



Long-term Care Immunity and Frailty
in Elderly COVID Study

Long term care resident SARS-CoV-2 vaccine response is modified by previous infection and CMV coinfection

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COVID-19
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Conflict of Interest

- None to declare

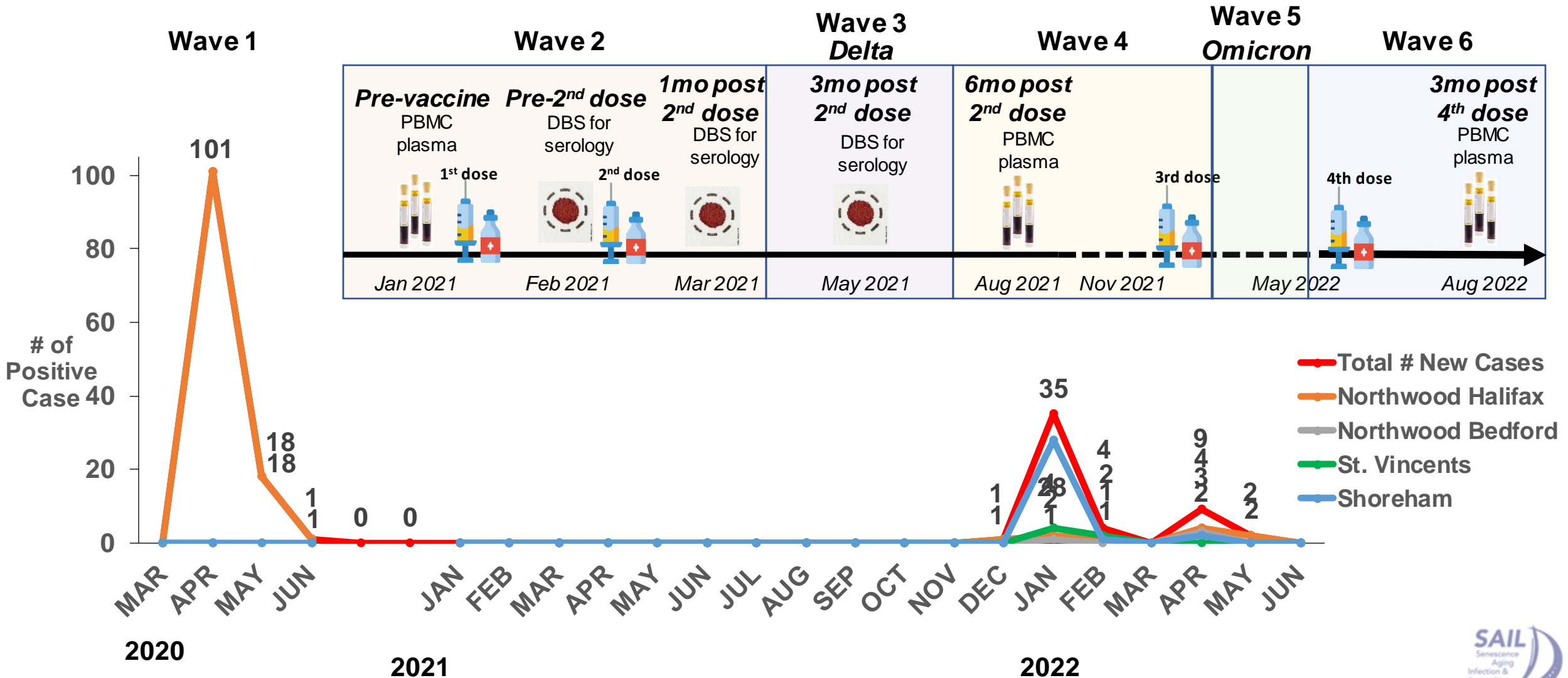
Study Design

RECRUITING SITES: Four LTCF in Nova Scotia

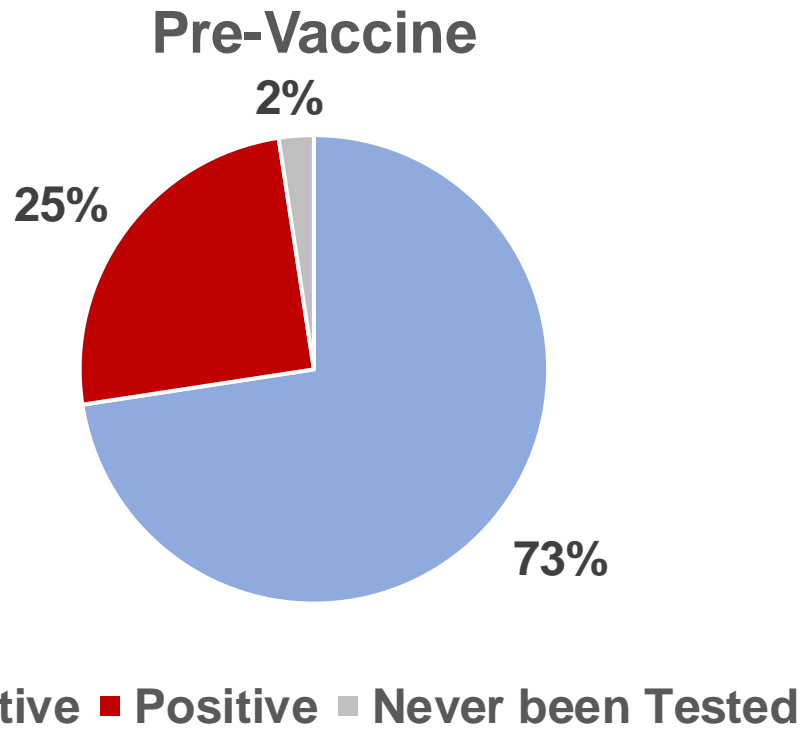
CONSENT: Conducted remotely with SDM using telephone and email follow-up OR in-person if the resident had capacity to consent

CLINICAL DATA COLLECTION: Chart review electronic records at LTC and NSHealth

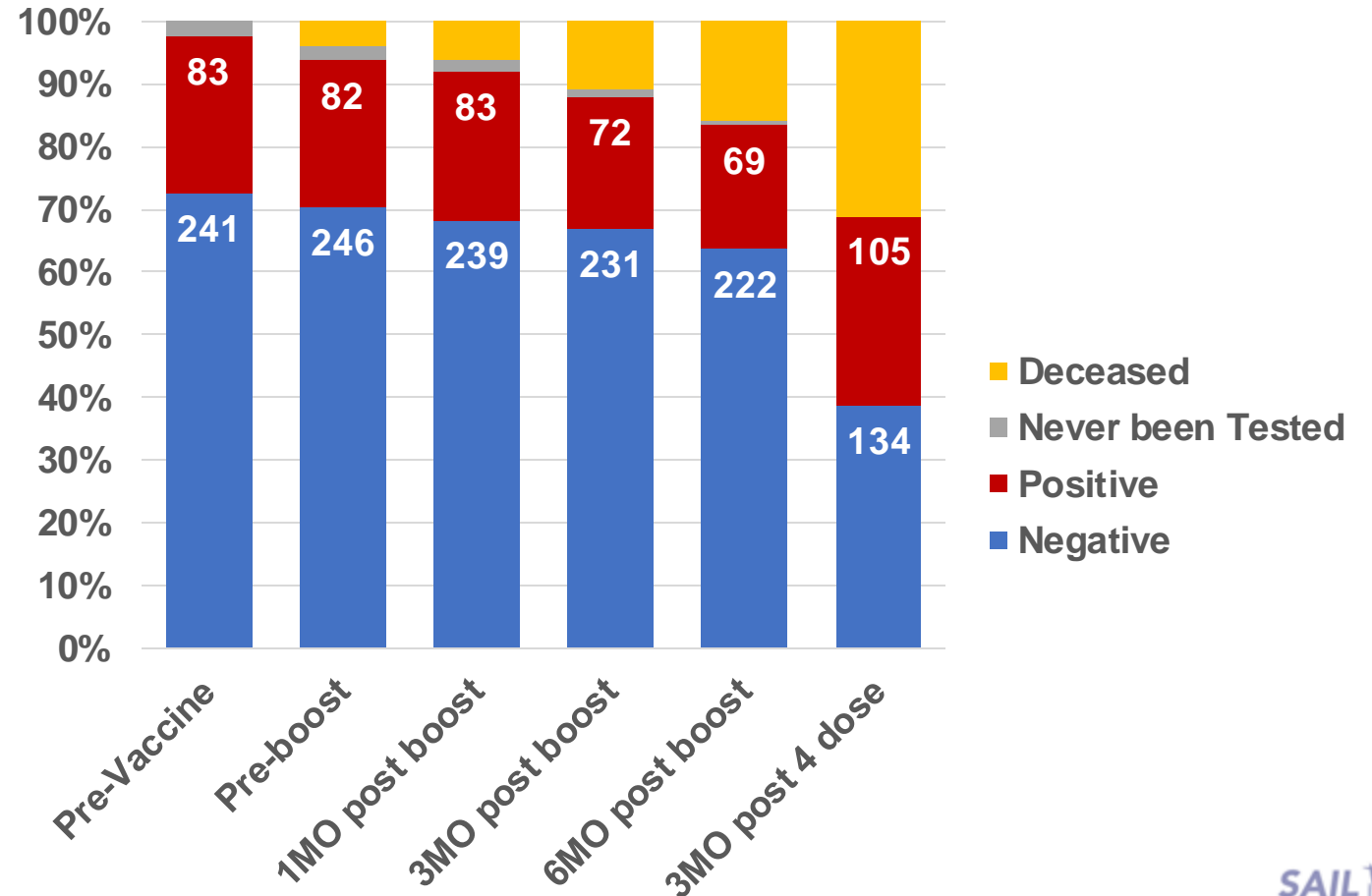
Longitudinal Sample Collection of Low COVID Penetrance LTCR Population (N=358)



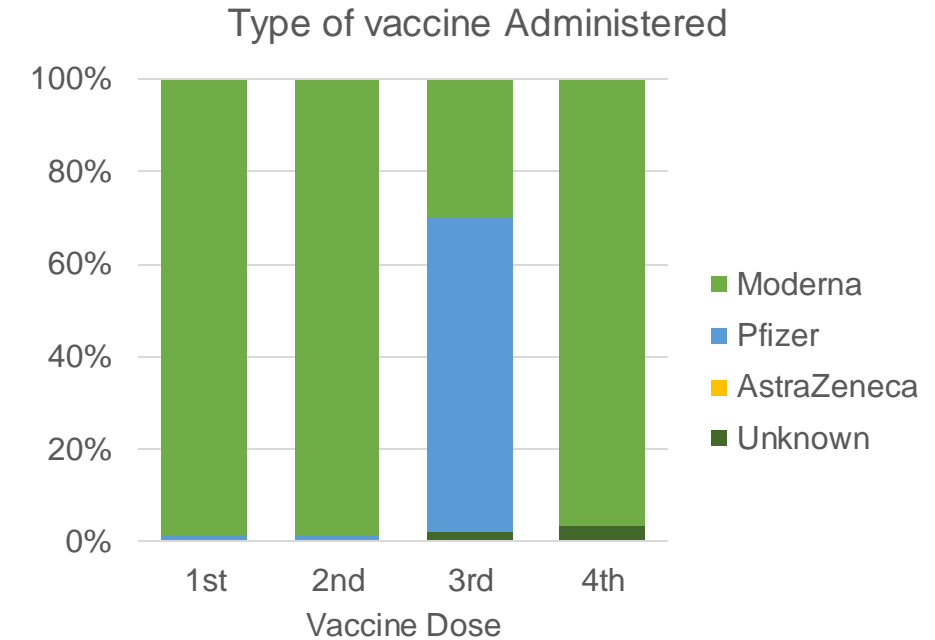
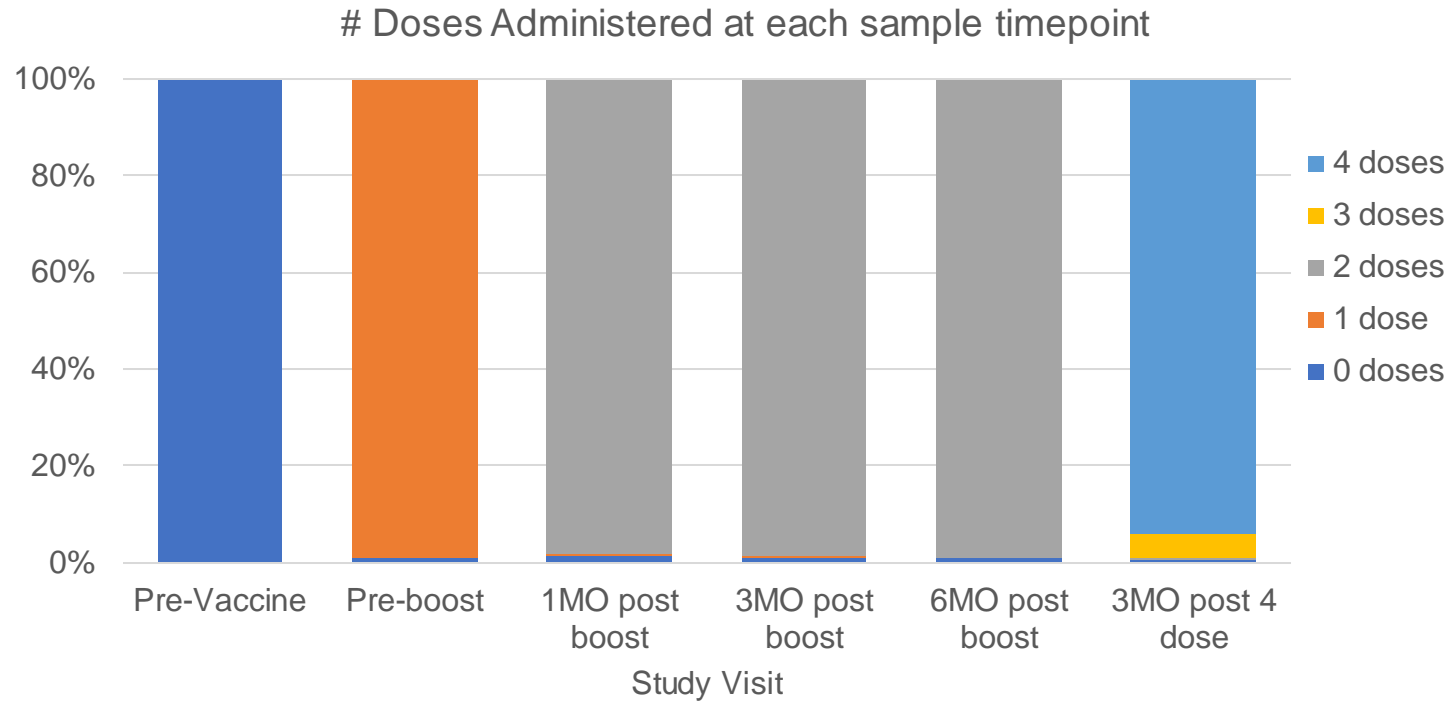
Low COVID Penetrance LTCR cohort with 60% retention at 3 month post 4th dose



Vaccine Cohort (N=356)

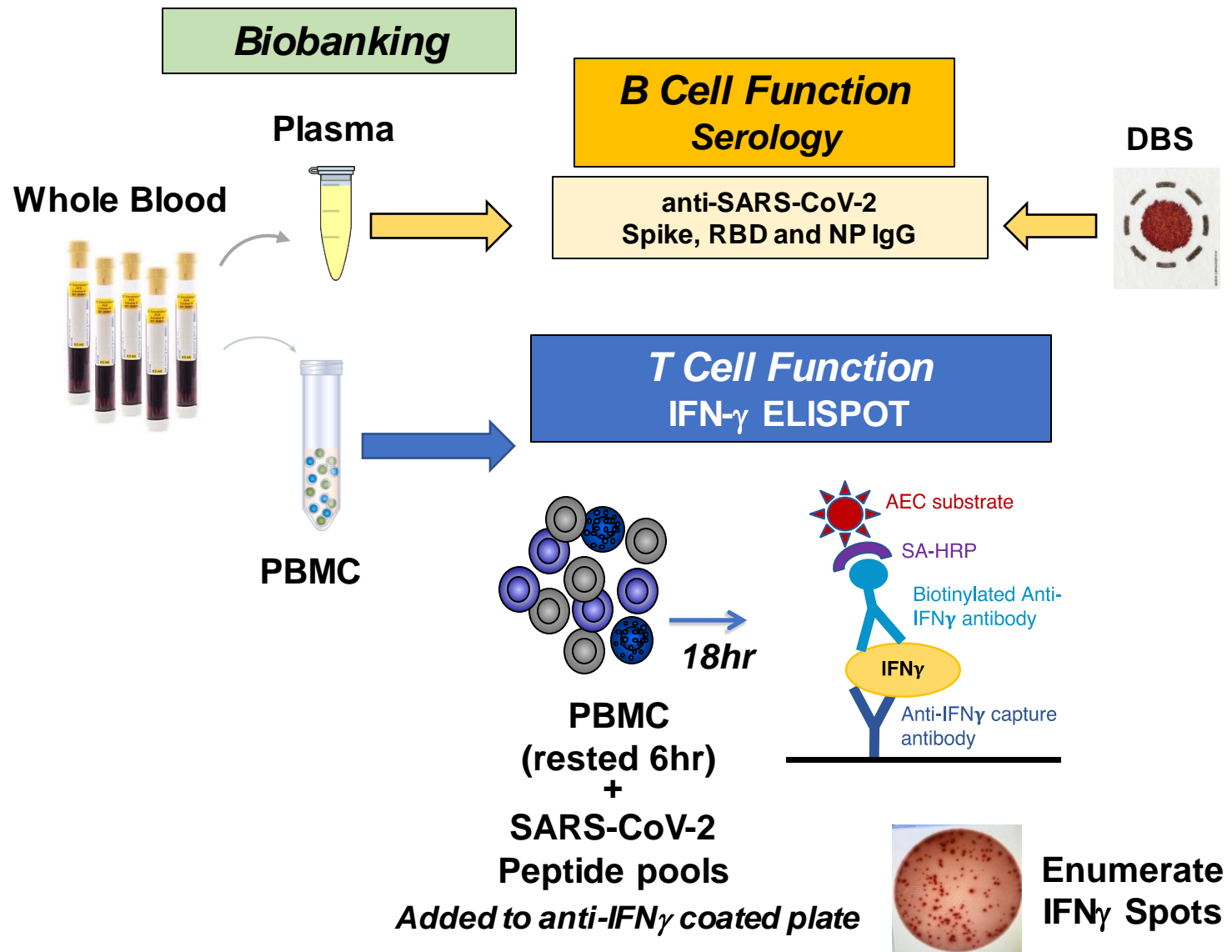


The vaccine cohort has high fidelity to series completion, primarily with mRNA vaccines



2nd Dose = 28 days post 1st dose
3rd Dose = 257 days post primary series
4th Dose = 185 days post 3rd dose

Methodology

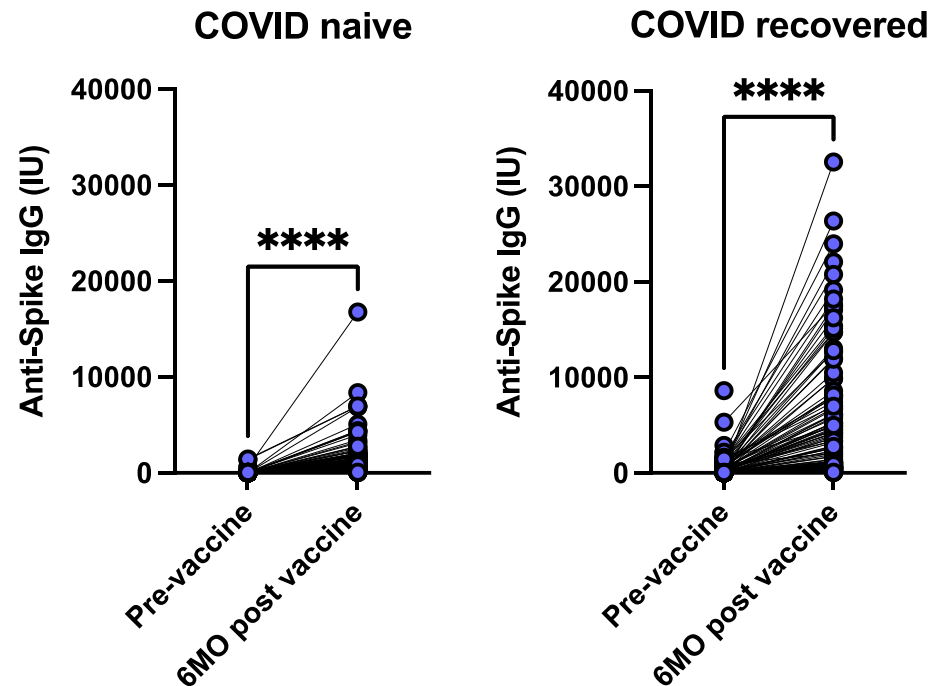


Clinical data collection

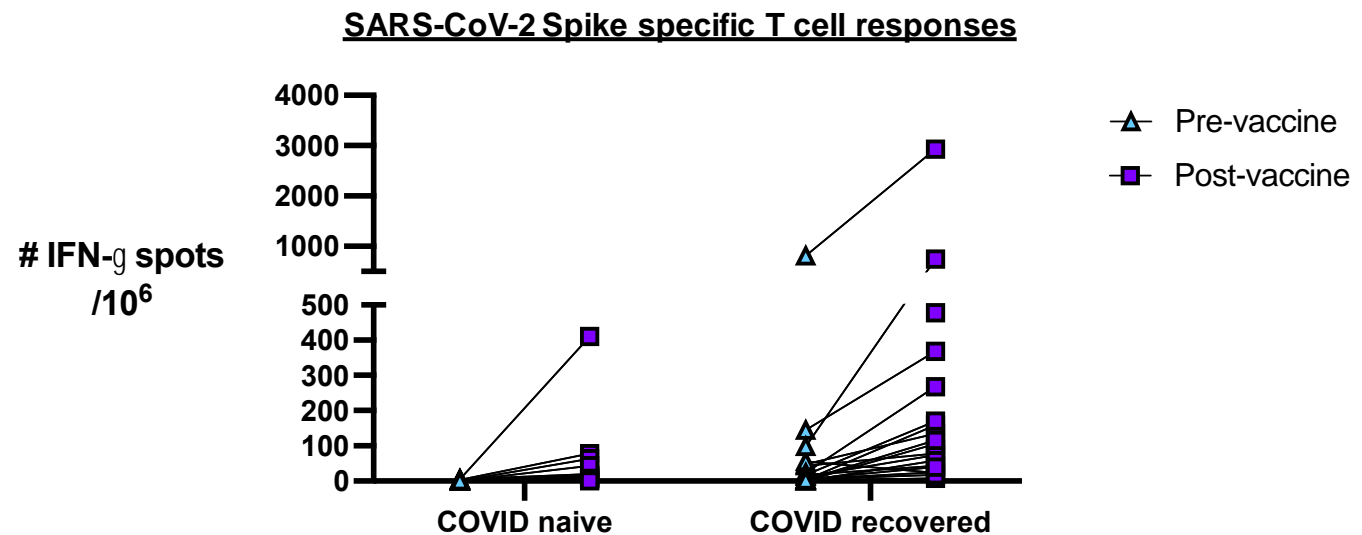
CMV co-infection
Frailty
Demographics
COVID history
Health history

LTC residents with hybrid immunity have increased vaccine responses

B cell immunity

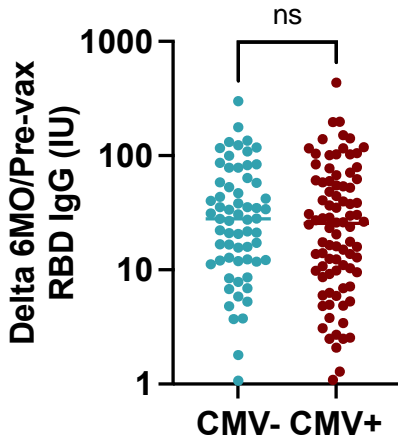


T cell immunity

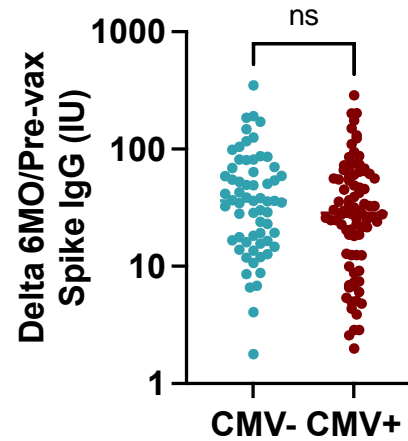


Vaccine induced B cell responses were not altered by CMV infection

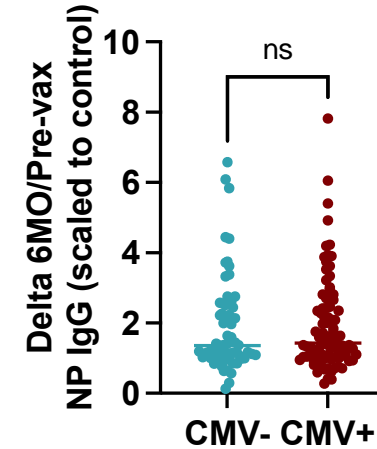
Vaccine Only (COVID naive)



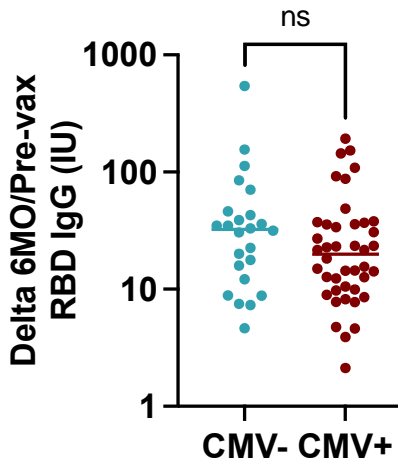
Vaccine Only (COVID naive)



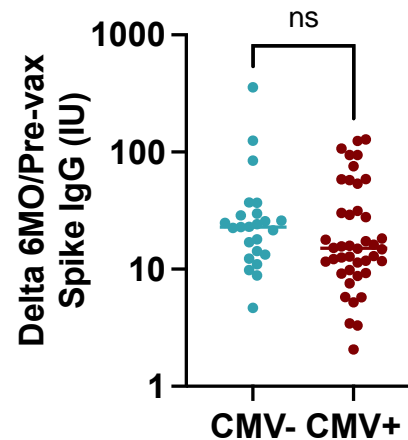
Vaccine Only (COVID naive)



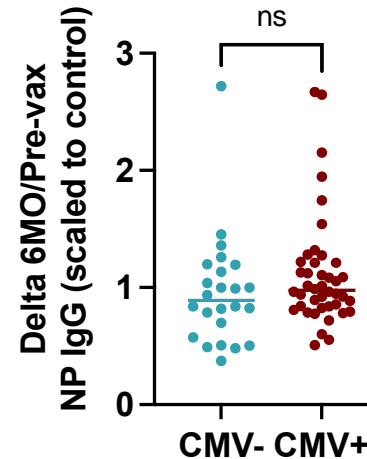
Hybrid immunity (COVID recovered)



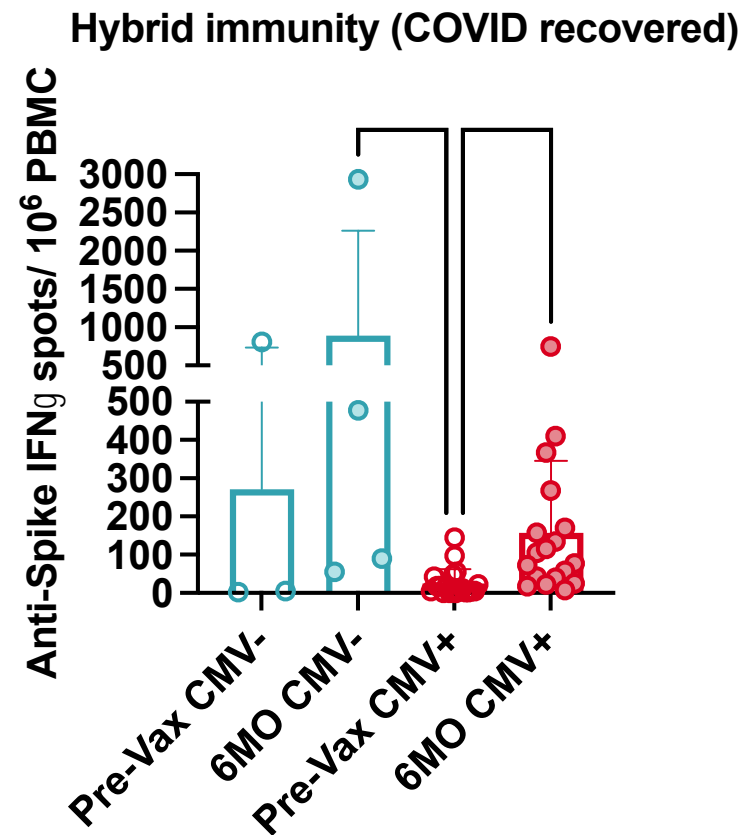
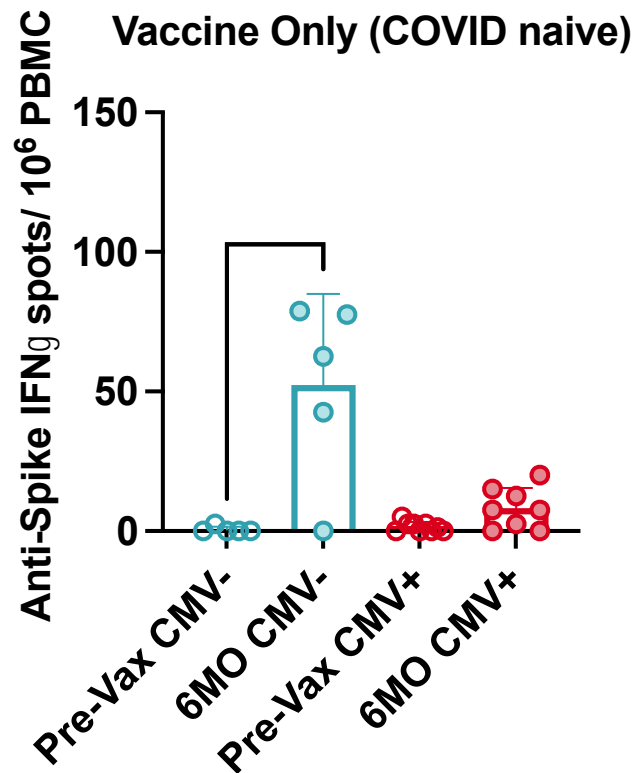
Hybrid immunity (COVID recovered)



Hybrid immunity (COVID recovered)



Vaccine induced T cell responses in COVID naïve LTC were greatest in CMV- individuals



Lessons Learned

Implementation Challenges

- Research administration
 - establishing relationships, ethics, human resourcing, account set-up
- Research during a pandemic
 - HR, outbreaks, shifting timelines, etc.
- Lymphopenia in elderly LTC, particularly in the context of COVID-19

Study Successes

- Research relationships in LTC
- Knowledge added
- Biobank

Knowledge Gained for Future Pandemic Research

- Implications for COVID-19 pandemic control for Canada
- Provincial / local public health
- Biobank as a resource for future pandemic preparedness

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NSH Phlebotomists



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