

## Peer reviewer assessment form

Please read the guidance within before undertaking your assessment.

Application reference number: \_\_\_\_\_

Lead Applicant: Arwel Jones  
\_\_\_\_\_

Please enter your score using the scoring scale in Appendix 1:

5

Please return forms to:  
[NISCHRGrants@Wales.GSI.Gov.UK](mailto:NISCHRGrants@Wales.GSI.Gov.UK)

## **Guidance for completing the scientific review**

Please read the application you have been sent thoroughly and provide comments under the following assessment criteria headings:

- A: Scientific merit
- B: Methodology
- C: Planning and resources
- D: Impact and dissemination
- E: Overall impression

You are asked to provide an overall rating for the application. Information on the scoring system is provided in Appendix 1.

An indication of the kind of factors you should take into consideration when assessing the application under each criterion is provided below each heading.

## A: Scientific merit

- The aims of the project are clearly stated.
- The study is well-designed.
- The outcome measures are clearly defined.
- The research will fill a clearly identified gap in current research knowledge.
- The project is ethically acceptable.
- The work will be of interest and relevance elsewhere in the UK and beyond.

### Comments:

Clearly a lot of thought and effort has gone into working up this application and so I don't want to seem like I'm picking holes. Although the aims are clearly stated, in essence this is essentially a bit of a fishing trip and I guess if you measure enough markers something is bound to pull out. Now that's not meant to be a damning criticism because we've all been there and done that, but I don't believe this will lead to any real impact on terms of personalised medicine per se. Other groups are doing similar studies creating databases of local and systemic biomarkers and then linking to health informatics, and in much larger numbers than the present proposal. There are no ethical concerns. I have my doubts within the constraints of the limited sample size that this is going to achieve high impact in for example the Blue Journal.

## B: Methodology

- The methodology is clearly described.
- The methodology is rigorous and unbiased.
- Will the methodology enable collection of the required data?
- The methodology is appropriate for the specific aims of the project.

### Comments:

The methodology is well described but the power calculations are in my opinion rather optimistic and dare I say it a bit vague. I say this because there is no mention a priori of any primary outcome variable on which the study has been powered, in terms of the minimal important difference and the associated SD. Also I think the authors should consider over-powering at 90% given this is a small single centre study. The reason I say this is because it is highly likely that the power will depend not only the standardised response mean ratio of the different variables being measured, but also on the heterogeneity of the population being studied in terms of GOLD stage. I see no attempt to stratify for GOLD stage and inevitably we will be left with weakened conclusions based on post hoc subgroup analysis.

according to GOLD stage –again I’m speaking from personal experience here from this type of study analysis . Hence the two groups inevitably will not be matched with the more frequent exacerbators being in GOLD 3/4 ,which in turn has inherent problems in terms of potential confounders such as comorbidity and therapy –eg ICS and infection risk .For example performing 16S sputum microbiome analysis and neutrophil function is likely to be heavily influenced by ICS therapy . A much larger sample size will be required to tease out these type of factors in the analysis . My steer would be to recommend they greatly increase the sample size by bringing on board other centres in Wales who I’m sure would be happy to collaborate in this type of national study which is relatively easy to do as it does not involve a CTIMP . Although they are stratifying according to exacerbations , I can see no mention of any measurement of health status ,QOL or functional status (eg 6MW or shuttle test ) being measured here . Also I would suggest they also measure effort independent pulmonary function –such as RVC , RV/TLC ,R5 ,AX which might be more sensitive than conventional tests such as FEV1 and FVC . Perhaps the authors should also think about including some other relevant biomarkers such as Gallectin ,HS-CRP and BNP –it would be shame not to at least bank some blood for analysis later on .

## C: Planning and resources

- The resources requested are essential for the work.
- The work is well planned.
- The project can be completed within the budget and timescale proposed.
- The project team has the necessary experience and expertise.
- The project offers good value for money.

### Comments:

The funding request seems reasonable for what has been proposed .

## D: Impact and dissemination

- The findings are likely to stimulate further research.
- The findings are likely to lead to improvements in social care services.
- The research addresses the inequalities in social care.
- The plans for disseminating the results of the research are appropriate and adequate.
- There are appropriate plans for promoting public understanding of the research

### Comments:

I have serious doubts that the data generated from a relatively small dataset in a heterogeneous population are going to result in important advances in health or related social care services .The plans for dissemination seem appropriate . A priori stratification according to GOLD stage with proper power calculations would be also be helpful in terms of getting the results published in a high impact journal .

## E: Overall Impression

- What are the main strengths and weaknesses?
- Is the application innovative and original?
- Will it make a difference?
- What, if any, improvements could be made?

### Comments:

I honestly do not believe this is going to make a real difference to clinical care in terms of health outcomes .My advice would be to make this a Welsh collaborative study with an appropriate level funding and much bigger patient numbers . Then you would have something with significant potential national and international impact ,rather than a small data trawling exercise as it currently stands .

## Appendix 1

### Peer reviewer scoring system

At the end of the assessment form you are asked to provide a score for the application out of ten.

You should first decide whether the application is excellent, good, potentially useful or unacceptable, and then provide a score that falls within that category using the table below. You should use only whole numbers when scoring.

Please note that your score and comments will be fed back to applicants, though applicants **will not** be made aware of your identity.

NISCHR Peer reviewer scoring scale	
Score	Indicators
<b>Excellent quality research (9-10)</b>	
10	Exceptional
9	Excellent quality research which is (or will be) be at the forefront internationally. Addresses very important medical or scientific questions. Likely to have a high impact on health or social care practice (in the relevant field).
<b>Good Quality Research (5-8)</b>	
8	Good, bordering on excellent.
7	Good quality research which is internationally competitive, and at the forefront of UK work. Important research which will be highly productive, and likely to have a significant impact on health and social care practice (in the relevant field).
6	Good quality research, on the border between national and international standing.
5	Good quality research which is at least competitive at a UK level. Addresses reasonably important questions, and will be productive. Good prospects of making some impact on health and/or social care practice (in the relevant field). Any significant concerns about the research approach can be easily corrected.
<b>Potentially useful study (2-4)</b>	
4	Potentially useful, bordering on good quality research.
3	Research plans which contain some good ideas or opportunities, but which are very unlikely to be productive / successful. Major improvements would be needed to make the proposal competitive.
2	Potentially useful in some aspects, bordering on unacceptable in others.
<b>Unacceptable (1)</b>	
1	Serious scientific or ethical concerns. Should not be funded.