Large genomic clusters without plausible epidemiologic links were identified, reflecting the limited utility of genomic surveillance alone to characterize chains of transmission of SARS-CoV-2 during extensive community spread.

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Subject Category: COVID-19

The SHIELD Study: A preliminary analysis of nasal and oral antisepsis to prevent COVID-19

Julie Keating; Linda McKinley; Lin Zhao; KyungMann Kim; Thomas Friedrich; David O'Connor; Daniel Shirley and Nasia Safdar

Background: Povidone-iodine and chlorhexidine gluconate are commonly used antiseptics that have broad antiviral properties, including against SARS-CoV-2. Nasal and oral antisepsis is a possible option to reduce viral transmission; however, effectiveness data are limited. The acceptability of this method for adjunct infection control is also unknown. We are conducting a clinical randomized controlled trial (NCT04478019) to evaluate the effectiveness and feasibility of nasal and oral antisepsis to prevent COVID-19. **Methods:** Healthcare and other essential workers with in-person job duties were recruited into a 10-week clinical trial. Participation did not require in-person activities: all communication was web- or telephone-based, supplies were shipped directly to the participant, and participants self-collected specimens. Participants completed a 3-week intervention and 3-week control phases and were randomized to the timing of these phases (Fig. 1). During the 3-week intervention phase, participants applied povidone-iodine nasal swabs 2 times per day and chlorhexidine gluconate oral rinse 4 times per day following the manufacturers' instructions for use. Participants continued all usual infection control measures (eg, face masks, eye protection, gowns, hand hygiene) as required by their workplace. To measure effectiveness against viral transmission, participants collected midturbinate nasal swabs 3 times per week to measure SARS-CoV-2 viral load. Participants also self-reported COVID-19 tests they received and why (eg, symptoms or exposure). To assess acceptability, participants completed pre- and post-surveys about their perceived and actual experience with the interventions. Participants also self-reported adverse effects due to the intervention. **Results:** As of December 3, 2021, 221 participants (148 healthcare workers and 73 non–healthcare essential workers) had enrolled. Moreover, 20 adverse effects have been reported, including skin irritation, epistaxis, and mouth discoloration; 9 participants withdrew due to side effects. Laboratory analyses are ongoing to measure effectiveness in reducing SARS-CoV-2 viral load. We performed an interim analysis of intervention acceptability. Survey responses were given on a Likert scale of 1 (not at all) to 5 (extremely). Although 36% of respondents (n = 74) reported on the postsurvey that the intervention was less acceptable than they had expected on the presurvey, the overall acceptability measure was still relatively high (3.76) (Fig. 2). In addition, 76% of respondents reported that they would use the intervention in the future (n = 56). **Conclusions:** Participant recruitment is ongoing, and data continue to be collected to analyze effectiveness and feasibility. Preliminary data suggest that participants find the nasal and oral antisepsis intervention to be an acceptable option to complement standard infection control methods to prevent COVID-19.

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Effect of COVID-19 vaccination on transmission among healthcare workers in South Korea

Jiyun Kim; Jiwon Jung; Songhee Namgung; Jihye Jung; Sun Kyung Kim; Young-ju Lim; Eun Ok Kim and Sung-Han Kim

Background: SARS-CoV-2 infection of healthcare workers (HCWs) occasionally occurs via acquisition from their colleagues. Data regarding the infection rates of HCWs with close contact and non–close contacts of HCWs are limited. In addition, the protective effect of COVID-19 vaccination against transmission between HCWs is unknown. We evaluated the

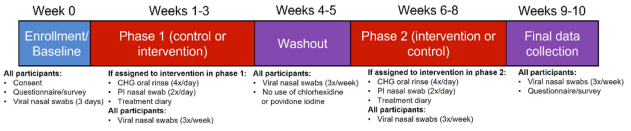

Fig. 1.

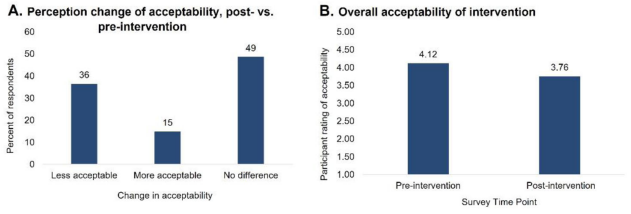

Fig. 2.

Table 1. Infection rate stratified by classification of contact, vaccination status of index and that of contacts, and vaccine type.

Value for infection rate	Close contact	Non-close contact	P value
Total	1.52% (18/1186)	0.86% (13/1507)	0.11
Stratification by vaccination status of index			
Infection rate	**Fully vaccinated index**	**Non-fully vaccinated index**	**P value**
Close contact	0.85% (7/820)	3.01% (11/366)	0.005
Non-close contact	0.83% (6/723)	0.89% (7/784)	0.90
Stratification by vaccination status of contacts			
Infection rate	**Fully vaccinated contact**	**Non-fully vaccinated contact**	**P value**
Close contact	1.15% (9/783)	2.23% (9/403)	0.15
Non-close contact	0.93% (7/752)	0.79% (6/755)	0.63
Subgroup analysis – during the delta variant being dominant			
Infection rate	**Fully vaccinated index**	**Non-fully vaccinated index**	**P value**
Close contact	0.85% (7/820)	5.88% (8/136)	<0.001
Non-close contact	0.83% (6/723)	0.75% (2/266)	>0.99
Infection rate	**Fully vaccinated contact**	**Non-fully vaccinated contact**	**P value**
Close contact	1.15% (9/783)	3.47% (6/173)	0.04
Non-close contact	0.93% (7/751)	0.42% (1/238)	0.69
Subgroup analysis – by vaccine type			
Infection rate from fully vaccinated index	**ChAdOx1 nCoV-19**	**mRNA vaccine (BNT162b2 or mRNA-1273)**	**P value**
Close contact	1.07% (7/654)	0% (0/69)	>0.99
Non-close contact	0.99% (6/608)	0% (0/64)	>0.99
Infection rate in fully vaccinated contacts	**ChAdOx1 nCoV-19**	**mRNA vaccine (BNT162b2 or mRNA-1273)**	**P value**
Close contact	1.25% (8/640)	1.12% (1/89)	>0.99
Non-close contact	0.99% (6/605)	1.11% (1/90)	>0.99

infection rates of HCWs with close contact and non–close contact of infected HCWs and the effect of COVID-19 vaccination on transmission among HCWs in a tertiary-care hospital in South Korea. **Methods:** This study was performed in a tertiary-care hospital in Korea. We analyzed the COVID-19 cases and contacts among HCWs from January to December 2021. We reviewed the vaccination status of confirmed and exposed HCWs, the type of vaccination, and the infection rate according to the contact. We performed subgroup analyses in individuals who had been diagnosed since July 2021 when the δ (delta) variant became the dominant strain in South Korea. Transmission was defined based on their spatiotemporal epidemiologic association. **Results:** During the study period, 173 HCWs had COVID-19, and 2,693 HCWs were exposed to them. Among them, 18 (1.52%) of 1,186 close contacts and 13 (0.86%) of 1,507 non–close contacts had a positive SARS-CoV-2 test (P = .11). When the index cases had been fully vaccinated, the infection rate of close contacts was 0.85% (7 of 820), whereas the infection rate of close contacts was 3.01% (11 of 366) when the index had not been fully vaccinated (P = .005). However, the infection rate of non–close contacts was not different according to the vaccination status of index (0.83% vs 0.89%; P = .90). During the period of δ (delta) variant being dominant, the infection rate of close contacts was significantly lower when the index case had been fully vaccinated index than in cases with a non–fully vaccinated index case (0.85% vs 5.88%; P < .001). **Conclusions:** Transmission to colleagues was significantly lower from vaccinated HCWs than from nonvaccinated HCWs, and this finding was more significant in the era of the δ (delta) variant. Our findings support the importance of vaccination in HCWs.

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COVID-19 vaccine knowledge, beliefs and attitudes among Oregon healthcare provider types

Lisa Corley Stampke; Jessica Osborn and Judith Guzman-Cottrill

Background: During this pandemic, the public has struggled to navigate the abundance of COVID-19 vaccine misinformation, and it is unclear how this misinformation has affected medical providers and their recommendations for patients. We sought to understand differences in COVID-19 vaccine knowledge, beliefs, and attitudes among Oregon healthcare provider types and regions of practice (rural, suburban, urban). **Methods:** A 36-question survey was constructed using Qualtrics with consultation from a survey methodologist. The survey was reviewed and approved by OHSU IRB and distributed via listserv or social media posting to provider societies in Oregon, including nurse practitioners (NPs), naturopathic doctors (NDs), physician assistants (PAs), doctors of medicine (MDs), doctors of osteopathic medicine (DOs), or practioners with a bachelor of medicine–bachelor of surgery (MBBS), and via the Oregon Health Authority (OHA) immunization practice listserv. The survey accepted responses from July 9 to August 12, 2021. Participants were volunteers and responses were anonymous. **Results:** We collected 101 responses. Among them, 87 participants completed 100% of survey questions. Survey respondents were predominantly White females aged 41–50 years with an MD, DO, or MBBS. The overall COVID-19 vaccination rate of respondents was 94.6%. The vaccination rate was highest among the 4 NDs and 7 PAs at 100%, followed by 78 MDs, DOs, and MBBSs at 96.2%, and 12 NPs at 75%. Of NP respondents, 67% practiced rurally; 25.6% of MDs, DOs, and MBBSs practiced rurally; and 25% of NDs and 28.6% of PAs practiced rurally. In total, 22% of NPs did not feel comfortable recommending the COVID-19 vaccine to patients, compared to 1% of MDs, DOs, and MBBSs and 0% of NDs or PAs. All provider types had high rates of disagreement with the statement that the COVID-19 pandemic had increased their trust in vaccine safety: 44% of NPs; 29% of PAs; 25% of NDs; and 7% of MDs, DOs, and MBBSs. Among 19 rural providers, 19% indicated mistrust in

Figure 1a: Percent "strongly disagree" or "somewhat disagree" response to below statements about attitudes toward vaccination by provider type

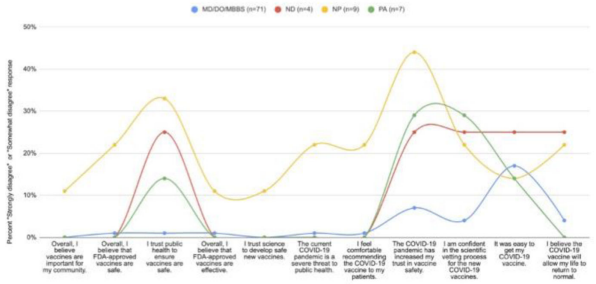
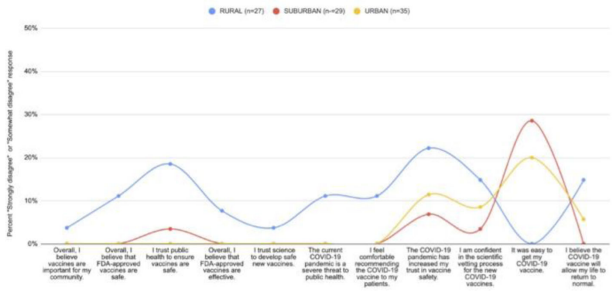


Figure 1b: Percent "strongly disagree" and "somewhat disagree" responses to the below statements about attitudes toward vaccination by region of practice



public health to ensure that vaccines are safe versus 3% in suburban areas and 0% in urban areas. **Conclusions:** COVID-19 vaccine hesitancy is prevalent among healthcare providers and may be higher in NPs and those practicing rurally. Unfortunately, the response rate of NPs was low. Future research should focus on these providers to better understand their knowledge, beliefs, and attitudes about COVID-19 vaccines. These results can also inform future targeted vaccine education to healthcare providers during public health crises.

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SARS-CoV-2 environmental contamination in COVID-19 patient rooms in a VA medical center

Kristen Gibson; Jennifer Ridenour; Kyle Carver; Julia Mantey; Jane Deng and Lona Mody

Background: SARS-CoV-2, the virus causing COVID-19 infection, can significantly contaminate environmental surfaces and can remain viable on surfaces for up to 9 days. Although respiratory route remains the most significant mode of transmission, fomites and environmental sources of infection remain a concern for healthcare personnel who are working in dedicated COVID-19 units. We investigated the extent of detectable SARS-CoV-2 contamination in the environment of COVID-19 patients at a single VA hospital, with the intent of identifying potential high-touch surfaces at risk for viral contamination, which could be used to inform the development of simple COVID-19 prevention strategies. **Methods:** We conducted a cohort study at 1 VA hospital in a unit housing adult veterans admitted with COVID-19 between October and December 2020. In total, 11 swab specimens were collected for PCR analysis (SARS-CoV-2 *env* gene) from environmental surfaces inside and just outside the rooms of COVID-19 patients one time. Retrospective chart reviews were conducted to provide the SARS-CoV-2 epidemiologic context for environmental