

Social Media and the Dissemination of Prepublication Data in Surgical Fields

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Background: This review investigates the use of social media at surgical conferences and possible effects of prepublication data release in surgical fields. Potential risks include patient harm by the preliminary application of research that lacks sufficient peer review, infringements on intellectual property, and loss of “research novelty.”

Methods: A literature review of the current use of social media in dispersion of prepublication data was performed. Current submission guidelines for surgical conferences and journals were analyzed for data release embargos and social media use policies.

Results: Conference abstract guidelines mentioned data embargos half of the time and the use of social media less than one third of the time. Eighty percentage of journal instructions to authors contained guidelines on both.

Conclusions: In nonsurgical fields, the appropriateness of the use of social media to release prepublication data is increasingly being discussed. Little guidance exists on how surgical conference attendees should use social media while at conferences. Given the potential for patient harm and negative impact on intellectual property and attribution, further discussion is warranted.

Introducción: Esta crítica investiga el uso de las redes sociales en las conferencias quirúrgicas y los efectos posibles de los datos pre-publicados en cirugía. Los riesgos probables incluyen: daño al paciente causado por la aplicación prematura de las investigaciones sin bastantes análisis, violación de la propiedad intelectual, y pérdida de “novedad de investigación.”

Metodología: Un repaso fue hecho sobre el rol de las redes sociales en la propagación de los datos pre-publicados. Las normas actuales para la entrega de las conferencias y los periódicos quirúrgicos claves fueron analizadas por las reglas gobernando el uso de las redes sociales y los embargos del lanzamiento de datos.

Resultados: Las reglas generales sobre la entrega de abstractos para las conferencias mencionaron los embargos de datos la mitad del tiempo mientras que estas mismas reglas mencionaron el uso de las redes sociales menos que un tercio el tiempo. 80% de las instrucciones de los periódicos dirigidas a los autores tuvieron las reglas generales sobre los dos: los embargos de datos y las redes sociales.

Conclusiones: En las especialidades non-quirúrgicas, la pertinencia del uso de las redes sociales para lanzar el dato pre-publicado es discutida con más frecuencia. No existen normas sobre cómo se usan las redes sociales durante las conferencias. Dado el daño potencial al paciente y el impacto negativo en la propiedad y la atribución intelectuales, más discusión está obligatoria. (*Plast Reconstr Surg Glob Open* 2019;7:e2303; doi: 10.1097/GOX.0000000000002303; Published online 19 June 2019.)

INTRODUCTION

Historically, research articles were placed under dissemination embargo until final publication.¹ This served

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to protect copyright and preserve the novelty of data. It also ensured that the public and the media were not privy to datasets and analyses that had the potential to change significantly between prepublication status and final article publication.

Before the development of the Internet, the spread of preliminary data presented at conferences via poster or presentation occurred primarily by word of mouth. With the advent of the internet and the spread of social media and smartphones, a poster presented in the morning at a regional conference may be disseminated globally within 48 hours.²

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Societal discussion of the risks and benefits of release of prepublication data has not been widely covered in the plastic surgery literature, though it has been in other scientific fields. We present a brief review of the literature, and current policies from key conferences and journals in general surgery and the surgical subspecialties to gain better understanding of current practices and to identify areas which would benefit by further investigation.

MATERIALS AND METHODS

A literature search was performed using PubMed, Google Scholar, and Web of Science databases, with combinations and variants of the keywords “prepublication,” “social media,” “Twitter,” “Facebook,” “scooping,” “Ingelfinger rule,” “publication embargo,” and “data sharing”. Articles that discussed prepublication release of data, social media release of research data, the use of prepublication data, social media publicization of conferences and journals, the phenomenon of “scooping,” and similar topics were included.

Presentation and publication guidelines of 10 national surgical society meetings and 13 major surgical journals were reviewed for mention of embargo and social media policies. National meetings were chosen as being probable sites of presentations by society members and those likely to be attended by a wide representation of the respective society. Journals were chosen as being the official organs of the specialty or those very likely to be read by members of a specialty.

Abstract submission guidelines were reviewed for mention of data embargos or the use of social media. A data embargo was considered to be present if the guideline specifically stated that material which was to be published before the meeting could not be presented there. Comments regarding the use of social media at the meeting were also looked for.

Instructions to authors in journals were reviewed for the presence of data embargos. In this context, an embargo could either be a statement that the material could not be shared with the media or in other broad contexts before publication or that the article itself could not be indiscriminately shared with nonsubscribers to the journal for a given time after publication. The presence of discussion of the use of social media to disseminate key research findings was also noted.

RESULTS

A review of the literature identified a number of publications that specifically addressed the release of prepublication data,^{1,3-8} use of prepublication data to expedite changes in clinical practice,^{7,9-11} the possibility of inappropriate extrapolation of data,¹ the “scooping” phenomenon,^{4,5,12-15} and the changing role of data sharing.^{2,16,17} However, no publications were identified that specifically discussed legal culpability related to the use of prepublication data in plastic surgery.

Of the 10 surgical conferences, authors were cautioned or prohibited against submitting work which would be published before presentation by 5 societies. The use of social media while at the conference was generically encouraged by 3 (Table 1). No specific guidelines or cautionary statements about how data should be disseminated by the authors or used by the audience were provided.

Journals generally were specific about how research content could be used (Table 2). Prepublication embargos were expressly mentioned in 8 of 13 journals’ instructions to authors; 3 journals stated that the embargo was in full effect for a year following publication. The use of social media to promote the published article was discussed by 8 of 13 journals in their instructions to authors. Six specified that social media should not be used to discuss the article until it was accepted. An additional journal offered to market published articles using a fee-for-service model.

DISCUSSION

The decision to release or not to release prepublication data, especially material learned at conferences, has been made more complex in the setting of current social media capabilities. In this review, the authors found minimal guidance for the conference attendee or presenter on the real-time use of social media (eg, Twitter, Snapchat, Instagram, and FaceBook) with respect to research content or on the appropriateness of widespread sharing or dissemination of prepublication data using any or all of these tools. Surgical societies seem to be encouraging dissemination of data, either with direct statements or by inclusion of social media symbols and links on their websites.

Embargos on the release of prepublication data have been in place in journals for 5 decades, but this practice has not been universally adopted by surgical journals. The “Ingelfinger rule,” created in 1969 by the editor of the *New England Journal of Medicine*, was originally designed to

Table 1. Surgical Conference Abstract Guidelines for Data Embargos and Social Media Use

Conference	Surgical Specialty	Data Embargo	Social Media Mentioned
American Society of Plastic Surgeons	Plastic surgery	Yes	No
American Society for Surgery of the Hand	Hand surgery	Yes	No
American College of Surgeons	General surgery	No	Yes
Academic Surgical Congress	General surgery	No	No
American Academy of Orthopaedic Surgeons	Orthopedic surgery	No	No
American Association of Neurological Surgeons	Neurosurgery	No	Yes
Congress of Neurological Surgeons	Neurosurgery	No	No
American Academy of Otolaryngology	Otolaryngology	Yes	Yes
American Association of Oral and Maxillofacial Surgeons	Oral/maxillofacial	Yes	No
American Urological Association	Urology	Yes	No

Table 2. Medical and Surgical Journal Guidelines for Data Embargos and Social Media Use

Journal	Surgical Specialty	Prepublication Embargo?	Sharing with Social Media Encouraged?
Plastic and Reconstructive Surgery	Plastic surgery	Yes	Yes (upon acceptance)
Journal of Plastic, Reconstructive, and Aesthetic Surgery	Plastic surgery	No	No
American Journal of Surgery	General surgery	Yes (until 12 mo postpublication)	Yes (upon acceptance)
Journal of the American Medical Association	All fields	Yes	Yes (upon acceptance)
Journal of the American College of Surgeons	General surgery	Yes (until 12 mo postpublication)	Yes (upon acceptance)
Annals of Surgery	General surgery	No	No
Journal of Bone and Joint Surgery	Orthopedic surgery	Yes	Yes (upon acceptance)
Journal of the American Academy of Orthopaedic Surgeons	Orthopedic surgery	No	Yes
Journal of Neurosurgery	Neurosurgery	Yes	No
Journal of Otolaryngology	Otolaryngology	No	No
Journal of the American Medical Association: Otolaryngology	Otolaryngology	Yes	Yes
Journal of Oral and Maxillofacial Surgery	Oral/maxillofacial	Yes (until 12 mo postpublication)	Yes (upon acceptance)
Journal of Urology	Urology	No	No

protect the journal from publishing unoriginal articles. The subsequent editor encouraged this rule specifically to discourage public disclosure of research results in a nonscientific forum before the peer-review process.¹ However, the value of prepublication data, and the harms and benefits it may pose, were widely discussed even before the public spread of social media. A key example is Mayo Clinic's 1997 prepublication release of data linking fenfluramine-phentermine ("fen-phen") to severe cardiac valvular disease.¹⁸ The *New England Journal of Medicine* waived the Ingelfinger rule and allowed a large-scale public press conference releasing the prepublication data specifically due to the immediate implications for the health of patients taking fen-phen,⁷ which ultimately proved correct after peer review and publication. Publication of the data only took 7 weeks, but in that time frame, clinical practices rapidly changed, and the drugs were widely deprescribed.

Similar rapid and accurate changes in clinical practice occurred with the North American Symptomatic Carotid Endarterectomy Trial (NASCET) trials investigating carotid endarterectomy; prepublication data were disseminated at conferences, in medical alerts, and in newspapers, with rapid changes in practice throughout North America before peer-reviewed publication.⁹ In counter, during the Severe Acute Respiratory Syndrome (SARS) epidemic, 93% of publications regarding SARS were not released until after the epidemic was over, preventing public health officials and government agencies from having the most accurate and expedient treatment recommendations.¹⁰ For these specific cases, clearly, prerelease data served or would have served the target patient population well.

When prepublication data are accurate and striking, early dissemination can be highly valuable. If inaccurate, there may be social, medical, and legal consequences. In 1985, the French Ministry of Social Affairs held a press conference based on prepublication data, stating that cyclosporine immunosuppression was an effective treatment for AIDS.¹ This was widely distributed in the popular press, but final data did not ultimately support the conclusion,

and patients were inappropriately treated with agents that hastened the disease. Legal issues also arose when ICN Pharmaceuticals, manufacturers of ribavirin, called a prepublication press conference to discuss findings that suggested ribavirin as a successful treatment for HIV.¹ This was followed by a significant jump in stock price. The FDA then published a statement contradicting the report.¹⁹ A series of legal battles led to the company's dissolution in the early 2000s.²⁰

Given the potential for prepublication data to significantly impact clinical practice, it is valuable to know the degree to which conclusions change between initial analysis (ie, posters and prepublication data) and final publication. Recent lay news reports have described the failure of peer review to identify deliberately inserted mistakes and large-scale errors (ie, the retraction of the Wakefield vaccination articles).²¹ Researchers have investigated whether or not peer review affects final conclusions from prepublication to completed article; writing quality improves,²² but methodological flaws may go uncorrected.²³ It remains unclear if editorial peer review has a significant impact on end conclusions.²⁴ Given that the impact of peer review is uncertain, no strong conclusions can be drawn on whether or not prerelease and postpublication conclusions are consistently or significantly different.

Prepublication data release increases the risk of having data "scooped," with "scooping" defined as "when 2 independent groups studying the same system produce the same or similar results, and 1 group publishes their results first."¹² There is a concern that being "scooped" decreases the prestige of the original author. The medical literature has limited discussion of this phenomenon. However, publications in biology^{4,12} and the life sciences¹³ cover the topic extensively, in part due to the enormous surge in clustered regularly interspaced short palindromic repeats (CRISPR)/Cas9 publications and a recent scandal in which multiple simultaneous developers of CRISPR technology were scooped.²⁵ The literature suggests that scooping not only does not harm the reputation of the authors, but also adds

depth and validity to publications of both the scooped and the scooper, while adding a broader perspective to the problem. Even journals with extremely high-impact factors, such as *Nature*, suggest that although scooping is an author concern, it rarely has a negative impact on the original author, and prereleased data encourage other authors to investigate and publish related material.¹⁴ The phenomenon has been extensively discussed and computationally analyzed in the social sciences literature,⁵ which suggests that variation in scooping and data sharing is highly dependent on the cultural norms of specific fields, but there is little negative impact. In fact, many journals now have “complementary research” policies that specifically prevent the scooped publication from languishing.¹⁵

Early release of data with the potential to lead to patentable inventions may compromise the author’s ability to benefit from their own work. Although historically, an aspiring researcher at a national conference would need to quickly jot notes or sketch diagrams,¹⁷ a smartphone can copy an entire poster or record an entire podium presentation. Our review of conference policies did not identify any national surgical or surgical subspecialty conferences that explicitly ban the sharing of photographs or recordings of posters or podium presentations, and in fact found multiple conferences with encouragements to share summaries of data (not the data themselves) on social media to “promote awareness.” A review of Urology conferences in 2013 showed over 10,000 tweets sent from the conferences, with over 14 million impressions generated.² Yet, there has not been any significant discussion in the literature regarding what degree of data sharing via social media is acceptable.

The prepublication release of data, data sharing on social media, the phenomenon of “scooping,” intellectual property rights from published data, and sharing of data via social media at conferences are all areas of active discussion in the basic sciences. Substantial further discussion of this topic in the plastic surgery literature is needed, given the potential impact on patient outcomes and health and changes in the accessibility of information. Given the relatively small size of our field and the difficulty involved with successfully publishing a study, getting “scooped” may have significant ramifications. Grant and journal reviewers are instructed not to share information learned through their activities, so there is an understanding that certain information “belongs” to the investigator. Once information is presented, it is technically in the public sphere. Presenting material at a conference opens or extends a conversation but it should not be presumed to give carte blanche to the viewer to indiscriminately use the data. Suggestions to increase awareness about this topic and to begin to come to consensus about norms for sharing of prepublication data include a survey of plastic surgeons on their viewpoints about the question and consistent prescriptive or proscriptive statements to investigators and conference attendees by surgical societies, program chairs, and journal editors.

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