Witness Name:
Julia Hippisley-Cox
Dated: 02.11.2022
Ref: M2/SAGE/01/JHC

COVID-19 INQUIRY – MODULE 2

Updated Questionnaire Response – Professor Julia Hippisley-Cox

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1: Overview of qualifications, career history, professional expertise and major publications:

Qualifications

1.1. The following table outlines my qualifications:

Table 1- Qualifications

2013	FRCP, Royal College of Physicians
2005	FRCGP, Royal College General Practitioners
1996	DM, University of Nottingham
1995	MRCGP, Royal College General Practitioners, Distinction
1994	MRCP, Royal College of Physicians
1991	DRCOG, Royal College Obstetricians & Gynaecology
1989	MB ChB (Hons), Sheffield University

1.2. Clinical academic with expertise in the linkage and analysis of large electronic databases of routinely collected NHS data; development and implementation of risk prediction tools (particularly the development of the NHS QCOVID risk assessment tool used to add 1.5M people to the shielded patient list and prioritise patients for early vaccination); analysis of vaccine safety.

Employment History

1.3. The following table outlines my employment history:

Table 2 – Employment History

2019-now	Professor of Clinical Epidemiology and General Practice at the University of Oxford.
2019-now	Professorial Fellow St Anne' College, University of Oxford.
2022-now	NIHR Senior Investigator
1995-now	NHS General Practitioner.
2003-now	Director of the QResearch Database (www.qresearch.org).
2020-2022	Chair of the risk stratification subgroup of the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) [For clarification, although this was included in my employment history, I was a member of the sub-group, rather than an employee]
2020-2022	SAGE group member for three subgroups – ethnicity, vaccine science co-ordination, and emergencies relating to data [For clarification, although this was included in my employment history, I was a participant in SAGE, rather than an employee].
2021-now	The National Expert Group to create protocol and clinical policy for use of neutralizing monoclonal antibodies (nMABs) across the UK
2022-now	Department of Health and Social Care. Therapeutics Clinical Review Panel – Modelling group

Major COVID Publications

1.4. Clift AK, Coupland CAC, Keogh RH, Karla Diaz-Ordaz K, Williamson E, Harrison EM Hayward A, Harry H, Horby P, Mehta N, Benger J, Khunti K, Spiegelhalter D, Sheikh A, Valabhji J, Lyons RA, Robson J, Semple MG, Kee F, Johnson P, Jebb S, Williams T, **Hippisley-Cox J**. Living risk prediction algorithm (QCOVID) for risk of hospital admission and mortality from coronavirus 19 in adults: national derivation and validation cohort study. BMJ 2020; 371; doi.org/10.1136/bmj.m3731

1.5. **Hippisley-Cox J**, Coupland CA, Mehta N, Keogh R, Diaz-Ordaz K, Lyons RA, Sheikh A, Rahman S, Valbhji J, Sellen P, Haq N, Semple MG, Hayward A, Ngueyen-Van-Tam JS. Risk prediction of covid-19 related death and hospital admission in adults after covid-19 vaccination: national prospective cohort study. BMJ; 2021;374:n2244

1.6. Patone M, Mei XU, Handunnetthi L, Dixon S, Zaccardi F, Shankar-Hari M Watkinson P, Khunti K, Harnden A, Coupland CA, Channon KM, Mills NL, Sheikh A **Hippisley-Cox J**. Risks of myocarditis, pericarditis, and cardiac arrhythmias associated with COVID-19 vaccination or SARS-CoV-2 infection. Nature Medicine; 2021; doi:org/10.1038/s41591-021-01630-0

1.7. Patone M, Handunnetthi L, Saatci D, Pan J, Katikireddi S, Razvi S, Hunt D, Xue W, Zaccardi F, Khunti K, Watkinson P, Coupland CA, Doidge J, Harrison D, Sheikh A, Robertson C, **Hippisley-Cox J**. Neurological complications after first dose of COVID-19 vaccination and SARS-Cov-2 infection: Analysis of linked health records. Nature Medicine; 2021; 10.1038/s41591-021-01556-7

1.8. **Hippisley-Cox J**, Patone M, Mei Xu W, Saatci D, Dixon S, Khnti K, Zaccardi F, Watkinson P, Shankar-Hari M, Dodge J, Harrison DA, Grfiffin S, Sheikh A, Coupland CA. Risk of Thrombocytopenia and Thromboembolism after COVID-19 vaccination and SARS-Cov-2 positive testing. BMJ 2021;374:n1931

2: List of groups I participated in and the relevant time period:

2.1. SAGE Ethnicity Sub-Group: 28/08/2020-09/03/2021

2.2. SAGE Vaccine Science Co-Ordination Group: 17/09/2020- 29/09/2021.

2.3. NERVTAG: 27/05/2020-24/09/2021

2.4. NERVTAG Risk Stratification Sub-Group: 18/05/2020-16/12/2020.

2.5 SAGE 40 Commission- Occupational Risk: 13/07/2020-10/08/2020

2.6 I also participated in some non-SAGE related groups. They are: The Joint Committee on Vaccines and Immunisations (JCVI), the Covid-19 Vaccines Benefit Risk Expert Working Group and the Risk Stratification Implementation Group.

3: Overview of involvement in groups between January 2020 and February 2022:

3.1. Member of SAGE ethnicity group, invited by Chris Witty.

3.2. Able to attend 7 out of 17 meetings

1/ 28.8.20

8/ 3.11.20

11/ 8.12.20

13/ 5.1.21

14/ 12.1.21

15/ 26.1.21

16/ 9.3.21

3.3. Occasional member of SAGE vaccine science co-ordination group and data groups, invited by chair

3.4. Attended several NERVTAG meetings, invited by NERVTAG chair. Invited to chair risk stratification subgroup by NERVTAG chair and DCMO Harries in May 2020.

SAGE Ethnicity Sub-Group

3.5. I was a participant in the SAGE Ethnicity Sub-Group and was invited to participate by Sir Chris Whitty. I attended 7 out of 17 meetings. The number of meetings attended, contributions to those meetings, and my role in providing research, information and advice is summarised below:

Date	Role	Documents Submitted	Contribution with respect to research information and advice
28.08.20	Participant	None	Introduced the work we had been doing on the QCovid risk assessment and ethnicity grant
03.11.20	Participant	None	Summarised results from study around household composition.
08.12.20	Participant	None	Presentation on QResearch work studying vaccine uptake

			among minority ethnic groups in previous vaccine programmes.
05.01.21	Participant	None	Agreed to attend meeting to develop mini protocol for analysis with standardised definitions.
12.01.21	Participant	None	Presented data results studying the early part of the 2nd wave of Covid-19 in the UK (from 1st September to early November) for testing, hospital admission, ICU admission, and death by ethnicity.
26.01.21	Participant	**preprint here**	Gave preliminary results on analyses of outcomes for patients with the variant of concern (VOC) B.1.1.7 compared with the wild type SARS-Cov-2. Preliminary results indicate an increased risk of someone being admitted to ICU if they test positive for the VOC compared to testing positive for the wild type. There was no significant difference in risk among ethnic minority groups to be admitted to ICU with either variant, however there are small numbers in each group.
09.03.21	Participant	None	Listened to discussion.

SAGE Vaccine Science Co-ordination Group

3.6. I was an occasional member of the SAGE Vaccine Science Co-Ordination Sub-Group. I was invited by the Chair, Professor Wendy Barclay. I determined the number of meetings attended and contributions made from calendar invites in my diary which I accepted, as I requested this information from the Vaccine Science Co-Ordination Group but have not yet had a response from them. The

number of meetings attended, contributions to those meetings and my role in providing research, information and advice is summarised below:

Date	Role	Contribution with respect to research, information and advice
17.09.20	Participant	Verbal update on my prediction models (rationale, processes, data).
21.10.20	Participant	Verbal update about QResearch – Oxford record linkage study, which is a large anonymized database of electronic medical records (www.qresearch.org) and how it was supporting the COVID response with analysis of Covid-19 risk factors. On 28/10/22, I requested the minutes of this meeting from GO-Science and clarification as to whether it was in fact part of a SAGE group meeting (and if so, which one) or was separate.
29.09.21	Participant	Commented on the key questions which my group were addressing on vaccine safety and gave an update on progress with the QCovid risk assessment tools.

NERVTAG

3.7. I attended several NERVTAG meetings. I was invited by the NERVTAG Chair, Professor Sir Peter Horby, to update on progress with the risk stratification tool research undertaken within the NERVTAG Risk Stratification Sub-Group (see below). The minutes can be found here . The number of meetings attended, my contributions to those meetings and role in providing research, information and advice is summarised below:

Date	Role	Contribution with respect to research, information and advice
27.05.20	Invited expert	Update on progress with development of the QCOVID risk stratification tool.
03.06.20	Invited expert	Update on progress with development of the QCOVID risk stratification tool.
24.06.20	Invited expert	Update on progress with development of the QCOVID risk stratification tool.
02.10.20	Invited expert	Update on progress with development of the QCOVID risk stratification tool.
05.02.21	Invited expert	Verbal presentation on analysis of new variant of concern.
24.09.21	Invited expert	Update on progress with development of the updated versions of the QCOVID risk stratification tool.

NERVTAG Risk Stratification Sub-Group

3.8. I was invited to Chair the NERVTAG Risk Stratification Sub-Group by the NERVTAG Chair and DCMO Jenny Harries in May 2020. The minutes are published here.

Date	Role	Contribution with respect to research, information and advice
18.05.20	Chair	Gave presentation on the QResearch database linked to COVID test positive disease registry and data from the Intensive Care National Audit and Research Centre (ICNARC). Proposed the need for a national one version or a risk assessment tool which is tested and verified with careful consideration of who the audience is, how it will be used in different settings, how will it be operationalised and how policy and/or disease will change in future.
20.05.20	Chair	First meeting of the NERVTAG subgroup - introductions, agreement on scope of the work and development of protocol.
25.05.20	Chair	Determined the likely definition of outcomes, predictor variables and analysis plan.
01.06.20	Chair	Discussion of validation datasets in rest of the UK. Discussion of emerging results and initial implementation plan.
08.06.20	Chair	Discussion of research collaboration agreement, which was being developed between the parties, competing interests, policy updates, comms plan and patient engagement
15.06.20	Chair	Discussion of model updates, development and validation and plans for press release to inform public about the research.
22.06.20	Chair	Discussion of model parameters, validation, communications, and policy updates.
30.06.20	Chair	Discussion on implementation plans, medical devices, patient and policy engagement.
14.07.20	Chair	Discussion on results and implications and publication plans.
20.09.20	Chair	Discussion on project progress and status of the NIHR research grant to develop QCOVID, identification of best datasets for model validation, update on academic licenses for QCovid risk assessment tool, how to present risk for patients and clinicians and patient engagement activities.
21.10.20	Chair	Discussion on model validation, implementation and policy development.
03.12.20	Chair	Discussion of ONS validation results.
16.12.20	Chair	Discussion of validation work in developed administrations.

3.9. I attended various other meetings related to my work on QCOVID and vaccine safety during the pandemic, which were not specifically SAGE or NERVTAG meetings. Generally, I gave verbal updates on progress and shared links to

published papers or PowerPoint presentations. Below is a list of the meetings that I attended for these non-SAGE and NERVTAG related groups. It is largely indicative of the meetings I attended rather than comprehensive, as I determined the dates of the meetings from a search of my calendar. However, the information related to JCVI was confirmed by the Secretariat.

Joint Committee on Vaccines and Immunisations (JCVI)

3.10. I attended the following meetings:

Date	Role	Documents Submitted	Contribution with respect to research, information and advice
06/07/20	Expert	None	Preliminary work on QCOVID.
22/10/20	Expert	https://www.bmj.com/content/371/bmj.m3731	Summary of results for QCOVID.
02/02/21	Expert	None	Phase 2 QCOVID. Please note that the Secretariat have confirmed that this meeting was only between myself, the Secretariat and the Chair. It was not a JCVI meeting.
19/10/21	Expert	Presentation on the risks of myocarditis, pericarditis and cardiac arrhythmias associated with COVID-19 vaccinations and SARS-CoV-2 infection.	Summary of results looking at vaccine safety.

Covid-19 Vaccines Benefit Risk Expert Working Group

3.11. I attended one meeting as outlined below:

Date	Role	Documents Submitted	Contribution with respect to research, information and advice
25/05/2021	Expert	PowerPoint presentation- OX107 vaccine safety slides JCVI May 2021.	Presented findings on COVID-19 vaccination and thrombocytopenia/thrombosis.

Risk Stratification Implementation Group

3.12. Meetings attended are outlined below:

Date	Role	Documents Submitted	Contribution with respect to research, information and advice
18/06/20	Member	None	Advice on QCOVID results and implementation.
25/06/20	Member	None	Advice on QCOVID results and implementation.
02/07/20	Member	None	Advice on QCOVID results and implementation.
09/07/20	Member	None	Advice on QCOVID results and implementation.
16/07/20	Member	None	Advice on QCOVID results and implementation.
30/07/20	Member	None	Advice on QCOVID results and implementation.
07/08/20	Member	None	Advice on QCOVID results and implementation.
13/08/20	Member	None	Advice on QCOVID results and implementation.
16//11/20	Member	None	Advice on QCOVID results and implementation.
09/11/20	Member	None	Advice on QCOVID results and implementation.

4: Summary of documents to which I contributed for the purposes of advising groups:

4.1. Generally, I attended meetings for the various SAGE sub-groups and non-SAGE groups and gave verbal updates or shared PowerPoint presentations during the meetings. None of these PowerPoint presentations were published. They were interim results and were accompanied by my explanations during meetings. The actual results of the research mentioned in them appears in the main research papers listed below. Some examples of those PowerPoint presentations are:

4.2. QCOVID Occupational Health Nov 2020 for SAGE 40 Commission-Occupational Risk : Click Here to Download

4.3. QCOVID for NERVTAG 10.06.2021 : Click Here to Download

4.4. Ethnic disparities in flu pneumococcal and shingles vaccinations Dec 2020 for the SAGE Ethnicity Sub-group: Click Here to Download

4.5. OX107 vaccine safety slides JCVI May 2021 : Click Here to Download

4.6. For NERVTAG, I prepared meeting agendas and circulated meeting minutes. For all the groups I participated in, I shared links to work in progress documents (such as research papers) on onedrive so that members of the team could add any comments. The documents would then be evolved and published. This all happened very quickly and in parallel with the meetings. The resulting documents have all been published as protocols or research papers and are listed below:

4.7. Clift AK, Coupland CAC, Keogh RH, Karla Diaz-Ordaz K, Williamson E, Harrison EM Hayward A, Harry H, Horby P, Mehta N, Benger J, Khunti K, Spiegelhalter D, Sheikh A, Valabhji J, Lyons RA, Robson J, Semple MG, Kee F, Johnson P, Jebb S, Williams T, **Hippisley-Cox J**. Living risk prediction algorithm (QCOVID) for risk of hospital admission and mortality from coronavirus 19 in adults: national derivation and validation cohort study BMJ 2020; 371 doi: https://doi.org/10.1136/bmj.m3731

QCovid is a risk prediction model which predicts those who might be at high risk of serious illness from COVID-19 and was designed to risk assess the general population, inform people about their risk level and support people with decisions about behaviors in consultation with a clinician. QCOVID has been implemented by Oxford University Innovations (OUI- the technology transfer office for the University of Oxford) and NHS Digital across the NHS as a national COVID-19 Population Risk Assessment .The *risk assessment ensures that at-risk adults can be identified and prioritised for COVID-19 vaccination. Implementation of the first version in Feb 2021 led to 1.5 million people being added to the Shielded Patient List and 820,000 people receiving an earlier COVID-19 vaccine. It is considered to be the first national scale precision population health intervention to quickly identify patients for urgent interventions.*

4.8. **Hippisley-Cox J**, Coupland CA, Mehta N, Keogh R, Diaz-Ordaz K, Lyons RA, Sheikh A, Rahman S, Valbhji J, Sellen P, Haq N, Semple MG, Hayward A,

Ngueyen-Van-Tam JS. Risk prediction of covid-19 related death and hospital admission in adults after covid-19 vaccination: national prospective cohort study; BMJ; 2021;374:n2244

The underpinning research for the QCOVID risk assessment tool was updated in 2021 to take account of new variants and the vaccination program at the request of the CMO and DHSC. The new models predict which patients are likely to have severe COVID-19 outcomes despite vaccination and is being used to prioritise patients for Monoclonal Antibodies. It was also highlighted as a case study by HDR-UK. The impact of this has been documented as a NIHR impact case study here.

4.9. Nafilyan V, Humberstone B, Mehta N, Diamond I, Coupland C, Lorenzi L, Pawelek P, Schofield R, Morgan J, Brown P, Lyons R, Sheikh A, **Hippisley-Cox J.** An external validation of the QCovid risk prediction algorithm for risk of mortality from COVID-19 in adults: national validation cohort study in England. Lancet Digital Health 2021 doi: 10.1016/s2589-7500(21)00080-7

This research was requested urgently by the DHSC and the 4 UK CMOs to externally validate the QCovid risk model. The model had excellent performance on national datasets and the results led to the immediate use of QCovid for the national risk stratification intervention referred to above.

4.10. Clift AK, Coupland CAC, Keogh RH, Hemingway H, **Hippisley-Cox J**. COVID-19 Mortality Risk in Down Syndrome: Results from a Cohort Study Of 8 Million Adults. Annals of Internal Medicine 2020; https://doi.org/10.7326/M20-4986

This is the first paper to identify significant association between Down syndrome and severe COVID-19 using a cohort study of >8 million adults. Higher risk of hospitalisation (HR 4.94 [95% CI: 3.63 to 6.73]) and death (10.39 [95% CI: 7.08 to 15.23]) observed. Informed an update to the UK Government's 'clinically extremely vulnerable' (shielding) list, informed prioritisation by the JCVI, as well as an update to the US Center for Disease Control's list of medical conditions that confer elevated risk. Altmetric score >1970 https://annals.altmetric.com/details/92824866 ; https://www.science.org/news/2020/12/covid-19-10-times-deadlier-people-down-syndrome-raising-calls-early-vaccination

4.11. Patone M, Mei XU, Handunnetthi L, Dixon S, Zaccardi F, Shankar-Hari M Watkinson P, Khunti K, Harnden A, Coupland CA, Channon KM, Mills NL, Sheikh A **Hippisley-Cox J**. Risks of myocarditis, pericarditis, and cardiac arrhythmias associated with COVID-19 vaccination or SARS-CoV-2 infection; Nature Medicine; 2021 https://doi.org/10.1038/s41591-021-01630-0

This paper published in Nature Medicine is the largest vaccine safety study of its kind internationally covering a population of over 38 million people and provides the largest peer reviewed evidence of an association between COVID-19 vaccination and myocarditis, and compares it with risk following SARS-CoV-2 infection. The results have been used by SAGE, NERVTAG, JCVI and MHRA in the decision-making process on risks and benefits of COVID-19 vaccinations. It is the top-rated paper of its age published in Nature medicine with an Altmetric score of over 10,700 and is in the top 150 of all 20.7 million research output scores by Altmetric

https://nature.altmetric.com/details/118915034#score

4.12. Patone M, Handunnetthi L, Saatci D, Pan J, Katikireddi S, Razvi S, Hunt D, Xue W, Zaccardi F, Khunti K, Watkinson P, Coupland CA, Doidge J, Harrison D, Sheikh A, Robertson C, **Hippisley-Cox J**. Neurological complications after first dose of COVID-19 vaccination and SARS-Cov-2 infection: Analysis of linked health records; Nature Medicine 2021; 10.1038/s41591-021-01556-7.

This paper published in Nature Medicine is the largest vaccine safety study of its kind internationally covering a population of over 30 million people and provides the first peer reviewed evidence of an association between COVID-19 vaccination and Guillain Barre syndrome and Bell's palsy, and compares it with risk following SARS-CoV-2 infection. The results are feeding into SAGE, NERVTAG, JCVI and MHRA decision making on risks and benefits of COVID-19 vaccinations.

4.13. **Hippisley-Cox J**, Patone M, Mei Xu W, Saatci D, Dixon S, Khnti K, Zaccardi F, Watkinson P, Shankar-Hari M, Dodge J, Harrison DA, Grfiffin S, Sheikh A, Coupland CA. Risk of Thrombocytopenia and Thromboembolism after COVID-19 vaccination and SARS-Cov-2 positive testing. BMJ 2021;374:n1931

A high impact paper investigating the safety of COVID-19 vaccination during the second/third pandemic waves in England. This paper is the largest COVID-19 vaccine safety study worldwide covering over 28 million people and provided new information on the association of both Pfizer and AZ vaccines with increased risk of thrombosis, with detailed information on timing of the risk post vaccination, the results of which have been used by SAGE, JCVI and the CMO's to inform vaccine policy.

https://bmj.altmetric.com/details/112435284#score

4.14. **Hippisley-Cox J**, Young D, Coupland C, Channon K, Tan PS, Harrison D, Rowan K, Aveyard P, Pavord I, Watkinson P. Risk of Severe COVID-19 Disease Associated with ACE inhibitors and Angiotensin Receptor Blockers in England: Population Cohort Study including 8·3 Million People. Heart; 2020; 0; 1-9. doi:10.1136/heartjnl-2020-317393.

Winner of the 2021 BMJ Heart paper of the year, this paper was selected by editors who chose it "based on the best research based on clinical question, quality of the research design and data presentation, and interest generated among researchers, clinical cardiologists, and the public'. The study found both ACE inhibitors and Angiotensin Receptor Blocker drugs (drugs used to control high blood pressure and heart failure), were associated with a reduced risk for COVID-19, and that there was no evidence of an increased or reduced risk of admission to intensive care with either drug When the research was published in July 2020, it was the first population-based observation study of these drugs and COVID-19.

4.15. Patone M, Thomas K, Hatch R, Tan PS, Coupland C, Liao W, Mouncey P, Harrison D, Rowan K, Horby P, Watkinson P, **Hippisley-Cox J**. Mortality, and critical care unit admission associated with the SARS-CoV-2 lineage B.1.1.7 in England: an observational cohort study. *Lancet Infectious Diseases* 2021: https://doi.org/10.1016/S1473-3099(21)00318-2

This was the first study to show that the alpha variant of COVID-19 was associated with an increased risk of COVID-19 mortality in a community population compared with the original variant ,and the first to show an increased risk of admission to critical care. Once a patient was ill enough to be on critical

care, there was no difference compared with the original variant. The findings were reported to NERVTAG and SAGE and used to inform lockdown policy in Spring 2021 during the second wave.

4.16. Saatci D, Tom A. Ranger TA, Garriga C, Clift AK, Zaccardi F, Tan PS, Patone M, Coupland CA, Griffin SA, Khunti K, Dambha-Miller H, **Hippisley-Cox J**. Association between Race/Ethnicity and COVID-19 outcomes in 2.6 million children in England. 2021 JAMA Paediatrics 2021 10.1001/jamapediatrics.2021.1685.

This is the largest observational study yet of COVID-19 in children, with a study population of 2.6 million children. It highlights disparities in testing, infection rates and hospitalisation linked to ethnic minority children, with important implications for families, doctors, and policymakers. The results were shared with the SAGE ethnicity group, NERVTAG and the CMO's. While children are at a substantially lower risk from Covid-19 compared with adults, this study suggests that race and ethnicity play an important role in outcomes for Covid-19 across all age groups. The findings reinforce the need for ethnicity-tailored approaches to diagnosing and managing Covid-19 in community settings, so those families at most risk of severe illness are better informed and have greater access to tests.

4.17. Clift AK, Saatci D, Coupland CA, Dambha-Miller H, **Hippisley-Cox J**. Sickle-cell disorders, and severe COVID-19 outcomes: a cohort study; Annals of Internal Medicine. 2021 doi: 10.7326/M21-1375.

Largest cohort study undertaken (12.3 million) to assess the risks of sickle cell disorders on COVID-19 hospitalisation and death; first to identify association with sickle cell trait and COVID-19 hospitalisation (HR 1.38 [95% CI: 1.12 to 1.70]) and death (HR 1.51 [95% CI: 1.13 to 2.00]). Altmetric score >90, with coverage in some medical professional-oriented news outlets (https://www.medscape.com/viewarticle/955126).

4.18. Simpson C, Kerr S, Robertson C, Moore E, McCowan C, Agrawal U, Shi T, Vadileiou E, Docherty A, Mulholland R, Murray J, Ritchie L, McMenamin J, **Hippisley-Cox J**, Sheikh A. External validation of the QCovid risk prediction algorithm for risk of COVID-19 hospitalisation and mortality in adults: national

validation cohort study in Scotland; Thorax; 2021; doi: 10.1136/thoraxjnl-2021-217580

4.19. Lyons J, Nafilyan Vahe, Akbari A, Davies G, Griffiths Rowena, Harrison E, **Hippisley-Cox J**, Hollinghurst J, Khunti K, North L, Sheikh A, Torabi F, Lyons R. Validating the QCOVID risk prediction algorithm for risk of mortality from COVID-19 in the adult population in Wales, UK; *International Journal of Population Data Science*;2022; 5 (4); https://doi.org/10.23889/ijpds.v5i4.1697.

4.20. Please also see web pages below:

4.21. https://www.qresearch.org/research/approved-research-programs-and-projects/development-and-evaluation-of-a-tool-for-predicting-risk-of-short-term-adverse-outcomes-due-to-covid-19-in-the-general-uk-population/

4.22. https://www.qresearch.org/research/approved-research-programs-and-projects/uptake-and-comparative-safety-of-new-covid-19-therapeutics/

4.23. https://www.qresearch.org/research/approved-research-programs-and-projects/quantifying-the-association-between-covid-19-ethnicity-and-mortality-a-cohort-study-across-three-uk-national-databases/

4.24. https://www.qresearch.org/research/approved-research-programs-and-projects/qresearch-icnarc-coronavirus-record-linkage-project/

5: Summary of articles, interviews and/or evidence:

5.1. Please see articles/research papers at paragraphs 4.7-4.24 above. Please note that in the original response I submitted, these papers were listed under question 5, but have been moved to question 4 in this updated version of the response.

6: Views as to whether the work of the groups in responding to the Covid-19 pandemic succeeded in its aims.

The composition of the groups and/or their diversity of expertise

6.1. Good – the groups were formed quickly and were inclusive and diverse in my view.

The way in which the groups were commissioned to work on the relevant issues

6.2. This seems generally effective – there was a strong collaborative approach between academics and policy makers.

The resources and support that were available

6.3. Availability of resources was variable – we responded as quickly as we could to requests for information/analyses often undertaking substantial work during the evenings, early mornings, over weekends and during holidays, often without external funding in place. This was only possible because of good will and strong institutional pump priming support from my host institution (Oxford university).

The advice given and/or recommendations that were made

6.4. There were many difficult decisions to make especially early on when there was so little information and data available. I think on balance, that the limited decision making I was involved (which concerned the implementation of the QCOVID risk assessment tool) with was supported by the evidence available at the time.

The extent to which the groups worked effectively together

6.5. This was excellent in my view - policy makers were able to articulate clear research questions and different academic teams were willing to share knowledge, expertise and data quickly and effectively.

The extent to which the applicable structures and policies were utilized and/or complied with and their effectiveness

6.6. I don't feel qualified to answer this as I am not sure what policies are referred to.

7: Lessons that can be learned

7.1. Huge importance of access to high quality routinely collected data for analysis from primary care, linked to secondary care, Covid-19 infection, and vaccination data as this allows tracking of the pandemic, identification of people most at

risk, analysis of uptake, effectiveness, and safety of interventions such as vaccination.

7.2. Value of publishing protocol and early research findings to accelerate the acquisition of knowledge. In particular, the use of pre-prints, which are not peer reviewed with appropriate cautions around interpretation. The reason that this is important is because traditional peer review takes many weeks or even months and there is not sufficient time for this in an urgent pandemic situation, with a novel virus.

7.3. How well different organizations/parties can work together around a central goal – academics, clinicians, policy makers, members of the public. For example, we were able to progress the development, validation, and implementation of the QCOVID risk assessment tool over a period of months rather than years because of the coordinated, collaborative approach taken by these groups.

8: Documents that I hold

8.1. I have research protocols and papers all of which are published. I have minutes of meetings where these were sent to me. As far as I am aware, these are all published on the relevant websites.