



# CIHI's Health System Capacity Planning Tool

Building on previous work and experience in forecasting demand for health system capacity, the Canadian Institute for Health Information (CIHI) has developed the interactive Excel-based Health System Capacity Planning Tool. The tool is designed to allow decision-makers to create their own scenarios to understand expected health resource demands and supply shortfalls related to the COVID-19 pandemic.

## Overview of the planning tool

The tool's foundation is a deterministic SEIR model that separates the population into susceptible, exposed, infected and recovered compartments, and then models the spread of the disease and the movement of the population among the compartments.

It predicts the number of new daily COVID-19 cases, the number of individuals requiring treatment in critical care and non-critical care beds with or without a ventilator, and the demand for health care resources and personal protective equipment required to treat these individuals.

The tool outputs information in tabular and graph formats on the duration and peak of the epidemic wave, potential demand for each resource, the potential time when capacity will be reached, the gap between capacity and demand, the short-term projection of demand and other parameters.

By adjusting the input parameters, users can perform sensitivity analyses by creating different scenarios of disease progression and examining the impact on expected resource demand.

## Forward direction

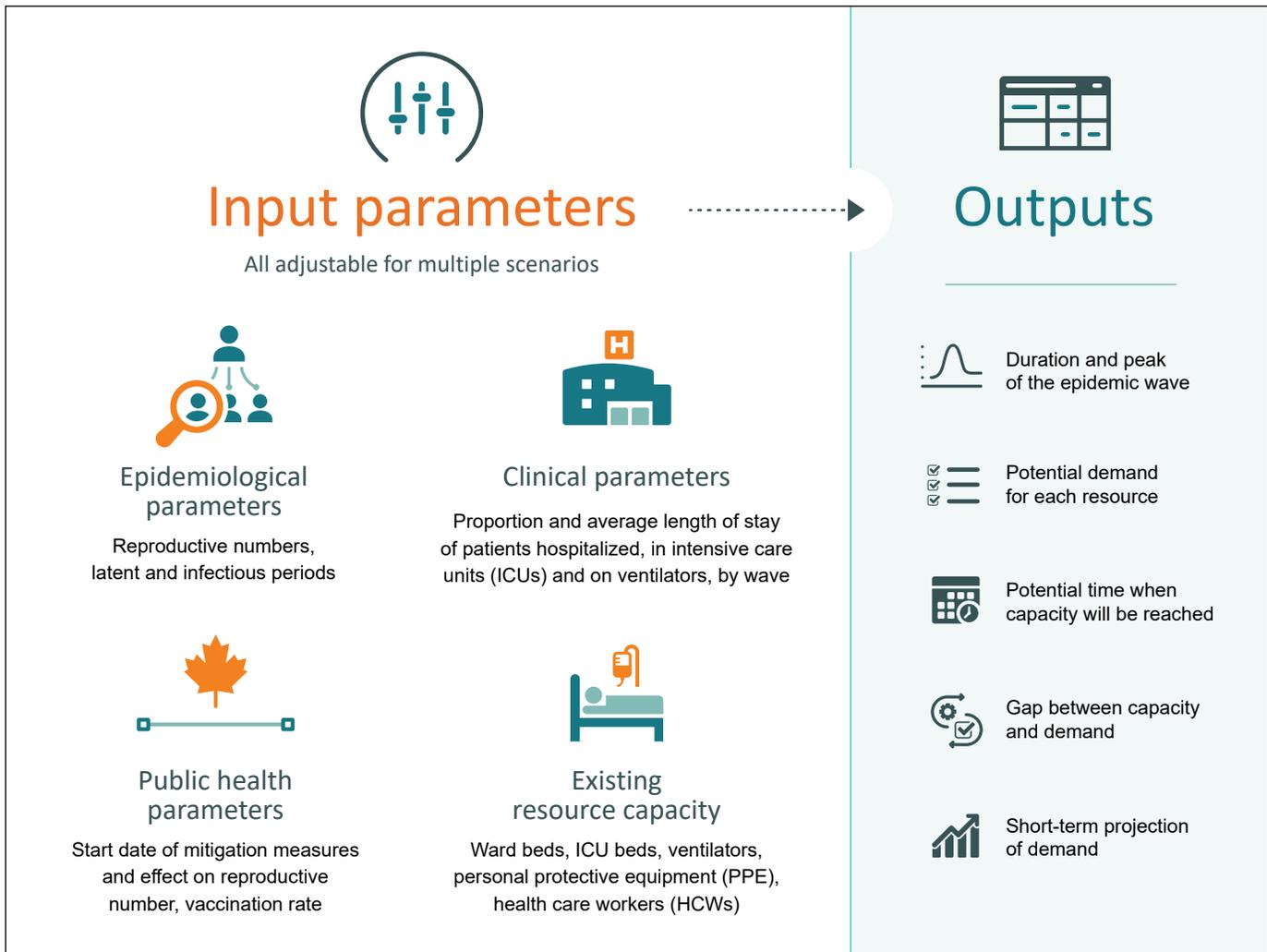
CIHI is continuing to enhance the tool and calibrate it to reflect the most recent developments in disease progression and resource demands. We value your feedback, which will help us improve the tool.

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# Using the planning tool

The tool is available to provinces and territories, health regions and hospitals to support health system planning in response to COVID-19 and to inform decisions about planning for future waves of the disease. CIHI also provides support to users by helping them apply the tool. Providing the tool and client support is part of CIHI's ongoing efforts to build capacity to use health system data.



## Appendix

### Text alternative for image

#### Inputs and outputs of the Health System Capacity Planning Tool

**Input parameters:** The tool has different types of parameters (epidemiological, public health, clinical and existing resource capacity) that users can input or adjust to compare different scenarios. Epidemiological parameters include the reproductive numbers, the latent period and the infectious period. Public health parameters include the dates on which different mitigation measures were implemented and their effect on the reproductive number, as well as vaccination rates. Clinical parameters include the proportion and average length of stay of COVID-19 patients in hospital, in the intensive care unit (ICU) and on ventilators during different waves of the pandemic. Existing resource capacity parameters include the number of ward beds, ICU beds and ventilators available, as well as information about personal protective equipment and health care workers.

**Outputs:** Once the epidemiological, public health, clinical and existing resource capacity parameters have been inputted, the tool outputs information such as the duration and peak of the epidemic wave, the potential demand for each resource, the potential time when capacity will be reached, the gap between capacity and demand, and the short-term projection of demand.

## About CIHI

CIHI provides comparable and actionable data and information that are used to accelerate improvements in health care, health system performance and population health across Canada. For more information on how CIHI's Health System Capacity Planning Tool can be used in your jurisdiction or organization, email [help@cihi.ca](mailto:help@cihi.ca).



**For data-specific information:**  
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