

NI COVID 19 Modelling Group Conference call on 14th April 2020

Attendees

Ian Young DoH (Chairperson)

Paul Montgomery DoH

NR DoH

Declan Bradley PHA

Janice Bailie PHA

Hugo van Woerden PHA

NR SIB

Rob Brisk CAH

Adele Marshall QUB

Frank Kee QUB

Key issues discussed

COVID 19 models – other research

- Ian indicated that the feedback from SAGE suggested R_0 is now less than 1 but in the community there may exist different micro environments where R_0 could exceed 1. Ian also reported that the research led by John Edmunds (London School of Hygiene and Tropical Medicine) derived an R_0 of 0.6.
- Ian informed the group that the Institute for Health Metrics and Evaluation (IHME) had published updated results. Ian indicated that when the UK and RoI models are adjusted for the NI population the RoI model produce results closer to the actual NI COVID 19 impact but he also suggest the estimate for the number of deaths may be low.
- Ian clarified that the COVID 19 deaths reported in Northern Ireland do not currently include COVID 19 deaths in the community. Ian explained that other country evidence suggests that COVID 19 community deaths could account for 50% of all COVID 19 deaths. Ian also highlighted the role of clinical decision making and suggested that if patients aged over 70 are entering ICU in small numbers this will result in a lower number of occupied ICU beds and is something to be considered when interpreting previous ICU occupancy estimates for NI.

Reasonable Worst Case Scenario

Ventilation and critical care

- Ian asked the group for their views on reducing the previous NI modelling group's estimate for the *peak number of Covid-19 patients requiring ventilation and critical care beds* during the first wave of the epidemic from 140 to possibly 100 to take account of recent trends. Ian

also cautioned that the available evidence suggests that small changes to social distancing could increase numbers quite quickly. Paul Montgomery highlighted the need to consider the possible impact on resources of overestimating the impact. Ian confirmed that the purpose of the estimates was to assess the impact of each scenario for planning purposes only.

- Declan asked if the ICU occupancy estimates need to be considered at a Trust level with allowance for the transfer time of a critical care patient. Ian confirmed that this was built into the assumptions.
- Rob clarified that the model he developed suggested 100 ICU bed occupancy under the worst case scenario.
- Taking the various views into consideration Ian concluded that the estimate for the *peak number of Covid-19 patients requiring ventilation and critical care beds* during the first wave of the epidemic for the reasonable worst case scenario would be reduced from 140 to 90.
- The group agreed that the estimate for the peak number of Covid-19 patients requiring oxygen in the first wave of the epidemic would remain unchanged for the reasonable worst case scenario.

Hospital admissions

- Ian reported to the group that work is continuing in DoH to obtain robust hospital admission data but currently there was too much uncertainty to make decisions based on that data. Ian and Rob outlined the challenge of comparing COVID 19 related hospital admissions as recorded by the Trusts and DoH due to the different coding processes throughout the patient's journey. Declan further explained that patients on admission may be COVID 19 suspect but on further investigation may have other respiratory conditions which would influence the hospital admission figures related to COVID 19.
- The analysts agreed that the peak number of Covid-19 hospital admissions during the first wave of the epidemic (per week) would remain unchanged.

Deaths Reported

- Ian sought the views of the analysts on the current estimate of 1,500 for the number of cumulative Covid-19 deaths in the first 20 weeks of the epidemic. Ian asked the group if the figure of 1,500 should be revised to possibly 1,000 or 1,200 taking into consideration the current reported actual number of COVID 19 deaths. Paul Montgomery suggested that if NI is assumed to have reached the peak then the figures of 1,000-1,200 may be too high.
- Ian confirmed that for planning purpose there was a need to consider all COVID 19 related deaths i.e. hospital deaths and those in the community. For this reason the analysts agreed that the estimate for the number of cumulative Covid-19 deaths in the first 20 weeks of the epidemic should remain unchanged from 1,500.

Best Case Scenario

- Ian asked the group for their views on the current estimates for the best case scenario. It was agreed the estimate for the *peak number of Covid-19 patients requiring ventilation and critical care beds* during the first wave of the epidemic should be reduced from 80 to 55 and the peak number of Covid-19 patients requiring oxygen in the first wave of the epidemic should be reduced from 170 to 130.

Worst case scenario

- The analysts agreed that the estimates for the reasonable worst case scenario should remain unchanged. Ian clarified for the group that the worst case scenario does not assume a completely unmitigated outbreak i.e. it assumes some mitigation.

Other Issues

- Hugo asked if R_0 could be calculated for different age groups, Ian clarified that the current NI models (developed by the modelling group) could not provide that estimate but there was the possibility of drawing upon other models outside of NI in the future.
- Ian reported that initial evidence from RoI would broadly suggest that the different policy strategies regarding social distancing etc. in RoI and NI were not showing a different impact but he also clarified that it was difficult to compare specific metrics due to different reporting processes.

Update to NI models

- Rob reported that he will probably not make any significant changes to the model he has developed at this point in time. Rob suggested that it would be beneficial if the Ulster University linked with Queen's University to compare COVID 19 related analysis.
- Adele informed the group that she was continuing to develop an agent based COVID 19 model.
- Ian confirmed that he had contacted Philip Nolan (Maynooth University) but as yet had received no further update as to whether he could run any analysis using NI data.
- Declan confirmed that he ran the NHS England 2.5 model using NI population data and found that NI does not closely follow the trajectory of the worst compliance scenario derived from this model.

Actions:

- Ian asked NR to circulate the analytical paper provided by Gillian Armstrong.
- Adele agreed to liaise with University of Ulster to ascertain if there is any COVID 19 analysis that could usefully be discussed with Queen's University.