

Questionnaire

UK COVID-19 Inquiry: Module 2 and 2B - Rule 9 Request to John Watkins- Reference: M2B/TAG/01/JW

Please provide the following information:

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

On leaving school I attended Cardiff University and studied Physics, gaining a First Class Honours degree. I then carried out research towards a PhD in Physics before entering medical School where I graduated MB BCH from the Welsh National School of Medicine. After junior hospital posts I entered general practice in 1985, after gaining MRCGP. I am also a FRAS. During my early years in general practice I became interested in Epidemiology and vaccine preventable infectious disease and started publishing and presenting on Influenza Epidemiology and vaccine uptake in international journals and conferences. My interests in Epidemiology led to the start of a nearly 40 year career in which I have published on many aspects of Influenza and respiratory virus epidemiology, vaccine use and vaccine effectiveness, pandemic planning, use of R in plotting the course of an epidemic, I have collaborated widely both nationally and internationally in this field. In 1996 I undertook the membership of the Faculty of Public Health and obtained MFPHM by examination.

On completing my specialist training I became a Consultant Epidemiologist and then an academic in the Department of Epidemiology at Cardiff University where I still hold an honorary position while working back in the NHS for Public Health Wales as a Consultant Epidemiologist.

During my long career, with others, I championed the cause for targeting influenza vaccine at high-risk groups and the move towards an age based vaccine policy. I shared the podium for many years with the successive CMOs at the Department of Health at press conferences promoting influenza vaccine uptake. This work led to an age based policy being implemented, in the year 2000, in the UK. Before I became involved in working with UK government on vaccine uptake, for Influenza vaccine, only 1.5 million doses were administered in the UK, by the time the age based policy had been implemented this had risen to 15 million doses.

I have chaired the Welsh Government's Influenza vaccine group and been a member of its Pandemic planning team for over 15 years, up to the onset of the current SARS-CoV-2 pandemic.

I was invited to give a talk on Pandemic Planning at the 16th World Congress on Disaster and Emergency Medicine in Victoria Canada 12-15th May 2009 and, while preparing the talk, the 2009, H1N1pdx, pandemic started I was therefore able to update the congress, in real time, on the emerging pandemic threat and the preparation needed. Over the next few months, as the 2009 influenza pandemic unfolded, I worked closely with the UK and Welsh Governments giving advice on the evolution of the pandemic, the deployment and use of anti-virals and the measures

that needed to be taken to mitigate harm. Also I worked with NHS organisations to scale-up for the expected rising cases and the roll out of vaccines when available.

As the pandemic evolved, I was invited, as one of 200 scientists from around the World, to the WHO in Geneva, the purpose of which was to;

“from November 17 to 20 2009 the WHO Global Influenza Program, assess the status of global research efforts to understand, prevent and treat influenza; to develop a Research Agenda that would reflect a consensus of investigators working on the disease; and to propose recommendations that would help to meet identified gaps in our understanding of the emergence, transmission, mitigation and management of influenza” this resulted in the report http://www.asset-scienceinsociety.eu/sites/default/files/who_research_agenda_on_influenza_20102011.pdf .

Over the next 2 years I was involved in governmental reviews of the H1N1pdv(2009) pandemic and cooperated with Dame Deidre Hine in her review. I was also part of the working group that updated the UK's Influenza Pandemic Preparedness Strategy 2011 that was the backdrop for the initial stages of the response to the coronavirus pandemic. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213717/dh_131040.pdf

In 2013 I presented a paper at the 8th Options for the Control of Influenza Conference in Cape Town South Africa on the 5th-10th September 2013. This paper on the 'Origins of the basic Reproduction Number R0 and its value in it has in influenza research. This has relevance for how this number was both calculated and used and misused, in the current COVID-19 pandemic.

In addition, of relevance to the current pandemic and its management, I presented a paper at the Options for the Control of Influenza VI, in Toronto Canada June 17-23 2007, which looked at age as an independent risk factor for deaths from pandemic influenza (published in the proceedings of the Options for the Control of Influenza edited by J Katz, p 50-52. International Medical Press 2008). This paper demonstrated that exposure to novel pandemic viruses results in morbidity and mortality profiles very different to endemic viruses. In the case of Influenza this results in large numbers of deaths in the post pubertal and the early adult period, due to lack of prior exposure to the novel virus and a very active immune response. This has since been recognised and named as a 'cytokine storm'. The lesson here is that prior exposure to a novel strain will elicit life long, in terms of Influenza, protection from serious disease, on re-exposure, due to immunological memory elicited by memory B and T Cells, what David Webster of St Jude's Medical Centre has dubbed the 'original antigenic sin'. This also has relevance for the current COVID-19 pandemic.

Given my background in theoretical Physics and Epidemiology, I am very interested in the mathematics surrounding disease transmission. Over the past 10 years or so I have shifted some of my research focus to the application of Complexity Science to health, healthcare and infectious disease. I attended a week long course at the Santa Fe Institute in New Mexico on Complexity in Medicine. I have successfully completed several of their online courses on, Complexity, Non Linear Dynamics, Agent Based

Modelling, Fractals etc., and developed a good scientific understanding of how complexity might be applied to both infectious disease modelling and the effects of Network structure on disease transmission (see Conference presentation at ESWI September 2014 below). Again, this latter point, is relevant for the way in which models are constructed for infectious diseases, the value, or otherwise, of the types of flow based differential SIRS models used by Imperial and others during this pandemic and the validity of the calculated R values, from Cambridge University and others as the pandemic progressed. For an example of some of my work in this area see Watkins, J. (2019). Organisational Relativity—Changing Our Perspective on Health and Health Care. In: Sturmberg, J. (eds) Embracing Complexity in Health. Springer, Cham. https://doi.org/10.1007/978-3-030-10940-0_1.

I have carried out studies on impact of Influenza in Childhood see International Conference Series 1263. (2004) 263-266

Relevant Publications

Watkins J. Effectiveness of influenza vaccination policy at targeting patients at high risk of complications during 1994/5: cross sectional survey. *BMJ* 1997;315:1069-70

Watkins J, Rogers C, Evans J. Implications of age-based policies for influenza immunisation. *Lancet*. 1999 Jan 16;353(9148):208-9.

Watkins J. Influenza: Burden Of Disease In Childhood. Options for the Control of Influenza V. International Conference Series 1263. (2004) 263-266

Viboud C, Grais RF, Miller M, Simonsen L, (Watkins J, as part of the MNIMMSG) Multi national impact of the 1968 Hong Kong influenza pandemic: evidence for a smouldering pandemic. *J Infect Dis*. 2005 Jul 15;192(2):233-48.

Watkins J. The UK flu vaccine shortage – who is at fault? *BMJ* 2005;331:1413

Watkins J. Selective vaccination programmes - a failure to protect? -. in Implementation of Vaccine Policy. ICSS 261. ed Keith Cartwright Royal Society of Medicine Publication. London. 2008

Watkins J. Age as an independent risk factor for deaths from pandemic influenza. Proceedings of the Options for The Control Of Influenza VI. Elsevier. 2008

NICE guideline cg19;- Pneumonia: Diagnosis and management of community- and hospital-acquired pneumonia in adults November 2014 <https://www.nice.org.uk/guidance/cg191>

Eccles S., Pincus C., Higgins B., et al. Diagnosis and management of community and hospital acquired pneumonia in adults: summary of NICE guidance. *BMJ* 2014;349:g6722 doi: 10.1136/bmj.g6722 (Published 3 December 2014)

Pockett RD, Watkins J, McEwan P, Meier G. Burden of Illness in UK Subjects with Reported Respiratory Infections Vaccinated or Unvaccinated against Influenza: A Retrospective Observational Study. *PLoS One*. 2015 Aug 19;10(8) :e0134928. doi: 10.1371/journal.pone.0134928. eCollection 2015.

Jarvis D, et al. Prevalence of Asthma-Like symptoms with aging; A European Cohort Study. *Thorax* 2018;**73**:37–48.

Theodore Lytras, et al., Occupational exposures and incidence of chronic bronchitis and related symptoms over two decades of follow-up: the European Community Respiratory Health Survey. Submitted to *European Respiratory Journal*. *Occup Environ Med* 2019;0:1–8.

Watkins J. Organisational Relativity – Changing our perspective on health and healthcare. In *Embracing Complexity in Health –the transformation of science practice and policy*. edited by Joachim P Sturmborg. Springer Nature Switzerland 2019: 257-266

Watkins J. Preventing a covid-19 pandemic. *BMJ* 2020;368:[10.1136/bmj.m810](https://doi.org/10.1136/bmj.m810)

For more publications see Researchgate
<https://www.researchgate.net/profile/John-Watkins-8/research>

Relevant International conference presentations and abstracts

Watkins J. Influenza Vaccine production and usage on a global scale. Influenza vaccines for the World 18-20 October 2006 Vienna Austria

Watkins J. Early findings from the Pandemic of 1889 presented at the First Pandemic of the 21st Century. An international conference held at St Bartholomew's Hospital on January 19th-20th 2006 London

Watkins J. Pandemic Influenza. Influenza Confronting the Threat. At the Institute of Physics London 22nd May 2007 London

Watkins J. Age as an independent risk factor for deaths from pandemic influenza. Options for the Control of Influenza VI. Toronto, Canada, June 17-23 2007

Mayor S, Watkins J**. Influenza vaccine usage and production on a global scale. Options for the Control of Influenza VI. Toronto, Canada, June 17-23 2007

Watkins J. Early analysis of the 1889 pandemic. Options for the Control of Influenza VI. Toronto, Canada, June 17-23 2007

Watkins J. Pandemic Influenza Epidemiology. Pandemic Influenza. A one day workshop organised by the Royal Pharmaceutical Society held at the Royal Society of Medicine London on 16th January 2008

Watkins J. Pandemic Influenza. Presented at 4th International Primary Care Respiratory Research Group Conference Seville May 2008

Watkins J. Planning for Pandemic Influenza at a National and Sub-national level. Invited speaker at the 3rd international Conference of the European Scientific Working Party for Influenza. Villamoura Portugal September 2008

Watkins J. The Role of Primary Care in Influenza Management. Invited speaker at the 3rd international Conference of the European Scientific Working Party for Influenza. Villamoura Portugal September 2008

Watkins J. Mitigation strategies for the protection of health care workers and first responders. 16th World Congress on Disaster and Emergency Medicine convened May 12-14, 2009, in Victoria, Canada

Watkins J. Chair and presentation of session on Patient care issues with the pandemic of influenza A (H1N1) at The 2nd European Meeting of EHESP School of Public Health, September 28-29, 2009, at the Royal Academy of Medicine of Belgium, Brussels. <http://www.ehesp.fr/28092009-pandemie-de-grippe-gerer-une-crise-sanitaire-mondiale/>

In November of 2009 I was invited to take part, by the WHO, in a 4 day workshop to develop a Global Public Health Research agenda for Pandemic Influenza at the WHO headquarters in Geneva.

http://www.who.int/csr/disease/influenza/2010_11_report_of_the_first_global_consultation_november_2009.pdf

Watkins J. Comparison of age based morbidity and mortality between the H1N1 pandemic of 2009 and Seasonal Influenza. Presented at 4th International Conference of the European Scientific Working Party for Influenza. Malta 11th to 14th September 2011

Meier G, Pockett R, McEwan P, Watkins J, Humphreys I. Burden of Influenza Disease In the United Kingdom (UK): A Linked General Practice Research Database (GPRD) Analysis **ISPOR 18th ANNUAL INTERNATIONAL MEETING**. Sheraton New Orleans, New Orleans, LA, USA: May 18-22, 2013 Abstract ID# 42521

Meier G, Pockett R, McEwan P, Watkins J, Humphreys I. INFLUENZA-RELATED MORTALITY IN THE UNITED KINGDOM (UK): A LINKED GENERAL PRACTICE RESEARCH DATABASE (GPRD) ANALYSIS 2001–2009. Options for the Control of Influenza VIII, Cape Town, South Africa, 5–10 September 2013

Meier G, Pockett R, McEwan P, Watkins J, Humphreys I. A STUDY OF HEALTH OUTCOMES IN VACCINATED AND UNVACCINATED SUBJECTS WITH REPORTED RESPIRATORY INFECTIONS IN THE UNITED KINGDOM. Options for the Control of Influenza VIII, Cape Town, South Africa, 5–10 September 2013

Watkins J**. Origins of the basic reproduction number, R_0 , and its value in Influenza research. Options for the Control of Influenza VIII, Cape Town, South Africa, 5–10 September 2013

Meier G, Pockett RD, McEwan P, Watkins J, Humphreys I. USE OF ANTIBIOTICS AND PRESCRIPTION MEDICATION IN INFLUENZA DISEASE IN THE UNITED KINGDOM (UK). ISPOR 16th Annual European Congress to be held 2-6 November 2013 at The Convention Centre Dublin in Dublin, Ireland. Abstract ID# 45874

Watkins J. Influenza Disease Transmission Across 'Real World' Networks And Its Implications for Pandemic Planning. 5th ESWI Influenza Conference 14th to 17th September 2014. Riga Latvia. Contribution ID: 252

Watkins J. Organisational Relativity. Presented at The 3rd Systems and Complexity Science for Healthcare Conference hosted by the George Washington University School of Medicine. October 2017.

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 and the relevant time periods.

At a UK Wide level

- **Public Health England Joint Modelling Cell, feeding into SPI-M and SAGE from March 2020 to present (now under UKHSA Joint Modelling Cell)**

- **Children's Working Group on the role of Children in Transmission of COVID-19 reporting to NERTAG/SPI-M and a subgroup of SAGE from 9/4/2020 to publication of its final report in late 2020 also collaborated in the interim paper published on the 12/4/2020 on the role of children in transmitting COVID-19**
- International Best Practice Advisory Group (IBPAG) provides expert input and challenge to analysis on international responses to the Covid-19 pandemic. Attended most meeting from inception in 2020 through to the end of 2021. IBPAG membership is drawn from leading experts in the fields of health, public policy, science and economics. The group jointly chaired by the Cabinet Office and the Foreign, Commonwealth and Development Office.
- **Social Care Working Group feeding into SAGE. This group started in April/May 2020 and continued to meet through to September of 2022. I attended 17 out of a possible 20 meetings of the group and contributed to the publications that the group produced.**

At a Wales Level

- **I was a member of the Policy Modelling group that fed into TAG (Wales) from its inception to present day. I have attended most of the meetings and actively contributed to the discussions of the group**

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;

I was asked to be part of the Policy Modelling Group in Wales as an epidemiologist working for Cardiff University and PHW with insight and expertise in Epidemiology, Pandemic Disease and mathematical modelling. See section 1 of this submission. I had also previously been involved in the Pandemic Planning Group of the Welsh Government

As a result of the above I was asked to be part of the Joint Modelling group of PHE as the Welsh Representative and also as an Epidemiologist

As a result of the above when the Children's working group was formed I was able to demonstrate knowledge that was pertinent to the workings of the group and so was asked to join.

Similarly the SCWG was formed to look at aspects of the challenges faced in this sector set by the COVID-19 pandemic and so was asked to join the group both as an epidemiologist but also as a GP with insight into the Community Care sector. I

was also able to bring in a regional perspective from Wales.

The IBPAG group invitation came direct from the Cabinet Office. I can only assume I had the necessary profile the group were looking for in terms of my international collaborations and my previous work in Influenza.

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

As indicated above, during the periods the various groups were/are in existence, I have attended the vast majority of meetings e.g. the SCWG I attended 17 out of 20 meetings and this level of attendance would be reflected in the other groups

- Role in providing research, information and advice.

In each of the groups I provided input at 3 levels;

Regional on the ground knowledge of the current state of the pandemic and its impact at a regional level.

At a specialist level I was able to provide expertise, insight and advice within my areas of experience/competence

I was also able to draw on my experience as a clinician, I still work in unscheduled care as a GP, to give insights into; structure of the sector, e.g. community, primary and social care this was useful for the SCWG and the Children's group

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

As I attended most of the meetings of the groups listed above and also sub-groups of these that dealt with particular specific issues/technical drafting groups, I had input and gave critical feedback to all documents produced by each of these groups that are in the public domain. **I did not always agree with some of the advice, or methodology used, particularly some of the Policy Modelling group's Policy advice in Wales, its models and the assumptions used to drive things forward. I also disagreed with the over use and publication of R values by the modelling groups from Cambridge, Swansea and elsewhere and said so in the various meetings, see below in sections 6 and 7.**

I also pointed out, many times, that there was a general lack of understanding amongst some of the participants about; basic immunology, the role of antibody, generated by natural and vaccine generated immunity and the potential for longer term protection generated, by memory B and T cells, to multiple sites on the corona virus spike protein and elsewhere on the virus. **There was an over reliance on flawed models based on imperfect data.** As case rates started to drop this problem was exacerbated and may have led to flawed policy making, again see section 6

and 7 below.

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 UK or Welsh Government's response to the Covid-19 pandemic. Please include links to those documents where publicly available.

Watkins J. Preventing a covid-19 pandemic. BMJ 2020;368:[10.1136/bmj.m810](https://doi.org/10.1136/bmj.m810)

In January of 2020 as we became aware of the evolving situation in China, with regard to the emergence of what became known as the SARS-CoV-2 virus, it was increasingly clear that, unlike the original SARS virus and MERS-CoV this virus was spreading rapidly with high levels of contagium. In addition it had high levels of morbidity in certain groups, the elderly and those with high risk conditions. It was also clear that, like SARS, the clinical course of the disease was anything from asymptomatic to a late phase, 5 to 10 days after symptom onset, of a severe illness with high levels of morbidity and mortality. In response to this and with knowledge that containment was likely to be totally ineffective. I wrote an editorial in the BMJ that was published on the 28th February 2020, suggesting that we were already going to be facing a pandemic and that countries needed to move towards preparation to deal with this. My editorial, based on the emerging clinical picture coming out of China, highlighted the fact that a significant number of cases were mild, or asymptomatic and had dispersed widely. This latter fact is quite important since in the coming months, patients were being discharged from hospitals to care homes without testing, a situation that has been found to be unlawful in England. *This editorial has been cited 400 times and on Research gate is more cited than 99% of all entries in any discipline*

A solution scan of societal options to reduce transmission and spread of respiratory viruses: SARS-CoV-2 as a case study. September 2020 [Journal of Biosafety and Biosecurity](https://doi.org/10.1016/j.jobb.2021.08.003) 3(6491) DOI: [10.1016/j.jobb.2021.08.003](https://doi.org/10.1016/j.jobb.2021.08.003).

In April of 2020 I collaborated with authors across many countries to look at societal options to reduce the spread of COVID-19 and emerge from the pandemic. This work was rapidly published as a pre-print in early April 2020 and eventually was published, as above, in December 2020. It was one of the first attempts to carry out an option appraisal on the management of the pandemic.

Watkins J (2020) COVID-19 Lockdown – Time to find an exit strategy and reflect on the costs and benefits! Gen Int Med Clin Innov, 2020 doi: [10.15761/GIMCI.1000194](https://doi.org/10.15761/GIMCI.1000194)

Lockdown was imposed in the UK and many other countries, at the end of March 2020, driven by fears that the NHS would be overwhelmed and that the potential national death toll would rise to over 500,000 based on the models from Imperial College London. I have spent over 12 years, at the time, working for NICE on a number of its technology appraisal committees, with this experience it had taught me to look at the wider harms related to

lockdown. This particular paper was written in late April 2020, submitted to the Journal in May and published in June 2020. It uses NICE methodology to look at the potential costs and consequences of the Lockdown and the broader societal impacts. I raised these issues with various groups including the Welsh Government, Policy Modelling Group, but they did not seem to be able to think about this in the broader terms, in terms of impacts on non-COVID-19 health issues, such as mental health, student education, missed diagnoses, etc.

Pandemic – BBC Sounds/ Radio 4 <https://www.bbc.co.uk/sounds/series/m000j2tz>

This was a 3 part series that was recorded prior to the COVID-19 pandemic and broadcast on BBC Radio 4. It was re-released in May 2020. The main narrator is Professor John Oxford with whom I worked for many years and I recorded parts of this programme spanning the three episodes and discussing the impact of the 1918 pandemic.

The Inquiry – Why are so many ethnic minorities dying in the UK and US?

<https://www.bbc.co.uk/programmes/w3cszl3b>

This programme was broadcast in the 20th May 2020. I was contacted by the producers of the programme from the BBC World Service and asked to discuss the above. The interview I carried out explored the concepts of co-morbidities, differing immune responses to SARS-CoV-2 infection and I was asked to speculate as to whether Vitamin D would boost the immune response. My reply to this was that the jury was out.

Long Tale- My coronavirus recovery by Sophie Wilson

<https://www.bbc.co.uk/programmes/m000p75r>

This programme was made in late summer 2020 and was broadcast on BBC radio Wales in November 2020. It is made up of narration of Sophie Wilson's personal experience recovering from COVID-19, her search for answers and finding others with this post viral condition. I was recommended to her by colleagues and I provide some Answers in a Q and A that was broadcast. I have the transcript and an off line recording.

BBC News 12th July 2021 - Covid lockdown in Wales: 'Time to end all restrictions

<https://www.bbc.co.uk/news/uk-wales-57785073>

This article arose out of an interview I gave to the BBC on vaccine and vaccine effectiveness against COVID-19. The point I was making was that with very high uptake of vaccine in those at high risk then the impact of COVID-19 on this population was greatly reduced and that current restriction did not need to be so draconian since the direct link between cases and poor outcomes had been greatly reduced. The Welsh Government, in their daily briefings were asked to react to this point of view and admitted that this was the case. The next day the first minister was asked to respond to my assertion by the leader of the opposition but declined

to comment. It was later acknowledged, a few days later, that restrictions could be reduced.

Covid in Wales: Drop restrictions to pre-Omicron levels, urges expert
<https://www.bbc.co.uk/news/uk-wales-59880877> 6th January 2022

I was contacted by the BBC in relation to the increased restrictions imposed by the Welsh Government in response to the Omicron Wave. My argument was that despite increased transmissibility, Wales were not seeing an upsurge in hospitalisations and felt that the level of restrictions could be taken back to the Autumn levels, having the effect of freeing up society again. I also argued that the very high levels of both exposure to the virus, in all its variant forms and high levels of vaccination would protect against more serious complications. I also reiterated that age was the biggest risk factor for the disease complications. At this time restrictions were more stringent than in England

Covid: Why are Wales' rules not changing? <https://www.bbc.co.uk/news/uk-wales-59909123> 7th January 2022.

In response to the news item the day before, see last entry, the First Minister, Mark Drakeford was asked whether he thought that I was correct in calling for a reduction in restrictions, which were more stringent than in England. His response was quite surprising claiming that I and others, were factually wrong, without offering any real evidence other than quoting case numbers, which of course did not support his case, as cases were higher in Wales than England despite more stringent restrictions. The article asserted that the increased restrictions in Wales were harming business. In fact many people near the English border were travelling to England to shop and visit hospitality in a less restrictive way, making a mockery of these rules. The Welsh restrictions were removed the next week.

Covid: Wales' schools face masks policy questioned by expert
<https://www.bbc.co.uk/news/uk-wales-60169382> 30th January 2022

In January 2022, the Welsh Government announced that it was intending to remove the rule regarding the universal wearing of face masks in schools. Instead, it was going to replace this with the option that headmasters would be left to make the decisions themselves. As quoted in this piece, I felt that this was an abdication of responsibility by the Welsh Government, in that it would leave decision making down to local school leaders who, may well be experts in running schools, as the minister suggests but lack the necessary expertise and information needed to base any decisions on. It is not practical, or realistic, with limited public health expertise, to expect that individual schools have the time to track down appropriate expert advice at a local level.

A comparison of coronavirus disease 2019 and seasonal influenza surveillance in five European countries: France, Germany, Italy, Spain and the United Kingdom *Influenza Other Respi Viruses*.2022;16:417–428.
<https://doi.org/10.1111/irv.12941> Submitted in mid-2022

This particular study was collaboration between myself and several colleagues across Europe that I have worked with for many years. This is one of the first studies

to compare surveillance systems across Europe and look at how these could be repurposed going forward to embrace SARS-CoV-2

National influenza surveillance systems in five European countries: a qualitative comparative framework based on WHO guidance. de Fougères et al. BMC Public Health (2022) 22:1151 <http://dx.doi.org/10.1186/s12889-022-13433-0>

This was another paper from the same group of collaborators that we published in the summer of 2022 that looked at a framework by which one could evaluate surveillance systems for Influenza (and hence COVID-19) across Europe.

6. Your views as to whether the work of the above-mentioned groups in responding to the Covid-19 pandemic (or the UK or Wales's response more generally) succeeded in its aims.

Pre-Amble at Onset of the Pandemic

Having been involved in Pandemic planning for many years and worked closely with the UK and Welsh Governments during the 2009 Pandemic, I fully expected to be closely aligned with government decision making and asked to contribute. My surprise was that I and others, with similar expertise and experience were essentially side-lined.

In early 2020, as described above, I became concerned that the situation involving the SARS-CoV-2 virus would potentially get out of hand and become a pandemic. I was also aware that it was probably too late to contain the virus by closing borders etc. I felt that the system in the UK needed to gear up for addressing the pandemic which would involve increasing NHS capacity, in terms of high dependency/ITU, protection of the vulnerable, the elderly, particularly as evidence emerged that the older aged population were a vulnerable group. I also felt that there should be widespread distribution and use of PPE in care settings. My editorial in the BMJ essentially called for this action.

I rapidly appraised the clinical evidence that was coming out of Wuhan and drafted a short paper, with an up to date assessment of the clinical picture of cases. My editorial highlighted the fact that, like SARS and MERS-CoV before, a significant number of infections were asymptomatic. I circulated drafts of both these papers to the CEO and MD of PHW and the CMO and colleagues within Welsh Government, in early February, I got virtually no response, the CMO never responded and the CEO of PHW told me she did not have time to read either document.

I was asked by colleagues in Welsh Government if I could go and help with the governmental response but, when I asked Senior Management in PHW, I was told this was going to be on a seniority basis and that the Deputy Director of Health Protection, a non-medical, general public health trained Consultant in Public Health with an Environmental Health background, was going to be the one to work with the Welsh Government.

I later became involved in the Policy Modelling group that fed into TAG but despite writing to Dr Rob Orford, the Chair of TAG, many times to ask if I could input directly into TAG all my emails were ignored. The make-up of TAG did not have a wide range of experience in dealing with infectious disease, or pandemic planning. The Chair of TAG was the CSO to Health and Social care with no experience in this area and the representation from Wales on SAGE did not have anyone with significant experience in infectious disease epidemiology, or pandemic planning. TAG policy decisions were driven by modelling scenarios, as if they were predictions, rather than rational evaluation, based on broader views, around infectious disease epidemiology, immunology, viral genetic drift etc.

Government's Use of Fear Tactics

The precipitous Lockdown in March 2020 was driven by the mathematical models out of Imperial College London and the behavioural messaging coming out of SPI-B. The minutes of a meeting in March 2020 demonstrates the thinking of the SPI-B group, that suggested, that the population was not scared enough and that 'Fear Appeal Theory' should be used to scare the population into compliance, see Appendix 4 below and the minutes of the meeting here -

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882722/25-options-for-increasing-adherence-to-social-distancing-measures-22032020.pdf

Discharge to Care Homes

On a parallel theme, it was clear, early on, that infected individuals with SARS-CoV-2 could be asymptomatic but infected. I highlighted this as described above.

I also discussed with managers within PHW, that were setting up a call centre to facilitate discharge from hospitals to care homes, that PHW *did not* have a role in this process, as this should be between the hospital sector and the care homes. Despite this advice, PHW set up a call centre to facilitate this process and gave advice on infection control measures. This system was set up outside of the normal Health Protection division and staffed by lay people with no infectious disease background, or experience, in contact tracing or infection control. They were advised against this approach by myself but training documentation, used to train the lay staff, advised that asymptomatic patients could be discharged safely into care homes.

On the 2nd April 2020 the DHSC published guidance for discharge to care homes 'Admission and Care of Residents during COVID-19 Incident in a Care Home' (<https://www.gov.uk/government/publications/coronavirus-covid-19-admission-and-care-of-people-in-care-homes>), this was duplicated, in Wales, with a document that was published by PHW on the same day (<https://www.adss.cymru/image/blog/Covid-19%20Resources/15-04-20/2020%2004%2009%20-%20PHW%20guidance%20-%20Admission%20and%20Care%20of%20Residents%20during%20COVID...pdf>). The only difference between these two documents was the insertion of the paragraph below on page 3 of the document;

'Guidance has been issued on discharge from hospital. The discharging hospital will clarify with care homes the COVID-19 status of an individual and any COVID-19 symptoms, during the process of transfer from a hospital to the care home. Public Health Wales will assist residential settings and hospital discharge teams in risk assessing whether it is safe and appropriate for an individual to return to a care setting' Irrelevant & Sensitive

This paragraph, which squarely placed PHW Wales, lay staff, in the decision making tree that included guidance that it was OK to discharge asymptomatic, untested patients to care homes. This action has been found to be unlawful in England, a defence offered was that people did not know at the time that asymptomatic carriage was possible. This is not the case, see my editorial in the BMJ that was published 4 weeks earlier.

Amnesty International's Care Homes Report is damning in its condemnation of the basic disregard for the human rights of residents in care homes and the morbidity and mortality that was caused by not protecting these most vulnerable in our society.

Over Reliance on Mathematical Models

As I have stated above many of the decisions in the pandemic were driven by mathematical modelling and mathematicians were over represented, on all the groups I was involved in. In fact, the Social Care Working Group was jointly chaired by a mathematician, though I have no criticism of him personally, or his competence in chairing the group and directing work. In Wales the Policy Modelling Group was basically driving the agenda in Wales, with regards to imposing restrictions, etc., based on models generated by Swansea University. The problem was that the group, as a whole, the mathematicians themselves and the Ministers, were taking these models as predictions, in anything but name and forming policy accordingly.

There was an over reliance and over attribution of value given to the concept of the Basic Reproduction Number, R. This reached a head in mid-summer 2020 when David Schukman, the BBC's Science Editor at the time, was using a graphic, like a thermostat, to demonstrate how the R value could be tuned upwards and downwards by social engineering of contacts. See Below, in Appendix 1, Emails I sent to David Schukman and Fergus Walsh highlighting the imprecision and problems in calculating R accurately and its utility. I never got a response but soon afterwards, the BBC dropped this approach. The modellers at Cambridge and in Swansea sadly did not and continued to calculate R values with ever declining case numbers and mortality.

On the use of mathematical models it is interesting that David Spiegelhalter, writing in the BMJ <https://doi.org/10.1136/bmj.m3259>, demonstrated that the risk of death with COVID-19 followed the normal, populations based risk, roughly doubling ones risk across the age range. This would equate to incredibly low rates until the latter decades of life. Suggesting an age based approach to mitigation would be appropriate and priority should be given to protect the care sector and make sure they were shielded from disease and given PPE as a priority. This clearly did not happen

The Nobel laureate Michael Levitt a structural biologist analysed, with others, the shape of the epidemic curve of COVID-19 and concluded that rather than having an exponential curve as the best fit for epidemic growth, a Gompertz distribution best matched reality, see *Predicting the Trajectory of Any COVID19 Epidemic From the Best Straight Line* <https://www.medrxiv.org/content/10.1101/2020.06.26.20140814v2>. While this may sound a little esoteric then it should be noted that this type of curve fits better with mathematical models that take the network structure of society into account. The Imperial, LSHTM and Swansea models, being SEIR differential flow models, do not adopt this approach. If they had taken a network structures, agent-based modelling approach, then what you see is that epidemic disease spreads quickly across the network, via highly connected individuals and then, having exhausted these routes, slows. This leads to a much lower peak. This was never discussed in any groups I was part of and dismissed if raised. (see Appendix 3 below)

The SEIR models used by Imperial and the other groups, are basically flow models that use differential equations to plot the change in state of a population from Susceptible to Infected and so on. They do not take into account individual susceptibility and do not model this in. In addition, they do not take into account the network structure of the population.

The number of personal and social connections an individual has, is distributed non-linearly, there is no average value for the contact distribution, which obeys a power law. Infectious disease travels by weak links (cf Small World Models https://en.wikipedia.org/wiki/Watts%E2%80%93Strogatz_model). This means that highly connected individuals and large families etc., are more likely to contract and transmit disease. Giving rise to a Gompertz shape suggested by Levitt. It also means that border control is pretty ineffective unless one cuts ones-self off from the world by policy and geography e.g. New Zealand. For mainland Europe, the UK and the USA, with porous borders, this is impossible to achieve, making a mockery of the stance taken by the Scottish and Welsh Governments and also limiting the range people could travel during lockdown. Since over 20% of the population still carried out vital duties and freely moved around, this would make any sort of absolute control of disease spread by lockdown impossible and greatly reduce its effectiveness. The modelling approach that should have been explored was agent-based models, these could be used to explore scenarios but no models should be seen as predictive.

It is for the above reasons I believe options adopted elsewhere, e.g. Sweden, were not even discussed.

Lack of Basic Understanding of the Science Underlying Virology and Immunology

As I have highlighted above there was an over-representation of mathematicians on many of the groups that held sway but the groups lacked balance across the scientific landscape. This was no truer than in the areas of basic virology and immunology.

Viral replication within cells leads to genetic variation, this genetic variation can lead to changes in virulence, or transmissibility, as we have seen. For example, by the end of the first year of the pandemic there had been detected nearly 30,000 variations in the genetic code of the SARS-CoV-2 virus. Most of these variations led to neutral or negative, implications for the virus making it less transmissible, less virulent etc. Some, such as Omicron, had genome wide variation which gave it some transmissible advantage.

What people, on many of the groups, failed to realise was that immunity against the corona virus arises from multiple sites on the Spike protein and many other structural sites on the virus. This broad spectrum of immunity is not just driven by the production of antibody, but also by memory B and T Cells that persist. With the high levels of both natural and vaccine generated immunity, the UK population was likely to be largely protected against hospitalisations and deaths, despite the emergence of viral variation. This scenario has come to pass.

It has also been seen that in a largely unexposed population, to the current circulating strains of SARS-CoV-2, they are no less virulent than in the beginning. This latter point is being played out, in rural China, where vaccine uptake is low, as is natural infection, due to draconian 'Lockdown' restrictions. This lack of insight and expertise within the groups, I was part of, led to an over cautious approach to opening up society, especially schools and universities, leading to much non-COVID-19 related harm.

Wider Non-COVID-19 related harms due to Non-Pharmaceutical Interventions

Lockdowns were never a zero sum game, in the beginning they were introduced to protect the NHS but somewhere along the way this initial ideal was lost and later on, despite me asking many times in the groups I was involved in, I never got a clear answer as to what the end goal might be. On the Policy modelling group, at the Welsh Government, I raised this many times and even provided the group with an evaluation matrix to track potential wider societal harms from isolation. I highlighted, early on, that people with mental health issues may be harmed by lack of social contact, people with early stage cancer and CVD may not get the diagnosis and treatment they needed, children's education and social development was being impacted etc. Despite raising these issues I saw no attempt to quantify, or consider, these when restrictions were being imposed. On the economic side, see my paper doi: 10.15761/GIMCI.1000194, which estimated the cost of each life saved, by lockdown, as £150,000, nearly 10 times the level accepted by NICE.

'Experts'

In Appendix 2 below I have included an E Mail exchange that took place between myself, colleagues and the BBC, relating to the type of experts that were being used regularly by the corporation and other news outlets. Often these 'Experts' seemed to stray out of their fields of expertise and start answering questions, to the media, on topics, for which, they were merely 'educated lay people' and not experts. For example, mathematicians being quite happy to answer questions on vaccine effectiveness without any background in the subject. I resist to name names but Devi Sridhar, John Edmunds and Christina Pagel come to mind. Many pushing a Zero COVID agenda.

7. Your views as to any lessons that can be learned from the UK or 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 think the major lessons for the future relate to;

- **Stockpiling adequate resources of PPE, drugs etc., as directed by the Hine Report on the 2009 Pandemic**
- **Increase in resilience of the system. This pandemic came on the back of over a decade of chronic underfunding in the Health and Social Care Sector this policy needs to be addressed as a national priority.**
- **The Care system needs major investment with a proper career structure, for staff, put in place**
- **Lessons need to be learnt about how best to protect the most vulnerable in society, especially in care homes, where effective means of infection control need to be taught.**
- **There needs to be increased investment in the Health Protection system so trained professionals can be on hand to coordinate and direct responses**
- **The representation on decision-making bodies needs to be more diverse and more representative of frontline services. Building a response system from the bottom up will protect against the sort of disastrous decision making seen during COVID-19.**
- **There needs to be put in place a proper procurement process for pandemics that builds on, not bypassing, the current structures. This will prevent the worst excesses of cronyism.**
- **We need to recognise that the heart of an effective response to a pandemic is to built on people and not structures. If we recognise this then we will not waste vital time and resources in building Nightingale hospitals, that can never be staffed, or used at anything like capacity. The NHS critical care system self-organised and achieved an heroic feat in the early days of this pandemic, at great personal cost to the front-line workers themselves. Building a resilient, scalable, system, that can response when necessary, is not a waste of resources but insurance for the future, that can be used today to address the increasing health needs of an ageing population.**
- **We need to separate public policy from politics and respect the democratic process.**
- **Need to build up international scientific partnerships to share expertise and collaboration in vaccine development, medical research and disease surveillance.**

- **Need to build domestic manufacturing capacity in the new technologies, such as mRNA vaccines as these can be produced and modified quickly to rise to the challenge of a new pandemic pathogen but also has utility in the domain of personalised medicine and immunotherapy, for example in Cancer.**
- **Increased research funding to explore the evidence base for much of the interventions we used in this pandemic; masks, social distancing, economic costs and benefits of lockdown.**
- **More research needs to be undertaken with the aim of building realistic, SEIR-agent based models, that take into account the contact patterns and matrix structure of the population and move away from differential equation based SEIR models that are not fit for purpose.**

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.

I hold all the reports, minutes and paperwork of the groups for which I was a part. I also have the full collection of E Mails over the past 3 years some of which I have shared below.

Appendix 1 – E Mails relating to the problems in the use of R as a control parameter

From: John Watkins <[REDACTED] I&S >
Sent: 12 May 2020 14:34
To: haveyoursay@bbc.co.uk <haveyoursay@bbc.co.uk>
Subject: Fw: Science into Policy for COVID-19, the use and abuse of R0

For the attention of [REDACTED] NR

I am writing to you both to express my concern as an Epidemiologist on the almost evangelistic belief that the way to monitor and control the COVID-19 pandemic in the UK is via the value of R0.

R0 seems to have taken on a meaning and an unwarranted prominence, in the national strategy to control this pandemic.

Just for clarity the following should be made clear to the general public, politicians and decision makers about R0;

- R0 is difficult to calculate at the best of times but virtually impossible, with any degree of certainty, in the middle of an epidemic with incomplete data
- The value of R0 is very dependent on the method by which it is calculated, with little agreement between methods
- Each method to calculate R0 gives rise to a different distribution function hence divergence will occur in R0 at various value points
- R0 is not a biological constant of the virus
- R0 is a spatially dependent variable which also varies with the transmissibility of the pathogen concerned
- R0 depends on social structure, population density, mobility and duration of infectivity
- Calculation of R0 is a product of past history and has an inherent error that arises from this
- The stochastic nature of the disease leads to errors in R0 no matter how it is calculated
- Heterogeneity exists in population network structure, this structure is a non-linear, power law distribution, this leads to greater dispersion in the value of R0 across a society
- This variation means there is no average value for a population.
- Preferential attachment theory leads, in the early stages of disease, to highly connected individuals, such as the PM, getting infected.

When the network structure of society is taken into account a number of factors flow from this. High dispersion values in R0 (due to varied population dynamics) leads to much lower epidemic peaks than SIR models would predict (cf. the Imperial and LSHTM models which predicted very high mortality rates). In power law

distributed network structures diseases with an $R_0 > 1$ do not necessarily cause epidemics cf. Ebola and SARS, by the same token an $R_0 < 1$ does not lead to extinction of the disease and can lead to an endemic course in a population. These high dispersion values of R_0 also mitigate against the unfounded belief, propagated by governmental briefings and the media, that there will be a more lethal second and subsequent waves, there is very little historical evidence, or precedent, for this.

Given how difficult it is to calculate a value for R_0 and how dependent this value is on the method used, it is quite surprising the level of faith and precision being placed on it as a tool to modulate suppression strategies. As the number of cases fall (cases themselves have huge uncertainties surrounding them as they are highly dependent on testing rates. Death counts as a metric, on the other, while being a more robust, hard outcome, has its own problems in terms of; time delay from infection to death, incomplete reporting, reporting bias not including all community deaths, deaths with but not caused by, COVID-19 etc.) then the computed value of R_0 becomes more uncertain. This latter point is quite important, in that, Boris Johnson, suggested in his speech on Sunday that suppression and lockdown measures would be modulated, area by area, via the local value of R_0 and technology enabled smartphone apps.

In this country we have been really good at convincing the public to go along with government policy and that this policy can be trusted because it is led by science, we therefore do people a disservice in attaching such precision to an imprecise metric such as R_0 , so much so, NR a well-respected journalist, even produces it with a graphic of a volume control as if it could be modulated like the sound of music.

I would be grateful for your views on my observations.

Best wishes

John

Professor John Watkins

Consultant Epidemiologist

From: John Watkins (Public Health Wales)
Sent: 21 October 2020 10:48
To: NR <NR@bbc.co.uk>
Subject: FW: The basic reproductive number R_0

Hi NR

Hope you are keeping well and not suffering from 'Long COVID'. I think we all have a bit of long covid about us in terms of battle weariness!!

Some months ago I wrote to your Colleagues NR regarding the use of R_0 as a control parameter for looking at the progress and spread of SARS-CoV-2. I have also shared this information with many others, including Giri Shankar and Quentin Sandifer, within PHW. I thought I was winning the intellectual battle that the use of R was a flawed concept on many levels and most of my colleagues involved in looking at the epidemiology of this disease agree.

I am a member of the WG's Policy Group that advises TAG and I was convinced that I had also convinced them that R was not a good control parameter.

Your slot on the BBC Wales News last night was, as usual excellent and faithful to the WG line, however, I thought you needed to be aware that the concept of R_0 , or more precisely R_t , in this context, is incredibly misleading and flawed, see E mail below and also attached paper.

If you want to talk this through, I am happy to chat to you about this.

Best wishes

John

Professor John Watkins

Consultant Epidemiologist

Cardiff University/Public Health Wales

From: John Watkins (Public Health Wales)

Sent: 12 June 2020 14:21

To: Giri Shankar (Public Health Wales - No. 2 Capital Quarter) <Giri.Shankar@wales.nhs.uk>;

Quentin Sandifer (Public Health Wales - No. 2 Capital Quarter)

<Quentin.Sandifer@wales.nhs.uk>

Subject: The basic reproductive number R_0

Hi Both

I note from the Health and Social Care committee today the discussion, in part, looked at the role of R_0 in tracking and monitoring the current pandemic. Set out below are some of the problems in calculating and using R_0 , especially when case numbers drop to low levels and are hence highly influenced by randomness. For information the modelling groups at WG and DoH/PHE are trying to move away, in part on my advice, from using this metric for the following reasons.

R0 seems to have taken on a meaning and an unwarranted prominence, in the national strategy to control this pandemic.

Just for clarity the following should be made clear to the general public, politicians and decision makers about R0;

- R0 is difficult to calculate at the best of times but virtually impossible, with any degree of certainty, in the middle of an epidemic with incomplete data
- The value of R0 is very dependent on the method by which it is calculated, with little agreement between methods
- Each method to calculate R0 gives rise to a different distribution function hence divergence will occur in R0 at various value points
- R0 is not a biological constant of the virus
- R0 is a spatially dependent variable which also varies with the transmissibility of the pathogen concerned
- R0 depends on social structure, population density, mobility and duration of infectivity
- Calculation of R0 is a product of past history and has an inherent error that arises from this
- The stochastic nature of the disease leads to errors in R0 no matter how it is calculated
- Heterogeneity exists in population network structure, this structure is a non-linear, power law distribution, this leads to greater dispersion in the value of R0 across a society
- This variation means there is no average value for a population.
- Preferential attachment theory leads, in the early stages of disease, to highly connected individuals, such as the PM, getting infected.

When the network structure of society is taken into account a number of factors flow from this. High dispersion values in R0 (due to varied population dynamics) leads to much lower epidemic peaks than SIR models would predict (cf. the Imperial and LSHTM models which predicted very high mortality rates). In power law distributed network structures diseases with an $R0 > 1$ do not necessarily cause epidemics cf. Ebola and SARS, by the same token an $R0 < 1$ does not lead to extinction of the disease and can lead to an endemic course in a population. These high dispersion values of R0 also mitigate against the unfounded belief, propagated by governmental briefings and the media, that there will be a more lethal second and subsequent waves, there is very little historical evidence, or precedent, for this.

Given how difficult it is to calculate a value for R0 and how dependent this value is on the method used, it is quite surprising the level of faith and precision being placed on it as a tool to modulate suppression strategies. As the number of cases fall,

cases themselves have huge uncertainties surrounding them as they are highly dependent on testing rates. Death counts, as a metric, on the other, while being a more robust, hard outcome, has its own problems in terms of; time delay from infection to death, incomplete reporting, reporting bias not including all community deaths, deaths with but not caused by, COVID-19 etc., leading to even greater uncertainty in the computed value of R0. This latter point is quite important, in that, Boris Johnson, suggested that suppression and lockdown measures would be modulated, area by area, via the local value of R0 and technology enabled smartphone apps.

In this country we have been really good at convincing the public to go along with government policy and that this policy can be trusted because it is led by science, we therefore do people a disservice in attaching such precision to an imprecise metric such as R0, so much so, NR, a well-respected journalist, even produced it with a graphic of a volume control as if it could be modulated like the sound of music. The more sensible approach is the use of standard surveillance methods populated by robust real world data which gives us insights into the progress of transmission and hence demand over short range timescales.

If you wish to gain further insight into the issues raised in this Email I am very happy, as always, to discuss and for your information have attached a very useful paper on the problems with using R0.

Best wishes

John

Professor John Watkins

Consultant Epidemiologist

Sent from [Mail](#) for Windows

Appendix 2 – Emails with Colleagues and the BBC regarding Experts acting outside their areas of competence

From: NR
Sent: 11 August 2021 18:33
To: [John Watkins](#)
Subject: Re: HART Health Advisory and Recovery Team

Hello John,

Thank you for sharing your thoughts. You include some very useful examples and I absolutely share your concerns about the individuals who keep popping up to talk outside their areas of expertise.

Could I just ask for a contact number for you? And also, could you let me know about any particular grant income or advisory roles that I should add to the conflict of interests column of my document?

Best wishes,

NR

From: John Watkins <[redacted] PD>
Sent: 11 August 2021 15:40
To: Roland Salmon <[redacted] PD> [redacted] NR
<[redacted] PD>
Cc: [redacted] NR [redacted] PD
Subject: RE: HART Health Advisory and Recovery Team

Hi Roland, [redacted] NR

The meeting you went to sounded very positive and thank you Roland for updating me. As we have discussed many times, the coverage in the media has, on times, involved individual experts who, on the face of it, were anything but. I could outline some of my concerns regarding specific individuals who I believe have been portrayed as 'expert' when in fact they were offering an educated lay person opinion but I will resist identifying particular personalities. However, it is dangerous for people from a purely maths background, say, to stray into predictions about clinical infectious disease, vaccine effectiveness and the implications of Long-COVID.

You mention specifically the example about the use and continued use, of the R number to express vaccine transmissibility and the effect of control measures on R, by the BBC and others. I note that the R number is still being calculated by mathematicians at Cambridge University, among others and published by the BBC. I did in fact write to [redacted] NR [redacted] NR last year on this subject but I am unable to locate the original E Mail. Instead I have included some correspondence I had with [redacted] NR of BBC Wales and others, see below, outlining the main points about the problems with using the R number that I sent to [redacted] NR. To support the assertions I make in the E mail I have attached a paper that goes into this in more detail. I have never had a reply from either [redacted] NR [redacted] NR though I have spoken to [redacted] NR many times.

In addition, I think the whole issue around SARS-CoV-2 variants in particular and viral genetic variation in general has been badly explained in the media, often elevating the small genetic differences between, say, the Alpha and Delta variants of SARS-CoV-2, with the emergence of new strains of pandemic influenza, this is, for **NR** benefit, like comparing the SARS-CoV-2 coronavirus with MERS-CoV, related but quite different in many ways.

My third area of concern has been around vaccine effectiveness, many, like myself, (I have personally been involved in research into viral respiratory disease epidemiology, vaccine use and studies of effectiveness, for over 30 years), have been quite alarmed that while the current vaccines have given remarkable levels of protection, over 90%, against hospitalisations and deaths in the most vulnerable, this has not been adequately put into context, cf., Influenza vaccination, 40 – 50% effective.

A related issue to the above is the definitions used, for example;

- Testing positive for SARS-CoV-2 antigen is not the same as being a case.
- Antigen positive tests are predominately in the young, mostly unvaccinated, but this is never really expressed in graphical terms.
- Links between 'case' numbers and hospitalisations and deaths is all but broken completely but media slow to address this.

I could go on!!

I would be happy to be contacted by **NR** in his search to get a more balanced view, the links below will take you to a short Bio:-

https://wiki.santafe.edu/images/a/ac/Bio_John_Watkins.pdf

In addition you will find my name on a couple of the COVID-19 subgroups that feed into SAGE:-

<https://www.gov.uk/government/publications/scientific-advisory-group-for-emergencies-sage-coronavirus-covid-19-response-membership/list-of-participants-of-sage-and-related-sub-groups>

and some of my relevant publications:-

<https://www.researchgate.net/profile/John-Watkins-8>

Apologies for the long response.

Best wishes

John

Professor John Watkins

Cardiff University

From: [Roland Salmon](#)

Sent: 11 August 2021 13:18

To: [John Watkins](#); [REDACTED] NR

Cc: [REDACTED] NR

Subject: HART Health Advisory and Recovery Team

Dear [REDACTED] NR and John,

Yesterday, I attended, with four other HART members, a meeting at Broadcasting House, London with the BBC's Director of Editorial Standards, [REDACTED] NR. The meeting had been instigated by [REDACTED] NR HART's public relations person, to whom I will copy this email. The meeting was very constructive and we did get a sense of being genuinely listened to.

Among the outcomes was a request that we furnish [REDACTED] NR with evidence of any notable occasions when we felt that the BBC coverage lacked balance. I felt that both of you might have examples of these. I have a recollection, John, that you had correspondence with BBC journalists, last summer, of the use, by some of them, of the R number as a sort of epidemic volume control. This would be precisely the kind of miscommunication that would be of interest.

Further [REDACTED] NR offered to provide a list, to [REDACTED] NR, of acknowledged experts, who would be prepared to be called on, by the BBC, to promote wider debate than has occurred, largely, to date. Would either of you be prepared to be included on this? You need not be badged as HART, as far as I am aware. [REDACTED] NR I am aware, has had some contact with [REDACTED] NR. Should your answer be, "yes", [REDACTED] NR would need a short biog, giving the basis for your being considered an expert and an indication of any conflicts of interest. (As you are well aware, some of the current crop of TV COVID experts are anything but and research funding sources were something that came up, in the meeting, that might be weighing on the debates currently, unbeknown to a wider public).

Anyway, I will leave you to think on this.

Best wishes,

Roland

Dr Roland Salmon

Appendix 3 – SEIR models Gompertz Curves and Network structure

From: John Watkins (Public Health Wales)
Sent: 01 July 2020 13:08
To: Stephen Palmer [redacted];
Cc: Roland Salmon [redacted]; Mark Temple
[redacted]; Stephen Palmer (Public Health Wales)
<Stephen.Palmer@wales.nhs.uk> [redacted] (Public Health Wales - Matrix House)
[redacted] @wales.nhs.uk; Meirion Evans [redacted] Edward Coyle
[redacted] Stephen Monaghan (Public Health Wales - No. 2 Capital
Quarter) <Stephen.Monaghan@wales.nhs.uk>; Stephen Monaghan
[redacted]
Subject: RE: The SIR Society and its End

Hi Stephen

My initial thought on this paper

The basic contention is that epidemics of this nature and that applies to Influenza, RSV etc., is that they do not follow an exponential growth curve, i.e. the epidemic growth is constrained, unlike SIR models that, ignore network structure and mixing, where, at least in the early stages, we get exponential growth giving rise to very large attack rates.

Levitt does what any good scientist would do and looks at the data in detail and says what curve can I fit to this data? is this data exponential? clearly it is not, or everyone gets infected in a short time period.

This type of growth fitting is, as we all know very common, NICE uses it continuously, Kaplan Meier curves etc., to look at long term survival, to work out the cost effectiveness of drugs.

In this curve fitting exercise Levitt looks at 3 parameters

- Cumulative number of cases on a log/linear scale
- The slope of the growth curve in cumulative cases (in the log scale) against time (this is what the fancy maths breaks down to)
- Linear daily case counts

When he carries out this exercise of eyeballing the data, discarding some parts, e.g. early cases and smoothing sections so the curve is less random, he arrives at a curve that he can now compare with his box of tricks of various curves. That is where the Gompertz curve enters the fray, it seems to have the right shape, just like one would approximate a circle to the image of the moon.

The features of a Gompertz curve are that

- It does not obey an exponential growth pattern, the slope of which would be constant
- It does not obey a two phased process, whereby initial growth is exponential with a limited absolute ceiling, in which case the slope of the curve would be constant and then fall rapidly

In contrast a Gompertz curve is characterised by an explosive start and then, from the off, continuous decline in the slope of the curve.

The take home message from this paper is not too dissimilar to what a lot of us have been saying for a long time, that the Ferguson and LSHTM, SIR models are not a good fit, overestimate both the magnitude and duration of the epidemic and ignore network structure. R_0 and R_t are the offspring of this line of thought.

Since Levitt et al., make no mechanistic claims as to why the slope on the log linear plot of new daily cases declines at a constant rate, this is worth exploring. The answer to both the question of why this occurs and why epidemics burn out is within network structure. The non linear distribution of network connections means highly connected individuals get infected first leading to rapid spread across their contacts. This rapidly reduces the number of highways and by ways that the virus can propagate along, leading to an ever decreasing rate of growth, eventually declining with cumulative cases reaching a plateau.

This is my assessment, I would be interested in the views of others.

Best wishes

John

From: Stephen Palmer { PD }
Sent: 30 June 2020 17:36
To: John Watkins (Public Health Wales) { I&S } >

Cc: Roland Salmon [redacted PD]; Mark Temple
[redacted PD] Stephen Palmer (Public Health Wales)
<Stephen.Palmer@wales.nhs.uk> [redacted NR] (Public Health Wales - Matrix House)
[redacted NR] @wales.nhs.uk>; Meirion Evans [redacted PD] Edward Coyle
[redacted PD]; Stephen Monaghan (Public Health Wales - No. 2 Capital
Quarter) <Stephen.Monaghan@wales.nhs.uk>; Stephen Monaghan
[redacted PD]
Subject: Re: The SIR Society and its End

If you have a chance to look at this I would be grateful for thoughts. This is the Nobel winner in Standford.

<https://www.medrxiv.org/content/10.1101/2020.06.26.20140814v1.full.pdf>

Appendix 4 – Links to SPI-B Minutes and paper on Fear Appeal Theory

Minutes of a meeting of the SPI-B working group March 2020

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882722/25-options-for-increasing-adherence-to-social-distancing-measures-22032020.pdf

Peters GJ, Ruiter RA, Kok G. Threatening communication: a critical re-analysis and a revised meta-analytic test of fear appeal theory. Health psychology review. 2013;7(Suppl 1):S8-s31.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3678850/pdf/rhpr7_S8.pdf