



CIHI  
Snapshot  
April 2020

# COVID-19 Major Comorbidity Count Algorithm for Home Care Clients

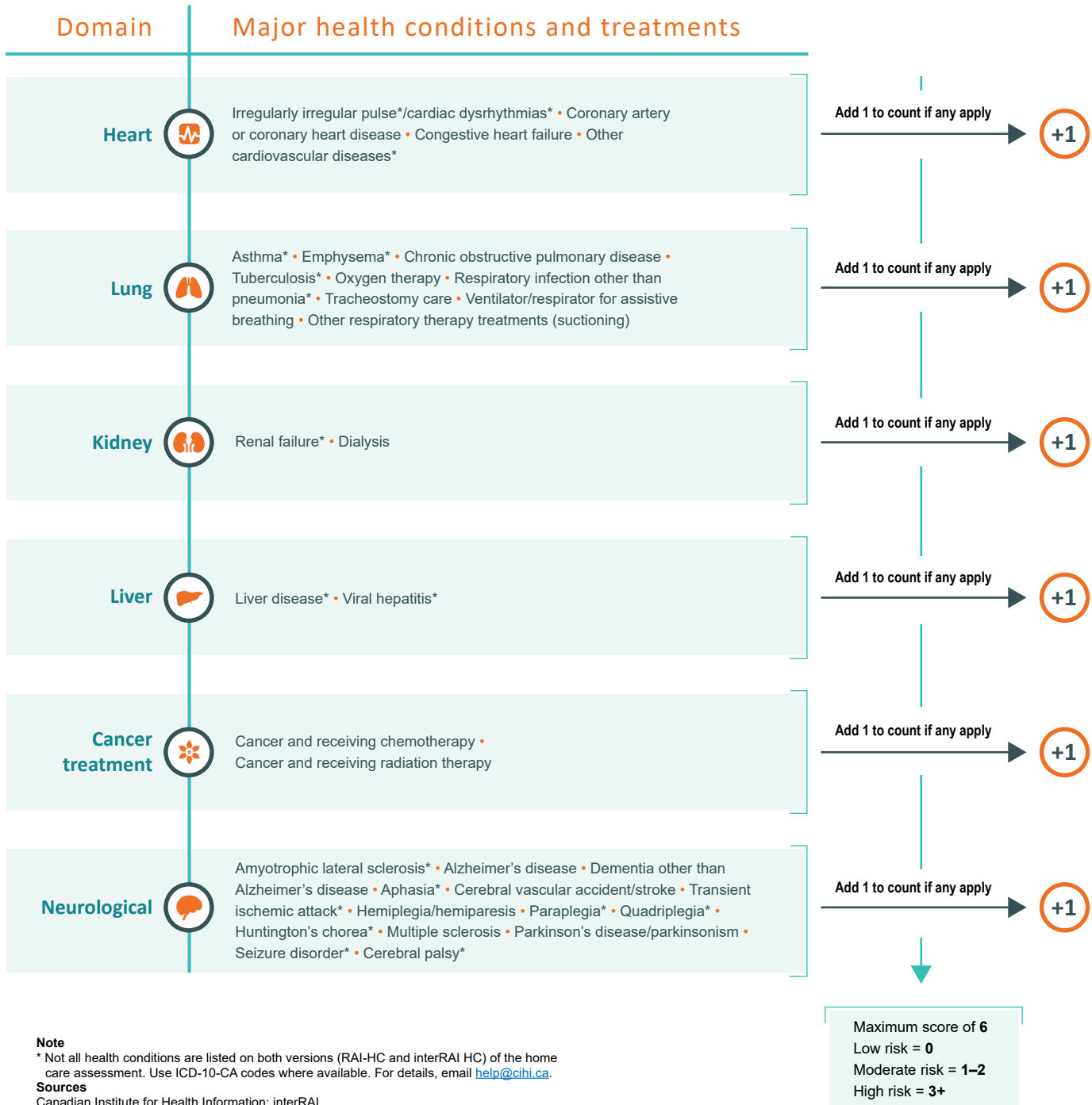
## About the algorithm

In March 2020, [interRAI](#) Canada, in collaboration with the Canadian Institute for Health Information ([CIHI](#)), embarked on an initiative to develop an algorithm to identify home care clients who may be at increased risk of mortality should they contract coronavirus disease (COVID-19). The algorithm was developed by a multidisciplinary group including researchers and clinicians, and guided by the current literature on COVID-19. A version for long-term care residents is also available.

The COVID-19 Major Comorbidity Count Algorithm — Home Care Clients (Figure 1) is to be applied to data from interRAI's home care assessments (Resident Assessment Instrument–Home Care ©, or RAI-HC, and interRAI Home Care ©, or interRAI HC). The algorithm focuses on pre-existing health conditions and diagnoses that the World Health Organization, Centers for Disease Control and Prevention, and other health organizations have identified as putting people at increased risk of mortality due to COVID-19.

When developing the algorithm, each major health condition and treatment was tested individually for its association with mortality. A model was created that combined the appropriate conditions and treatments to predict mortality. Sensitivity analysis confirmed that the algorithm was relevant for multiple subpopulations, including those with pneumonia — a potential health condition proxy for COVID-19.

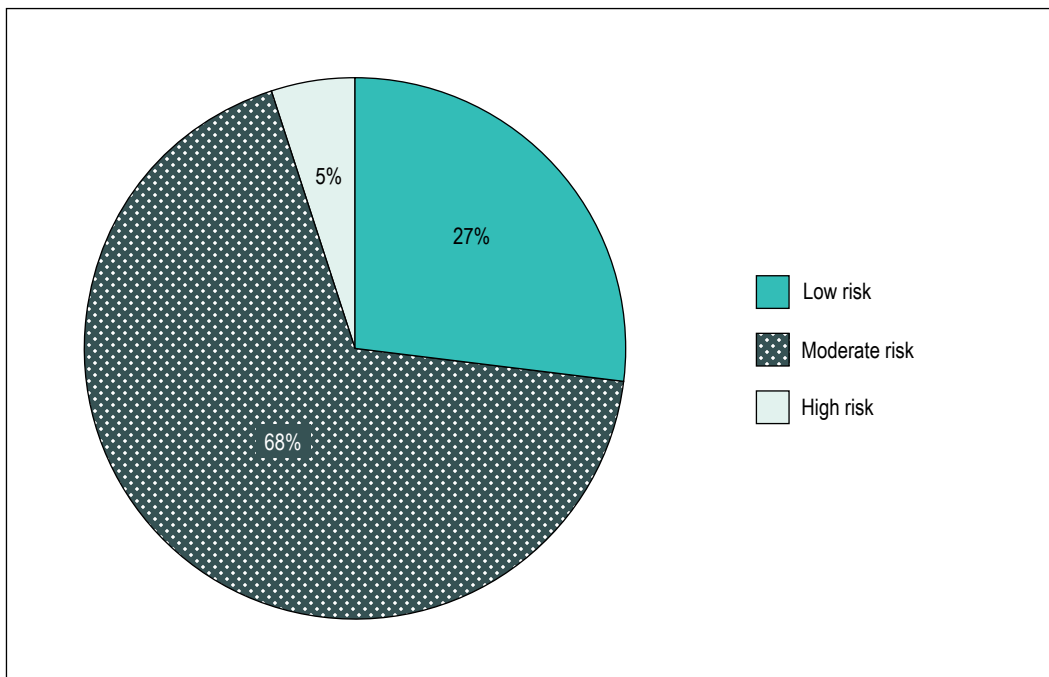
**Figure 1** COVID-19 Major Comorbidity Count Algorithm — Home Care Clients



## Results for home care populations

Figure 2 shows the distribution of risk levels for home care clients using the COVID-19 Major Comorbidity Count Algorithm. The majority (68%) of clients fall within the moderate risk group. About 5% (approximately 12,700) of long-term home care clients in Canada are identified as being at high risk of mortality from COVID-19. These results do not represent all home care clients in Canada (see notes below Figure 2).

**Figure 2** Levels of risk of mortality due to COVID-19 for home care clients, Canada, 2019

**Notes**

Data is based on the latest assessment in the 2019 calendar year.

Excludes hospital inpatients, shorter-term home care clients and clients not assessed by interRAI home care assessments.

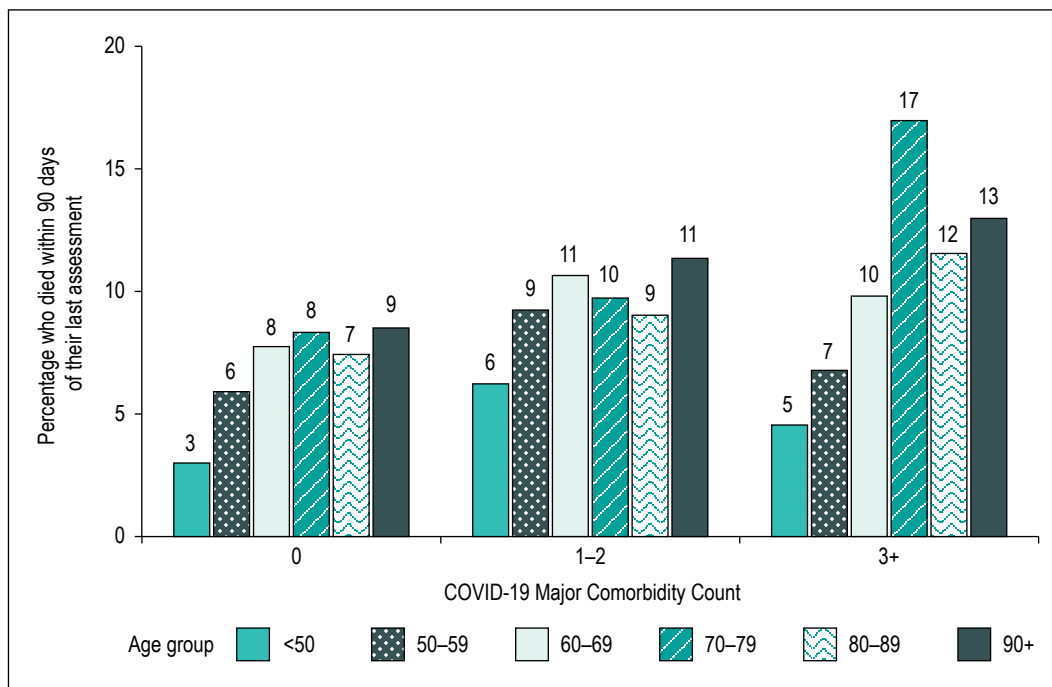
**Sources**

Home Care Reporting System, Canadian Institute for Health Information; Ontario Health.

Figure 3 shows the overall 90-day mortality rates for 2018 among persons with pneumonia in home care settings, by age and algorithm category. Pneumonia was used as a proxy for COVID-19 in the algorithm due to the prominence of respiratory symptoms associated with COVID-19. The figure shows that when the COVID-19 Major Comorbidity Count Algorithm is applied to historical data for long-term home care clients, mortality rates among clients age 70 and older rise as the algorithm risk level increases.

This information is intended to help identify home care clients who are at particularly high risk of mortality due to COVID-19.

**Figure 3** Overall 90-day mortality rates among home care clients with pneumonia, by age and algorithm category, Canada, 2018



**Note**  
Data is based on the latest assessment in the 2018 calendar year.

**Source**  
Home Care Reporting System, Canadian Institute for Health Information.

# How to use the algorithm

The COVID-19 Major Comorbidity Count Algorithm can be used to identify home care clients who may be at increased risk of mortality due to COVID-19, with information already available from their most recent RAI-HC or interRAI HC assessment. This identification may support advanced care planning, resource allocation and system planning. Other interRAI outputs, such as the Method for Assigning Priority Levels (MAPLe), are also available to help inform decision-making.

## For more information

For questions or to request detailed specifications for the COVID-19 Major Comorbidity Count Algorithm — Home Care Clients, email [help@cihi.ca](mailto:help@cihi.ca). Specifications are available for the RAI-HC, interRAI HC, Resident Assessment Instrument–Minimum Data Set 2.0 © (RAI-MDS 2.0) and interRAI Long-Term Care Facilities © (interRAI LTCF).

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