=Academy of Medical Sciences response to the Future Research Assessment Programme consultation

**May 2022**

The Academy of Medical Sciences is the independent voice of medical sciences in the UK, working in collaboration with partners across the UK and internationally to promote biological, medical and health research to improve health and wellbeing. We welcome the opportunity to draw on the expertise of our Fellowship and highlight the following key points.

**Section one: purposes of research assessment**

1. In addition to enabling the allocation of research funding and providing accountability for public investment in research, which purposes should a future UK research assessment exercise fulfil? Select all that apply.

    a. Provide benchmarking information
    **b. Provide an evidence base to inform strategic national priorities**
    **c. Provide an evidence base for HEIs and other bodies to inform decisions on resource allocation**
    **d. Create a performance incentive for HEIs.**

This response from the Academy focusses on the ability of a research assessment exercise to incentivise HEIs across the UK to improve their environment for research. It is the Academy's view that the research environment is a substantial contributor to research excellence, underpinning both output and impact. The future research assessment exercise must continue to improve the way this is measured and rewarded.

For that reason – and in line with the feedback received from consultation with our Fellowship, as well as the preponderance of Academy policy proposals since REF 2014 – the following answers prioritise the ability of an assessment exercise to create performance incentives for and drive behaviours within HEIs.

In addition, we offer some indications of where the funding bodies could consider innovations and evolution of the wider research assessment exercises to ensure it continues to measure excellent research, command the support of the research system and funding bodies, whilst minimising bureaucracy to a proportionate level.

2. What, if any, additional purposes should be fulfilled by a future exercise?

Research assessment can fulfil a range of roles, including those listed above. We would like to see creating "a performance incentive for HEIs" explicitly include driving positive research environments, behaviours and culture because these are all enablers of high-quality research.

3. Could any of the purposes be fulfilled via an alternative route? If yes, please provide further explanation.

While the REF is not the only creator of performance incentives and driver of behaviours for HEIs, it is easily one of the most significant. Evidence from the Academy's Fellowship and wider network suggests the REF is a driver of behaviour at both an institutional and individual level sometimes for a number of years ahead of the exercise. The organisers of the next research assessment programme should not be tempted to defer authority for creating performance incentives to HEIS to alternative routes.

4. Do you have any further comments to make regarding the purposes of a future research assessment system?

This response from the Academy focusses on the ability of a research assessment exercise to incentivise HEIs across the UK to improve their environment for research. It is the Academy's view that the research environment is a substantial contributor to research excellence, underpinning both output and impact. The future research assessment exercise must continue to improve the way this is measured and rewarded.

For that reason – and in line with the feedback received from consultation with our Fellowship, as well as the preponderance of Academy policy proposals since REF 2014 – the following answers prioritise the ability of an assessment exercise to create performance incentives for and drive behaviours within HEIs.

In addition, we offer some indications of where the funding bodies could consider innovations and evolution of the wider research assessment exercises to ensure it continues to measure excellent research, command the support of the research system and funding bodies, whilst minimising bureaucracy to a proportionate level.

Finally, the REF (and any future research assessment exercise) plays a vital role in distributing quality related (QR) funding to the UK Higher Education system (providing an evidence base for HEIs and other bodies to inform decisions on resource allocation). QR, as one strand of the dual support system, underpins many aspects of the UK's strength in research by providing UK HEIs with unhypothecated funding to invest strategically in research. The Academy considers sustaining the research strength in our HEIs to be a matter of strategic national priority and therefore recognises QR (and therefore the FRAP) as playing an important role in supporting strategic national assets. The Academy is currently exploring the sustainability of our health research ecosystem in a major working group report which we expect to publish in early 2023.[1]

The REF guides the allocation of QR funding by all four UK higher education funding bodies by providing information on research "quality". This is complemented by measures of volume of research activity to guide overall allocation (according to slightly different formulas in each nation).

One important function of QR should be to support the ability of HEIs to deliver high quality research that is funded through response mode funding from Research Councils, charities and other sources. The extent to which this is explicit in the policies of the four funding Councils varies. However, the ability of QR to fulfil this (and other strategically important roles) would be undermined by a failure to keep pace with increases in investment to other parts of the dual support system.

TRAC data shows a real-terms decline in QR over the past decade and an increasing deficit in cost recovery of research in universities. Therefore, it is critical that, for the sustainability of the UK's world-class HEI sector and to ensure its ongoing capacity to deliver excellent research and research impact, QR funding should keep pace with the overall growth in R&D investment. To sustain this excellence, allocations of QR should continue to be based both on measures of quality (as currently assessed by the REF) and the volume of research activity.

[1] https://acmedsci.ac.uk/policy/policy-projects/long-term-sustainability-of-health-research-in-the-uk

**Section two: setting priorities**

5. To what extent should the funding bodies be guided by the following considerations in developing the next assessment system? Please rank the considerations from 1 (most important) to 9 (least important)

    a. Ability of the system to promote research with wider socio-economic impact.
    b. Comparability of assessment outcomes (across institutions, disciplines and/or assessment exercises)
    c. Ensuring that the bureaucratic burden of the system is proportionate
    d. Impact of the assessment system on local/regional development
    e. Impact of the system on research culture
    f. Impact of the system on the UK research system's international standing
    g. Maintaining continuity with REF 2021
    h. Providing early confirmation of the assessment framework and guidance
    i. Robustness of assessment outcomes

The considerations listed here are interlinked in a way that ranking would not fully reflect. While there will be a limit to the number of priorities that can be addressed at one time, the Academy believes a future research assessment programme can reasonably be expected to simultaneously address multiple challenges, in large part because many of the possible considerations of an assessment programme (many listed in this question) are closely interlinked.

The Academy believes a future research assessment programme could realistically:

- Retain sufficient continuity with the previous exercise to avoid excessive disruption (to the expectations and processes in HEIs and subsequent impact on individuals)
- While evolving in important ways to better incentivise excellent research process and culture
- Which in turn is likely to encourage research with wider socio-economic impact and enhance the UK research system's international standing.[1]

On the bureaucratic burden, consultation with the Academy's Fellows suggested that discussions about burden must consider the burden placed on assessors, as well as to submitting individuals and institutions. This feedback included concerns about the volume of data (of various kinds) that individual assessors were expected to process. This concern relates not just to the impact on the individual assessors, but also the quality of their assessments.

6. Relating to research culture, to what extent should the funding bodies be guided by the following considerations in developing the next assessment system? Please rank the considerations from 1 (most important) to 6 (least important)

    a. Impact of the assessment system on research careers:
    b. Impact of the assessment system on equality, diversity and inclusion:

[1] The Academy of Medical Sciences, March 2016, *Improving recognition of team science contributions in biomedical research careers*, accessible at 38721-56defebabba91.pdf (acmedsci.ac.uk)

c. Ability of the assessment system to promote collaboration (across institutions, sectors and/or nations)
d. Impact of the system on inter- and transdisciplinary research
e. Impact of the system on open research
f. Impact of the system on research integrity

As above, the considerations listed here in relation to research culture are interlinked in a way that ranking would not reflect. For example:

- Research careers are likely to be enhanced by increasing equality, diversity and inclusion (EDI), collaboration and inter-disciplinary research[2,3]
- Research integrity is likely to improve if, among other things, research careers are more sustainable and secure, removing disincentives for researchers to conduct robust research (whereas competitive and precarious careers may encourage individuals and teams to conduct research which has less integrity but is more likely to strengthen their career in the short-term).[4,5]

While the desire to prioritise considerations is understandable, the Academy feels this misrepresents the interlinked nature of the various facets of the UK's research system. It will be more useful to look at the system as a whole and, as far as possible, consider the holistic effect of a future research assessment programme.

7. What, if any, further considerations should influence the development of a future assessment system? Please set out the considerations and indicate where they should be located in the list of priorities.

The UK's research system is underpinned by researchers and their ability to pursue long-term careers in which their contributions are valued and impactful. As stated above, achieving sustainable career paths is closely related with many other priorities of a research assessment programme. Therefore, the design of a future assessment system should consider the ways in which it incentivises institutions to value and develop researchers and their careers.

Specifically, it is important that any future assessment programme adequately recognises and rewards those individuals contributing to clinical research, as well as the institutions with whom they work. In the Academy's report on enhancing the interface between the NHS and academia, we recommend that HEIs should increase the number of honorary academic appointments offered to healthcare professionals that contribute significantly to research, as evidenced by the inclusion of research in their job plan for example. **Importantly, their contributions should be appropriately recognised in a future assessment system, by submitting institutions and assessment panels**.[6]

Guidance for REF 2021 encouraged the reporting of evidence of effective integration of clinical academics and NHS-employed active researchers, the role and research career development of clinical researchers, and the extent of collaboration or integration with

[2] The Academy of Medical Sciences, 'Addressing health challenges' webpage, 'Research Culture' tab, accessible at Addressing health challenges | The Academy of Medical Sciences (acmedsci.ac.uk)
[3] The Academy of Medical Sciences, March 2016, *Improving recognition of team science contributions in biomedical research careers*, accessible at 38721-56defebabba91.pdf (acmedsci.ac.uk)
[4] The Academy of Medical Sciences, BBSRC, MRC, Wellcome Trust, October 2015, *Reproducibility and reliability of biomedical research: improving research practice*, accessible at 38189-56531416e2949.pdf (acmedsci.ac.uk)
[5] The Academy of Medical Sciences, June 2017, *Enhancing the use of scientific evidence to judge the potential benefits and harms of medicines*, especially p.60, accessible at 44970096 (acmedsci.ac.uk)
[6] NHSA

health and social care services. Given the importance of incentivising contributions to clinical research, **the four UK higher education funding bodies should specifically assess the impact of this new reporting mechanism**, including whether the contributions of NHS-employed active researchers were more comprehensively reflected than in previous assessment exercises.[7]

Although a future research assessment programme may not start for some time, the Academy believes it will be important to **account for the long-term effects of COVID-19 on the careers of researchers in the UK**. The Academy has led work among funders to begin to account for this disruption and would encourage the four UK higher education funding bodies to likewise in the design of the next assessment programme.[8]

More broadly, team science is a good example of the how the various priorities of a future assessment programme are likely to be closely interlinked. Team science, when adequately acknowledged and rewarded, underpins successful research careers, collaboration, interdisciplinary research and in some cases open research (by encouraging data and expertise sharing).[9] Team science may rely on specialist skills of technologists and other members of research teams who may not fit within typical academic career structures. Recognising the value that HEIs place on supporting these team science careers should be part of the future assessment exercise. It can also indirectly support EDI by encouraging a more inclusive culture.[10] See below (section 3) for more on team science as a component, or enabler, of research excellence.

8. How can a future UK research assessment system best support a positive research culture?

The Academy believes that research excellence can be enhanced by positive research culture.[11] Research culture influences research in many ways through the research environment and its impacts upon research collaboration, research integrity, researchers' career opportunities, EDI and other similar, related topics. When designing the next research assessment programme, it may be useful to specify how 'research culture' contributes to the overall research environment and therefore what evidence it is relevant for a HEI to submit with regards to their culture.

Many of the points outlined above relating to research careers and team science are intertwined with research culture. On EDI specifically, the following key points are particularly important for consideration during the design of the next assessment programme:

- Following EDI best practise (as it emerges) should be considered a standard component of research excellence
- It would be beneficial to research culture if the collection of EDI data, including qualitative data, was commonplace. The next assessment programme should incentivise data collection of this kind wherever possible.
- Relatedly, the use of metrics in discussions about EDI can encourage transparency and reduce biases.

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[7] NHSA
[8] Cross-funder statement on COVID-19 in future grant applications | The Academy of Medical Sciences (acmedsci.ac.uk)
[9] The Academy of Medical Sciences, March 2016, *Improving recognition of team science contributions in biomedical research careers*, accessible at 38721-56defebabba91.pdf (acmedsci.ac.uk)
[10] Ibid, especially p.25
[11] The Academy of Medical Sciences, 'Addressing health challenges' webpage, 'Research Culture' tab, accessible at Addressing health challenges | The Academy of Medical Sciences (acmedsci.ac.uk)

- Lack of diversity within the STEM workforce has detrimental consequences for the sector and the society it serves; for example, underrepresentation of any group in research teams limits the applicability of research to society's needs.[12] A future research assessment programme should consider how its design may encourage or inadvertently discourage diverse and inclusive recruitment and retention to the STEM workforce, including in biomedical and health research.

**Section three: identifying research excellence**

9. Which of the following elements should be recognised and rewarded as components of research excellence in a future assessment exercise?

(Multiple options: 'Should be heavily weighted' – 'Should be moderately weighted' – 'Should be weighted less heavily' – 'Should not be assessed' – 'Don't know')

a. Research inputs (e.g. research income, internal investment in research and in researchers)
b. Research process (e.g. open research practices, collaboration, following high ethical standards)
**c.** Outputs (e.g. journal articles, monographs, patents, software, performances, exhibitions, datasets)
d. Academic impact (contribution to the wider academic community through e.g. journal editorship, mentoring, activities that move the discipline forward)
e. Engagement beyond academia
f. Societal and economic impact
g. Other (please specify).

The Academy does not have a settled position on the relative weightings that should be applied to each component and does not wish to imply a particular spread of weights by attributing the given options above. However, we have elaborated below on the areas where we feel the current weightings are insufficient.

While outputs and impact are incredibly important and define the end goal of health research, many of the building blocks of research excellence are located 'upstream' from outputs and impact – as the list above conveys. **It is right to consider whether the foundations of excellence are sufficiently recognised, rewarded and therefore incentivised with a total weighting of 15%.**

Research process and culture may need to be given more prominence in future research assessment. Process and culture are currently assessed via the environment statement and template, jointly weighted at 15%. Despite this relatively low weighting, this is where HEIs must report on, among other things, the following extensive list (bold added):

- "evidence about how **equality and diversity in research careers** is supported and promoted across the institution"
- "approach to supporting **interdisciplinary research**"
- "how the submitting unit is progressing towards an **open research** environment, including where this goes above and beyond the REF open access policy requirements, and wider activity to encourage the effective sharing and management of research data, as appropriate to the discipline"
- "Consideration of **reproducibility**"

[12] The Academy of Medical Sciences, 4 February 2022, *Written Evidence Submitted by the Academy of Medical Sciences (DIV0054)*, accessible at https://committees.parliament.uk/writtenevidence/42527/pdf/

- "how the unit supports a culture of **research integrity**, and ensures that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards"
- "**staff development strategy** for all staff pursuing a career in research at all stages of their careers, including the use of mentoring, probation and appraisal and training, and the unit's implementation of the Concordat to Support the Career Development of Researchers"
- "**evidence of how individuals at the beginning of their research careers are being supported** and integrated into the research culture of the submitting unit"
- "**evidence of procedures to stimulate and facilitate exchanges** between academia and business, industry or public or third sector bodies"
- "evidence of their **commitment to equality and diversity in the recruitment and support of staff with significant responsibility for research and research students**, including the strategies, activities and collaborations that support equality and diversity and enable staff and research students drawn from a wide cross-section of society to engage in research"
- "**how any relevant equality and diversity issues have been addressed**"
- "**evidence of cross-HEI shared or collaborative use of research infrastructure** including the use of major research facilities both in the UK and overseas"
- "the arrangements, support in place for and effectiveness of **research collaborations, networks and partnerships**"
- "**how the unit engages with diverse communities and publics** through its research"
- "evidence of the unit's **contribution to the sustainability of the discipline, support for and exemplars of interdisciplinary research**"

As outlined above, the Academy considers these as enablers of research excellence and therefore assessment of these activities is firmly with the scope of this exercise. The four funding bodies must consider whether these components of research excellence – secure careers, EDI, collaboration, reproducibility and more – can be fully recognised and rewarded under the current weighting distribution.

It is important to note that excellent process and culture are closely related to excellent outputs and impact. **Greater attention to process and culture is one way of encouraging excellence in outputs and impact**. For example, team science is increasingly necessary as a method for tackling major global challenges which require interdisciplinary approaches; yet a lack of recognition for one's contributions has been a major obstacle to researchers participating in team science for some years.[13] Feedback from Fellows included acknowledgement of the relationship between the criteria for assessing multi-author papers (how broadly the definitions of authorship and contribution are set) and the resulting incentives for collaborative projects.

As well as any adjustments to the weighting of the environment statement, **more guidance should be offered on the elements of excellence research process and culture that will be assessed**. This could help reduce variation in the composition of environment statements and thereby reduce subjectivity in their assessment. To take just one example, clearer guidance and metrics where appropriate can help boost transparency and reduce bias in efforts to promote EDI.

[13] The Academy of Medical Sciences, February 2019, *From innovation to implementation: team science two years on*, accessible at 52394024 (acmedsci.ac.uk)

**One aspect of research culture that would benefit from guidance and incentivisation is patient and public involvement (PPI)**. It is increasingly recognised that PPI improves research, especially health research.[14,15] However, a 2020 workshop co-hosted by the Academy found that "it is often unclear where the responsibility for encouraging public involvement in research lies, whether with the organisation or the research teams. The impetus to include public involvement in research projects should ideally be mandated at all levels, from funding bodies, through to institutions and to project leads. Beyond discourse with the public, there are currently groups in society who are underrepresented in health research itself, for example in participants of clinical trials, which limits the generalisability of the research.

**Funding bodies will have the most influence in ensuring that public involvement is an integral part of research and that the participants in human and clinical research reflect the diversity of our society both during and beyond the pandemic**."[16]

The Academy has previously reported on the challenges to reproducibility in the UK research system, as well as supporting the recommendation for an institution-level environment statement.[17] **It will be important for the four funding bodies to review the effectiveness of this statement and the accompanying template in encouraging reproducibility** – including addressing whether the weighting for the environment statement provided sufficient incentive, and whether there was sufficient guidance to encourage best practice as regards reproducibility.

10. Do you have any further comments to make regarding the components of research excellence?

**A future assessment programme could go further not just to incentivise team science, but collaborations more broadly**. In a 2017 roundtable on 'geographical clusters', hosted by the Academy and the Wellcome Trust, it was suggested that the REF does not properly recognise collaborative outputs, which may negatively impact willingness to collaborate.[18] This was reflected in more recent feedback from our Fellowship. Similarly, consulted Fellows indicated concern about the relatively low proportion of the environment statement concerned with collaboration between HEIs and industry, which could lead to inadequate incentives.

Interdisciplinary research is increasingly important, for cross-cutting issues like mental health as well as global research challenges like multi-morbidity.[19,20] Feedback from Fellows consulted included concern that interdisciplinary research was difficult to reward under the framework of REF 2021. **Relating to component B listed above, a future assessment programme should consider how best to recognise and reward**

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[14] Academy of Medical Sciences, March 2022, *Academy of Medical Sciences' response to the MHRA's consultation on legislative changes for clinical trials*, accessible at 83223772 (acmedsci.ac.uk)
[15] Academy of Medical Sciences, July 2021, *People's Perspective COVID-19: Preparing for the future*, accessible at 57914133 (acmedsci.ac.uk)
[16] Academy of Medical Sciences, Association of Medical Research Charities, Association of British Pharmaceutical Industries, National institute for Health Research, May 2020, *Public involvement and engagement in research during the COVID-19 pandemic: Summary of a FORUM workshop held on 19 May 2020*, accessible at 77957062 (acmedsci.ac.uk), bold added
[17] The Academy of Medical Sciences, June 2017, *Enhancing the use of scientific evidence to judge the potential benefits and harms of medicines*, accessible at 44970096 (acmedsci.ac.uk)
[18] The Academy of Medical Sciences, February 2017, *Geographical clusters: a vision for the future: Report of a workshop held at Newcastle University, 1 February 2017*, accessible at 31821958 (acmedsci.ac.uk)
[19] Academy of Medical Sciences, MQ, April 2020, *Research priorities for the COVID-19 pandemic: a call for action for mental health science*, accessible at 53005938 (acmedsci.ac.uk)
[20] Academy of Medical Sciences, April 2018, Multimorbidity: a priority for global health research, 82222577 (acmedsci.ac.uk)

**interdisciplinary research**, to enable the UK research system to engage with and contribute to the most pressing research challenges.

More generally, it will be important during the design of a future assessment to account for society's evolving view of excellence – notably the necessity of equality, diversity and inclusion in anything considered to be excellent – and ensure HEIs are sufficiently incentivised to engage with this perspective. Encouraging a culture of EDI in HEIs is likely to create a virtuous cycle, whereby EDI and other aspects of research excellence mutually increase.

11. Are the current REF assessment criteria for outputs clear and appropriate? (Yes/No/Don't know)
    a. Originality
    b. Significance
    c. Rigour

12. Do you have any further comments to make regarding the criteria for assessing outputs?

A number of Fellows consulted suggested that the design of the next assessment exercise should carefully how metrics can be used to support assessment by peer review, whilst reducing the burden on assessors significantly and maintaining high-quality research assessment.

The research community has rightly been wary of overreliance on metrics and the risks this might pose, including loss of nuance and further isolation of interdisciplinary research (for example if metrics differ between disciplines, making it harder and less appealing to pursue interdisciplinary work). Whilst conscious of these trade-offs, it is right to consider again what role metrics can play in future exercises to aid the assessment of research and how any negative effects can be mitigated.

While there are issues to consider, one benefit of the use of metrics would be the potential to reduce subjectivity and even bias in assessment, for example (as noted above) when considering the efforts of HEIs to enhance EDI.

13. Are the current REF assessment criteria for impact clear and appropriate? (Yes/No/Don't know)
    a. Reach
    b. Significance

14. Do you have any further comments to make regarding the criteria for assessing impact?

In a 2018 workshop co-hosted by the Academy, participants noted that differing incentive and reward and career structures across academia, industry and the NHS can present a barrier to team science.[21] In some instances, these incentives relate to the kinds of impact that are encouraged (or perceived to be encouraged) by the assessment process. **The next assessment programme should continue to play a role in encouraging, by recognising and rewarding, a broad range of impacts**, which capture the varying outputs of both individual academics and, for example, large, multi-

[21] Academy of Medical Sciences and the Association of the British Pharmaceutical Industry, March 2018, *Bridging the preclinical-clinical boundary: Summary report of a joint workshop held on 9 March 2018 by the Academy of Medical Sciences and the Association of the British Pharmaceutical Industry*, accessible at 36971834 (acmedsci.ac.uk)

disciplinary teams from different sectors. For example, progression of a therapy to the next stage of clinical development is one example of an impact that differs from traditional academic impacts but which should be equally rewarded.[22] Similarly, it is important that societal impact includes health outcomes.

Feedback from Fellows and other members of the Academy's network consulted included the following points relating to impact, which a future assessment programme could seek to alleviate:

- Impact case studies have proved valuable in assessing the value of research to wider society, but the extent to which HEIs are effective in engaging in and supporting dissemination and implementation of research findings is not captured. While this activity may be captured by the Knowledge Exchange Framework (KEF) it will be important for the next assessment programme to align with this work to ensure it is being adequately recognised and rewarded. Engagement and involvement in dissemination and implementation is key to society achieving more rapid benefits of research, and better engagement is likely to support more relevant research in the future
- There is insufficient guidance on how best to measure impact. it is not always clear whether one impact (such as encouraging a change in regulator guidelines) is as important as another (such as changing citizen behaviour, or generating a healthy economic return) and little guidance is currently provided in this regard.
- Relatedly, there are challenges to explore how to assess varying levels of contribution to a collaborative project by HEIs.
- Assessment of impact case studies should focus on the impact and not the "quality" of research as this is assessed elsewhere. Despite guidance to this effect, we heard that assessment of research impact frequently focused on the panel's views on the quality of research as opposed to the impact it generated.
- Some interventions that are worth considering in the design of the next impact assessment section of the exercise include: asking impact assessors/research users to chair and lead the discussion of impact case studies; involving impact assessors in the consideration of HEI environment; making impact assessment a stand-alone exercise and incentivising it to underline its importance to institutions.

15. Are the current REF assessment criteria for environment clear and appropriate? (Yes/No/Don't know)
    a. Vitality
    b. Sustainability

16. Do you have any further comments to make regarding the criteria for assessing environment?

Please see answer to question 9.

**Section four: assessment processes**

17. When considering the frequency of a future exercise, should the funding bodies prioritise:
    a. stability
    b. currency of information
    c. both a. and b.
    d. neither a. nor b.
    e. Don't know.

[22] Ibid.

18. Do you have any further comments to make regarding the prioritisation of stability vs. currency of information?

19. Should a future exercise take place on a rolling basis?
    a. Yes, split by main panel
    b. Yes, split by assessment element (e.g. outputs, impact, environment)
    c. No
    d. Don't know.

20. Do you have any further comments to make regarding conducting future research assessment exercises on a rolling basis?

21. At what level of granularity should research be assessed in future exercises?
    a. Individual
    b. Unit of Assessment based on disciplinary areas
    c. Unit of Assessment based on self-defined research themes
    d. Institution
    e. Combination of b. and d.
    f. Combination of c. and d.
    g. Other (please specify)

22. Do you have any further comments to make regarding the granularity of assessment in a future research assessment exercise?

23. To what extent and for what purpose(s) should quantitative indicators be used in future assessment exercises? (Please select as many as apply)
    a. Move to an entirely metrics-based assessment
    b. Replace peer review with standardised metrics for:
        i. Outputs
        ii. Impact
        iii. Environment
    **c. Use standardised metrics to inform peer review of:**
        **i. Outputs**
        **ii. Impact**
        **iii. Environment**
    d. Should not be used at all.
    e. Other (please specify)

24. Do you have any further comments to make regarding the use of metrics in a future research assessment exercise?

See comments under question 12 regarding the use of metrics in assessment of outputs.

25. How might a future UK research assessment exercise ensure that the bureaucratic burden on individuals and institutions is proportionate?

Feedback from Fellows consulted suggests that discussions about burden must consider the burden placed on assessors, as well as to submitting individuals and institutions. This feedback included concerns about the volume of data (of various kinds) that individual assessors were expected to process; a concern which related not just to the impact on the individual but also the quality of their assessments.