PEER REVIEW GUIDANCE: RESEARCH PROPOSALS

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Introduction

The peer review process acts as a quality control system for research funding proposals submitted to funding bodies or manuscripts submitted to academic journals for publication. The peer reviewer, like a quality control inspector, should have a good understanding of what they are assessing. They are considered experts and their expertise allows them to identify where and how research may be flawed and, just as importantly, to recognise stand-out research that meets a high scientific standard (1).

While each scientific journal and funding body will have its own bespoke peer review process, there are essential steps that exist across all systems. These are illustrated (Figure 1) and explained below.

Figure 1 – Essential Steps in the Peer Review process

Research Proposal/Report – This is usually a research funding proposal or a report intended for publication.

Peer Review – The research proposal/report is sent out to two or more independent experts for review. Most journals/funding organisations have an assessment system in place, be it an online process or a review template, to guide the reviewer.

Feedback and Expert Panel – Reviewers’ feedback is collated and passed along to an expert advisory panel who will make the final funding/publication decisions. This step may be followed by an interview, site visits, or further consultation with the researcher.

Funding, Publication or Rejection – Panel assessment and reviewer feedback are collated and a decision on whether to a fund, publish, or reject is made by the expert panel. Regardless of outcome, the applicants/authors will normally be provided with feedback.

Scope of this guidance

This guidance document addresses the requirements of peer review relating to funding applications although the general principles of peer review and conflict of interest extend far beyond this and are relevant for other settings.
2 The Purpose of Peer Review

Within the scientific research community, peer review is primarily conducted for two purposes:

1. Selecting manuscripts for publication in academic journals. Peer review is considered the gold standard for assessing the quality of academic research.

2. Allocating research funding. Peer review is essential to help funding organisations make good decisions about how they spend their money. It allows them to identify studies that contribute to their strategic objectives while offering the best value for money. This is particularly important when funding is limited and there is strong competition amongst applicants.

Peer review feedback also allows applicants and authors to improve their research by identifying methodological errors, gaps in knowledge and other improvements through constructive feedback.

Regardless of why peer review is conducted, its overarching aims are to:

- Support best practice in research;
- Ensure that the questions asked by research are important, original and fill a knowledge gap;
- Ensure that funding decision-making is well informed by expert opinion;
- Ensure value-for-money and support the effective and efficient use of resources;
- Provide feedback to researchers that will nurture and develop their research ideas and skills.

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1 Peer review may also be conducted for other purposes, such as peer reviewing a PhD dissertation, and assessing the academic rating of a university department, i.e. the Research Excellence Framework.
3 The Principles of Peer Review

The basics

Because of the significance of the role of peer review and the impact it can have on researchers’ personal and professional lives, the peer review process depends on trust. This requires that all those involved behave responsibly and ethically (3). Several key principles guide the peer review process and are listed below (4):

Integrity

The peer review process relies on personal and professional integrity. It is essential that the personal interests of a reviewer must never influence their review. Reviewers must declare any conflicts of interest, at any point at which they arise. Likewise, the journal or funding body managing the peer review process must act with integrity by ensuring anonymity where required and by ensuring due process is carried out where conflicts of interest are concerned (5).

Confidentiality

The assessment process is confidential. Funding proposals or manuscripts should not be shared, unless cleared by the organisation/journal managing the peer review process. This ensures that sensitive information is appropriately protected. Peer reviewers may be required to completed non-disclosure agreements to assure confidentiality.

Equity

As far as is possible, the same set of consistent, clearly stated standards should be used to assess all research.

Peer reviewers should feel confident that the organisation requesting their services is compliant with the core principles of peer review and that appropriate guidance and support is provided.
AMRC Peer Review Principles

In addition to the principles above, the Association of Medical Research Charities (AMRC), the membership body for research funding charities in the UK, has published its own set of peer review principles. For example, as a member of the AMRC, Pharmacy Research UK adheres to the guidelines set out by the Association and which are listed in the box below (6).

AMRC Peer Review Principles

Peer review within all AMRC member charities is carried out according to the following principles:

**Accountability**: Charities are open and transparent about their peer review procedures and publish details, including the names of members of scientific advisory panels or other decision making bodies.

**Balance**: Scientific advisory panels reflect a fair balance of experience and scientific disciplines.

**Independent decision making**: The scientific advisory panel is independent of the charity’s administrative staff and trustees.

**Rotation of scientific advisers**: Scientific advisory panel members have a fixed term of office and do not have tenure.

**Impartiality**: Scientific advisory panels include a significant number of non-beneficiaries. There is a conflict of interest policy and potential beneficiaries are not present when decisions are made.


Conflicts of interest

It is imperative that reviewers declare any potential or actual conflicts of interest at any point during the peer review process at which they arise.

To determine whether you have a conflict of interest, ask yourself:

*Would I be able to review this paper impartially?*

If you have any doubts, for whatever reason, you should decline to review. You can also get in touch with the journal or funding organisation you are reviewing for with any questions or concerns.

A list of common conflicts of interest are listed in Table 1 below.

<table>
<thead>
<tr>
<th>Conflict</th>
<th>Description</th>
<th>Questions to ask yourself</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend/Family</td>
<td>1. You are a close personal friend or relative of the author/applicant.</td>
<td>1. Am I exceptionally partial towards this person?</td>
</tr>
<tr>
<td></td>
<td>2. You or someone you are close to (i.e. family, friend) would benefit from</td>
<td>2. Will I or someone I am close to benefit from the acceptance/rejection of this application?</td>
</tr>
<tr>
<td></td>
<td>the acceptance/rejection of the application.</td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Conflicts of Interest

As a reviewer you will be asked to identify and declare any conflict of interest. However, the details of what constitutes a conflict of interest may differ from one organisation to the next and as such, the conflicts described in the table above may not exclude you from offering an informed opinion.

Peer review: Not a perfect system

While the principles and systems outlined above are aimed at minimising bias, partiality and conflicts of interest, the peer review process is not perfect. For example:

- Peer reviewers may be tempted to leak confidential information for personal/professional gain.
- The pool of experts in certain areas of study is small, leading to incestuous peer review and may make anonymity difficult to maintain.
- Feedback can often focus on the negative aspects of a funding proposal or report rather than being constructive in nature.
- Each peer reviewer’s style and expertise varies, making it difficult to benchmark reviews against one another (6).
4 What to Consider When Peer Reviewing

Peer reviewers are independent scientific or subject matter experts who draw on their knowledge and experiences to feedback on research findings and funding proposals. This can include academics, individuals working in the pharmaceutical industry or as specialised pharmacists, and those who have expertise in research methodologies (5).

There is an implicit contract between the author, the funding organisation/journal and the reviewer. Effective review requires the commitment of all three.

![Figure 2 – The Peer Review Relationship](image)

**Types of peer review**

As noted above, it is essential to ensure that there are no conflicts of interest between the reviewer and the author and that, as much as is possible, bias is reduced.

As seen in Table 2 below, there are three main types of peer review. Each is differentiated by the relationship between author and reviewer. It is important to note that each type seeks to reduce or eliminate bias and conflict of interest and to increase the quality of feedback provided (2).

The most traditional and commonly used type of peer review is the Single Blind Review.

<table>
<thead>
<tr>
<th>Type of Peer Review</th>
<th>Description</th>
<th>Perceived Benefit</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Blind</td>
<td>Names of reviewers hidden from author(s)</td>
<td>Reviewer can feedback without influence which may result by being know to the author(s).</td>
<td>1. Reviewer could delay publication if conflict of interest 2. Anonymity may justify being unnecessarily critical</td>
</tr>
<tr>
<td>Double Blind</td>
<td>Both reviewers and author(s) anonymous</td>
<td>Anonymity prevents reviewer bias, i.e. due to previous work, prestige, gender, etc.</td>
<td>Author(s) may still be identifiable due to subject matter, self-citation, style etc.</td>
</tr>
</tbody>
</table>
Open Review  | Reviewer and author known | May prevent over-criticism, plagiarism and a self-motivated review while encouraging open and honest reviewing. | Politeness or fear of retribution may cause reviewer to soften or withhold critical feedback. 

Table 2 – Types of Peer Review (2)

The peer review principles in action

The peer review principles are more than an abstract set of values; they are the backbone of high quality review. When assessing a funding proposal and manuscript for publishing, peer reviewers should consider the following (3):

- Provide the journal/funding organisation they review for with personal and professional information that is an accurate and true representation of their expertise.
- Only agree to review funding proposals/research for which they have the subject knowledge/expertise required to carry out a proper assessment and which they can assess within the agreed timescale.
- Respect the confidentiality of peer review and keep the details of a proposal/manuscript or its review, during or after the peer-review process, to themselves.
- Avoid self-serving behaviour and do not use any information gathered during the peer review process for their own, or any other person’s or organisation’s, advantage, or, vice versa, to disadvantage or discredit others.
- Declare all potential and actual conflicts of interest, seeking advice from the journal/funding organisation if there is any doubt whether something constitutes as a conflict.
- Seek to reduce all bias and not allow their reviews to be influenced by such factors as the nationality, religious or political beliefs, gender or other characteristics of the authors, or by commercial considerations.
- Provide objective and constructive reviews and refrain from being overly negative, hostile or inflammatory and from making derogatory personal comments.

The practicalities of being a peer reviewer

It is important to consider the four factors illustrated below (in Figure 3) once you have received an invitation to review and accompanying materials. It is also important to respond to the invitation as soon as you can in order to avoid causing delays to the review process. If, for any reason, you must decline the invitation to review, it is often useful to provide suggestions for alternative reviewers.

Figure 3 - The practicalities

Right number

You may be asked to review more than one funding proposal. Please ensure that you have received no more than you are willing to commit to. If you have received more proposals than you are willing to review, notify the funding organisation as early as possible.

Time commitment

While the amount of time required to review a funding proposal or manuscript varies depending on its length, specialisation and subject matter, producing a high quality peer review will take some of your
time. Before accepting, consider whether you have the time to peer review and to meet the deadline set out by the organisation managing the review.

**No conflict**

As discussed in earlier sections, it is important to declare all potential and actual conflicts of interest. These may become apparent once you received materials for review. If in doubt, seek advice from the funding organisation managing the peer review process as quickly as possible so that the proposal can be reassigned if necessary.

**Expertise**

You should only agree to review submissions for which you have subject knowledge and expertise. Have a brief look over the materials you have received. If you have any doubts about your ability to offer constructive feedback, get in touch with the organisation managing the review.
5 The Peer Review Process

The peer review process can vary between funding organisations based on the structure of funding approval processes. For example, applicants may or may not be asked to respond to the peer review comments before assessment by the funding panel. Below, Figure 4 provides an example by illustrating Pharmacy Research UK’s peer review process.
In general, peer review operates as a two stage process. The first stage involves expert assessment provided by the independent reviewer. The second stage is led by an expert board or panel, who draw from reviewers’ feedback and provide their own to reach a funding decision (1). The time taken to complete these stages varies based on the needs of the funding organisation. Peer reviewers should, however, always be given sufficient time to fully complete reviews. This is usually 3 weeks or more.

**Writing the review and scoring**

As part of the peer review process you will be asked to review the application in its entirety and answer a subset of questions that align to the remit of the funder, the funding call and the suitability of the proposal. The process of peer review is managed in different ways by different funders and can be completed through an online or paper system. The peer reviewer will be asked to assess the quality of the application and will, in most cases, be asked to provide a score or to grade the application.

Peer reviews are often based around a number of criteria, including:

- How important are the research questions, or gaps in knowledge, that are being addressed?
- What are the prospects for good scientific progress? This includes future direction and impact of the current proposal.
- Are the funds requested essential/appropriate for the proposed work and does the importance of the research question(s) and scientific potential justify funding on the scale requested?

**The questions to consider**

Funding organisations are likely to include prompt questions on their assessment forms or online systems. The questions below provide a sample of these and cover those fundamental to the peer review process:

- Is the research scientifically valid, significant and original?
- Is this study needed? Does it fill a knowledge gap?
- Is the project achievable within the suggested timescale?
- Does this work unnecessarily duplicate work that has already been done?
- Are appropriate methodologies selected? Could they do better? Are there alternative approaches?
- Does the researcher or research team have the right skills, skill mix, facilities and support?
- Does the research provide good value for money?
- Is the project relevant to the charity’s aims and objectives?
- What are the strengths and weaknesses?
- Are there any ethical issues?

Answers should go beyond a simple ‘yes’ or ‘no’ and should provide context, draw from and include your expertise and offer suggestions, where necessary.

Other questions that may be useful to consider for peer review are listed below, although it is important to remember the assessment criteria for different schemes will vary:

- Is the application comprehensive?
- Is the grammar and presentation poor? Although this should not be as heavily weighted.
- If the submission is very technical, is it because the author has assumed too much of the reader’s knowledge?
- Are figures and tables clear and easy to interpret?
- Are explanations adequate?
- Are there any technical or methodological errors?
- If you recommend rejection, what could the author have changed for you to accept?
Has the researcher considered potential impact, ethical issues, data management plans, and the research environment, etc.?

It is important to adhere to the specific guidance and criteria for the individual scheme you are undertaking the peer review for. This will normally include a series of questions to guide you which will be overtly linked to the aims and objectives of the funder and funding scheme.

**The do’s and don’ts**

<table>
<thead>
<tr>
<th>Do</th>
<th>Don't</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give yourself enough time to complete a high quality review</td>
<td>Make it personal</td>
</tr>
<tr>
<td>Ensure you have read through the assessment criteria and scoring</td>
<td>Reiterate the proposal or re-state the assessment questions</td>
</tr>
<tr>
<td>sheet</td>
<td>Include anything in the assessment that will identify you, i.e.,</td>
</tr>
<tr>
<td></td>
<td>references to where you have worked or who you have worked with.</td>
</tr>
<tr>
<td>Be objective and professional</td>
<td>Allow your review to be steeped in bias for your own field of research</td>
</tr>
<tr>
<td>Start with the positive aspects of the application before moving</td>
<td></td>
</tr>
<tr>
<td>on to criticism</td>
<td></td>
</tr>
<tr>
<td>Provide clear and concise comments and constructive criticism.</td>
<td></td>
</tr>
<tr>
<td>If you criticise an aspect of the submission, offer advice on how</td>
<td></td>
</tr>
<tr>
<td>to improve it</td>
<td></td>
</tr>
<tr>
<td>Provide justification for your score and your comments</td>
<td></td>
</tr>
<tr>
<td>Identify any strengths and weaknesses.</td>
<td></td>
</tr>
<tr>
<td>Avoid unnecessary specialist language - not everyone reading your</td>
<td></td>
</tr>
<tr>
<td>review will be a specialist in that field</td>
<td></td>
</tr>
<tr>
<td>Include references, if appropriate</td>
<td></td>
</tr>
<tr>
<td>Be aware of unconscious bias</td>
<td></td>
</tr>
<tr>
<td>Put yourself in the author’s shoes. Ask yourself if you would be</td>
<td></td>
</tr>
<tr>
<td>satisfied with the quality of the feedback provided.</td>
<td></td>
</tr>
<tr>
<td>Contact the funder if you have any queries.</td>
<td></td>
</tr>
</tbody>
</table>

**6 Further Reading**

Research funding reviews:


Journal manuscripts:

How to be an effective peer reviewer. The Pharmaceutical Journal. Available at: http://www.pharmaceutical-journal.com/career/career-feature/how-to-be-an-effective-peer-reviewer/20200006.article

Elsevier for Reviewers: the Reviewers Hub. Available at: https://www.elsevier.com/reviewers
More information on the Pharmacy Research UK (PRUK) peer review process can be found via: 
http://www.pharmacyresearchuk.org/pharmacy-research-funding/

PRUK uses a 1-6 scoring system, which reviewers are asked to use.

### Personal Research Award – Peer reviewer guidance notes and assessment form

These notes are intended to provide the reviewer with specific guidance for the completion of the reviewer form.

Using the criteria below, we would like reviewers to:
- Tell us their views on the applicant (and their team, if applicable)
- Indicate an overall score for the application, taking into account the definitions of each score (see score definitions below).

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Exceptional Fundable</td>
<td>Work that is leading edge, addresses all of the assessment criteria, and meets the majority of them to an exceptional level. Likely to have a significant impact on the field.</td>
</tr>
<tr>
<td>5</td>
<td>Excellent Fundable</td>
<td>Work that is of a high standard, and addresses and meets the majority of the assessment criteria to a very high level. Will answer important questions in the field.</td>
</tr>
<tr>
<td>4</td>
<td>Very Good Fundable</td>
<td>Work that is competitive and meets the majority of the assessment criteria to a high level. Will advance the field.</td>
</tr>
<tr>
<td>3</td>
<td>Good Fundable</td>
<td>Work that has merit and meets the majority of the assessment criteria to an adequate level. Likely to advance the field.</td>
</tr>
<tr>
<td>2</td>
<td>Not competitive Not Fundable</td>
<td>Work that is potentially some merit, and meets some of the assessment criteria to an adequate level, but which is not internationally competitive. Unlikely to advance the field significantly.</td>
</tr>
<tr>
<td>1</td>
<td>Unfundable Not Fundable</td>
<td>Work that is of no significant scientific merit, flawed, or duplicate of other research, or for which the applicants do not present evidence of a satisfactory track record, and which does not meet the majority of the assessment criteria to an adequate level. Unlikely to advance the field.</td>
</tr>
</tbody>
</table>
Scores should be justified with plenty of constructive feedback drawn from your area(s) of expertise.

Confidentiality
We would like you to treat this material as privileged. You may want to show it to one or more colleagues before reaching a decision about the merits of the proposed research. We are committed to ensuring researchers' rights are protected. We also want to minimise any opportunities for conflict of interest. One important part of this is keeping track of who sees these applications. Please contact us with the names of anyone you want to read the application we enclose.

Please return your completed form to:
practice.research@rpharms.com or post to:
Pharmacy Research UK 66-68 East Smithfield, London E1W 1AW.
Prompt questions are provided throughout the assessment form to help guide the content of your review.
2. The research proposal
   - Does it have clear research questions/hypotheses and specific objectives?
   - Will the research question be answered by the project?

   - Does it have a robust methodology?
   - Are there clear, defined measurable outcomes?
   - Has the applicant considered how the study will lead to further developments in the area?
   - Is the project timetable appropriate?
   - Are the resources requested appropriate for the scale and methods of the proposed investigation?

3. Supervision and training
   - Is the supervision proposed appropriate?
   - Is the training identified appropriate?
You have the option to add any additional relevant comments.

Using the matrix provided on the first page of the assessment form, you will be asked to provide a score between 1 and 6.

You must also select whether the applicant should be shortlisted for funding. If unsure, please provide justification.
8 References


