MEMORANDUM E (20) 259 (C)

FROM: **Robin Swann**
Minister of Health

DATE: **5 November 2020**

To: **Executive Colleagues**

FINAL EXECUTIVE PAPER: MODELLING THE COURSE OF THE COVID EPIDEMIC AND THE IMPACT OF DIFFERENT INTERVENTIONS AND RECOMMENDATIONS

Introduction

1. On the 16th October the Executive introduced a range of restrictions to limit the transmission of COVID and to avoid the risk that the Health and Social Care system would be overwhelmed. The restrictions were introduced for four weeks from the date on which the regulations were made, i.e. 16 October, and are therefore due to expire at midnight on Thursday 12 November.

2. The current restrictions replaced both the Derry and Strabane restrictions of 5 October and the restrictions put in place in September determined by postcode, initially in Belfast and parts of Lisburn and Ballymena, and then across Northern Ireland. Without any other intervention, the No. 2 Regulations alone will be in effect from 13 November, and none of the tightened restrictions applied locally in September or October will apply. The main features of the residual restrictions that would be in place are set out in the attached Annex.

3. In the initial 2 weeks of restrictions R for cases has been reduced to a little above 0.7 in NI as a whole, in line with previous modelling assumptions. This demonstrates that the restrictions are effective.

Background – the Context of R

4. Rt at the outset of the epidemic was approximately 2.8, and the impact of full lockdown with the degree of compliance seen at that time was to reduce Rt to

approximately 0.7. As colleagues are aware, there will only be a reduction in the number of cases and other aspects of the epidemic if Rt is reduced to less than 1, and the decrease in the epidemic will be greater the further Rt is below one and the longer that is maintained.

5. Modelling the course of the COVID epidemic and the impact of different interventions depends on assumptions about the value of Rt (the reproductive number) at different time points in the future. Modelling from a range of UK groups suggests that full lockdown as before with schools open would result in Rt a little less than 1. Full lockdown with schools closed and the hospitality sector open (and current mitigations) would also result in a value of Rt a little less than 1 or possibly greater than 1. It is not considered likely that Rt can be less than 1 with both schools and hospitality open.

6. Any relaxations compared with full lockdown will raise Rt a little, with society working fully as normal equating to an R0 value of 2.8.

7. The Executive has previously indicated that maintenance of Rt at less than 1 should be viewed as a key policy objective.

8. During the current period of restrictions it was estimated that Rt could be reduced to 0.7 for two weeks, followed by 0.9 for two weeks following the opening of schools. Prior to the introduction of these restrictions, the value of Rt was 1.4 – 1.5.

9. It is expected that the value of R may increase slightly with the return of schools this week.

Modelling:

10. It is necessary to define the key objective for the health care system in relation to epidemic control as this will define the context for modelling. The Executive has previously confirmed that controlling transmission and protecting healthcare capacity as guiding principles when considering specific restrictions

as outlined in Northern Ireland Executive: *"Coronavirus Executive Approach to Decision-Making"*, 12th May 2020. For the purpose of this paper, the key objective identified is:

> *To maintain the number of COVID patients in general acute medical beds as less than 20% of capacity (320 hospital inpatients)*

11. The impact of non-pharmaceutical interventions (NPIs) is not expected to be fully apparent for between 2-3 weeks after implementation, subject to adherence by the population. With a sustained increase in the number of confirmed infections and hospitalisations, to avoid the health service being overwhelmed actions in the form of additional NPIs are therefore required a minimum of 21 days before the HSC would otherwise reach that point. For the purposes of this paper, our definition of overwhelmed describes "a situation in which the rate of COVID-19 hospitalisations results in multiple Trusts having to operate beyond their contingency capacity for COVID, placing a significant burden on the well-being of staff, and affecting the treatment of other acute, non-COVID patients with the associated indirect health consequences in terms of delays in planned treatment as in the first wave.

12. Updated modelling has been conducted for a range of scenarios which are described below. In each case it is assumed that Rt is reduced to to 0.7 for 2 weeks and 0.9 for 2 weeks during the current 4 week period of restriction. After this period the following scenarios are considered:

a) Rt 1.4 Nov, 1.6 Dec, 1.4 Jan – similar to the period before current restrictions

(High)

b) Rt 1.3 Nov, 1.45 Dec, 1.3 Jan (Medium)

c) Rt 1.2 Nov, 1.3 Dec, 1.2 Jan (Low)

d) a two week extension to current restrictions after November 12th (Rt 0.9) followed by b)

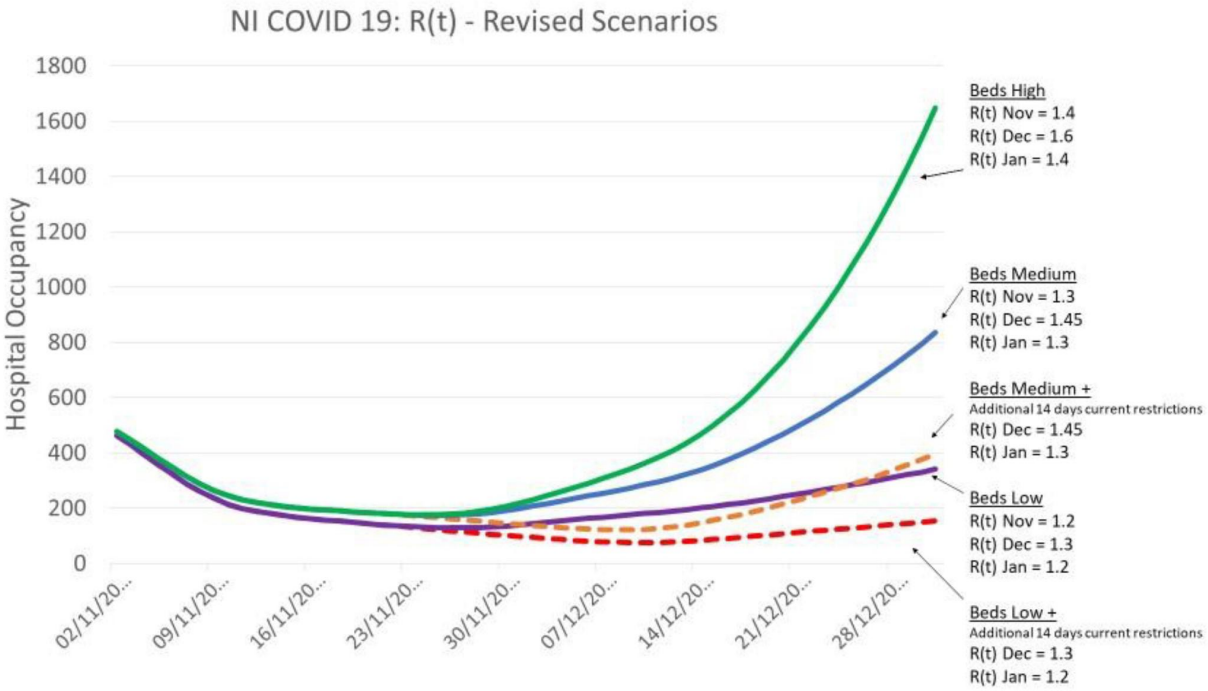
e) a two week extension to current restrictions after November 12th (Rt 0.9) followed by c)

13. The graph o shows the scenarios above, modelled to the end of 2020 for COVID +ve hospital bed occupancy (community acquired cases).

14. Scenario a) or b) above would require a further intervention in early – mid December to avoid the Health and Social Care system becoming overwhelmed.

15. Scenario c) or d) above would require a further intervention shortly before Christmas to avoid the Health and Social Care system becoming overwhelmed.

16. Scenario e) above would not require a further intervention to avoid the Health and Social Care system becoming overwhelmed until January.



17. As discussed previously, that a single intervention is unlikely to be sufficient to protect the hospital system through the winter. Under all of the models considered an additional intervention or interventions would be required early in 2021 at the latest.

18. When emerging from a period of intervention, it remains the case that significant restrictions will be required to ensure that Rt remains at 1.3 or less

under these scenarios. This implies more restrictions and/or significantly better compliance than before October 16th.

19. In all models, better compliance with restrictions may lead to better numbers than shown, whereas worse compliance would lead to worse numbers.

Alternative approaches

20. Increased compliance with recommendations to socially distance, reduce contacts, wear a face covering etc has the potential to somewhat reduce Rt compared with early October, but is likely to be difficult to achieve and to have minor effects overall.

21. Previous SAGE modelling suggested that an effective TTP service would reduce R by approximately 30%. A separate paper on the NI position has been prepared for discussion. However this would not necessarily be a sufficient reduction to avoid further restrictions in future.

22. Measures to increase hospital capacity would allow an increased epidemic level to be managed, but this would inevitably be associated with a greater number of deaths and might be limited by the need of staff to self-isolate if infected or contacts as a consequence of healthcare related outbreaks in hospitals or community acquired COVID. In such a situation the health service will face limitations in providing augmented respiratory support and intensive care for significant numbers of seriously and critically ill patients. This would inevitably mean that clinical teams will be faced with difficult choices in respect of withdrawing intensive treatment from those less likely to recover to make provision for others with a potentially better prognosis and outcome of recovery. While the health service would seek to avoid this were possible including through the activation of mutual aid arrangements with other jurisdictions there can be no certainty that neighbouring jurisdictions would be any better placed to respond. This would represent an unprecedented state of affairs for the health service in Northern Ireland.

23. It is also the case that the associated levels of community transmission would inevitably result in a further significant increase in outbreaks in care homes among extremely vulnerable older people which would result in excess deaths in this population. Furthermore, even a significant increase in capacity (a doubling) is likely to enable no more than two additional weeks before restrictions are required.

24. Intensive efforts to ensure shielding of the elderly and extremely vulnerable with underlying health conditions could reduce pressures on the hospital system and may reduce mortality. However, this would require considerable sacrifice on the part of those shielding and those protecting them over at least a four month period with significant adverse impacts on their physical and mental health and well-being. A combination of this approach with some restrictions would allow more relaxed behaviours on the part of the younger part of the population (under 60s) but to avoid risk would require no mixing with the older population which is not considered feasible in practical or behavioural terms, as discussed previously.

25. Consideration could be given to further augmenting current restrictions. In particular, it is notable that other parts of the UK and ROI have chosen to close non-essential retail as part of their higher tier restrictions. SAGE have indicated that the direct impact of this on Rt is likely to be low. However, closure of nonessential retail will reduce the need for travel from home, including cross border travel from ROI, and would further reduce the interaction between members of different households. On balance, given that closure of non-essential retail is not part of the current restrictions, I have not included this extension in my recommendation below. It will be important to continue to reinforce stay at home and travel advice during any extended period of restriction.

Recommendation

26. In light of the current status of the epidemic, the response to the restrictions of

16th October, the modelling above and the likely pressures on the Health and Social Care system before Christmas, CMO and CSA recommend that the current restrictions are extended for a further period of 2 weeks after the 12th November. With this extension, it may be possible to avoid further intervention before Christmas, though this cannot be guaranteed.

27. I fully recognise that extending the current restrictions is likely to have a particular impact on the hospitality sector, and will compound an already extremely difficult position. While I deeply regret that, I must emphasise that my recommendation flows from my absolute obligation to protect the Health Service from being overwhelmed – and I want to be very clear that this is much more than a theoretical possibility. The service, and colleagues within it, have been under intense, and growing, pressure for a considerable period of time, and while we are taking any and all internal measures to address the ongoing surge, we must – in parallel – seek to limit the impact of growing case numbers if we are to avoid collapse.

28. That said, I remain concerned about the adverse impact on the hospitality sector. While I am aware that the recent extension of the Furlough Scheme will provide a measure of support, I believe the Executive needs to urgently consider some further targeted support for this important sector. I have previously written to Minister Dodds on this issue, and would recommend that the Executive gives priority consideration to any measures brought forward from the Department for the Economy.

29. In this context, I recommend that the Executive:
    - **a.** Agrees a two week extension of the current restrictions; and
    - **b.** In recognising the particular impact on the hospitality sector, gives urgent consideration to any mitigating financial support measures brought forward by the Minister for the Economy.

30. I am copying this paper to the Attorney General and Departmental Solicitor, and to First Legislative Counsel.

ROBIN SWANN MLA

MINISTER OF HEALTH

Annex

Restrictions under the No 2 Regulations

Closure of nightclubs, concert halls, conference centres and theatres (except for rehearsals and recordings)

Restrictions upon licensed premises:

- prohibition upon dancing, music for dancing and live music generally;
- requirement for risk assessment including maximum numbers that can be accommodated, and volume of music;
- table service only, with a maximum of six people (not including children under 12) from no more than two households at each table, with modifications for buffets, wedding receptions, *etc.*

Requirement upon hospitality industry to collect contact details for customers

10:30pm limit upon sale of food and drink in licensed premises.

15-person maximum for indoor and outdoor gatherings in public places, unless the organiser conducts risk assessment and puts in place reasonable measures to reduce risk of transmission

15-person maximum (not including children under 12) for gatherings in private gardens

Maximum of 6 persons (not including children under 12) from two households in private dwellings (exceptions for weddings of terminally ill, funerals, care for a vulnerable person, emergencies and fulfilment of legal obligations).