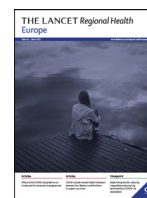


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The Lancet Regional Health - Europe

journal homepage: www.elsevier.com/lanepe

Commentary

Ceci n'est pas un lit. Base capacity healthcare matters in a pandemic

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ARTICLE INFO

Article History:

Received 7 January 2021

Accepted 7 January 2021

Available online 13 January 2021

The SARS-CoV-2 pandemic exerted unprecedented pressure on healthcare in Europe. Non-pharmaceutical interventions (NPIs) aimed to minimise effective physical contacts in order to reduce the burden of disease and keep the demand for healthcare manageable. On the supply side, hospitals were forced to expand their surge capacity, by reserving and adding extra beds in and outside intensive care units (ICU), as well as equipment and staff time [1,2]. Such expansions came too late in Italy, where ICU capacity was exceeded in several regions when they were engulfed by the first wave in March 2020 [3]. Other European countries followed soon, and continue to experience intermittently high pressure, despite expanded capacity [4].

A key question for future preparedness and planning is whether COVID-19 patient outcomes are affected if their care is delivered when the health care system is under high pressure. Taccone et al. [1] address this question, while focusing on in-hospital mortality of COVID-19 patients treated in ICU in Belgium during the first European wave. Belgium has a relatively large base capacity in ICU beds, but dealt with a high volume of critically ill COVID-19 patients. Taccone et al. [1] considered, per hospital, the ratio of the number of ICU beds occupied by confirmed and suspected COVID-19 patients divided by the number of recognized ICU beds reserved for COVID-19 patients, and defined "ICU overflow" to occur when that ratio exceeded 1. They found that ICU overflow was an independent explanatory variable of in-hospital mortality of all COVID-19 patients, as was a high proportion of additionally created ICU beds for the subgroup on invasive mechanical ventilation (IMV). This was observed in addition to the risk factors including older age, presence of comorbidities, shorter delay between symptom onset and hospital admission, and severity of respiratory impairment. The use of hydroxychloroquine, invasive mechanical ventilation (IMV) and extracorporeal membrane oxygenation (ECMO) machines was associated with improved survival. But, as Taccone et al.

rightly pointed out, the observational, non-experimental design renders inferences on the effectiveness of these interventions much less reliable than randomised controlled trials. It might be that less fit, more severely affected patients were simply less likely to receive some of these interventions.

The authors also found significant between-hospital differences in in-hospital mortality, not explained by the patient and hospital characteristics in their dataset, but acknowledge that the lack of specific data related to ICU staffing limit the interpretation of these findings. Pre-pandemic analysis has also indicated substantial inter-hospital variation in mortality outcomes, for instance for pneumonia, owing to the diverse landscape of Belgian hospital practices (large, small, academic, non-academic) [5]. A survey among Belgian hospitals established that the flexibility in freeing up extra capacity as a given percentage of existing capacity differed between hospitals in the first wave [6]. For instance, in hospitals with proportionately more inpatient beds for cancer patients, it was more difficult to postpone elective care. Also in hospitals with a smaller base capacity in ICU beds, it proved more difficult to reserve a majority of ICU beds to COVID-19, without de facto reserving them all for COVID-19, and improvising non-COVID-19 ICU beds in other wards [6]. In general, temporary shortages of personal protective equipment (PPE) and ventilators, ICU medication stock levels (e.g. sedation) were challenging to the management, especially for smaller hospitals, but most difficult was staffing. Due to a proportionately greater lack of ICU experience and increased absenteeism smaller hospitals had to rely relatively more on nurses without ICU experience. Hospitals with a high resulting ratio of ICU to other beds, also had difficulties supplying non-ICU COVID-19 units with competent staff [6].

Clearly there is more to creating additional bed capacity than providing extra beds. There should be sufficient space for equipment around the bed, and any group of COVID-19 dedicated beds should be separated from other beds to prevent onward transmission. But above all, each bed requires sufficient time allocation of appropriately trained and supervised staff, including physicians, nurses, paramedics and cleaners, as well as dedicated equipment. Bringing sufficiently trained and fit medical personnel to the bedside remains difficult as fatigue, stress, anxiety and depression resulting in drop out take their toll. Rotation is slow as training new personnel with the required ICU skill sets takes time and the entire health care work force needs to catch up on non-COVID-19 care in between waves [7,8]. Indeed, the extent to which the

DOI of original article: <http://dx.doi.org/10.1016/j.lanepe.2020.100019>.

"Ceci n'est pas un lit" (or "this is not a bed") refers to Belgian surrealist painter René Magritte ("Ceci n'est pas une pipe") to suggest that adding a bed is not sufficient to create capacity.

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<https://doi.org/10.1016/j.lanepe.2021.100033>

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outcomes of non-COVID-19 patients were affected remains to be studied. Also the outcomes of 1474 COVID-19 patients in ICU at the peak of the second wave in November (compared to 1285 in the first wave) remain to be analysed [9]. This higher second wave with a further depletion of health care personnel's reserves may negatively affect patient outcomes around the peak. As medical insights evolved, it is however likely that overall ICU survival in the second wave improved. Of course, prevention remains the best way to ensure care for all patients, but prevention needs to be valued properly in order to prioritise it, not only during, but also in between pandemics [10].

Author contribution

PB and FV retrieved literature and discussed the content, PB wrote most of the text, with FV contributing.

Declaration of Competing Interests

Dr. Beutels reports grants from Epipose project from the European Union's SC1- PHE-CORONAVIRUS-2020 programme, project number 101003688, during the conduct of the study; grants from Pfizer, grants from GSK, grants from European Commission IMI, outside the submitted work. Dr. Verelst reports grants from European Union's SC1- PHE-CORONAVIRUS-2020 programme, project number 101003688, during the conduct of the study.

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