

Mr. Stephen Donnelly TD,  
Minister for Health,  
Department of Health,  
Miesian Plaza,  
50-58 Lower Baggot Street,  
Dublin 2.

28<sup>th</sup> April 2021

*Via email to Private Secretary to the Minister for Health*

Dear Minister,

I write further to today's meeting of the COVID-19 National Public Health Emergency Team (NPHE). The NPHE reviewed the latest epidemiological data, and the following key points were noted:

- A total of 3,205 cases have been notified in the 7 days to 27<sup>th</sup> April 2021, which is a 23% increase from the last NPHE meeting on 22<sup>nd</sup> April when 2,612 cases were notified in the 7 days to 21<sup>st</sup> April.
- As of 27<sup>th</sup> April, the 14-day incidence rate per 100,000 population has decreased to 122; this compares with 113 at the last NPHE meeting. The 7-day incidence per 100,000 population has increased to 67, from 55 at the NPHE meeting last week.
- Nationally, the 7-day incidence as a proportion of 14-day incidence is 55%, demonstrating that there have been more cases in the last 7 days compared with the preceding 7 days.
- The 5-day rolling average of daily cases has increased from 376 on 21<sup>st</sup> April to 437 on 27<sup>th</sup> April.
- Incidence is increasing or stable across all age groups with the largest increases observed in those aged 13-18, 19-24 and 25-39 years. While incidence has increased in those aged 13-18 years since schools reopened (associated with a much larger increase in referral for testing), there has been very little change in incidence in those aged 0-12 years.
- Of cases notified in the past 14 days, 73% have occurred in people under 45 years of age; and 5% were aged 65 years and older. The median age for cases notified in the same period is 31 years. Incidence in those aged 65 years and older is now significantly below the population average. This is likely due first to reduced social mixing in this age group in recent weeks and an emerging vaccine effect in the older age cohorts.
- While 14-day incidence rates remain high across the country, 13 counties have a 7-day incidence as a percentage of the 14-day rate of greater than 50%, indicating more cases notified in these counties in the last 7 days compared with the previous 7 days.
- Of the 5,831 cases reported in the last 14 days, 2.6% (151) were healthcare workers.
- The best estimate of the reproduction number (R) is 1.0-1.2. The rate of growth of the disease is currently at 0% to +2%.
- There were 118,454 tests undertaken in the last week (as of 27<sup>th</sup> April). The 7-day average test positivity rate remains stable at 2.8% on 27<sup>th</sup> April, the same rate observed at the last NPHE meeting.
- Excluding acute, serial, and mass testing in response to outbreaks, the community test positivity rate has decreased since the last NPHE meeting; the rate was at 7.5% over the 7 days to 25<sup>th</sup> April.
- According to Contact Management Programme data, only 2 counties have a community positivity rate (excluding acute, serial, and mass testing in response to outbreaks) greater than 10%; 17 counties have a community positivity rate greater than 5%.
- According to Contact Management Programme data from 12<sup>th</sup>-18<sup>th</sup> April, where results were available for Test 1, 14.6% (788/5,415) were positive. Household close contact positivity rate was 31.0%.
- According to Contact Management Programme data from 5<sup>th</sup>-11<sup>th</sup> April, where results were available for Test 2, 6.7% (133/1,972) were positive. Household close contact positivity rate was 11.5%.

- There were 153 confirmed COVID-19 cases in hospital this morning, compared with 176 on 22<sup>nd</sup> April. There have been 17 newly confirmed cases in hospital in the 24 hours preceding this morning.
- There are currently 45 confirmed cases in critical care, compared with 48 on 22<sup>nd</sup> April. There have been 2 admissions in the previous 24 hours.
- To date, there have been 63 deaths notified with a date of death in April. This compares with 232 and 868 deaths notified (to date) with a date of death in March and February, respectively. Of the 63 deaths in April to date, 15 have thus far been associated with hospital outbreaks and 4 have been associated with nursing home outbreaks.
- In total, 71 cases of B.1.351 (variant first identified in South Africa) have been confirmed by whole genome sequencing.
- 27 confirmed cases of P.1 (variant first identified from Brazil) have been identified in Ireland to date.
- Other variants of note/under investigation that have been confirmed in Ireland to date: 20 B.1.525 cases, 15 P.2 cases, 8 B.1.617, 6 B.1.526 cases, 2 B.1.429, and 2 B.1.1.7 with E484K mutation.

Outbreaks and associated cases are based on those notified up to midnight on 24<sup>th</sup> April 2021. Week 16 refers to 18<sup>th</sup> April – 24<sup>th</sup> April 2021 and data are restricted to cases and outbreaks notified since 22<sup>nd</sup> November 2020.

#### Healthcare setting outbreaks:

- There were 3 new outbreaks notified in acute hospitals in week 16 of 2021. At the end of week 16, there were 22 open clusters, a 15% decrease on the 26 open outbreaks in week 15.
- There were no new clusters notified in a nursing home in week 16; this compares with 1 new outbreak in week 15. There was 1 new cluster notified in community hospitals/long-stay units in week 16.
- At the end of week 16, there were 11 open clusters associated with nursing homes, remaining stable from the previous week.
- There were 6 open outbreaks in community hospitals and long-stay units in week 16.
- There were 32 open clusters associated with all specified residential institutions at the end of week 16. There were 5 outbreaks in these settings notified in week 16, one of these outbreaks was a late notification from an outbreak in February.
- At the end of week 16, in the following specific residential institution settings:
  - 2 outbreaks were notified in centres for persons with disabilities. There were 11 open outbreaks compared with 15 in week 15.
  - There were 2 open outbreaks in mental health facilities, the same number that remained open at the end of week 15.
  - There was 1 open outbreak in Children's / TUSLA residential centres, compared with 4 the previous week.

#### Vulnerable groups, Irish Traveller Community, Direct Provision & Prison Outbreaks:

- There were 10 new outbreaks reported in vulnerable populations in week 16.
  - There were 8 new outbreaks associated with the Irish Traveller community notified in week 16, which is a decrease from 10 in week 15; there were 137 open outbreaks at the end of week 16.
  - There were no new outbreaks in the Roma community in week 16, with 13 open outbreaks.
  - There were 2 new outbreaks in Direct Provision Centres in week 16, the same as the number notified in week 15. There were 10 open outbreaks by the end of week 16.
  - There were no new outbreaks notified in homeless facilities in week 16. There were 4 open outbreaks by the end of week 16, a 43% decrease on the previous week.

#### Outbreaks associated with school children, universities/colleges, and childcare facilities:

- There were 54 outbreaks associated with school children, universities/colleges, and childcare facilities.
- There were 22 outbreaks newly notified in childcare facilities, a 100% increase on the previous week, with 64 open outbreaks remaining by the end of week 16. There were 43 new cases notified in these settings in week 16.
- There were 31 outbreaks newly notified associated with school children and/or staff in week 16, with 82 new cases notified in this week. This compared with 5 outbreaks in the previous week.
- There was 1 new outbreak associated with university/college/third-level settings/students in week 16, with 14 outbreaks remaining open by the end of week 16.

- Based on the latest data on testing in schools over the period of 18<sup>th</sup>-24<sup>th</sup> April 2021 (week 16), 2795 tests were completed in 109 primary schools resulting in a 2.4% positivity rate and 1810 tests were completed in 70 post-primary facilities resulting in a 2.5% positivity rate. In total, 34 tests were carried out in special education settings with a 8.8% positivity rate, however it should be noted that this was from a small number of tests carried out in these settings. In total, 1179 tests were completed in 61 childcare facilities resulting in a 4.4% positivity rate.
- The number of cases detected, positivity rates, and the number of cases associated with outbreaks in schools remains low despite intense oversight and testing. It is important to note that detection of a case or declaration of an outbreak in a school does not imply that transmission has occurred in the school setting.

#### Workplace outbreaks:

- There were 9 workplace outbreaks reported with 64 cases notified in week 16 across a variety of settings, a decrease from 16 identified in week 15. Of these, 3 were in construction settings with 48 cases notified, 3 in manufacturing, 1 was related to food production settings, 1 in an office-based setting, and 1 in Defence/Justice/Emergency services settings.

In summary, the epidemiological situation in Ireland remains concerning but is currently stable, or potentially disimproving. Disease incidence is high, and stable or potentially deteriorating, with significant variability and uncertainty. The recent increase in incidence is most marked in those aged 13-18, 19-24 and 25-39 years. In contrast, incidence in those aged 65 years and older is now significantly below the population average. This is likely due, in the first instance, to reduced social mixing in this group in recent weeks, along with an emerging vaccine effect in the older age cohorts. Community test positivity has been elevated but stable, with a recent increase noted in test referrals, especially for those aged 13-18 years old.

Deaths related to COVID-19 and the number of confirmed cases in hospital continue to decrease, while the number of confirmed cases in ICU is static or decreasing. Markers of population mobility continue to increase, with presence in the workplace, and reduced time spent at home, now at levels seen in early September 2020. The mean number of close contacts per adult confirmed case is relatively stable (approximately 2.6), although there has been a recent increase in overall numbers of both close and complex setting contacts. Reproduction number (R) is currently estimated at 1.0 – 1.2, with growth rate at zero to +2% per day.

While there is significant evidence of the protective effect from vaccination in those who have been immunised, Ireland remains vulnerable in the coming weeks as the wider population is not yet protected through vaccination. As such, the situation remains finely balanced and any increase in close contact represents a significant risk.

#### **Overview of Current Modelling Projections**

It is challenging to model the likely course of SARS-CoV-2 infection, and significant COVID-19 disease, over the coming months due to very significant uncertainties in relation to the relative transmissibility of the B.1.1.7 variant, the level of vaccine effectiveness and the level of vaccine deployment and uptake. The possible scenarios generated by models vary widely depending upon the assumptions made.

Detailed models are set out in appendix 1.

Overall, there are a number of key conclusions from current modelling projections.

- A phased re-opening in May and June 2021, with an emphasis on outdoor activity, is considered low-to-medium risk.
- A premature re-opening, especially one involving close indoor contact, remains very high risk over the coming 8 weeks.
- The medium-term position, with greater indoor social contact remains very uncertain, and depends heavily on assumptions used in the model, in particular regarding the increased transmissibility of the B.1.1.7 variant. Further national and international data is required, and in particular we need to understand the actual impact of the phased re-opening in May and June, and the parallel vaccination programme, in our own context, before we can model with any reasonable degree of utility what might happen with wider reopening and indoor social contact later in the summer.



- It should be noted that the projections and risk analyses are based on assumptions on vaccine uptake and speed of deployment. It should also be noted that there is an assumption that non-pharmaceutical interventions (reduced contacts, physical distancing, face coverings, hygiene and ventilation) will remain in place in some form unless and until herd immunity is achieved through vaccination.

#### Overview of Public Opinion and Behavioural Research

Evidence from behavioural studies demonstrates that behaviour is substantially influenced by anxiety about contracting the virus. The data suggests that levels of worry and self-reported compliance has now fallen to its lowest level since Summer 2020, with a particularly steep fall in recent weeks. However, importantly, the decline in compliance has not been driven by people abandoning public health guidance but rather reflects the reality that more and more people are gradually 'pushing the boundaries' on measures currently in place, as evidenced by the fact that people who were previously reporting compliance at 7-out-of-7 are now more likely to respond with a 6, or even a 5. It remains the case that very few give a lower score. On a positive note, there appears to have been something of a flattening off in the upward trend in social visits to others homes since early March. At this time, the risks of social home visits were strongly publicised via NPHET briefings and in the media more generally. While we cannot be sure that this is the reason for the levelling off, it is consistent with the possibility that messaging about social visits to homes has had some effect on behaviour. Of note where social home visits have been taking place, most have involved time indoors, with facemasks were rarely worn, many lasting more than an hour, and involving no social distancing, and poor ventilation; again, it does appear however, that there was an improvement in these behaviours towards the end of March, again perhaps reflecting the focused messaging on the need to avoid indoor interhousehold mixing. While it is evident that there is a strong expectation among the public that restrictions will be eased further in May 2021, there is also broad public support (on average) for the more cautious approach being adopted – much more so than was the case following the first two waves in 2020. While 35% of people now think Ireland is moving out of restrictions too slowly, 20% believe this is happening too quickly, with a larger proportion (44%) saying the return is at about the right pace. Moreover, approximately 60% of the public expect some restrictions to be in place for at least another nine months.

#### Overall Assessment and Advice

There has been considerable progress in reducing infection levels since the peak of the recent wave of infection in late 2020/early 2021 as a result of the widespread commitment and adherence by the public to the range of public health measures in place since the start of the year. This was demonstrated again over the last month as case numbers have been lower than those projected at the end of March and the disease has been maintained largely under control.

There is also significant progress being made in relation to the roll-out of the vaccination programme, especially for those that are most vulnerable to the severe impacts of COVID-19. The protection provided by vaccination is already changing the relative risk profile at a population level and will continue to do so over the coming weeks and months as a greater proportion of the population is vaccinated.

However, notwithstanding the progress on vaccination, there remains a number of key uncertainties as follows:

1. Case numbers and incidence continue to be relatively high and the full impact of recent easing of measures will need to be monitored;
2. Individual and community level compliance and buy-in to public health measures and responsiveness to a changing disease profile has remained very high but cannot be taken for granted;
3. The extent to which public and private sectors, local authorities, sporting organisations, societies and clubs ensure that protective measures are refreshed and reinforced in the context of the recommencement of activities in their sectors;
4. The uptake, effectiveness and impact on transmissibility and disease severity of vaccines in an Irish context;
5. The transmissibility and overall impact of existing variants or the emergence of novel variants of concern on the disease profile in Ireland.

In light of these uncertainties, no guarantee can be given that the disease profile will remain similar to that seen over recent weeks. Modelling projections suggest that a phased reopening over May and June, with an emphasis on outdoor activity and a moderate increase in social contact, can be considered low to medium risk.

However, these projections also show that there remains a risk of a significant impact of a further wave of infection if the level of social contact increases too much over the coming period in advance of a sufficient proportion of the population being protected through vaccination. While the impact of increased transmission on hospitalisations and morbidity will be reduced as vaccination levels increase, modelling projections nevertheless show that a significant increase in social contact in the near term will likely result in significant increases in the numbers admitted to hospital over the coming period.

The NPHET therefore advises that, while there is now scope to ease a range of public health measures on a phased basis, this approach must continue to be cautious and gradual, with – crucially – sufficient time between any easing of measures to assess the impact. This will be critical to ensuring the protection of the gains of recent months, the protection of those most vulnerable, and the protection of health and social care, education, and childcare services. Specifically, the NPHET advises that:

1. Subject to there being no significant deterioration in the epidemiological situation, the following measures can be implemented from the 10<sup>th</sup> May:
  - Increase in the numbers permitted to meet outdoors for social/recreational purposes, including in private gardens – to a maximum of either:
    - A group of 3 households.
    - A group of 6 people from any number of households (children aged 12 or younger do not count towards the limit of 6).
  - For gatherings in private gardens, it is important that congregation indoors is avoided and masks should be worn if using indoor facilities.
  - Small organised outdoor gatherings permitted with a maximum attendance of 15 people.
  - Outdoor training for adults can recommence, in pods of a maximum of 15 people.
  - Phased reopening of non-essential retail. Measures should be taken to prevent congregation in shopping centres.
  - Reopening of personal services by appointment.
  - Reopening of galleries, museums, and other cultural attractions where people are non-stationary (for general admittance, not indoor events).
  - Reopening of libraries (for lending services, no access to reader spaces/PCs).
  - Recommencement of in-person religious services in line with existing guidance.
  - Increase in the numbers attending funeral services to 50. This relates to the service only. Pre and post related events should not take place.
  - Increase in the number of guests attending wedding services to 50. This relates to the service (both religious or civil) only. The number of guests attending a wedding celebration/reception should remain at 6 for indoor gatherings and 15 for outdoor gatherings.
  - It is advised that other religious ceremonies such as communions and confirmations should not take place at this time.
  - Inter-county travel can resume. It is essential that people adhere to all public health measures when travelling inter-county.
  - Increase in numbers on public transport, up to 50% of normal capacity. Transport companies should ensure that all protective measures are taken to ensure the safe increase in passenger numbers.

The NPHET advises that these measures shouldn't be implemented until the 10<sup>th</sup> May. This is in recognition of the current uncertainty in relation to the trajectory of the disease and will allow a further period of time to properly assess the situation.

2. No sooner than the 7<sup>th</sup> June, the following measures can be implemented:
  - Outdoor sports matches can recommence (no spectators). It will be important that sectoral bodies and sporting organisations ensure that the return of matches does not lead to linked socialisation activities before or after matches.
  - Gyms, swimming pool, leisure centres can reopen. Guidance should be updated to include the wearing of face coverings in these facilities.
  - Outdoor services in restaurants and bars can recommence. It is recommended that there is specific sectoral guidance developed to ensure the safe reopening of these services, including

in relation to ensuring social distancing between groups, patrons remaining seated, table service only, mask wearing when not seated, keeping of contact details and safe controls around the use of indoor facilities. It is also recommended that individual groups should be limited to a maximum of 6 people.

- Accommodation services including hotels, B&Bs, self-catering and hostels can reopen. Indoor restaurant and bar services must be restricted to guests/residents. Hostels will need to risk assess the safety of communal room-sharing arrangements.
- The numbers of guests attending a wedding celebration/reception can increase to 25.
- Visiting indoors in private homes – visitors from one other household can be permitted.

The NPHET emphasised that the progression to this phase of measures will be fully contingent on the epidemiological situation at the time. A full assessment of the position at the start of June will be necessary before these measures can be implemented.

3. There can be a further extension to the vaccine dividend, applying from the 10<sup>th</sup> May, as follows:
  - Indoor private home visiting can be permitted (without masks or social distancing) in the following cases:
    - Those that are fully vaccinated<sup>1</sup> may visit with other fully vaccinated people, providing there is no more than 3 households present.
    - Those that are fully vaccinated<sup>1</sup> may visit with unvaccinated people from a single household, provided that they are not at risk of severe illness.
  - Guidance has been developed and published by the HPSC in relation to visiting in these circumstances and will now be updated in light of the above recommendations. It is important to note that visiting shouldn't take place if a person has symptoms of COVID-19.
4. There are a number of other higher-risk activities that shouldn't be implemented over the coming two months. This includes:
  - Indoor hospitality (restaurants, bars, nightclubs, casinos).
  - Indoor team/group sports including matches, training and exercise classes.
  - Mass gatherings/events (including spectators), both indoors and outdoors with the exemption of those mentioned above.
  - Advice to work from home unless absolutely necessary to be on site continues.
  - Advice to avoid non-essential international travels continues.

These will be subject to further consideration at the end of June. It is further advised that any easing of measures at that stage should be no sooner than 4 weeks after the 7<sup>th</sup> June.

5. As advised last week, revised guidance for visitation in long term residential care facilities was published last week. This should be reflected in the Framework for Restrictive Measures.

The proposals outlined above represent a significant return to economic and societal activities over the coming two months and are intended to provide people with further opportunities for safe social contact, in particular in outdoor settings. It will be important that there continues to be the high level of adherence to public health measures and advice that has been an enduring feature of our collective response throughout the pandemic. It will also be important that all sectors, businesses, and organisations ensure that sectoral guidance and communications are reviewed and refreshed where necessary to support the safe reopening of sectors and activities, including in relation to mask wearing, controls on numbers and ensuring social distancing, ventilation and provision of sanitising stations. Where necessary, this should be completed prior to the 10<sup>th</sup> May.

It is also important to re-emphasise that the adoption and practice of the basic individual behaviours that protect us both individually and as a community remain the most important and effective contribution that we can all make to preventing transmission of the virus. These behaviours will continue to be a core feature of our response for some time to come, these include social distancing, wearing a face mask, hand hygiene, sneeze and cough

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<sup>1</sup> This will also apply to those who have received a single dose of Vaxzevria® and also those who have had a COVID-19 infection in the previous 6 months as detailed later in the letter.

etiquette, isolating and contacting a GP if symptoms develop, minimising the number of close contacts, avoidance of crowds, poorly ventilated indoor spaces and car-sharing, and working from home where possible.

Finally, the advice remains that those who are more vulnerable to the severe impacts of the disease, including people aged over 70 years and those with underlying medical conditions, should continue to take extra care and limit their social contacts until they are fully vaccinated.

#### **Communication Strategy for the coming phase**

The risk profile of the population has changed as the vaccine programme has advanced. People know the risks associated with COVID-19 – we now need them to empower themselves to use the public health advice to risk assess their behaviours and make decisions accordingly.

We envisage the content and tone of communication in this new phase to be quite different. The most efficient way to manage communication of the public health advice at this stage of the pandemic is to tailor it to cohorts. Whereas before, citizens were told what the rules were and what they should avoid doing, this new phase is one of responsible empowerment. New targeted public health messaging will speak to what citizen cohorts can do safely and responsibly, in a spirit of mutual trust, which fully respects the dangers of the virus. This new messaging approach from the Department of Health will be embraced as a signal of adult-to-adult, mature communication with an Irish population that now has over a year's experience of the virus and is well versed in its safety parameters.

#### **Vaccine Dividend**

The NPHET also considered the concept of 'vaccine dividend', recalling that a series of measures have been introduced over the past month that permit those who have completed their full vaccine regimen to derogate from specified public health measures. The measures have been introduced in recognition of the decreased risk of developing serious disease once fully vaccinated, as well as the importance of a vaccine dividend in maintaining momentum in the ongoing roll-out of the Vaccination Programme.

The NPHET discussed the vaccine Vaxzevria® (previously COVID-19 vaccine AstraZeneca) specifically, noting that the longer dosing interval that applies to for Vaxzevria® as compared to the mRNA vaccines and Janssen®, could act as a disincentive for people to accept vaccination with Vaxzevria®, which could in turn impact negatively on vaccine rollout nationally. In this regard, the NPHET endorsed the proposal that public health guidance relating to those who are fully vaccinated, with the exception of that relating to foreign travel, will be applicable to those 4 weeks (28 days) after having received a first dose of Vaxzevria®. The NPHET however clarified that it is essential that individuals continue to receive their full course of vaccination notwithstanding the applicability of this guidance. The NPHET also agreed that public health guidance relating to those who are fully vaccinated, with the exception of that relating to foreign travel, will be applicable to those who have had a PCR confirmed COVID-19 infection in the previous 6 months.

#### **Updated Contact Tracing Guidance**

In light of emerging evidence regarding vaccination, the NPHET endorsed interim recommendations for changes to contact tracing guidance with respect to asymptomatic close contacts (excluding healthcare workers) who are fully vaccinated. Persons who are fully vaccinated should continue to adhere to all general public health advice. Persons who are fully vaccinated and who are identified as close contacts of a case of COVID-19, need not: (1) restrict their movements or (2) be tested, unless specific circumstances apply as follows:

1. Known contact with a case of COVID-19 in which the case is a Person Under Investigation, probable or confirmed variant of concern. In this situation the close contact should be managed as a close contact of a VOC.
2. If the person's immune system response to vaccination could be compromised due to either a known medical condition or being on immunosuppressive treatment, they should be treated as a close contact - offered two tests and advised to restrict their movements. If there is any uncertainty as to whether the close contact has a medical condition or takes a treatment that would result in a sub-optimal response to vaccination, they should also be advised to restrict their movement and contact their treating physician who can advise if these recommendations apply to them.

3. A public health or occupational health risk assessment has identified other specific grounds for concern, e.g., outbreak setting.
4. The close contact develops symptoms of COVID-19, in which case they need to immediately self-isolate and be referred for one test. If the test result is negative, they can discontinue self-isolation once they are symptom free for 48 hours.

The NPHET will discuss further application of this interim guidance at its next meeting.

The NPHET, of course, remains available to provide any further advice and recommendations that may be of assistance to you and Government in relation to ongoing decision-making processes in respect of the COVID-19 pandemic. As always, I would be happy to discuss further, should you wish.

Yours sincerely,



Dr Tony Holohan  
Chief Medical Officer  
Chair of the COVID-19 National Public Health Emergency Team

cc. Ms Elizabeth Canavan, Department of the Taoiseach and Chair of the Senior Officials Group for COVID-19



## Appendix 1

A number of scenarios have been modelled. The first scenario presented is a step change in close social contact, bringing transmission to a level corresponding to an  $R_{eff}$  of 1.5, and holding transmission constant thereafter. Given that the reduction of measures proposed for May-June 2021 is conservative, focused on outdoor activity, this scenario could be seen as an upper bound on what might happen in the course of May 2021. Figure 1 shows anticipated case counts where  $R_{eff}$  increases to 1.5 from 10<sup>th</sup> May 2021, with the model projecting an increase in daily case counts peaking at 1100-1200 cases per day, with a possible 101,000 (95% confidence interval 38,000 – 199,000) new cases over the period 1<sup>st</sup> May 2021 to 30<sup>th</sup> September 2021. It should be noted that this projection is lower than similar projections from model runs conducted in late March, which projected 152,000 (69,000-185,000) cases. This is due to viral transmission and case counts in April being lower than expected. Figure 1 also shows that if increased close social contact is deferred until 7<sup>th</sup> June 2021, the projected increase in case counts is effectively eliminated. This illustrates that phasing or delay of proposed changes significantly reduces risk.

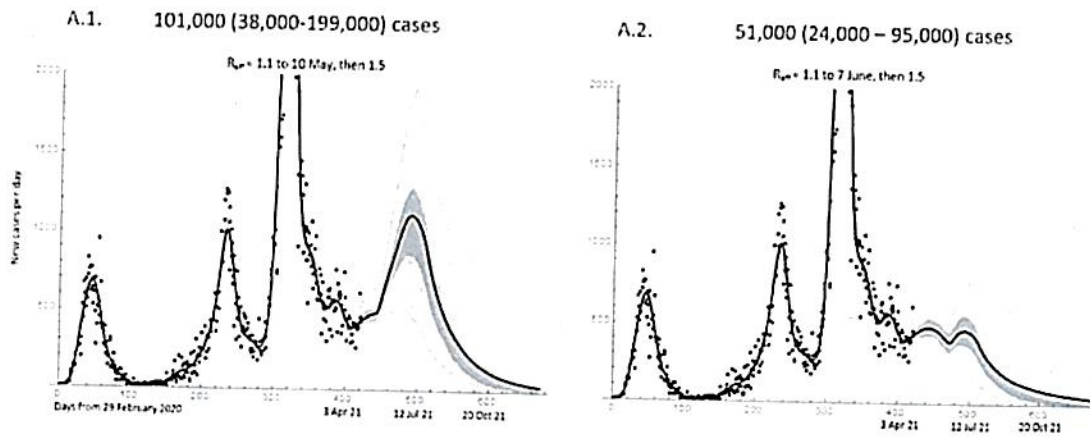


Figure 1: Homogeneous population SEIR model scenario estimates of new cases per day where  $R_{eff}$  increases to 1.5 on 10<sup>th</sup> May 2021 (A.1, left panel) or 7<sup>th</sup> June 2021 (A.2, right panel) and held constant thereafter. Confidence intervals generated from 1000 runs of the model with different assumptions. The solid line is the ensemble average of all runs, dark ribbon the interquartile range, and the light ribbon the 2.5 and 97.5 percentiles. The effect of vaccination included according to current vaccination plan, with average vaccine effectiveness and uptake assumptions as stated. The stated  $R_{eff}$  applies on 23<sup>rd</sup> April 2020 – transmissibility is held constant in the model from that point, but measured  $R_{eff}$  will decrease as immunity increases; transmissibility is then increased from 10<sup>th</sup> May or 7<sup>th</sup> June, and maintained constant thereafter; the stated  $R_{eff}$  is that which would be measured, for that level of transmissibility, if the level of population immunity were that which applied on 23<sup>rd</sup> April 2021. The actual measured  $R_{eff}$  will be lower due to increased population immunity due to vaccination. The case counts are the total number of new cases (mean and 95% confidence intervals) over the period 1<sup>st</sup> May 2021 to 30<sup>th</sup> September 2021.

The relationship between infection and severe disease requiring hospitalisation has changed and will change further as a result of vaccination. Figure 2 shows the impact of the scenarios in Figure 1 above in terms of numbers of people requiring hospital and critical care. The numbers of people in hospital peaks at 200, and the number of people requiring critical care peaks at 70 if  $R_{eff}$  increases to 1.5 from 10<sup>th</sup> May 2021, though the total number of admissions (approximately 2500) is significant.

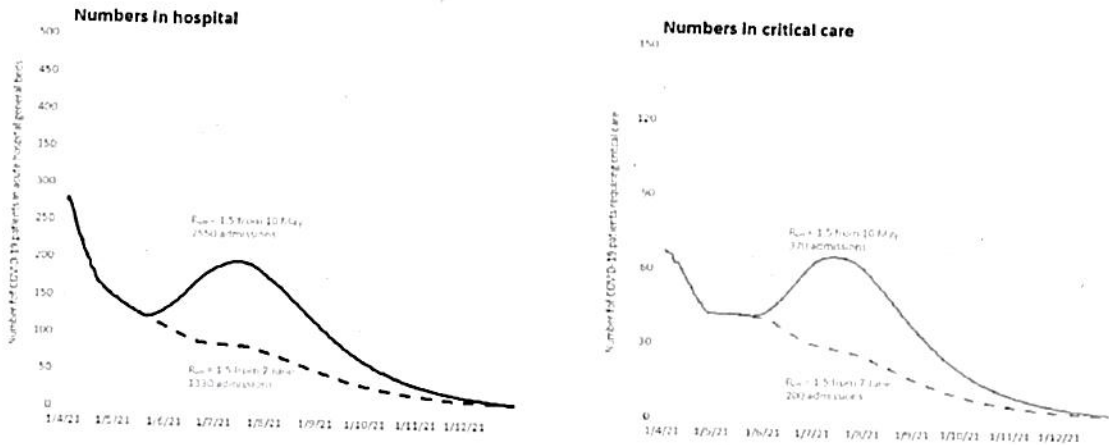


Figure 2: The number of people requiring care in acute hospitals (left panel, numbers in general hospital beds, right panel, those requiring critical care, including intensive care and advanced respiratory support) for scenarios A.1 ( $R_{eff} \approx 1.1$  to 10 May, and 1.5 thereafter, solid lines) and A.2 ( $R_{eff} \approx 1.1$  to 7<sup>th</sup> June, and 1.5 thereafter, dotted lines) using the mean case count generated by the SEIR model. Data from ESRI CHUP model. The number of admissions is the total number of new admissions for the period 1<sup>st</sup> May 2021 to 30<sup>th</sup> September 2021, rounded to the nearest 50 for hospital admissions, and 10 for critical care.

A phased increase in  $R_{eff}$  to 1.5 over the period May and June shows a small increase in case count before vaccination starts to suppress transmission and a limited increase in hospitalisations as set out in Figures 3 and 4.

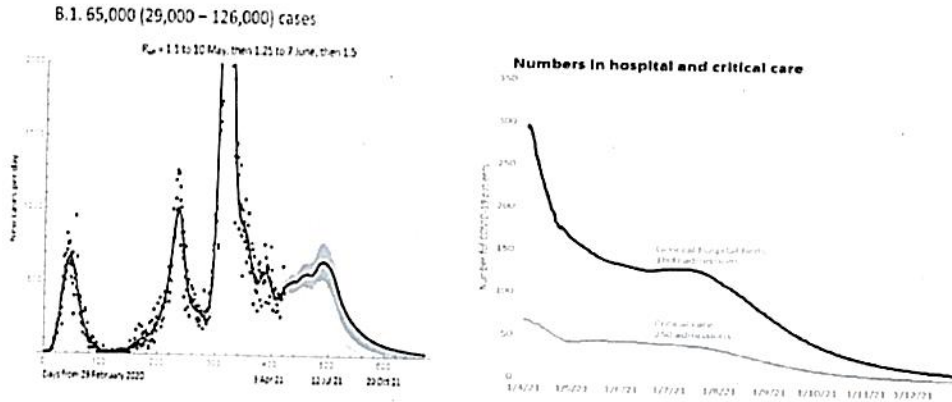


Figure 3: Homogeneous population SEIR model scenario estimates of new cases per day where  $R_{eff}$  increases to 1.25 on 10<sup>th</sup> May 2021 and 1.5 from 7<sup>th</sup> June 2021 and held constant thereafter.

Figure 4: Numbers of people with COVID-19 in general beds (black) and requiring critical care (blue) in acute hospitals in a transmission scenario day where  $R_{eff}$  increases to 1.25 on 10<sup>th</sup> May 2021 and 1.5 from 7<sup>th</sup> June 2021 and held constant thereafter.

Figure 5 shows a scenario where  $R_{eff}$  increases to 1.9 from 10<sup>th</sup> May 2021. This is in the middle of the range of effective reproduction numbers we would expect for a similar level of close social contact to that which occurred in July and August 2020. It results in a very large surge of cases, peaking at over 7000 cases per day in July, with 384,000 (110,000-851,000) cases in total; not surprisingly (see Figure

6) even with some vulnerable cohorts protected by vaccination, this leads to a significant demand for hospital care, projected at approximately 10,000 admissions and a peak of 1100 people in hospital (250 requiring critical care and 850 general hospital care). These model runs emphasise again that a delay of 4 weeks greatly attenuates this surge, and greatly reduces risk, while a delay of 8 weeks to early July eliminates the surge.

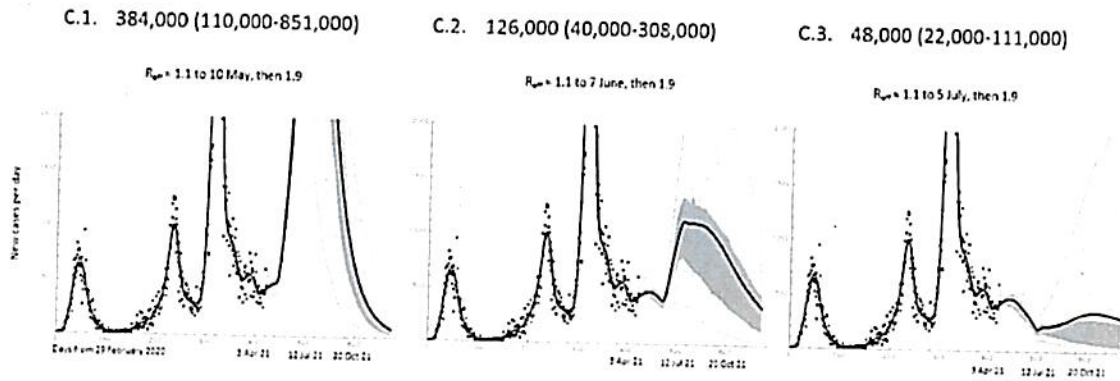


Figure 5: Homogeneous population SEIR model scenario estimates of new cases per day where  $R_{eff}$  increases to 1.9 on 10<sup>th</sup> May (C.1, left panel), 7<sup>th</sup> June (C.2, middle panel) or 5<sup>th</sup> July 2021 (C.3, right panel) and held constant thereafter.

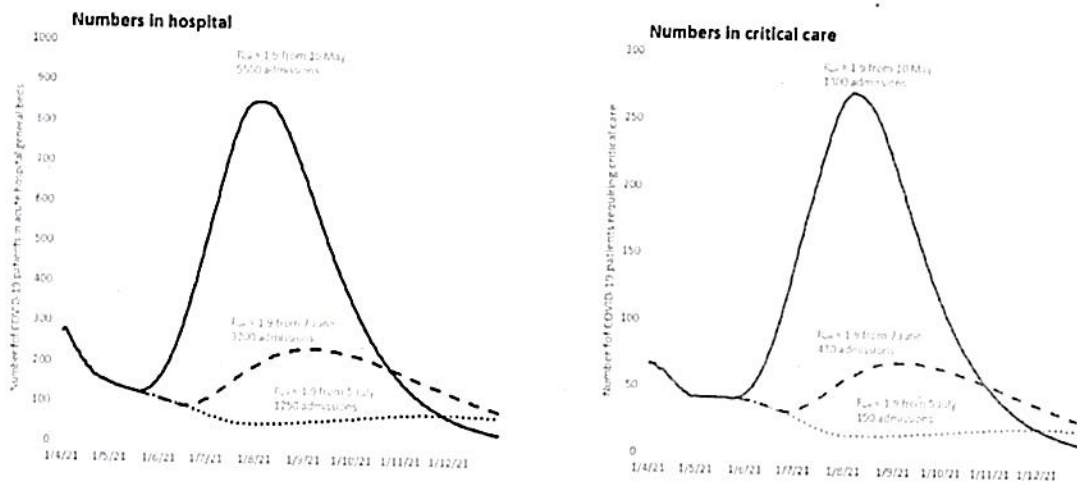


Figure 6: The number of people requiring care in acute hospitals (left panel, numbers in general hospital beds, right panel, those requiring critical care, including intensive care and advanced respiratory support) for scenarios C.1 ( $R_{eff} \approx 1.1$  to 10 May, and 1.9 thereafter, solid lines), C.2 ( $R_{eff} \approx 1.1$  to 7<sup>th</sup> June, and 1.9 thereafter, dashed lines) and C.3 ( $R_{eff} \approx 1.1$  to 5<sup>th</sup> July, and 1.9 thereafter, dashed lines).