Research Write is a current awareness bulletin for staff and students of St Vincent’s Hospital Melbourne who are interested in writing about and communicating their research in an academic context. Each issue will cover a theme or process around research writing with links to the current literature.

In this issue we explore some scholarly metrics used to measure performance of authors, articles, journals and institutions. All links in this issue are to sites not requiring you to provide a login. Some tools for which St Vincent’s does not have access have been provided with a definition and the name of the tool. Was this issue on scholarly metrics useful or interesting? Suggestions for future topics relating to writing and publishing are very welcome!

Issues of Research Write are available at http://library.svhm.org.au/libraryhomepage/bulletins If you would like to receive Research Write as an email please contact me to be added to the mailing list.

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There are multiple metrics that a researcher can use to demonstrate impact and engagement and they are available on various tools. St Vincent’s Hospital Melbourne does not subscribe to any scholarly metrics tools. However there are free tools to calculate metrics:

SCImago Institution Rankings [https://www.scimagoir.com/](https://www.scimagoir.com/)
SCImago Journal Ranking [https://www.scimagojr.com/](https://www.scimagojr.com/)
Scopus [https://www.scopus.com/home.uri](https://www.scopus.com/home.uri) (some parts are free)

If you are affiliated with a teaching institution it is likely your institution’s Library will include access to these metrics tools:

InCites [https://clarivate.com/products/incites/](https://clarivate.com/products/incites/)
SciVal [https://www.scival.com/](https://www.scival.com/)
Scopus [https://www.scopus.com/home.uri](https://www.scopus.com/home.uri)
Web of Science [https://clarivate.com/products/web-of-science/](https://clarivate.com/products/web-of-science/)

**Author metrics**

These metrics look at the overall output of an author rather than individual articles.

**Author ranking**

A method of sorting authors nationally or globally by either h-index, citations or field weighted citation impact. This method can be limited to a specific date range or subject area.

*Tool: SciVal.*

**Field Weighted Citation Impact**

Field Weighted Citation Impact is calculated using the ratio of citations received relative to the expected world average for the subject field, publication type and publication year.

*Tool: SciVal.*
**h-index or Hirsch number**

The *h*-index is the best known and widely used author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The index can also be applied to the productivity and impact of a scholarly journal as well as a group of scientists, such as a department or university or country.

The *h*-index is defined as the maximum value of *h* such that the given author/journal has published *h* papers that have each been cited at least *h* times. The index is designed to improve upon simpler measures such as the total number of citations or publications. The index works properly only for comparing scientists working in the same field; citation conventions differ widely among different fields.

Finding *h*-index using Google Scholar

2. Type the full name of the author
3. If a profile exists for the author, it will appear at the top of the results list
4. Click on the link to view the profile and *h*-index

For instructions on calculating your *h*-index on either Web of Science or Scopus see [https://researchguides.uic.edu/c.php?g=252299&p=1683205](https://researchguides.uic.edu/c.php?g=252299&p=1683205)
h5-index
It is calculated in the same way as the h-index but is limited to the past five years only. Some grant schemes do not allow the use of h-index in grant applications, e.g. those for the National Health & Medical Research Council (NHMRC). Refer to scheme-specific rules to determine what information should be included. Funding rules change from year to year.

Tool: SciVal.

Article metrics

Altmetrics [https://www.altmetric.com/audience/researchers/](https://www.altmetric.com/audience/researchers/)
An altmetric score provides a graphic using a number and colour as an indicator of the volume and type of attention a research output has received. The Altmetric Attention Score is an automatically calculated, weighted count of all of the attention a research output has received. It is based on 3 main factors: volume, source and author. The metric may be found on the margin of an online article or you can download the “Altmetric it!” bookmarklet to see the altmetric on your research articles.

The Colors of the Donut

- Policy documents
- News
- Blogs
- Twitter
- Post-publication peer-reviews
- Facebook
- Sina Weibo
- Syllabi
- Wikipedia
- Google+
- LinkedIn
- Reddit
- Research highlight platform
- Q&A (Stack Overflow)
- Youtube
- Pinterest
- Patents
It is important to read the requirements of the funding agency or other applications to determine if using journal metrics are applicable or allowed in your submission.

**CiteScore**

CiteScore calculates the average number of citations given in a previous year to the publications that appeared in a journal in the three preceding years. CiteScore includes all document types (articles, reviews, conference proceedings, editorials, letters, corrections etc.) in the calculation of the metric.

**Example:**

Tools: CiteScore, Scopus, SciVal


The Eigenfactor score is a rating of the total importance of a scientific journal. Journals are rated according to the number of incoming citations, with citations from highly ranked journals weighted to make a larger contribution to the eigenfactor than those from poorly ranked journals. As a measure of importance, the Eigenfactor score scales with the total
impact of a journal. All else equal, journals generating higher impact to the field have larger Eigenfactor scores.

Eigenfactor scores and Article Influence scores are calculated by eigenfactor.org, where they can be freely viewed. The Eigenfactor score is intended to measure the importance of a journal to the scientific community, by considering the origin of incoming citations, and is thought to reflect how frequently an average researcher would access content from that journal. However, the Eigenfactor score is influenced by the size of the journal, so that the score doubles when the journal doubles in size (measured as number of published articles per year). The Article Influence score measures the average influence of articles in the journal, and is therefore comparable to the traditional impact factor.

The Eigenfactor approach is thought to be more robust than the impact factor metric, which purely counts incoming citations without considering the significance of those citations. While the Eigenfactor score is correlated with total citation count for medical journals, these metrics provide significantly different information. For a given number of citations, citations from more significant journals will result in a higher Eigenfactor score.

Originally Eigenfactor scores were measures of a journal’s importance; it has been extended to author-level. It can also be used in combination with the h-index to evaluate the work of individual scientists.

**Journal Citation Reports (JCR)**

Is the annual publication which began in 1975 and provides the journal impact factor of academic journals and is based on citations compiled from the Science Citation Index Expanded and the Social Science Citation Index. The latest available calculation is for the 2018 Journal Citation Reports.

The impact factor of a given journal can be found at the journal’s homepage.

Tools: Web of Science

**Journal Impact Factor (JIF)**

Journal Impact Factor (JIF) or impact factor (IF) of an academic journal is a measure reflecting the yearly average number of citations to recent articles published in that journal. It is frequently used as a proxy for the relative importance of a journal within its field; journals with higher impact factors are often deemed to be more important than those with lower ones. It is calculated by the average number of times articles from the journal published in the past two years have been cited in the JCR year. Some journals promote their impact factor on the journal’s home page.
SCImago Journal Rank [https://www.scimagojr.com/]
The SJR indicator is a free journal metric to measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from. A journal's SJR is a numeric value indicating the average number of weighted citations received during a selected year per document that journal during the previous three years. Higher SJR values are meant to indicate greater journal prestige.

The SJR indicator has been developed to be used in extremely large and heterogeneous journal citation networks. It is a size-independent indicator and its values order journals by their "average prestige per article" and can be used for journal comparisons in science evaluation processes. The SJR indicator provides an alternative to the impact factor (IF) or average citations per document in a 2-year period, abbreviated as "Cites per Doc. (2y)".

SJR (SCImago Journal Rank) [https://www.scimagojr.com/journalrank.php]
SJR is calculated from both the number of citations received by a journal as well a measure of the importance or prestige of the journal.

Tool: SCImago Journal Rank

SNIP (Source Normalized Impact per Paper)
Source Normalized Impact per Paper (SNIP) is a sophisticated metric that intrinsically accounts for field-specific differences in citation practices. It does so by comparing each journal’s citations per publication with the citation potential of its field, defined as the set of publications citing that journal. SNIP therefore measures contextual citation impact and enables direct comparison of journals in different subject fields, since the value of a single citation is greater for journals in fields where citations are less likely, and vice versa. Like Journal Impact Factors, SNIP is calculated annually.

Tools: Scopus, SciVal
Institution metrics

**Leiden Ranking** [http://www.leidenranking.com/](http://www.leidenranking.com/)

The CWTS Leiden Ranking offers important insights into the scientific performance of nearly 1000 major universities worldwide. Select your preferred indicators, generate results, and explore the performance of universities.


A ranking of the world’s best hospitals based on three data sources:
- Recommendations from medical experts (doctors, hospitals managers, health care professionals)
- Results from patient surveys
- Medical KPIs on hospitals

**SCImago Institution Rank** [https://www.scimagoir.com/](https://www.scimagoir.com/)

The SIR is a free metric which classifies academic and research-related institutions ranked by a composite indicator that combines three different sets of indicators based on research performance, innovation outputs and societal impact measured by their web visibility.

Tools: SCImago Institution Rank

Example:

**St Vincent's Hospital Melbourne**

Australia
Journal articles

Bibliometrics: The Leiden Manifesto for research metrics.
Link to full text

The Eigenfactor™ metrics.
Link to full text

The metric tide: Report of the independent review of the role of metrics in research assessment and management.
Link to full text

Web sites & Tools

Altmetric it! bookmarklet.

Citation metrics.

Declaration on research assessment (DORA).

Impact.

Leiden manifesto for research metrics.
Measuring impact.

Research impact and publishing.
Monash University, 2019, https://guides.lib.monash.edu/research-impact-publishing
Accessed on 6th June 2019

Research.

Setting up a Google Scholar profile [video].
Helbing R and University of Houston Libraries, 2017, https://www.youtube.com/watch?v=uND8iWABGoc&list=PLlZI7a8XOq5s_SKd0QD61GjDvFQkRVYtk&index=3&t=51s Accessed on 6th June 2019