

COVID-19 critical care bed modelling study: Potential shortage in Canada

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A national modelling paper predicting the number of available ICU beds across Canada during the COVID-19 pandemic suggests that self-isolation will likely not be enough to keep demand from exceeding

supply. It is published in *CMAJ (Canadian Medical Association Journal)*.

Researchers modelled several scenarios:

- Without self-isolation of mild cases, each province would need an average of 569 ICU bed days per 10,000 people, and the infection peak would occur in mid-June.
- If 20% of people with mild symptoms and 80% of people with severe illness self-isolate within 24 hours of symptom onset, ICU bed utilization would decrease 23.6% to 435 bed days per 10,000 population.
- If 40% of people with [mild symptoms](#) self-isolate, overall ICU bed days would decrease to 264, and the outbreak peak would be delayed by up to 8 weeks.
- The authors project that at the outbreak's peak, the need for ICU beds per 10,000 population could be 2.6 times higher than the number of available beds.

"Our results show that higher rates of self-isolation are needed to mitigate the increased strain on the health care systems at the provincial level," writes Dr. Joanne Langley, Canadian Centre for Vaccinology, Dalhousie University and IWK Health Centre, Halifax, Nova Scotia, with coauthors. "Should resources allow for an increase in COVID-19 testing, a higher fraction of mildly symptomatic cases would be identified, which could lead to a higher percentage of the population practising self-isolation. If infection confers immunity, a testing strategy could also permit recovered people to return to normal activity."

The number of ICU beds in each province ranged from 0.63 to 1.85 per 10,000 people in the model.

"If the scenarios we describe are true, health care planning will move to crisis management in Canada, but at different times across the country,"

write the authors. "This may allow some redistribution of human or material resources across jurisdictions. While provinces and territories ramp up capacity for more ICU beds (human resources, ventilators, beds, [personal protective equipment](#), infection prevention and control support), these estimates can inform the timing and quantity of the expected need."

More information: Affan Shoukat et al. Projecting demand for critical care beds during COVID-19 outbreaks in Canada. *CMAJ* 2020. DOI: [10.1503/cmaj.200457](https://doi.org/10.1503/cmaj.200457); early-released April 8, 2020

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