

Initial COVID-19 Vaccination is Highly Immunogenic and Safe: A Stop the Spread Ottawa Cohort Analysis

Alexa Keeshan¹, Yannick Galipeau², Aliisa Heiskanen¹, Erin Collins¹, Corey Arnold³, Raphael Saginur², Ronald Booth², Julian Little², Michaeline Mcguinty², Arianne Buchan², Angela Crawley³, Marc-André Langlois², and Curtis Cooper⁴

¹University of Ottawa School of Epidemiology and Public Health

²University of Ottawa

³University of Ottawa Department of Biochemistry Microbiology and Immunology

⁴Ottawa Hospital Research Institute

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Abstract

INTRODUCTION: Predictors of COVID-19 vaccine immunogenicity and the influence of prior SARS-CoV-2 infection require elucidation. **METHODS:** Stop the Spread Ottawa is a prospective cohort of individuals at-risk for or who have been infected with SARS-CoV-2, initially enrolled for 10 months beginning October 2020. This analysis focuses on safety and immunogenicity of the initial two doses of COVID-19 vaccine. **RESULTS:** Post-vaccination data with blood specimens were available for 930 participants. 22.8% were SARS-CoV2 infected prior to first vaccine dose. Cohort characteristics include: median age 44 (22, 56), 66.6% female, 89.0% white, 83.2% employed. 38.1% reported two or more comorbidities and 30.8% reported immune compromising condition(s). Over 95% possessed IgG spike and RBD titres 3 months post second vaccine dose. By multivariable analysis, increasing age and high-level immune compromise predicted diminishing IgG spike and RBD titres at month 3 post second dose. IgG spike and RBD titres were higher immediately post vaccination in those with SARS-CoV-2 infection prior to first vaccination and spike titres were higher at 6 months in those with wider time intervals between dose 1 and 2. IgG spike and RBD titres and neutralization were generally similar by sex, weight and whether receiving homogeneous or heterogeneous combinations of vaccines. Common post dose 1 vaccine symptoms included fatigue (64.7%), injection site pain (47.5%), headache (27.2%), fever/chills (26.2%), body aches (25.3%). These symptoms are similar with subsequent doses. **CONCLUSION:** The initial two COVID-19 vaccine doses are safe, well-tolerated and highly immunogenic across a broad spectrum of vaccine recipients.

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