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Sustainable NHS capacity- headline issues looking forward in a time of COVID-19

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Introduction

The aim of this brief is to identify key practical issues which will need to be considered by policy makers, advisors and operational decision makers as the UK looks forward to emerging from the current "lockdown" and anticipates managing economic re-opening and pivoting the NHS towards delivering routine care. This whilst retaining the capacity to support the population through a COVID situation which is likely to be endemic. It was prepared at short notice at the request of SPI-M secretariat.

The NHS is currently operating at surge with many areas delivering greater than 200% of baseline pre-COVID activity. For critical care this has been achieved by annexing and converting novel areas, redeploying non critical care staff and reorganising staffing ratios in a way that would be regarded as unacceptable in normal times; much of the real estate does not meet acceptable standards for optimal care, space and dignity or infection control. This capacity cannot be continued indefinitely and although staff are striving to deliver the best they can, this does not deliver the "normal" standard of care- this is emergency care.

Mathematical versus sustainable capacity

It is tempting to imagine the NHS as a large collection of industrial processes which behave in predictable manner. In fact, the NHSs' hospital capacity is an interacting construct of estates, equipment and human factors (patient and staff)- along with relationships with community health and social care. Multiple previous attempts at engineering out the human factors' element has not proved very successful. Under normal circumstances the optimal occupancy for critical care is ~80%, beyond this figure complications such as drug errors and cross infection, along with staff exhaustion and sickness, start to increase.

Operating at surge

Currently the UK has around 5,700 critical care beds- expanded as an emergency measure from a baseline of 3,730 (National Clinical Director for Critical and Perioperative Care, 18/01/'21). This expansion delivers a "surge" level of very basic critical care and has been achieved by redeploying staff from other areas and lacks the specialist workforce (nursing, medical and allied health professional) and infrastructure for this to be sustainable. This is not a figure that can be used for forward planning for "normal" deliverable capacity in the near future. The accepted occupancy figure for critical care is 80% of the baseline figure to allow for emergencies, but even pre-COVID this was routinely exceeded. A 90% figure may be a reasonable recovery threshold before societal non-pharmacological interventions are needed. Many acute & general wards are now redesignated to support COVID activity – this has required the wholesale reallocation of staff from surgical and specialist departments, severely curtailing diagnostic and treatment capacity (e.g. outpatients, endoscopy and surgery).

Lessons from attempts at "business as usual"

After the first phase of the epidemic the NHS Hospital sector pivoted towards delivering "business as usual" whist dealing with a modest level of COVID. In spite of theoretical preadmission isolation and testing, patients persistently turned COVID-positive post operatively. This creates the problem of "COVID contacts", neighbouring patients who have to be kept isolated in case they in turn become positive. This renders beds in bays in which such patients are being cared for unusable. In addition, attempts to create pathways isolating "green" from other patients created a degree of confusion and reduced efficiency. This seemed particularly apparent getting patients between wards and diagnostic or surgical areas.

Impact on staff

NHS staff are extremely dedicated and professional people They often work substantially beyond their expected hours because they dislike leaving tasks unfinished. They cannot however be taken for granted. Recent media pieces have highlighted the level of exhaustion, post-traumatic stress and moral injury experienced by front line clinical staff, exacerbated by numerous staff sick and isolating due to COVID (8,896; from NHS England COVID SitRep 18/01/2021) or absent for COVID-related reasons (38,941, *ibid*). Experienced staff, with decades of experience of delivering very high standard care often struggle with the necessary compromises and consequent complications; junior staff struggle with being in supervisory roles when they are not yet secure in their own professional space. Many staff are currently fighting through "Round 3" and the physical and emotional exhaustion cannot be overstated.

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Safety- mathematical versus true efficiency

Critical care

As stated above, critical care run at near theoretical capacity eventually unravels. The "efficiency" is undermined by hospital acquired infection and other complications along with staff exhaustion and sickness. In addition, the lack of immediately available spare capacity to accommodate emergency admissions has human costs for acutely ill patients who end up being moved around or cared for in suboptimal environments, and results in loss of capacity to support major elective work, resulting in cancellations. Thus theoretical "maximum" capacity based on bed numbers alone tends to be an illusion.

WHO checklist- more haste, less speed

The introduction of the WHO surgical and procedure checklists has had a clear benefit in reducing complications. Such complications often lead to extended hospital stays and increases in overall costs of treatment- hence the "Getting it right first time" programme. Part of the checklist process is a series of planned pauses for the clinical team to recap on the plan, available information and necessary equipment. Whilst this "slows" operating department turnover (arguably reducing "efficiency"), the reduction in complications improves overall hospital efficiency.

Defining critical care- future opportunities

The expansion of capacity in units providing acute respiratory support (ARUs), in which patients can be provided with a degree of respiratory support short of intubation and full mechanical ventilation, has been very successful but has challenged the definition of what constitutes "critical care"; this has rendered interpretation of capacity figure extremely difficult. Nevertheless, this expansion possibly creates a legacy which may unlock capacity and flexibility. Similarly, the development and expansion of enhanced perioperative care units holds the potential to separate elective and emergency care pathways, thus reducing the likelihood of cancellations. Around 100,000 operations per year are cancelled for non-clinical reasons, 7% of inpatients workload; the most common factors in such cancellations are the requirement for a critical care bed and the presence of an emergency department in the hospital. Neither of these options can be created instantaneously as there would need to be workforce expansion and training and the provision of suitably equipped environments; some of the latter may have been created serendipitously as part of COVID expansion.

Impact on non-COVID patient care

The loss of elective capacity over the last year has created a very substantial backlog of planned care. Even urgent cancer and cardiovascular cases have been delayed, and many patients now presenting for surgery or non-surgical treatment will have cancers which will have advanced; sadly, this will have eroded the prospects of cure for many. As a further example, the human and fiscal costs of patients requiring joint replacement surgery is very substantial. Thus, policy decisions need to balance economic activity with risks of COVID surges; COVID surges create not only the immediate consequences of the infectious disease, but also undermine the whole spectrum of non-COVID activity. Although NHS leaders have stated very clearly a commitment to delivering a full spectrum of care, in practice this has proved exceptionally difficult. New "variants of concern" viral strains and heterogenous community structures and compliance with social distancing renders the epidemic hard to "hold" at any target level. Vaccines have a substantial role to play but are unlikely supress the epidemic until very high levels of population coverage have been achieved, and there remain uncertainties about vaccine take-up and prevention of transmission.

Accurate capacity estimates

Since the start of the epidemic, it has proved surprisingly difficult for operational management teams, be they regional or national, to get a true picture of capacity. This has improved recently, but Trusts' business intelligence units have tended to parasitise existing data streams which often lag behind the dynamics of admissions and staff availability. In addition, Trusts have persistently posted capacity figures which bedside clinicians, looking at state of things immediately around them, see as aspirational at best. This leads to poor information about true capacity and occupancy. At times there has been a sense that Trust staff fear that not reporting large capacity figures would be viewed badly. This phenomenon also occurs internally with reluctance of middle management to report figures that may be regarded as disappointing.

Overall

Capacity within the NHS, and in particular the hospital sector, is a very nebulous and ephemeral thing. The use of "capacity" as a planning or policy fixed-point requires extremely clear thinking as to what is *really* meant, or poorly calibrated, unrealistic and self-defeating policy will result. Thus, proposals need to be stress tested at all organisational levels with thought experiments informed by people actually delivering and managing clinical service at the bedside who are empowered to challenge, not just those in middle and senior management positions.