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Objectives: COVID-19 booster uptake has remained poor among healthcare workers (HCWs) despite evidence of improved immunity against the SARS-COV-2 δ (delta) and ο (omicron) variants. Although most studies have used a questionnaire to assess hesitancy, we aimed to identify factors affecting booster hesitancy by examining actual vaccine uptake across time. **Methods:** COVID-19 vaccination database records were extracted for HCWs working at 7 Singaporean public primary-care clinics between January and December 2021. Data included sex, profession, place of practice, vaccination type, and dates. Time to booster was calculated from the date of vaccination minus the date of eligibility. The $\chi 2$ test was used to compare the relationship between first dose and booster hesitancy. The Kaplan-Meier method and the log-rank test were used to evaluate differences in cumulative booster uptake. Multivariate Cox regression was used to investigate predictors of timely booster vaccination. The vaccination rate was charted across time and was corroborated with media releases pertaining to legislative changes. **Results:** Of 891 primary-care HCWs, 877 (98.9%) were fully vaccinated and 73.8% of eligible HCWs had taken the booster. HCWs were less booster hesitant (median, 16 days; range, 5–31.3) compared to the first dose (median, 39 days; range, 13–119.3). First-dose–hesitant HCWs were more likely to be booster hesitant (OR, 3.66; 95% CI, 2.61–5.14). Adjusting for sex, workplace, and time to first dose, ancillary HCWs (HR, 1.53; 95% CI, 1.03–2.28), medical HCWs (HR, 1.8; 95% CI, 1.18–2.74), and nursing HCWs (HR, 1.8; 95% CI, 1.18–2.37) received boosters earlier than administrative staff. No temporal relationship was observed for booster uptake, legislative changes, or COVID-19 case numbers. **Conclusions:** Vaccine hesitancy among HCWs had improved from first dose to booster, with timely booster vaccination among medical and nursing staff. Tailored education, risk messaging, and strategic legislation might help reduce delayed booster vaccination. This study was approved by the National Healthcare Group (NHG) Domain Specific Review Board (DSRB), Singapore on December 28, 2021 (Reg No. 2021/01120).

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Subject Category: COVID-19
Abstract Number: SG-APSIC1054
Sputnik-V postvaccination immunologic responses in nasal mucosa: A prospective cohort study in Kazakhstan

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Objectives: Sputnik-V (Gam-COVID-Vac) is a recombinant adenoviral (rAdv) vector-based, COVID-19 vaccine now used in >70 countries. Mucosal immunity is thought to be important for protection against COVID-19. We did a prospective cohort study to assess Sputnik-V–elicited mucosal SARS-CoV-2 antibody responses. **Methods:** We divided 82 COVID-19–free participants into prior COVID-19 and no prior COVID-19 groups and followed them at day 21 after Sputnik-V dose 1′ (rAd5) and dose 2′ (rAd26). Nasopharyngeal swabs and blood were collected to perform SARS-CoV-2 diagnostic and immunologic assays. SARS-CoV-2 spike-specific IgG and IgA ELISAs were performed on both nasal swabs and blood. SARS-CoV-2 real-time RT-PCR testing was performed to exclude infectious influencing. **Results:** Nasal S-IgG levels increased 25-fold after dose 1′ ($P < .001$) and remained high after dose 2 in all participants. Prior COVID-19 exposure was associated with both elevated baseline mucosal IgG and IgA and higher postvaccination IgG, but not IgA, boost. Nasal IgA levels increased 16.5-fold after dose 1′ ($P < .001$) and remained high after dose 2' in all participants. Compared to dose 1′, Sputnik-V dose 2′ did not further increase either mucosal IgG levels ($P = .626$) or IgA levels ($P = .609$). **Conclusions:** A single dose of Sputnik-V boosted mucosal SARS-CoV-2 immunity. The effects of Sputnik-V dose 2′ on mucosal immunity were minimal. These findings indicate (1) that intramuscularly administered adenoviral vaccines enhance SARS-CoV-2 immunity via both systemic and mucosal routes and (2) that cost-effectiveness and the efficacy of Sputnik-V vaccination could be improved by adjusting the current prime-booster regimen and extending the 21-day interval between the doses. Trial registration: Registered on ClinicalTrials.gov (no. NCT04871841).

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Abstract Number: SG-APSIC1119
N95 mask concordance amongst female Muslim healthcare workers undergoing mask fitting with and without tudung

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Objectives: In August 2021, the Ministry of Health, Singapore revised the uniform policy in public hospitals to allow female Muslim staff, including nurses, to wear the tudung as an add-on to their uniforms. Institutions were advised that incorporation of the tudung should still align with current infection prevention guidelines. On May 2, 2021, in response to evolving evidence of SARS-CoV-2 transmission, our institution adopted the use of N95 masks for all HCWs in clinical settings. Prior to this revision in uniform policy, most female Muslim staff were mask fitted without tudungs. No existing international guidance recommends whether mask refitting of should be conducted with tudungs. As such, we looked at the N95 mask concordance for these staff undergoing mask fitting. **Methods:** Between November 1, 2021, and January 14, 2022, we mask fit-tested all new staff and refitted existing staff both with and without the tudung. We conducted qualitative fit-testing using their personal tudung, and we tested 2 models of N95 mask: 3MTM 1870+ and AIR+. When an HCW only passed the fitting of 1 or none of the models, additional N95 mask fit-testing was conducted with other available mask models according to our department's existing workflow. **Results:** In total, 334 staff underwent N95 mask fitting. Overall, 326 (97.6%) passed with the same N95 mask models both with and without the tudung. The remaining 8 staff (2.4%) had passed 2 N95 mask models without the tudung but required a different N95 mask model while wearing the tudung. No staff required quantitative fit testing. **Conclusions:** N95 mask concordance for female Muslim staff undergoing fit-testing both with and without the tudung was high at 97.6%. Further evaluation of the 8 staff who did not show concordance could be retested using a quantitative fit-testing method.

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Immunogenicity of Gam-COVID-Vac and Sinopharm BBIBP-CorV vaccines in seropositive and seronegative adults

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