



Journal Citation Reports™: Reference Guide

June 2022

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What is the Journal Citation Reports™

How is Journal Citation Reports™ used

The Journal Impact Factor™ (JIF) was originally developed by Drs. Eugene Garfield and Irving H. Sher as a metric to aid in selection of additional journals for the newly created Science Citation Index™.

Today librarians continue to use the Journal Citation Reports™ (JCR) as a tool in **building and managing their journal collections**. Publishers use the JCR to **gauge journal performance and assess their competitors**. Researchers use the JCR to **identify appropriate journals for publication of their work** based on many characteristics.

Starting with the 2021 release, journals from all editions of the Web of Science™ Core Collection will appear in the JCR with journals in the Science Citation Index Expanded™ and Social Sciences Citation Index™ being eligible for JIF metrics.

How is the Journal Impact Factor™ calculated

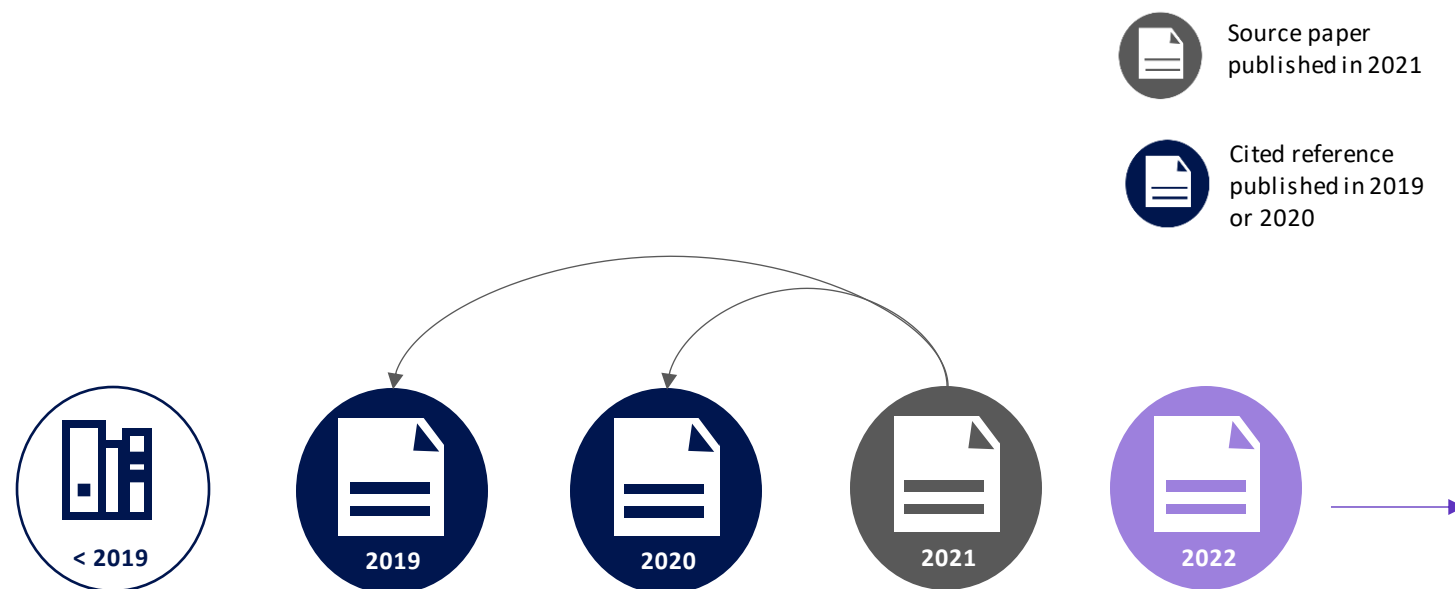
How is the Journal Impact Factor™ calculated

JIF metrics are available to all journals in the following editions:

- Science Citation Index Expanded™
- Social Science Citation Index™

The Journal Impact Factor™ (JIF) is defined as citations to the journal in the Journal Citation Reports™ (JCR) year to items published in the previous two years, divided by the total number of scholarly items, also known as citable items, (these comprise articles and reviews) published in the journal in the previous two years.

The JCR year is the last complete year within that year's JCR data set. For example, the JCR year for the 2022 release is 2021.



Journal Impact Factor™ Numerator

Numerator

2021 citations from journals, proceedings, and books to a journal in 2019 and 2020

2021 JIF =

Number of articles and reviews (citable items) published in the journal in 2019 and 2020

Denominator

The numerator of the JIF consists of any citation from material published in the JCR year to material the journal published in the prior two years, regardless of what type of item might be cited. Each cited reference in a scholarly publication is an acknowledgement of influence. JCR therefore aggregates all citations to a given journal in the numerator regardless of cited document type.

The citations that comprise the JIF numerator are drawn from all indexes in the Web of Science Core Collection™: Science Citation Index Expanded™, Social Sciences Citation Index™, Arts & Humanities Citation Index™, Emerging Sources Citation Index™, Conference Proceedings Citation Index, and Book Citation Index™.

Further Reading:

Hubbard, S.C. and McVeigh, M.E. (2011), Casting a wide net: the Journal Impact Factor numerator. *Learned Publishing*, 24: 133-137. <https://doi.org/10.1087/20110208>

Journal Impact Factor™ Denominator and Citable Items

Numerator

2021 citations from journals,
proceedings, and books to a
journal in 2019 and 2020

2021 JIF =

Number of articles and reviews
(citable items) published in the
journal in 2019 and 2020

Denominator

Citable items are all items indexed in the Web of Science™ as articles and reviews. Items with any other document type, including editorial material, letter, and meeting abstract, are not included in the denominator.

Document types are assigned at the section level, and each journal is evaluated individually for the characteristics of the items in each section. In our consideration in determining document types for a section, we review the following elements that are typical bibliographic characteristics of scholarly works:

- Abstract
- Descriptive article titles
- Named author with author addresses
- Article length
- Cited References
- Data content

No single feature defines a “citable” item – but consideration of all of these, across many examples of the items in each section results in a strongly consistent association between items identified as “citable” (articles and reviews) and items whose citations create the Journal Impact Factor.

Further Reading:

McVeigh M.E., Mann S.J. (2009), The Journal Impact Factor Denominator: Defining Citable (Counted) Items. *JAMA*. 302(10):1107–1109. <https://doi.org/10.1001/jama.2009.1301>

Handling Journal Title Variations in Cited References

There is great variation in how authors format citations, including how cited works (also known as source or journal titles) appear in those citations.

Handling this issue is of **critical importance for the JCR** to properly attribute and aggregate citations for journal-level metrics. To manage these variants, JCR editors build a series of dictionary entries associating each preferred title with a set of variant forms for the cited work. These entries are derived using direct observation and analysis of cited reference data.

JCR editors have access to more than **1 billion cited references** in the Web of Science as well as to specialized citation reports that are prepared for each JCR production cycle. Variants can include alternative abbreviated forms, alternate spellings, common misspellings or typographical errors, part numbers, numbered supplements, and others. Any observed variant that can be associated unambiguously with the covered journal is included in the dictionary.

How is the Journal Citation Indicator Calculated

How is the Journal Citation Indicator calculated

The Journal Citation indicator is available to all journals in the following editions:

- Science Citation Index Expanded
- Social Science Citation Index
- Arts & Humanities Citation Index
- Emerging Sources Citation Index

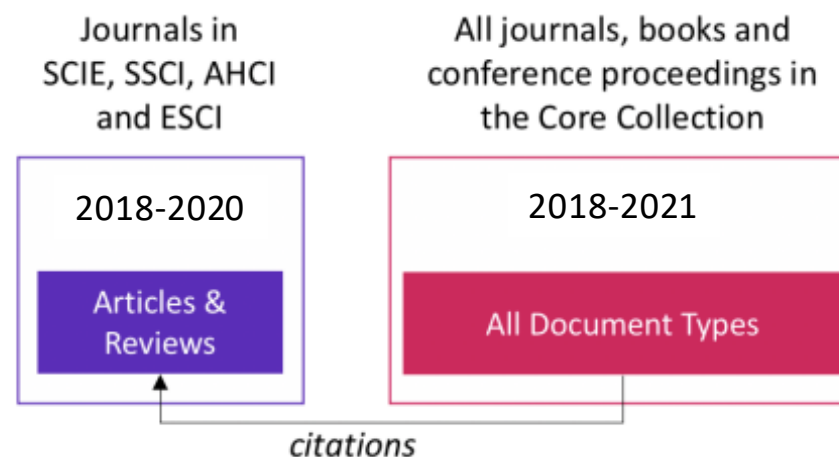
More Information:

[Introduction the Journal Citation Indicator CNCI](#)

The Journal Citation Indicator, a field-normalized metric, represents the average category-normalized citation impact for papers published in the prior three-year period.

For example, the 2021 Journal Citation Indicator will be calculated for journals that published citable items (i.e., articles or reviews) in 2018, 2019 and 2020, counting all citations they received from any document indexed between 2018 and 2021.

The value of the Journal Citation Indicator is the mean Category Normalized Citation Impact (CNCI) for all articles and reviews published in the most recent three years (e.g., between 2018 and 2020 for the 2021 indicator value).



Timing of Appearance in the Journal Citation Reports™

Timing of Appearance for the Journal Impact Factor™

Journals only appear in the Journal Citation Reports™ (JCR) when there are three complete and known years of source data; this is always and uniformly the case. This is because the Journal Impact Factor™ (JIF) is defined as citations in the JCR year to items published in the previous two years, divided by the total number of scholarly items published in those previous two years.

New journals, i.e., those starting volume 1, issue 1 in the JCR data year, can be included in the JCR after their first year because their prior two years of source data are known—as zero. Journals that have undergone a title change are another instance of this exception. In both scenarios these journals would not receive a JIF but are still listed in the JCR with other metrics to their credit, like the Immediacy Index, that can be calculated on the source data we have for that journal.

Title Changes, Mergers, and Splits

Title Changes

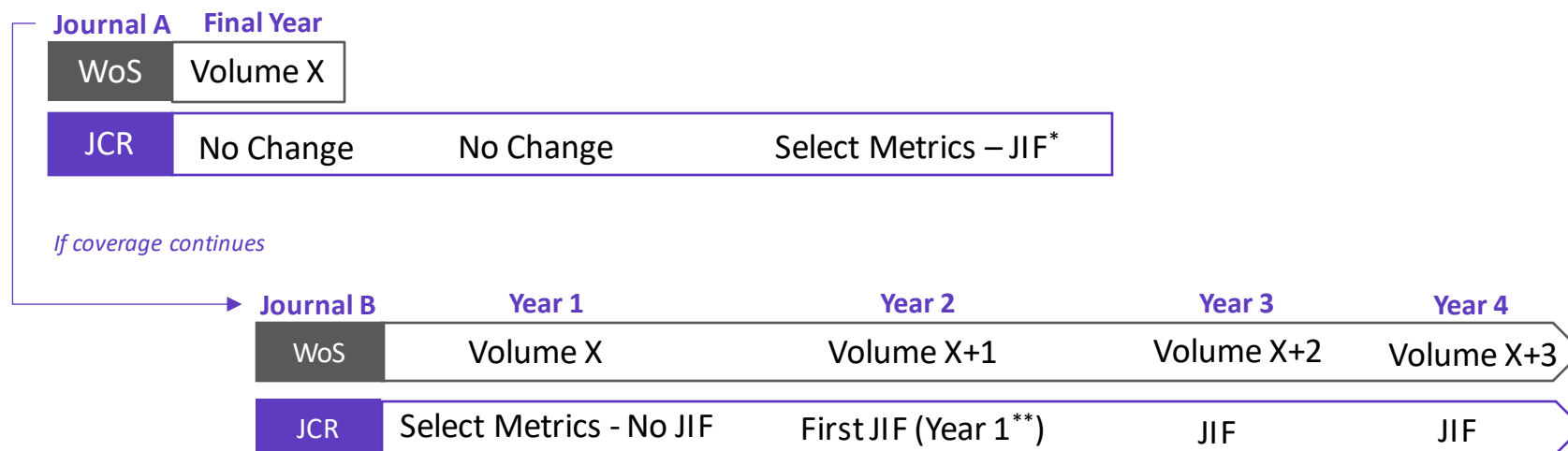
Criteria*

1. Journal ceases publication and a new journal starts with clear relationship between the ceased and the new journal with new ISSN
2. Journal's Full Title changes, significantly altering journal title variants and citation unification
3. Journal scope and/or Editorial Oversight change

* A minor journal title change that does not meet the criteria above can continue with the same journal record in the JCR

If any of the criteria occur to a covered journal, it will be considered a new journal. However, coverage will continue under its new title until sufficient material is available for a re-evaluation. If coverage continues upon re-evaluation, the journal will appear in the Web of Science™ and Journal Citation Reports™ (JCR) as noted below.

Title Change in the Web of Science & JCR



* Select Metrics – Journal Impact Factor™ (JIF) typically higher

** Denominator has Year 1 data only and typically a lower JIF the first year

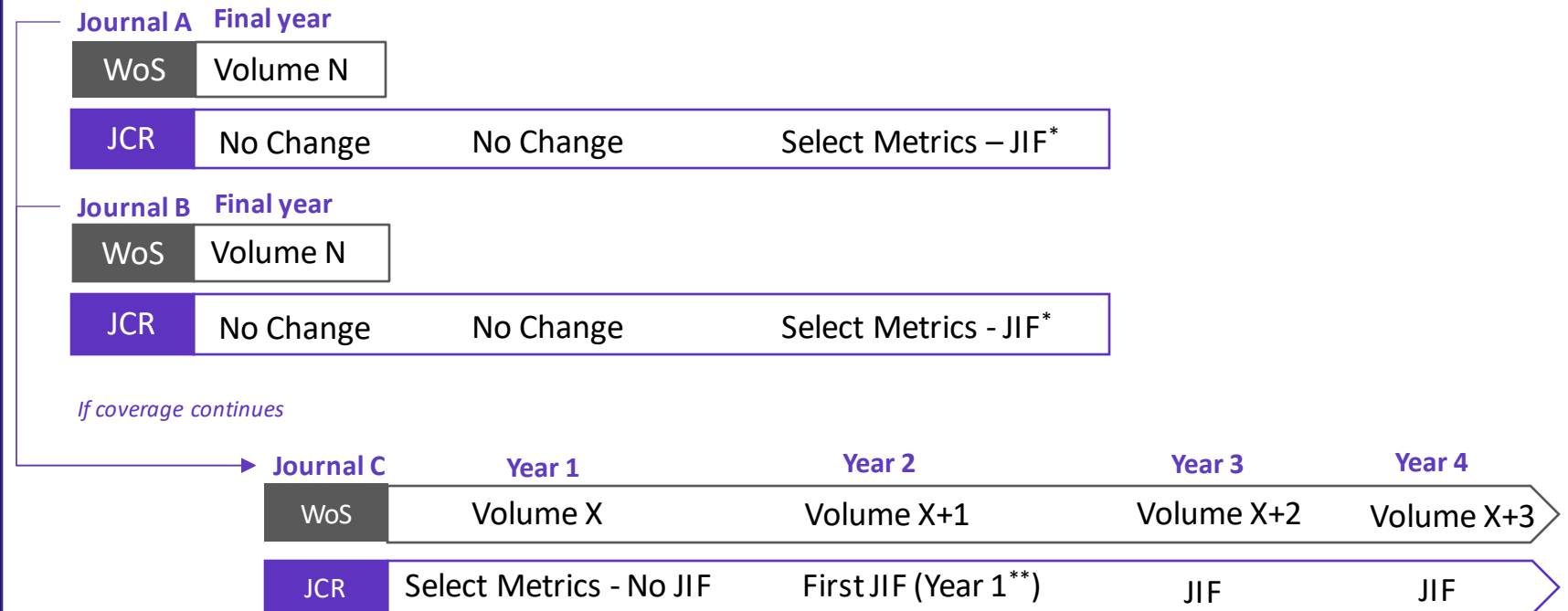
Journal Mergers

Criteria

1. Two or more journals cease publication. and
2. a new merged journal starts with clear relationship between the ceased

If two or more journals cease publication with a new merged journal starting, the merged journal is considered a new journal. However, coverage will continue under its new title until sufficient material is available for a re-evaluation. If coverage continues upon re-evaluation, the journal will appear in the Web of Science and Journal Citation Reports as noted below.

Merged Journals in the Web of Science & JCR



* Select Metrics – Journal Impact Factor (JIF) typically higher

** Denominator has Year 1 data only and typically a lower JIF the first year

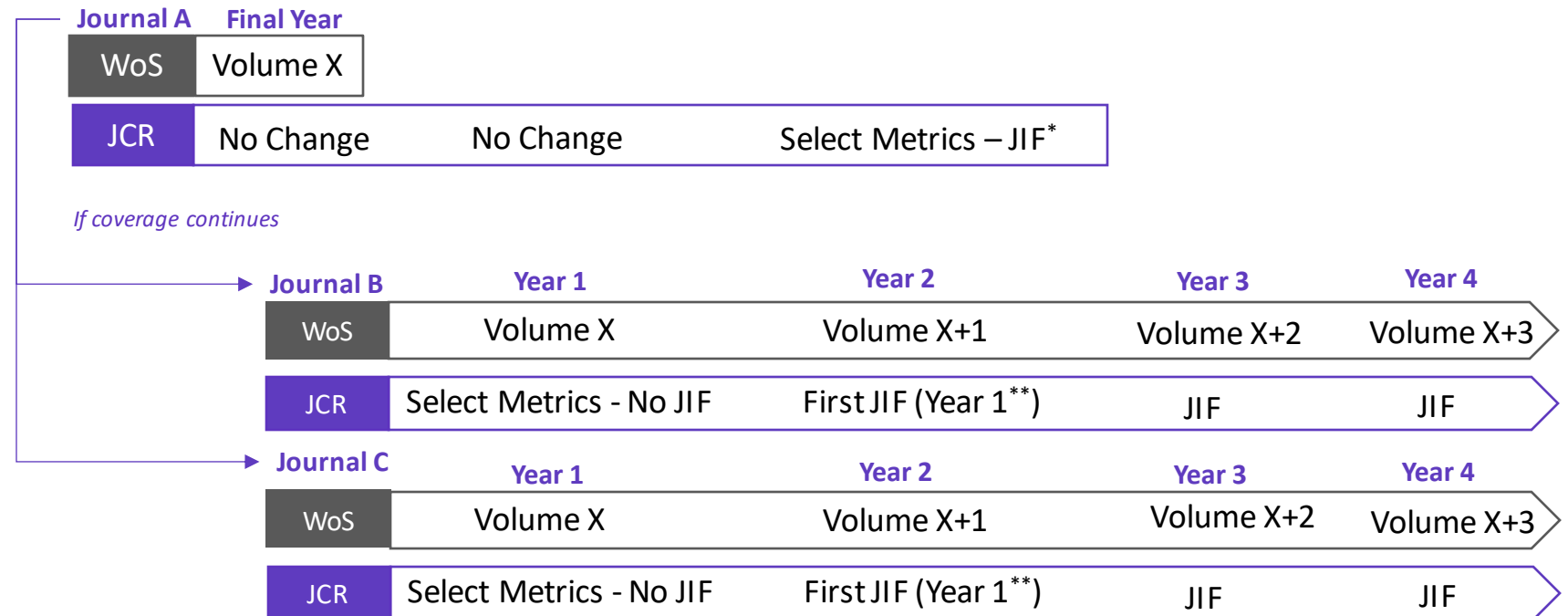
Journal Splits

Criteria

- Existing journal ceases publication, and
- two or more new journals are created where there's a clear relationship between the ceased and new journals, and
- the new journals have new journal titles and new ISSNs

A journal split occurs when a journal ceases publication and splits into two or more new journals. However, coverage will continue under its new title until sufficient material is available for a re-evaluation. If coverage continues upon re-evaluation, the journal will appear in the Web of Science and Journal Citation Reports as noted below.

Journal Splits in the Web of Science & JCR



* Select Metrics – Journal Impact Factor (JIF) typically higher
 ** Denominator has Year 1 data only and typically a lower JIF the first year

Journal Citation Reports™ vs the Web of Science™

Journal Citation Reports™ vs the Web of Science™

Live Collection vs Snapshot

A key difference between the Web of Science™ and the Journal Citation Reports™ (JCR) is that the **Web of Science is continually updated**, while the **JCR data represent a snapshot from a specific time**, namely, the date when the data were extracted for analysis. This difference reflects the essential nature of each product.

- The Web of Science is an evolving record of the dynamic world of scholarly communication with new source content continually added, including citations.
- JCR, on the other hand, is a report on the citation impact of a defined set of journals at a given moment in time.

Therefore, attempts to use the Web of Science data to replicate JCR metrics will lead to results that can vary from those reported in JCR.

Journal Citation Reports™ vs the Web of Science™

Local Change vs Network of Interconnected Data

If one piece of citation-related data changes in a Web of Science article, only that one article and those to which it connects directly are affected.

If one piece of data changes for the JCR, it changes the overall network's structure and morphology, sometimes drastically.

- For example, if the item count changes for one journal, not only does that change the Journal Impact Factor for that journal, but also the median and aggregate Journal Impact Factors for any/all categories in which the journal appears. It will also affect the rank in category for many or even all the journals in a category.

It is for these reasons that the JCR is reloaded only once per year, with all data updates occurring simultaneously.

Early Access Journal Citation Reports™ Policy Change for 2021

First, what is Early Access in the Web of Science™ ...

Compatible Early Access material is journal material that is the Version of Record (VOR), made available early, before it is published in an issue. It has a DOI¹ and distinct early access publication date². When it is later published in an issue, it then has volume, issue, pages, and final publication date data³.

Identification of biomarker panels as predictors of severity in coronary artery disease

By: Ben Braiek, A (Ben Braiek, Assia)^{1, 2, 3}; Chahed, H (Chahed, Hinda)²; Dumont, F (Dumont, Florent)³; Abdelhak, F (Abdelhak, Fodha)^{4, 5}; Hichem, D (Hichem, Denguir)^{4, 6}; Gamra, H (Gamra, Habib)⁴; Baudin, B (Baudin, Bruno)^{1, 7}

JOURNAL OF CELLULAR AND MOLECULAR MEDICINE
Volume: 25 Issue: 3 Pages: 1518-1530

DOI: 10.1111/jcmm.16244 ¹

Published: FEB 2021

Early Access: DEC 2020 ²

Document Type: Article

Abstract
Matrix metalloproteinases (MMPs) are implicated in atherosclerotic functions. Both MMPs and TIMPs are potential biomarkers of plaque cardiovascular disease risk factors. We aimed to establish the basal levels of MMP-3 and MMP-9, TIMP-1 and TIMP-2, Apo-CII, Apo-CIII, and electrocardiography, and in 285 healthy controls. MMP-3 and controls (3.54- and 3.81-fold, respectively). Furthermore, these < 0.001). TIMPs levels were decreased in CAD versus controls (P < importance of panels of biomarkers, including MMP-3, MMP-9, TIM curve (AUC) value (0.995) was reached for the association of MMP dyslipidaemia creates favourable conditions for plaque disruption aggravation panel) characterizes the severity of CAD, that is elect

Keywords
Author Keywords: apolipoproteins; arterial hypertension; coron metalloproteinases
Keywords Plus: CIRCULATING MATRIX METALLOPROTEINASES; TISSUE INHIBITOR; MYOCARDIAL-INFARCTION; CLINICAL PRESENTATION; MATRIX-METALLOPROTEINASE-9; PLAQUE; INFLAMMATION; SIMVASTATIN; PROFILE; TIMP-1

Journal of Cellular and Molecular Medicine
Open Access

ORIGINAL ARTICLE | Open Access | CC | I

Identification of biomarker panels as predictors of severity in coronary artery disease

Assia Ben Braiek, Hinda Chahed, Florent Dumont, Fodha Abdelhak, Denguir Hichem, Habib Gamra, Bruno Baudin

First published: 31 December 2020 | <https://doi.org/10.1111/jcmm.16244>

Volume 25, Issue 3
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Pages 1518-1530 ³

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Natural and Environmental History

Early Access Policy

Policy effective as of the
2021 JCR release

Most indexed Early Access items have an early access date and a final publication date in the same calendar year. The new Journal Citation Reports™ (JCR) policy will not change how these items are counted.

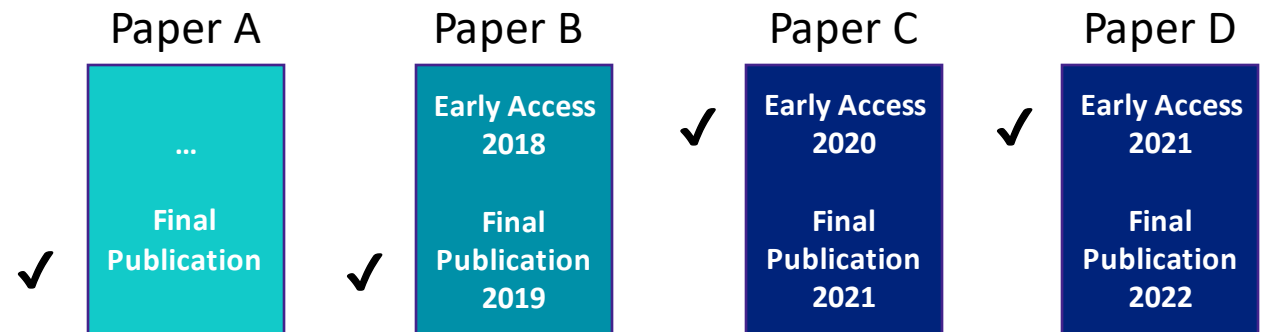
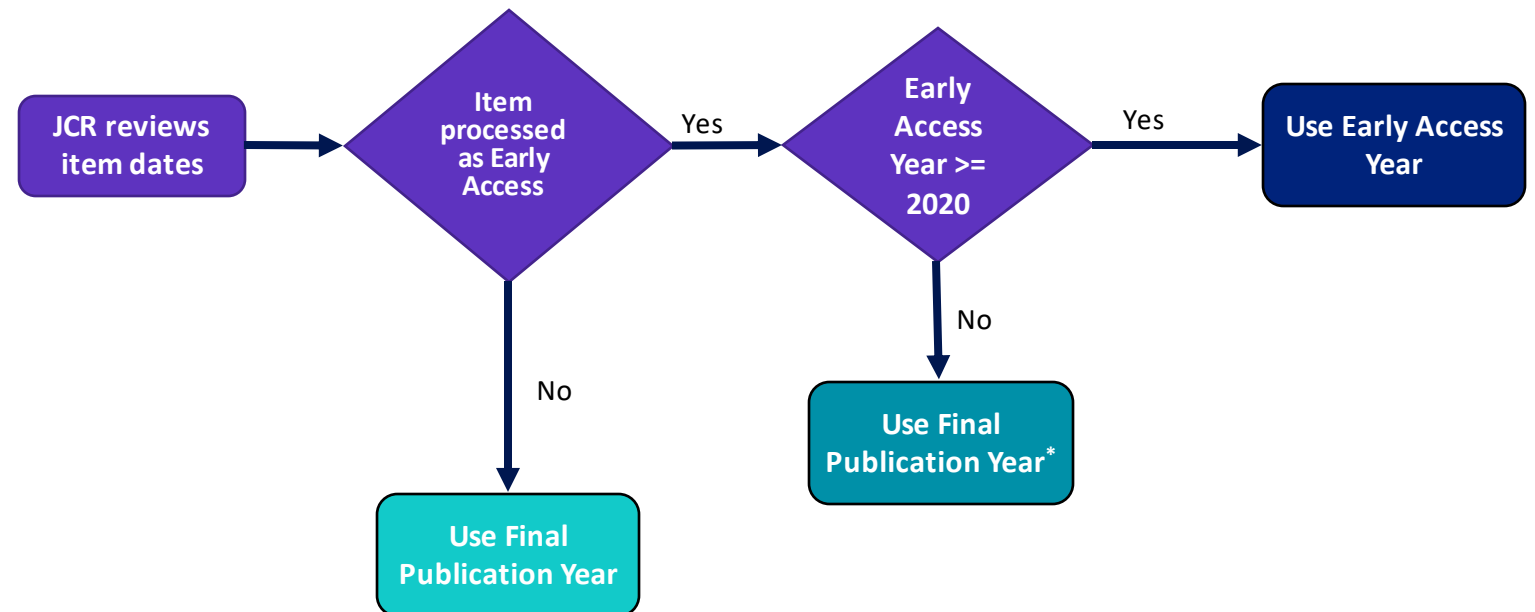
For indexed Early Access items where the early access date is in a different calendar year than the final publication date, we will use only the early access date. This will only affect items indexed with an early access date of 2020 or later.

Prospective Approach

Based on our analysis, we determined to take a prospective approach, starting with content indexed in 2020.

See [Adding Early Access to Journal Citation Reports](#) for details about this analysis.

Determining JCR year



* 2019 and earlier Early Access items with no final publication year are excluded

How this will work over time

Journals Onboarded 2020 and earlier

$$\text{2020 JIF} = \frac{\text{Citations in 2020 to items published in 2018 + 2019}}{\text{Number of articles \& reviews published in 2018 \& 2019}}$$



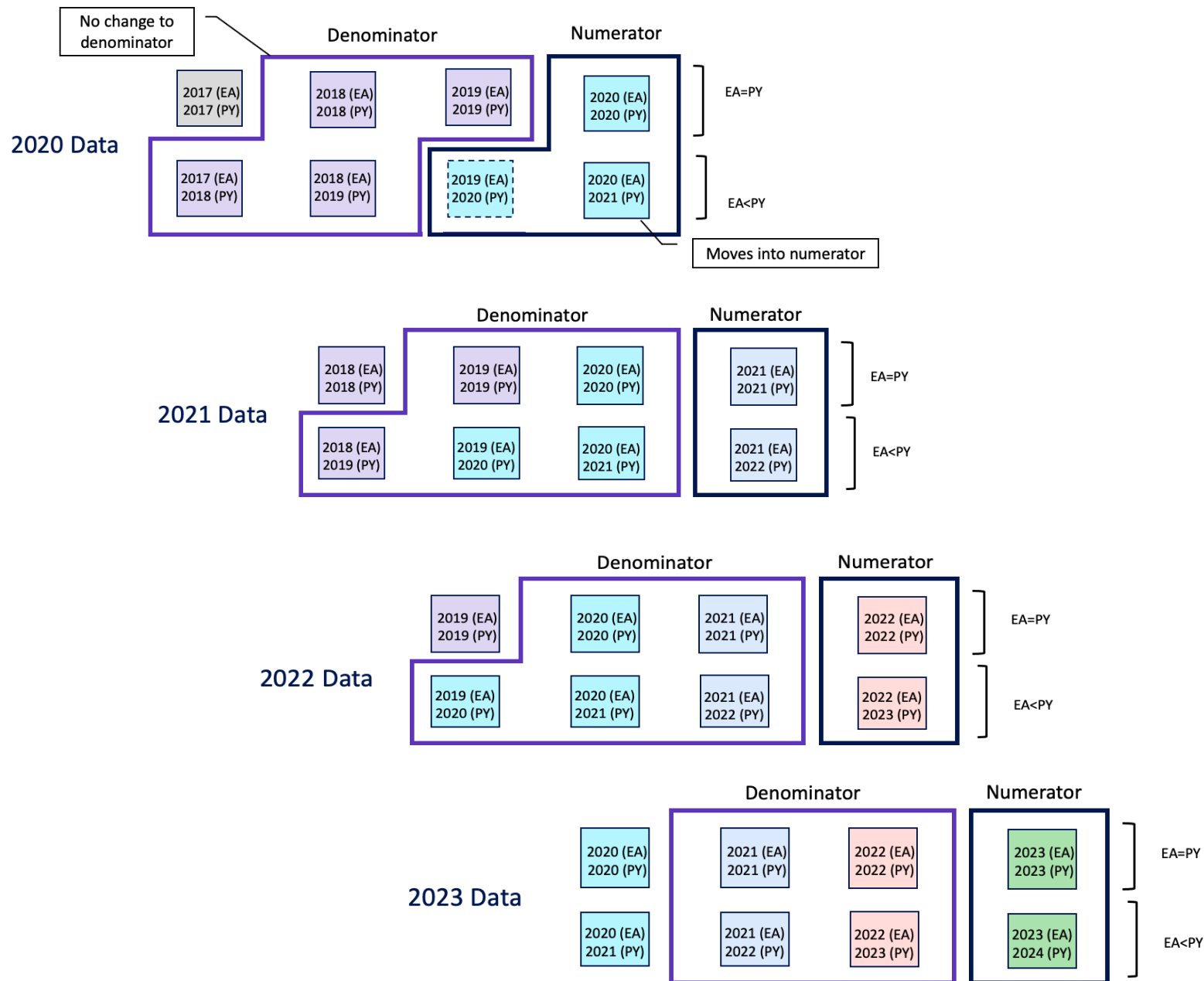
$$\text{2021 JIF} = \frac{\text{Citations in 2021 to items published in 2019 + 2020}}{\text{Number of articles \& reviews published in 2019 \& 2020}}$$



$$\text{2022 JIF} = \frac{\text{Citations in 2022 to items published in 2020 + 2021}}{\text{Number of articles \& reviews published in 2020 \& 2021}}$$

Example, Journal Onboarded 2020

- Citations from the Numerator have a distributed effect and apply to all journals that material cites
- Journals onboarded later will have a similar transition



How this will work over time

The years highlighted in blue include EA content as described. By the **2023** Journal Impact Factor™ (JIF), all journals with EA indexed by 2021 will have JIFs reflecting the earliest publication date of their content.

Journals Onboarded 2021

$$2021 \text{ JIF} = \frac{\text{Citations in 2021 to items published in 2019 + 2020}}{\text{Number of articles \& reviews published in 2019 \& 2020}}$$



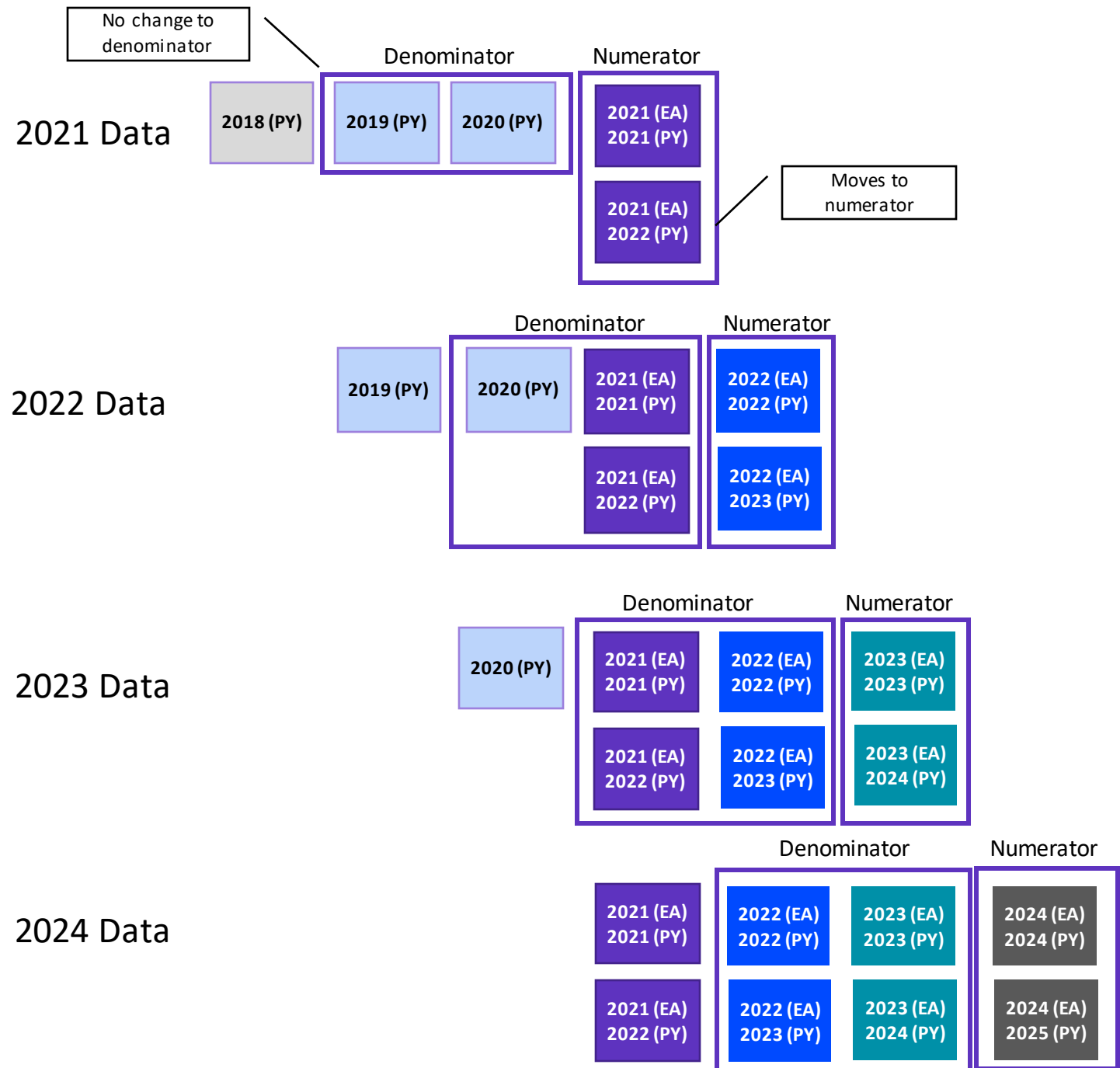
$$2022 \text{ JIF} = \frac{\text{Citations in 2022 to items published in 2020 + 2021}}{\text{Number of articles \& reviews published in 2020 \& 2021}}$$



$$2023 \text{ JIF} = \frac{\text{Citations in 2023 to items published in 2021 + 2022}}{\text{Number of articles \& reviews published in 2021 \& 2022}}$$

Example, Journal Onboarded 2021

- Citations from the Numerator have a distributed effect and apply to all journals that material cites
- Journals onboarded later will have a similar transition



Early Access Citations

Early Access content typically has a higher contribution to JIF when counted by the early access date

Early Access 2021 example with 2022 planned publication

JOURNAL OF [REDACTED]
DOI: [REDACTED]
Early Access: SEP 2021
Document Type: Article; Early Access

120
Cited References

2021 citations to 2020 (7) or 2019 (16)

Contribution to 2021 JIF: 23

2022 citations to 2021 (0) or 2020 (7)

Contribution to 2022 JIF: 7

Abstract
Introduction
Conclusion
References

Abstract
Introduction
Conclusion
References

Abstract
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Conclusion
References

Abstract
Introduction
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References

Abstract
Introduction
Conclusion
References

Abstract
Introduction
Conclusion
References

Other FAQs

My journal content includes an Early Access date that's different than the issue. Does this Journal Citation Reports policy apply?

- This policy applies if we are indexing your content when it is Early Access only before it is assigned to an issue. If you publish Early Access but have not been onboarded, the policy will apply in the 2022 release, assuming successful onboarding in 2021.
- It does not apply to Continuous Article Publication (CAP) models or Build Online if the item date and issue date are in the same month/year.

What if my journal(s) has Early Access items from 2019 and earlier that have not been assigned to an issue?

2019 Early Access items and earlier not been assigned to a volume/issue will only contribute to the JCR when the items are indexed in the final volume/issue.

Other FAQs

What's the difference between Continuous Article Publication and Build Online for Early Access?

The Early Access indexing model for the Web of Science™ expects to receive a later version with a final publication date, volume, issue and page information from the publisher. In most cases, Continuous Article publications and Build Online publications are published once with the final publication bibliographic data and are incompatible for Early Access indexing. Below are details considered for the Web of Science indexing for these publication models.

- **Continuous Article Publication (CAP):** Content published through a continuous publication model is comparable to Early Access in that it is published as soon as it is the VOR. Unlike Early Access, it is not later updated with final metadata. Continuous publication material with respect to the Journal Impact Factor (JIF) denominator, including the timing of the cited reference contributions for JIF numerators, are not affected by the Early Access policy change.
- **Build Online:** This is a publication model whereby journal content is published in a volume and issue while the issue is building to completion. The current Web of Science indexing policy for this model is to index the issue only upon completion. Since Build Online issues typically complete within a calendar year, their published content with respect to the JIF denominator are not affected by the Early Access policy change. There may be exceptions where Build Online journals publish Early Access Content before assignment to an issue. Those are evaluated on a case-by-case basis.

Suppressions and Editorial Expressions of Concern

What is citation distortion?

We define citation distortion as citation patterns outside of a normal range, compared to journals in the same subject category.

There are three main types of journal-level citation distortion:

Journal Self-Citation

- A journal has an unusually high percentage of journal self-citations, as compared to non-self-citations, within the Journal Impact Factor™ (JIF) window
- The distortion in category rank is based on analysis of all journals in all categories of the Journal Citation Reports™ (JCR) ranked both with and without the inclusion of journal self-citations
- The distortion equals the percentage shift in rank with journal self-citations included versus excluded

Citation Stacking

- A donor journal cites a recipient journal at an unusually high rate that is concentrated in the JIF window
- Citation stacking involves two or more journals

Journal Self-Stacking (effective with the 2023 release)

- A journal publishes one or more articles in which journal self-citation in the JIF window comprises the majority of the articles' references
- Typically, these articles are presented as summaries of recent advances, but function as summaries of the journal's recent content

Our principles

Suppression of Journal Impact Factors

Distortion of citations is harmful to the scholarly record

- It creates an inaccurate reflection of the connections between articles and of their contribution to the scholarly network
- Journal self-citation, citation stacking, and self-stacking have the potential to distort the citation network, the Web of Science, and the JIF
- The JIF provides an important indicator of a journal's contribution to scholarly communication and must not be either inadvertently influenced or purposefully gamed

The fully transparent, article-level data in the JCR allows users to view the content that contributes to a journal's citation impact

Suppression of a journal's JIF does not prevent users from exploring other aspects of a journal's scholarly value

Adapting to respond to a changing environment

We updated our methodology and parameters for journal self-citation in 2020

- New, problematic citation networks had surfaced over time
- In prior years' analysis, we focused on extreme outliers. At that time, distortion of the citation network by journal self-citation was both rare and extreme
- The changes make critical adjustments:
 - **Content:** We now include *out-going (citing)* as well as *in-coming (cited)* activity as part of the analysis
 - **Context:** We also now make comparisons within *each journal's category/categories*, rather than JCR edition, to better account for discipline norms
 - **Perspective:** We now look at the *level of distortion* of the citation network

We continue to review and refine our methodology, including a new suppression category for journal self-stacking taking effect with the 2023 release.

How do we identify journal self-citation distortion?

Suppression decisions are based on an analysis of 2021 citation data. Suppressed JIFs represent anomalies in citation behavior and exceed category-based norms.

We look at the contribution of journal self-citations to the following data:

- Total citations (TC)
- JIF
- Rank in category
- % of journal self-citations in in-bound (cited) activity, and % of journal self-citations in out-bound (citing) activity

JIFs are suppressed for one year, but journals remain indexed in the Web of Science Core Collection™ and visible in the JCR

How do we identify citation stacking distortion?

Suppression decisions are based on analysis of 2021 citation data. Suppressed journals represent anomalies in citation behavior and exceed category-based norms.

We look at the following data:

- Donor as % of Recipient's TC
- Donor as % of Recipient's JIF numerator
- Concentration of citations exchanged into JIF numerator
- Identification of individual item(s) in Donor journal with non-scholarly and/or near-exclusive reference to Recipient journal(s)
- New journals, where citations are naturally concentrated to recent years, are not suppressed

JIFs are suppressed for one year, but both Donor and Recipient journals remain indexed in the Web of Science Core Collection™ and visible in the JCR

How do we identify self-stacking citation distortion?

Suppression decisions are based on analysis of 2021 citation data. Suppressed journals represent anomalies in citation behavior.

We consider the following data:

- TC
- JIF
- Rank in category
- By-item count of citations to the JIF numerator

Suppression warnings were issued for the 2022 release. In 2023, journals with this observed behavior will be suppressed.

JIFs are suppressed for one year, but journals remain indexed in the Web of Science Core Collection™ and visible in the JCR.

What do we do when we identify citation distortion?

Journals that show evidence of citation distortion will not receive a JIF

- We notify publishers of suppressed journals prior to the annual JCR release
- We report the findings of our analysis without accusations of wrongdoing
- We give publishers the opportunity to appeal suppression decisions; appeals must be received by the defined deadline and must be data-driven – we do not consider unsupported assertions
- Suppressed journals continue to be indexed in the Web of Science Core Collection™ but may be re-evaluated for continued coverage

Journal Citation Reports™ Editorial Expressions of Concern

JCR Editorial Expression of Concerns (EEoC) are a signal that we have identified patterns of publication and/or citation that are problematic, but for which we do not have a current suppression analysis in place.

We will continue to use EEoCs, when necessary, to alert users of the need to examine the data contributing to the JIF and JCR metrics.

Forthcoming Titles

Forthcoming Titles

Titles not available
in the Journal
Citation Reports™ data year
due to missing content

*The missing content deadline
for Reload is August 1st.*

- Forthcoming titles are Journal Citation Reports™ (JCR) journals where content has been identified as missing in the final data set where accurate metrics cannot be published in the initial release.
- When available, projected metrics are published in the JCR as a pending correction before the reload update occurs.
- Publishers are notified of titles on the forthcoming list in advance of the June release.
- Missing material not processed by the August 1st cut-off will not appear in the JCR Reload

Journal Citation Reports™ Data Reload

Journal Citation Reports™ Data Reload

A one-time data update for the current Journal Citation Reports data year

Corrections deadline for Reload is August 1st.

Eligible corrections for Reload are:

- **JIF Denominator**
 - Reclassifying document types for Journal Impact Factor™ (JIF) denominator items related to citable vs non-citable counts
 - Adding missing items to the denominator count
 - Removing duplicated items from the denominator count
 - Count adjustment due to publication year correction
- **JIF Numerator**
 - Unifying citations in the original JCR data set for a missing journal title variant, also known as a cited work variant

Corrections out of scope for Reload are as follows:

- **JIF Numerator**
 - Any citation not included in the original JCR data set
 - Citation where the cited work is incorrectly attributed to a different journal

Acceptable Use

Acceptable Use

Broad re-publication or free distribution of Journal Citation Reports™ (JCR) data is not permitted. We do allow distribution of JCR data if it is kept within the subscribing institution. In that case, the JCR should be appropriately acknowledged as the source and the recipients should be made aware of the fact that posting the data to the Web will violate the institution's license agreement.

Use of the JCR data for marketing, public relations, news stories or publication as part of bibliographic or bibliometric research will require permission from Clarivate. We will request to review the information and data that would be included in the publication and will provide guidance on the citation of JCR as a source.

Permission requests can be submitted through this [product support form](#).

Misuse of the Journal Impact Factor™

Responsible use of metrics

The JCR was created as a way to use cited references "as characteristics of the journals they linked" (Garfield, 1975). The Journal Impact Factor™ (JIF) was designed to summarize performance, combining citations across all content to create a generalized, journal-level metric showing a specific type of scholarly use in a single year.

Article citation performance as a part of scholarly assessment is not reflected in the JIF. Metrics that address the output and influence of individual researchers can be analyzed through Web of Science™ or InCites™. Please see this relevant ISI Global Research Report related to this topic, [Profiles, not metrics](#).

Journal coverage and journal reputation

Some websites or journals will falsely claim to be covered in the Web of Science or will reference having an "impact factor". Misrepresentations of our products and our brands may be an attempt to mislead potential authors into believing that a journal has met our high standards for inclusion in our indexes. Please make use of our publicly available tools to review journals' claims, like the [Web of Science Master Journal List](#).



Thank you

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