Expert Feedback on NIH/AHRQ Rigor and Transparency Guidelines

Tufts CTSI Overview

- Tufts Clinical and Translational Science Institute (Tufts CTSI) was established in 2008 with a Clinical and Translational Science Award (CTSA)
  - Part of a consortium of more than 60 national CTSA's
  - Research services institutes “working together to speed the translation of research discovery into improved patient care.”
- Funded by the NIH

Tufts CTSI’s Mission & Purpose

Established in 2008 to translate research into better health

- Stimulate and expedite innovative clinical and translational research, with the goal of improving the public’s health
- Entire spectrum of clinical and translational research is critical to meeting the promise and the public’s needs of biomedical science

39 Tufts CTSI Partners

13 Tufts Schools & Centers
- Cummings School of Veterinary Medicine
- Fletcher School of Law & Diplomacy
- Friedman School of Nutrition Science & Policy
- Graduate School of Arts & Sciences
- Institute for Clinical Research & Health Policy Studies at Tufts Medical Center
- Jean Mayer USDA Human Nutrition Research Center on Aging
- Sackler School of Graduate Biomedical Sciences
- School of Dental Medicine
- School of Engineering
- School of Medicine
- Tufts Center for the Study of Drug Development
- Tufts Innovation Institute
- Tufts Medical Center
- New England Baptist Hospital
- St. Elizabeth’s Medical Center
- Newton-Wellesley Hospital
- Maine Medical Center
- Baystate Medical Center
- Lahey Clinic

7 Tufts-Affiliated Hospitals
- Baystate Medical Center
- Baystate Medical Center
- New England Baptist Hospital
- Newton-Wellesley Hospital
- St. Elizabeth’s Medical Center
- Tufts Medical Center

6 Industry/Non-Profit Partners
- Blue Cross Blue Shield of Massachusetts
- Eli Lilly and Company
- Institute for Systems Biology and P4 Medicine Institute
- Pfizer, Inc.
- Tufts Health Plan
- Partners Blue Cross Blue Shield of Massachusetts

10 Community-Based Partners
- Action for Boston Community Development (ABCD)
- Asian Community Development Corporation
- Asian Task Force Against Domestic Violence
- Asian Women for Health
- Boston Chinatown Neighborhood Center
- Center for Information and Genetics in Research Participation
- Greater Boston Chinese Golden Age Center
- Health Resources in Action
- Museum of Science, Boston
- New England Quality Care Alliance

How Can CTSI Help?

- Connections with other researchers, industry, the community, and policy-makers across the Tufts CTSI network and national CTSA consortium via our Navigators & Research Collaboration team.
- Consultations on comparative effectiveness, one health, research process improvement and stakeholder and community engagement projects and grants, as well as regulatory issues and other areas of translation.
- Study design and data analysis (pre- and post-award) through the Biostatistics, Epidemiology, and Research Design (BERD) Center, including drop-in sessions.

How Can CTSI Help?

- 24/7 clinical trial support through our Clinical and Translational Research Center (CTRC).
- Informatics tools for electronic data capture (REDCap), resource sharing, and collaboration.
- Training & professional development including MS and PhD degrees, certificate programs, seminars & workshops, and paid career development awards and fellowships.
- Funding through one-year interdisciplinary pilot studies grants that support the initial stages of research.
How to Request Tufts CTSI Services
• Visit www.tuftsctsi.org and submit a request

Summary of the NIH/AHRQ Rigor and Transparency Guidelines

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This session will provide:
• Summary of changes to proposal content for the National Institutes of Health (NIH) and Agency for Healthcare Research and Quality (AHRQ)

Resources Describing Changes
• Summary of all changes, with links for additional information
http://grants.nih.gov/reproducibility/index.htm
• FAQs for each element of Rigor & Reproducibility
http://grants.nih.gov/reproducibility/faqs.htm
• Dr. Mike Lauer’s blog. Several entries describe NIH’s expectations
http://nexus.od.nih.gov/all/category/blog/
• Reviewer guidance on Rigor and Transparency

Summary of Rigor & Transparency Requirements

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>SECTION OF APPLICATION</th>
<th>DEFINITION</th>
<th>OVERALL SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Premise</td>
<td>Significance</td>
<td>The general strengths &amp; weaknesses of the prior research as crucial to support the application</td>
<td>Yes</td>
</tr>
<tr>
<td>Scientific Rigor</td>
<td>Approach</td>
<td>Application of the scientific method to ensure robust &amp; unbiased study design, methods, analysis, interpretation &amp; reporting of results</td>
<td>Yes</td>
</tr>
<tr>
<td>Consideration of Relevant Biological Variables</td>
<td>Approach</td>
<td>Sex as a biological variable, as well as other variables, will be factored into research designs, analyses, &amp; reporting in vertebrate animal &amp; human studies</td>
<td>Yes</td>
</tr>
<tr>
<td>Authentication of Key Resources</td>
<td>Attachment</td>
<td>Transparently reporting on what has been done to authenticate key resources that vary over time</td>
<td>No</td>
</tr>
</tbody>
</table>

Rigor & Transparency Scientific Premise

Scientific Premise should be addressed in the Significance section
• Significance = Background + Justification
  – Review of relevant literature that makes an argument for why your work is needed
  – Tie to I/C mission (or RFA description)
  – Do not “kitchen sink” this section! It should be a focused, coherent and – above all – an engaging justification of your work
Rigor & Transparency
Scientific Premise

Evaluate the Scientific Literature

• Discuss the strengths, weaknesses and limitations of the studies presented in the scientific literature related to your proposed research
• This provides the foundation for the justification of your work
  – If you are not required to provide preliminary data (e.g., R21), this assessment of the literature is critical

Rigor & Transparency
Rigorous & Unbiased Approach

Scientific Rigor should be discussed in the Approach section

• Describe your approach clearly and completely!
  – Justify your methods, using preliminary data, the scientific literature, or other credible sources
  – “We will use the methods devised by Jones, et al. (2015)” is not sufficient
  – Remember that reviewers will not necessarily be experts – write for those outside your (sub) field

Rigor & Transparency
Innovation vs. Scientific Rigor

• Identify and manage the risk associated with innovative research
  – Consider the scientific premise
  – Identify the factors that are unknown
  – Incorporate strategies to reduce bias and ensure the methods are designed to generate robust results appropriate for the stage of research
• Regardless of stage of research, results should be reproducible and provide a foundation for future studies

Rigor & Transparency
Relevant Biological Variables

• Identify and manage the risk associated with relevant biological variables, such as sex, for studies in vertebrate animals or human subjects
  – In this section, describe the population you will be using, and why you chose this particular population
  – Ask yourself why you have chosen particular inclusion/exclusion criteria (human subjects) or animal model and explain to the reviewers why your choices are necessary
  – Discuss with the Program Officer if vertebrate animal research must focus only on one sex or other biological variable (e.g., race, age, etc.) unless the reason is obvious

Rigor & Transparency
Rigorous & Unbiased Approach

Have the investigators presented strategies to ensure a robust and unbiased approach?

• The Approach is the most important section of your proposal for scoring purposes
  – Spend most of the space in the research strategy describing and justifying your approach

• Expected Outcomes
  – Demonstrate that your research will have an impact on your field (and on public health) regardless of whether your hypotheses are accepted or rejected

• Statistical Analyses
  – Beware of perceived “p-hacking”
  – If possible and appropriate, add a biomedical statistician to your proposal to ensure that all analyses are unbiased
  – You can receive assistance through the CTSI on study design and analysis!
**Rigor & Transparency**

**Key Biological and/or Chemical Resources**

Reviewers will comment on the brief plans proposed for identifying and ensuring the validity of key biological and/or chemical resources.

- This plan is a separate attachment
  - Included are cell lines, specialty chemicals, antibodies, and other biologics (among others)
  - NOT included are standard laboratory reagents that are not expected to vary (e.g., buffers and other common biologicals and reagents)
- Focus only on plans to authenticate or validate resources – do not use this section to circumvent page limits!
- For more information, please see FAQs: [http://grants.nih.gov/reproducibility/faqs.htm#11438](http://grants.nih.gov/reproducibility/faqs.htm#11438)

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**NIH Study Section Chair**

**Perspective and Advice**

John Castellot, PhD  
NIH Study Section Chair  
Navigator  
Tufts Clinical and Translational Science Institute (CTSI)  
Professor of Integrative Physiology & Pathobiology  
Tufts University School of Medicine

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**Resources Describing Changes**

- Summary of all changes, with links for additional information  
- FAQs for each element of Rigor & Reproducibility  
- Dr. Mike Lauer’s blog. Several entries describe NIH’s expectations  
  [http://nexus.od.nih.gov/all/category/blog/](http://nexus.od.nih.gov/all/category/blog/)
- Reviewer guidance on Rigor and Transparency  

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**Additional Resource**

or, Why We Need Rigor  
or, Sometimes the Truth Makes Us Wince

[https://www.youtube.com/watch?v=0Rnq1NpHdmw&sns=em](https://www.youtube.com/watch?v=0Rnq1NpHdmw&sns=em)

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**ELEMENT | SECTION OF APPLICATION | DEFINITION | OVERALL SCORE?**
---|---|---|---
Scientific Rigor | Approach | Application of the scientific method to ensure robust & unbiased study design, methods, analysis, interpretation & reporting of results | Yes |
Consideration of Relevant Biological Variables | Approach | See as a biological variable, as well as other variables, will be factored into research designs, analyses, &reporting in vertebrate animal & human studies | Yes |
Authentication of Key Resources | Attachment | Transparently reporting on what has been done to authenticate key resources that vary over time | No |
**Rigor & Transparency**

**Scientific Premise**

The **Scientific Premise** should be addressed in the Significance section:

- **Significance = Background + Justification**
  - Review of relevant literature that makes an argument for why your work is needed
  - Tie to I/C mission (or RFA description)
  - Do not “kitchen sink” this section! It should be a focused, coherent and – above all – an engaging justification of your work

Think of the Scientific Premise as the scientific foundation for the proposed work, including both published literature and your preliminary data; it is **not** the hypothesis

**Grantsmanship:** Make it easy for the reviewers to see you’ve followed the new rules... Instead of having a section entitled **Rationale**, call it **Scientific Premise**

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**Rigor & Transparency**

**Rigorous & Unbiased Approach**

Have the investigators presented strategies to ensure a robust and unbiased approach?

- The **Approach** is the most important section of your proposal for scoring purposes
  - Spend most of the space in the research strategy describing and justifying your approach

**Grantsmanship:** Make it easy for the reviewers and include a short paragraph at the end of each Aim entitled **Scientific Rigor** that emphasizes your:

- Hypothesis-neutral (i.e., unbiased) approaches
- Careful attention to positive and negative controls
- Use of independent corroboration of key results

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**Rigor & Transparency**

**Expected Outcomes**

- Demonstrate that your research will have an impact on your field (and on public health) regardless of whether your hypotheses are accepted or rejected

**Statistical Analyses**

- Beware of perceived “p-hacking”

- If appropriate, add a biomedical statistician to your proposal to ensure that all analyses are unbiased

- Power analyses for animal use must now go in the Research Plan, not the Vertebrate Animals section

- You can receive assistance through the CTSI on study design and analysis—more on this from Norma Terrin, PhD

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**Rigor & Transparency**

**Relevant Biological Variables**

Have the investigators presented adequate plans to address relevant biological variables, such as... but NOT limited to... sex, for studies in vertebrate animals or human subjects?

- In the **Approach** section, include a subheading for human subjects or vertebrate animals

- In this section, describe the population you will be using, and why you chose this particular population

- Ask yourself why you have chosen particular inclusion/exclusion criteria (human subjects) or animal model and explain to the reviewers why your choices are necessary

- Discuss with the Program Officer if vertebrate animal research must focus only on one sex or other biological variable (e.g., race, age, etc.) unless the reason is obvious

- Age, race, ethnicity, culture, and socioeconomic status are all potentially important biological variables

- **Grantsmanship:** Provide a short paragraph entitled **Sex and Other Biological Variables** in the Approach section. If there are no important biological variables, state this explicitly. If there are, either state that you include them in your proposed studies or provide a succinct justification for not including them (this is where talking with your PO is important)
Panel Discussion

Panelists

- Iris Jaffe, MD, PhD
  Associate Professor of Medicine
  Tufts University School of Medicine
  Associate Director, Molecular Cardiology Research Institute
  Tufts Medical Center
  Director, Vascular Biology Research Center
  Faculty, Cell, Molecular, and Developmental Biology Program

- Daniel Jay, PhD
  Professor
  Developmental, Molecular and Chemical Biology
  Tufts University School of Medicine

Rigor & Transparency

Key Biological and/or Chemical Resources

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- This plan is a separate attachment
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For more information, please see FAQs: http://grants.nih.gov/reproducibility/faqs.html#11438

- Grantsmanship: This item is not scorable, so concentrate on the other score-driving R+T items first if you have a July 5 deadline!

Panelists

- Pilar Alcaide, PhD, MS
  Assistant Professor
  Integrative Physiology and Pathobiology
  Tufts University School of Medicine

- Caroline Attardo Genco, PhD
  Arthur E. Spiller, MD
  Professor and Chair,
  Integrative Physiology and Pathobiology
  Tufts University School of Medicine

Department of Labor (DoL)

Fair Labor Standards Act (FLSA)

Overtime Rule and Research
Presenters

Marcia S. Izzi, MPH
Business Finance Manager
Tufts Clinical and Translational Science Institute (CTSI)

Carol Seidel, BS
Director, Administration and Finance
Institute for Clinical Research and Health Policy Studies (ICRHPS)
Tufts Medical Center

Department of Labor (DoL)
Fair Labor Standards Act (FLSA)
Overtime Rule and Research

Topic: On May 18th, DoL published its final rule on overtime pay protections under the FLSA raising the salary threshold for overtime pay to $47,476 effective December 1, 2016.

What is the FLSA? The FLSA establishes minimum wage, overtime pay requirements and other pay related issues for eligible employers.

Department of Labor (DoL)
Fair Labor Standards Act (FLSA)
Overtime Rule and Research

How does the new rule impact Research?
- Anyone working in a qualifying salaried position at an annual rate of less than $47,476 or $913/wk must earn overtime > 40 hours
- This includes post-docs and salaried research staff
- Current non-exempt or hourly employees are not impacted by the new rule

Department of Labor (DoL)
Fair Labor Standards Act (FLSA)
Overtime Rule and Research

How is NIH responding?
- NIH Director Collins has stated that NRSA grants and stipend levels will be adjusted and additional funds will be awarded.
- NIH recognizes that non-NRSA RPG’s fund post-docs and salaried staff who are currently below the new minimum and additional funds for these programs have not been offered at this time, yet salary levels will need to be adjusted or overtime will have to be paid for hours worked over 40 in any given week as of 12/1/2016.

Department of Labor (DoL)
Fair Labor Standards Act (FLSA)
Overtime Rule and Research

How should researchers approach budgeting for grant applications?
- Researchers can consider budgeting post-docs and other salaried staff at the new minimum annual salary of $47,476.

Department of Labor (DoL)
Fair Labor Standards Act (FLSA)
Overtime Rule and Research

What are other institutions doing about this?
- Institutions are relying on their Human Resource Departments for guidance. Questions should be directed to your Research and/or Department Administrator.

Additional Information
NIH Director Announcement in Huffington Post

Helpful webinar from CUPA
http://www.cupahr.org/events/webinar-20160525.aspx

DoL Website/FAQ’s
https://www.dol.gov/WHD/overtime/final2016/
Questions?

Thank you!

Expert Feedback on NIH Rigor and Transparency Guidelines