



1. Introduction

The Academy of Medical Sciences welcomes the opportunity to respond to the 'Report of the Research Councils UK Efficiency and Effectiveness of Peer Review Project'. This submission has been prepared by a working group of Academy Fellows chaired by Sir Michael Rutter FRS FBA FMedSci (see annex) and has been endorsed by the Academy's Officers. We have considered the findings and proposals set out in the Report in the context of medical and health research and restrict our comments to these areas.

2. The Academy considers peer review to be the central element in decision-making processes for scientific funding and support. We therefore welcome the Report's endorsement of the principle of peer review and its broad support for the current UK system of operation. There should be no diminution of the value placed on peer review within scientific decision-making. Indeed, we strongly believe that the reduction in the peer review component of the Research Assessment Exercise (RAE) leaves an even greater need for peer review at the grant application stage.
3. The finding that the UK system of peer review compares favourably with that of other countries reflects the experience of our community. Although there is always room for improvement, the operation of the Medical Research Council (MRC) enjoys the confidence of researchers. There is a broad recognition that peer review can be conservative, with reviewers favouring established scientists over younger researchers. However, the UK environment is considered to be one of the most favourable for younger researchers, especially in allowing them to be independent and competitive throughout the early stages of their careers.
4. We preface our responses to the four options proposed in the Report with comments on: the role of the research proposal; trends in the number of proposals and success rates; and impact on reviewers.

5. The role of the research proposal

The Academy considers that careful preparation of a research proposal is an integral part of successful science and not simply a component of the peer review system. Effective research would be severely compromised without such planning and preparation. In some instances, research would benefit from even more effort in preparing proposals. We consider that the 'cost' (which is largely the notional costs of a researcher's time) of preparing proposals should not be wholly attributed to the economic calculation of peer review set out in the Report. If this were done, the calculated costs of peer review would be greatly reduced.

6. Trends in the number of proposals and success rates

The Report's finding that the annual number of grant applications submitted to the Research Councils has doubled since 1988/89 confirms the experience of our community. It is important to examine the reasons behind this trend, for instance the effect of the RAE in driving researchers to submit more proposals.

7. We welcome the Report's acknowledgement that declining success rates for applications have a profoundly negative effect on the peer review system. Success rates are intimately linked with the willingness of researchers to participate in the peer review process, either as research proposers or reviewers. Low success rates impair the ability of reviewers to select between projects that are good enough to be funded and have a demoralising effect on the whole research community.
8. The important criterion on which to judge appropriate funding proportion is whether there are excellent research proposals that cannot be funded. Although there may be a lower limit of funding success, below which peer review becomes untenable, the upper limit is not easily determined and will depend on the number of good scientific proposals submitted. We broadly agree with the view of the Project Board that success rates within the region of 20-50% effectively balance the need for competition with the cost and effort required to support the system. It is therefore a concern that average Research Council success rates are now at 28% and on a falling trajectory. A strong case can therefore be made for increasing the funding available for research, particularly in our own field of the medical and health sciences.

9. Impact on reviewers

Even if funding were increased, the peer review system will always be limited by the number of experts available to consider applications. Evidence suggests that more could be done to manage this aspect of the process. At the moment the acceptance rate for researchers to act as referees is low, only about 50% of referees keep to deadlines for returning comments and there is inconsistency between referees' reports.

10. We emphasise the strong normative and educational value of researchers' role as peer reviewers. Evaluating and discussing colleagues' work is a valuable part of understanding trends and innovations in a field, as well as of benchmarking one's own research. There *must* be a general expectation that grant holders actively participate in the peer review process. The Research Councils should investigate innovative ways to recruit and retain peer reviewers, whether through penalties (e.g. suspending researchers from the peer review system for consistent failure to return comments on time) or rewards (e.g. financial incentives for researchers who participate effectively).
11. The participation of referees from overseas can be effective, particularly in broadening the scope of expertise brought into the peer review process. However, we note that international variations in the process or style of applications can lead to differences in referees' responses. In any event, recruitment of overseas referees cannot be relied upon to bolster the overall number of reviewers in the UK system.

12. Option 1: Consolidation of research grant funding

Consolidation of a proportion of Research Council funding could bring benefits. In comparison with the US, the longer grants available in the UK are considered to bring significant advantages and it can be argued that more productive science can be prosecuted over a 5 year, rather than 3 year, period. A move towards larger and longer grants would reflect a general and broadly successful trend in the medical sciences, and there is likely to be scope for further consolidation across the Research Councils.

13. Consolidation of research funds implies a shifting of the balance between programme- and project-type funding. It is an important function of the Research Councils to keep this balance under constant review. The impact on

the peer review process is only a minor element in considering any change in proportions of programme and project funding. The changing nature of research, for example larger scale collaborative science, will have a far greater relevance in determining this balance. There may be scope for increasing the relative amount of programmatic funding, but project grants remain indispensable because they are the only means by which younger researchers gain sufficient experience to subsequently run major programmes. Mechanisms of rolling grants and of restricting programme grant holders from applying for responsive-mode funding could reduce the overall amount of submissions and should be explored further.

14. The challenge of reviewing and evaluating consolidated grants is an important consideration; such grants may require more regular monitoring, including site visits from teams of researchers, which could annul any intended administrative saving.
15. We strongly believe that any consolidated funds should be allocated at the level of the research group, rather than the department or institution. Allocating funds to department heads focuses financial power and control on a small number of senior people, which could disadvantage some, particularly younger, researchers.
16. However, encouraging institutions to think more strategically about their research could have a positive impact on the peer review system. Current processes, such as the RAE, encourage institutions and individuals to increase the volume of research – more applications, more grants, more funding, more papers – rather than refining areas of promising or productive research. More strategic input at the institutional level could focus and prioritise the research endeavour and ultimately concentrate the number of grant applications. We are not advocating a process whereby university/ institution research committees restrict the number of applications submitted to the Research Councils, but rather encouraging greater opportunity to improve the quality of research proposals and provide feedback at an early stage, especially to younger staff.

17.Option 2: Institutional level quotas

We consider that institutional level quotas for grant applications would encourage perverse and damaging behaviour within universities and departments; we are strongly opposed to their introduction.

18.Option 3: Controlling resubmissions/recycled proposals

It is difficult to assess the extent of the problem with regard to resubmitted and recycled proposals due to a lack of available data - a fact acknowledged in the Report. Researchers have to be allowed to resubmit proposals to some extent and they cannot be prevented from submitting the same/similar proposals to different granting agencies.

19. We emphasise that resubmission can often be an important part of refining and improving a research proposal. This returns to our point, made earlier in this submission, that careful preparation of a proposal lies at the heart of successful research; it is not simply an 'extra' that can be trimmed by an economic formula. The iteration and debate involved in resubmission of a proposal can greatly improve its quality. This mechanism has been used very effectively in supporting large epidemiological programmes and clinical trials. We welcome the movement in recent years towards greater feedback from reviewers and the opportunity for researchers to respond to concerns before a final decision on their proposal is taken. Such interactions between

researchers and reviewers *before* a decision is taken would become even more important if resubmissions were to be restricted.

20. However, we acknowledge that entering into extended dialogue with applicants can impose a considerable burden on granting agencies. There is also a danger that encouraging resubmission of an application raises the expectation of its eventually being funded. We emphasise that funders should only invite resubmission of a proposal if they consider it has a very good chance of receiving their support.

21. Option 4: Greater use of outlines

Outline research proposals have been shown to be an effective tool in assessing applications for directed programmes or projects, but we are less convinced about their role in responsive-mode funding decisions. A greater use of outlines could bring a number of drawbacks. First, the reduced amount of information available to peer reviewers (even if their involvement were only 'light touch') might encourage even greater conservatism; younger researchers or those pursuing more radical research may find it difficult to explain the experimental rationale in a short initial submission. Second, the introduction of an extra outline stage in the review process could increase the delay between submission of a proposal and its eventual acceptance. Third, there is the problem of raising expectations that all accepted outlines will be ultimately funded. Finally, we are not convinced that greater use of outlines would reduce the amount of full submissions and would almost certainly increase the number of speculative outlines, given the lesser time and effort required for their preparation. This might offset any intended savings from avoiding assessing full proposals.

22. Assessing economic impact

We have strong concerns that including an assessment of potential economic impact of a research proposal in the peer review of grant applications could introduce perverse incentives. It is self-evident and demonstrable that funding a free-ranging programme of excellent science fuels economic growth, for both the Research Councils and the wider society.

Annex - Working Group

This submission was prepared by a working group of Academy Fellows:

- Sir Michael Rutter FRS FBA FMedSci (Chair)
- Professor John Bell PMedSci
- Professor Patrick Maxwell FMedSci
- Professor Peter Rigby FMedSci
- Professor Martin Roland CBE FMedSci
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The Academy of Medical Sciences

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