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ICU bed reserve capacity for COVID-19 cost effective in Germany

The provision of staffed intensive care unit (ICU) bed reserve capacity for COVID-19 cases appears to be cost effective in Germany during the second wave of the COVID-19 pandemic even if the probability of bed utilisation is low, according to findings of a study published in *Applied Health Economics and Health Policy*.

A decision model populated with data including age-specific death rates, ICU costs and outcomes, and the herd protection threshold, was used to evaluate the cost effectiveness and net monetary benefit (NMB) of provision of additional ICU bed capacity for COVID-19 cases versus no intervention, from a German societal perspective over a lifetime time horizon. The NMB was calculated based upon the willingness to pay (WTP) for an additional life-year gained (LYG) for innovative cancer drugs, assuming that cancer had a similar end-of-life disease burden.

Assuming full ICU bed utilisation, the estimated marginal cost-effectiveness ratio (MCER) for the last bed added to the existing ICU bed capacity was €21 958* per LYG, and the return on investment (ROI) was 4.6. The NMB decreased with additional ICU expansion but remained positive for bed utilisation rates as low as 2%. Sensitivity analysis found that mortality rates in the ICU and after discharge had the greatest impact on the MCER.

Expansion of staffed ICU bed capacity by another 10 000 beds (102% of the available 9765 bed capacity in Germany in October 2020) was projected to increase societal costs by €50 billion.

"Further extending the existing ICU bed capacity seems acceptable based on the MCER but also from a budgetary perspective. That is, extending capacity by more than 100% is forecast to result in a one-time increase in healthcare expenditure of 13%, which amounts to 1.5% of the gross domestic product in Germany . . . It is reassuring that even a vacancy rate of 98% still allows for a positive return due to the low share of infrastructure costs," said the author.

* 2020 euros

Gandjour A. How Many Intensive Care Beds are Justifiable for Hospital Pandemic Preparedness? A Cost-effectiveness Analysis for COVID-19 in Germany. Applied Health Economics and Health Policy : 12 Jan 2021. Available from: URL: https://doi.org/10.1007/s40258-020-00632-2
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