What the NBA “bubble” can teach us about COVID-19

JUL 8, 2021

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Professional basketball players run, jump, sweat and bump each other every day on indoor hardcourts, and might seem like perfect targets for highly transmissible SARS-CoV-2. But in 2020, the National Basketball Association (NBA) ventured to protect its players from infection while completing its season. And it succeeded.

Athletes and other participants who tested positive for infections but who followed Centers for Disease Control and Prevention (CDC) guidelines to isolate for 10 days after a positive test or when COVID-19 symptoms first appeared did not pass on their infections, according to a recently published study.

In *JAMA Internal Medicine*, researchers published an investigation of the NBA "bubble" campus in Orlando, Florida, that allowed teams to play against each other with only limited contact with the outside world.

The retrospective cohort study used data collected from June 11–Oct. 19, 2020, as part of the NBA's closed campus occupational health program in Orlando. The camp required daily COVID-19 testing and restricted outside access. Nearly 4,000 NBA players, staff and vendors participated in the program.

1% tested positive at start

Not all of the participants entered the bubble entirely free from the coronavirus. About 1% had previously been infected and tested positive, even beyond 10 days after symptoms appeared. They were termed "persistently positive" and considered one of the most important groups to track.

Most players, staff and other attendees had reported their infection before the camp began, but a few were infected when they arrived at the bubble—that is, in arrival quarantine. Nearly all, about 92%, were tested daily, including vendors who lived at home, but tested in the bubble. Tests included daily
RT-PCR testing and ad hoc serological testing for SARS-CoV-2 IgG antibodies.

"The possibility of viral transmission from individuals with persistently positive SARS-CoV-2 RT-PCR test results is particularly concerning in certain settings, including competitive sports, as the nature of the activity necessitates close physical contact, often without masking, frequent hand hygiene, and other precautions," the authors wrote.

Among the persistently positive group, players, coaches, referees and other participants engaged in at least 1,480 person-days of indoor, unmasked contact events or situations (about 51 days per individual) during their period of persistent positive test results.

**Generalizable outside the NBA?**

The good news: no transmission events or secondary infections were detected following contact. Though they intermittently or persistently tested positive on sensitive RT-PCR tests, the test participants remained asymptomatic and were able to participate in games.

What does it mean for COVID-19 patients in general?

"Our study suggests that individuals who continue to test positive by RT-PCR for SARS-CoV-2 after meeting CDC criteria for discontinuation of isolation were not infectious to others during regular unmasked exposures," says the article. "Medical teams allowed these individuals to return to team activity after they fulfilled the CDC criteria in combination with the absence of symptoms and elevated RT-PCR Ct values to indicate that they were no longer infectious. … As such, our results support the safety of the time-based CDC public health recommendations regarding discontinuation of isolation precautions."

Does that mean that 10 days of isolation protects everyone from infection passed on from people who has already sustained a COVID-19 infection? Despite the apparent success of the NBA approach to protecting players from COVID-19 during one of the oddest professional basketball seasons ever, the results should not be taken as definitive, according to a *JAMA Internal Medicine* editor's note that accompanies the original investigation.

"In many ways, the NBA bubble season, with a fixed population of players and supportive personnel who participated in daily testing and many who were exposed regularly to high-risk indoor, unmasked, close-contact activities, was an ideal experiment to test the transmissibility of persistently positive individuals," says the editor's note.

"However," the editor's note says, "this was a group of predominantly young, healthy individuals, and none of the persistently positive individuals in this study required hospitalization. ... As such, these
results should not be generalized to those who are immunocompromised or those with severe COVID-19 infections."

Read the CDC's most recent guidance on ending isolation for adults with COVID-19. Visit the AMA COVID-19 resource center for clinical information, guides and resources, and updates on advocacy and medical ethics.