

Questionnaire Response – Professor Harry Rutter

Witness Name:

Professor Harry Rutter

Dated: 17 October 2022

Ref: M2/SAGE/01/HR

COVID-19 INQUIRY – MODULE 2

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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

1984 – 1988	MA, Medical Sciences Tripos, Jesus College, University of Cambridge
1988 – 1991	MB BChir, University of Cambridge
1999 – 2000	MSc Public Health (with Distinction) London School of Hygiene and Tropical Medicine
2006	Fellow, Faculty of Public Health
2008	Postgraduate Diploma in Learning and Teaching in Higher Education, University of Oxford
2013	Fellow, Royal College of Physicians of Edinburgh

Employment History

1.2. The following table outlines my employment history:

Table 2 – Employment History

02/1992 – 01/1993	Pre-registration house officer, Westminster Hospital and Worthing Hospital
02/1993 – 07/1993	Senior house officer in Emergency Medicine, Charing Cross Hospital, London
08/1993 – 01/1995	Senior house officer in General Medicine, St Peter's Hospital, Chertsey
02/1995 – 07/1995	Senior house officer in Medical Oncology, Royal Marsden Hospital, Sutton
08/1995 – 05/1997	Senior Medical Officer, Healix International Ltd, London
10/1997 – 09/1998	Junior Doctor Member, North Thames Junior Doctor Regional Task Force
03/1999 – 03/2002	Specialist Registrar in Public Health Medicine, Oxfordshire Health Authority
04/2002 – 03/2004	Specialist Registrar in Public Health Medicine, South East Public Health Observatory Fellow, Department of Public Health, University of Oxford
03/2004 – 12/2017	Honorary Senior Clinical Lecturer in Public Health, University of Oxford
03/2004 – 12/2007	Deputy Director, South East Public Health Observatory Head of Health Impact Assessment, South East Regional Public Health Group
12/2007 – 12/2011	Director, English National Obesity Observatory
02/2011 – 12/2020	Adjunct Professor of Public Health, University College Cork, Ireland

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04/2012 – 08/2018	Senior Clinical Research Fellow, London School of Hygiene and Tropical Medicine
10/2014 – 02/2019	Adjunct Professor of Public Health, Western Norway University of Applied Sciences, Førde, Norway
03/2018 – Present	Adjunct Professor of Public Health, University of Agder, Norway
09/2018 – Present	Professor of Global Public Health, University of Bath

Professional Expertise:

- 1.3. I am a public health physician with over 20 years of experience of work in population health.
- 1.4. My particular areas of expertise relate to complex systems approaches to public health problems; non-communicable disease prevention; structural, environmental, and commercial drivers of health; and relations between environmental sustainability and health. The importance of tackling inequalities is a core thread that runs through all my work.

Publications

- 1.5. A full list is available at: <https://researchportal.bath.ac.uk/en/persons/harry-rutter/publications/>
- 1.6. Selected relevant publications include:
 - (1) Rutter, H., Parker, S., Stahl-Timmins, W., Noakes, C., Smyth, A., Macbeth, R., Fitzgerald, S., & Freeman, A. L. J. Visualising SARS-CoV-2 transmission routes and mitigations. *BMJ* 2021;375:e065312
<https://doi.org/10.1136/bmj-2021-065312>
 - (2) Freeman, A. L.J., Parker, S., Noakes, C., Fitzgerald, S., Smyth, A., Macbeth, R., Spiegelhalter, D., & Rutter, H. (2021). Expert elicitation on the relative importance of possible SARS-CoV-2 transmission routes and the effectiveness of mitigations. *BMJ Open*, 11(12).
<https://doi.org/10.1136/bmjopen-2021-050869>
 - (3) Marteau TM, Rutter H, Marmot M. Changing behaviour: an essential component of tackling health inequalities. *BMJ* 2021;372:n332
doi: <https://doi.org/10.1136/bmj.n332>

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- (4) Koorts, H., & Rutter, H. (2021). A systems approach to scale-up for population health improvement. *Health Research Policy and Systems*, 19(1). <https://doi.org/10.1186/s12961-021-00679-0>
- (5) Pescud, M., et al. (2021). From Understanding to Impactful Action: Systems Thinking for Systems Change in Chronic Disease Prevention Research. *Systems*, 9(3). <https://doi.org/10.3390/systems9030061>
- (6) McGill, E., et al. (2021). Evaluation of public health interventions from a complex systems perspective: a research methods review. *Social Science and Medicine*. <https://doi.org/10.1016/j.socscimed.2021.113697>
- (7) Rutter H, Horton R, Marteau T, The Lancet-Chatham House Commission on improving Population Health post-COVID-19. *Lancet* 2020; 396:10245,152-153. doi: [https://doi.org/10.1016/S0140-6736\(20\)31184-3](https://doi.org/10.1016/S0140-6736(20)31184-3)
- (8) Rutter H, Wolpert M, Greenhalgh T. Managing uncertainty in the COVID-19 era. *BMJ* 2020;370:m3349 <https://doi.org/10.1136/bmj.m3349>
- (9) Cavill N, Richardson D, Faghy M, Bussell C, Rutter H. Using system mapping to help plan and implement city-wide action to promote physical activity. *J Public Health Res* 2020. <https://www.jphres.org/index.php/jphres/article/view/1759>
- (10) Frühbeck G, et al. European Association for the Study of Obesity Position Statement on the Global COVID-19 Pandemic. *Obes Facts* 2020;2:292-296. doi: 10.1159/000508082
- (11) Marteau TM, White M, Rutter H, Petticrew M, Mytton OT, McGowan JG et al. Increasing healthy life expectancy equitably in England by 5 years by 2035: could it be achieved? *The Lancet*. 2019 Jun 27;393(10191):2571-2573. [https://doi.org/10.1016/S0140-6736\(19\)31510-7](https://doi.org/10.1016/S0140-6736(19)31510-7)
- (12) Petticrew M, Knai C, Thomas J, Rehfuess EA, Noyes J, Gerhardus A et al. Implications of a complexity perspective for systematic reviews and guideline development in health decision making. *BMJ Global Health*. 2019 Jan 25;4(Suppl 1). <https://doi.org/10.1136/bmjgh-2018-000899>

2: A list of groups I was a participant, and the relevant time period:

- 2.1. I joined the SAGE sub-group, Environment and Modelling Group (EMG) on 28 April 2020 and remained a participant through to the last meeting on 25 January 2022. I became the co-chair of EMG from the 24 November 2020 meeting.
- 2.2. I attended the main SAGE group meetings from meeting 67 on 12 November 2020, to meeting 105 on 10 February 2022.

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- 2.3. In addition, during the time I was involved in EMG I participated in a number of EMG sub-groups including the Transmission Group, working groups on 'Risk assessment and transmission' and 'Design and behaviour', as well as leading a task and finish group on 'Systems thinking and visualisation'.

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

- 3.1. I was invited to join the EMG by Professor Catherine Noakes, the chair, having been proposed by my colleague Professor Theresa Marteau as someone who could bring public health expertise to the group.
- 3.2. I volunteered to take on the EMG co-chair role in November 2020 to provide support to Professor Catherine Noakes and Professor Andrew Curran. As co-chair I then also attended main SAGE meetings from that point on.
- 3.3. In total, I attended following number of meetings:
- (1) 28 EMG meetings
 - (2) 37 SAGE meetings
 - (3) Approximately 20 EMG Transmission Group meetings
- 3.4. My role was that of a public health generalist, bringing particular expertise on broad approaches to prevention and the importance of addressing inequalities. I also presented papers to SAGE, when I had led on them.

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

- 4.1. Please see Annex A.

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

- 5.1. I have written the articles listed below regarding the work of SAGE and its subgroups, or the UK's response to the Covid-19 pandemic:

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- (1) Briggs, A., & Rutter, H. (2020). Public health policies can reduce inequalities as we come out of lockdown. British Medical Journal, 369(m1977). <https://doi.org/10.1136/bmj.m1977>
- (2) Bonell C, Melandez-Torres G, Viner R, Rogers B, Whitworth M, Rutter H, Rubin J, Patton G. An evidence-based theory of change for reducing SARS-CoV-2 transmission in reopened schools. Health and Place 2020. <https://doi.org/10.1016/j.healthplace.2020.102398>
- (3) Rutter H. Let's use lockdown to break old habits and start afresh with healthier new ones. The Daily Telegraph, 13 April 2020. Available from URL: <https://www.telegraph.co.uk/global-health/climate-and-people/use-lockdown-break-old-habits-start-afresh-healthier-new-ones/>

5.2. I have not given any interviews or submitted evidence elsewhere.

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

Composition of the groups

- 6.1. The groups I was involved in included a diverse range of expertise. There was a mix of senior academics, government scientists, and chief scientific advisers.

The way in which the groups were commissioned to work

- 6.2. This was done well, with clear protocols for commissioning work. The EMG secretariat in particular were excellent at managing this process.

Resources and support

- 6.3. The secretariat for both EMG and main SAGE was excellent. The process was well organised, well run, and people were helpful.
- 6.4. There was support in terms of managing security challenges, including how to deal with physical and online threats.
- 6.5. However, there was a lack of scientific support to develop the papers we wrote, for example from information scientists who might have been able to assist with identifying relevant literature.

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- 6.6. It was only fairly late in the process that there were any payments to my university to support any back filling of my time.
- 6.7. While my employer was excellent in releasing me from many of my duties, this was done informally and incompletely, as a result of which I endured a very high workload during my involvement in SAGE.

Advice given and/or recommendations

- 6.8. We provided advice on the basis of the best available evidence. I believe that we succeeded in providing such advice.
- 6.9. Many of the outputs from EMG had an influence on policy.
- 6.10. Some aspects of our advice received less attention in policy terms. For example, we emphasised the importance of measures to addressing inequalities, such as providing financial support to people in precarious employment to take time off work if unwell, but this was not translated into policy.

Working effectively together

- 6.11. There was excellent collaboration between different SAGE sub-groups and SAGE itself, which worked together as effectively as they could in difficult circumstances.
- 6.12. The groups were well chaired, and there was a strong culture of openness, inviting challenge, and avoiding groupthink.

Other

- 6.13. It was very positive that papers and minutes were published online. Transparency is an essential principle of science, and the open approach SAGE took to publishing evidence will have contributed to increasing public trust in the nature of the advice.

7: Lessons that can be learned

- 7.1. I have three main comments regarding what lessons can be learned:

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- (1) While some groups such as 'New and Emerging Respiratory Virus Threats Advisory Group' (NERVTAG) existed already, other groups such as the EMG were established rapidly in response to an urgent threat.

This was appropriate in the circumstances at the time, but in future it would be preferable to have a wider range of existing committees already in place, ready to be mobilised. This would allow a more open and involved process for recruitment of experts to such groups, supporting greater diversity, while also allowing the option to bring in any additional expertise that might be required in response to the particular characteristics of any new threat.

- (2) Closely linked to and building on point (a) above, there is a risk that the collective learning from the process will be lost. For example, the EMG no longer meets, but an equivalent group will need to be restarted for a new pandemic. If, instead, such a group was constituted as a standing committee as proposed above, it would both support the maintenance of our organisational memory and provide a ready-made group that could be brought into action very rapidly.

- (3) With the important exception of the Events Research Programme there was a lack of evaluation of the actions taken, let alone designing policy and other interventions in ways that would support the generation of robust evidence about their impacts.

Any future pandemic response should take a strategic approach to embedding research and evaluation into the actions taken to maximise the generation of knowledge about the effectiveness of interventions.

8: Documents that I hold

- 8.1. I have a large number of emails relating to this work, as well as electronic calendar entries, many of which include the agendas and papers for meetings.

Annex A: Papers produced by EMG and its sub-groups following the date I joined EMG

My contribution to these papers was variable – some I merely commented on in a meeting, some I was involved in signing off as deputy chair, and others I was significantly involved in writing.

I have highlighted the papers in which I was lead or co-lead, and those where I had significant input.

Title	Lead/ co-lead	Significant input	URL
Risk Estimation to inform risk assessment, 7 th May 2020 (note paper 4 is updated version of this)			https://www.gov.uk/government/publications/risk-estimation-to-inform-risk-assessment-7-may-2020
Principles of understanding of transmission routes to inform risk assessment and mitigation strategies, 14 May 2020			https://www.gov.uk/government/publications/principles-of-understanding-of-transmission-routes-to-inform-risk-assessment-and-mitigation-strategies-updated-14-may-2020
EMG: Survival of SARS-CoV-2 in the environment, 11 May 2020			https://www.gov.uk/government/publications/emg-survival-of-sars-cov-2-in-the-environment-11-may-2020
Possible additional interventions to address hospital transmission risks of SARS-CoV-2, 12 May 2020			https://www.gov.uk/government/publications/possible-additional-interventions-to-address-hospital-transmission-risks-of-sars-cov-2-12-may-2020
EMG: Transmission and Control of SARS-CoV-2 on Public Transport, 18 May 2020			https://www.gov.uk/government/publications/emg-transmission-and-control-of-sars-cov-2-on-public-transport-18-may-2020
EMG: Evidence for transmission of SARS-CoV-2 on ground public transport and potential effectiveness of mitigation measures, 18 May 2020			https://www.gov.uk/government/publications/emg-evidence-for-transmission-of-sars-cov-2-on-ground-public-transport-and-potential-effectiveness-of-mitigation-measures-18-may-2020
EMG: Summary of disinfection technologies for microbial control, 18 May 2020			https://www.gov.uk/government/publications/emg-summary-of-disinfection-technologies-for-microbial-control-18-may-2020
EMG: Application of UV disinfection, visible light, local air filtration and fumigation technologies to microbial control, 19 May 2020			https://www.gov.uk/government/publications/emg-application-of-uv-disinfection-visible-light-local-air-filtration-and-fumigation-technologies-to-microbial-control-19-may-2020

SARS-CoV-2 in the hospital environment and risk of COVID-19 nosocomial transmission, 31 May 2020			https://www.gov.uk/government/publications/sars-cov-2-in-the-hospital-environment-and-risk-of-covid-19-nosocomial-transmission-31-may-2020
Transmission of SARS-CoV-2 and Mitigating Measures - update, 4 June 2020			https://www.gov.uk/government/publications/transmission-of-sars-cov-2-and-mitigating-measures-update-4-june-2020
TWEG: Evidence of wider environmental transmission of SARS-CoV-2, 12 June 2020			https://www.gov.uk/government/publications/tweg-evidence-of-wider-environmental-transmission-of-sars-cov-2-12-june-2020
NERVTAG/EMG: Hand hygiene to limit SARS-CoV-2 transmission, 2 July 2020			https://www.gov.uk/government/publications/nervtagemg-hand-hygiene-to-limit-sars-cov-2-transmission-2-july-2020
EMG: COVID-19 - Theatres, concert halls and other performance spaces, 12 July 2020			https://www.gov.uk/government/publications/emg-covid-19-theatres-concert-halls-and-other-performance-spaces-12-july-2020
EMG: Measurement of effectiveness of risk mitigation measures in reducing transmission, 16 July 2020			https://www.gov.uk/government/publications/emg-measurement-of-effectiveness-of-risk-mitigation-measures-in-reducing-transmission-16-july-2020
NERVTAG/EMG: Role of aerosol transmission in COVID-19, 22 July 2020			https://www.gov.uk/government/publications/nervtagemg-role-of-aerosol-transmission-in-covid-19-22-july-2020
PHE/EMG: Aerosol and droplet generation from singing, wind instruments and performance activities, 13 August 2020			https://www.gov.uk/government/publications/pheemg-aerosol-and-droplet-generation-from-singing-wind-instruments-and-performance-activities-13-august-2020
SPI-B/EMG: COVID-19 housing impacts, 10 September 2020			https://www.gov.uk/government/publications/spi-bemg-covid-19-housing-impacts-evidence-review-10-september-2020
EMG: Processing methods to facilitate the re-use of personal protective equipment (PPE), 8 September 2020			https://www.gov.uk/government/publications/emg-processing-methods-to-facilitate-the-re-use-of-personal-protective-equipment-ppe-8-september-2020
NERVTAG/EMG: Duration of wearing of face coverings, 15 September 2020			https://www.gov.uk/government/publications/nervtagemg-duration-of-wearing-of-face-coverings-15-september-2020
EMG: Role of Ventilation in Controlling SARS-CoV-2 Transmission SAGE-EMG, 30 September, 2020			https://www.gov.uk/government/publications/emg-role-of-ventilation-in-controlling-sars-cov-2-transmission-30-september-2020
EMG: Simple summary of ventilation actions to mitigate the risk of COVID-19, 1 October 2020			https://www.gov.uk/government/publications/emg-simple-summary-of-ventilation-actions-to-mitigate-the-risk-of-covid-19-1-october-2020
NERVTAG/EMG SARS-COV-2: Transmission Routes and Environments, 22 October 2020		x	https://www.gov.uk/government/publications/sars-cov-2-transmission-routes-and-environments-22-october-2020

EMG: Potential application of air cleaning devices and personal decontamination to manage transmission of COVID-19, 4 November 2020			EMG: Potential application of air cleaning devices and personal decontamination to manage transmission of COVID-19, 4 November 2020 - GOV.UK (www.gov.uk)
EMG/SPI-B: Mitigating risks of SARS-CoV-2 transmission associated with household social interactions, 26 November 2020	x		EMG/SPI-B: Mitigating risks of SARS-CoV-2 transmission associated with household social interactions, 26 November 2020 - GOV.UK (www.gov.uk)
TWEG: Environmental monitoring of viral presence, infectivity and transmission of SARS-CoV-2, 3 December 2020			https://www.gov.uk/government/publications/tweg-environmental-monitoring-of-viral-presence-infectivity-and-transmission-of-sars-cov-2-3-december-2020
EMG/SPI-B/TWEG: Mitigations to reduce transmission of the new variant SARS-CoV-2 virus, 22 December 2020	x		EMG/SPI-B/TWEG: Mitigations to reduce transmission of the new variant SARS-CoV-2 virus, 22 December 2020 - GOV.UK (www.gov.uk)
EMG: Application of physical distancing and fabric face coverings in mitigating the B117 variant SARS-CoV-2 virus in public, workplace and community, 13 January 2021 - GOV.UK (www.gov.uk)			EMG: Application of physical distancing and fabric face coverings in mitigating the B117 variant SARS-CoV-2 virus in public, workplace and community, 13 January 2021 - GOV.UK (www.gov.uk)
EMG/SPI-B/SPI-M: Reducing within- and between-household transmission in light of new variant SARS-CoV-2, 14 January 2021	x		EMG/SPI-B/SPI-M: Reducing within- and between-household transmission in light of new variant SARS-CoV-2, 14 January 2021 - GOV.UK (www.gov.uk)
EMG: COVID-19 risk by occupation and workplace, 11 February 2021		x	EMG: COVID-19 risk by occupation and workplace, 11 February 2021 - GOV.UK (www.gov.uk)
HOCI and EMG: Masks for healthcare workers to mitigate airborne transmission of SARS-CoV-2, 25 March 2021		x	HOCI and EMG: Masks for healthcare workers to mitigate airborne transmission of SARS-CoV-2, 25 March 2021 - GOV.UK (www.gov.uk)
EMG Transmission Group: COVID-19 transmission in prison settings, 25 March 2021			EMG Transmission Group: COVID-19 transmission in prison settings, 25 March 2021 - GOV.UK (www.gov.uk)
EMG and DCMS: Science framework for opening up group events, 16 March 2021			EMG and DCMS: Science framework for opening up group events, 16 March 2021 - GOV.UK (www.gov.uk)
EMG Transmission Group: Insights on transmission of COVID-19 with a focus on the hospitality, retail and leisure sector, 8 April 2021		x	EMG Transmission Group: Insights on transmission of COVID-19 with a focus on the hospitality, retail and leisure sector, 8 April 2021 - GOV.UK (www.gov.uk)
EMG, SPI-M and SPI-B: Considerations in implementing long-term 'baseline' NPIs, 22 April 2021		x	https://www.gov.uk/government/publications/emg-spi-m-and-spi-b-considerations-in-implementing-long-term-baseline-npis-22-april-2021

EMG and SPI-B: Application of CO2 monitoring as an approach to managing ventilation to mitigate SARS-CoV-2 transmission, 27 May 2021			EMG and SPI-B: Application of CO2 monitoring as an approach to managing ventilation to mitigate SARS-CoV-2 transmission, 27 May 2021 - GOV.UK (www.gov.uk)
EMG: Role of screens and barriers in mitigating COVID-19 transmission, 1 July 2021			
EMG/TG/SPI-B: COVID-19 Transmission in Hotels and MQFs, 9 th Sept 2021			EMG/Transmission Group/SPI-B: COVID-19 Transmission in Hotels and Managed Quarantine Facilities (MQFs), 9 September 2021 - GOV.UK (www.gov.uk)
EMG and NERVTAG: Update on transmission and environmental and behavioural mitigation strategies, including in the context of Delta, 13 October 2021		X	EMG and NERVTAG: Update on transmission and environmental and behavioural mitigation strategies, including in the context of Delta, 13 October 2021 - GOV.UK (www.gov.uk)
SPI-B, SPI-M and EMG: Considerations for potential impact of Plan B measures, 13 October 2021 (includes EMG consensus on face coverings shared with cabinet office 28 th Sept 2021)		X	https://www.gov.uk/government/publications/spi-b-spi-m-and-emg-considerations-for-potential-impact-of-plan-b-measures-13-october-2021
EMG and SPI-B: Non-Pharmaceutical Interventions (NPIs) in the context of Omicron, 15 December 2021		X	https://www.gov.uk/government/publications/emg-and-spi-b-non-pharmaceutical-interventions-npis-in-the-context-of-omicron-15-december-2021
EMG Transmission Subgroup: Consensus statement on SARS-CoV-2 transmission risk at festivals, 23 December 2021			EMG Transmission Subgroup: Consensus statement on SARS-CoV-2 transmission risk at festivals, 23 December 2021 - GOV.UK (www.gov.uk)
<u>Support or leadership to papers from other SAGE working groups:</u>			
Managing infection risk in high contact occupations, 15 June 2020			https://www.gov.uk/government/publications/managing-infection-risk-in-high-contact-occupations-11-june-2020
TFC: Risks associated with the reopening of education settings in September, 8 July 2020			https://www.gov.uk/government/publications/tfc-risks-associated-with-the-reopening-of-education-settings-in-september-8-july-2020
NERVTAG: Assessment of transmission of COVID-19 through musical events, 16 July 2020			https://www.gov.uk/government/publications/nervtag-assessment-of-transmission-of-covid-19-through-musical-events-16-july-2020
Principles for managing SARS-CoV-2 transmission associated with higher education, 3 September 2020		X	https://www.gov.uk/government/publications/principles-for-managing-sars-cov-2-transmission-associated-with-further-education-3-september-2020

Principles for managing SARS-CoV-2 transmission associated with further education, 3 September 2020		X	https://www.gov.uk/government/publications/principles-for-managing-sars-cov-2-transmission-associated-with-higher-education-3-september-2020
Summary of the effectiveness and harms of different non-pharmaceutical interventions, 21 September 2020		X	https://www.gov.uk/government/publications/summary-of-the-effectiveness-and-harms-of-different-non-pharmaceutical-interventions-16-september-2020
NERVTAG: Seasonality and its impact on COVID-19, 22 October 2020			https://www.gov.uk/government/publications/nervtag-seasonality-and-its-impact-on-covid-19-22-october-2020
Key evidence and advice on celebrations and observances during COVID-19, 5 November 2020			Key evidence and advice on celebrations and observances during COVID-19, 5 November 2020 - GOV.UK (www.gov.uk)
PHE: Factors contributing to risk of SARS-CoV2 transmission in various settings, 26 November 2020			https://www.gov.uk/government/publications/phe-factors-contributing-to-risk-of-sars-cov2-transmission-in-various-settings-26-november-2020
TFC: COVID-19 in higher education settings, 10 February 2021			https://www.gov.uk/government/publications/tfc-covid-19-in-higher-education-settings-10-february-2021
Cross organisation study: Risk factors associated with places of enduring prevalence and potential approaches to monitor changes in this local prevalence, 22 April 2021			https://www.gov.uk/government/publications/cross-organisation-study-risk-factors-associated-with-places-of-enduring-prevalence-and-potential-approaches-to-monitor-changes-in-this-local-prevalence
SPI-B: Sustaining behaviours to reduce SARS-CoV-2 transmission, 30 April 2021			https://www.gov.uk/government/publications/spi-b-sustaining-behaviours-to-reduce-sars-cov-2-transmission-30-april-2021
SCWG: What are the appropriate mitigations to deploy in care homes in the context of the post vaccination risk landscape?, 26 May 2021			https://www.gov.uk/government/publications/scwg-what-are-the-appropriate-mitigations-to-deploy-in-care-homes-in-the-context-of-the-post-vaccination-risk-landscape-26-may-2021
SPI-B: Social and behavioural impacts for lifting remaining restrictions, 10 February 2022			https://www.gov.uk/government/publications/spi-b-social-and-behavioural-impacts-for-lifting-remaining-restrictions-10-february-2022
Papers from other external working groups shared with SAGE			-
RAEng: Infection Resilient Environments – Buildings that keep us healthy and safe, 19 July 2021			RAEng: Infection Resilient Environments – Buildings that keep us healthy and safe, 19 July 2021 - GOV.UK (www.gov.uk)