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Disproportionate  
Rates of COVID-19  
among Black  
Canadian  
Communities:  
Lessons from the  
First Year of the  
Pandemic

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# The seroMARK project

Understanding COVID-19 immunity  
among Black Canadians


**SickKids**

**Dr. Upton Allen**



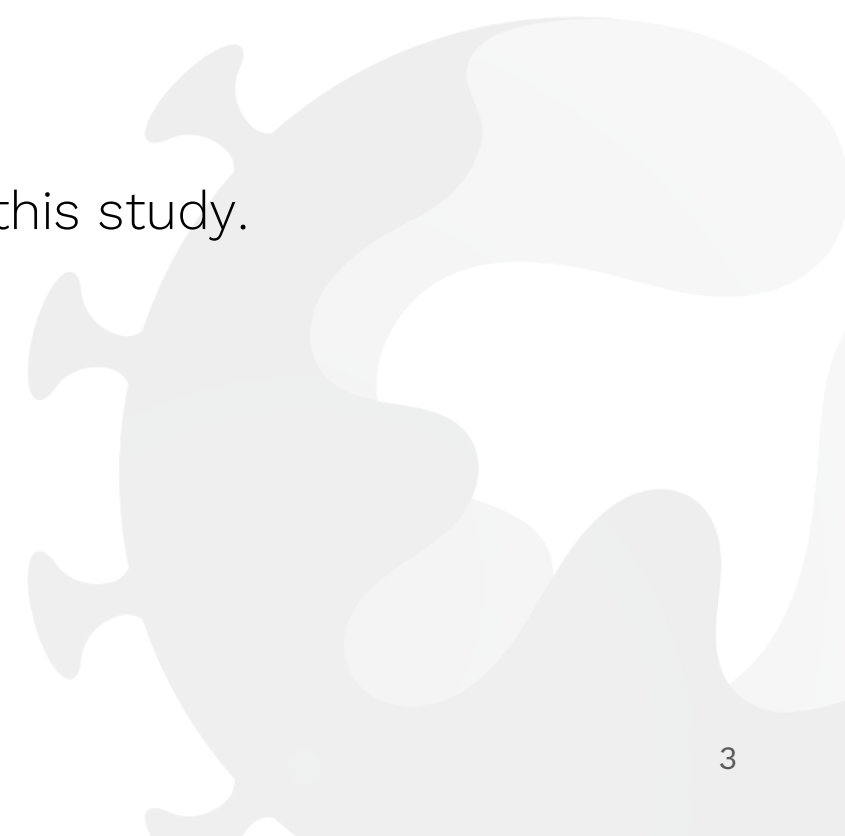


Upton Allen, Michelle Barton, Julia Upton, Annette Bailey, Aaron Campigotto, Mariana Abdulnoor, Jean-Philippe Julien, Jonathan Gubbay, Niranjana Kissoon, Alice Litosh, Peter Wong, Andrew Allen, Renee Bailey, Walter Byrne, Chantal Phillips, Alicia Polack, Cheryl Prescod, Arjumand Siddiqi, Kimberly Thompson, Sylvanus Thompson, Carl James, for the seroMARK Research Group.



# Disclaimer

I have no financial COIs to declare related to this study.



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## Objectives & Target Groups

1. Seroprevalence of SARS-CoV-2 among Black Canadians compared with other populations in Canada.
2. Relationship between seropositivity and presence of neutralizing antibodies.
3.
  - a. Risk factors for infection.
  - b. Sustainability of immune responses.

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## Hot Spots

- North West Quadrant of Greater Toronto Area.
- Areas of Toronto with > 10% Black residents.
- Other areas of Ontario with the highest representation of Black residents.
- Non-black residents within hot spots included.
- Focus on Black Canadians, but all groups included.

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## Immune Measures & Outcomes

- Seroprevalence data.
- Neutralization antibody assays.
- Risk factors for infection (medical, socioeconomic, demographic).
- Sustainability of immune responses.
- T cell memory at 12 and 18 months.

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## Community Engagement

- Community Advisory Group - 15 members with wide representation; chaired by community member.
- Feasibility study started
- Proposed Data Monitoring Advisory
- Knowledge Translation


**Building trust**


## Percentage of Black Residents in Study Locations

Location	Percentage Black
Toronto – Northwest Quadrant	29
Peel (Brampton)	14
Oakville	2.9
London	2.9



Period: August to December 2020  
Assay: SARS-CoV-2 IgG antibodies were determined using the  
EUROIMMUN assay.  
Department of Paediatric Laboratory Medicine, SickKids





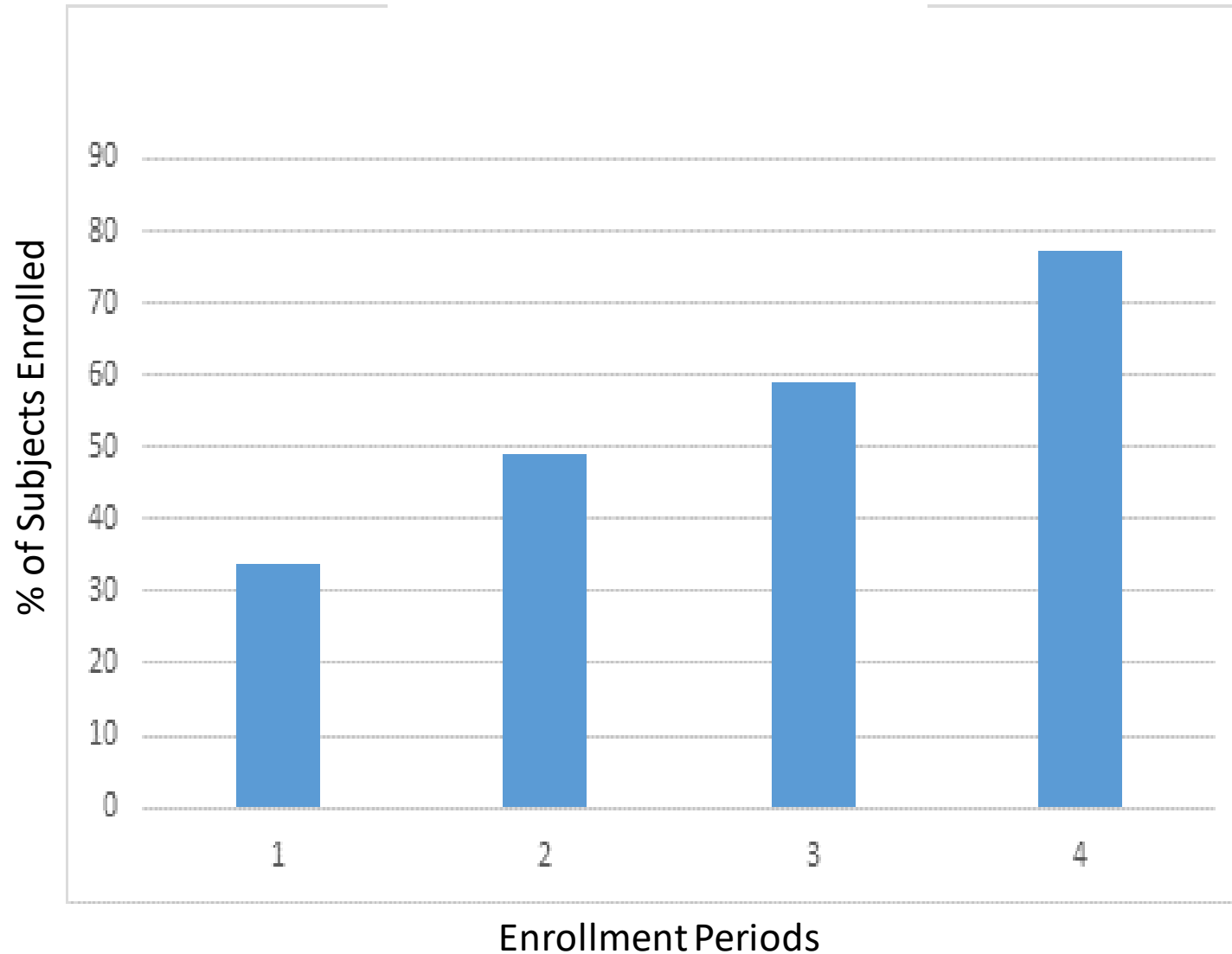
Periods 2 - 4: 2021 to 2022

Assay: SARS-CoV-2 IgG antibodies were determined using  
using automated ELISAs

Gingras Laboratory, Lunenfeld Tanenbaum Research Institute,  
Mount Sinai Hospital



# Building Trust: Percentage of Blacks Enrolled in African Canadian COVID-19 Immunity Project in Relation to Sampling Visits Over Time (Feasibility Component)





**Descriptive  
Characteristics of Study  
Participants**

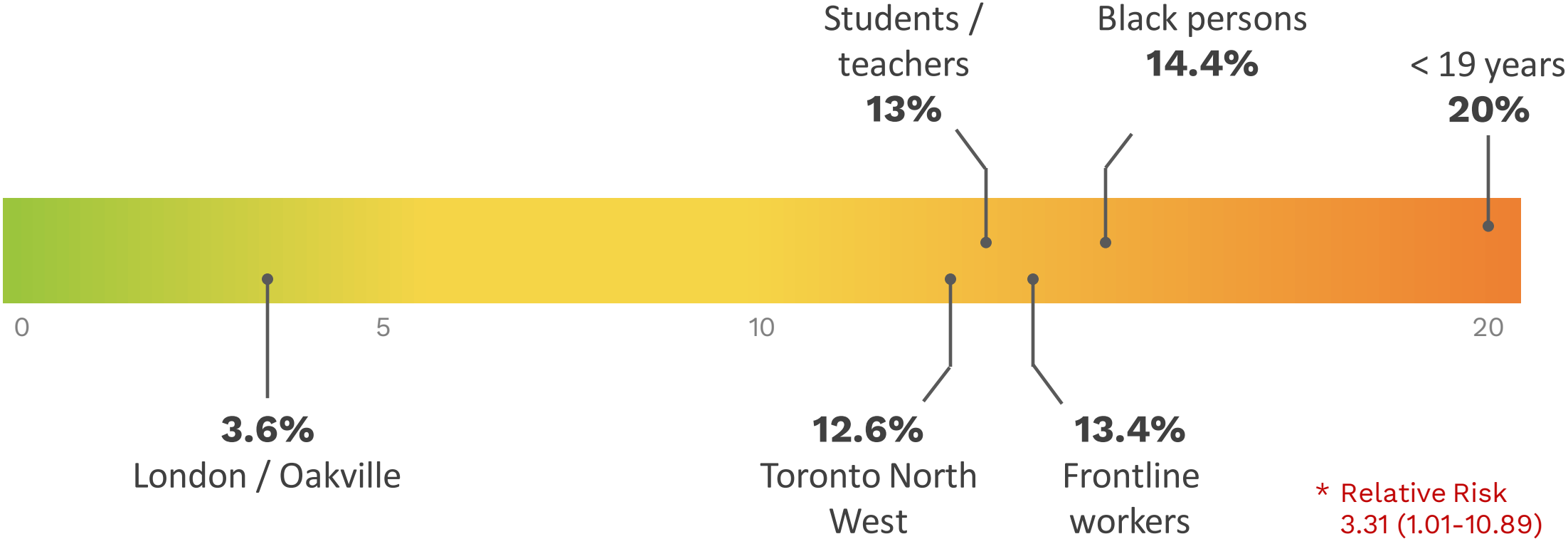
<b>Participants</b>	<b>N</b>	<b>Percentages</b>
<b>Total</b>	387	100
<b>London</b>	51	13.2
<b>Oakville</b>	60	15.5
<b>Peel</b>	67	17.3
<b>GTA Northwest</b>	206	53.2
<b>Other</b>	3	0.8
<b>Gender</b>		
<b>Males</b>	162	41.9
<b>Females</b>	221	57.1
<b>Prefer not to answer / Other</b>	4	1.0

**Descriptive  
Characteristics  
of Study Participants**

<b>Race/ethnicity</b>	<b>N</b>	<b>Percentages</b>
<b>African Canadian</b>	255	65.9
<b>Non-African Canadian</b>	131	33.9
<b>White</b>	59	15.2
<b>South Asian</b>	20	5.2
<b>East Asian</b>	17	4.4
<b>Hispanic</b>	24	6.2
<b>Middle East</b>	4	1.0
<b>Other</b>	7	1.8
<b>Age groups (yrs)</b>		
<b>&lt; 19</b>	50	12.9
<b>19-30</b>	62	16.0
<b>31-65</b>	224	57.9
<b>&gt; 65</b>	45	11.6
<b>Not available</b>	6	1.6

Unknown race/ethnicity = 1

# Ontarians in COVID-19 “hot zones” over 3X more likely to have infection-acquired antibodies in Year 1

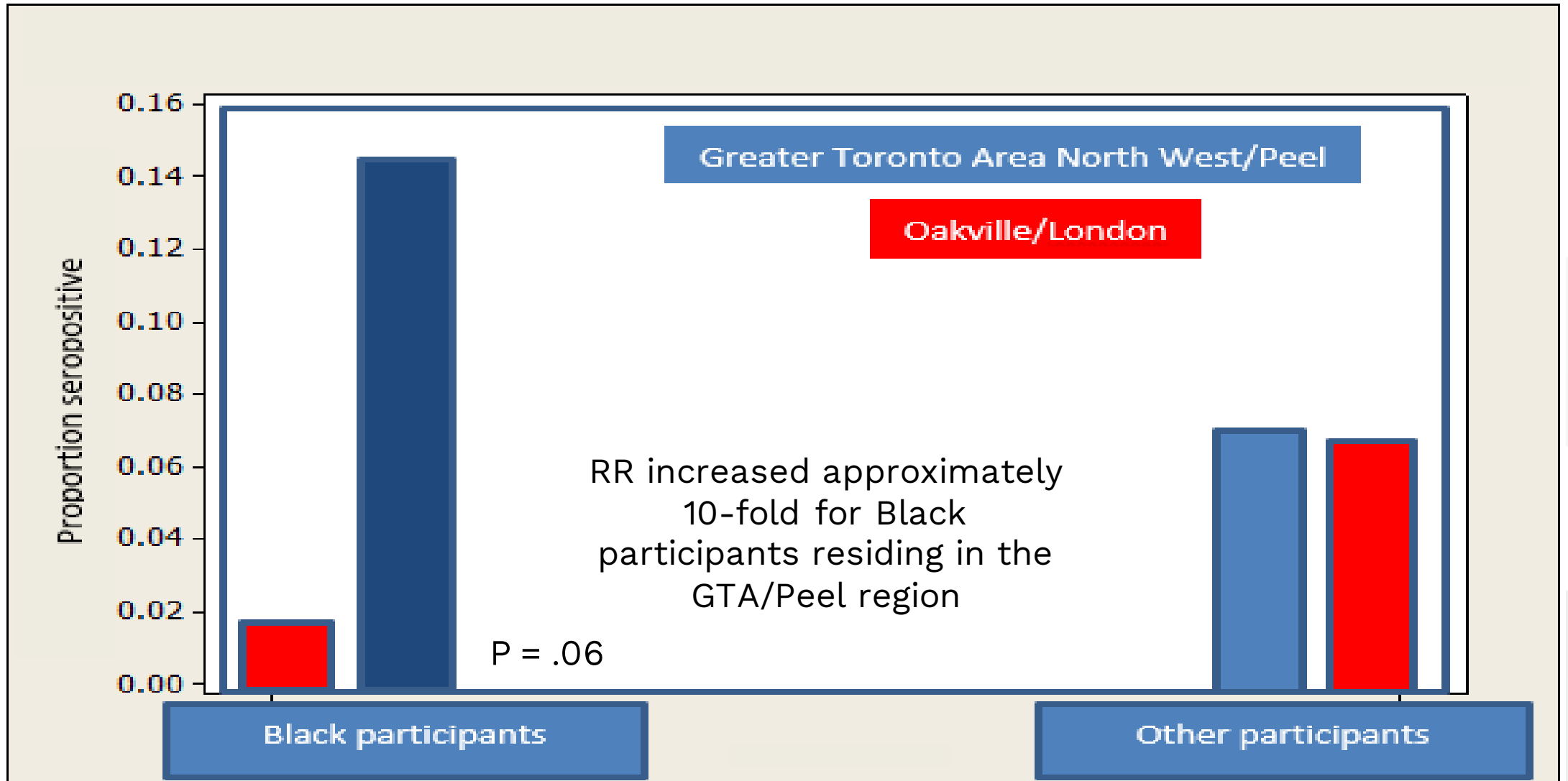


# SARS-CoV-2 Seroprevalence, Ontario Comparison of Subgroups

Group	Number of Subjects	Number Seropositive	Percentages (%)	P Values	Risk Ratios
<b>GTA Northwest vs London/Oakville</b>	206 111	26 4	12.6 vs 3.6	0.008	3.5 (1.3 – 11.4)
<b>Students/teachers vs non-frontline workers</b>	82 155	11 5	13.4 vs 3.2	0.005	4.2 (1.5- 11.6)
<b>Frontline workers vs non-frontline workers</b>	192 125	25 5	13.0 vs 3.2	0.01	3.3 (1.3 – 8.3)
<b>Student/teachers vs frontline workers</b>	82 192	11 25	13.4 vs 13.0	0.92	1.03 (.53 - 2.0)
<b>Underlying vs no underlying medical conditions*</b>	138 193	18 17	13.0 vs 9.3	0.29	1.5 (0.79 - 2.8)

\* London not included

# Proportions of Seropositive Black Participants Interaction between Race & Place of Residence



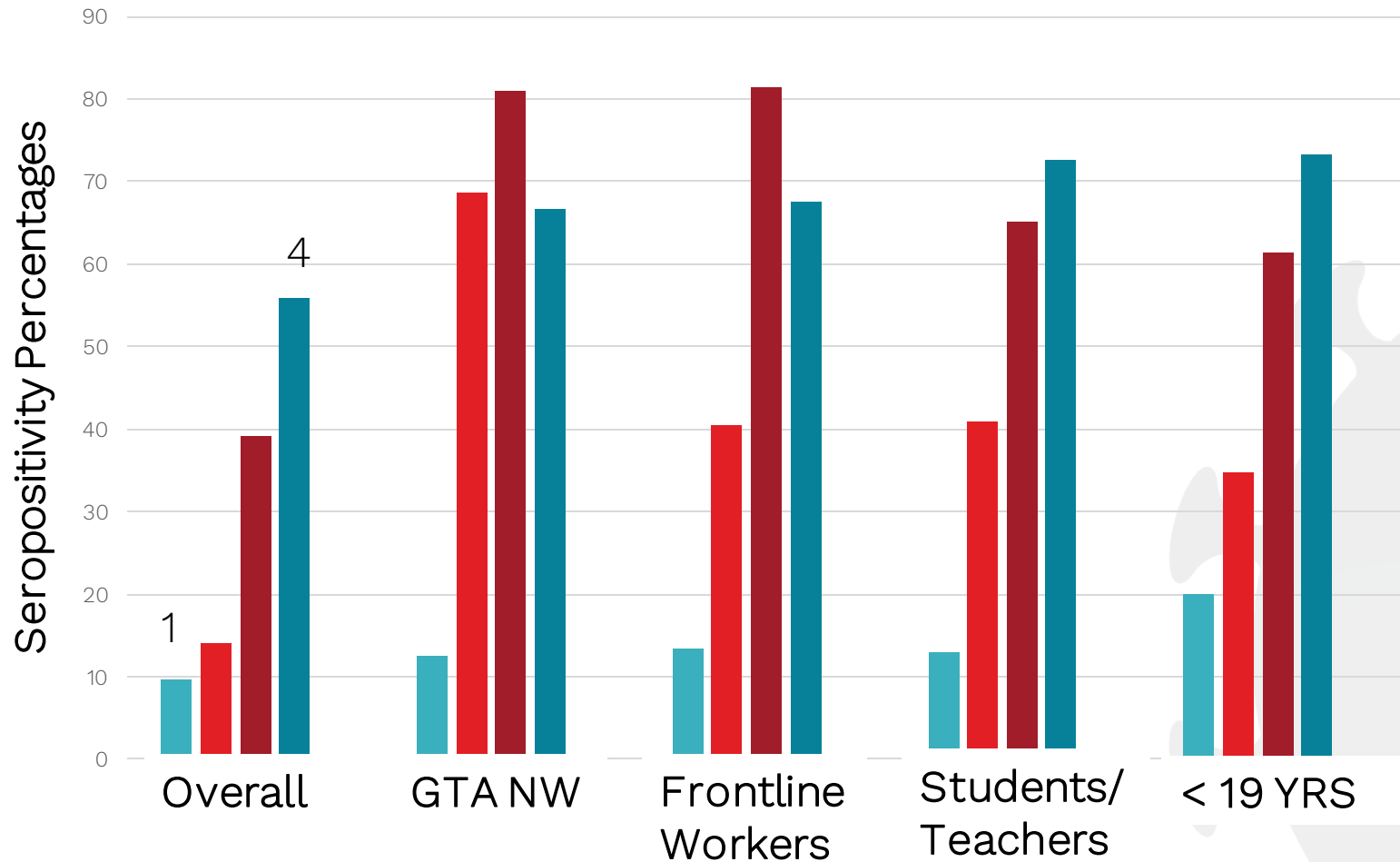
# seroMARK Project

## Trend in Infection-acquired Antibodies to SARS-CoV-2

Seropositivity Rates Among Selected Groups				
	Period #1 N (%)	Period #2 N (%)	Period #3 N (%)	Period #4 N (%)
Dates	Aug. to Dec. 2020	July to Dec. 2021	Jan. to June 2022	July to Dec. 2022
Overall positivity	9.6 (37/387)	14.0 (66/473)	39.2 (230/587)	53.5 (239/447)
GTA North West	12.6 (26/206)	68.6 (48/70)	80.9 (72/89)	70.6 (48/68)
Frontline workers	13.4 (11/82)	40.5 (30/74)	81.4 (57/70)	63.3 (38/60)
Students/teachers	13.0 (25/192)	40.9 (29/71)	65.2 (45/69)	58.9 (33/56)
Age under 19 yrs	20 (10/50)	34.8 (8/23)	61.5 (24/39)	73.9 (17/23)

# seroMARK Cohort

## Trend in Infection-acquired Antibodies to SARS-CoV-2





Four Corners  
Health Centre

- Primary Care
- Dental Care
- Counselling
- Foot Care

Physicians Health Centre  
905-677-9599

- Physician
- Harm Red
- Diabetes
- Communit

مرحباً بكم في عيادة أطباء أونتاريو  
Welcome



# Study Team & Collaborators

Upton D. Allen, Carl James, Michelle Barton, Julia Upton, Annette Bailey, Mariana Abdulnoor, Jean-Philippe Julien, Niranjana Kissoon, Alice Litosh, Peter Wong, Andrew Allen, Renee Bailey, Walter Byrne, Chantal Phillips, Maria-Rosa La Neve, Manuela Merreles-Pulcini, Alicia Polack, Cheryl Prescod, Arjumand Siddiqi, Alex Summers, Kimberly Thompson, Sylvanus Thompson, seroMARK Community Advisory Group.

Anne-Claude Gingras, Karen Colwill, Aaron Campigotto, Jonathan Gubbay, Agatha Jassem, Hugues Loemba, Matthew Hwang, Melanie Kirby, Nicole Wisener, Daniel Kaufmann, Mark Awuku, Kassia Johnson.

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Thank You

