

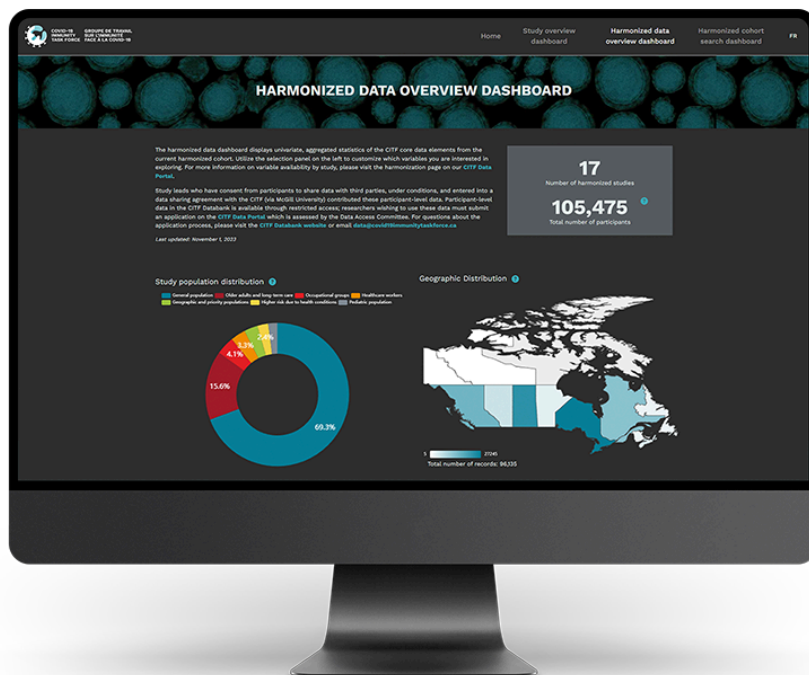


**COVID-19 IMMUNITY  
TASK FORCE**

# Spotlight on **CITF-FUNDED RESEARCH**



## CITF Announcements



## **CITF Databank: new interactive Dashboard features allow customized COVID-19 data search**

CITF recently launched two new pages on its Databank Dashboard: the Harmonized Data Overview, and the Harmonized Cohort Search Dashboard.

Both pages offer interactive and customizable features to help researchers access data whether it's information on how to use the harmonized datasets or a specific research question to assess the feasibility of using CITF harmonized datasets as a source. With individual-level data from more than 100,000 participants in the harmonized cohort, the Databank is a valuable tool for researchers everywhere.

[Read more](#)



## CITF-Funded Research Results

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### **Antibody responses to circulating strains provide the greatest protection against SARS-CoV-2 infection**

A CITF-supported study, published in *Vaccines*, suggested that higher antibody levels do not guarantee protection against COVID-19. Levels of antibodies to the original strain are not a reliable indicator to determine the need for or timing of booster doses. Having received a bivalent vaccine (combining the original and Omicron strains) was associated with lack of a breakthrough infection during the Omicron BA.4/5 waves of the pandemic. Hybrid immunity (vaccine-induced and infection-acquired immunity) was also associated with protection from further infections.

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### **SARS-CoV-2 antibodies present in human milk did not consistently predict live virus neutralization**

A CITF-funded study, published in *The American Journal of Clinical Nutrition*, reported that SARS-CoV-2 infection and vaccination affected the antibodies found in human milk. This held despite the type of variant causing the infection and the vaccine dose interval. However, the presence of antibodies

in maternal milk did not consistently predict live virus neutralization in the baby. Although human milk is unequivocally the best way to nourish infants, on its own it may not protect infants from SARS-CoV-2 infection. Guidance on protection for infants through human milk feeding after maternal infection/vaccination may require more nuanced messaging.

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## **People with rheumatoid arthritis on immunomodulatory drugs mount weaker immune responses after COVID-19 vaccination**

A CITF-supported study, published in *Scientific Reports*, found that participants with rheumatoid arthritis (RA) on immunomodulatory drugs mounted diminished immune responses to SARS-CoV-2 vaccination. Different drug classes had impacts on the cellular and humoral compartments. The study looked at key elements of COVID-19 vaccine-induced protection -- antibodies, CD4+ T cells, and CD8+ T cells -- to determine if these are affected equally or in different ways by immunomodulatory drugs.

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## **Advances in treatment strategies during the pandemic created health system efficiencies without compromising patient outcomes**

A CITF-funded study, published in the *Canadian Journal of Emergency Medicine*, found that substantially fewer patients were admitted to critical care and put on mechanical ventilation in the second wave of the pandemic than in the first - with no negative impact on mortality. This is after adjusting for differences in patient characteristics and disease severity. The study offers real-world evidence that adjustments in medical practice during the second pandemic wave were safe and associated with lower resource utilization, while maintaining positive outcomes for patients. Both waves involved the circulating wildtype SARS-CoV-2 strain.

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## **For smaller, rural communities operating wastewater lagoons, harvesting samples from upstream pumping stations improves COVID-19 wastewater surveillance**

A CITF-funded study, published in *Science of the Total Environment*, aimed to address the knowledge gap on the implementation of reliable wastewater-based surveillance (WBS) in small or rural communities to track the incidence of SARS-CoV-2 and other pathogens or biomarkers. The study found that for communities with wastewater lagoons, COVID-19 surveillance is best conducted upstream via sampling from a pumping station to reduce the risk of degradation of SARS-CoV-2 genetic material.

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## **A combination of multi-variate statistics and machine learning analysis presents a novel analytical pipeline to assess infection-acquired and vaccination-induced immunity**

A CITF-funded study, published as a preprint and not yet peer-reviewed, found intriguing relationships -- correlates of infection or protection -- from all the COVID-19 data the researchers collected. Advanced machine learning, a form of artificial intelligence that allows computers to adapt and draw inferences from data without explicitly being programmed to do so, facilitated the analyses. Most notably, the team found compelling evidence of a link between an individual's biological sex and ability to generate and maintain antibodies.

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## **Among non-vaccinated individuals, South Asians in Canada have an increased risk of SARS-CoV-2 infection, hospitalization, and death compared to non-South Asians**

A CITF-funded study, published as a preprint and not yet peer-reviewed, aimed to evaluate the effectiveness of COVID-19 vaccines among South Asians in Ontario compared to non-South Asians. The researchers also assessed the odds of symptomatic SARS-CoV-2 infections and related

hospitalizations and deaths among non-vaccinated South Asians and non-South Asians. They found that two doses of a COVID-19 vaccine (prior to the advent of booster doses) were effective in protecting South Asians. Unvaccinated South Asians were twice as likely to experience negative outcomes, compared to unvaccinated non-South Asians.

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## **Up-to-date vaccination is important even among those with past COVID-19**

A CITF-supported study, published in *medRxiv* and undergoing peer-review at *eLife Sciences*, highlighted that to maintain population-level immunity, up-to-date vaccination coverage is required, including among those recovering from SARS-CoV-2 infection. These results remain relevant to the current JN.1 viral wave that accounts for most of new infections.

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## **Healthcare workers used more mental health support as the pandemic progressed**

A CITF-funded study, published as a preprint and not yet peer-reviewed, found that healthcare workers (HCWs) reported increasing availability and use of mental health support as the pandemic progressed. However, one in four of those experiencing mental health problems, such as anxiety and particularly, depression, did not seek support.

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## **At least 47% of people experiencing homelessness in Toronto had a history of SARS-CoV-2 infection by early 2022**

In this study update presented as an infographic to the CITF, the research team reported the prevalence of SARS-CoV-2 infection at baseline, incidence of first SARS-CoV-2 infections by six months of follow-up, and the rate of vaccination among people experiencing homelessness in Toronto.

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