

BIH QUEST CENTER FOR TRANSFORMING BIOMEDICAL RESEARCH

QUALITY | ETHICS | OPEN SCIENCE | TRANSLATION

**Paving the way to robust and reproducible
research**

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QUEST abbr. Quality, Ethics, Open Science, Translation:
Center of the Berlin Institute of Health.
quester (also questor) noun [C] see quest.

.... to increase the value of biomedical research at the Berlin Institute of Health (i.e. Charité and Max Delbrück Center) and beyond.

person ready to question whether a data point or a sample should really be excluded from analysis can help to cut down on cherry-picking, conscious or not. A couple of senior scientists have set up workflows that avoid having a single researcher in charge of preparing images or collecting results. Dozens of respondents reported steps to



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FEATURE

INVESTIGATION

Oxford vaccine study highlights pick and mix approach to preclinical research

Researchers were disappointed when a clinical trial of a new tuberculosis vaccine failed to show benefit, but should it have gone ahead when animal studies had already raised doubts and what does it mean for future research? **Deborah Cohen** investigates

Deborah Cohen *associate editor, The BMJ*

“Our meta-analysis suggests an apparent lack of evidence of efficacy in animals in data collected before the start of the recent phase 2b trial in South African children that enrolled children between 15 July 2009 and 4 May 2011,” the authors wrote.

“SR of 8 studies showed no efficacy of the vaccine...”

QUEST Approaches



Open Science



Incentives



Education



Stakeholder
Engagement



Quality
Assurance



Meta Research

QUEST-Center

Founding Director: Prof. Ulrich Dirnagl

Research

Transforming
biomedical research

Bioethics of
translation

Meta-research

Visiting fellows

Office

Infrastructures
& Services

Projects

Services & Initiatives



Electronic lab
notebook



Awards
Open Science, NULL,
Preregistration



Protected
writing time



Courses (scientific
programming,
Open Data)



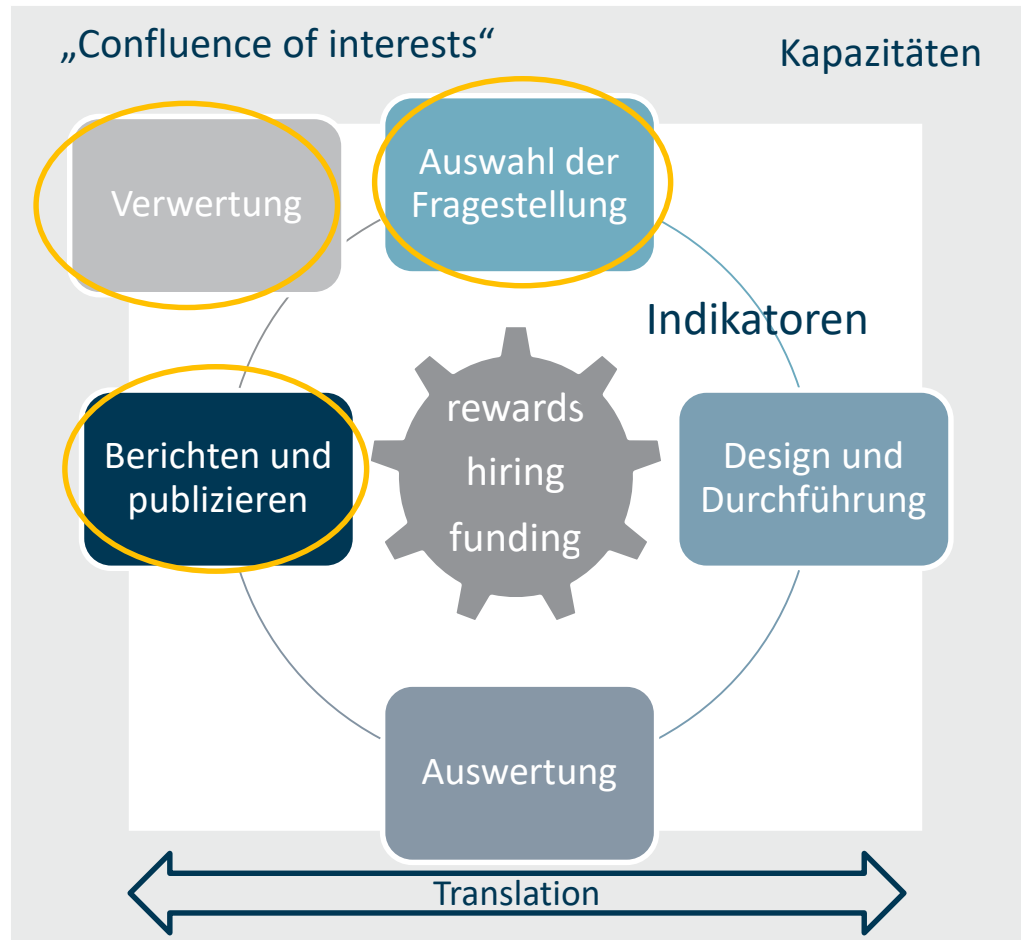
MERIT
QUEST Criteria

Incentives and indicators- Research assessment



Indicators:

JIF, RCR
3rd party funding
number of publications
number of patents
author position





Science-based, iterative policy implementation
project that aims

- to incentivize robust research mechanism

by introducing

1. Responsible indicators (QUEST criteria)
2. Robust evaluations

into the institutional research assessment for
funding, hiring and promotion at BIH/Charité

-> to increase patient-oriented translation

MERIT – areas of implementation

1. Intramural funding schemes
2. Hiring of professors
3. Performance-based funding (LOM)
4. Doctoral programs





Two basic assumptions

- Robustness and reproducibility precede patient-oriented translation
- Robustness and reproducibility are multifactorial

Responsible indicators – robust evaluations



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QUEST criteria

- different sets i.e. for animal studies, clinical studies
- relating to the mechanisms of robust research in 4 dimensions:
 - a) **Priority setting /Scientific Premise**
 - b) **Strategies for establishing scientific rigor**
 - c) **Transparency and dissemination of results**
 - d) **Stakeholder engagement**

Good evaluation practice guidelines

- **WHAT** research, researcher, environment?
- **WHY** to detect robust and reproducible research
- **HOW**
 - **transparent, multidimensional criteria**
 - anonymous evaluation
 - 1) independent reviewers
 - 2) consensus
 - transparent feedback

	strong
	medium
	poor

CURRENT STATE: feasibility phase/development phase

QUEST criteria animal studies

3R plus robustness, registration and reporting



- **Priority setting /Scientific Premise**
 - Systematic review of the evidence/literature
 - SYRCLE
 - Database search: registries
 - Replacement
- **Strategies for establishing scientific rigor**
 - e.g. Strategies to reduce risk of bias
 - sex /gender consideration
 - Reduction
- **Transparency and dissemination of results**
 - (Pre)registration
 - Reporting guidelines (ARRIVE)
 - Timeline reporting of all results
 - Layperson comprehensible version
- **Stakeholder engagement**

CURRENT STATE: feasibility phase/development phase

1. MERIT - Intramural funding schemes (BIH)



- **Proof of concept QUEST criteria (2/2018-01/2019):**
 - introduction to all major funding schemes
 - over 120 applications, 9 board meetings
 - approval of the BIH board
- **Analysis, adaption**
 - > status quo of current practices related to QUEST criteria
 - relevant for selection for funding
 - relevant for concept for educational measures
 - > different sets of QUEST criteria (resp. study design, research question)
- **Development good evaluation practice guidelines**

MERIT – hiring commissions professorships (BIH/Charité)



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Miriam Kip





Axel Pries

QUEST Opening | BIH | Charité application service

Sicher | <https://career.charite.de/am/?site=home&lang=eng>

Apps PMed LEO Webst Synon JCBFM Forum ExpNeuropedia OpenProject QUEST QUEST SP Ex.Neu Tel. Weitere Lesezeichen

 Applicants

Professorship Application Service 

Home Registration Login FAQ

Applicants-Management Charité

Currently Vacant Professorships

Description of Professorship	calls	notes	date due
W3 Universitätsprofessur für Hämatologie und Onkologie m. S. Lymphome/Multiples Myelom	call for applications	application notes	28.09.2017
W3 Universitätsprofessur für Hämatologie und Onkologie m. S. Medizinische/Internistische Onkologie	call for applications	application notes	28.09.2017

Further vacancies at Charité

“The Charité attaches great importance to transparent, replicable research and supports the objectives of Open Science (Open Access, Open Data). This includes the registration of studies in registries (clinicaltrials.gov, DRKS, etc.), the preregistration of studies, and the publication of negative and zero results. How have you been pursuing these goals so far and what are your plans for the future?”

3. MERIT – performance-based funding

Open data LOM 2019



- Successful implementation of new indicator “open data” in LOM system Charité (and equivalent for MDC researchers)
- First medical faculty in Germany
 - Development of ODD Algorithm (Riedel, Bobrov, Kip)
 - Retrospective identification of publications with Open Data in institutional publications record (PURE and FACT Science)
 - ca. 3% of all journal articles (2015-2017) with open data (Charité)
- Next Step: Preregistration in LOM by 2021



The QUEST 1,000 € Preregistration Award

Preregister your preclinical studies challenge – Increase the credibility of your results and get early credit for your ideas!

The QUEST Center supports the preregistration of planned preclinical studies. Preregistration increases the credibility of results, the conclusions based on them, and secures the originality of ideas and hypotheses before experiments have been performed.

QUEST is offering **15 awards of 1,000 €** to first/last/corresponding BIH, MDC or Charité authors of preclinical research papers containing preregistered (basic or translational, not clinical) studies.



The QUEST 1,000 € NULL results and Replication study Award

Publish your NULL results – Fight the negative publication bias!

Publish your Replication Study – Fight the replication crises!

The QUEST Center supports the publication of results which do not support the initial hypothesis, so called NULL results, sometimes unfairly labelled as ‘negative studies’. We also want to promote the publication of studies with the explicit attempt to replicate own results or the results of others.

QUEST is offering **15 awards of 1,000 €** each to first/last/corresponding BIH, MDC or Charité authors of research papers in which the main result is a NULL or ‘negative’, or in which the replication of own results or the results of others is attempted. Basic, translational as well as clinical studies are eligible.



THE QUEST 1,000 € OPEN DATA REUSE AWARD

Make use of Open Data!

Open data sharing to increase robustness and value in biomedical research is becoming increasingly common. It is requested by many funders and journals, and both the Charité and the MDC have also signed the Berlin Declaration, which endorses the open sharing of research data. The rapidly growing amount of openly available data has also spurred the development of dataset search engines, which allow the location of relevant datasets. Corresponding to this



QUEST Protected writing time

- in cooperation with GB Forschung
- identifies potential candidates for up to 3 months protected time to finalize a first DFG-application
- criteria (selection):
 - research output (minimum of three 1st author publications in the past 5 years)
 - AND minimum of 2 QUEST criteria shown in at least one of the publications
 - women - men ratio 1:1



Institutional publication record (PURE)

- Set up of a comprehensive, continuously updated monitoring instrument of the institutional research output
- Reporting of status quo and trends regarding, e.g.
 - Open science (open data, open access)
 - Preregistration
 - Null results and replication
 - Gender
 - Internationality



- Theory validation
 - Development QUEST criteria and Good evaluation practice guidelines**
 - systematic review of the literature, relevant documents (incl. grey literature, policy documents, reviewer guidelines etc..), expert opinions
 - iterative testing and validation
- Implementation
 - Introduction to the field**
 - Data collection and analyses (applications, publication records, field notes, interviews etc..)**
- Capacity building
 - Teaching measures, tools, services**
- Program evaluation and analysis
 - Infrastructure, process and outcome evaluation**



Policy implementation plan MERIT

- **Need and field assessment of the institutional incentive structures**
 - identification of relevant areas
 - mapping of the areas (stakeholders,
 - legal or other requirements (approvals, data protection etc...)
 - attending relevant board meetings, committees, trust building
- **Agenda and strategy setting**
 - engagement of relevant stakeholders
 - development action plans
 - trust building
- **Introduction to the field**
 - to funding schemes, hiring commissions etc...
 - data collection, document analyses, field notes, interviews
 - development and introduction of teaching measures
- **Adjustment**





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- Wissenschaftsrat 2018
QUEST`s Development of new criteria for the assessment of research
“best practice”
 - DORA: MERIT hiring commission project among top 10 most promising projects in 2018

THANK YOU!

Contact:

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quest-toolbox.bihealth.org