THE FUTURE OF SCIENTIFIC DISSEMINATION

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Ludwig Maximilians University Munich

The Future of Scientific Dissemination

- Reporting Guidelines - HYK
- New ways of presenting information - HYK
- Open Access - MFR
- Alternative peer review - MFR
- Measuring impact - MFR
- Preprint Servers - HYK
- Collaboration Sites - HYK
- Data Sharing repositories - HYK

Special Thanks To

- Emma Brink, John Wiley & Sons
- Paula Del Campo, Digital Science Technologies
- Jeremy Nielsen, RSNA

Reporting Standards are Desirable

- "Standards governing the content and format of statistical aspects should be developed to guide authors in the preparation of manuscripts."
  -O'Fallon et al 1978, Biometrics 34:687-95

- "… editors could greatly improve the reporting of clinical trials by providing authors with a list of items that they expected to be strictly reported."
  -DerSimonian et al 1982, NEJM 306:1332-7

- "An obvious proposal is to suggest that editors …make up a check-list for authors…."
  -Zelen 1989, J Clin Oncol 7:827-8

Reporting Guidelines

STARD 2015: An Updated List of Essential Items for Reporting Diagnostic Accuracy Studies[1]

Radiology

STROBE Statement

Strengthening the reporting of observational studies in epidemiology

CONSORT TRANSPARENT REPORTING of TRIALS

PRISMA

TRANSPARENT REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES

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Home > Library > Reporting guideline > CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials

Search for reporting guidelines

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CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials

Reporting guideline provided for? (i.e. exactly what the authors state in the paper)	Parallel group randomised trials CONSORT checklist (Word) CONSORT flow diagram (Word)
Full bibliographic reference	Schulz KF, Altman DG, Moher D, for the CONSORT Group. CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. Ann Int Med. 2010;152(11):726-32. PMID: 20335313

Reporting guidelines for main study types

Randomised trials	CONSORT	Extensions
Observational studies	STROBE	Extensions
Systematic reviews	PRISMA	Extensions
Case reports	CARE	
Qualitative research	SRQR	COREQ
Diagnostic / prognostic studies	STARD	TRIPOD
Quality improvement studies	SQUIRE	
Economic evaluations	CHEERS	
Animal pre-clinical studies	ARRIVE	
Study protocols	SPIRIT	PRISMA-P

Guidelines Improve Reporting

- Help identify the presence and nature of bias
- Help identify methodological problems (sample size, inappropriate analysis)
- Help ensure that the descriptions of methods are adequate for other to reproduce
- They do NOT ensure that a study is novel or important or interesting

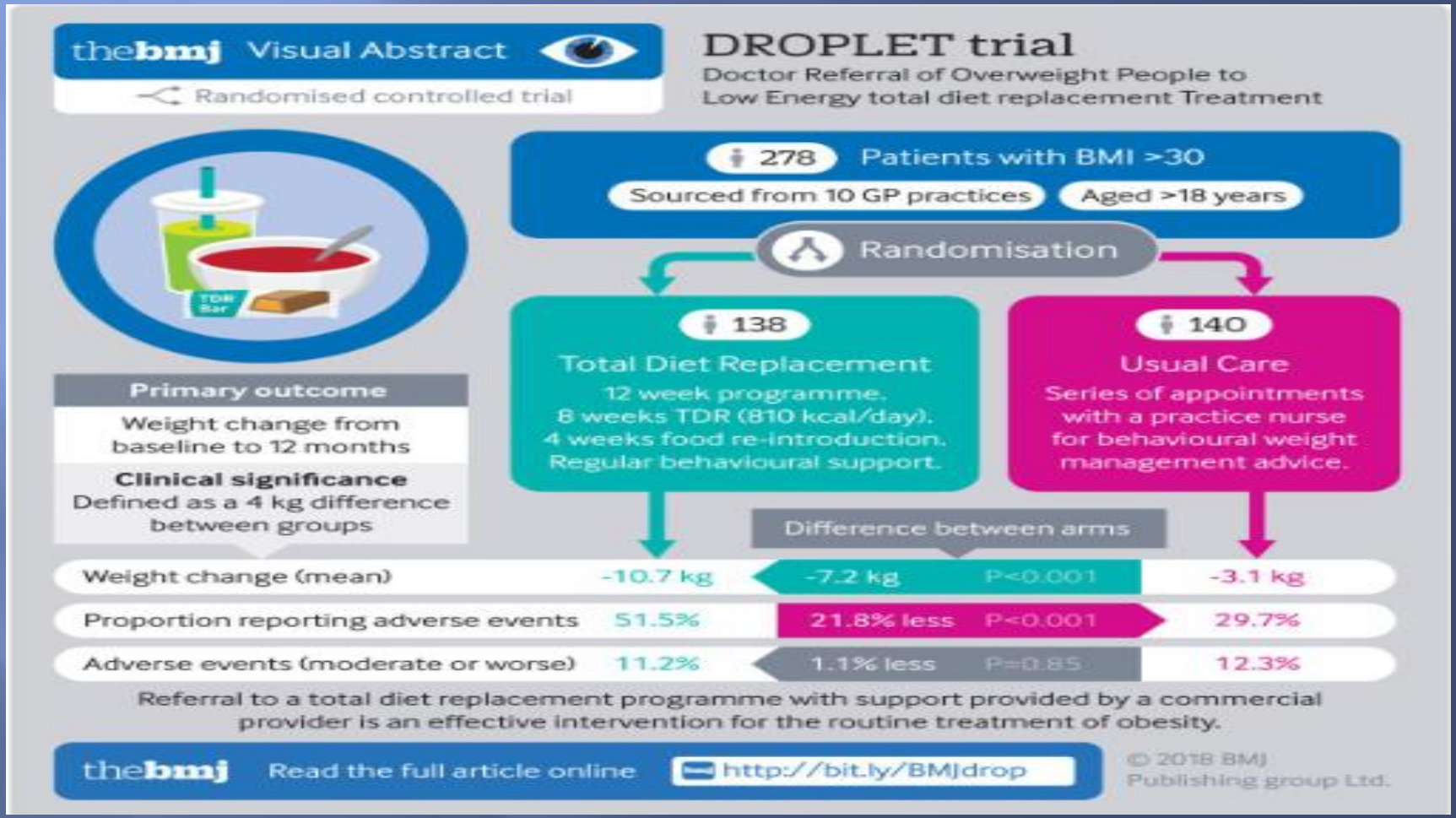
Questions

- Have you used Reporting Guideline?
- When? When designing, writing, or submitting the study
- Were they helpful? Which ones?
- Any formal training in using these?

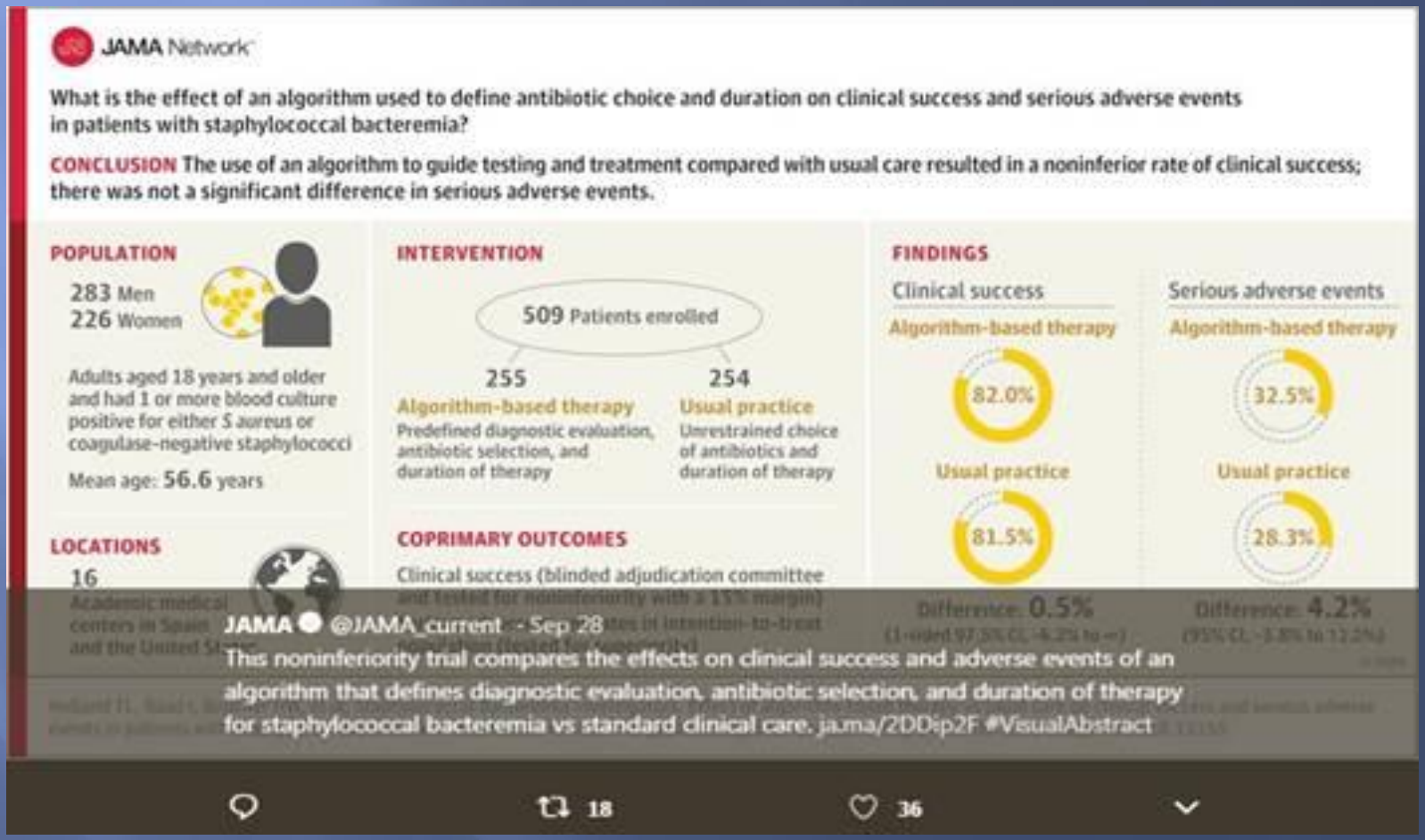
New ways of presenting information

- Visual Abstracts
- Podcasts
- Video podcasts
- Enhanced pdf's
- Semantic Enrichment

Visual Abstracts



Visual Abstracts



Hear What We Think

radiology.rsna.org/site/podcasts/archive.xhtml

Radiology

Radiology **is a monthly journal devoted to clinical radiology and allied sciences, owned and published by the Radiological Society of North America, Inc.**

Hear What We Think

Listen to the editor, deputy editors, and authors discuss the importance and context of selected articles from current and recent issues of *Radiology*

Current Issue
January 2011, 258 (1)
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JANUARY 2011

Part 1 of 2

Moderator: Herbert Y. Kressel, MD; Editor of *Radiology*

Participant: David B. Larson, MD, MBA, *Department of Radiology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*

Article Discussed: National trends in CT use in the emergency department: 1995-2007. *Larson DB, Johnson LW, Schnell BM, Salisbury SR, Forman HP.* Radiology 2011;258(1): 164-173. [**Full Text**] | [**Abstract**]

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Video Version | Opens in a new window

[**Watch Part 2**] | **Duration:** 6:00

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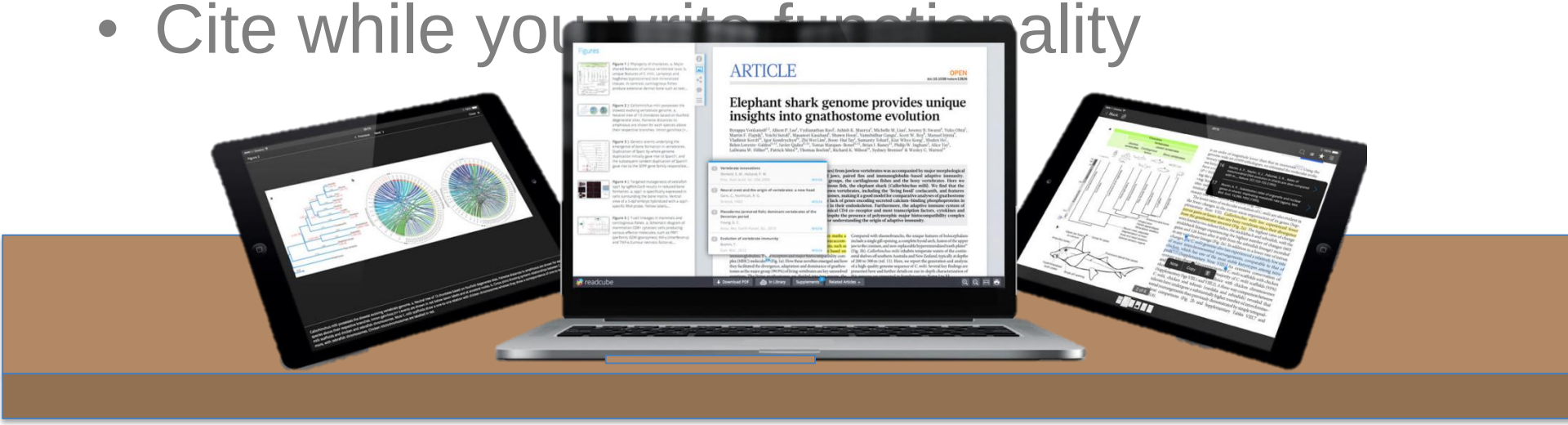
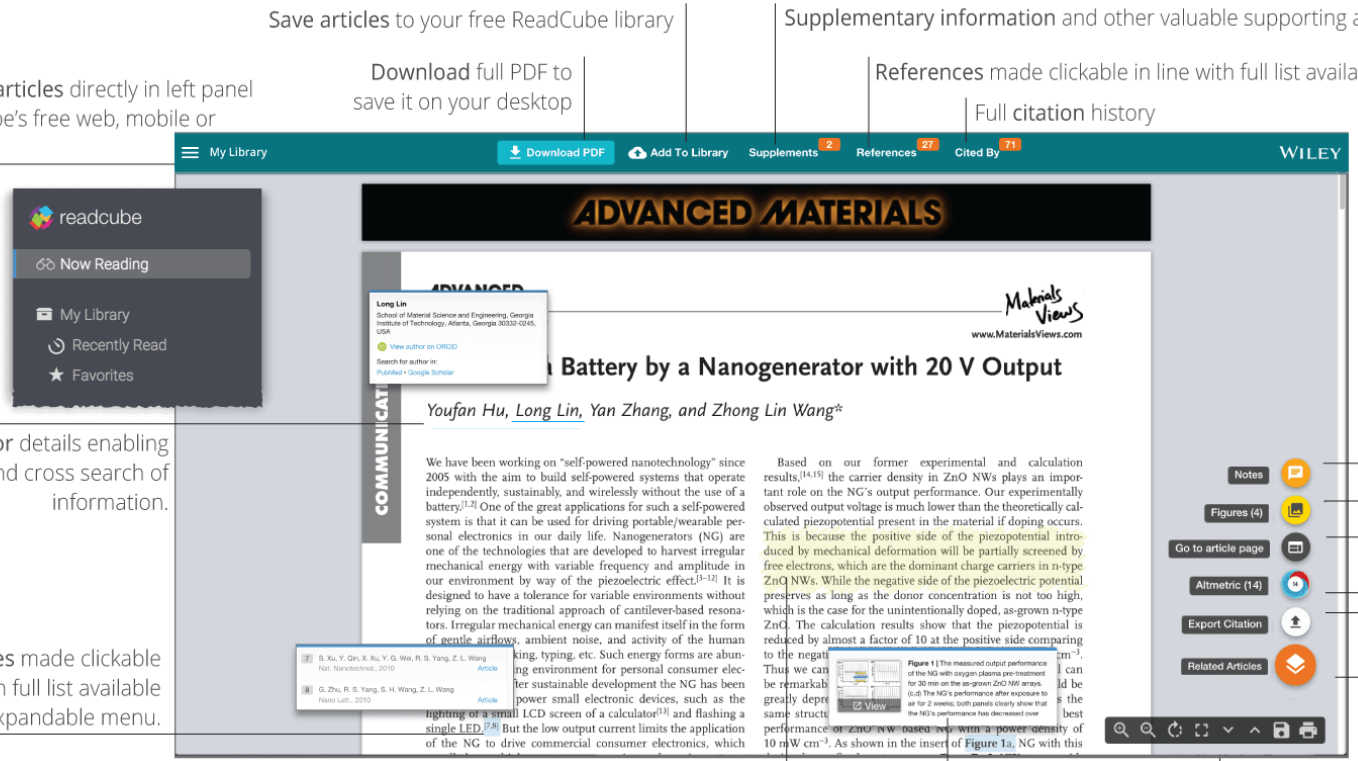


Content Delivery: Enhanced PDF technology

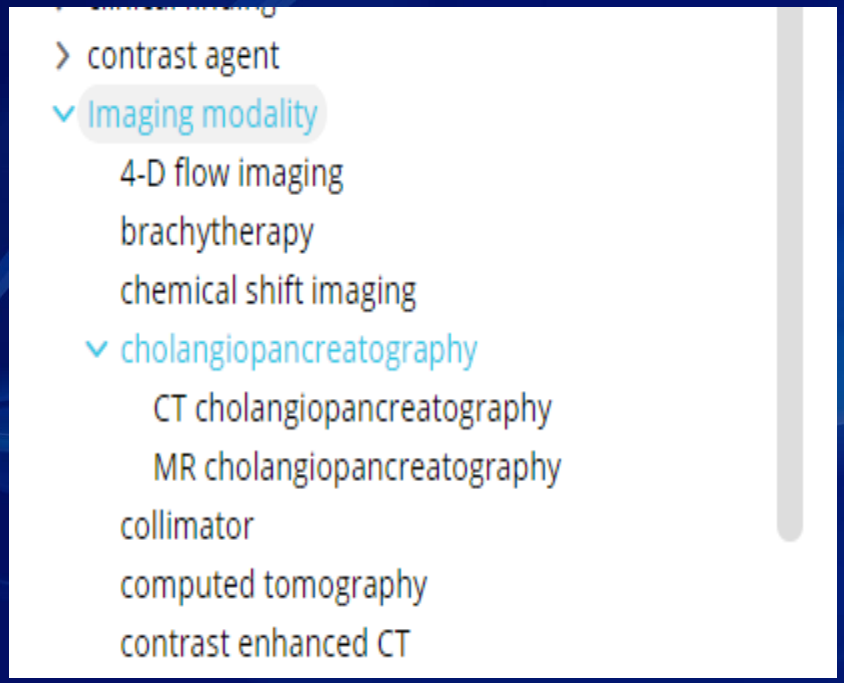


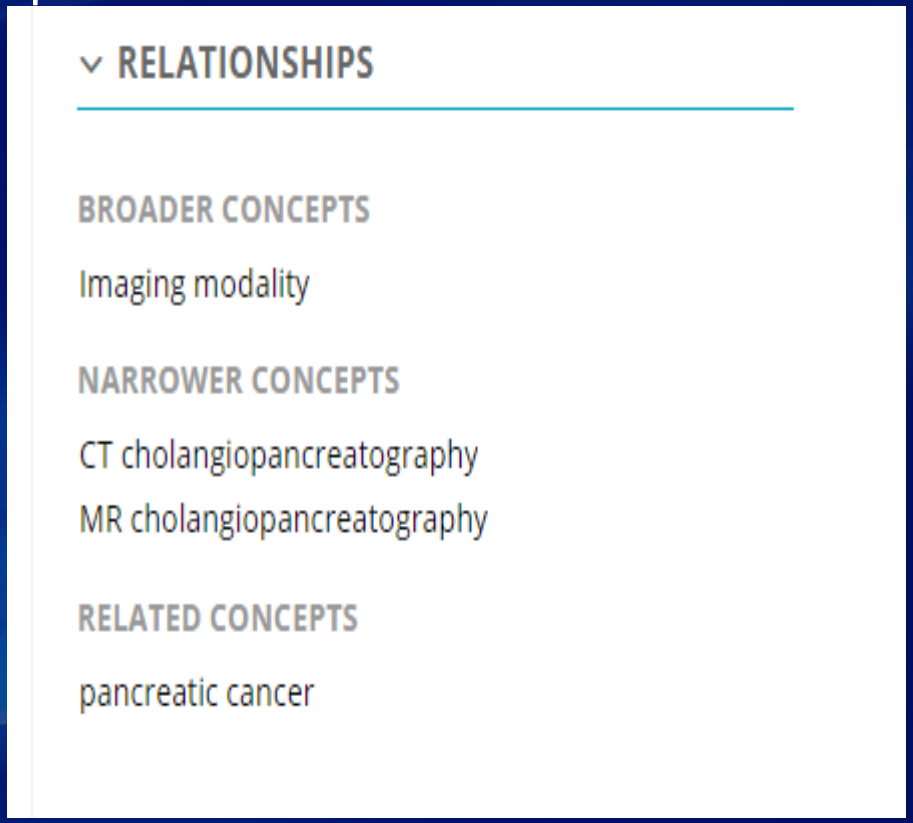
Content Sharing: Rights-managed content delivery technology

- Launch partner: SpringerNature
- SharedIt:
  - Distribution of rights-managed links to content
  - View-only full text access to content
- 3 forms of sharing
  - Peer to Peer
  - Media Referrals
  - Author

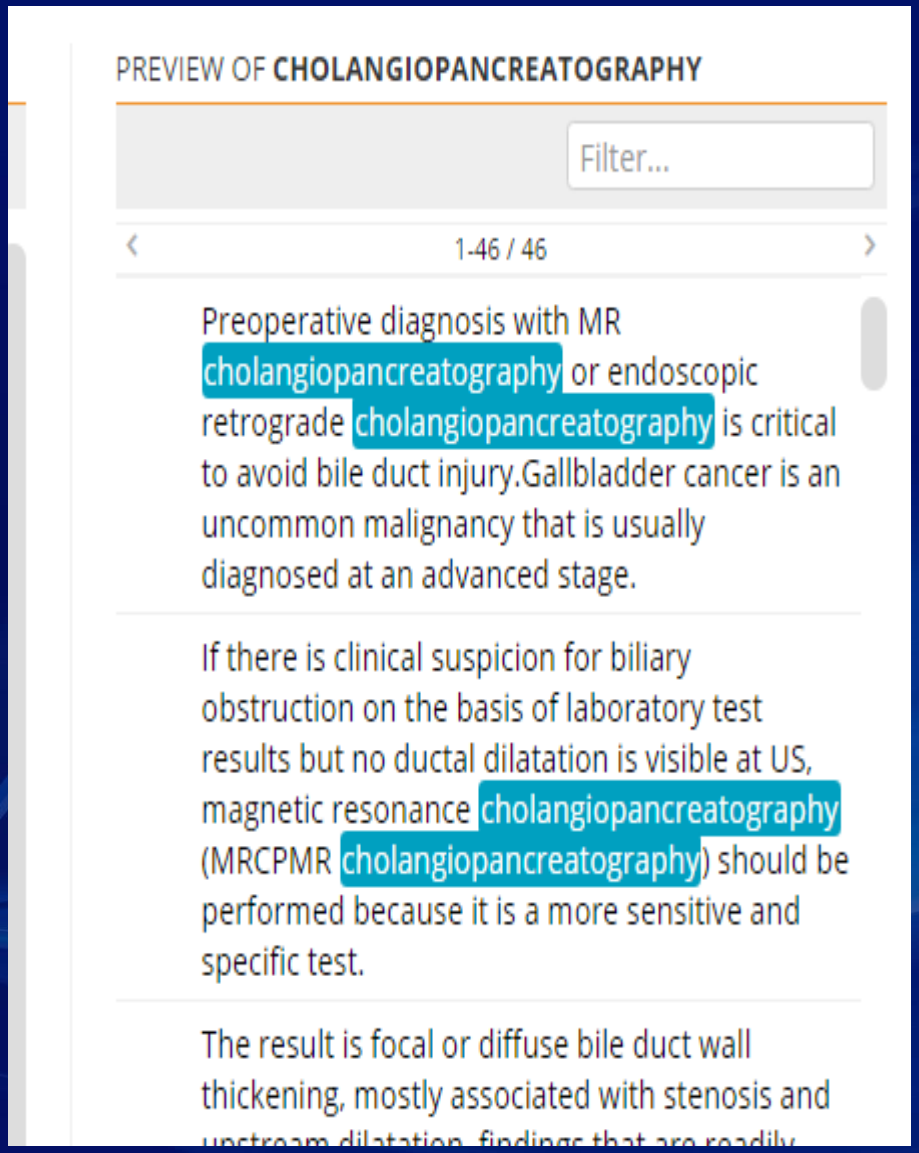
Radlex: Related Content

Creating connections and relationships between terms/concepts.





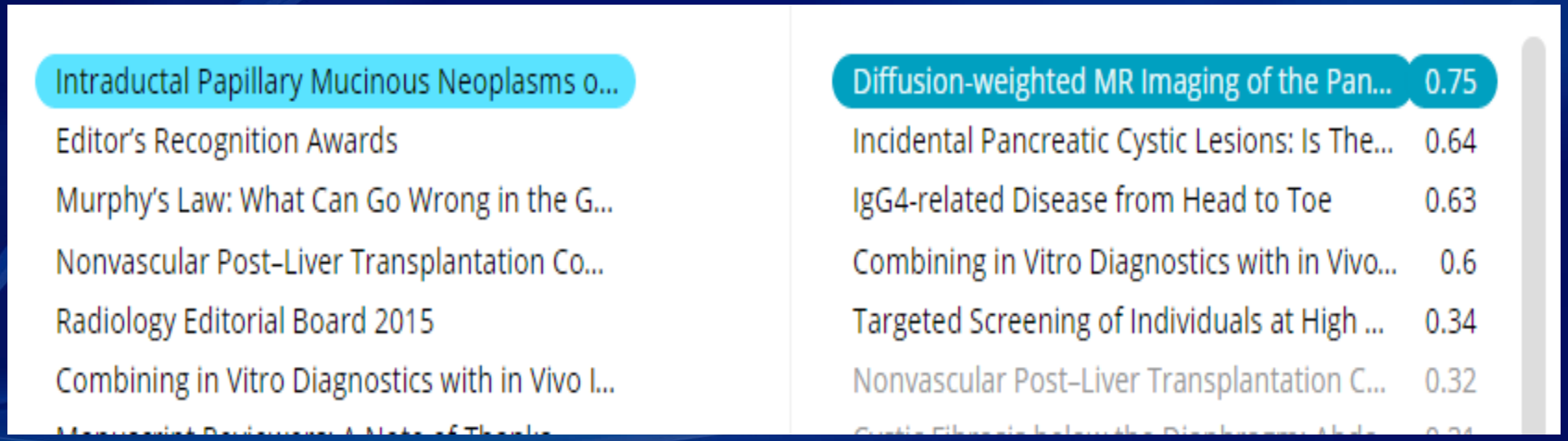
Radlex: Related Content



Seeing the terms and concepts in context.

Radlex: Related Content

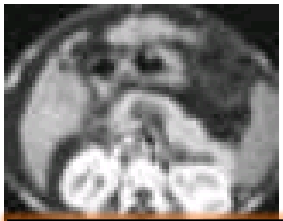
Comparing articles in the test environment.



Radlex: Related Content

Comparing “fingerprints.”

Thesaurus_Concept			
MR cholangiopancreatography	1.607	MR cholangiopancreatography	1.448
main pancreatic duct	1.575	main pancreatic duct	1.412
fast spin-echo	1.494	fast spin-echo	1.458
contrast enhanced MR	1.478	contrast enhanced MR	1.373
pancreatic duct	1.429	pancreatic duct	1.26
magnetic resonance imaging	1.337	magnetic resonance imaging	1.321
pancreatitis	1.275	pancreatitis	1.232
diffusion-weighted imaging	1.244	diffusion-weighted imaging	1.274



41-year-old woman with cirrhosis and pseudothrombosis of portal vein and superior mesenteric vein Arterial phase helical CT scan near pancreas shows apparent superior mesenteric .

Anatomic Location
Findings
⊞ Visual Features
⊞ Morphologic and Physiologic Proce
⊞ Diagnoses and Etiologies
⊞ Congenital and Developmental D
⊞ Infectious and Inflammatory Disea
⊞ Neoplastic Disease
⊞ Chronic Infiltrative Lung Dise
⊞ interstitial pneumonias
acute interstital pneumonia
desquamative interstitial pne
usual interstitial pneumonia
cryptogenic organizing p
respiratory broncholitis-asso
nonspecific interstitial pneum
lymphocytic interstitial pneumonia
⊞ pneumoconioses

⊞ Findings
⊞ Visual Features
⊞ Finding Related Fe
⊞ Modality Related
⊞ Radioopacity
⊞ Attenuation
⊞ Density
⊞ Echogenicity
⊞ Signal Character
⊞ Flow Characteris
⊞ Enhancement
⊞ Pattern
⊞ Artifacts
⊞ Morphologic and Phy
⊞ Diagnoses and Etiolo

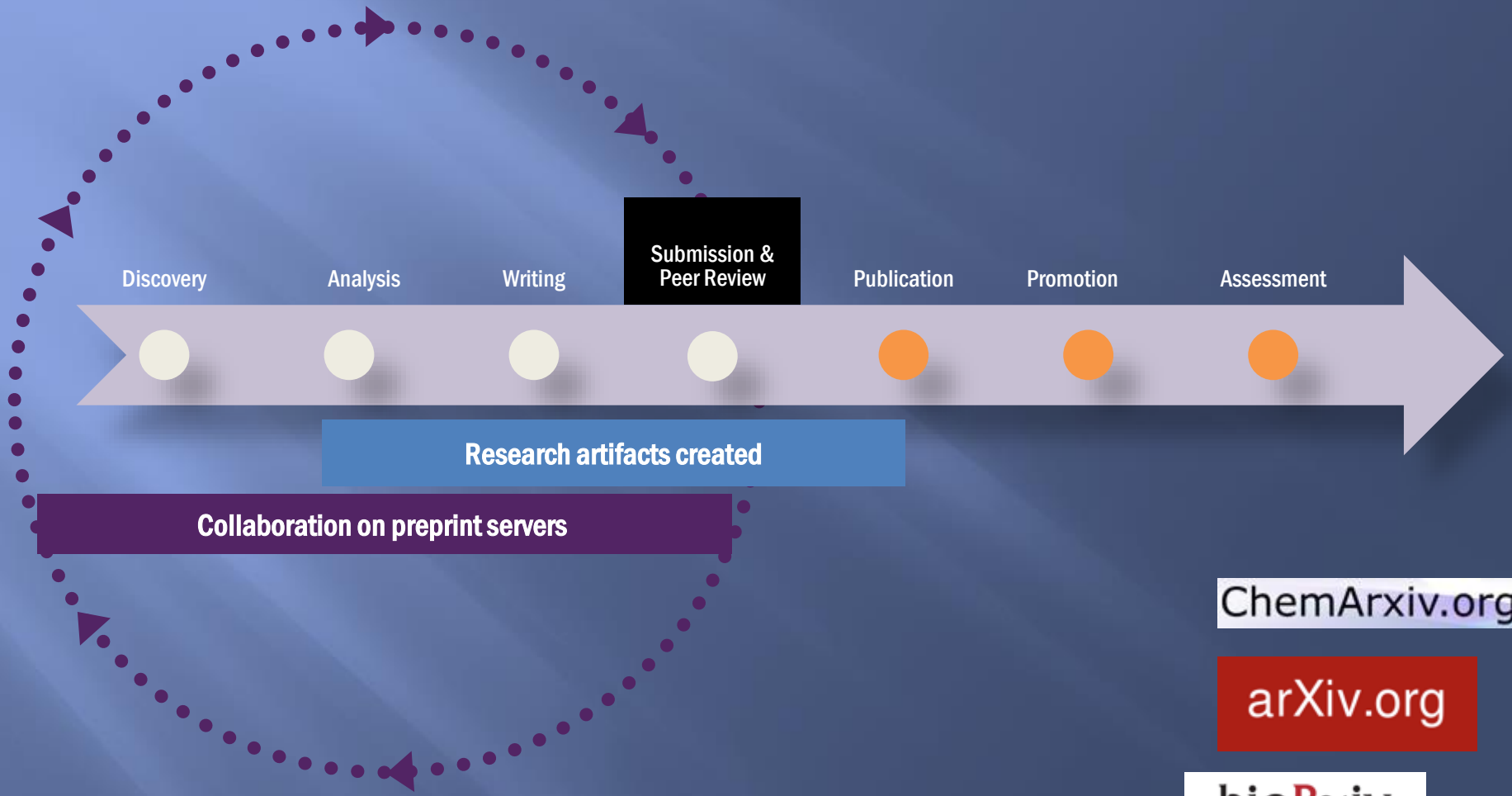
⊞ Image Acquisition/Processing/Display
Examination Type
⊞ Technique
Imaging equipment manufacturer
Imaging equipment model
Imaging parameters
Radiation dose
Date and time of image acquisition
Contrast agents administered
Medications
Patient pos
⊞ Image Proces
⊞ Observer Cor
Location on the

Axes of indexi
- *Anatomy*
- *Disease*
- *Image findin*
- *Modality*

Questions – New Ways of Presenting Information

- Have you personally used : visual abstracts, audio podcasts? video podcasts? Symantec enrichment? Enhanced Content delivery, e.g. ReadCube?
- Which have been most valuable to you?

Preprint Servers



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bioRxiv beta
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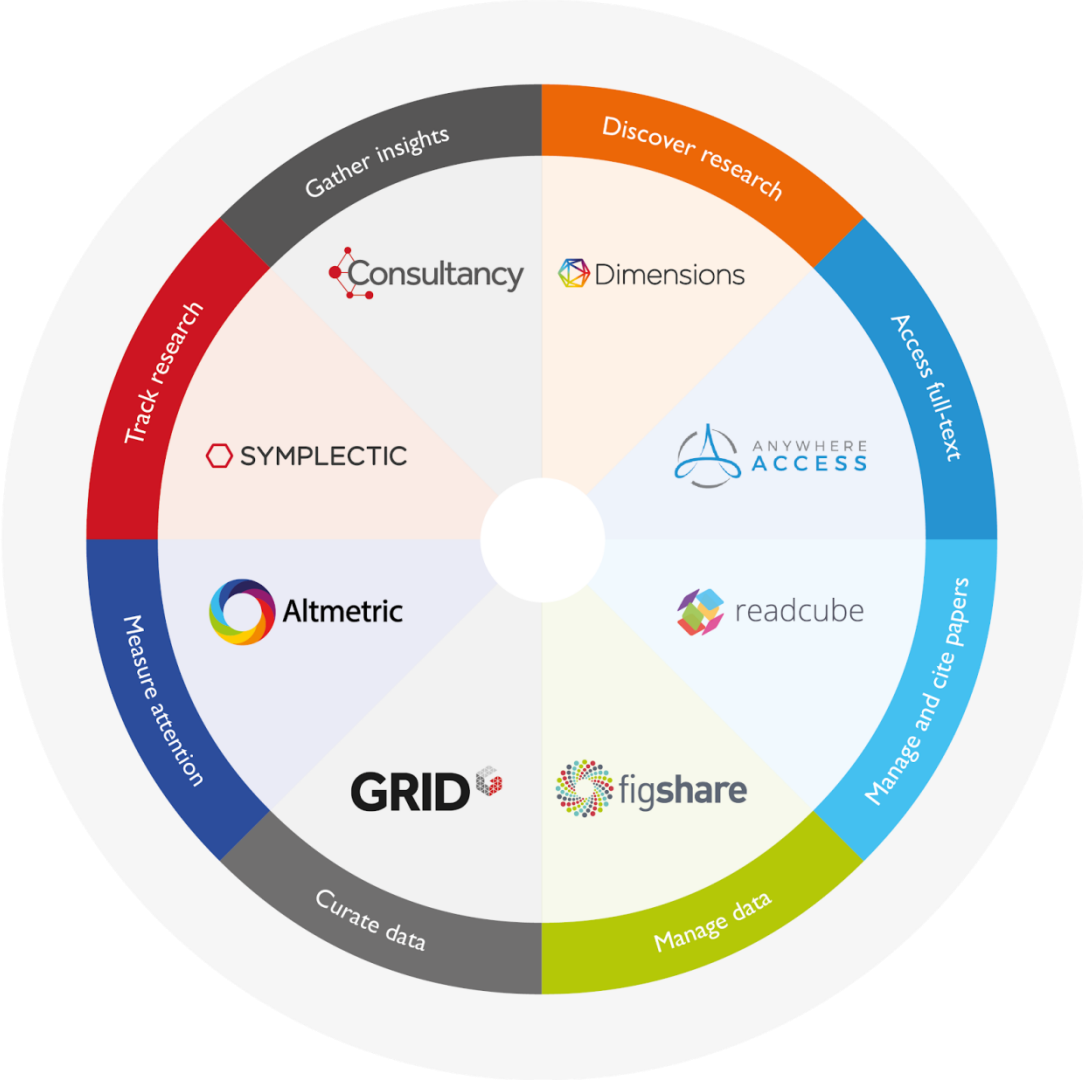
Our tools offer support at every stage of the research cycle



Scholarly Collaboration Networks

RG

Academia.edu
share research

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Research Gate (RG)

- Social networking site for scientists and investigators 15 Million users
- Share papers, ask questions, find collaborators
- Member user profiles may include research outputs including, papers, proposals, software, and data
- Aggressive solicitation of user profiles, may make unsolicited profiles
- RG criticized for failing to provide safeguards against predatory publishing

SciHub

WILEY

Sci Hub

- Founded in 2011 by Kazakhstani graduate student in response to paywalls
- Pirate website – disregards Copyright
- In 2016, 200,000 requests per day
- 62 million papers in collection
- 69% of all published papers
- Under repeated litigation by publishers and professional societies. URL keeps changing

Preprint Servers, Collaboration Networks - Questions

- What has been your experience with scholarly collaboration networks such as Research Gate, Mendeley, Academia.edu?
- What about preprint such as servers ChemArxiv.org, arXiv.org, bioRxiv?
- Any problems with RG or SciHub?

Data Sharing

IOM Report: Journals Should

- Require authors of primary and secondary analyses of Clinical trial Data to:
  - Document that they have submitted a data sharing plan meeting WHO requirements
  - Commit to releasing analytic data within a specified time period
  - Manuscripts derived from existing data sets must cite appropriately

ICMJE Statement

- There is an ethical obligation to responsibly share data generated by **interventional clinical trials** because participants have put themselves at risk.
- Clinical trial defined as as any research project that prospectively assigns people or a group of people to an intervention, with or without concurrent comparison or control groups, to study the cause-and-effect relationship between a health-related intervention *and* a health outcome.

Data sharing statements must indicate:

- Whether individual de-identified participant data (including data dictionaries) will be shared
- What data in particular will be shared
- Whether additional, related documents will be available (e.g., study protocol, statistical analysis plan)
- When the data will become available and for how long
- By what access criteria data will be shared (including with whom, for what types of analyses, and by what mechanism)

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Related

OPEN ACCESS POLICY FAQ

The Bill & Melinda Gates Foundation is committed to information sharing and transparency. We believe that published research resulting from our funding should be promptly and broadly disseminated. We have adopted an Open Access policy that enables the unrestricted access and reuse of all peer-reviewed published research funded, in whole or in part, by the foundation, including any underlying data sets.

As of January 1, 2015 our Open Access policy will be effective for all new agreements. During a two-year transition period, publishers will be permitted to apply up to a 12 month embargo period on the accessibility of the publication and its underlying data sets. This embargo period will no longer be allowed after January 1, 2017.

Our Open Access policy contains the following elements:

1. **Publications Are Discoverable and Accessible Online.** Publications will be deposited in a specified repository(s) with proper tagging of metadata.

2. **Publication Will Be On "Open Access" Terms.** All publications shall be published under the Creative Commons Attribution 4.0 Generic License (CC BY 4.0) or an equivalent license. This will permit all users of the publication to copy and redistribute the material in any medium or format and transform and build upon the material, including for any purpose (including commercial) without further permission or fees being required.

3. **Foundation Will Pay Necessary Fees.** The foundation would pay reasonable fees required by a publisher to effect publication on these terms.

4. **Publications Will Be Accessible and Open Immediately.** All publications shall be available immediately upon their publication, without any embargo period. An embargo period is the period during which the publisher will require a subscription or the payment of a fee to gain access to the publication. We are, however, providing a transition period of up to two years from the effective date of the policy (or until January 1, 2017). During the transition period, the foundation will allow publications in journals that provide up to a 12-month embargo period.

5. **Data Underlying Published Research Results Will Be Accessible and Open Immediately.** The foundation will require that data underlying the published research results be immediately accessible and open. This too is subject to the transition period and a 12-month embargo may be applied.

Email questions to openaccess@gatesfoundation.org


Can we cure all diseases
in our children's life
me?
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Chan Zuckerberg Meta

- Artificial Intelligence tool that:
- Analyzes millions of papers
- Helps scientists make connections in data
- Find collaborators
- Identifies and predicts impact (citations)
- BMJ, AMA, PNAS, Oxford University Press, PLOS all participating

Data Repositories

The Dataverse Project

figshare

GitHub

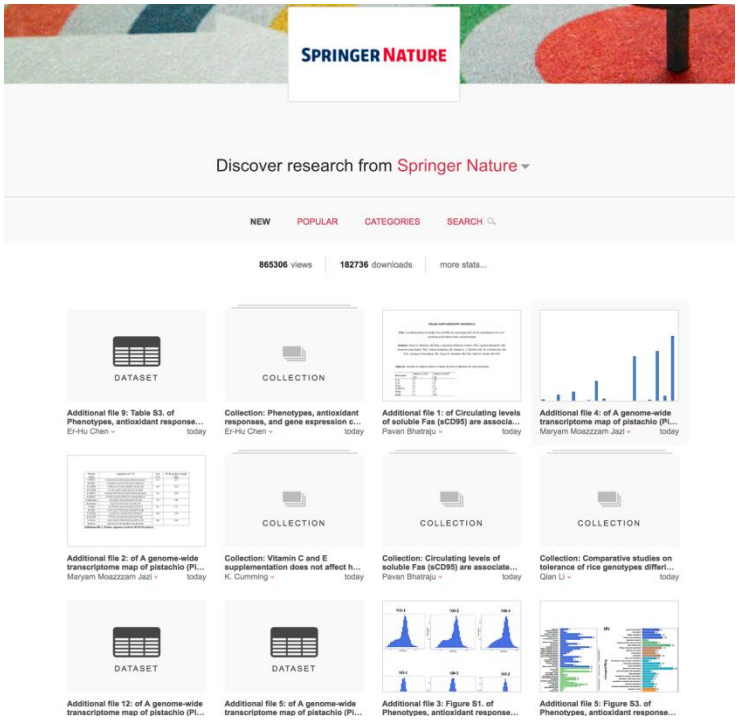
DRYAD


figshare

What is figshare

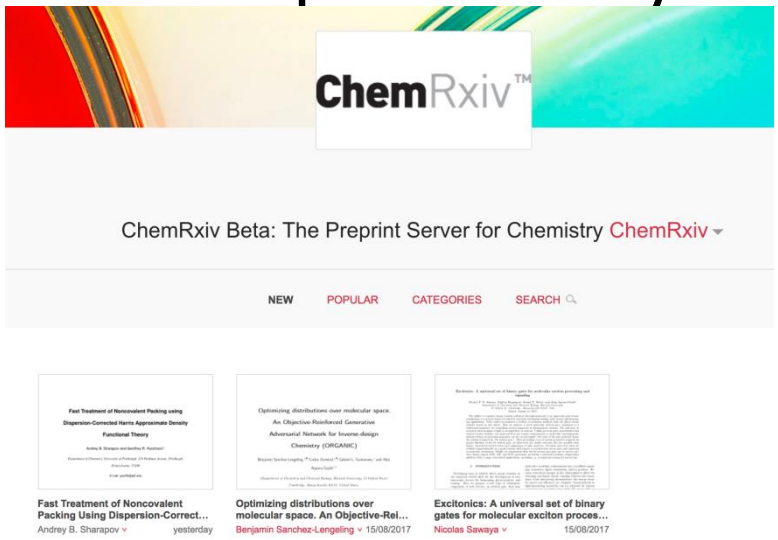
figshare is a cloud-based repository for data and publication management.

- figshare for publishers - portal and/or widget for supplementary material
- figshare for institutions - portal for data across the institution

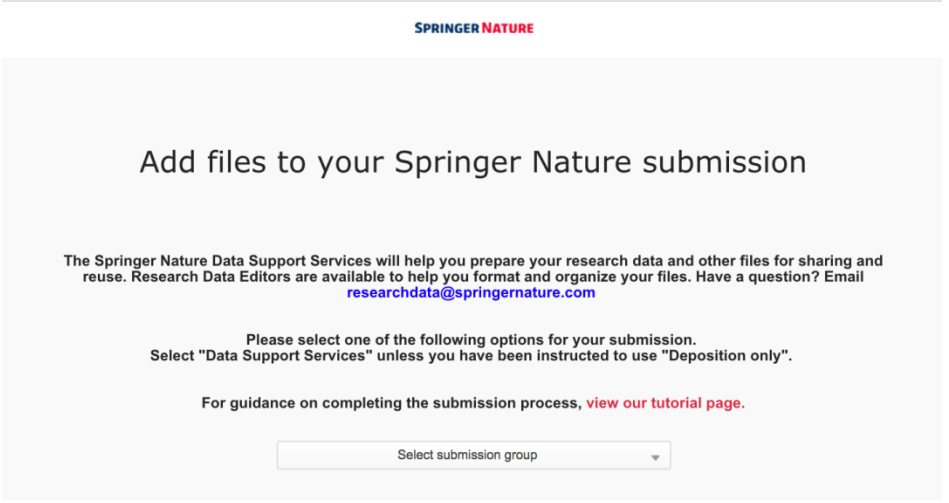


What are Publishers using figshare for?

- Chemrxiv - ACS have developed a beta preprint server powered by



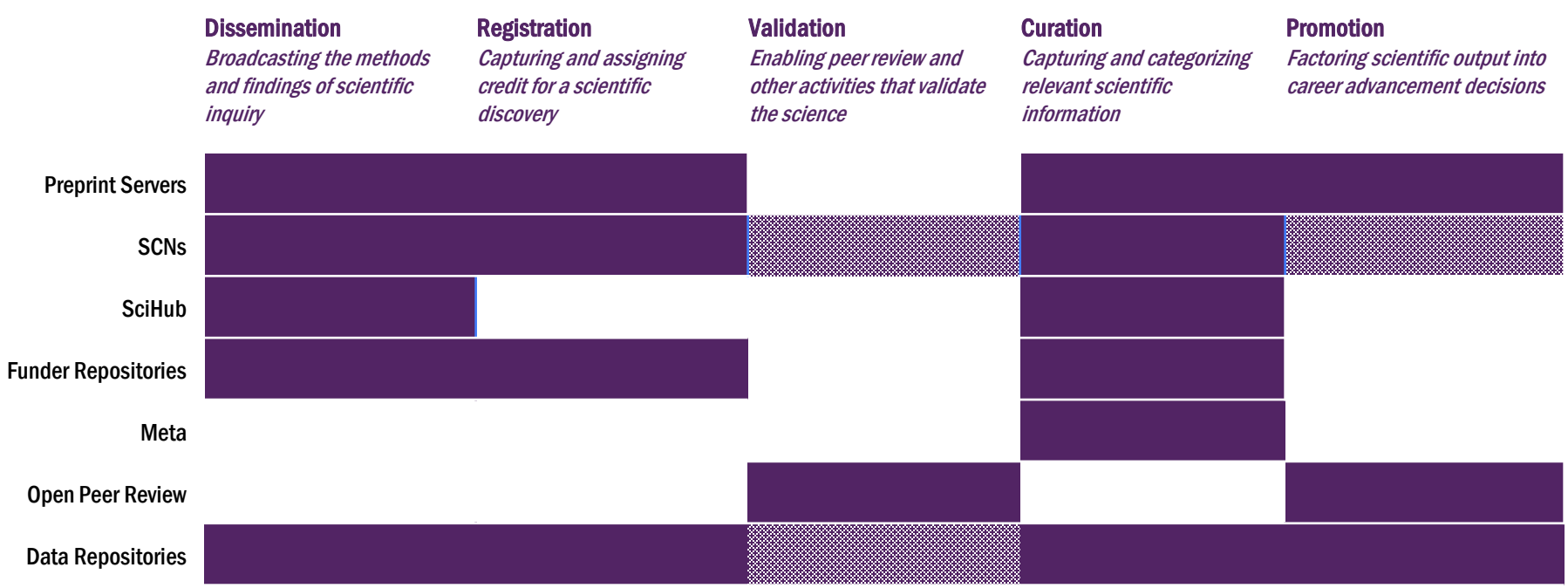
- Data Support Service - Springer Nature are piloting a service to offer support for supplementary data



Data Sharing Questions

- What has been your experience in trying to share data through one of these repositories?
- What worked?
- What were the problems?

	Dissemination	Registration	Validation	Curation	Promotion
	Broadcasting the methods and findings of scientific inquiry	*Capturing and assigning credit for a scientific discovery*	*Enabling peer review and other activities that validate the science*	*Capturing and categorizing relevant scientific information*	*Factoring scientific output into career advancement decisions*


Dissemination
Broadcasting the methods and findings of scientific inquiry
Registration
Capturing and assigning credit for a scientific discovery
Validation
Enabling peer review and other activities that validate the science
Curation
Capturing and categorizing relevant scientific information
Promotion
Factoring scientific output into career advancement decisions
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SCNs
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ReadCube for Researchers

ReadCube is an innovative reference management platform used by millions of researchers worldwide.

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Efforts to Create Standards for Reporting

- **STARD**

Standards for Reporting Diagnostic Accuracy
(Diagnostic Performance)

- **CONSORT**

Consolidated Standards of Reporting Trials
(Randomized Control Trials)

- **PRISMA**

Preferred Reporting Items for Systematic Reviews and Meta-Analyses www.prisma-statement.org

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Author Toolkit

We have put together this toolkit to aid in submission to our journal. Much of the information here will be helpful in design of studies, as well as in their submission.

Before the Study Begins
When Writing the Research Manuscript
When Revising a Manuscript after Provisional Acceptance
Proof Process

Before the Study Begins

Authorship. We follow ICMJE guidelines on authorship. To be listed as an author, an individual should have made substantial contributions to all four categories established by the ICMJE: *(a)* "conception and design, or acquisition of data, or analysis and interpretation of data," *(b)* "drafting the article or revising it critically for important intellectual content," *(c)* "final approval of the version to be published," and *(d)* "agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved." Please also see our editorial on authorship. A full description of recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals is given by the International Committee of Medical Journal Editors. For the perspective of *Radiology* see editorial by Drs. Kressel and Dixon.

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When Writing the Research Manuscript

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When Revising a Manuscript after Provisional Acceptance

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If a manuscript is provisionally accepted, we will send you comments from the editor/deputy editor along with comments from the reviewers. In most cases, we will also send a manuscript with changes tracked.

Carefully review each of the suggested edits in the manuscript. Accept those with which you agree. You do not need to respond in detail to those changes that you accept that do not require further edits. Once you have accepted the changes use the document as the basis for your revision and for further edits.

If you reject a comment or if a comment requires explanation, then please annotate your responses to justify your action.

Reviewer comments are given for the most part as written by the reviewers. The editor/deputy editor will mark with an * those comments that require a response. Please be sure to indicate in your revised draft any deleted or changed text using the track changes option in Word.

In addition, in a separate document, detail the response to each of the comments with * in the acceptance letter.

Submit an annotated and clean copy of the manuscript, along with your detailed response letter.

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Proof Process

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Once your manuscript has been edited for publication, you will be sent a link to the proofs. If you need to edit the pdf proofs, please see this list of **tips for editing pdfs.**

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Essential resources for writing and publishing health research

Library for health research reporting

The Library contains a comprehensive searchable database of reporting guidelines and also links to other resources relevant to research reporting.

- Search for reporting guidelines
- Not sure which reporting guideline to use?
- Reporting guidelines under development
- Visit the library for more resources

Reporting guidelines for main study types

Randomised trials	CONSORT	Extensions	Other
Observational studies	STROBE	Extensions	Other
Systematic reviews	PRISMA	Extensions	Other
Case reports	CARE		Other
Qualitative research	SRQR	COREQ	Other
Diagnostic / prognostic studies	STARD	TRIPOD	Other
Quality improvement studies	SQUIRE		Other
Economic evaluations	CHEERS		Other
Animal pre-clinical studies	ARRIVE		Other
Study protocols	SPIRIT	PRISMA-P	Other

See all 259 reporting guidelines

Recommendations for writing trial protocols

Toolkits

The EQUATOR Network works to improve the reliability and value of medical research literature by promoting transparent and accurate reporting of research studies.

Our Toolkits support different user groups, including:

EQUATOR highlights

3/03/2015 - Unique new EQUATOR course for health researchers

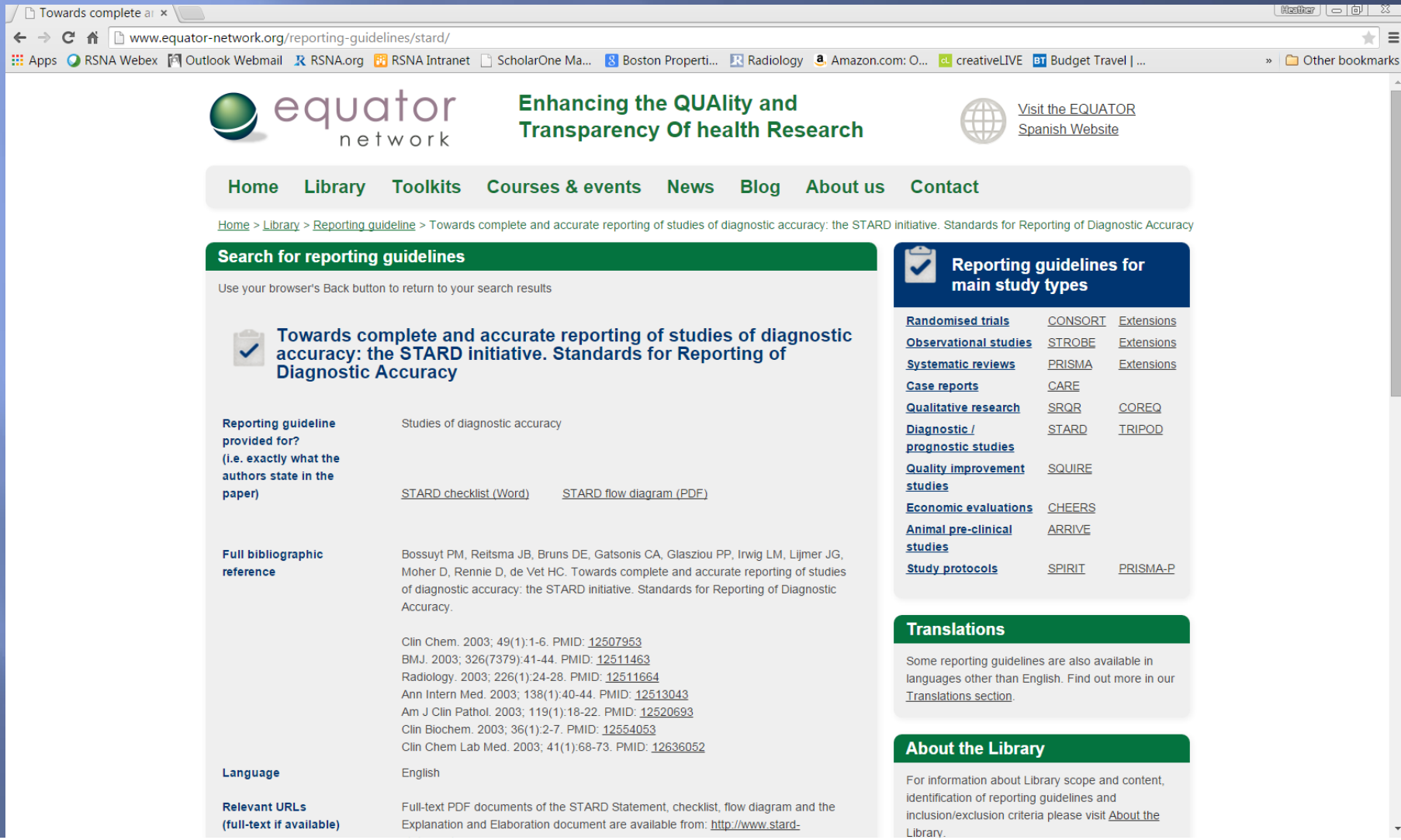
UK EQUATOR Centre Publication School, 6th-10th July 2015, St Anne's College, Oxford UK Fit for purpose: The secrets of success in writing, publishing, and disseminating research articles It is

News

Professor Doug Altman awarded BMJ Lifetime Achievement Award
7/05/2015

BioMed Central to publish new journal: Research Integrity and Peer Review
2/04/2015

DIET@NET partnership on a quest to improve the quality and comparability of dietary data in epidemiological and clinical studies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Full bibliographic reference
Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA, Glasziou PP, Irwig LM, Lijmer JG, Moher D, Rennie D, de Vet HC. Towards complete and accurate reporting of studies of diagnostic accuracy: the STARD initiative. Standards for Reporting of Diagnostic Accuracy.
Clin Chem. 2003; 49(1):1-6. PMID: 12507953
BMJ. 2003; 326(7379):41-44. PMID: 12511463
Radiology. 2003; 226(1):24-28. PMID: 12511664
Ann Intern Med. 2003; 138(1):40-44. PMID: 12513043
Am J Clin Pathol. 2003; 119(1):18-22. PMID: 12520693
Clin Biochem. 2003; 36(1):2-7. PMID: 12554053
Clin Chem Lab Med. 2003; 41(1):68-73. PMID: 12636052
Language
English
Relevant URLs (full-text if available)
Full-text PDF documents of the STARD Statement, checklist, flow diagram and the Explanation and Elaboration document are available from: http://www.stard-
Reporting guidelines for main study types
Randomised trials CONSORT Extensions
Observational studies STROBE Extensions
Systematic reviews PRISMA Extensions
Case reports CARE
Qualitative research SRQR COREQ
Diagnostic / prognostic studies STARD TRIPOD
Quality improvement studies SQUIRE
Economic evaluations CHEERS
Animal pre-clinical studies ARRIVE
Study protocols SPIRIT PRISMA-P
Translations
Some reporting guidelines are also available in languages other than English. Find out more in our Translations section.
About the Library
For information about Library scope and content, identification of reporting guidelines and inclusion/exclusion criteria please visit About the Library.

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Abbreviation:
STARD = Standards for Reporting of Diagnostic Accuracy

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Towards Complete and Accurate Reporting of Studies of Diagnostic Accuracy: The STARD Initiative[1]

OBJECTIVE: To improve the accuracy and completeness of reporting of studies of diagnostic accuracy, to allow readers to assess the potential for bias in the study and to evaluate its generalisability.

METHODS: The Standards for Reporting of Diagnostic Accuracy (STARD) steering group searched the literature to identify publications on the appropriate conduct and reporting of diagnostic studies and extracted potential items into an extensive list. Researchers, editors, and members of professional organisations shortened this list during a two-day consensus meeting with the goal of developing a checklist and a generic flow diagram for studies of diagnostic accuracy.

RESULTS: The search for published guidelines regarding diagnostic research yielded 33 previously published checklists, from which we extracted a list of 75 potential items. At the consensus meeting, participants shortened the list to a 25-item checklist, using evidence, whenever available. A prototypical flow diagram provides information about the method of patient recruitment, the order of test execution and the numbers of patients undergoing the test under evaluation, the reference standard or both.

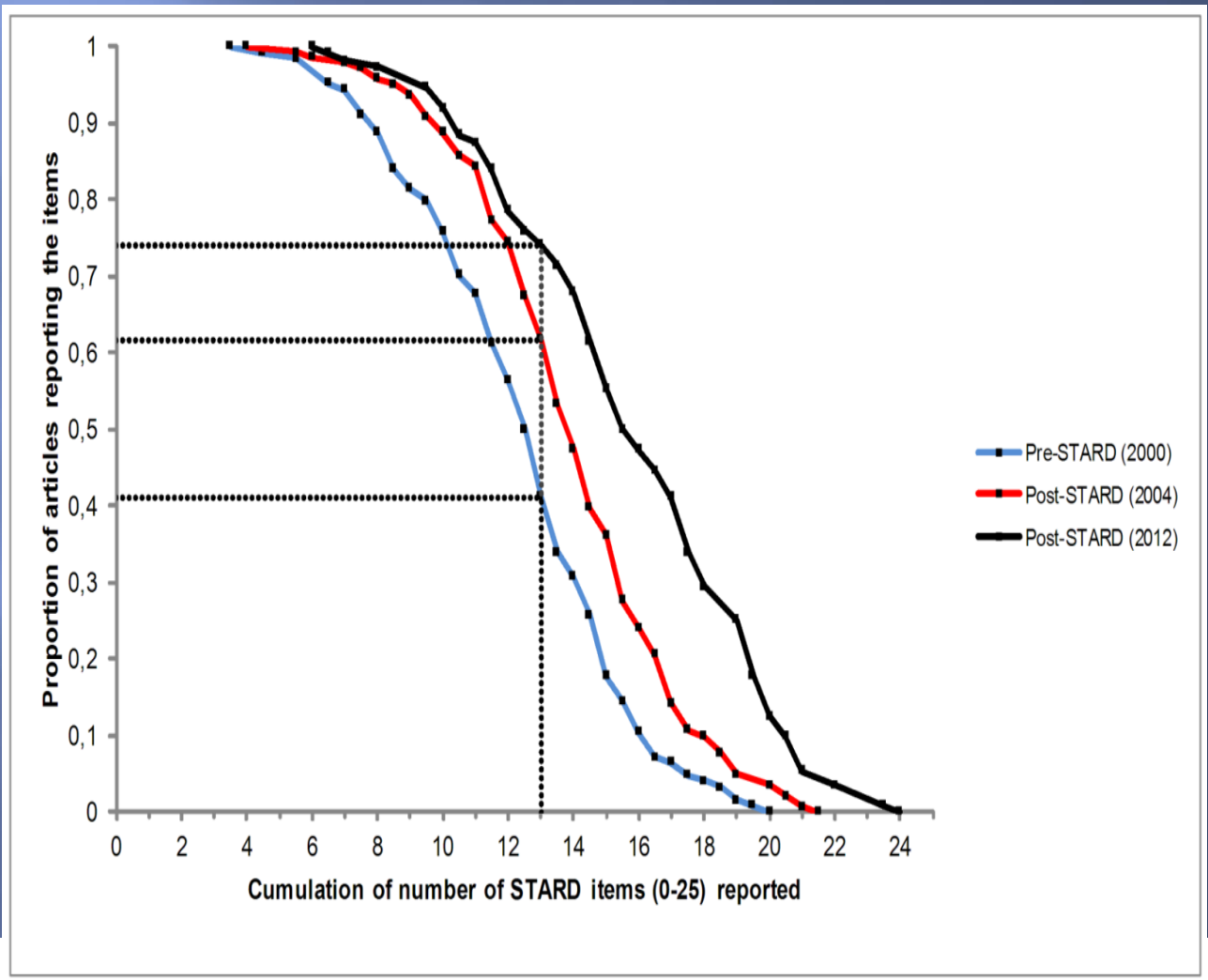
CONCLUSIONS: Evaluation of research depends on complete and accurate reporting. If medical journals adopt the checklist and the flow diagram, the quality of reporting of studies of diagnostic accuracy should improve to the advantage of the clinicians, researchers, reviewers, journals, and the public.

How well are studies reported?

112 Diagnostic accuracy studies published in 2012

Item	Reported
Inclusion and exclusion criteria	65%
Participant sampling: consecutive vs. random vs. convenience	55%
Blinding of index test readers	58%
Baseline characteristics (age, sex, presenting symptoms)	61%

Adherence to STARD



Radiology

ORIGINAL RESEARCH ■ SPECIAL REPORT

STARD 2015: An Updated List of Essential Items for Reporting Diagnostic Accuracy Studies[1]

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Incomplete reporting has been identified as a major source of avoidable waste in biomedical research. Essential information is often not provided in study reports, impeding the identification, critical appraisal, and replication of studies. To improve the quality of reporting of diagnostic accuracy studies, the Standards for Reporting of Diagnostic Accuracy Studies (STARD) statement was developed. Here we present STARD 2015, an updated list of 30 essential items that should be included in every report of a diagnostic accuracy study. This update incorpo-

Table 1

The STARD 2015 List

Section and Topic	No.	Item
TITLE OR ABSTRACT		
	1	Identification as a study of diagnostic accuracy using at least one measure of accuracy (such as sensitivity, specificity, predictive values, or AUC)
ABSTRACT		
	2	Structured summary of study design, methods, results, and conclusions (for specific guidance, see STARD for Abstracts)
INTRODUCTION		
	3	Scientific and clinical background, including the intended use and clinical role of the index test
	4	Study objectives and hypotheses
METHODS		
Study design	5	Whether data collection was planned before the index test and reference standard were performed (prospective study) or after (retrospective study)
Participants	6	Eligibility criteria
	7	On what basis potentially eligible participants were identified (such as symptoms, results from previous tests, inclusion in registry)
	8	Where and when potentially eligible participants were identified (setting, location and dates)
	9	Whether participants formed a consecutive, random or convenience series
Test methods	10a	Index test, in sufficient detail to allow replication
	10b	Reference standard, in sufficient detail to allow replication
	11	Rationale for choosing the reference standard (if alternatives exist)
	12a	Definition of and rationale for test positivity cut-offs or result categories of the index test, distinguishing pre-specified from exploratory
	12b	Definition of and rationale for test positivity cut-offs or result categories of the reference standard, distinguishing pre-specified from exploratory
	13a	Whether clinical information and reference standard results were available to the performers/readers of the index test
	13b	Whether clinical information and index test results were available to the assessors of the reference standard
Analysis	14	Methods for estimating or comparing measures of diagnostic accuracy
	15	How indeterminate index test or reference standard results were handled
	16	How missing data on the index test and reference standard were handled
	17	Any analyses of variability in diagnostic accuracy, distinguishing pre-specified from exploratory
	18	Intended sample size and how it was determined
RESULTS		
Participants	19	Flow of participants, using a diagram
	20	Baseline demographic and clinical characteristics of participants
	21a	Distribution of severity of disease in those with the target condition
	21b	Distribution of alternative diagnoses in those without the target condition
	22	Time interval and any clinical interventions between index test and reference standard
Test results	23	Cross tabulation of the index test results (or their distribution) by the results of the reference standard
	24	Estimates of diagnostic accuracy and their precision (such as 95% confidence intervals)
	25	Any adverse events from performing the index test or the reference standard
DISCUSSION		
	26	Study limitations, including sources of potential bias, statistical uncertainty, and generalisability
	27	Implications for practice, including the intended use and clinical role of the index test
OTHER INFORMATION		
	28	Registration number and name of registry
	29	Where the full study protocol can be accessed
	30	Sources of funding and other support; role of funders

Pay attention to the guidelines and Checklists

30 item STARD Checklist is an excellent guide for any clinical manuscript!

Prospective or Retrospective

Inclusion/Exclusion Criteria

Sequential subject enrollment, Age and gender distribution.

Data acquisition: Who?, Experience?, Blinded?, Consensus?

Reference Standard=Index Test well defined, documented in the literature?

Data Interpretation: Who? (Any Industry Affiliation)

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Annals of Internal Medicine

EDITORIAL

Data Sharing Statements for Clinical Trials: A Requirement of the International Committee of Medical Journal Editors

Table. Examples of Data Sharing Statements That Fulfill These ICMJE Requirements*

	Example 1	Example 2	Example 3	Example 4
Will individual participant data be available (including data dictionaries)?	Yes	Yes	Yes	No
What data in particular will be shared?	All of the individual participant data collected during the trial, after deidentification.	Individual participant data that underlie the results reported in this article, after deidentification (text, tables, figures, and appendices).	Individual participant data that underlie the results reported in this article, after deidentification (text, tables, figures, and appendices).	Not available
What other documents will be available?	Study Protocol, Statistical Analysis Plan, Informed Consent Form, Clinical Study Report, Analytic Code	Study Protocol, Statistical Analysis Plan, Analytic Code	Study Protocol	Not available
When will data be available (start and end dates)?	Immediately following publication. No end date.	Beginning 3 months and ending 5 years following article publication.	Beginning 9 months and ending 36 months following article publication.	Not applicable
With whom?	Anyone who wishes to access the data.	Researchers who provide a methodologically sound proposal.	Investigators whose proposed use of the data has been approved by an independent review committee ("learned intermediary") identified for this purpose.	Not applicable
For what types of analyses?	Any purpose.	To achieve aims in the approved proposal.	For individual participant data meta-analysis.	Not applicable
By what mechanism will data be made available?	Data are available indefinitely at (*Link to be included*).	Proposals should be directed to xxx@yyy. To gain access, data requestors will need to sign a data access agreement. Data are available for 5 years at a third party website (*Link to be included*).	Proposals may be submitted up to 36 months following article publication. After 36 months the data will be available in our University's data warehouse but without investigator support other than deposited metadata. Information regarding submitting proposals and accessing data may be found at (*Link to be provided*).	Not applicable

* These examples are meant to illustrate a range of, but not all, data sharing options.

To: Jeremy Nielsen
Subject: RSNA and the Chan Zuckerberg Initiative follow-up

Hi Jeremy,

As per my recent email, I am hoping to discuss the Chan Zuckerberg Initiative's interest in indexing RSNA content. We have a free literature discovery engine, Meta, that enables researchers around the world to stay on top of developments in their fields, explore landmark papers, and learn about important scientific advances in real time. Meta has built a knowledge graph that includes 30 million+ scholarly articles, and we would like to add your content to the mix.

As per my earlier message, publishers (including BMJ, the American Medical Association, PNAS, Taylor & Francis, Oxford University Press, Annual Reviews, PLOS, and dozens more) are working with the Chan Zuckerberg Initiative and Meta for several reasons. The first is that the Meta discovery engine delivers readers back to their sites. We do not serve the full text or pass our users off to file-sharing services. All traffic flows to you. Additionally, Meta will be providing a number of free, AI-driven tools to our publisher partners. These tools provide insights and predictions pertaining to manuscripts, articles, journals and individual entities in science. Finally, the Chan Zuckerberg Initiative and Meta are noncommercial entities with the sole aim of improving efficiencies in research discovery.

Please let me know if we can discuss making RSNA content discoverable in the Meta service. Thank you in advance for your reply.

Best Regards,
Greg

Greg Tananbaum
Strategic Partnerships, Meta

CHAN ZUCKERBERG INITIATIVE

Content Delivery: Enhanced PDF technology

- Started as collaboration with NPG
- Indexing of publisher's metadata
  - to create interactive PDFs
  - to enhance discoverability via Readcube's discovery tools

Annals of Internal Medicine EDITORIAL

Data Sharing Statements for Clinical Trials: A Requirement of the International Committee of Medical Journal Editors

ICMJE will require the following as conditions of consideration for publication of a clinical trial report in our member journals:

1. As of 1 July 2018 manuscripts submitted to ICMJE journals that report the results of clinical trials must contain a data sharing statement
2. Clinical trials that begin enrolling participants on or after 1 January 2019 must include a data sharing plan in the trial's registration.

The ICMJE's policy regarding trial registration is explained at www.icmje.org/recommendations/browse/publishing-and-editorial-issues/clinical-trial-registration.html.

If the data sharing plan changes after registration this should be reflected in the statement submitted and published with the manuscript, and updated in the registry record.

This article was published at Annals.org on 6 June 2017.