, Evidence #7). Although these comments raise questions about the evidence for the claims, they do not so much question the evidence itself as they do the status of the claims being made.

Both reviewers note findings from other studies that contradict Agger et al.'s findings and assert that citing these studies is important in discussing the findings (Table 1, Reviewer 1, Claim #1; Reviewer 2, Claim #1). These comments highlight the significance of situating knowledge claims among a greater body of knowledge despite

perceived merit or novelty of the findings, as noted by Myers (1990, p. 67) and is one of the conventions of reporting findings in scientific writing genres.

Another interesting artifact was the authors' letter to *OFID* responding to each reviewer comment from *CID*. Most of the reviewers' suggestions were addressed and revisions were made accordingly. However, one of the questions from Reviewer 2 (Table 1, Reviewer 2, Evidence #2) was not addressed in the published version, so the authors explained their reason for not addressing this question in the letter: "The authors feel that the answer to this question is not the focus of this study and would lengthen the manuscript unnecessarily. However, it is known that VZL DNA can be found in the blood immediately after vaccination (Myron J Levin et al. J Infect Dis. 2018)." The authors' choice not to address this question did not hinder the publication of this manuscript, so it is worth considering that journals may still publish a work even despite some of the reviewer comments not being addressed.

Noteworthy Changes: Agger et al. Appendix B, containing Table 2, shows the significant changes that were made to address the reviewer comments from *CID*, which are reflected in the published version (in *OFID*). These changes are primarily reflected in the discussion, methods, and results sections. Several of the changes involved revising the statistical analyses by narrowing the data pool and revising the matching technique of the cohorts so the claims were better supported by Agger et al.'s data. Seemingly contradictory, though, was that to be accepted for publication, the claims still required more hedging and discussion points to situate Agger et al.'s research among existing research. Several additional points were added to the discussion to incorporate more research and attribute the findings to other possibilities, both of which reduce the certainty in the findings of Agger et al.'s study that the vaccine is associated with increased incidence of GCA.

For example, additional sources were cited to reduce the certainty of the association found in Agger et al.'s study (Table 2, Published Version, Discussion #1). Material was also added to the discussion that does not have corresponding material in the original draft attributing the association to other possibilities (Table 2, Published Version, Discussion #3). These additional discussion points reduce the certainty that the vaccine is associated with an increased incidence of GCA as Agger et al. found. Additionally, the hedges in this excerpt, "may potentially" show the uncertainty in all three possibilities, leaving room for further research and testing that could confirm this association.

Results: Hayashi-Tanner et al.

Despite several rejections from journals without review, only one rejection letter to my knowledge was received from *IJGO*. This letter provided some insights for the rejection, noted below:

> "The rejection of an article does not necessarily indicate a lack of scientific merit. The editors base their decision on several considerations. These include the suitability of the topic for our readers, originality of the material and the publication of similar articles in the journal."

These sentences are strikingly similar to the rejection letter that Agger et al. received from *CID*. A more specific reason for the rejection followed the excerpt above:

> "The editor would like to congratulate the authors on an interesting paper, however, the editor believes that the paper adds limited new information to the current field of study. Please consider submitting to a local/regional journal."

In this excerpt, the editor highlights the main reason for the rejection is that the research did not provide new insights into the disciplinary domain of *IJGO*, yet it might be more appropriate for a different journal.

Still believing the research to be of value, the authors agreed to have it reviewed for publication in *GMJ* with the support of Dr. Agger (Editor in Chief). The Gundersen reviewer's comments were concise. The reviewer summarized the weaknesses of the study and proposed the article be framed as a "preliminary report," allowing for further data collection to expand on this study and address the weaknesses at a later time. This reviewer's suggestion corresponds to the category of "style" as per my coding scheme.

The corresponding author, Dr. Hayashi-Tanner, stated in an email response to the reviewer comments on February 16th, 2023, that she did not plan to collect any more data or follow up further on its publication. Thus, positioning the study as a "preliminary" report, as suggested by the reviewer, would be inaccurate. In an email on February 20th, 2023, Cathy relayed information from Dr. Agger to Dr. Hayashi-Tanner clarifying the minimal revisions needed in order for the manuscript to be published in *GMJ:*

1. "Introduce the paper NOT as a preliminary paper as suggested earlier, but as an observational quality study. Preliminary suggests that further data will be collected, which is not the plan.
2. In your conclusion, indicate that providers should strongly encourage women to have the follow-up hemoglobin."

Dr. Agger responded to Cathy's email on February 23rd, 2023, adding: "I would favor more forcefully in your discussion that your observational data indicates that these women's severe anemia should be followed up consistently."

These email exchanges show the negotiation of the word "preliminary" as it relates to the authors' intentions along with Dr. Agger's request that the knowledge claim be adjusted to fit the study's findings.

Noteworthy Changes: Hayashi-Tanner et al. Only a few additional discussion points qualified this manuscript for publication in *GMJ*. These changes were made by me and approved by Cathy and Dr. Agger. The only step left at this point is formatting the manuscript to fit *GMJ*'s style. My changes are highlighted in Table 3. Unlike Agger et al.'s manuscript, this one only involved a few revisions to the discussion section to become acceptable for publication. Nonetheless, these changes limit the knowledge claims to the observational data in this study without changing the evidence.

Table 3. Excerpts from Hayashi-Tanner's manuscript before Assistant Editor's changes and the version approved for publication. Bolded text signifies additional content in the version to be published that does not have a comparable point of reference in the previous draft.

Section of Manuscript	Draft Before Assistant Editor's Changes	To Be Published in *GMJ*
Discussion	1. "We were surprised to at how often women with severe anemia failed to have follow-up."	1. "**In this observational quality study**, we were surprised at how often women with severe anemia failed to have follow-up."
	2. –	2. "**Thus, our observational data indicate that obstetric providers should strongly encourage these women to have consistent follow-up hemoglobin tests in order to treat postpartum iron deficiency appropriately."**
	3. Future aims include a prospective study…"	3. "**Further studies are needed to develop a standard for postpartum anemia management.** One such study could be a prospective study…"
	4. "An analysis of cost-effectiveness was not done for each group and could be	4. "Additionally, an analysis of cost-effectiveness was not done for each group in this study and could be evaluated in future studies

	further evaluated in future studies."	**to assess whether follow-up hemoglobin tests have cost benefits over time."**

DISCUSSION

For both articles, the publication status did not depend so much on whether the research can be published as *where* it can be published. And where an article gets published has social implications; *GMJ* primarily has a regional impact while *OFID* has a larger online readership marked by an impact factor. Myers (1990) explains these observations: "much of this negotiation over the status of the claim concerns the 'appropriateness' of a paper to the journal to which it has been submitted" (p. 67). As I found with these two articles, stakeholders at knowledge-producing institutions vary in their assessment of whether claims are contributory to the body of scientific knowledge in a field, impacting where research is accepted for publication. I also found it interesting that even within a particular institution, stakeholders vary in areas of their assessment, such as in the case of Reviewer 1 vs Reviewer 2 regarding Agger et al.'s evidence (Appendix A). Reviewer 1 commented that the statistical methods "appear accurate" while Reviewer 2 had several points of contention about the data analyses.

The spheres of resonance, outlined by St. Amant and Graham, can also be used to explain why research is unworthy of being published in certain journals while being worthy of publishing in others. *Gundersen Medical Journal* is a regional, non-indexed journal, meaning it does not reach as large of an audience as indexed journals found in online databases. *Gundersen Medical Journal* can be categorized as a local sphere of resonance (St. Amant and Graham, 2019). This journal mainly garners articles from within the 19 counties it serves, including research from regional medical libraries, hospitals, and nursing homes. The articles published are typically small-scale clinical studies, comprising case reports or retrospective studies with data from regional patient databases. Usually, publishing research in *GMJ* is not the authors' first choice, but a lot of indexed journals with broader audiences do not accept these niche research studies. However, reaching an audience primarily of professionals in Gundersen Health System, these clinical research studies are valuable educational tools. Publishing in *GMJ* also gives medical residents, who typically need to participate in research to gain a fellowship, a chance to showcase their work. This is noted by St. Amant and Graham, who describe the objective of research in this sphere as being connected to "reward within the context of one's affiliation" and resonance "meeting the expectations of internal reviewers" (2019). This edition of *GMJ* will be the final edition because the research department is discussing another approach, such as a medical learner's journal, which will likely provide a better opportunity to become an indexed journal and reach a wider audience of medical professionals.

Only accompanying one of Hayashi-Tanner et al.'s submissions was a decision letter explaining reasons for rejection. This may be because some manuscripts do not make it past the initial read-through by the editorial board that gets to determine if it will be accepted for review. Thus, they may not take the time to write a thoughtful decision letter explaining why. Although I do not know whether the other journals rejected the manuscript for similar reasons, I can infer that the research did not offer new knowledge within the scope of research that these journals publish.

Open Forum Infectious Diseases can be categorized as a domain, or disciplinary, sphere of resonance (St. Amant & Graham, 2019). As such, the About page of the journal's website states that the journal "focuses on the intersection of biomedical science and clinical practice, with an emphasis on knowledge that could improve patient care globally." According to the website, the discipline that *OFID* publishes research in is mainly biomedical entwined with clinical practice. By publishing Agger et al.'s article, the reviewers at this journal viewed the research as extending knowledge regarding GCA incidence and an associated vaccine. Research published in this journal has broader implications for a larger audience compared to Hayashi-Tanner et al.'s manuscript, which may indicate why several more revisions and additional discussion points were required to lower the confidence of knowledge claims than were required for Hayashi-Tanner et al.'s manuscript.

Further information about the research published in *OFID* is highlighted on the "Instructions to Authors page": "OFID publishes original, de novo submissions, as well as submissions cascaded from IDSA's other journals: Clinical Infectious Diseases and The Journal of Infectious Diseases." The *CID* reviewers' suggestion that *OFID* would be a more appropriate journal demonstrates that the rejection from *CID* was not necessarily because the research lacked rigor or value, but rather, was more to do with adjusting the knowledge claims to reach the right audience. Additionally, despite not addressing one of the reviewer's inquiries, this manuscript was still acceptable for publication in *OFID*. This is insightful for researchers when considering which reviewer comments may not need to be addressed but still be able to get published. Authors must consider what is worth changing to meet others' expectations in the scientific community.

Nearly all communication was electronically mediated during the review process, which provides insights into the systematic process of publishing research in these cases. Digital communication follows different conventions and affects the sender and receiver differently than synchronous or face-to-face interactions. Although I did not study the impact of these conventions at length, the patterns in these modes of communication should be considered as they influence the extent of a study's impact beyond the institution in which a study was conducted. Future studies of this kind can expand on the specific ways that technology facilitates or limits the steps involved in publishing research at various institutions.

LIMITATIONS

One limitation of my study is that I did not have insight from the authors on the changes made to the manuscripts. This would have allowed me to better understand the significance of these changes as they relate to knowledge claims because I lack technical background in the research disciplines of these manuscripts. My research is further limited by only offering insights on two research articles authored by professionals at a single institution and published by two institutions, respectively. Nonetheless, it can be educational for institutions that conduct research on a similar scale to Gundersen.

CONCLUSION

My research shows the interrelatedness of resonance, readership, and the status of knowledge claims as factors that influence acceptance for publication at a knowledge-producing institution. The weight of these factors despite the merit and validity of a study may surprise researchers, who devote hours of their time doing the research, analyzing the data, and writing the report. The weight of these factors varies at each institution but is important for research teams to consider from the initial idea of a study to the drafting of the report in order to disseminate findings to the right audience while meeting expectations of reporting styles. My research is particularly insightful for regional healthcare systems with research departments, such as Gundersen. My hope is that research teams of this capacity can use my study as a tool to implement and strengthen research strategies that draw upon interdisciplinary scholarship throughout the research process.

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Appendix A

Table 1. Reviewer comments coded by content.

Reviewer 1		
Claim	Evidence	Style
1. "The role of VZV in GCA pathogenesis has been controversial given the varying reported frequencies of detection of VZV antigen from different labs using different methods." 2. "However, there are some corrections that need to be done on basic VZV biology and additonal [sic] discussion points to address…" 3. "The following sentence on hypotheses needs to be more comprehensive to include your points as well as additional points."	1. "The statistical methods appear accurate and limitations are addressed in the discussion."	1. "(A) 1st sentence, also note that chicken pox is varicella like you do with zoster and shingles. (B) Do not use the term "provirus". This implies that VZV incorporates into the host genome which it does not." 2. "Intro, paragraphs 2 and 3 can be combined and is confusing." 3. "The second sentence of paragraph 3 is redundant." 4. "Paragraph 3, 1st sentence correction - VZV antigen NOT DNA." 5. "The possible causes right now appeared to be scattered in paragraphs 1, 2 and 5 with redundant points. Paragraphs 1 and 2 in Discussion can be deleted and just the overall comparison paragraph used as first paragraph since it clearly summarizes the important study findings…" 6. "Discussion, paragraph 5 attempts to explain why vaccine increases GCA risk and needs clarification." 7. "On page 12, clarify line 4 to note that you are talking about vaccine strain as follows: ...."acute infection due to the live attenuated vaccine strain of VZV does not appear to be a cause..."

Reviewer 2		
Claim	Evidence	Style
1. "The discussion of the evidence for VZV in GCA is very one-sided and ignores a large literature that refutes the association. This is essential to the argument that VZV is involved (even as the vaccine strain) on GCA." 2. "Of course, the issue raised here was stimulated by the purported involvement of VZV in GCA. If that relationship is in error, that would weaken the conclusion here, unless one evoked a non-direct mechanism. If there were a direct relationship, it would be best demonstrated by detecting Oka-strain VZV DNA in GCA lesions." 3. "Figure 3 is hard to interpret. It is stated that this is unmatched comparison (pg 9) and the legend does not say otherwise, so the comparison and the conclusions drawn are subject to bias" 4. "What I can understand from Figure 3 leads me to doubt that there is a ~5-fold increase in GCA in ZVL recipients."	1. "While ZVL was eventually licensed for age 50 and above, it was universally recommended for age 60 and above…I think a cleaner approach would be to work with populations 60 and older (which fits with the epidemiology of GCA)." 2. "I understand the premise, but what is the route that vaccine strain VZV gets from the injection site (arm) to a ganglion that has afferents to cerebral vessels?" 3. "Figure 2 would seem to indicate that there was no increase in GCA as the proportion of a at-risk patients in the system increased." 4. "Looking at the Figure 2 I would not expect a strong relationship with ZVL, so I need more information about the time-varying analysis, which is the crux of the manuscript." 5. "The crux of the result depends on potential bias in matching (choice of comparator group) and on the accuracy of diagnosis…If these diagnostic pathways are pooled, the results from each should subsequently be analyzed separately." 6. "An alternative way of showing an association would be to have a cohort of GCA and f matched non-GCA, and then determine ZVL usage in each cohort.	1. "VZV is latent in human sensory neurons. It is not a provirus, which implies integration into the host genome." 2. "The data would best be put into a table for each cohort and the statistics presented with that table." 3. "I would leave ZVL in 2007 and 2008 off [Figure 3]." 4. "The first paragraph [of the discussion] is very conjectural and based on little objective data." 5. "It is hard to invoke immune response to "proviral [sic] infected cells" since VZV antigens are not present during latency on cell surfaces. I am not sure what is meant by "non-specific stimulator of autoimmune mechanisms"."

	This should be supportive of the putative association." 7. "It is stated that the relationship to ZVL is signifcant [sic] for biopsy-based diagnosis, but the data and level of significance are not given." 8. "I am not sure why in the second approach an effort was made to match on immunosuppressive therapies and diseases, since it is not known if these would make GCA more or less likely. Are you suggesting that immune suppression could lead to more VZV reactivation and therefor [sic] more GCA? If so, the best approach would be to avoid any such bias by not including people with any of these therapies or diseases." 9. "The method for developing "profiles" for immune suppression in the controls is unclear." 10. "Please state if the treating doctors were aware of ZVL vaccination history." 11. "Figure 1 is noteworthy in that only 25% of GCA diagnoses met the somewhat lax criteria applied by the authors and only 10% were histologically confirmed. This emphasizes the importance of matched cohorts." 12. "I would expect that the association would hold (as currently determined) for each level of diagnosis. It is stated that "association" held for biopsy-determined GCA, but no data was provided."	

Appendix B

Table 2. Noteworthy changes from the initial draft submitted to *CID* to the published version in *OFID*. For each section, corresponding information is underlined within the context of the research report. Bolded text signifies additional content in the published version that does not have a comparable point of reference in the previous draft.

Section of Manuscript	Draft Submitted to *CID*	Published Version in *OFID*
Introduction	1. "If VZV reactivation acts as a factor in GCA, VZV vaccination might decrease or increase the incidence of GCA by multiple possible mechanisms."	1. "If VZV reactivation acts as a factor in GCA, **theoretically,** VZV vaccination might decrease or increase the incidence of GCA by multiple possible mechanisms."
Methods	1. "To evaluate the potential association of ZVL with the natural history of VZV infection and GCA, the electronic health records (EHRs) of a cohort of patients aged 50 years or older who received their primary care in periods before and after initiation of the vaccine in the group practice were retrospectively reviewed."	1. "To evaluate the potential association of ZVL and GCA, the electronic health records (EHRs) for the years 2000 through 2015 of 2 cohorts of patients (ZVL vaccinated and nonvaccinated) age 60 years or older who received their primary care in the group practice were retrospectively reviewed." **2. "Patients who were immunocompromised, owing either to underlying disease or/and therapy, were excluded because such states or therapy might obscure the diagnosis of GCA (see below)."**
Results	1. "Of these, 1052 had received an ICD code for GCA, 268 of which met our GCA case criteria (Figure 1)."	1. "In the combined cohorts, 141 had received an ICD code for GCA and met GCA case criteria for inclusion (Figure 1)."

Discussion	1. "In conclusion, in an unmatched comparison, a significant increased risk of GCA was found in the ZVL vaccinated population. In addition, further analysis using case control matching also found an increased risk of GCA post vaccination. In the latter matched comparison, patients who received ZVL were 5.4 times more likely than those who did not to develop pathologically confirmed GCA."	1. "While some studies, including this one, indicate an association of chronic VZV infection (now, also ZVL) and GCA, **these reports are by no means consistent [15, 16]."** 2. **"…because the EHR, including registration of ZVL vaccination, was available to providers, bias for or against a GCA diagnosis might have occurred. However, we believe this is unlikely as the clinical association of VZV (and certainly VZL) and GCA was neither widely known nor widely accepted."** 3. **"…ZVL was found to be associated with an increased risk of GCA. This association may potentially be attributed to (1) subacute or persistent arterial wall infection with ZVL, (2) a ZVL vaccine-driven cellular immune response to VZV already present in the arterial walls, or (3) a non-viral specific autoimmune reaction triggered by ZVL."**

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