K COVID-19 Inquiry: Module 2B - Rule 9 Request to Professor Christine BundyReference:M2B/CB/01

Please provide the following information:

1. A brief overview of your qualifications, career history, professional expertise and major publications.

Qualifications: PhD 1990 University of Birmingham, Ph.D Psychology 1984 University of Wales, Cardiff, BSc. (Hons) Psychology. I have been registered as BPS Chartered Psychologist since 2006 and HPCP Practitioner Psychologist since 2009.

I was appointed as a lecturer in Health Psychology at the University of Manchester in 1995, Senior Lecturer / reader in 2015 and Professor of Health Psychology/ Behavioural Medicine at Cardiff University in 2017. My current position is Professor and Consultant Psychologist (Hon). My publication history since 2017 is outlined below and my full CV is attached.

My expertise is within understanding health behaviour, health anxiety and behaviour change including psychological management for people with long-term health conditions.

Publications:

1. Hailey LH, Howells LM, **Bundy C**, Kirtley S, Martin S, O'Sullivan D, Steinkoenig I, Stepney M, Coates LC. Developing evidence-based patient focused learning materials to support health behaviour change for people living with psoriatic arthritis. *The Lancet Rheumatology*.
2. Hailey LH, **Bundy C**, Burstow H, Chandler D, Cowper R, Halliwell P, Joannes L, Kelly A, Kennedy B, Kinsella S, McAteer H, Mukherjee S, Packham J, Wise E, Young H, Coates LC. The top 10 research priorities in psoriatic arthritis: a James Lind Alliance Priority Setting Partnership. Rheumatology Dec 01 2022. https://doi.org/10.1093/rheumatology/keac676
3. Pattinson R, Hewitt RM, Trialonis-Suthakharan N, Chachos E, Courtier N, Austin J, Janus C, Augustin M, and **Bundy C.** Development of a Conceptual Framework for a Patient-Reported Impact of Dermatological Diseases (PRIDD) Measure: A Qualitative Concept Elicitation Study. Acta Derm Venereol 2022; 102: adv00823. DOI: 10.2340/actadv.v102.2401
4. Hewitt RM, Ploszajski M, Purcell C, Pattinson P, Jones B, Wren GH, Hughes G, Ridd MJ, Thompson AR, & **Bundy C**. A mixed methods systematic review of digital interventions to support the psychological health and well-being of people living with dermatological conditions. Nov 2022 vol 9 Frontiers in Medicine: Dermatology https://doi.org/10.3389/fmed.2022.1024879
5. Hewitt, R. M., Urmston, D., McAteer, H., Schofield, J., & **Bundy, C**. (2022). A UK online survey exploring patient perspectives of remote consultations for managing psoriasis and psoriatic arthritis during the SARS-CoV-2 pandemic. Psychology, Health & Medicine, 1-14. doi:10.1080/13548506.2022.2104883.
6. Hewitt RM, Purcell C, **Bundy C**. Safeguarding online research integrity: concerns from recent experience. BJD. https//: doi/ 10.1111/bjd.21765.
7. Hewitt RM, Pattinson R, Daniel R, et al, **Bundy C**. Online survey comparing coping responses to SARS-CoV-2 by people with and without existing health conditions in the UK. BMJ Open 2022;12:e051575. https://doi:10.1136/ bmjopen-2021-051575
8. Gossec L, Poddubnyy D, Galvez-Ruiz D, **Bundy C**, Delgado Dominguez CJ, Mahapatra R, Plazuelo-Ramos P, Makri S, Navarro-Compán V, Garrido-Cumbrera M. Identifying Parameters Associated with Delayed Diagnosis in Axial Spondyloarthritis: Data from the European Map of Axial Spondyloarthritis. Rheumatology (Oxford, England), 01 Feb 2022, 61(2):705-712
9. Hewitt RM, Carrier J, Jennings S, Nagorski L, Pattinson RL, Anstey S, Daniel R, **Bundy C**. Covid-19 Coping Survey: an in-depth qualitative analysis of free-text responses from people with and without existing health conditions in the UK. International Journal of Behavioral Medicine 2022 https://doi.org/10.1007/s12529-022-10055-z
10. Hewitt RM. **Bundy C**, Newi AL, Chachos E, Sommer R, Kleyn CE, Augustin A, Griffiths CEM & Blome C. How do dermatologists' personal models inform a patient-centred approach to management: a qualitative study using the example of prescribing a new treatment (Apremilast). British Journal of Dermatology (2022) DOI 10.1111/bjd.21029

11. Klein, T.M., Blome, C., Kleyn, C.E. **Bundy C,** et al. Real-World Experience of Patient-Relevant Benefits and Treatment Satisfaction with Apremilast in Patients with Psoriasis: An Analysis of the APPRECIATE Study. Dermatol Ther (Heidelb) (2021). https://doi.org/10.1007/s13555-021-00628-3
12. Garrido-Cumbrera M, Galvez-Ruiz D, Delgado Dominguez CJ, Gossec L, Poddubnyy D, Poddubnyy D, Navarro-Compán V, Christen L, Mahapatra R, Makri S, **Bundy C**. The Impact of Axial Spondyloarthritis on Mental Health Health: Results from the European Map of Ankylosing Spondyloarthritis (EMAS) RMD Open 2021;7:e001769. doi:10.1136/rmdopen-2021-001769
13. Pattinson R L, Trialonis-Suthakharan N, Gupta SG, Henry AL, Lavallée JL, Otten M, Pickles T, Courtier N, Augustin M & **Bundy C**. Patient-reported measures in dermatology: a systematic review. ADV Acta Derm Venereol 2021; 101: adv00559
14. Howells L, Lancasterm N, McPheem M, **Bundy C**, Ingram J, Leighton P, Henaghan- Sykes K and Thomas KS. Thematic synthesis of the experiences of people with Hidradenitis Suppurativa: a systematic review. BJD 2021 185, pp921–934 10.1111/bjd.20523
15. Gratacós J, Behrens F, Coates LC, Lubrano E, Thaçi D, **Bundy C,** de la Torre-Aboki J, Luelmo J, Voorneveld H, Richette P. A 12-point recommendation framework to support advancement of the multidisciplinary care of psoriatic arthritis: A call to action. Joint Bone Spine. 2021 May;88(3):105175. doi: 10.1016/j.jbspin.2021.105175. Epub 2021 Mar 23.
16. Hewitt RM, Pattinson R, Cordingley L, Griffiths CEM, Kleyn CE, McAteer H, Schofield J, **Bundy C**. Implementation of the PsoWell™ Model for the Management of People with Complex Psoriasis. Acta DV. Acta Derm Venereol 2021; 101: adv00445.
17. Pattinson R, Poole HM, Sadiq SA, **Bundy C**. Exploring Beliefs and Distress in Patients with Facial Palsies. An Explorative Study into the Beliefs Held by Patients with Facial Palsies and How These Drive Levels of Distress. Psychology Health & Medicine. doi: 10.1080/13548506.2021.1876891
18. Barton A, Jani M, **Bundy C**, Bluett J, McDonald S, Keevil B, Dastagir F, Aris M, Bruce I, Ho P, McCarthy E, Bruce E, Parker B, Hyrich K, Gorodkin R. Translating research into clinical practice: Quality Improvement to halve non-adherence to Methotrexate. Rheumatology 01 Jan 2021, 60(1):125-131 DOI: 10.1093/rheumatology/keaa214
19. Garrido-Cumbrera M, Poddubnyy D, Gossec L, Maphaptra R, **Bundy C**, Makri S, Sanz-Gómez S, Christen L, Delgado-Domínguez CJ, Navarro-Compán V, on behalf of the EMAS Working Group. Gender Differences in Patient Journey to Diagnosis and Disease Outcomes: Results from the European Map of Axial Spondyloarthritis (EMAS). Clinical Rheumatology 2021. Doi: 10.1007/s10067-020-05558-7
20. Garrido-Cumbrera M, **Bundy C**, Navarro-Compán V, Makri S, Sanz-Gómez S, Christen L, Mahapatra R, Delgado-Domínguez C, Poddubnyy D. Patient-reported Impact of Axial Spondyloarthritis on Working Life: Results from the EMAS survey. Arthritis Care and Research 2021 Dec;73(12):1826-1833. doi: 10.1002/acr.24426.
21. Pattinson R, **Bundy C**. Self-management Patient Reported Outcome Measures can Prompt Support. BJD 2020 Feb 23.
22. Ferguson FJ, Lada G, Hunter HJA, **Bundy C**, Henry AL, Griffiths CEM, Kleyn CE. Circadian and seasonal variation in psoriasis symptoms. JEADV 2020. http://dx.doi.org/10.1111/jdv.16791
23. Kleyn CE, Talbot PS, Mehta NN, Sampogna F, **Bundy C**, Ashcroft DM, Kimball AB, van de Kerkhof P, Griffiths, CEM, Valenzuela F, van der Walt JM, Aberra T, and Puig L. 2019. Psoriasis and mental health workshop report: exploring the links between psychosocial factors, psoriasis, neuroinflammation and cardiovascular disease risk. Acta Dermato-Venereologica 100 , adv00020. 10.2340/00015555-3375
24. Henry AL, Chisholm A, **Bundy C**, Griffiths CEM, Carter LM, Kyle SD. Examining the relationship between sleep and daytime variables in psoriasis: An investigation using actigraphy and Experience Sampling Methodology. Sleep Medicine 72 (2020) 144-149.
25. Augustin M, Kleyn CE, Conrad C, Sator PG, Stahle M, Eyerich K, Radtke MA, **Bundy C**, Mellars L, Greggio C, Cordey M, Koscielny, V. and Griffiths. CEM 2020. Characteristics and outcomes of patients treated with apremilast in the real world: results from the APPRECIATE study. Journal of the European Academy of Dermatology and Venereology https://doi.org/10.1111/jdv.16431
26. Sadiq SA, Pattinson R, Poole HM and **Bundy C**. 2020. Psychological distress and coping following eye removal surgery. Orbit 39 (3) , pp. 175-182. 10.1080/01676830.2019.1658789
27. Garrido-Cumbrera M, Poddubnyy D, Gossec L, Gálvez-Ruiz D, **Bundy C**, Mahaptra R, Makri S, Christen L, Delgado-Domínguez CJ, Sanz-Gómez S, Plazuelo-Ramos P, Navarro-Compán V. on behalf of the EMAS group. The European Map of Axial Spondyloarthritis: Capturing the Patient Perspective—an Analysis of 2846 Patients Across 13 Countries. Current Rheumatology Reports. 2019 Mar 12;21(5):19.

28. Garrido-Cumbrera M, Delgado-Domínguez CJ, Gálvez-Ruiz D, C. Mur B, Navarro-Compán V, **Bundy C**. The Impact of Axial Spondyloarthritis on Mental Health: Results from the Atlas. The Journal of Rheumatology Feb 2019, jrheum.180868; DOI: 10.3899/jrheum.180868
29. Lavalee J, Kemp K, Joseph S, Levison S, **Bundy C**. Gastwell: a novel, integrated health psychology service for individuals with inflammatory bowel disease GUT 2019;68(Suppl 2):A1–A269
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31. Henry AL, **Bundy C**, Kyle SD, Griffiths CEM, Chisholm A, Understanding the experience of sleep disturbance in psoriasis: A qualitative exploration using the Common Sense, Self-Regulation Model. Br. J Dermatol. 2019 Jun;180(6):1397-1404
32. Majeed-Ariss R, McPhee M, **Bundy C**, Griffiths CEM, Young H; Psoriasis Priority Setting Partnership Steering Group. Developing a protocol to identify and prioritize research questions for psoriasis: a James Lind Alliance Priority Setting Partnership. Br J Dermatol. 2018 Jun;178(6):1383-1387.
33. Khoury LR, Møller T, Zachariae C, Correll H, Jørgensen NB, Petersen C, Pors M, **Bundy C** and Skov L. A prospective clinical non-randomised controlled trial of individualized nurse-led patient-centred intervention for patients with psoriasis. Br J Dermatol. 2018 Dec 26. doi/epdf/10.1111/bjd.17585
34. Bradbury D, Chisholm A, Watson P, **Bundy C**, Bradbury N, Birtwistle S. Barriers and facilitators to health care professionals discussing child weight with parents: a meta-synthesis of qualitative studies. Br J Health Psychol. 2018 Sep;23(3):701-722.
35. Keyworth C, Nelson P, **Bundy C**, Pye S, Griffiths CEM, Cordingley L. Does message framing affect changes in behavioural intentions in people with psoriasis? A randomized exploratory study examining health risk communication. Psychol Health Med. 2018 Aug;23(7):763-778.
36. Howells L, Chisholm A, Cotterill S, Chinoy H, Warren RB, **Bundy C**. The impact of disease severity, illness beliefs and coping strategies on outcomes in psoriatic arthritis. Arthritis Care & Res (Hoboken). 2017 Aug 3. doi: 10.1002/acr.23330. [Epub ahead of print]
37. Nelson PA, Kane K, Pearce CJ, **Bundy C**, Chisholm A, Hilton R, Thorneloe R, Young H, Griffiths CEM, Cordingley L. 'New to me': changing patient understanding of psoriasis and identifying mechanisms of change. The Pso Well® patient materials mixed-methods feasibility study. Br J Dermatol. 2017 Apr 12. doi: 10.1111/bjd.15574.
38. Henry AL, Kyle SD, Chisholm A, Griffiths CEM, **Bundy C**. A cross-sectional survey of the nature and correlates of sleep disturbance in people with psoriasis. Br J Dermatol. 2017 Mar 17. doi: 10.1111/bjd.15469.
39. Thorneloe RJ, **Bundy C**, Griffiths CEM, Ashcroft DA, Cordingley L. Non-adherence to psoriasis medication as an outcome of limited coping resources and conflicting goals: findings from a qualitative interview study with people with psoriasis. Br J Dermatol 2017 176,3;667-676
40. Chisholm A, PA Nelson, CJ Pearce, AJ Littlewood, K Kane, AL Henry, R Thorneloe, MP Hamilton, J Lavallee, M Lunt, CEM Griffiths, L Cordingley, **C Bundy**. Motivational interviewing-based training enhances clinicians' skills and knowledge in psoriasis: findings from the Pso Well® study. Br J Dermatol 2017 176, 3:677-686 https://doi.org/10.1111/bjd.14837

2. A list of the groups (i.e. TAG and/or any of its subgroups) in which you have been a participant, and the relevant time periods. Please also confirm if you are or have been a participant in SAGE or other relevant groups.

I was a member of the Technical Advisory Group for International Intelligence between 2020 and present.

I have not been a participant in SAGE or other relevant groups.

3. An overview of your involvement with those groups between January 2020 and May 2022, including:

a. When and how you came to be a participant;

b. The number of meetings you attended, and your contributions to those meetings; and

c. Your role in providing research, information and advice.

I was invited by the Chair of the Welsh Government Technical Advisory Group International Intelligence (TAG II) to become a member. I attended all weekly meetings throughout the immediate pandemic period and, subsequently, fortnightly and monthly meetings since. I have missed a maximum of 4 meetings during that time due to illness or other competing commitments in the latter stages.

I contributed expert knowledge about the known beliefs, emotional and behavioural factors that influence adherence to health advice and behaviour change. I was an active participant in all discussions and interpretation of the data presented to us along with my colleagues on the TAG II. In addition, I contributed to the output we produced in the form of summary reports and advice as a collective, on a range of subjects as they presented themselves to us on the TAG II from the main Scientific Advisory Group.

4. A summary of any documents to which you contributed for the purpose of advising TAG and/or its related subgroups on the Covid-19 pandemic. Please include links to those documents where publicly available.

5. A summary of any articles you have written, interviews and/or evidence you have given regarding the work of the above-mentioned groups and/or the Welsh Government's response to the Covid-19 pandemic. Please include links to those documents where publicly available.

This information is not held locally on my Cardiff University system. I have requested, through the Chair of TAG II Professor Robert Hoyle, that we provide this information in the form of publications and links to the reports.

6. Your views as to whether the work of the above-mentioned groups in responding to the Covid-19 pandemic (or Wales's response more generally) succeeded in its aims. This may include, but is not limited to, your views on:

I was struck by both the breadth of generic scientific expertise and the depth of specific expertise available on the TAG II. The virology expertise was exceptional and very reassuring that we had such plentiful expertise available on the group.

Being the only Behavioural Scientist was not a comfortable position, I would have welcomed other colleagues with specific health psychology expertise to be able to a) share and test my conclusions

with and b) spread the role in contributing to the TAG II committee. I had no departmental support from the University to be able to access resource for rapid research review purposes and report preparations which meant I had to commit a significant amount of my time to the TAG II business. While I willingly did this because of the circumstances, it left me somewhat concerned about the other work I was employed to do at the University which continued throughout the early pandemic phase. At that time and for the best part of 18 months I was working 70-80 hours per week.

The links with Public Health Wales were helpful and provided me with the health policy context that enabled me to think beyond the immediate academic literature. Having another Behavioural Scientist working in a Public Health context would have been even more reassuring and supportive.

I cannot comment on the way the groups were commissioned as I have no knowledge of this process.

The resources and support available in terms of administrative and other expertise was adequate in my opinion although they changed too frequently, but I cannot comment on whether that was optimal as this was the first time I had worked in this context. Support from the Chair and other TAG II colleagues was extremely helpful, they were responsive to requests, respectful of my input and inclusive. Everyone worked exceptionally hard.

a. The composition of the groups and/or their diversity of expertise;

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

issues;

c. The resources and support that were available;

d. The advice given and/or recommendations that were made;

e. The extent to which the groups worked effectively together; and

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f. The extent to which applicable structures and policies were utilised and/or

complied with and their effectiveness.

I believe we worked very effectively as a group in TAG II and the links between the Welsh Government Scientific Office and Cardiff University appeared to work extremely well, it appeared to be seamless in my view and I was pleasantly surprised at the lack of any barriers to working across the institutions.

The Chair of our committee was discrete and effective as Chair. We were all struggling to assimilate a large amount of, sometimes inconclusive evidence, gleaned from across the globe, to similar health threats. However, this threat was very different and the amount of uncertainty to questions we were asking of the established knowledge base generated some concern on my part about what we could offer as advice in such a high stakes situation.

Some of the questions we were asked to research were not always formulated in the optimal way. I attributed this to the unprecedented circumstances but with hindsight I wonder if we had been posed more specific questions, we could have provided more precise answers to questions. It seemed at times that different groups were being asked to consider the same questions which might not have been the most efficient way to obtain evidence.

I cannot comment on the degree to which structures and policies were utilised or complied with, as we rarely received feedback (other than through the media and other secondary sources) about whether or how our deliberations were received by the SAG or used to formulate policy. This was a source of personal frustration and I believe could be improved. I appreciate the urgency and rapid changing circumstances, but closing the loop of learning could have been done more effectively even in the early stages.

7. Your views as to any lessons that can be learned from the Welsh Government's response to the Covid-19 pandemic, in particular relating to the work of the above-mentioned groups. Please describe any changes that have already been made, and set out any recommendations for further changes that you think the Inquiry should consider making.

I am not convinced the different advisory groups talked to each other sufficiently, this is only my impression, but I know that there was no communication across the groups with other professionals who I might have considered sufficiently similar to me. Given there were so few of us, this could have been done relatively easily had I known who was providing input to which groups but the information was not readily available.

Given the major health protective behaviours, including the vaccination programme, were all dependent on individuals adhering to advice, I would argue more behavioural expertise, especially health psychologists specialising in behaviour change were needed to formulate an effective response. My expertise alone was insufficient to provide a broader perspective. My concern is that assumptions were made about the uptake of vaccination which subsequently were proven to be overly optimistic. This expertise on health protective behaviours should come from academic psychology departments across institutions in Wales and include public health settings but not be confined to public health experts. We know that knowledge about health protection is a necessary but not sufficient condition for behaviour change.

I foresaw the potential for evidence-based health behaviour advice to be drowned out with the emphasis on vaccination. Of course, I recognise the importance of this as a means to control infection spread but ***both*** the vaccination programme and health protective behaviour should have been given equal prominence. However, I could see from the literature reported, especially from Asia and New Zealand that we needed to constantly reinforce the need to wear masks and avoid close contact with others, both prior to and during the vaccination campaign. I saw that if we let the messages slip and confused people with optional adherence strategies as happened, we would risk losing compliance in most people, and generate health anxiety in people not yet vaccinated and among our vulnerable populations.

At times, the messaging about health protective behaviours that were evidently working well in other international contexts, were pre-judged as not likely to translate to the Welsh context before being tried. This was a major frustration for me. I can only surmise that the advice was not being received by people with the expertise to judge if they *could* be effective in the Welsh context. I make this assertion as I have already outlined there were few experts with my background spread across all of the advisory groups. It is unlikely that virology advice would have been pre-judged in this way as non-experts are reluctant to comment from a position of ignorance around virology but willing to

do so in a human behaviour context. I therefore recommend increasing the psychology expertise, both basic and applied, on any future advisory groups.

We regularly spoke about the methods of infection spread in TAG II and realised relatively early that aerosol spread was not being discussed at the UK government level with the urgency it deserved. I think the enquiry could focus on what was known about aerosol v fomite spread and when. Why this advice was not given more prominence in Wales and why the general population were still being given advice to wash their hands but not to avoid crowded places to the same extent. This area I believe marked a turning away from scientific evidence to minimise the spread of infection and toward prioritising strategies to boost the economy. I understand the pressures on policy makers from a range of sources, but this was a bad scientific departure in my, albeit limited, view.

8. A brief description of documentation relating to these matters that you hold (including soft copy material held electronically). Please retain all such material. I am not asking for you to provide us with this material at this stage, but I may request that you do so in due course