# Open data/software: The journal perspective

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### Open data standards and journal responsibility

#### **FAIR** principles

Findability, Accessibility, Interoperability, Reusability

#### **TOP** guidelines

Transparency and Openness Promotion

#### MIBBI guidelines

Minimum Information for Biological and Biomedical Investigations

And more!

"Transparency, openness, and reproducibility are readily recognized as vital features of science"



# More on TOP guidelines

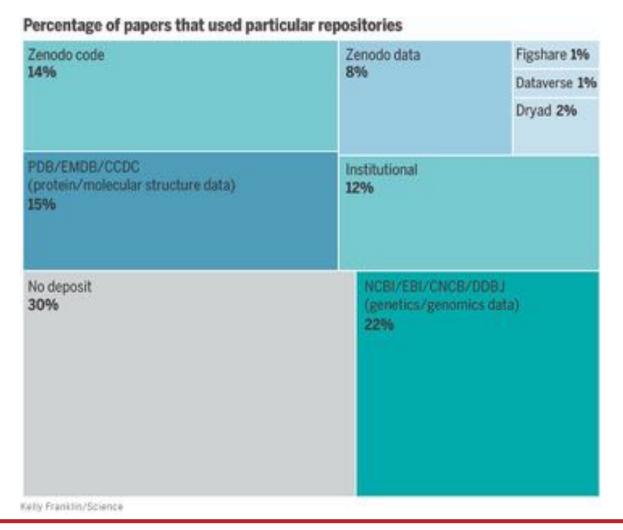
### Summary of the eight standards and three levels of the TOP guidelines

Levels 1 to 3 are increasingly stringent for each standard. Level 0 offers a comparison that does not meet the standard.

	LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3
Citation standards	Journal encourages citation of data, code, and materials—or says nothing.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used, consistent with journal's author guidelines.	Article is not published until appropriate citation for data and materials is provided that follows journal's author guidelines.
Data transparency	Journal encourages data sharing—or says nothing.	Article states whether data are available and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Analytic methods (code) transparency	Journal encourages code sharing—or says nothing.	Article states whether code is available and, if so, where to access them.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Research materials transparency	Journal encourages materials sharing—or says nothing	Article states whether materials are available and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.



### Not all repositories are created equal



#### Content

Many are field-specific or otherwise specialized, but what if a dataset spans multiple disciplines?

### **Policy**

What about retention policies and their effect on reproducibility?

#### **Uncertainty**

How do authors discern which is the best fit?



### Benefits to collaboration

- Quality control
- Machine readability
- Metadata richness and consistency
- Permanent access
- Attribution
- Facilitating peer review





# Action within the Science family

### **Policy**

Data and code must be publicly available and cited with a persistent identifier

#### **Partnership**



New collaboration with Dryad

### **Integration**

Authors may deposit data at Dryad directly from the submission site of any *Science* family journal



### Action within the *Science* family

#### Added value

Seamless, private access for editors and reviewers; data curation

### **Enhanced equity**

No cost to authors of accepted papers

#### Other benefits

Simplify process for authors; promote reproducibility; encourage collaboration

"Ensuring the accuracy of the scientific record is a community process"



### Moving from principles to daily practice

#### **Author-provided citation**

5. DOI: 10.12345/ABC000999

#### **Full citation after copyediting**

5. A. Author, B. Author, C. Author, Example software title, version 2, Example Repository Name (2022); DOI: 10.12345/ABC000999.

#### Citation in XML

<ref id="R5"><label>5</label><mixed-citation publication-type="software"><person-group person-grouptype="author"><string-name><given-names>A.</given-names> <surname>Author</surname></string-name>, <string-name>, <string-name><given-names>B.</given-names> <surname>Author</surname></string-name>, <string-name><given-names>C.</given-names> <surname>Author</surname></person-group>, <part-title>Example software title</part-title>, <version>version 2</version>, <source>Example Repository Name</source> (<year>2022</year>); <public pub-id-type="doi"> 10.12345/ABC000999</pub-id>.</mixed-citation></ref>



# Moving from principles to daily practice

Better citations → more credit → reuse!



A working group devoted to optimizing the reusability of scholarly content by developing best-practice recommendations for tagging in JATS XML

#### **Data citations**

Status: Published

Version: 2.0

License: this recommendation document is licensed under CC BY-ND 2.0 UK

DOI: https://doi.org/10.3789/niso-rp-36-2020

### Software citations

Status: Published

Version: 1

License: this recommendation document is licensed under CC BY-ND 4.0

DOI: https://doi.org/10.3789/niso-rp-40-2021



# Thank you!

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**Science:** https://www.science.org/journal/science

