UPDATES FROM THE ACTION TO BEAT CORONAVIRUS STUDY TEAM

Welcome to the first *Ab-C Newsletter*. Thank you for joining us on the Action to Beat Coronavirus—Ab-C—journey, unfolding in parallel with the coronavirus pandemic in Canada. Ab-C, a collaboration of the Centre for Global Health Research (CGHR) at Unity Health Toronto, the University of Toronto, and the Angus Reid Forum, will provide one of the earliest records in Canada of the spread of SARS CoV2—the virus that causes COVID. Online, we learned about you and about what symptoms were common and rare. The blood samples that you're sending us will be analyzed soon to look for antibodies—chemical memories of having had the infection any time since the pandemic began. Newsletters are planned every month, with Ab-C news as well as highlights from COVID research around the world. We hope you enjoy finding out about your fellow travelers, early results, and what to expect in the months to come.

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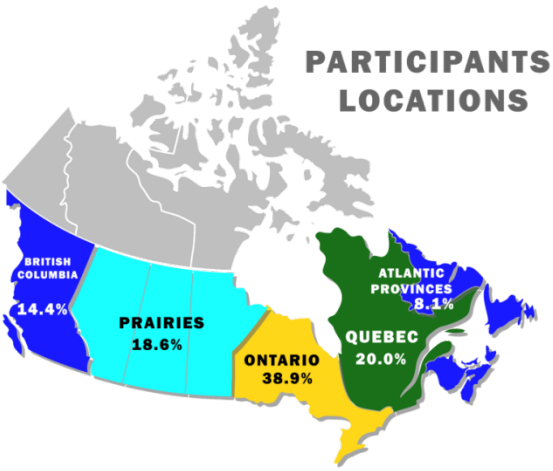
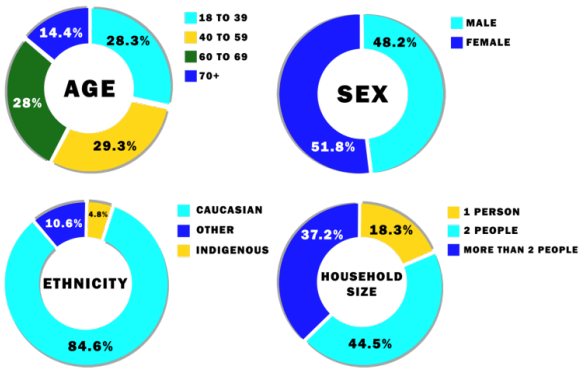
ANGUS REID ANGUS REID FORUM

DEMOGRAPHICS

PARTICIPANTS' LOCATIONS

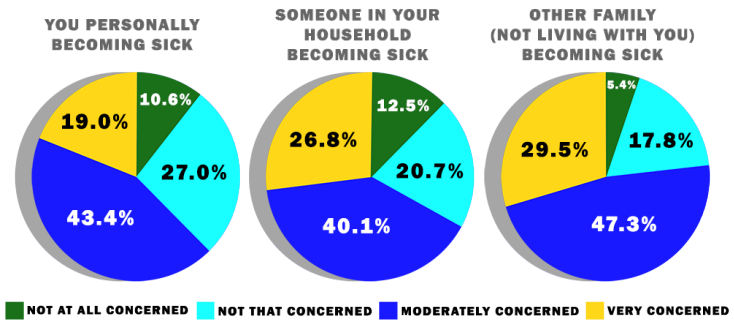


PARTICIPANT PROFILE

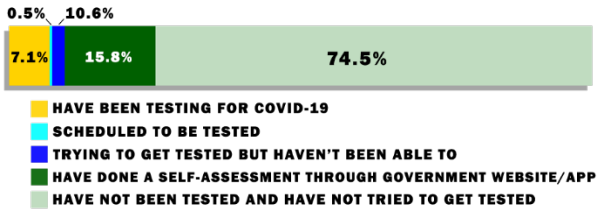


EARLY SURVEY FINDINGS

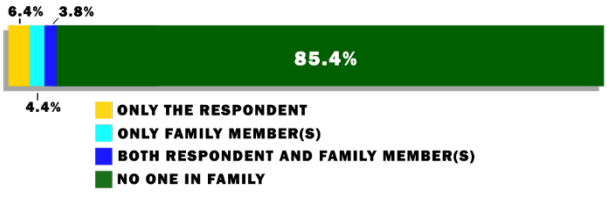
YOU ARE CONCERNED ABOUT...



YOUR COVID-19 TESTING EXPERIENCE



EXPERIENCED COVID-19 SYMPTOMS



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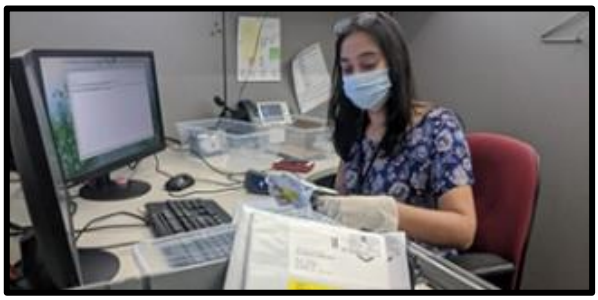
THE Ab-C STUDY

PHASE 1 Estimate the number of Canadian adults affected by the first wave of coronavirus, who they are, and how they are distributed across the country

PHASE 2 Look for changes in antibody levels the first few months after infection (which gives clues to immunity) AND possibly detect the leading edge of a second wave



1. Angus Reid approaches representative sample of 31,839 Forum members
2. 14,000 complete survey and 10,183 volunteer for at-home blood sample collection
3. Angus Reid team analyzes survey data
4. CGHR team assembles and mails out home blood collection kits
5. CGHR receives and stores dried blood spots - about 6,000 received so far
6. Dried blood spots delivered to laboratory for antibody testing
7. Test results reported to CGHR and participants notified of their own test results
8. Survey and test data correlated and reported in scientific publication and Canadian press.
9. Follow-up survey with additional blood samples - details under development

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TESTING

The Immunology Laboratory at Unity Health Toronto (St. Joseph's Health Centre) will conduct the Ab-C blood spot testing for COVID antibodies, under the direction of Division Head Dr. Maria Pasic. We expect testing to start in mid-August and be completed by the end of September.

Why the wait? When a new virus comes along, there are no tests readily available to detect it or the antibodies produced in response to it. Just as there are many competing tests to *diagnose* COVID, hundreds of laboratories and companies began developing tests to detect *antibodies* to COVID. Some front-runners have now emerged and we have selected one to analyze the first round of Ab-C blood samples.

The Ab-C Study will test initially for immunoglobulin G (IgG), the most common antibody, and then test for other antibodies among a subset of participants. IgG first appears a few weeks after infection and persists for at least a few months, making it the best choice for a single marker of recent infection.

Many factors went into the decision of which test to use, most importantly, accuracy. While we could have waited longer for a more perfect test, it's important to get the results soon, to help us understand the state of the pandemic in Canada—and to get individual results to participants sooner.

The next step for Dr. Pasic's lab is to install specialized equipment—including a precision machine to "hole punch" samples from the filter paper with the dried blood spots. The test must then be validated by testing it against known positive and negative samples before the Ab-C samples are tested. Using high-throughput analyzers, we expect 450-600 samples to be tested every day.

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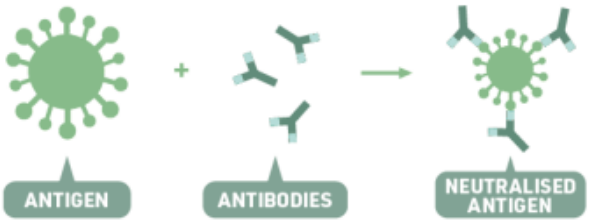
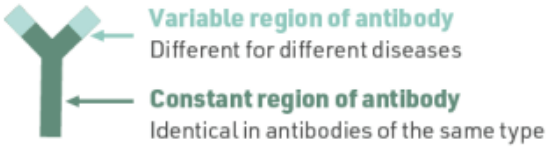
WHAT ANTIBODY TESTS TELL US

WHAT ARE ANTIBODIES?

Your body makes antibodies when it detects an infectious agent (an antigen). Antibodies neutralise and destroy antigens.





Once we've recovered from an infection, our immune cells "remember" the antigen. If we are reinfected, antibodies are rapidly made to remove it. This is immunity; it's life-long for some diseases and fades over time for others.

WHAT ANTIBODY TESTS TELL US

Antibody tests usually test for the presence of two different types of antibody: IgM and IgG. IgG is the most common antibody produced in the body in response to an infection.

IgM antibodies	IgG antibodies
Production starts 5–10 days after infection	Production starts 10–14 days after infection
Production peaks around 21 days after infection	Production peaks 4–8 weeks after infection
Remain detectable 2–4 months after infection	Remain detectable for months or years after infection

Antibody tests can tell us if someone has had an infection in the past.

ANTIBODY TEST RESULTS

IgM	IgG	Result
✗	✗	No infection*
✓	✗	Early-stage infection
✓	✓	Active/recent infection
✗	✓	Past infection

*Antibodies don't appear until someone has had an infection for several days, so this doesn't guarantee they're not infected.

Having antibodies against an antigen isn't a guarantee of immunity. Levels of antibodies and their effectiveness are also important.

Andy Brunning/Compound Interest 2020 –
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