



Correspondence

Booster vaccinations protect shipboard personnel from COVID-19

The virus that causes COVID-19 illness is readily transmissible person-to-person. Personnel living and working in the very close-contact environment of a ship are at especially high risk of contracting COVID-19. (Kasper et al., 2020) Vaccinations are very effective at preventing COVID-19 illness, although concerns have increased about breakthrough infections after vaccination, particularly by new variants of the virus. (Antonelli et al., 2022; Andreato-Santos et al., 2022) We report the recent experience of a shipboard crew who were exposed to COVID-19, yet appeared to be well protected by receipt of recent COVID-19 booster vaccinations.

The ship's crew included 31 healthy adults, 2 female and 29 male, ages 27 to 65 years. A male crewmember returned to the ship from personal travel that included commercial airline flights and substantial contact with other travelers in Dec 2021. One day after return, he developed symptoms of sore throat, runny nose, cough, and subjective fever. The following day, his rapid antigen test was positive for the virus that causes COVID-19. After diagnosis, he convalesced in a separate cabin aboard the ship; his symptoms resolved after five days and he was released from isolation after 10 days. He had close exposure to all 30 fellow crewmembers in working, eating, and berthing spaces over the two-day period before COVID-19 was diagnosed. He had minimal exposure after moving to shipboard isolation and all crewmembers wore cloth facemasks in working spaces for 10 days after exposure.

All ship crewmembers were evaluated with antigen tests one day after the COVID-19 case was identified, and again five days later. All tests were negative. No other crewmembers developed symptoms consistent with COVID-19 in more than two weeks follow-up after exposure.

The ill crewmember had received a single dose of Ad26.COV2 [Janssen] vaccine nine months prior to illness, and no booster vaccination. All other crewmembers were fully vaccinated against COVID-19, as follows: 12 received two doses of BNT162b2 [Pfizer] vaccine, 8 received two doses of mRNA-1273 [Moderna] vaccine, and 10 received single dose of Janssen vaccine. In addition, 25 members received booster doses of either Pfizer vaccine (12 members) or Moderna vaccine (13 members) within six weeks before exposure to the ill crewmember. Among the 5 crewmembers without booster doses, 4 were ineligible based on dates of their primary Pfizer vaccinations, and 1 member had declined booster.

Conclusions about this experience may be limited by reliance on antigen tests to diagnose COVID-19. More advanced testing, or sequencing to identify viral variants, was limited in this shipboard

environment. Nonetheless, COVID-19 infection was highly likely in the affected crewmember, based on symptoms and travel exposure, in concert with positive antigen testing. (Routsias et al., 2021).

The absence of additional cases in this very close-contact shipboard environment is further evidence of the value of vaccination, (Shah et al., 2021) and particularly recent booster vaccination, in protecting from COVID-19.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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