Age is just a number: how should we triage old patients in the coronavirus disease 2019 pandemic?

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Increased numbers of Intensive Care beds are required in major surges, such as seen in the current Covid-19 pandemic. There are two possible options, available to hospitals , and these are not mutually exclusive: to increase the bed availability, and /or institute priority rules for admission of patients (triage).

Increase intensive care capacity

The first usual response is to enable the admission of an increased number of patients. This is how the surge response to the COVID-19 crisis has been managed and has led to significant pressures on hospitals, as well as intensive care units (ICUs). Expanding ICU bed capacity is not straightforward as it requires not only an increase in specialised equipment, but, more importantly, an increase in skilled health care workers (HCW). There is thus a limit to the expansion, with a trade-off between the quality of care delivered in this expanded or ‘new; ICU, and the absolute numbers of extra beds [1](Figure1) . For example, in Paris and its suburbs, the normal availability of 1,100 ICU beds was increased to 2700 ICU beds at the peak of the first wave in early April 2020. Only 250 beds remained dedicated to non-COVID patients.

This huge expansion was only possible by stopping scheduled medical and surgical activities enabling HCW to be moved away from the operating theatres and wards to the ICU. At the same time, a national lock- down reduced the requirement for trauma beds, which had a positive impact on ICU requirement. However, this was at a cost to non-covid patients. For example, patients with cancer saw delays to their treatment with a possible impact on their mortality [2].

Adjust ICU admission criteria:

If, despite an increased capacity, there is an ongoing demand for ICU beds the question of prioritisation and patient selection is the next step, and old patients are often the first "victim" of such a triage process. This was again shown in Paris, during the first wave (March 21st to March 31st) when the percentage of patients above 75, and above 80 admitted to the ICU, dropped from 19.5 to 8.3% and 9.5% to 2.1% respectively. However, interestingly during the period mid-March to end of April, this reduction in admission to ICU of patients older than 75y did not translate into an increase in hospital mortality. The selection based on age could be justified for a number of reasons; higher mortality [3], poor recovery with loss of functional autonomy and decrease of HRQOL, and shorter life expectancy. In addition, the principle of distributive justice should probably apply with the goal of saving as many lives (or Life years) as possible.

A selection based solely on age was proposed in Italy [4] but was considered unethical by several stakeholders and countries. However, most triage guidelines still use age as one of the factors that should be considered when deciding to admit or refuse a patient for admission to ICU [5,6].

The question is not that simple as triage is often not a binary 'Yes/No' decision. We are not on a battlefield giving definitive triage decisions. The patient might be denied ICU admission but be admitted into an intermediate care unit or even a regular ward and receive good care including steroids, non-invasive ventilation (NIV), high flow oxygen and awake prone positioning. The patient may subsequently be admitted to ICU if they deteriorate despite the above measures. Hence, triage decisions are continuously being revised according to the patient's response to treatment. By contrast, a patient might be admitted to ICU and after a few days, their life-sustaining treatment (LST) is limited (or withdrawn) following

deterioration despite optimal ICU treatment or new information of underlying diseases that had not been documented upon admission.

Although older age is frequently associated with frailty and associated findings such as sarcopenia, co-morbidity, cognitive decline, and a poor nutritional status, age alone does not tell us the whole story. [7,8]. Therefore, decisions about admission to the ICU should not just be based on crude chronological age, but on the patient's ability to benefit from treatment versus the risk of harm. In a pandemic, the competing needs of other patients should also be considered [5].

However, an intensivist is frequently required to make decisions, sometimes in the middle of the night, often with minimal available information, about whether a patient should be admitted to ICU. To aid these decisions a simple, reproducible easy-to-use tool to characterise frailty is of great value. The clinical frailty scale (CFS) fulfils these specifications [8].

We have demonstrated that CFS is the best predictive factor for mortality at one month in patients above 80 years [9,10]. Other geriatric parameters do not improve the prediction model [10].

Assessment of frailty using CFS when applied to COVID patients, over the age of 70, has also been found to be an independent prognostic factor for 3-month mortality [11]. In addition, in a study of 1564 patients over 18 years old admitted to hospital with COVID-19, disease outcomes were better predicted by frailty than either age or comorbidity [12].

CFS is now included in several national guidelines such as UK, France and Netherland, and shortly in Denmark and Norway. Even though, frailty has been included into 'best practice' predictions, these recommendations based on frailty have been challenged [13].

Besides the issues discussed above, the severity of the acute illness and also the patients' wishes and advance care plans must be assessed [14] . However, it is difficult for patients to make an informed decision when the reality of intensive care medicine is unknown to them. Many people do not appreciate that intensive care just buys time while an acute condition is being treated. It will not benefit those who deteriorate from a long-standing chronic condition. If the public was better informed into what intensive care can achieve, and this was discussed with those with significant co-morbidity in advance, at an appropriate time, this may reduce the unrealistic hopes and expectations of both patients and their relatives.
Only a few guidelines explicitly discuss treatment withdrawal in ICU. This option has been discussed in Sweden and Germany where it has been considered unlawful by the Ethics council and has now been escalated to the constitutional court in Germany.

Prioritising patients for ICU admission, and in particular during ICU treatment, is complex and difficult even under normal circumstances [15]. In many countries, age alone is not usually considered a valid "stand-alone" criterion. During a surge, such as the present pandemic, it is tempting to use simple solutions for triage with readily available information. It is therefore not surprising that age is considered. We would suggest, as discussed, that adding a simple evaluation of frailty status at admission will give us a superior and more robust platform for decision-making.

Legend of figure:

Figures shows the effect of increasing ICU capacity on quality of care.

A point is reached (A) where increasing capacity impinges on quality of care.

As the two lines cross and capacity reaches its limit (B), stricter admission criteria have to be implemented.

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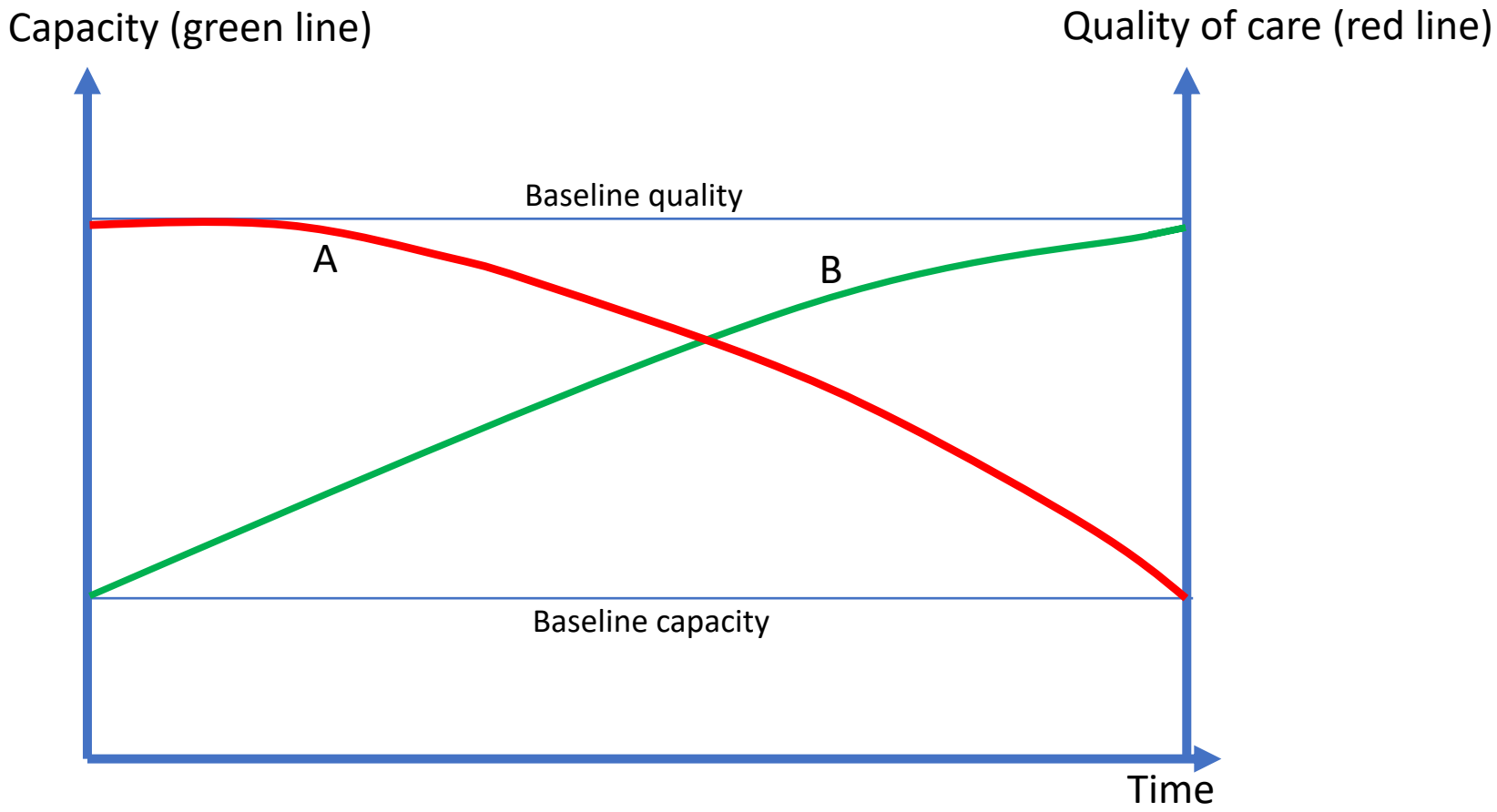

A = time when quality starts to drop ≈ when capacity approach the double
B = time when very strict admission criteria are implemented