COVID-19 IMMUNITY TASK FORCE

Research Roundup

Your weekly review on COVID-related research

Spotlight on CITF-funded Research

Not all immune responses are created equal: antibody responses 3-5 months post-vaccination with Moderna or Pfizer in long-term care residents

In a recent CITF-funded study, not yet peer-reviewed, researchers from McMaster University Dr. Andrew Costa and Dr. Dawn Bowdish, in collaboration with the COVID in Long Term Care Study Group, examined immunity responses to COVID-19 vaccines in nursing home residents after two doses of Moderna or Pfizer-BioNTech vaccines. They found that most seniors elicited an initial antibody response and that Moderna offered a stronger antibody response than Pfizer.

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SARS-CoV-2 seroprevalence during the 1st and 2nd pandemic waves in Canada

In their CITF-funded research, in preprint and not yet peer reviewed, Dr. Prabhat Jha and his team leading the Action to Beat Coronavirus (Ab-C) study estimated cumulative seroprevalence of SARS-CoV-2 through infection

among unvaccinated adults rose from about 2% after the first wave to 7% after the second. The numbers were based on blood samples from almost 9,000 Canadians in May-September 2020 and from over 7,000 Canadians in January-March 2021.

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COVID-19 vaccination during pregnancy in Ontario – Report #2

In a study supported by the Vaccine Surveillance Reference Group (VSRG) and the CITF, Dr. Deshayne Fell and her team at the Better Outcomes Registry & Network (BORN) in Ontario are evaluating province-wide data on COVID-19 vaccination in pregnant individuals. In their second report, which includes results up to June 30, 2021, they found that 28% of the pregnant population in Ontario received at least one dose of a COVID-19 vaccine during pregnancy. Of those vaccinated, 34% received both doses during pregnancy, the majority of whom did not "mix-and-match" vaccine types.

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Cutting-edge technologies can be used to anticipate functional and clinical impact of new variants of SARS-CoV-2

In a recent review in *Clinical Proteomics*, Dr. Andrei Drabovich and his team from University of Alberta provide insights on the use of cutting-edge technologies to empower basic and clinical research on COVID-19. Most importantly, they describe how these methodologies can be used to detect existing and novel viral variants.

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Monitoring COVID-19 immunity in long-term care via sewage

Published recently in *BMJ Open*, Drs. Xiao-Li Pang, Bonita Lee and Christopher Sikora outline their CITF-funded study protocol for monitoring COVID-19 immunity using two very different channels: sewage and blood. The first arm of their study makes use of site-specific sewage sampling strategies that will enable early detection of SARS-CoV-2 outbreaks in long-term care facilities. A cost-benefit analysis will determine whether such strategies will preserve valuable healthcare resources and save money in the long run. The second arm of the study involves collecting blood from residents and staff to evaluate vaccine-induced immunity.

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Publications from our Experts

Duration of protection and effectiveness of a Quebec-developed vaccine against SARS-CoV-2

Along with colleagues, CITF Scientific Advisor Dr. Matthew Cheng and CITF-funded researcher Dr. Donald Vinh from McGill University and the RI-MUHC, have been studying the effectiveness and immunogenicity of the Made-in-Quebec, plant-based Medicago vaccine. In a pre-print, not yet peer-reviewed, they found 94% of participants had detectable antibodies against SARS-CoV-2 at six months post second dose. Twenty-one days after the second dose, neutralizing antibodies against the Alpha, Beta and Gamma variants were found in almost all participants.

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COVID-19 vaccine immunogenicity in people living with HIV-1

Studies have shown that immunocompromised individuals may mount attenuated antibody responses, compared to their otherwise healthy

counterparts. A new pre-print, therefore not yet peer-reviewed, by CITF-funded researcher Dr. Andrés Finzi and Dr. Cécile Tremblay, both from the University of Montréal, found that the immunogenicity of a single dose of the Moderna vaccine in people living with HIV depended on their CD4+ T cell count.

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International Research Review

Another tool to combat COVID-19: the Moderna vaccine is shown to be safe and efficacious among adolescents 12-17 years of age

In their recent publication in *The New England Journal of Medicine,* researchers Dr. Kashir Ali, Dr. Gary Berman and colleagues presented the interim results of the Moderna vaccine trial in adolescents aged 12 to 17. The authors highlighted the safety of the vaccine and the 93% efficacy shown in this phase 2-3 trial. If granted approval, this vaccine will be the second vaccine available to help combat COVID-19 among adolescents.

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A snapshot of the current landscape of COVID-19 vaccines

As the world – and Canada – deals with increasing case numbers due to variants, scientists from the Imperial College London provide a snapshot of emerging data on real-life efficacy of COVID-19 vaccines against variants. In this *Nature Reviews Immunology* article, they also discuss future considerations needed to overcome this pandemic.

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