Supplementary Material

1. Instructions for self-collecting swabs of anterior nares and oropharynx: We developed instructions and workflow for self-collecting swabs of anterior nares and oropharynx. Detailed written and accompanying pictorial and video instructions for self-collection of swab specimens were provided to participants. Participants were instructed to place swab specimens in viral transport media (MicroTest™ M4RT® Multi-Microbe Media; Remel, Inc., Lenexa, KS) after self-collection prior to shipping. Helpful reminders to subjects included refrigeration of samples once collected and until courier pick-up, as well as review of logistics and confirmation of courier pick-up time. Self-collection of both nasal and oropharyngeal swabs at home has been suggested as an alternative to traditional nasopharyngeal swab by health care professionals for testing SARS-CoV-2, which is often difficult to perform due to contact restrictions imposed during the COVID-19 pandemic.1-4 Therefore, at-home self-collection of both anterior nasal and oropharyngeal swabs from each participant to test for SARS-CoV-2 was implemented for this study. Concordance rates for positive PCR test results for both influenza and RSV between swabs performed by research staff and self-swabs was 99% (95%CI: 94-100) in our parent study (n=98). In addition, at Mayo Clinic, two independent studies were performed to determine the concordance between self-collected and health care professional-collected pharyngeal and nasal swabs. The results showed high concordance rates in streptococcal [95% (95% CI: 86-98)] and influenza [96% (95% CI: 90-98)] testing between patients and clinic staff.5,6

2. Study cohort: Our parent study cohort was composed of 2,325 subjects followed by primary care providers at Mayo Clinic, recruited as a community-based prospective cohort study of eligible adults ≥ 50 years old residing in southeast Minnesota. This cohort represents a stratified random sample by age, sex, race/ethnicity and SES of populations residing in Southeast
Minnesota (SEMN) counties. The inclusion criteria were: (1) SEMN: Olmsted County and nearby counties including Dodge, Goodhue, Mower, Fillmore, Winona, and Wabasha, residency established at least one year prior to consent; (2) Age 50 years or above at the time of consenting with a cap of 25% of subjects aged 50-59 years (to enroll a larger proportion of subjects ≥ 60 years of age); (3) Having a primary care physician at Mayo Clinic and a history of primary care visits to Mayo Clinic; (4) Authorization to use medical records for research; and (5) Written consent to participate in the study. The exclusion criteria were: (1) No authorization for use of medical records for research; (2) Residence outside of SEMN at the time of enrollment; (3) Development of acute respiratory infection (ARI) after October 1, 2019, but prior to enrollment and/or lack of availability for enrollment and swabbing within 5 days of symptoms; (4) Opting out for swab test and other study procedures; (5) Inability to ambulate or bedridden status; (6) Known cognitive impairment; (7) Evidence of an ongoing systemic bacterial, fungal, or viral infection within 7 days prior to enrollment; and (8) Any reason in the opinion of the study PIs that someone would not be able to complete the requirements of the study for safety or other reasons.

3. Assessment of exposure to and symptoms of COVID-19 by a survey at the time of testing and Description of the telephone survey:

We established detailed exposure and symptom screening algorithms based on the institutionally recommended guidelines derived from the CDC. COVID-related symptoms (eg, new fever, cough, and shortness of breath), history of travel, and close contact(s) with a person who had a laboratory-confirmed case of COVID-19 or had COVID-19 suggestive symptoms were captured. All subjects who agreed to perform a self-swab for COVID-19 testing were screened by a survey and institutional algorithm for COVID-19, and if symptomatic, referred to a nursing triage line to determine the need for testing, self-quarantine, or emergency evaluation. If referral to nursing
triage was not required or nursing triage did not recommend self-quarantine or emergency
evaluation, subjects were asked to perform a self-swab. If tested, the clinic test results available
in the electronic medical records were pulled and used for this study. The survey asked about
new fever, cough, and shortness of breath within the last 48 hours, and close contact with a
person who had laboratory-confirmed case of COVID-19 by Centers for Disease Control (CDC)
definition. If a COVID-19 close contact was endorsed, the type and timing of the contact was
recorded. If there were no confirmed COVID-19 close contacts, subjects were asked about
symptoms in other household members, if they were a health care provider with direct patient
care or an essential worker with recent exposure to symptomatic co-workers, if they traveled out-
of-state within the last 14 days, if they had ever been recommended for self-quarantine, and if
they had any of the following symptoms over the preceding 14 days: fever $\geq 100.5^\circ$F, subjective
fever, cough, shortness of breath, sore throat, diarrhea, chills, myalgias, loss of smell, loss of
taste, rhinorrhea, nausea or vomiting, abdominal pain, anorexia, headache, skin changes or rash,
inflammation of testes (males), and other self-reported symptoms. Subjects were also asked
about difficulties associated with regular daily activities, interactions with the health care system,
practicing self-quarantine, social distancing, and universal precautions (eg, masking in public,
hand hygiene), type of primary residence, current living situation (eg, number and ages of
household members), as well as work status and type.

4. Non-SARS-coV-2 virology, sociodemographic and clinical characteristics of the parent study:
In this parent study, we assessed infection with non–SARS-CoV-2 Coronaviridae (HCoV 229E,
NL63, and OC43) at GlaxoSmithKline lab and influenza A and B at the Clinical Virology Lab at
Mayo Clinic. We utilized baseline sociodemographic (age, sex, race/ethnicity, socioeconomic
status [SES] and rural residence by the US Census definition) and clinical data obtained at the
time of enrollment for the parent study (from July 23, 2019, to November 30, 2019). SES was measured by educational levels and validated HOUSES index which is based on 4 real property variables\(^7\) and demonstrated construct validity by showing its predictability of a broad range of health outcomes and care quality.\(^7\)\(^9\) Clinical data included smoking status, pre-existing comorbidities and measures for health care access. Pre-existing comorbidities were categorized by high-vs. low-risk conditions based on the CDC’s high-risk conditions for influenza in adults. Health care access was assessed by influenza vaccination and pneumococcal vaccination status.

References: