

National Public Health Emergency Team

**Acute Hospitals Preparedness
Critical Care Capacity
Department of Health-HSE Joint Paper**

15 October 2020

Action required

- For noting
- For discussion
- For decision

1. Introduction

The question of critical care capacity in Ireland has been the focus of much media and political attention in recent weeks. This is in the context of the key role that critical care can play in the management of patients severely impacted by Covid-19.

There is an acknowledged historical deficit in our critical care capacity. This was highlighted by the National ICU Audit which reported that Ireland has 6.0 critical care beds per 100,000 population (including private hospitals) compared with the European average of 11.5 per 100,000.

Significant efforts have been made in recent months to enhance increase critical care capacity as much as possible, including through the work of the Acute Hospitals Preparedness Subgroup of NPHE. A summary of work undertaken to date, current capacity levels and plans for future expansion are set out below.

2. Acute Hospitals Preparedness Subgroup of NPHE

Critical care capacity and the role of critical care in caring for patients with serious illness was a key focus of the Acute Hospitals Preparedness subgroup of NPHE. Critical care was well represented on the group, with the National Clinical Lead for Critical Care and the National Clinical Advisor and Group Lead for Acute Hospitals included among its members.

The initial focus for acute hospital preparedness for Covid-19 was on building up capacity to ensure the maximum possible number of critical care beds were available to cope with the predicted number of Covid-19 cases requiring critical care. Planning for the expected surge in cases, and the associated influx of patients to acute hospitals, began in early 2020. In order to maximise critical care capacity, there was an intensive focus on both surge planning and adding bed capacity.

Two formal papers on critical care capacity were submitted by the group to NPHE, underlining the high level of priority given to this issue.

3. Critical Care – a System of Care

Critical care capacity is about more than bed numbers. ICU is a system of care that requires trained available nurses, trained available doctors and appropriate equipment, notably a supply of ventilators and oxygen to deliver effective patient care. Considerable progress has been made in enhancing this system of care over the past six months.

Training was provided to over 1,500 nursing staff to allow them to provide support to critical care as required in circumstances where there were not enough fully trained critical care nurses to support the service. Available staffing is a critical aspect of critical care provision and is often reported as being the foremost limiting factor in attempts to increase capacity.

In relation to equipment, the National Treatment Purchase Fund (NTPF) supported the HSE in detailing plans for critical care surge capacity across all hospitals, including staff, ventilators and oxygen flow. Significant work was done to develop a critical care capacity plan, including identification of additional ICU and ventilation spaces and procurement of additional ventilators to meet requirements. As part of these efforts, around 950 ventilator units have been secured and the Medical Device Equipment Criticality Group, which manages the upscaling of ICU Critical Care capacity in Hospitals, has agreed that sufficient ventilators are now in place to meet Covid needs.

There has also been a significant level of engagement with the subgroup of the Irish Epidemiological Modelling Advisory Group which looked at hospital capacity, including critical care capacity. The group's modelling work provided projections in relation to the number of ICU beds that would be

required at a variety of R numbers. These interactions helped to inform the understanding of what potential critical care requirements might be in a variety of surge conditions.

3. Critical Care and Covid: The Experience to Date

The acute hospital system and critical care service coped with the initial surge in admissions during the early stages of the pandemic, largely due to the success of public health measures in flattening the curve and the fall-off in non-Covid care, as well as the dedication and resilience of healthcare workers.

At the peak of the pandemic, in the region of 280 critical care beds were occupied, including a maximum of 160 Covid-19 patients, exceeding by some way our then base capacity of 255. This additional demand was met by surge ICU capacity, with clinical staff redeployed from other hospital services and locations. Even at these elevated levels, quality of care was sustained, and clinical risk was manageable.

Data provided recently by NOCA shows that ICU mortality was lower in Ireland than it was in the UK, with a 21.5% mortality rate for all ICU admissions in Ireland compared to 41% in the UK. Mortality in patients who were invasively ventilated was 32.7% in Ireland compared to 66.8% in the UK. This reflects the fact that critical care was not overwhelmed as it was elsewhere – the total numbers of Covid-19 patients admitted to intensive care remained less than the total number of the baseline beds throughout the period of peak admissions and well below the number of total available beds.

With a return to more normal levels of emergency and time-critical presentations, the level of occupancy today in critical care remains about the same, but the majority of patients are now non-Covid patients.

4. Critical Care Capacity: Current Numbers

In January 2020, baseline critical care capacity was 255 beds as reported by the Critical Care Bed Capacity Census published in September 2019. This included 204 ICU beds and 51 HDU beds. As part of the initial response to Covid-19, funding was provided to open an additional 40 adult and two paediatric critical care beds, as well as funding to upgrade 14 HDU beds to ICU beds.

The HSE reports that between 280 and 285 beds are now open, with the number of beds open on any given day subject to fluctuation as a result of available staff and other operational considerations. In other words, 31 additional ICU beds have been opened since March.

5. Winter Plan and Critical Care

In relation to the Winter Plan and critical care, 17 critical care beds are referenced. Of these, 11 are those beds already funded in March but not yet open. These are included in the Winter Plan as they represent additional capacity coming on stream. (A further six are hyper acute stroke beds, which have similar staffing levels to HDU beds but are not under the governance of the Critical Care Programme.)

6. Critical Care and Surge Capacity

One recurrent theme in public discourse is the suggestion that the number of critical care beds has been scaled back since April-May. This is simply not the case, and such comments may reflect a lack of understanding regarding the difference between permanent staffed critical care beds and surge capacity.

Surge capacity supports the provision of critical care as required as part of an emergency response. Our acute system retains the capability to “flex” in response to demand if required, although not

without consequences in terms of staff redeployment, curtailing of other services and greater clinical risk.

While in March, there were suggestions that surge capacity could be as high as 800 beds, it is now clear that this was not a realistic estimate. The National Clinical Programme in Critical Care has been clear that while clinical risk remains at an acceptable level up to surge levels of around 350, beyond this level standards of care cannot be maintained with resulting impact on patient outcomes. It should be stressed that the clinical advice is very strong that the greater the reliance on surge ICU capacity, the greater the clinical risk with potential impact on patient outcomes.

Moreover, surge plans will generally entail cancellation of elective surgeries (which might require ICU post-op) as well as redeployment of staff from other areas of the hospital to ICU, and utilisation of physical space beyond the walls of the ICU including theatre space, with associated consequential effects on non-Covid services.

7. Private Hospital Capacity

The capacity of the public health system can be supported by that available in the private health sector and the HSE is currently in negotiations with private hospitals.

However, although the effective utilisation of private resources can certainly support the response to Covid, ICU capacity in the private sector is relatively modest and, in many cases, not comparable to ICU capacity in Model 4 public hospitals. The clinical advice is that Covid patients who require critical care should be cared for in a Model 4 public hospital.

9. Strategic Planning for Critical Care Capacity and Progress in Budget 2021

As well as focusing on the immediate response to the challenge posed by Covid, considerable work has been done to develop a strategic approach to addressing the historical deficits in capacity. The plan is currently the subject of a submission to the Minister and it is hoped that a Memorandum for the Information of Government will be submitted shortly.

The implementation of this plan will significantly assist the efforts to ensure appropriate provision of critical care for both Covid and non-Covid patients. It is clinically led and aligns with the hub-and-spoke model of care set out by the National Clinical Programme in Critical Care. The plan not only addresses the recommendations of the Health Service Capacity Review in respect of critical care but also supports strategic and service reform over time including transplant services, the Trauma Strategy and the National Cancer Strategy and is in line with the vision set out in Sláintecare.

This plan involves two phases, with Phase 1 focused on short- to medium-term capacity expansion and Phase 2 focused on expansion that entails significant capital projects. Alongside these two phases, the plan targets the development of critical care enablers, including critical care retrieval, nurse education, workforce planning and critical care outreach teams.

The plan envisages an increase of 26 beds to bring permanent in capacity to 321 by the end of 2021, with a further 12 beds coming onstream in 2022 bringing total capacity to 333. The first part of the plan has been advanced through Budget 2020 which provided very significant investment of €52m and will allow us to build and strengthen critical care capacity across Ireland. Details of the Budget measures are provided in Appendix 1.

Phase 2 of the plan envisages the construction of five new critical care facilities which will provide 117 additional beds, bringing the total number of critical care beds in Ireland to 450, exceeding the 437 recommended by the Health Service Capacity Review.

10. Conclusion

Given recent media and political comment in relation to critical care capacity, this paper is presented as an attempt to provide some clarity on the experience of the past six months, the current situation and to outline future planning in this area.

There has been a great deal of work undertaken in order to enhance critical care capacity as much as possible since the onset of the Covid-19 pandemic. Much has been accomplished in very challenging circumstances, and it will now be important to build on the progress made through the implementation of the strategic plan in the months and years ahead.

Budget 2020 – Critical Care Capacity

Critical care capacity	No of additional Beds	Revenue requirement 2021€m	Revenue (full year) €m	Capital required yes/no	Expected date of delivery
Revenue funding of 42 COVID-19 development beds (40 adult and 2 paediatric), including retaining upgraded HDU beds and critical care outreach teams in two hospitals	40 (+ 2 paed)	40	40.0		In place 2020
Complete workforce plans for Nursing, Medical and Health & Social Care Professions	N/A	0.3	0.3		Q1 2021
Open 6 HDU beds in UH Limerick and support clinical management of fully opened 28 bed Critical Care Unit	6	3.2	6.4		Start Q3 2021
Open 8 HDU beds in St Vincent's University Hospital	8	1.2	4.8	Yes	Q4 2021
Open 8 ICU beds in Mater	8	1.5	5.2	Yes	Q4 2021
Open 4 ICU beds in Sligo	4	1	4	Yes	Q4 2021
Critical care retrieval service		1.5	3		Q3 2021
Critical care education initiatives		0.8	0.8		
Critical care on-site nurse educators		1.07	2.14		Q3 2021
Additional critical care outreach teams		1.2	2.4		Q3 2021
Total	66 (+2 paed)	€51.8m	€69.1m	TBC	