



An institutional dashboard for monitoring responsible research practices in biomedicine

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QUEST Center

Berlin Institute of Health at Charité

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QUEST: Quality Ethics Open Science Translation (est. 2017)

QUEST

abbr. Quality
Center of

QUEST Center for Responsible Research

The BIH QUEST Center develops and implements new approaches to ensure the trustworthiness, usefulness, and ethics of biomedical research.




QUEST Framework



February 11, 2020

COMMUNITY PAGE

Improving the trustworthiness, usefulness, and ethics of biomedical research through an innovative and comprehensive institutional initiative

Daniel Strech ^{1,2}, **Tracey Weissgerber** ^{1,2}, **Ulrich Dirnagl** ^{1,2*}, on behalf of QUEST Group^{1¶}

1 QUEST Center for Transforming Biomedical Research, Berlin Institute of Health (BIH), Berlin, Germany,

2 Charité - Universitätsmedizin Berlin, Berlin, Germany

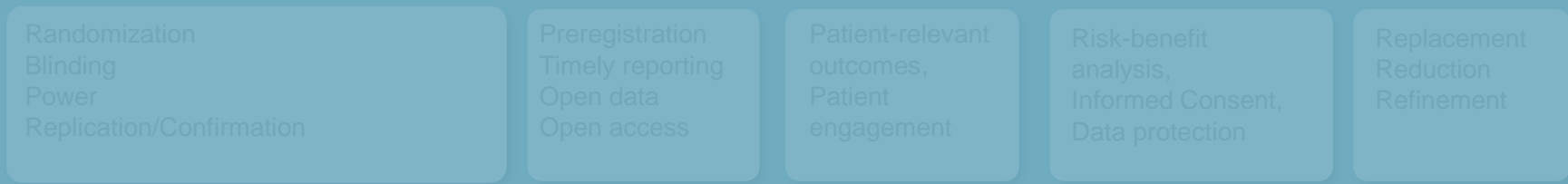
Meta-
Research
and
Bioethics

Principles



Vision

Processes (context specific and fair, examples below)

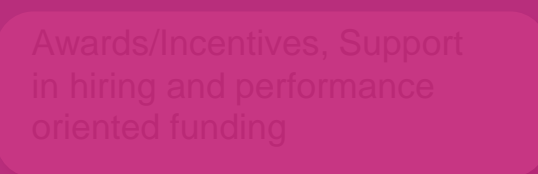


Mission

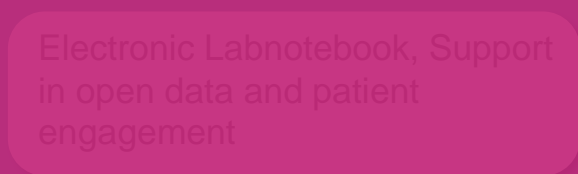
Competence/Capability



Motivation



Opportunity



QUEST institutional services (context specific and fair, examples below)

Meta-
Research
and
Bioethics

Principles

Responsible
Advancement of knowledge

Trustworthy
robust and rigorous

Useful
for scientists
transparent
for society
relevant

Ethical
for humans
for animals

Processes (context specific and fair, examples below)

Randomization
Blinding
Power
Replication/Confirmation

Preregistration
Timely reporting
Open data
Open access

Patient-relevant
outcomes,
Patient
engagement

Risk-benefit
analysis,
Informed Consent,
Data protection

Replacement
Reduction
Refinement

Mission

Competence/Capability

Motivation

Opportunity

Education, workshops,
workshops

Awards/Incentives, Support
in hiring and performance
oriented funding

Electronic Labnotebook, Support
in open data and patient
engagement

QUEST institutional services (context specific and fair, examples below)

Main foci of QUEST



Education and Training



Incentives and reward systems



Quality assurance



Open Science

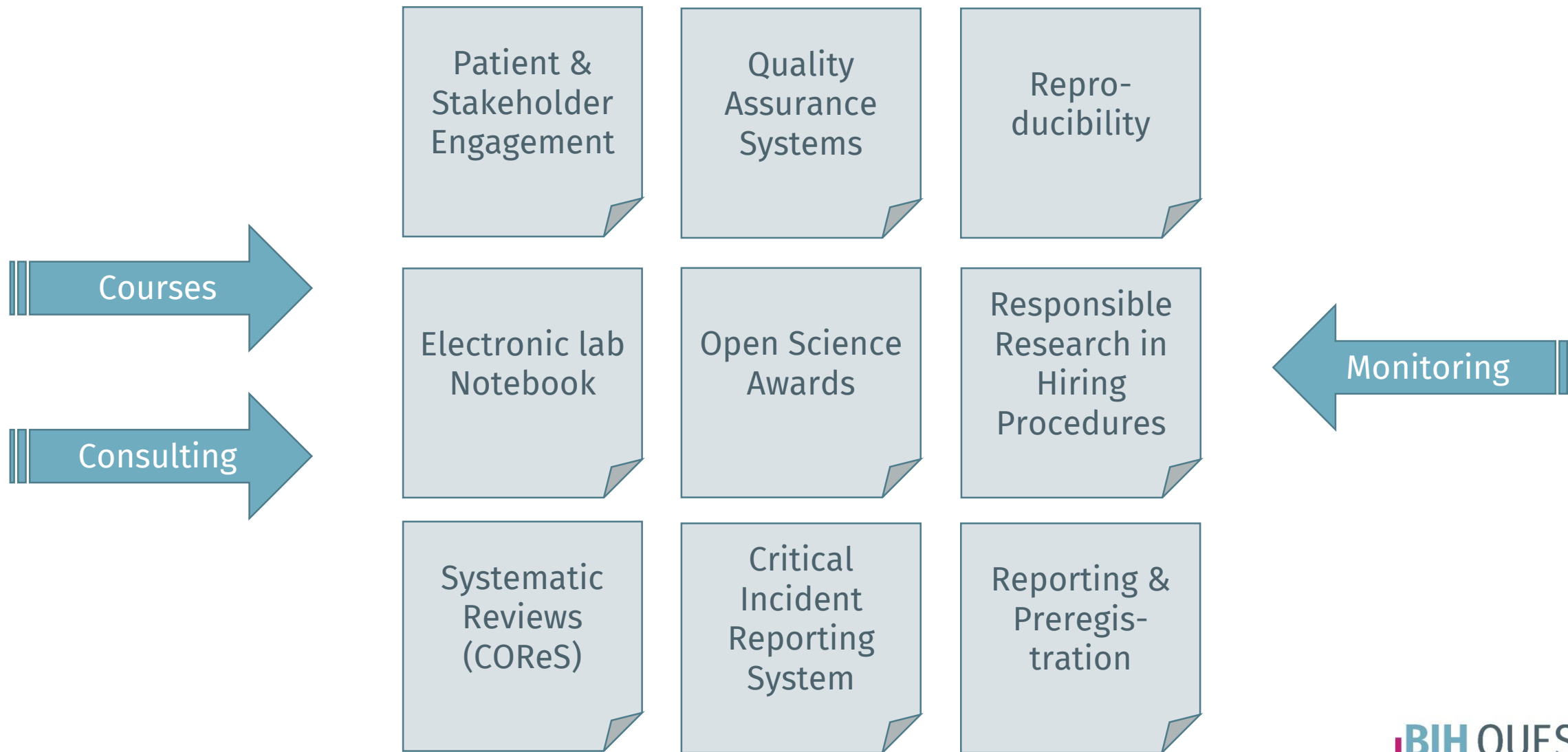


Patient & Stakeholder Engagement



Meta Research

QUEST Activities



Charité Dashboard on Responsible Research



Charité Dashboard on Responsible Research

Charité has committed itself to establish, promote and maintain a research environment which enhances the robustness of research and the reproducibility of results ([Rethinking Health - Charité 2030](#)).

This dashboard gives an overview of several metrics of open and responsible research at the Charité (including the Berlin Institute of Health). For more detailed information on the methods used to calculate those metrics, the dataset underlying the metrics, or resources to improve your own research practices, click one of the following buttons.

[See methods](#) [See resources](#) [See dataset](#)

This dashboard is a pilot that is still under development. More metrics will be added in the future.

For more detailed open access metrics you can visit the [Charité Open Access Dashboard](#) developed by the Charité Medical Library.

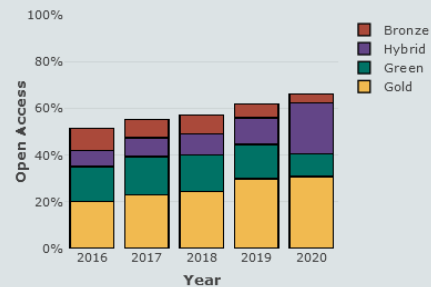
Open Science

Show absolute numbers Zoom in

Open Access

62 %

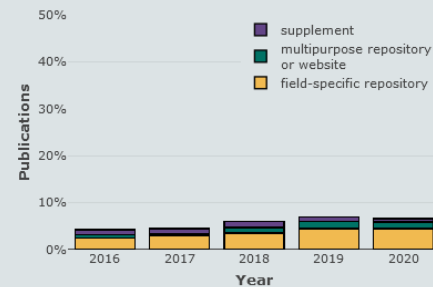
of publications were open access in 2020



Any Open Data

7 %

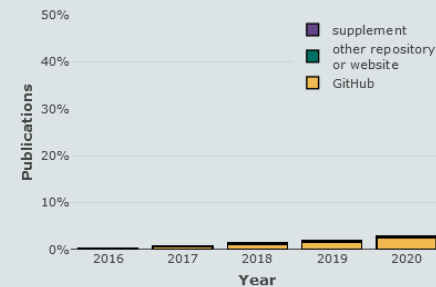
of publications mentioned sharing of data in 2020



Any Open Code

132

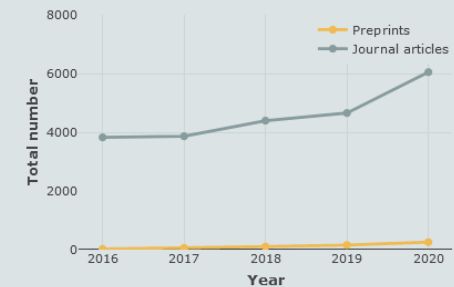
publications mentioned sharing of code in 2020



Preprints

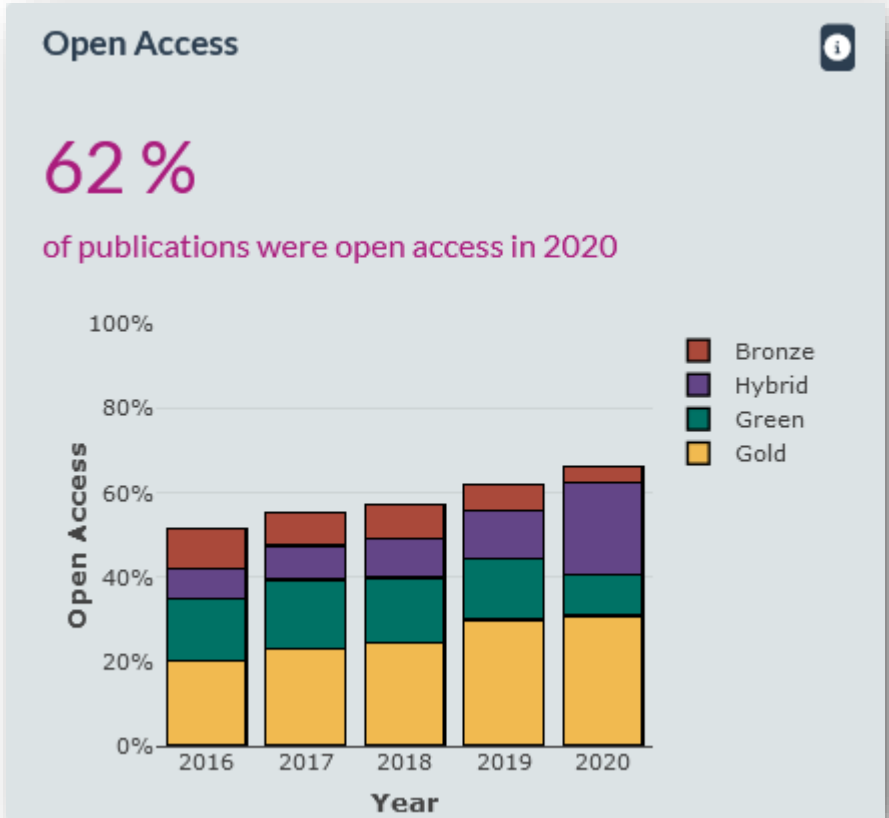
254

preprints published in 2020



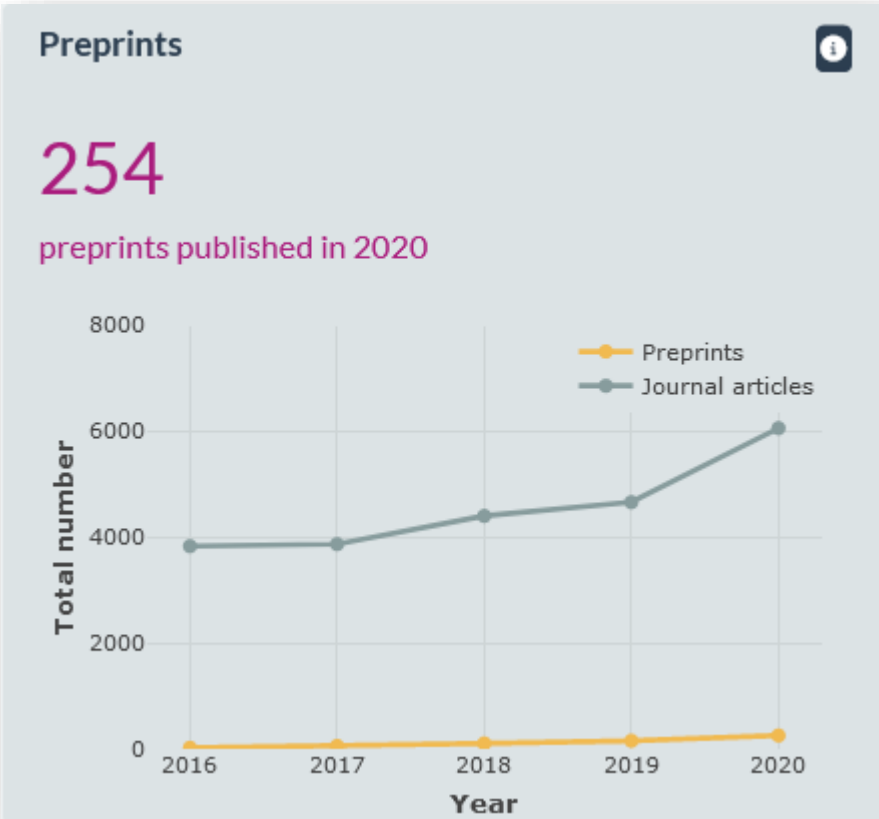
<https://quest-dashboard.charite.de/>

Charité Dashboard on Responsible Research



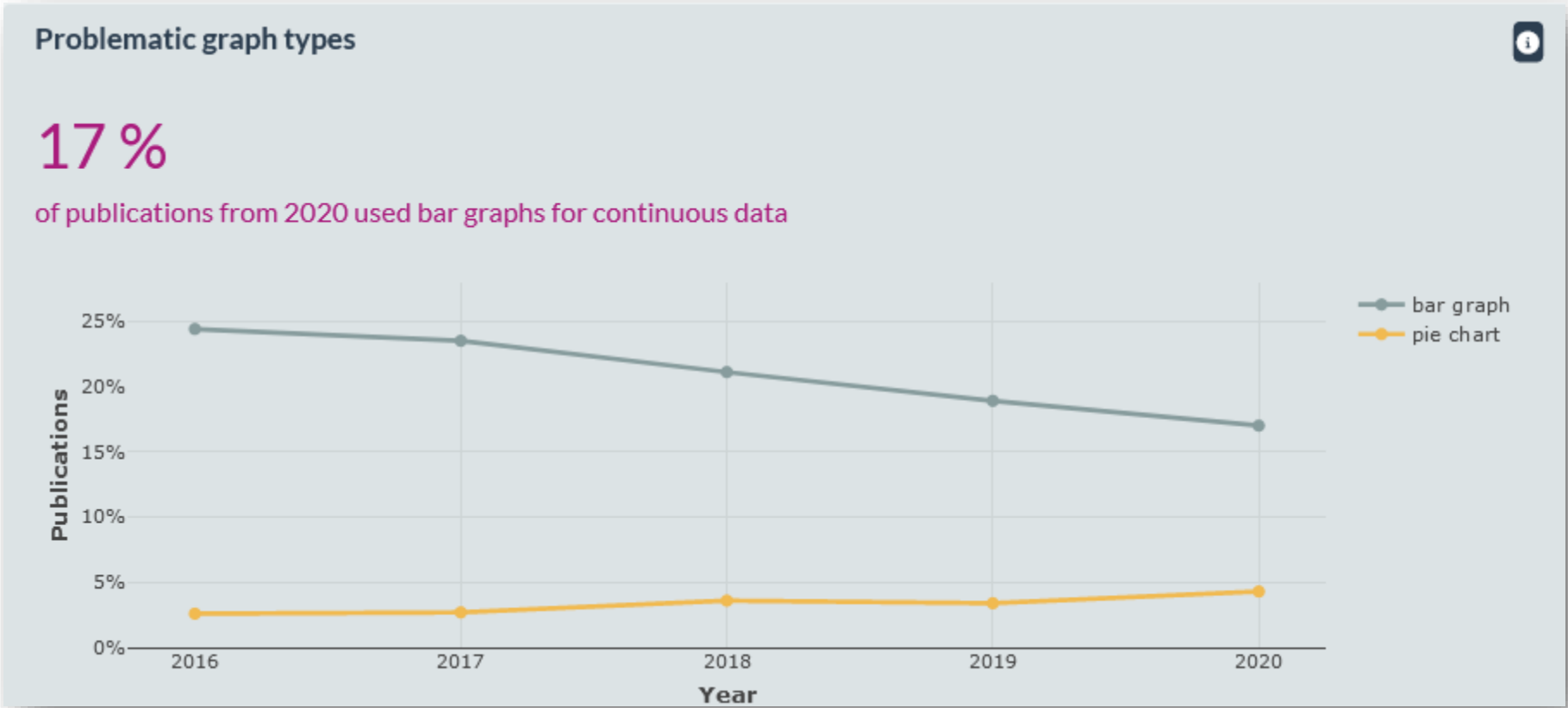
<https://quest-dashboard.charite.de/>

Charité Dashboard on Responsible Research



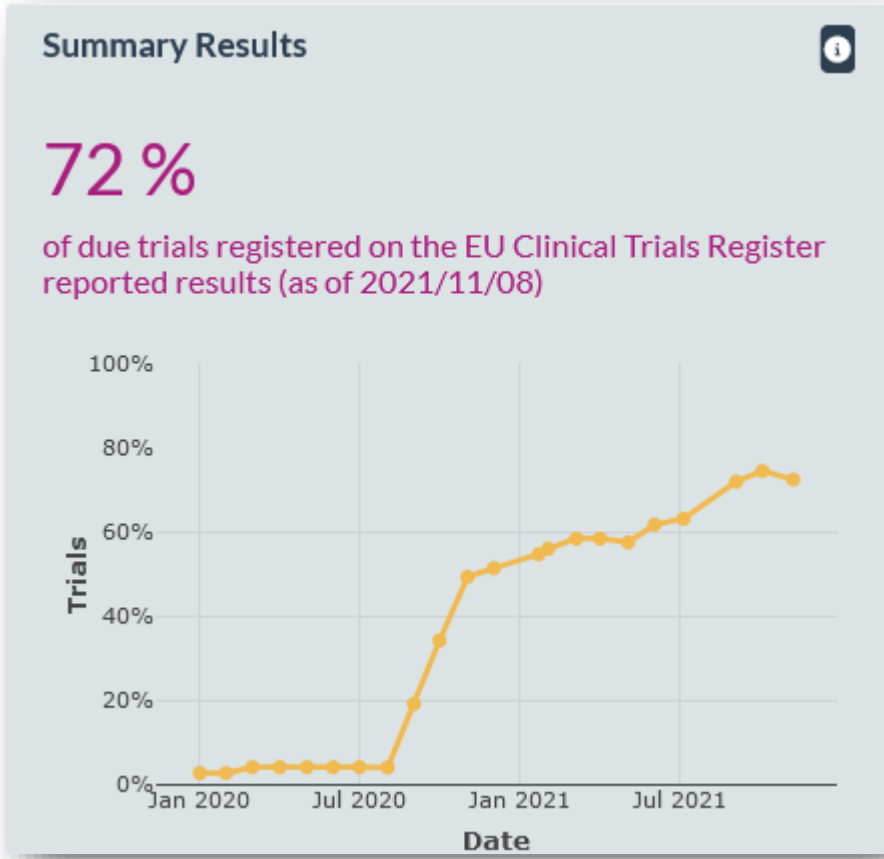
<https://quest-dashboard.charite.de/>

Charité Dashboard on Responsible Research



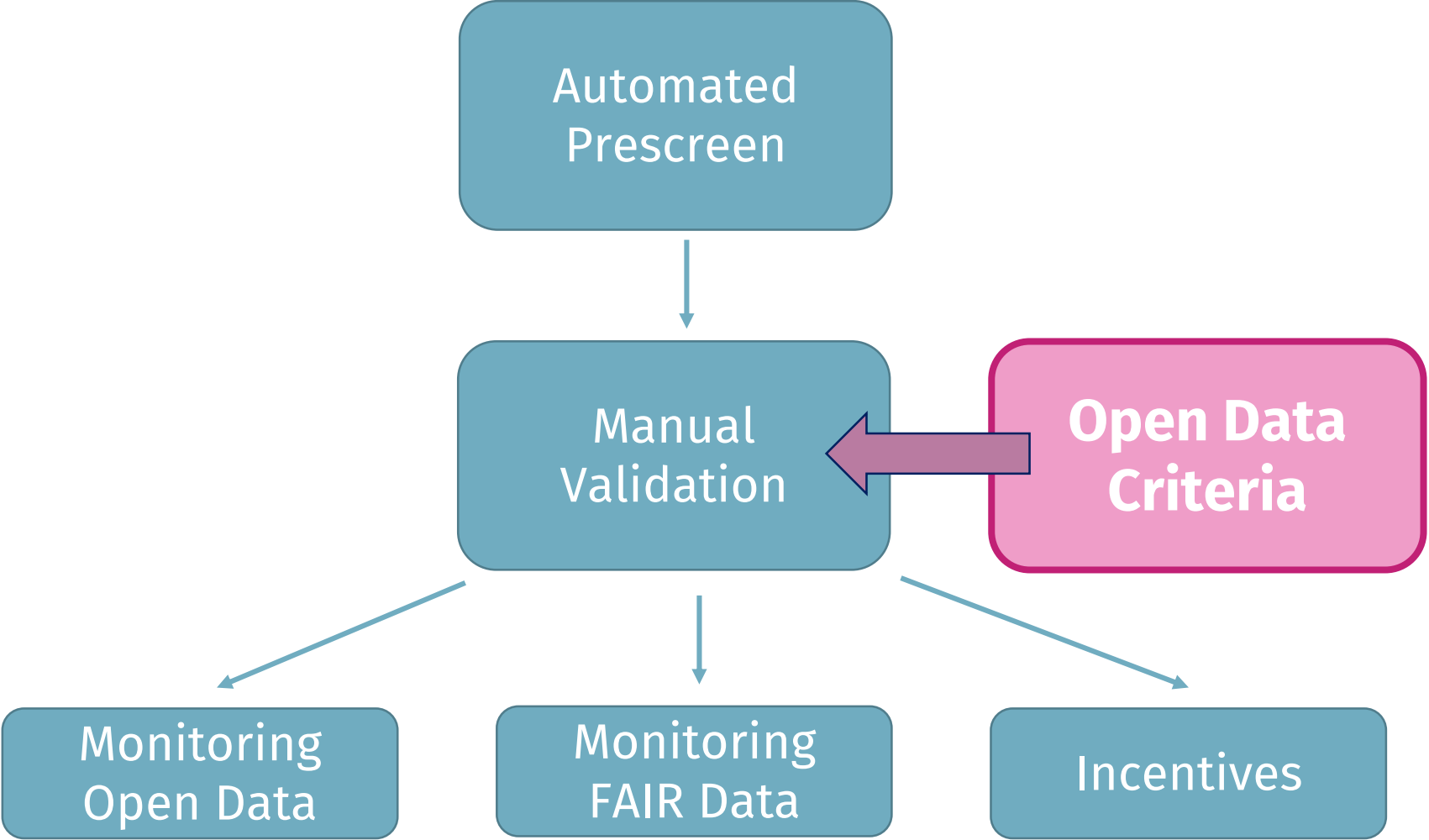
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Charité Dashboard on Responsible Research



<https://quest-dashboard.charite.de/>

Workflow for Open Data & data FAIRness



Automated Prescreen



Nico Riedel

ODDPub – Open Data Detection in Publications

- Open Source-Tool in R, developed by QUEST
- Detection of keywords in articles → Detection of Open Data (and Open Code)
- Open Data detected as a combination of terms concerning availability and location of deposit, as well as sometimes accession code
- Charité: ca. 5500 publications/year → ca. 770 Hits
- → Have to be screened manually

Riedel, N., Kip, M. and Bobrov, E., 2020. ODDPub – a Text-Mining Algorithm to Detect Data Sharing in Biomedical Publications. *Data Science Journal*, 19(1), p.42. DOI: <http://doi.org/10.5334/dsj-2020-042>

Manual Validation

Screening of Open Data Statements using Numbat

- Open Source Tool in PHP, originally developed for systematic reviews
- Adaptation for Open Data Screening
- → Detailed protocol of the complete workflow in protocols.io

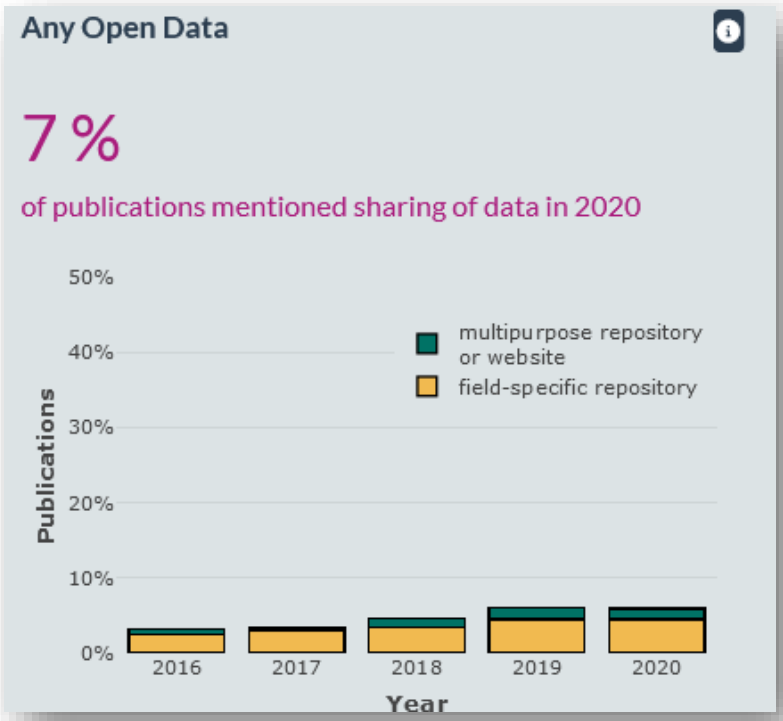


Anastasiia
Iarkaeva



The screenshot shows a web interface for a protocol on protocols.io. At the top, there is a search bar and navigation links for 'Features' and 'Plans'. The main content area features a protocol card with a clipboard icon, the title 'Semi-automated extraction of information on open datasets mentioned in articles', and a dropdown arrow. Below the title, the authors are listed: 'Anastasiia Iarkaeva¹, Evgeny Bobrov¹, Jan Taubitz¹, Benjamin Gregory Carlisle¹, Nico Riedel¹'. The affiliation is given as '¹Berlin Institute of Health at Charité (BIH), QUEST Center for Responsible Research'. The card includes a date 'May 12, 2022', a 'Bookmark' button, a 'Run' button, and a 'Copy / Fork' button. On the right side of the card, there is a '3 Works for me' button, a 'Share' button, and the DOI link 'dx.doi.org/10.17504/protocols.io.q26g74p39gwz/v1'. Below the DOI, the user 'evgeny.bobrov' is shown with a gold star icon.

Charité Dashboard on Responsible Research : Open Data



<https://quest-dashboard.charite.de/>

Charité Dashboard on Responsible Research: FAIR data



Jan Taubitz

Charité Metrics Dashboard Start page **FAIR data** Methods/Resources/Data - About

Data Reusability (FAIR data)

Good data management is a key factor in generating, reproducing, and reusing scientific knowledge. The [FAIR principles](#) provide guidance to increase the findability, accessibility, interoperability, and reusability of research data objects. As a result of the increase in volume, complexity, and creation speed of data the FAIR principles emphasize the machine-actionability of data reuse

The FAIR data metrics in this dashboard indicate how well research data objects shared by Charité researchers and the repositories used to deposit them conform with the FAIR principles.

It is important that the FAIR metrics are not to be understood as evaluations, but rather as assistance. This is true at the repository level and even more so at the publication level. Individual researchers have limited influence on the FAIRness of research data objects, which is primarily determined by the data repositories.

Click for colorblind-friendly charts

FAIR assessment

Select repository type or repository

All repositories

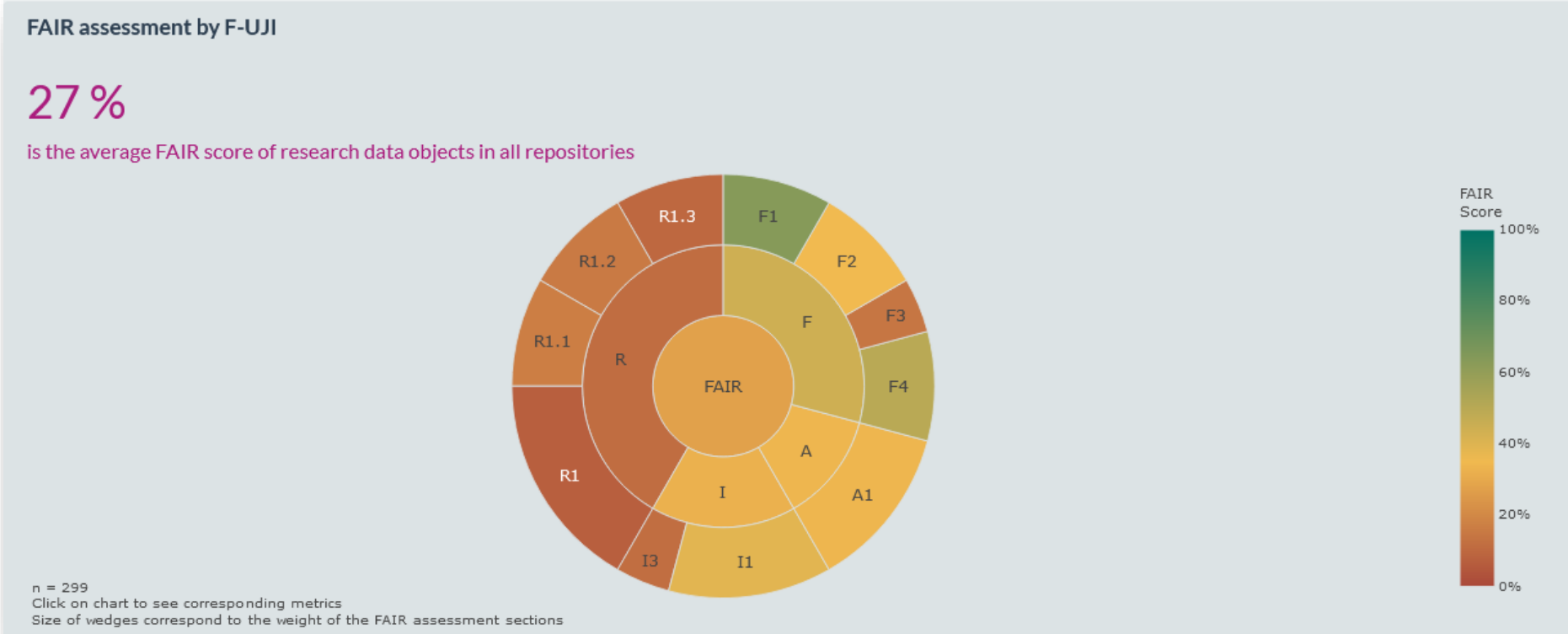
FAIR assessment by F-UJI

27 %
is the average FAIR score of research data objects in all repositories

Section	Sub-section	FAIR Score (approx.)
R (Reusability)	R1	10%
	R1.1	10%
	R1.2	10%
	R1.3	10%
F (Findability)	F1	80%
	F2	40%
	F3	20%
	F4	40%
I (Interoperability)	I1	40%
	I2	40%
	I3	40%

n = 299
Click on chart to see corresponding metrics
Size of wedges correspond to the weight of the FAIR assessment sections

Charité Dashboard on Responsible Research: FAIR data

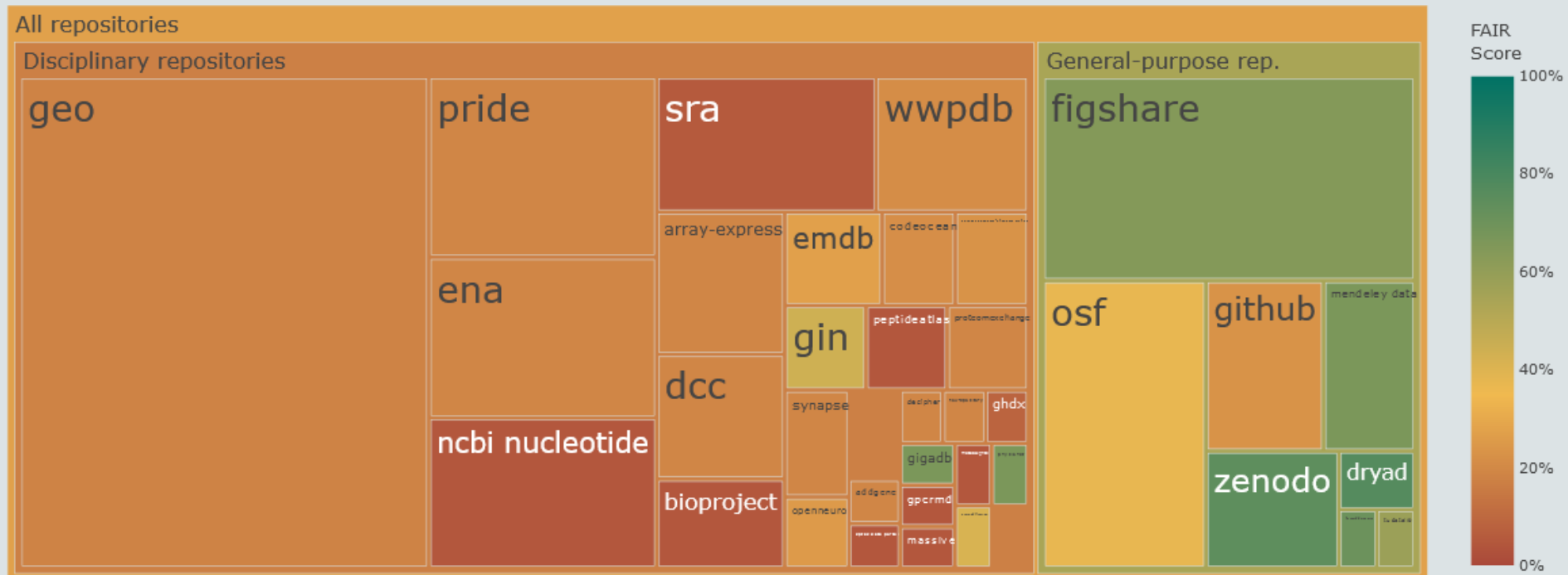


Charité Dashboard on Responsible Research: FAIR data

FAIR scores by repositories

27 %

is the average FAIR score of research data objects



Thank you!

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quest.bihealth.org/

quest-dashboard.charite.de

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QUEST – Quality | Ethics | Open Science | Translation

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