Critical Care Network Northern Ireland (CCaNNI) SURGE PLAN FOR NORTHERN IRELAND

This document sets out the planning assumptions, principles and levels of surge across the critical care system required to respond to the COVID-19 pandemic while maintaining access to care for patients with non-COVID-19 conditions.

Planning Assumptions

The Regional Modelling Group has produced an updated summary dated 7th April 2020. On the basis of this, and assuming social distancing is still adhered to, we can anticipate during the wave 1 peak (likely to occur between 6-20th April 2020) the following Reasonable Worst Case Scenario (RWCS):

Description	Best Judgement
Peak number of Covid-19 patients requiring ventilation and **critical care beds** during the first wave of the epidemic	**140**
Peak number of Covid-19 patients requiring **oxygen** in the first wave of the epidemic	**400**
Peak number of Covid-19 **hospital admissions** during the first wave of the epidemic (per week)	**500**
Number of **cumulative** Covid-19 **deaths** in the **first 20 weeks** of the epidemic.	**1500**

The peak number of 140 relates only to patients with COVID-19 requiring critical care. Patients requiring critical care for non-COVID-19 reasons must also be accommodated in the regional escalation plan. It is recognised that due to both changes in health service provision (e.g. less elective surgery requiring critical care post-operatively) and social distancing (e.g. reduced car travel and road traffic collisions) factors, the demand for non-COVID-19 critical care may be lower than in pre-pandemic periods. However, capacity must continue to be available to care for these patients.

Based on current levels of non-COVID-19 admissions, as well as pre-pandemic occupancy, the estimate is that there could be approximately 35 non-COVID-19 adult critical care patients in the system at any time. While the modelled peak number of ventilated patients has reduced since the previous RWCS, complacency must be avoided. It is therefore prudent to put in place plans which facilitate expansion beyond 175 beds, as outlined in this plan. **In order to provide a margin above the RWCS CCaNNI has supported a plan which aims to provide an additional 20% of beds, bringing the total target capacity for both COVID-19 and non-COVID-19 patients to 210.**

This takes account of the uncertainties in modelling as well as the potential for future waves with higher peaks; not all phases of the plan may need to be activated in wave 1. Although this number of ventilated patients would be challenging for all Trusts to deliver over a sustained period, it is seen

as achievable. The availability of trained critical care nurses, and other trained nurses who will be needed to support this level of beds, is the most significant limiting factor. Key to success will be agreement on appropriate nurse to bed staffing ratios which balance the desire to maximise capacity with the pressures that working at such intensity and skill mix will bring.

Although the target bed number is 210, phasing in the current plan provides an option for reaching 239 beds. The possibility of providing additional critical care capacity over 239 is still under discussion within Trusts and by CCaNNI. These discussions will address whether there is a maximum upper limit that can be provided without risking poorer patient outcomes.

Principles of Critical Care Surge Plan

A number of key principles underpin this plan:

1. While this plan has been developed in response to the COVID-19 related surge, patients who require critical care and who do not have COVID-19 are also accounted for in this plan. The Nightingale hospital at BCH site will look after COVID-19 patients only. All other hospitals will provide care for COVID and non-COVID patients.

2. There should be equality of impact from COVID-19 across the region; this relates to all units entering the same phases of escalation as well as implementing the same staffing ratios

3. Providing a significant quantity of critical care resource in a single unit (the Nightingale unit) can potentially offer efficiencies of staff utilisation, such that more patients could be cared for, although this will require greater patient transfer resource from NISTAR and NIAS and may cause pressures to arise in maintaining local DGH emergency services; the move to this phase of the plan will be directed by pre-agreed triggers

4. All Trusts should, as far as possible, maintain consistency in staff workforce ratios, including critical care nurse to bed ratios. These may change over the course of the surge, but all should be in step to ensure equitable standards for all patients irrespective of location.

5. In keeping with the long-held CCaNNI principle of mutual aid, critical care beds are a regional resource. Additional beds in the Nightingale Unit, above that which are part of BHSCT escalation, are equally regional beds, and must therefore be staffed from across the region.

6. Mutual aid arrangements will apply to distribution or relocation of equipment to facilitate expansion of capacity in each unit in line with the relevant phase of the surge plan.

7. Any centralisation of resource to open additional beds must be net of the resource required in acute hospitals to maintain essential services such as emergency surgery and obstetrics, as well as to support critical care patients awaiting transport to the Nightingale unit or other units across NI.

8. The accommodation of COVID, non-COVID and suspect COVID patients across the system is complex. CCaNNI has agreed that if a unit is full and a patient requires transfer, rather than transfer a suspect COVID case, a patient with known COVID status will instead be transferred.

9. NISTAR and NIAS are key to the operation of the Critical Care Network Plan and will be involved in detailed operational planning discussions.

10. This plan outlines the plan, by site, for up to 239 critical care patients who can be cared for at any one time in response to the immediate demands of this wave of the COVID-19 surge.

11. Discussion is ongoing on workforce availability and achievement of minimum quality standards if the numbers were to exceed 239 beds.

Levels of the Critical Care Surge (Escalation) Plan

The Critical Care Network Northern Ireland (CCaNNI) has an existing escalation plan, based on the escalation plan of each unit, which deals with surges in demand in non-pandemic situations, such as in response to winter pressures. This involves expanding critical care capacity locally within units as well as transferring patients between critical care units in order to ensure patients can access critical care as needed. Any expansion plan relies upon open transparent discussion regarding capacity, activity and clinical issues among units, HSC Trusts, HSCB, PHA and DOH NI. Inherent in this plan is the availability of a safe, timely transfer system. Within NI this is largely delivered via the Northern Ireland Specialist Transfer and Retrieval Service (NISTAR). These tenets of network operation in critical care have been in use over the last decade and as such are largely considered to be the 'normal business' of CCaNNI.

Critical care beds are described as Level 2 or Level 3 beds which relates to the level of organ support patients require. Level 3 patients are those requiring invasive ventilation and requiring the highest level of support. Patients will be move between levels as their clinical condition improves or deteriorates. Level 2 and 3 care has different levels of nurse to patient ratios in line with accepted national staffing standards. Level 3 beds are nursed at a ratio of 1 nurse to 1 patient. Level 2 beds are nursed at a ratio of 1 nurse to 2 patients.

Total capacity of a critical care unit will relate to the physical space, staff and equipment required to care for a mix of patients of varying levels of severity. While each unit has a commissioned number of beds, on any day there will be variation in the levels of care provided in response to patient need. Therefore in describing the capacity of a unit and to allow straightforward comparison of bed numbers the 'level of care' is used. This describes the capacity of the unit in terms of staff and physical infrastructure which can deal with differing levels of severity of patients. Level 2 beds are counted as 0.5 and level 3 beds are counted as 1. Therefore for example, a unit with 7 level 3 beds and 4 level 2 beds would have a level of care of 9. Equally a unit with 6 level 3 beds and 6 level 2 beds would also have a level of care of 9.

The levels of surge depicted in the 'Plan on a Page' document are described below:

1. Steady State – this is the baseline number of commissioned critical care beds described in terms of level of care (not the total bed number)

2. Low Surge – The level 2 beds are uplifted to Level 3 with use of additional staff (this will equate to the total number of commissioned beds in a unit, all at level 3).

3. Medium Surge – units begin to increase bed numbers in accordance with the local escalation plan. This will usually include opening beds in unused spaces within a critical care unit, opening beds in theatre and or opening beds in recovery areas which are often adjacent or nearby to critical care units. In the case of BHSCT this includes the merging of the Mater Hospital critical care resource and the transfer of some beds from RVH into the Nightingale Unit.

4. High Surge - Units flex up to maximum escalation numbers. This will involve opening additional beds in new areas of the hospital or in the case of the Nightingale moving into additional floors.

5. Extreme Surge – a further floor will open in Nightingale hub with redeployment of staff from all five Trusts.

6. Beyond Extreme Surge – although there may be equipment and space to deliver "Beyond Extreme" the workforce availability may not support a minimum standard of care.

Principles of Triggers for Movement between Phases of the Escalation Plan

Numerical triggers do not exist to direct progression between phases of escalation; rather these decisions will be based on professional consensus on a regional basis with at least daily conference calls chaired by CCaNNI. Therefore the trigger to progress to the next phase will be informed by the principles below:

- Escalation to a new phase of the plan will be based on the occupancy of the *region* rather than any individual unit

- Individual units should not move into the next phase of escalation without discussion with other units via CCaNNI. In order for this to happen a 'smoothing' of the impact on units will be required i.e. some patients will need to be moved to an available bed in another unit

- The agreement to escalate to the next phase should be taken on a regional basis

- Once the escalation approaches Extreme Surge, each Trust will redeploy staff to support this in line with Trust plans

CCaNNI is a strong clinical network and has worked together to bring the surge plan to this point. There is confidence that if the number of cases matches the estimated numbers anticipated by modelling that Northern Ireland should be able to cope.

Further work is required to consider the detail of the clinical aspects of the plan along with aspects of care in the event they are required to deliver care to a much higher number of patients in a second wave.