

COVID-19 Individual Risk Severity Evaluation Tool

METADATA	
Tool Description	The COVID-19 Individual Risk Severity Evaluation Tool provides Albertans with a mechanism to assess their level of risk for severity (hospitalization and/or death) from COVID-19. Based on the chosen criteria such as age, sex, and pre-existing health conditions, a risk category of low, moderate, or high will be given. Public health guidelines are accompanied with the risk assessment
Method	<p>The COVID-19 Individual Risk severity Evaluation tool is based on a logistic regression analysis using severity as the outcome and uses existing literature.</p> <p>A rank-based method was used to obtain the probability threshold for moderate and high risk. The overall percentile for moderate and high risk is assumed to not exceed two times the actual risk of COVID-19 hospitalization and/or death from Alberta data.</p>
Data Sources	<ul style="list-style-type: none"> - Chronic disease registry (source files: Alberta Health Care Insurance Plan (AHCIP) Physician Claims Data, Ambulatory Care Database, Alberta Hospital Discharge Abstract File) - COVID-19 case and demographic information (source files: Provincial Surveillance Information (PSI), Communicable Disease Outbreak Management (CDOM), and Communicable Disease Reporting System (CDRS)) - Alberta Cancer Registry

INDICATOR, DEFINITIONS, AND ASSOCIATED MEASURES		
Indicator	Definition	Associated Measures
High	Percentile ≥ 94 or age ≥ 70	High Risk Public Health COVID-19 Guidelines
Moderate	$88 \leq$ Percentile < 94	Moderate Risk Public Health COVID-19 Guidelines
Low	Percentile < 88	Low Risk Public Health COVID-19 Guidelines

PREDICTORS

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Predictor	Description/Data Sources/Notes	Valid Values
Age	N/A	<50 years old 50-59 years old, 60-69 years old, 70-79 years old, ≥80 years old
Biological Sex	People with XY (male) chromosomes have been associated with increased severity, but its mechanism is currently unknown	Male Female
Chronic Liver Disease	Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see Liver Cirrhosis in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/)	Yes/No (Checkbox)
Diabetes	Includes both Type 1 and Type 2 Diabetes. Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see Diabetes in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/)	Yes/No (Checkbox)
Cardio-vascular disease	Includes ischemic heart disease, congestive heart failure, and/or atrial fibrillation Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see these sections in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/)	Yes/No (Checkbox)
Chronic Obstructive Pulmonary Disease (COPD)	Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see COPD in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/)	Yes/No (Checkbox)

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Immune-Deficiency Diseases	<p>Obtained from CDOM.</p> <p>Includes conditions but not limited to: lupus, asplenia, rheumatoid arthritis, corticosteroids, or other immunosuppressive therapy, immunodeficiency diseases (e.g. T or B cell deficiency), and transplant (e.g. organ/stem cell) recipients</p>	Yes/No (Checkbox)
Chronic Renal Disease	<p>Includes chronic kidney disease and/or end stage renal disease</p> <p>Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see <u>End Stage Renal Disease</u> in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/).</p> <p><u>Chronic Kidney disease:</u></p> <p>One inpatient or 2 physician records within two years (ICD9: 583*, 584*, 585*, 586*, 592*, 593.9 & ICD10: 583*, 584*, 585*, 586*, 592*, 593.9)</p>	Yes/No (Checkbox)
Cancer	<p>Obtained from the Cancer Registry.</p> <p>Includes: ICD10: C00-C99 (malignant cancers) and excludes C44 and C4A (non-melanoma skin cancer)</p>	Yes/No (Checkbox)
Dementia	<p>Obtained from the chronic disease registry and CDOM. For more information for chronic disease registry definitions, see <u>Dementia</u> in the chronic disease section of the IHDA (http://www.ahw.gov.ab.ca/IHDA_Retrieval/)</p>	Yes/No (Checkbox)

DATA LIMITATIONS



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There is potential for misclassification since the predictive ability of the logistic model is not 100%. However, careful measures were made to align predictions with literature to ensure that the risk was assigned appropriately.

Literature and data analysis will be revisited at regular intervals to ensure the tool remains relevant to current findings and literature. Adjustment of the tool will be made every 3 months or if new predictors emerge, current predictors are no longer significant, actual hospitalization and death rates change significantly, and/or model estimates change by more than 15%, whichever comes first.