



# COVID-19 Resources

## Analytics, Predictive Models, Research Studies

Examples of COVID-related Analytics, Predictive Models and Research Studies and the Jurisdiction/  
Population-wide Data Being Used<sup>1</sup>

	Type of Analysis/Model/Study	Main Data/Datasets	Jurisdiction(s)/ Organization(s)
1	Health System Capacity Planning Tool to support decision-makers in understanding expected health resource demands and supply shortfalls related to the COVID-19 pandemic. See <a href="#">Information Sheet</a> on CIHI's <a href="#">COVID-19 page</a>	SEIR model as the foundation, utilizing publicly available COVID case information	CIHI
2	COVID-19 predictive modelling, multiple studies active/being initiated, including using of machine learning for modelling	COVID-19 test results positive and negative, age, sex, location, hospital admissions, deaths	NL, ON, AB, MB <sup>2</sup>
3	Relationship between COVID-19 test results and outcomes for patients with comorbidities; multiple studies are active/being initiated including cardiovascular related diagnoses (e.g., HF, AMI, AFib, other arrhythmias, chronic IHD), chronic kidney disease, neurodegenerative diseases, cancer and other conditions	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data, cancer diagnosis and associated treatment databases	AB, ON
4	Investigating the potential association between medications and adverse COVID-19 outcomes; multiple studies are active/being initiated including studies of the effect of angiotensin converting enzyme inhibitors (ACE) inhibitors, angiotensin II receptor blockers (ARBs), statins, NSAIDs/anti-inflammatories, hydroxychloroquine, and associations between drug exposure and coronavirus detection	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	AB, ON, MB

<sup>1</sup>The examples provided here do not constitute a complete list of all work in Canada. These are the analyses, predictive models and research studies that are known to HDRN Canada organizations as of the date of this briefing note, generally because they make use of population-wide health and health-related datasets held by HDRN Canada organizations. Please contact [info@hdrn.ca](mailto:info@hdrn.ca) if you would like to add to this list, or if your jurisdiction is interested in performing similar work or collaborating to expand the number of provinces/territories involved in an analysis/model/study

<sup>2</sup>It is likely that most other provinces and territories are also undertaking modeling that does not involve data held by HDRN Canada organizations



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5	Relationship between COVID-19 test results and health resource use (e.g., hospitalization, ICU admission, long term care (LTC) and primary care) and association with outcomes during current and prior pandemics for specific diseases (e.g., cancer)	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data, cancer diagnosis and associated treatment databases	AB, ON, MB
6	Analyses of who is being tested for COVID-19 terms of demographics, geography, comorbidities, live at home or in LTC, SES, and other factors	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	ON, AB, MB
7	Study examining blood-type and association with coronavirus and SARS like illness	Laboratory data, DAD, NACRS	ON
8	Study examining duration of viral shedding at confirmation of COVID infection	COVID-19 test results	ON
9	Analyses of the effect of COVID-19 on elective procedures	DAD, NACRS, physician and other practitioner billing, vital statistics	ON, AB, MB
10	Analysis of the effect of COVID-19 on wait times (first study is on cardiac wait times)	DAD, NACRS, physician and other practitioner billing, vital statistics	ON
11	Using prior influenza work to assess utility of OLIS lab test results data for studying respiratory virus epidemiology	DAD, NACRS, physician and other practitioner billing, vital statistics, Rx drug data, OLIS data as possible complement or substitute for other respiratory virus laboratory data	ON
12	Prevalence of COVID-19 comorbidity risk factors by age group	DAD, NACRS, physician and other practitioner billing, vital statistics	ON, AB
13	Analyses related to ICU capacity; multiple studies are active/being initiated including, ICU admissions, most common elective diagnoses/procedures and demographic factors resulting in ICU admission, # of ventilators)	DAD, NACRS, physician and other practitioner billing, vital statistics	NL, ON
14	Analyses related to hospital capacity (e.g., ED usage, hospitalizations, admissions from LTC, most common elective diagnoses/procedures resulting hospital admission)	DAD, NACRS, physician and other practitioner billing, vital statistics	ON, AB
15.	Analysis of admissions for vascular events and medication adherence during COVID-19	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	ON
16.	Analyses related to impact of pandemic on quality of care for cardiovascular patients, including use of tools to reduce mortality and unplanned harm	Cardiac procedures data, COVID-19 test results, DAD, physician and other practitioner billing, vital statistics, available Rx drug data	ON, AB



	Type of Analysis/Model/Study	Main Data/Datasets	Jurisdiction(s)/ Organization(s)
17.	Analyses of association between surgeries and infection rates and outcomes pre/post pandemic	Cancer diagnosis and associated treatment databases, COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	ON
18.	Impact of pandemic on economic activity in health-care sector	DAD, NACRS, OHIP	ON
19.	COVID-19 impact on vulnerable populations	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	ON
20.	COVID-19 during peripartum period and infant health	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics	ON
21	Analysis of impact of COVID-19 on specific age groups	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics, available Rx drug data	ON
22	Socioeconomic characteristics and outcomes of those with laboratory-confirmed cases of COVID-19.	COVID-19 test results, DAD, NACRS, physician and other practitioner billing, vital statistics	ON
23	COVID-19 impact on family physician virtual visits	DAD, NACRS, physician and other practitioner billing, physician reporting databases, vital statistics	ON