11 November 2020

Dear

ATISN 14372 – Herd immunity

Thank you for your request to the Welsh Government for information under the Freedom of Information Act (2000) received on 30 September. Please accept our apologies in delaying to respond but Welsh Government is facing unprecedented challenges during the coronavirus (COVID-19) pandemic at present and as a result resources, are being diverted away from many of our usual activities to deal with the pandemic. You requested the following information regarding herd immunity, specifically:

All email correspondence sent and received by

Wales’ Chief Medical Officer, Dr Frank Atherton, and Wales’ Chief Scientific Advisor, Dr Rob Orford, between January 15, 2020 and June 15, 2020, which contains the phrase “herd immunity”.

Our Response

This request has been interpreted as including only those emails that have been sent or received by the Chief Scientific Advisor (CSA) for Health or the Chief medical Officer (CMO) that contain the phrase “herd immunity” during the specified time period. As a result parts of email chains that do not contain the phrase “herd immunity” or that were not sent to the CMO or CSA that contain this phrase, along with the names of other recipients/senders and any attachments that do not contain this phrase, have been removed. Emails that do not mention herd immunity in the body of the text but where it was mentioned in an attachment have also not been included.

Although this phrase has become synonymous with political and ethical controversy, ‘herd immunity’ is a well-established term in epidemiology relating to herd-acquired resistance through either natural exposure or immunisation. Any mention of ‘herd immunity’ in the below correspondence is not indicative of an official strategy by Welsh Government around natural exposure of the population to COVID-19 and should not be interpreted as such.

The information you requested is attached.
We have decided that some of the recorded information captured by your request is exempt from disclosure under Section 40 of the Freedom of Information Act. As a result you will see that this information is redacted. The reasons for applying this exemption are set out in annex A to this letter.

Next Steps

If you are dissatisfied with the Welsh Government’s handling of your request, you can ask for an internal review within 40 working days of the date of this response. Requests for an internal review should be addressed to the Welsh Government’s Freedom of Information Officer at:

Information Rights Unit,
Welsh Government,
Cathays Park,
Cardiff,
CF10 3NQ

or Email: Freedom.ofinformation@gov.wales

Please remember to quote the ATISN reference number above.

You also have the right to complain to the Information Commissioner. The Information Commissioner can be contacted at:

Information Commissioner’s Office,
Wycliffe House,
Water Lane,
Wilmslow,
Cheshire,
SK9 5AF.

However, please note that the Commissioner will not normally investigate a complaint until it has been through our own internal review process.

Yours sincerely,
Annex 1

Freedom of Information Act 2000: Section 40(2)

Section 40(2) together with the conditions in section 40(3)(a)(i) or 40(3)(b) provides an absolute exemption if disclosure of the personal data would breach any of the data protection principles.

‘Personal data’ is defined in sections 3(2) and (3) of the Data Protection Act 1998 (‘the DPA 2018’) and means any information relating to an identified or identifiable living individual. An identifiable living individual is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of the individual.

We have concluded that, in this instance, the information requested contains third party personal data.

Under Section 40(2) of the FOIA, personal data is exempt from release if disclosure would breach one of the data protection principles set out in Article 5 of the GDPR. We consider the principle being most relevant in this instance as being the first. This states that personal data must be:

“processed lawfully, fairly and in a transparent manner in relation to the data subject”

The lawful basis that is most relevant in relation to a request for information under the FOIA is Article 6(1)(f). This states:

“processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child”.

In considering the application of Article 6(1)(f) in the context of a request for information under FOIA it is necessary to consider the following three-part test:-

- **The Legitimate interest test:** Whether a legitimate interest is being pursued in the request for information;
- **The Necessity test:** Whether disclosure of the information/confirmation or denial that it is held is necessary to meet the legitimate interest in question;
- **The Balancing test:** Whether the above interests override the interests, fundamental rights and freedoms of the data subject.

Our consideration of these tests is set out below:

1. **Legitimate interests**

Your request indicates you are interested in obtaining copies of emails that have been received or sent by the Chief Medical Officer and the Chief Scientific Officer in relation to herd immunity. We have concluded that, in this instance, there is little to be gained from releasing the names of individuals named within these emails. We believe we have provided sufficient information to satisfy the legitimate interest and we do not believe disclosure of the identities of those involved would allow any greater understanding.
2. **Is disclosure necessary?**
Following the above analysis, we do not believe that disclosure of the personal data is necessary.

3. **The balance between legitimate interests and the data subject's interests or fundamental rights and freedoms**
As we do not believe disclosure of this personal data is necessary, there is no requirement on us to undertake a test to balance the legitimate interests against the right of individuals, as the fundamental rights and freedoms provided by the DPA are not being challenged.
I think this works as a broad routemap but we need to make sure it isn’t seen as a strategy or delivery plan; suggest we insert a para saying that this will be adapted and modified as we attempt to unlock the social restrictions.

The term herd-immunity has become a lightning rod and should be avoided.

Ideally we should share with PHW in advance of publication as we are asking them to deliver much of this. I have a draft letter instructing them but it hasn’t been sent yet. Suggest you share in confidence with [...].
In SAGE meeting yesterday afternoon the projected impact of control measures and NHS capacity was discussed. NHS England will shortly update the group as to whether the three sets of control measures will reduce demand sufficiently for the re-aligned system to cope (apparently they have even ordered animal oxygen units). Given that we have a better understanding of peak ICU and hospital bed requirements as well as staffing-resource requirements do you think we can answer that question soon for NHS Wales?

This has a significant meaning, not just for ensuring the NHS is not overwhelmed but also as it might mean a change in the current population level approach towards more restrictive measures, which has a knock-on impact on herd immunity, potentially longer periods of measures and a more difficult winter.

I’m happy to call you to discuss the practicality of doing this calculation in a short period of time, unfortunately time is another commodity that is in short supply.

Best wishes
Rob
From: Orford, Rob (HSS - Primary Care & Health Science)
Sent: Saturday, March 14, 2020 3:22:08 PM
To: […] (HSS-DPH-Population Healthcare); […] (HSS-Primary Care & Health Science); […] (Public Health Wales -); […] (KAS)
Cc: […] (Public Health Wales); […] (HSS - DHP Public Health); Atherton, Frank (HSS - Chief Medical Officer); […] (HSS-DPH-Population Healthcare); […] (HSS - Chief Nursing Officer); […] (HSS-Technology, Digital & Transformation Directorate); […]; Situation Cell ; HSSG.TAC ; […] ; […]
Subject: RE: Reflections following SAGE meeting 3.30-5.30 Fri 13th March- confidential

Hi […]

Thanks for this, I agree with your summary. We need a very clear plan with a set of recommended actions – I hope that COBR(O) will help here.

We have to use the SAGE modelling that we have now and bring any other data available so that we know where we are on the curve(s) and the impact of both directed behavioural interventions and self-imposed restriction. There is a degree of self-imposed restriction already, and this has not been bought into the modelling figures yet. If 20% of the population are essentially in lock-down (wfh, online shopping etc) already what does this do to the peak? Will it create two peaks once you add in the three behavioural interventions? Could you or […] ask about this ahead of SPI-M (perhaps a question for […]?)

As […] showed, the data analytics that PHW have will enable us to track the illness very well and this is an important part of our armament. This might enable us to be more fleet of foot if harsher restrictions are bought in and lifted periodically (as discussed in SAGE). We will need a very good understanding of what our available bed/oxygen count is – I suspect this is a question […] and colleagues.

It would be really good to know if there are any other data sources (or SMEs) that could be pulled in so we can better understand real-time population behaviour. Perhaps a conversation with […] would be helpful ([…]?). What can be inferred from TfW data or Google Maps on population level activity, or indeed Experian or Apple Pay on current purchasing habits?

Some of these points have been raised in a pre-call of the COBR items for Monday. I will share these with you as we will have to start to develop briefing lines.

This morning we started a conversation(s) about thinking outside of the box. If we know what the problem is (e.g. the need for 50K hospital beds, with fewer staff in the peak) then can we create Nightingale wards in the ICCW (which is free to use) or step-down facilities in hotels, or use the beds from hotels in the ICCW? Bearing in mind we will have a lot of caterers and hotel facilities without trade. Another discussion was about whether the Aerospace industry/engineering companies could rig up oxygen/gas supplies… I suspect the military would be best placed to come up with such plans in short order (A question for […] and colleagues in ESNR).

As it is if we are unable to find significantly more capacity above our current maximum icu/bed count we will need more stringent interventions and the herd immunity plan will not work without the NHS falling over. We need a good, fall-back plan, as the work involved in developing more stringent policies will be significant, as is the work for the current measures...

Rob

[...]
The media reportage today has been critical on Eng and Wales not closing down mass gatherings, saying it’s an outlier with other countries, in action and timing.

Do we have any access to the evidence base everyone else is using? Or do they have the same evidence and just interpreting it differently/ using a different strategy.

Also WHO has made critical comments about utilising herd immunity as a strategy- but again I’m not sure why.

This could just be the media need to report bad news. However the media needs to be harnessed as far as possible to spread the actual recommendations for action - still social distancing in a variety of forms.

Can the modelling be published? Sounds like SAGE recommendations are being discussed on radio 5 live at this very moment- publishing might help relocate criticisms to reality rather than the generalised criticism that is being reported.

In particular if we are sticking with the herd immunity/ flattening strategy I think this should be accompanied by clear graphs showing what flattening is being aimed for and whether the reported cases and admissions are tracking with the planned trajectory. If we can’t demonstrate this to the public it will be harder to maintain public confidence in the approach.

(Eg Twittersphere fairly frantic- open letter from 200 ‘experts from British Universities’ criticising the government)

I’d anticipate a need to announce prohibiting mass gatherings for resilience (? 500+ ?100+) on Monday as well as reiterating hand hygiene, case isolation, and home refuge for 70+ and high risk groups - but keep schools open to keep kids away from the vulnerable. Household quarantine as a strategy seems problematic for multigenerational households so doesn’t seem easy to operate.

If this is presented as a coherent package that could be sustained for 3 months plus, monitored by accessible graphics, I think this could be seen as a measured and effective strategy
From: […] (ESNR-Skills Higher Education & Lifelong Learning)
Sent: Sunday, April 12, 2020 9:09:29 PM
To: Orford, Rob (HSS - Primary Care & Health Science)
Subject: RE: TAC Papers for tomorrow

Rob
Thanks – yes I think that would be good. I wrote to my boss and suggested that there was a swap of papers between the ministerial group and TAC so that both had a chance to comment on each other if only to ensure connection in the governance chain. Looking at the the NHS modelling for tomorrow’s TAC I think the ministerial group might think differently on a few of their proposals if they saw the numbers.

On herd immunity this preliminary and non-peer reviewed study has been referred to by a few people in recent days. https://www.scmp.com/news/china/science/article/3078840/coronavirus-low-antibody-levels-raise-questions-about
Also quite a lot of people saying immunity post infection with other Covid viruses is often temporary. Not sure if this is true.
Best wishes
[…]

____________________
 […]
Hi [...] hope all is well with you and your family. Things are pretty full on in WG as I’m sure they are with you guys – I have been out on my door step every Thursday clapping for you all 📣. I’d be happy to give you a call and update you on ‘testing’ given the impact on the Pathology and Genomics. We haven’t quite go the true narrative out there yet!! It is very much a numbers game in the media, which is not correct.

Another way we could share thoughts might be at your CE Skype meeting? I would be happy to discuss testing and the lead into recovery planning, CMO is leading the PH work – perhaps a question for AG? As you can imagine recovery is a very lively and moving dialogue at a UK and national level. Like you I am deeply concerned about winter with COVID-19 and how we safely transition back to a new normal NHS; until we have a vaccine or herd immunity.

Anyway take care and speak soon, my inbox is a car crash – but my phone and texts work if you ever need to reach me.

Rob

________________________

[...]
Hi Rob

Hope you keeping well

Thanks for the opportunity to provide comments on this early draft of the CV19 recover plan.

This is an important piece of work whose content and direction will no doubt be kept under review as the evidence and policy decision change both in the UK and overseas.

Below some observations/suggestions which I hope are helpful.

General
- The plan would benefit from a shorter and simpler upfront summary that focusses on signposting the key take home messages including prioritised proposed actions, an indicative time line (highlighting marathon versus sprint), and articulating the key actors/institutions required to deliver. The more detailed building blocks of the proposal could be collated in an annex.

- **Point 50** claims that the paper is intended as a ‘high level strategic route map’ designed to provide guidance for a “short term recovery plan” that allows the Welsh Government to stand down the present social distancing measures”. As the next UK wide Covid review point is 7th May – (less than 3 weeks) then it would be helpful to theme and prioritise the 20 proposed actions along the lines of a short, medium and long term timeline.

- Apart from the first point (mention of 12 months for an interim recover plan), there are few, if any, explicit references to, or qualification of, time bound actions, e.g. in places terms like ‘short term’ or ‘medium to longer term’ are used without qualifying what these mean in context to the 12 months. It would be important to provide some guidance on this so there is sufficient preparatory time, a timeline for actions and context to direct those actors involved in helping to alleviate the health, social and economic impacts resulting from the lock down. This will no doubt be an ongoing balance between the costs (mental health, social, economic, etc.) and benefits (reduction of demand on the NHS, reduced death rate and total number of deaths overall) of the mitigation/suppression measures and the timing of lockdown release. This will most likely require regular review points to check that actions remain fit for purpose.

- Given that community transmission appears currently better managed (with Ro assumed to be less than 1), then it may be helpful and perhaps politic to clarify the overlap and any differences in approach for how the proposed actions will play out for the; (i) open community; (2) closed community (Care Homes); and treatment/care community (Hospitals).

**Need for a consistent and joined up Cross Government response and messaging**

The Executive summary notes that “The plan will need a collective cross Government response; sector specific plans (e.g. Health, Education, Economy) that are aligned with the key objectives (e.g. can be relaxed by region, policed, reversed, high social and societal impacts, economic impact, and positive equity).

Ensuring a joined up cross Welsh Government plan is important - given that the case for lifting current restrictions is made up of a combination of medical, social and economic policy
stakeholders. Suggest further discussion with other parts of Welsh government that have been actively working on; (i) possible options for relaxing the current lockdown arrangements; and (ii) the WG delivery work stream currently working on an economic and social recovery programme.

As this is ostensibly a health/medical recovery plan, assume it will consideration of what a UK plan looks like since, all 4 nations presumably share the same objectives of securing population level immunity, greater testing and a mass vaccination programme.

Addressing multiple harms
The objectives of the Plan are well laid out in Point 11 and cover what are regarded as the 4 key Covid related harms (outlined in Point 6)]. Summarised these include:

1. Harm from death and mortality arising directly from SARS-CoV2 infection
2. Harm from overwhelming NHS Capacity (Reports from Andrew Goodall and Chris Whitty suggest that this is largely in hand. at least at present)
3. Harm from the predicted morbidity and mortality arising from non-COVID illness and control measure (this is a growing concern in several quarters -the full extent of this which is unlikely to be fully known for some time).
4. Harm (current and future) resulting from the control measures themselves (e.g. economic impact on lower socio-economic groups, mental health harm from shielding isolaion, physical distancing, closure of schools and large scale unemployment.

- Given these are all the key high levels harms, it might be useful to show throughout the plan how the proposed actions (when enacted) are designed to address or mitigate these harms in turn? Or, if appropriate, theme those actions that show a transparent relationship between the actions and the key harms described.
- Has there been any modelling to include the unintended consequences of the lockdown on public health? The Imperial college models made no account, as far as I am aware, of the indirect causes and consequences.

Criteria need to trigger controls release
The PLAN (Points 50/51) set out a number of gatepost “criteria” that would need to be achieved (presumably) before recommending gradual releasing of the current social distancing measures before the next UK Review date in May. These include:

1. A clear indication of the current control measures to be relaxed or iterated, that meet defined criteria and could be reasonably enforced.
2. Confirmatory evidence from modelling - which could test the likely impact of relaxing on specific control interventions (currently also taking place for by SPI-M for SAGE).
3. Indication of the likely control measures that might be required to control any re-emergence of SARS-CoV2- bearing in mind social acceptance may be less tolerant.
4. Agreement of a date or point (e.g. community transmission rate) for relaxing current or iterating control measures.

Last Thurs at the Easter Review Point (16th April) the UK Gov set out 5 different criteria or conditions that needed to be met before the lockdown was eased:

- Making sure the NHS could cope
- A "sustained and consistent" fall in the daily death rate
- Reliable data showing the rate of infection was decreasing to "manageable levels"
- Ensuring the supply of tests and Personal Protective Equipment (PPE) could meet future demand
- Being confident any adjustments would not risk a second peak
Assuming a 4 Nation approach, these latest criteria will need to be considered by Welsh Government and agreed/adjusted (as appropriate) to avoid different parts of the UK releasing differentially.

It appears that Ministers from the devolved administrations across the UK agreed to progress a united way forward given the dangers of mixed or confused messaging between the 4 nations. While the first 3 points above seem likely given the current trajectory, it is not clear what constitutes confidence (SAGE?) with regard to the latter two criteria.

**Iterative lockdown compliance**

The implication of acquiring ‘herd immunity’, i.e. R0 less than 1, suggests that, without unending lockdown, the impact will be a long ‘tail’ of infections and deaths running on for a long time (months into years), especially if R0 ‘hovers’ at around 1 or just under with occasional jumps above 1 (e.g. in winter). This implies that any lockdown release may need to be reinstated in a cyclic manner which may be very difficult to enforce after the first cycle or two. What is not stated is that a high number of infections and deaths will be endemic for a long period and this is something which society and politics will probably need to accept and accommodate (in the same way that season flu is accepted as a risk only partly manageable by flu vaccinations) until an effective vaccine is found, produced at sufficient scale and administered. Following the roll out of a vaccine there will still need to be a period for monitoring effectiveness.

**Specific Points**

**ACTION 1**: The Testing programme should move to rapidly understand the community prevalence of past COVID-19 infections.

**COMMENT**: Assume community testing will not be in place for a number of weeks until adequate levels of test kit and lab analysis becomes available for testing (and iterative retesting) of all critical care workers. Learning from other European countries with regard to established best practice will be informed by Action 3.

**ACTION 2**: The Testing programme should rapidly establish a surveillance system to be able to monitor COVID-19 prevalence in the community prospectively. This should include routine sero-surveillance in appropriate groups.

**COMMENT**: Understand that a reliable antibody test has yet to be approved despite reports from different countries. Even if one could be established reliably and relatively quickly, it is not clear what behavioural consequences would follow by way of Government guidance since evidence of Covid relevant antibodies don’t necessary protect against further self or other reinfection?

**ACTION 3**: Establish a subgroup to monitor, engage with and report international efforts on recovery. Use the analysis from the group to inform subsequent iterations to this Recovery Plan.

**COMMENT**: This is a key development where WGOS is keen to help. Given where the UK is relative to other countries in the pandemic spread suppression, it will be important to learn from other countries ahead of the curve with regard to the number and effectiveness of suppression, the criteria for relaxing same, new developments towards vaccine and treatments to reduce the morbidity and the social acceptance and compliance, if and when the UK has to reintroduce the control measures.

Regards

[...]
Thanks [...] I’m working on it now. I wanted to add a bit more contextual information so that we don’t lose the background, I won’t include figures as they will out of date tomorrow.

Public Health Wales is the key delivery organisation in Wales with a statutory duty of preventing harm and managing this Public Health Emergency of International Concern (PHEIC). COVID-19 has led to significant harm from both the direct and indirect consequences of the virus, more harm will arise until a mass vaccination programme is undertaken or herd immunity reached. Many more people in Wales will die, lose loved ones or become ill themselves before this endpoint is reached. Public Health Wales has responded to this 1 in a 100 year event ensuring a high level of health protection for the most vulnerable people in our society and scaling operations to a level never realised before in Wales.

[...]
Hi Rob

In an attempt to rapidly convey actions identified in today’s TAC TC. I haven’t captured every comment, but hope these notes are a sufficiently accurate portrayal of dialogue. Apologies for omissions or errors, please correct where necessary.

In attendance:
- Rob Orford [RO] (Chair)
- […]
- […]
- […]
- […]
- […]
- […]
- […]

**Wales Position on Epidemiological curve**
1. **ACTION:** […] to summarise current Welsh COVID statistics (positives, ICU cases, deaths) to RO
2. **ACTION:** RO to cross-reference against epidemiological curve to estimate current Welsh position ahead of 16.3.20 COBR.
3. Initial ballpark estimate: Week 2-3 on curve, approx. 8-9 weeks from peak, with expectation of first death probable next week. Based on uncontrolled outbreak modelling it is conceivable we are ~3 weeks from outstripping ICU capacity in Wales.
4. **ACTION:** TAC members to confirm to […] if they are able to download and open password protected NHS demands spreadsheets from Objective Connect.
5. **ACTION:** RO to request confirmation that NHS in Wales is capable of fulfilling projected capacity requirements (1500 ICU beds, 15000 beds) to satisfy the herd immunity strategy. If confirmation cannot be provided we may need to provide risk warning that an alternative approach inclusive of additional more stringent interventions is needed.

**Introduction of interventions**
1. General concern that further delay in implementing household quarantine and protection of vulnerable could affect Wales more than England.
2. **ACTION:** RO to include recommendation in COBR briefing that introduction of these interventions in Wales should be with immediate effect.

**NHS Sitrep**
1. **ACTION:** RO to ensure we contribute to NHS sitrep.

**Graphical representation of COVID in Wales**
1. **ACTION:** […] to produce graphical summary of 100% RWC/34% RWC modelled statistics for Wales to include projected deaths, ventilations, admissions and estimate timings to NHS capacity being overwhelmed in each case.

**Peer Review of Model and Wales Projections**
1. **ACTION:** […] to circulate letter from 200 scientists to TAC membership for awareness and comment.
2. **ACTION**: RO to recommend in COBR brief that Wales expects all SAGE evidence to be published publically for peer review and public transparency.

3. **ACTION**: RO to recommend that WG publish real-time monitoring results against unmitigated and mitigated projected curves for public consumption.

### Testing Methodology
1. South Korea have claimed that dramatic expansion of testing regime has demonstrated increased overall public compliance.
2. WHO critical of reduced testing regimes.
3. Concern that reducing testing of symptomatic individuals that are self-isolating in UK may reduce compliance rates.
4. Increased testing of symptomatic individuals demonstrates to public that interventions are working.
5. Increased testing of symptomatic individuals gives confidence that those tested positive and recovered can safely re-enter society and potentially work with high-risk vulnerable groups with decreased risk of subsequent infection.
6. **ACTION**: […] to summarise opportunities to increase PHW/NHS testing capacity and outline opportunities for new approaches to testing methodology (e.g. home self-testing) and send to RO.

### Surveillance
1. Concern we have no knowledge of how many are self-isolating and being complaint with instructions to do so.
2. Need a method to capture this intelligence.
3. **ACTION**: […] to consider methods for surveillance e.g. measure geographical movement patterns of mobile phones, Welsh input to MORI poll, ONS survey.
4. **ACTION**: […] to raise with SPI-M what methods are they considering and what discussions they've had with Google, mobile providers, social media etc. to monitor public movement activity.

### Intervention Modelling
1. Acknowledgement that the public have started to introduce their own forms of intervention e.g. sporting associations suspending activity, musicians cancelling tours, people increasing home working, reduction in social interactions etc.
2. These actions have not been included in modelling of COVID interventions.
3. […] stated YouGov are doing a poll on what personal actions have the public begun to implement of their own accord.
4. **ACTION**: […] to summarise initial findings of YouGov poll and send to RO.
5. […] suggested the MRC rapid research funding call will be announced this week which could feed into this issue.
6. **ACTION**: […] to give update on bid success and summarise how this will benefit this issue.
7. […] suggested Healthwise Wales could be a useful cohort for estimation of this effect. RO noted a new TAC member to start this week is from Healthwise Wales group.
8. **ACTION**: RO to discuss with new starter how Healthwise Wales could be utilised.
9. **ACTION**: RO to raise at SAGE the issue of divergence of public behaviour from model assumptions and ask how this could affect predicted outcomes.

### TAC Terms of Reference
1. RO asked are we now a STAC as opposed to a TAC?
2. […] explained that we should remain a TAC and use ECCW.Health to triage only technical queries to members and not operational.
3. **ACTION**: RO/[…] to consider how we instruct ECCW.Health to triage requests to the TAC.
TAC TC 16.3.20

1. **ACTION:** [...] to cancel the scheduled 8.30am TAC TC on 16.3.20.

Hope that’s close enough to true. Any problems please let me know.

Thanks

[...]
Hi Rob

Below are what I think we need to consider in the coming week(s). Happy to be overruled and/or numbers to be corrected.

1. Confirmation that NHS Wales is capable of managing within 3 weeks' time:
   a. Total of 270k hospitalisations across 9 weeks
   b. At least 2k new hospitalisations per day
   c. A daily hospitalised caseload of at least 17k
   d. At least 2k daily invasive ventilations

   These numbers may not be the correct ones, but I think we need to determine and summarise the key figures to put to operational planners who need to provide clear and unambiguous confirmation of capability to provide.

   I would suggest that if these capacity figures cannot be assured then the likelihood of the NHS in Wales being able to cope with the epidemic is unlikely to be successful. These figures are based on an assumption that all NPI interventions combined have a reducing factor of 66% on the RWC figures. If the interventions are not as successful as anticipated the NHS in Wales will need to cope with significantly greater workload than these. If they can't assure capacity to deal with the reduced caseload estimates then it is certain to fail on RWC workload.

   If that is true then I would suggest Ministers have a right to know that the strategy being followed has a good chance of failure and that an alternative strategy should be seriously considered which incorporates significantly more stringent intervention measures.

   The consequences of an alternative (non-herd-immunity) strategy would need to be carefully considered and described – length of societal shutdown, likelihood of vaccine not being produced, possible outbreak during winter flu season, amongst I'm sure many others.

2. Establishment of clear current Welsh position on the curve and probable trajectory.
3. Description of metrics and methods we will use to demonstrate that interventions are being successful (or not) and how we intend to communicate these results on an ongoing basis.
4. Estimation/determination of:
   a. Clear definitions of all considered interventions – to include details of the underlying assumptions
   b. Clear timelines to implementation for additional interventions (what are our triggers?)
   c. Timescales for maintaining all possible interventions in place
   d. Indicators that would enable lifting of interventions
   e. Strategies for how interventions would be lifted.

5. Confirmation that all SAGE modelling theory information/papers (and SAGE minutes??) are to be published for peer review on gov.uk website.
6. Consideration as to whether RWC (and 66% reduced) modelling figures vs NHS Wales capacity figures should be published on gov.wales.

Hope these thoughts are useful.

Best wishes

[...]