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## A change to the calculation of Journal Impact Factors

– Amy Ninetto

In January, Clarivate, the company that publishes [Journal Citation Reports](#), announced a change to how it will calculate the Journal Impact Factor (JIF) for 2021 and subsequent years. Starting with the 2020 metrics, Clarivate will use the date of online rather than print publication for the calculation of JIFs. Because the JIF is the most widely used metric of a journal's influence, this change to the way it is determined may influence the choice of a journal for a manuscript.

Until now, Clarivate's [formula](#) used the year of an article's print publication for calculating the impact factor. However, since the mid-1990s, journals have been publishing online versions of accepted manuscripts before the often-lengthy processes of layout, typesetting, and printing are completed. These electronic publications go by various names: "epub ahead of print," "early online," "early access," and "online first," to name a few (1, 2). Over the decades, as print journals moved more content online and as more online-only journals emerged, readers came to consider the electronic versions of journal articles as the versions of record, but Clarivate continued to use the date of print publication—which often lags the electronic publication by months or years—for calculating the impact factor (1).

Publishers of online-only journals, many of which are open-access, pointed out that long lag times between online and print publication artificially raised the JIFs of some traditional print journals (1, 3). Moreover, the lag times between electronic and print publication create inconsistencies in the citation record (1). For example, the same article could be cited in some places by its November 2019 electronic publication date and in others by its January 2020 print publication date. Since the number of citations in a given year is part of the formula for calculating the JIF, these inconsistencies introduce a bias toward older, less-online journals and disadvantage online-only journals with only one publication date (2).

Starting with the 2020 JIFs, Clarivate will phase in use of the year of electronic (“early access”) publication instead of the print publication year (2, 4). This phase-in will be complete by the 2022 JIFs, which will be calculated on the basis of the early access dates for years 2020-2022 (or the year of print publication if no electronic publication data are available). The publisher Wiley anticipates that the phase-in will temporarily boost JIFs overall by around 11% and that this boost will disappear once the phase-in is complete, when JIFs should return to their historical levels (5). Other analysts expect that some publishers and types of journals will be affected more than others. For instance, according to one study, a high-impact biomedical journal with a short lag time between electronic and print publication might see a boost of less than 1% in its JIF, whereas a lower-impact niche journal with a high rate of self-citation and a 6-month lag time could see a 250% boost (6).

Complicating matters further, for reasons that are not entirely clear, Clarivate has electronic publication information for only about half of the publications included in the Web of Science, its proprietary bibliographic database (6). Whereas Springer Nature, Wiley, and JAMA Network journals will be included in the updated JIFs, journals published by Elsevier (e.g., Cell Press and Lancet journals), many university presses (e.g., Oxford and Cambridge University Presses), and many professional societies (e.g., the American Association for the Advancement of Science, American Cancer Society, and American Heart Association) will still have their JIFs calculated by the old method.

Laurissa Gann, Associate Director for Education and Access Services at the Research Medical Library, says that while authors should be aware of these changes, “the bottom line is that researchers shouldn’t rely on a single measure of quality” such as the impact factor when evaluating journals. Instead of relying solely on the JIF, Gann suggests choosing a journal by thinking about the audience you want your paper to reach. Publishing in journals you read and whose articles you cite remains good advice. Journal-matching tools like [PubsHub](#), [JANE](#), and [Manuscript Matcher](#) can also help you to find journals that have recently published articles on topics similar to yours. And Gann reminds authors to consider publishing in open-access journals, whose impact factors will not be affected by Clarivate’s changes and whose publishing models allow your work to reach a broad audience.

For help understanding impact factors or choosing a journal, contact the Research Medical Library at [RML-Help@mdanderson.org](mailto:RML-Help@mdanderson.org).

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## NIH podcast discusses alternatives to animals in biomedical research

— Ann Sutton

Investigators are responsible for ensuring that their use of laboratory animals is both justified and humane. In a recent episode of the NIH's *All About Grants* podcast, officials with the NIH Office of Laboratory Animal Welfare (OLAW) and the National Center for Advancing Translational Science discussed alternatives to animal models in biomedical research and how the use of animals should be addressed in grant applications. This article provides an overview of the information presented in that episode.

The foundation of the NIH's ethical platform regarding laboratory animal use is represented by "the 3 Rs":

- *Replacing* animals in biomedical research with alternative models
- *Reducing* the numbers of animals used in experiments in which they cannot be replaced
- *Refining* the care of laboratory animals to minimize pain and suffering

## Replacing

Alternatives to animal studies include in vitro or in silico models, mathematical models, and computer models. Organoids (organ tissue grown from stem cells) and microphysiological systems (“organs-on-chips”) are newly emerging approaches for testing drug toxicity and efficacy. All of these models can be used to reduce or ultimately replace the use of animals in research. More information on alternative methods is available from the [NIH Office of Laboratory Animal Welfare \(OLAW\)](#).

Alternative methods should be described in the Research Strategy section of the application; if no suitable alternatives exist, investigators should state that instead. If alternative methods are developed after a grant has been awarded, investigators should contact their program officer to discuss switching to the new approach.

## Reducing

If animals must be used in a study, investigators should use only the minimum number needed to obtain a scientifically meaningful result. The Research Strategy section of the application should include an explanation of why no existing alternative methods are appropriate for the proposed research and a justification for both the use and number of animals.

## Refining

The Vertebrate Animals Section of a grant application should include a description of the methods that will be used to minimize animals’ pain and discomfort. (Also see [New NIH training module: Vertebrate Animals Section](#) in the Autumn 2020 issue of *The Write Stuff*.) In addition, according to [Public Health Service policy](#), research institutions’ assurance agreements with OLAW must include a description of the training that staff will undergo in the care and use of laboratory animals.

The *All About Grants* podcast is produced by the Office of Extramural Research at NIH. New episodes are added monthly, and the podcast is available on most major platforms, such as Apple Podcasts and Spotify. Episodes, transcripts, and more information are available on [the NIH website](#).

## Reference

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## Two online grammar resources to bookmark

– Stephanie Deming

Should you write “My PI, Dr. Susan Smith, will join us” or “My PI Dr. Susan Smith will join us”? When should you use *whom* instead of *who*? Here are two good online resources for learning about grammar and finding answers to grammar-related questions:

The [Purdue Online Writing Lab](#) (“Purdue OWL”) is ideal for learning about grammar in a systematic way. The website includes a [collection of grammar articles](#) that are curated for English language learners and organized by topic. Because Purdue OWL is located at Purdue University, its advice is tailored for academic writers. The large number of [practice exercises](#) also sets this site apart. If you have a specific grammar question and aren’t sure in which category to look for the answer, try the search bar at the top of the screen. For example, searching for “who or whom” returns pages on “relative pronouns” that explain when to use these two words, and searching for “commas” returns a page of “extended rules for using commas” that covers how to punctuate the first sentence in this article. Purdue OWL also has a YouTube channel; check out the [most recent video](#) for a playful explanation of when to use *that* and *which*.

Grammar Girl is the pseudonym of Mignon Fogarty, a former science writer and editor who has been publishing clear and friendly grammar advice on the internet since 2006 (1). She began by sharing her advice in the Grammar Girl podcast, which now has more than 800 episodes, and she also publishes short articles on language-related topics. In the [Grammar Girl archive](#), the podcasts and articles are listed in reverse chronological order. On the [Grammar Girl website](#), you can quickly find podcasts and articles on specific topics by using the search bar at the top of the page and then choosing “Grammar” in the “Filter by tags” list at the right side of the screen. In addition to writing and speaking about grammar, Fogarty frequently weighs in on other language-related topics, such as in a recent [episode about how to pronounce apoptosis](#).

We hope that you find these resources helpful. And of course, the editors in the Research Medical Library are always happy to answer grammar questions. You can reach us at [RML-Editing@mdanderson.org](mailto:RML-Editing@mdanderson.org).

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## What is a graphical abstract?

– Sarah Bronson

Illustrations and visuals have always been a great way to capture attention and reinforce a point in scientific communications. One option offered by some journals that may help your findings stand out visually is a graphical abstract, also called a *visual abstract* or *central illustration*. A graphical abstract conveys the central message or main findings of your manuscript in a concise visual format (1, 2). Unlike a typical figure, a graphical abstract represents the entire manuscript. And unlike a poster, this type of abstract should minimize the use of words and instead rely primarily on images to make its point.

A successful graphical abstract will help readers understand and remember your work. More than that, it will help convey your take-home message to people who are just browsing and to people outside your discipline who might be interested in your study and perhaps be inspired to collaborate across fields. Since it is meant to draw interest and aid understanding, a graphical abstract should not cram an enormous amount of detail and complexity into a small space; nor should it replicate every component of a written abstract. Rather, a graphical abstract should be pared down to what is important, essential, and interesting. If there are multiple parts to the abstract, then try to provide a clear directional flow that tells a linear story or organizes the parts meaningfully, and choose an emphasis, such as a key result (3).

The focus of a graphical abstract can vary. Some may present a conceptual model representing the processes or interactions described by the manuscript—for example, the mechanisms of a molecular pathway or the crosstalk between specific types of cells in a particular environment (4). Others might emphasize the study results by featuring just a few compelling figures showing those results, meaningfully arranged (5). A graphical abstract might also summarize both the methods and the results of your study (6). These are not the only options, but one of them may be a good starting point if you are not sure how this abstract should be structured. It may be possible to use an existing figure from your manuscript as the graphical abstract if you have already created a suitable “summary” or “concluding” figure. The approach you choose should be guided by your target journal’s recommendations and by the most noteworthy aspects of your study. A few journals, such as *Kidney International*, provide a graphical abstract template (7).

Several resources can help you create a graphical abstract. Creative Communications at MD Anderson can work with you to design the abstract according to your direction. In addition, tools and image collections are available that may simplify the design process. The Research Medical Library provides access to a suite of image databases and image-making tools, including a subscription to the scientific image creator BioRender. Servier Medical Art is a free repository of usable scientific icons and medical images, and The Noun Project is a large collection of simple icons for a wide range of concepts. These smaller images can then be combined by using a program such as PowerPoint. Finally, Mind the Graph is an infographic maker geared toward scientific visuals, including graphical abstracts, and Canva and Easel.ly are all-purpose design tools that can enhance scientific presentations.

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<https://www.kidney-international.org/content/authorinfo#idp1815024>

## For more information

Creative Communications, The University of Texas MD Anderson Cancer Center

<https://inside.mdanderson.org/departments/communications/creative-communications.html>

A-Z Databases: Images, Research Medical Library, The University of Texas MD Anderson Cancer Center

<https://mdanderson.libguides.com/az.php?s=68545>

Servier Medical Art

<https://smart.servier.com/>

The Noun Project

<https://thenounproject.com/>

Mind the Graph

<https://mindthegraph.com/>

Canva

<https://www.canva.com/>

Easel.ly

<https://www.easel.ly/>

## Unusual terms used in scientific writing and publishing: FAIR Principles

– Bryan Tutt

The acronym FAIR (findability, accessibility, interoperability, and reusability) describes a set of principles for managing scientific data. The principles apply not only to data but also to other digital objects, metadata (information about the data), and infrastructure used to process and store data.

The FAIR principles, first proposed in 2016 (1) by a group of publishers, academics, corporate interests, scientists, and funding agencies, can be divided into four groups based on the acronym. The findability principles have to do with making data and metadata indexable and searchable by humans and computers. The accessibility principles call for data and protocols to be freely available. The interoperability principles help ensure that data can be merged with other data and used by various applications. Finally, the reusability principles call for clearly defined usage rights to the data and for information storage/retrieval technology that meets community standards.

More information about the FAIR principles and how to implement them is available at [www.go-fair.org](http://www.go-fair.org). These principles can be helpful when putting together a data management plan (2) or when making sure your research meets a journal's data sharing policy (3).

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## Editing services

The scientific editors in the Research Medical Library help MD Anderson faculty and trainees get published and get funded. We provide a wide range of editorial, educational, and publishing services, free of charge, to the MD Anderson community, including

- editing grant proposals and research articles;
- providing one-on-one consultations with authors at any stage of the writing process;
- teaching workshops and giving lectures on writing research articles and grant proposals;
- teaching scientific English for non-native speakers;
- providing writing advice and support, including [online writing advice](#).

For more information about our editing services and how to use them, please visit [Our Editing Services](#), or contact us at [RML-Editing@mdanderson.org](mailto:RML-Editing@mdanderson.org)

## Upcoming events for authors

Please see the [Research Medical Library Classes & Events Calendar](#) website for more information on our educational courses.

**Webinars Presented by the Research Medical Library.** The Research Medical Library continues to host a series of webinars on various topics. Webinars previously presented and recorded are available [here](#). Links to upcoming webinars will be posted as they become available on the [Research Medical Library](#) website.

**Tool Time Tuesday with the Research Medical Library.** In this Zoom series, our librarians, editors, or special guests from around the institution discuss at least three tools, resources, or services available for MD Anderson faculty, staff, and students. These discussions include technology tools, apps, and more to help you in your work.

Presentations run every other Tuesday from 10:00 to 10:30 am. [Click here](#) and select the "Begin Registration" button to register for upcoming sessions; you can also use this link to receive handouts and to access an archived recording after the event.

Dates for upcoming online sessions:

**May 11, 2021**

**May 25, 2021**

**June 8, 2021**

**June 22, 2021**

**July 6, 2021**

**July 20, 2021**

**Writing Persuasive R01 Proposals.** The Research Medical Library is now offering an online course on writing an NIH R01 grant proposal. Over the course of three 1-hour modules, scientific editors will provide practical advice on writing the Specific Aims and Research Strategy of an R01 application.

[Registration is required.](#) To streamline and simplify the registration process, the three separate modules of this session are set up as a series; registration for one module will register you for all three. You can attend any or all modules. The series will be repeated every few months.

The upcoming modules are as follows:

**May 27, 2021: [Writing Persuasive R01 Proposals: The Specific Aims Section](#)**

**June 10, 2021: [Writing Persuasive R01 Proposals: Research Strategy: The Significance and Innovation Sections](#)**

**June 24, 2021: [Writing Persuasive R01 Proposals: Research Strategy: The Approach Section](#)**

*Details: John McCool ([jhmccool@mdanderson.org](mailto:jhmccool@mdanderson.org)).*

**Online Courses in Scientific English for Non-Native Speakers of English.** The Research Medical Library offers two online courses for non-native speakers of English on the Study@MDAnderson platform. Both courses are **self-study** and **self-paced**, but students have access to an instructor (Dr. Mark Picus) for support and questions. For more information and to register, please click [here](#).

**Writing and Publishing Scientific Articles.** Writing and Publishing Scientific Articles is a structured, practical, in-depth writing-education program for postdoctoral fellows and clinical trainees at MD Anderson taught by editors in the Research Medical Library. This workshop, currently being offered via Zoom online, provides an excellent opportunity for advancing participants' skills in writing and publishing research articles while developing their in-progress manuscripts under the guidance of scientific editors.

The course is repeated every few months, and those who attend all six modules are awarded a certificate of completion.

*Times and registration information will be announced on the [Research Medical Library Classes & Events Calendar](#). Details: John McCool ([jhmccool@mdanderson.org](mailto:jhmccool@mdanderson.org)).*

**K99/R00 Workshop.** The Research Medical Library is now offering an online course on writing an NIH K99/R00 grant proposal. Over the course of six 1-hour modules, scientific editors provide practical advice on writing the Candidate Section, Specific Aims, and Research Strategy of a K99/R00 application.

The course is repeated every few months, and those who attend all six modules are awarded a certificate of completion.

*Times and registration information will be announced on the [Research Medical Library Classes & Events Calendar](#). Details: John McCool ([jhmccool@mdanderson.org](mailto:jhmccool@mdanderson.org)).*

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