An ad hoc committee of the National Academies of Sciences, Engineering, and Medicine is convening a public workshop to discuss the current state of transparency in reporting pre-clinical biomedical research (e.g., disclosure of the availability and location of data, materials, analysis, and methodology) and to explore the possibility of improving the harmonization of guidelines across journals and funding agencies so that biomedical researchers propose and report data in a consistent manner. This workshop is sponsored by the National Institutes of Health, Cell Press, The Lancet, and Nature Research.

WORKSHOP OBJECTIVES:

- Highlight current efforts by researchers, institutions, funders, and journals to increase transparency in proposing and reporting pre-clinical biomedical research;
- Consider lessons learned from field-specific best practices for increased transparency in reporting rigor elements (i.e., research design, methodology, analysis, interpretation and reporting of results) that are generalizable across biomedical research domains;
- Discuss journal and funder assessments of researchers’ adherence to transparent reporting guidelines, including a discussion of the effectiveness of checklists;
- Discuss opportunities for improving the consistency of reporting guidelines and requirements for rigor and transparency by journals, funders, and institutions across the biomedical research lifecycle; and
- Consider approaches to compare reporting of rigor elements proposed in grant applications to those included in publications.

DAY 1: September 25, 2019

8:00 a.m.  Breakfast available outside the Lecture Room

8:30 a.m.  Welcome and opening remarks  
           HARVEY FINEBERG, Workshop Chair
           President
           Gordon and Betty Moore Foundation

Highlights and related recommendations from the National Academies report on Reproducibility and Replicability in Science
SESSION I  CULTIVATING TRANSPARENT REPORTING IN BIOMEDICAL RESEARCH

Session Objectives:

- Highlight current efforts by researchers, institutions, funders, and journals to increase transparency in proposing and reporting pre-clinical biomedical research
- Discuss the incentives, disincentives, challenges, and opportunities for researchers when it comes to transparent reporting of pre-clinical biomedical research (e.g., pressure to publish, institutional resources, training, funding).
- Discuss experience with implementation of policies to encourage transparent reporting across the biomedical research life cycle.
- Consider the role of stakeholders in supporting a cultural shift towards transparent reporting in preclinical biomedical research.

For more information on cultural barriers as sources of non-reproducibility, see p. 58, p. 97, and p. 104 of the National Academies’ Reproducibility and Replicability in Science report.

9:30 a.m.  Opening remarks by session moderator
ALEXA MCCRAY
Professor of Medicine
Harvard Medical School

9:40 a.m.  A researcher (early career) perspective
YARIMAR CARRASQUILLO
Investigator
National Center for Complementary and Integrative Health, National Institutes of Health

9:55 a.m.  A researcher/researcher support perspective
BRIAN NOSEK
Co-founder
Center for Open Science

10:10 a.m.  A researcher (later career)/society publisher perspective
ARTURO CASADAVELL
Professor, Molecular Microbiology and Immunology, Johns Hopkins University
Editor-in-chief, mBio

10:25 a.m.  An NIH perspective
CARRIE WOLINETZ
Associate Director for Science Policy
Office of Science Policy, National Institutes of Health

10:40 a.m.  Audience Q&A with the panel

11:10 a.m.  BREAK
SESSION II ANSWERING THE CALL FOR CHANGE: LESSONS LEARNED AND BEST PRACTICES

Session Objectives:

- Consider lessons learned from institutional and/or field-specific best practices for increased transparency in reporting rigor elements (i.e. research design, methodology, analysis, interpretation and reporting of results) that are generalizable across biomedical research domains.
- Consider available tools and best practices for increased transparent reporting that support researchers and are generalizable across biomedical research domains.
- Discuss the roles of educational institutions, professional societies, researchers, and funders in improving computational reproducibility (*Reproducibility and Replicability in Science* Report Recommendation 6-6).
- Discuss how funding agencies and organizations could invest in research and development of open-source, usable tools and infrastructure that support reproducibility for a broad range of studies across different domains in a seamless fashion, as well as in outreach to inform and train researchers on best practices (*Reproducibility and Replicability in Science* Report Recommendation 6-1).

11:30 a.m.  
*Opening remarks by session moderator*

**VERONIQUE KIERMER**  
Executive Editor  
PLOS

11:40 a.m.  
*A clinical researcher perspective*

**AN-WEN CHAN**  
Phelan Scientist, Women’s College Research Institute  
Associate Professor, University of Toronto

11:50 a.m.  
*An institution perspective*

**GEETA SWAMY**  
Vice Dean and Assoc. Vice Provost for Scientific Integrity  
Duke University

12:00 p.m.  
*A funder perspective*

**MAGALI HAAS**  
Chief Executive Officer and President  
Cohen Veterans Bioscience

12:10 p.m.  
*Moderated panel discussion among speakers*

12:30 p.m.  
*Audience Q&A with the panel*

1:00 p.m.  
**BREAK** (Lunch available Outside the Lecture Room)
SESSION III  STAKEHOLDER PERSPECTIVES ON CHECKLISTS AND GUIDELINES

Session Objectives:

- Discuss journal and funder assessments of researchers’ adherence to transparent reporting guidelines, including discussion of the effectiveness of checklists.
  - Highlight empirical assessments of checklist application from funders, journals, and researchers; and
  - Consider practical application and effectiveness of checklists and guidelines to encourage or require transparent reporting of pre-clinical biomedical research.
- Discuss how funders could require thoughtful discussion in grant applications of how uncertainties will be evaluated, along with any relevant issues regarding replicability and computational reproducibility (Reproducibility and Replicability in Science Report Recommendation 6-9)
- Discuss how journals and scientific societies could disclose their policies relevant to achieving reproducibility and replicability; and how journals could be encouraged to set and implement desired standards of reproducibility and replicability and adopt policies to reduce the likelihood of non-replicability (Reproducibility and Replicability in Science Report Recommendation 6-7)

2:00 p.m.  Opening remarks by session moderator
BARRY COLLER
Physician-in-Chief, Vice President for Medical Affairs, and David Rockefeller Professor
The Rockefeller University

2:10 p.m.  Prior and current experience with checklist implementation at life science journals
SOWMYA SWAMINATHAN
Head of Editorial Policy
Nature Research

MALCOLM MACLEOD
Professor
University of Edinburgh

2:30 p.m.  An NIH funder perspective
SHAI SILBERBERG
Director Research Quality
National Institute of Neurological Disorders and Stroke, National Institutes of Health

2:40 p.m.  Moderated panel discussion among speakers

3:10 p.m.  Audience Q&A with the panel
Session Objectives:

- Discuss opportunities for improving the consistency of reporting guidelines and requirements for rigor and transparency by journals, funders, and institutions across the biomedical research lifecycle.

4:00 p.m.  
**Discussion with audience on potential steps stakeholders could take to support harmonizing reporting guidelines**

**HARVEY FINEBERG**, *Workshop Chair and session moderator*  
President  
Gordon and Betty Moore Foundation

**BENEDICT KOLBER**  
Associate Professor  
Duquesne University

**RICHARD NAKAMURA**  
Former Director (Retired)  
Center for Scientific Review, National Institutes of Health

**FRANKLIN SAYRE**  
STEM Librarian  
Thompson Rivers University

**VALDA VINSON**  
Editor, Research  
Science

5:00 p.m.  
**ADJOURN WORKSHOP DAY 1**
DAY 2: September 26, 2019

8:00 a.m. Breakfast Available Outside the Lecture Room

8:30 a.m. Welcome and overview of Day 1
HARVEY FINEBERG, Workshop Chair
President
Gordon and Betty Moore Foundation

9:00 a.m. Keynote Address
MARcia MCnUtT
President
National Academy of Sciences

9:20 a.m. Q&A Session

9:30 a.m. BREAK

SESSION IV TOWARDS Minimal REPORTING STANDARDS FOR PRECLINICAL BIOMEDICAL RESEARCH

PART 2

Session Objectives:

- Consider approaches to compare reporting of rigor elements proposed in grant applications to those included in publications.
- Suggest stakeholder actions to encourage transparent reporting and practical next steps towards establishing minimal reporting standards for pre-clinical biomedical research.

10:00 a.m. Opening remarks by session moderator
HARVEY FINEBERG, Workshop Chair
President
Gordon and Betty Moore Foundation

10:10 a.m. An early career researcher perspective
MICHAEL KEISER
Assistant Professor
University of California, San Francisco

10:20 a.m. An institution perspective
MELISSA RETHLEFSEN
Associate Dean, George A. Smathers Libraries
Fackler Director, Health Science Center Libraries
University of Florida

10:30 a.m. An NIH perspective
NONI BYRNES
Director
Center for Scientific Review, National Institutes of Health
10:40 a.m.  

A research educator perspective  
STEVEN GOODMAN  
Professor of Medicine and Health Research and Policy  
Co-director, Meta-Research Innovation Center at Stanford  
Stanford University

10:50 a.m.  

Moderated panel discussion among speakers

11:15 a.m.  

Small group table discussion and reporting

12:25 p.m.  

Workshop wrap up and concluding discussion with audience

12:30 p.m.  

ADJOURN WORKSHOP DAY 2